

The Three Tasks: YHWH's¹ Answer to Environmentalist Critics?

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Abstract: IUCN/UNEP/WWF called for a dialog to reach 'a clear statement of the principles of human conduct within the world of nature' as an ethic for sustainable development. The creation story in the *Book of Genesis* is perhaps the most basic Scriptural reference common to the Abrahamic religions (Judaism, Christianity, and Islam). In recent decades it has come under fire from environmentalists led by Lynn White Jr, focusing on verse 1:28, which seems to talk of man's legitimate domination of the rest of creation. A radical re-interpretation suggests that 1:28 was already superseded inside *Genesis*, so that *Genesis* itself provides the desired statement. It takes literally the stewardship tasks first given directly to man by YHWH:

'Tend the Garden' *Gen.* 2:15

'Name the Species' *Gen.* 2:19

[Noachian Flood specifically erases 1:28 *Gen.* 6:1, 5-7, 11-13]

'See that They Prosper' *Gen.* 8:17 (corrected restatement of 1:28).

(This might suggest an acceptable way to bring fundamentalists into eco-activism.) Babylonian and mediaeval rabbis extended these antecedents and related instructions in the Pentateuch into *Tsa'ar ba'ale hayim*, (concern for all life), which, although little known outside of rabbinical circles, is a responsible and highly developed tradition with much practical experience, available for use or refinement; an approach wholly compatible with Buddhism and related Eastern philosophy, and a possible candidate for world acceptance. There are, however, those willing to do whatever it takes to prevent us from achieving any such greening of religion.

Keywords: Creation story, Dominion vs stewardship. Ecotheology, Environmental ethics, Fig-tree parable, Green religion, Planetary overload, Population, Sustainability, *Tsa'ar ba'ale hayim*, 'Wise Use'

The Problem

Global warming (now 0.8°C temperate, 2.5°C Antarctic rim), fisheries wars stemming from depleted oceans (commercial marine biomass is <10% of its pre-1500 value²), spreading deserts, dwindling temperate forests and burning rainforests, UV-induced skin cancers, sea-level rise (now 20 cm), ground-water depletion and pollution, acid rain, soil salinization and erosion, increasing environmental cancers and endometriosis, diminishing sperm counts, habitat destruction, species extinction, and similar widespread symptoms have a common cause.³ Human behavior has overwhelmed the homeostatic self-repairing ability of the natural environment. This cause has two components, which interact as sketched in Fig. 1. The first is qualitative: our behavior has not been guided by knowledge of how ecosystems function. The second is quantitative: destructive behavior — be it Engel's *failure of citizenship*⁴ or Demosthenes' *love of money* — which was repairable at a population of 3 gigapeople⁵, is irreversible at 6 gigapeople.

It is currently politically incorrect to discuss overpopulation, and many commentators are pleased to claim that doomsayers have been consistently wrong. However, such technological optimists invariably think only in terms of human food, longevity, and income.⁶ None of the problems cited above is recognized as population-dependent, and the plight of other species is simply ignored.

The end point of Fig. 1 has been eloquently described⁷, and it is the default condition — the one we reach unless we deliberately decide to do something else. Its final thermodynamically limited population density is that of downtown Manhattan; neither animals nor plants survive, and food is 'enzymatically resynthesized from human wastes'. Living conditions (an 8-m³ 'apartment', with a choice of friends from 10 million people within walking distance) would be an improvement for most of the world's people. Fremlin suggested, 'The extrapolation from the present life of a car-owning flat-dwelling office-worker to such an existence might well be less than from that of the neolithic hunter to that of the aforesaid office-worker.' Fremlin details the necessary technofixes to reach the end point, and many have subsequently been described in the scientific literature: The motivations given are economic, humanitarian, and religio-philosophic. The Jesuit philosopher and prehistorian Chardin wrote glowingly of this condition, calling it Point Omega. Teleologically confusing direction with aim, he interpreted it as the goal of evolution⁸. It is better seen as the dead end of evolution.⁹

Many organizations are charged with the frustrating tasks of addressing the above symptoms piecemeal. It should be no surprise that the only coherent approach to the root problem is by those organizations which best understand ecosystems: IUCN, the International Union for the Conservation of Nature; UNEP, the United Nations Environment Program; and WWF, the World Wide Fund for Nature. As part of the search for sustainable living, these three have jointly issued a statement¹⁰ which begins:

Our survival depends on the use of other species, but it is a matter of ethics, as well as practicality, that we ensure their survival and safeguard their habitats.

Four actions are needed to implement this principle, [of which the first is]:

- the ethic for sustainable living should be developed by a **dialog** between religious leaders, thinkers, leaders of society, citizens' groups and all caring people. ... The product of this action

should be **a clear and universally accepted statement of the principles of human conduct within the world of nature; ...**

I submit that we have had such a statement for 3000 years, which the Western tradition has elected to deny. This denial permeates our culture in ways we are not conscious of, epitomized by Tawney's analysis of the relation of religion to economics.¹¹

Christianity's Bad Start

Historian Lynn White Jr suggested that the roots of our ecological crisis lie in our religious tradition.¹² This has proven a controversial idea. On the one hand, serious environmental concern has certainly appeared from a Christian background: witness Edward Abbey¹³, David Foreman¹⁴, and Paul Watson¹⁵. On the other hand, the Scriptures of the 5 major religions (Abrahamic, Hindu, Buddhist) are so complex and multivalent that apologists can find them *all* environmentally pure¹⁶.

Nor does White's idea sit well with individual Christians who have an exemplary concern for the ecological welfare of the planet. There are many who by eisegesis read into Scripture what they need to find. Pope John Paul II has said 'the ecological crisis is a moral issue'; Orthodox Patriarch Bartholomew I has called destroying and polluting the environment 'sins' — both, however, without accepting a shred of responsibility and thus without noticeable effect. As a cultural Christian with strong concern for 'the environment', I was sufficiently troubled by White's hypothesis to re-examine underlying attitudes. As a result, I suggest that the roots lie in a *misreading* of the fundamental text, which along with other influences got traditional Christianity off to a bad start.

And a bad start it was. Perhaps the clearest example is Jesus's abuse of the out-of-season fig tree, which he withered for lack of fruit.¹⁷ In anyone else, this would be recognized as the behavior of a spoiled brat, but Jesus attributes his withering ability to faith in God, underpinning the specious doctrine that the ends justify the means and supporting Morton Smith's contention that by the definitions of his time he was a magician¹⁸ like his contemporary Apollonius¹⁹ — and a *black* magician at that, using his power destructively in a fit of petulance. Apparently no one has been shocked by this story. Neither Peter, Mark, nor Matthew found it repellent, no Christian apologist has explained it away, the Church Fathers did not root it out during the Ecumenical Councils. Since the Gospels are otherwise at pains to show that Jesus was *not* a magician²⁰ one has to ask why this example survived: was it simply invisible? Were the founders of Pauline Christianity already so other worldly that gratuitous destruction of nature seemed perfectly acceptable?

Now contrast this with the founder of another religion. Everything we know about Gautama suggests that in the same situation, he would have persuaded the tree to produce a 2nd crop of figs.²¹

Ecclesiastical Response to White's Criticism

Many believe that *Gen.* 1:28 still contains a divine commandment. In the *New Jerusalem Bible* (NJB) it reads, 'God blessed them, saying to them, "Be fruitful, multiply, fill the earth and subdue it. Be masters of the fish of the sea and the birds of heaven and all the living creatures that move on earth."' (The fundamentalist New World translation writes 'have in subjection the fish of the sea', while the King James and Revised Standard versions speak of 'dominion over the fish...'.) Whatever the

details, it was this verse that Lynn White focussed on. His analysis — that just here lies the root of our problems — provoked what seems a misdirected response from theologians.

A religion which tolerates environmental destruction has already proven itself wrong. As Toynbee's Touchstone puts it, 'A right religion is one that teaches respect for the dignity and sanctity of all nature. A wrong religion is one that licenses the indulgence of human greed at the expense of non-human nature.'²² Accordingly, one might have expected a serious inquest by theologians when White pointed out how willingly Christianity licenses greed. Instead, alarmed ecclesiastics circled the wagons and produced two dissertations^{23,24} and a prizewinning book²⁵ which exonerated them of all blame for environmental problems. 'The ecologically oriented theses of Lynn White and others can now be laid to rest' because even though 'most readers casually assumed that YHWH had fashioned the ... world for the benefit of human[s]', theological exegeses of 1:28 were concerned with the sexual aspects of *multiply*²⁶, not the practical aspects of *mastery*. This defense apparently satisfies theologians, but it misses the point: White was concerned with precisely the abuses arising from casual assumptions and practical aspects which theologians did nothing to correct. There are sins of omission as well as sins of commission.

Each of the dissertations dissects half of 1:28. In a more critical example of Biblical particularism, no-one has noticed that 1:28 is coupled to 1:29: 'YHWH also said, "To you I give all the seed-bearing plants everywhere on the surface of the earth, and all the trees with seed-bearing fruit; this will be your food."' Why do we pay attention to *multiply*, *fill*, *subdue*, and *master* — and ignore the strict vegetarianism which accompanies them? In context, the aggressive interpretation of 1:28 clashes with the peaceful mood of 1:29. The customary response is to ignore 1:29. I suggest the alternative: 1:29 means exactly what it says²⁷, and (as we shall see) 1:28 was first misinterpreted and then replaced.

Rollo May writes of man's enduring need for myths. Noting that traditional religion no longer provides guidelines for a sustainable future, he wonders if planetism might serve as a myth for survival today.²⁸ Fred Hoyle anticipated him by 50 years, suggesting that the first photograph of the Earth taken from outside would loose a new idea as powerful as any in history.²⁹ In the academic world, the Hoyle-May planetism mythos is already a way of life, witnessed by the frequency with which images of the Earth from space appear in periscientific writings. But this says little about the penetrance of planetism into the real world, where fundamentalism and evangelical Christianity are on the rise, for the appeal of evangelical (good news) Christianity is precisely its irrational 'feel-good' factor. The 'good news' is that faith is all that is needed for eternal happiness, which sounds suspiciously like reward without responsibility. Planetism — and survival — require just the opposite: thought, difficult choices, painful reversal of attitudes, hard work, and no guarantee of success at this late date. Can we sell *that*?

Despite these problems, E.O. Wilson speaks of the greening of religion as one of the few indications that humanity is not inherently suicidal.³⁰ Let us therefore see what green we can find in the Abrahamic Scriptures.

A Clear and Present Danger

Before taking this step, we should understand that we are charging in where angels fear to tread, and that there is valid reason for caution. In the Buddhist catalog of the 89 distinguishable states of consciousness, the lowest 12 are unwholesome shades of greed (*lobha*).³¹ That portion of the business

establishment which dwells in these states long since mobilized to combat recognition of the attitudes presented in this paper. Our smallest state, Rhode Island, can field a chapter of 'Wise Use'³² — a far-right laissez-faire group dedicated to the 'right' of owners to use property regardless of consequences to others — whose 'Fly-in For Freedom'³³ jmyik lists 100 speakers. A featured item is a Sunday morning session called:

7:00-8:30 Inspirational Breakfast — Battling the Greening of the Pulpit

It is almost certain that no attendee has read Popper's *The Open Society and its Enemies*³⁴, in which he shows why freedom and constraint cannot be separated. Popper's approach is scholarly and philosophical, but boils down to 'my freedom to swing my fist is constrained by your nose', if we hope for a working society.

It is vital to understand that although our opponents wear suits and have the financial resources to fly private planes to such meetings, we are not engaged in gentlemanly rational debate. We are dealing with businessmen who see their profits threatened. Note their dedication: 7:00 on Sunday morning!

Two of my green Norwegian friends, Aileen Hennes and Ole Bendik Madsø, were so effective at running NOAH, Norway's first animal-rights organization, that they annoyed Norwegian sealers. As a result, they found themselves menaced by a quartet of chainsaw-swinging thugs, one released from prison for the assignment. Seeking refuge in another city, they watched their home and office in Bergen burn on the evening news, destroying NOAH's records, a painstakingly gathered environmental library, and their opus of original paintings (both are artists).

My friends now live abroad. Between such marginalization, and the year-long shell-shock of watching their life work being destroyed on TV³⁵, the scope of their environmental activity is severely limited. The lesson was not lost on the tiny group of environmentalists remaining in Norway. (Norway is voluble when its own ox is gored, as by acid rain from English coal; and it espouses 3rd-world causes that have no impact at home. Yet Norwegians nearly exterminated the whales, and still want to hunt them. Many Norwegian-owned multinational companies are headquartered in countries with no environmental regulations whatsoever. When Bergen hosts an environmental conference, 'recycling' containers appear on the city streets; as soon as the conference is over, the containers go to land fill.)

Lest the reader think that this is an isolated case, and perhaps the fire really was accidental, let me point out that Wise Use has the resources to buy politicians, judges, 'contracts', perjury, and any other needed service. They have excellent organizational skills, international contacts, a grasp of morality which has made 'business ethics' an oxymoron, and the ability to raise an angry mob anywhere in the world by threatening to close a factory because green laws make it too expensive.

The vindictive character of the world-spanning anti-environmental attack spearheaded by Wise Use is described in detail by Helvarg³⁶, where it appears as 'a reign of violence and intimidation, including arson, bombings, rape, assault, and even murder'. Anyone who becomes visible as an opponent of Wise Use can expect the usual 'FBI' sequence of suasions to desist: first Flattery, then Bribery, then Intimidation. (The first 2 steps can be so subtle that their objective is not obvious, but as we have seen, in less sophisticated countries, they are often skipped.) If all 3 fail, something more emphatic will be offered, including death threats and car bombs³⁷, and as Day documents³⁸, murder is a

convenient option (e.g: Joy Adamson, Dian Fossey, Chico Mendez, Hilda Murrel, Valéry Rinchinov, Fernando Pereira, Karen Silkwood, ...). Academics can become hit-and-run victims as easily as labor organizers, and anyone with children is vulnerable to a range of persuasions unknown in civilized circles. There is no thought of conspiracy here: Wise Use is predominantly a US phenomenon, but the urge to dispose of people who stand in the way of making money is multinational.

With that caveat, let us now re-read *Genesis*.

The First Task

The multiply-subdue-fill-master verse is part of the 1st Creation story. The 2nd version in *Gen.* 2:4ff lacks the trumpets of *subdue* and *master*, and it omits the notion that YHWH created man in his own image. In compensation for its lack of fanfare, the 2nd story discloses the reason for creating man: ‘YHWH took the man and settled him in the garden of Eden **to cultivate and take care of it**’ (*Gen.* 2:15). A bit later it describes ‘YHWH walking in the garden in the cool of the day’ (*Gen.* 3:8). Although anthropomorphic, this is as good an answer as has been given to one of the major puzzles of modern physics, ‘Why is there *something* rather than *nothing*?’.

Gottwald³⁹ emphasizes the central nature of this Task: ‘*adam*, “the human being”, is none other than the cultivator of the *adamah*, “the ground/soil”’. He goes on to observe that the story of the Fall ‘does not permit any simplistic equation of work or sexuality with “sin” and its “punishment”’, but he stops short of suggesting the possibility that the Fall was the consequence of failing the 3 Tasks.

Interestingly, the 1st Task is not an entirely unknown idea. Thus Zelazny & Sheckley, in an otherwise shallow spoof⁴⁰, introduce the following deep passage:

‘I never heard of a maintenance man for the universe’, Azzie said.

‘Stands to reason, don't it? If you're going to have a universe at all, you need someone to take care of it, and that can't be the one who runs it. She has a lot of other stuff to do, and maintenance is a specialty in itself and doesn't need to be connected with anything else.’

The Second Task

In addition to his duties as gardener, man was appointed court taxonomist: ‘So from the soil YHWH fashioned all the wild animals and all the birds of heaven. These he brought to the man **to see what he would call them**; each one was to bear the name the man would give it’ (*Gen.* 2:19).

Taxonomists once understood their work to be a part of practical theology, exactly as the 2nd Task implies. The pioneers of taxonomy in its heyday (1550–1800), as well as hundreds of monks whom Linnaeus condemned to anonymity with his new nomenclature, described their efforts as illuminating the glory of YHWH's Creation. During the secularization of the Enlightenment, taxonomy lost this distinction and was reduced, in its own eyes, to the role of cataloging. But taxonomy remains the basis of evolutionary biology and of our understanding of our place in the scheme of things and why we are the way we are.

The Third Task

We have seen the most important Task in a garbled version, in the infamous multiply-and-subdue verse itself. The recorded consequences of that verse, long before the problems explored by White, are

that after 1656 'biblical years' (*Gen.* 5; 9:28) we find 'people began being numerous'⁴¹ on earth' (*Gen.* 6:1) with the result that 'human wickedness was great on earth and human hearts contrived nothing but wicked schemes all day long' (*Gen.* 6:5). YHWH decides to start over: 'I shall rid the surface of the earth of the human beings whom I created ...' (*Gen.* 6:7), 'for the earth is full of lawlessness because of human beings' (*Gen.* 6:13), but Noah intercedes and saves his family and 1 to 7 pairs of each animal and bird (*Gen.* 7:2,3); presumably plants, fungi, protoctists, and bacteria took care of themselves during the flood⁴².

After the corrective population-reducing flood, YHWH realized that he had to explain things in simpler terms, so he restated 1:28 to Noah in a manner which makes it clear that it had been fundamentally misinterpreted by Adam: 'Bring out [from the Ark] all the animals with you, all living things, the birds, the cattle and all the creeping things that creep along the ground, for **them** to swarm on earth, for **them** to breed and multiply on earth' (*Gen.* 8:17). Those who still cite 1:28 have missed the upgrade and are working from a version which has been obsolete for 3 millennia. Odum⁴³ notes that there is a time and place for each interpretation, so the sequence in *Genesis* has ecological support.

If Freud's⁴⁴ self-described 'historical novel', in which Akhnaton invented monotheism and passed it to Moses, who taught it to the Jews, has any validity, it is interesting to note that Akhnaton's hymns emphasize God's loving care for all creatures⁴⁵. This is consistent with our reading of *Gen.* 8:17.

In the next chapter (*Gen.* 9:1-3,7), the opposition got its licks in, inserting what the NJB pointedly calls 'The new world order'. This is a new world order similar to those of our own century, which killed 170 million of their own people⁴⁶ and more of their neighbors, before we extirpated them. We leave further discussion of this aberration to psychiatrists, and turn instead to parallel Scriptural material.

I find no recollection of the 3 Tasks in Islam. The 2nd Task is explicitly replaced by Allah instructing Adam in the names of the animals (*Sura* 2:31), giving him information not available to the angels. Mohammed's treatment of the sleeping cat — cutting off the corner of his robe rather than waking the cat — is the sort of consideration one expects of a religious leader, but the example has not permeated Islamic behavior.

Surprisingly, the eclectic Manichean Gnosticism (which once stretched from Europe to China) so far lacks the 3 Tasks, perhaps because the small fraction translated (from 17 languages) is fragmentary and unindexed.⁴⁷

An early deluge appears in the Aryan tradition.⁴⁸ In the *Satapatha Brahmana*, verse 6, a flood 'swept away all these creatures; so Manu [the progenitor of the Indian race] alone was left'. In the *Mahabharata*, verse 12775, Manu takes with him on what we might as well call an ark, 'carefully preserved and assorted, all the seeds which have been described of old by the Brahmans'. Among the later commentaries, the *Matsya Purana*, verse 31, says that Manu's ark 'has been constructed by the company of all the gods for the preservation of the vast host of living creatures'. The *Bhagavata Purana* (viii. 24,34) has Manu taking 'the plants and various seeds ... attended by all existences'. Finally, in the *Agni Purana* (12) Manu is forewarned, 'A ship shall come to thee in which thou shalt place the seeds'.⁴⁹

The rationale of the Aryan flood has nothing in it of the Mesopotamian desire on the part of the gods to dampen the noise of burgeoning humanity by thinning, nor does there appear to be any echo of

the first 2 Tasks in the Hindu texts. But the vital 3rd Task seems implicit in ‘the preservation of the vast host of living creatures.’

Recapitulation

Reviewing the 3 Tasks, it seems simplest to restate them in aphoristic form:

1. Tend the Garden *Gen.* 2:15
2. Name the Species *Gen.* 2:19
3. See that They Prosper *Gen.* 8:17 (deliberately replacing *Gen.* 1:28)

Are not these precisely the instructions which anyone capable of creating a working planetary ecosystem would give to the one intelligent species capable of monitoring and fine tuning it?

The 3 Tasks are to be read *sensu lato*, so that ‘Name the Species’ is not the classification of stuffed specimens, but expands to ‘identify them, discover their unique features, and determine their role in the planetary ecosystem’. Tending the garden, and seeing that our fellow creatures prosper, similarly become the full-time jobs of mankind. Of the 1st Task, E.O. Wilson — apparently thinking only of geography, but managing deep psychology in spite of himself — says, ‘It is peculiarly satisfying because it enters that part of the world ... where humanity evolved during much of its 2-million-year history’. Of the 2nd Task: ‘Nothing in the whole system makes sense until the natural history of the constituent species becomes known’.⁵⁰ This is the only reliable route to the answers of the Great Existential Question, ‘Why?’.

It is worth repeating: YHWH emphatically rescinded *Gen.* 1:28 with the Noachian flood, intentionally reducing the number of people that had multiplied. His instructions to Noah in *Gen.* 8:17 specifically replace the misinterpreted *Gen.* 1:28. **‘Multiply-subdue-fill-master’ went obsolete about 1000 BCE, at the express command of YHWH.**

Missing the boat

For 3/4 of its history Western Christendom was a single church. As a result, its Protestant offspring share its blindness toward the 3 Tasks. Surveying the doctrinal beliefs and *raison d’être* of 1000-odd Christian denominations⁵¹ reveals Christological debate, concern over church bureaucracy, details of baptism, disagreements about the meaning of ‘days’ in *Genesis* and the extent of the Noachian deluge, timing of the 2nd Coming, dietary laws, prayers and rituals, dress codes, literal v. figurative interpretations, the number of fingers used in crossing oneself, personality clashes, and similar issues which have no measurable influence on the outer world. No denomination recognizes the 3 Tasks, none places them centrally in its concerns. No group has broken with the anti-environmental stance of the core tradition. With only minor hyperbole, Clark⁵² observes, ‘Until this century the only writing by a “professional philosopher” on our duties to and about the non-human that actually defended them was by the Neoplatonist Porphyry [fl. 300 CE]’, whose 15-volume work was titled *Against the Christians*.

The present moment seems ripe for historical apologies. The Pope has apologized for abuse of Galileo, for historical mistreatment of Jews, for marginalization of women, for the Church’s role in the French government’s attack on Alfred Dreyfuss, and, halfheartedly, for not speaking out against Nazi concentration camps. Each apology is a step towards regaining relevance in the modern world. Is it not time for a serious apology for Christianity’s behavior toward animals and the environment?

Meaningful apologies are accompanied by reparations. If the US Catholic Church can spend an estimated \$650 million since 1980 on legal fees and compensation for priestly paedophilia⁵³, the Vatican can afford a billion over the next decade for endowed chairs in taxonomy, research into animal consciousness, rescue of endangered species, and similar essential steps.

Others have noticed the need to reformulate Christianity. Bratton suggested that 'multiply' applied to all species.⁵⁴ Kwok Pui-Lan writes of 'recycling Christianity' and of taking it from a hierarchical model to an ecological model, from anthropocentrism to biocentrism.⁵⁵ McFague calls for the destruction of Christian metaphors which are dangerous to the planet, such as the monarchical model of divinity, in favor of a god who is in and part of the evolutionary process.⁵⁶ Well and good — but like Clark's sacramental theism, which declares, 'we do not own the world, but only enjoy its fruits on the condition that we leave as good for others' (Ref. 52: 160), most such approaches cite no Scripture and may not be recognized as Christianity by the fundamentalist rank and file.

In contrast, the 3 Tasks lie at the core of the Abrahamic tradition. They seem identical, in the obligations they lay upon us, to the Hoyle-May planetary mythos, to sacramental theism and to biocentrism. If we ask what kind of deity might impose them, the answer is surely 'a concerned evolutionary ecologist'.

The real advantage of the 3 Tasks is that they could be introduced to professing Christians so gradually, by a small change in emphasis, as to be unrecognizable as revolutionary and requiring thought, aspects which I deem essential. Because the 3 Tasks were given directly by YHWH, they are primary and more authoritative than later directives such as the 10 Commandments and the Golden Rule which were delivered through intermediaries. But I confess that introducing such concepts to the faithful is much like belling the cat: a truly marvellous idea, no doubt — but one I haven't a clue about implementing!

We have today several advantages over our philosophical predecessors when it comes to judging the comparative merits of religions. Firstly, we have a millennium or two of hindsight. Psychologically, this may not be available to True Believers, but it *is* available to the conscientious and open-minded critic. We can try to separate the effects of religion from other social forces, as Reynolds & Tanner⁵⁷ did with respect to philoprogenitivity, assessing the results in terms of the world's needs. Secondly, when we apply Toynbee's Touchstone to the last few millennia, what do we find? To date, I have come across only 3 acceptable religions, those of the U'wa of the Colombian rain forest⁵⁸, the tree-huggers of India⁵⁹, and the *tsa'ar ba'ale hayim* tradition of rabbinical Judaism⁶⁰.

The 3000 remaining U'wa have the right idea — that their tribal function is to protect and harmonize their rain-forest environment — but the chances are good that they will be dispersed, if not destroyed, and their culture obliterated by the forces of petroleum development and visions of resulting bureaucratic lagniappe arrayed against them.

The tree-huggers of Rajasthan gave us the perfect example of right response to governmental attempts to destroy the environment — 363 of them died protecting trees with their bodies before the government relented⁶¹ — but they are so far from Western mainstream religion that they may not be our best model.

Tsa'ar ba'ale ḥayim, or Reverence for All Life

Tsa'ar ba'ale ḥayim appears to be humanity's most venerable continuous tradition of concern for nature, going back to oral roots which are on the order of 4000 years old, with recorded dialog in both *Talmud*⁶² and *Midrash*⁶³. I am in the disconcerting position of introducing an important philosophy from a position of nearly complete ignorance. The only excuse I offer for such hubris is that I am not alone. None of the people who might have told us about *tsa'ar ba'ale ḥayim* has done so: neither pioneers like Schweitzer⁶⁴, Muir⁶⁵ and Leopold⁶⁶, nor historians like White¹² and Nash⁶⁷, nor exegetes like Clark⁵² and the many writers in Holm & Bowker⁶⁸, nor animal-rights philosophers like Singer⁶⁹, Carruthers⁷⁰, and Sorabji⁷¹, nor ethicists like Taylor⁷², Brennan⁷³, and Rollin⁷⁴, nor scholars like Schorsch⁷⁵, nor anyone else I have met in the Western Christian tradition. Lewis Regenstein⁷⁶ devotes a paragraph to it, identifying it as 'preventing the sorrow of living creatures'.

Tsa'ar ba'ale ḥayim was also unknown to the theologians who responded to White's criticism. Professional apologists coming from respected colleges, they had surely done their homework to the satisfaction of their advisers and referees. One can only conclude that humanity's treatment of nature is not a matter of great concern in the schools which educate Christian theologians — exactly confirming White's charges.

In the face of such widespread ignorance, it is of some interest to note how easily I stumbled onto this tradition: I asked at the desk of the University of Amsterdam's Rosenthaliana Library for information about Jewish attitudes toward nature and was immediately rewarded with the definitive work, Noah Cohen's *Tsa'ar Ba'ale Ḥayyim*⁷⁷. The book was set by typewriter and is long out of print: the only other copy I know of is at the University of London. There is, however, a wealth of information on the Internet, and I recommend a search for *tsa'ar ba'ale hayim* as the place to start.

Tsa'ar ba'ale ḥayim is not a complete statement of our obligations toward the natural world. It is a specialist endeavor, dealing largely with domestic animals, and reflecting some concerns which seem marginal today. There is room for expansion and updating to bring it into line with today's concepts and today's needs. Nevertheless, it seems to me that between the 3 Tasks and *tsa'ar ba'ale ḥayim* we have a sound Abrahamic basis, with a long tradition of observation and scholarship, which could form the foundation of the desired statement of the principles of human conduct within the world of nature.

A note to IUCN, WWF, and UNEP

The serious proposer of a dialog has a responsibility toward seeing that it takes place. Yet no one I reached at these institutions knew that they had proposed a dialog, let alone whether it might be underway. When I was finally offered the names of a couple of editors, neither was active nor aware of prior organization. Since the proposed debate is comparable in importance to recognized concerns like nuclear testing and arms limitation, it surely deserves support from its proposers and a forum of its own. This forum could be the same one needed by ¶23 of the World Charter for Nature, which reads

All persons ... shall have the opportunity to participate ... in the formulation of decisions of direct concern to their environment....

When the American National Standards Institute (ANSI) or the International Standards Organization (ISO) undertakes to find a consensus of comparable scope but lesser importance, they

follow an established procedure. A committee of qualified volunteers — who may have personal costs >\$20,000 before they are done — organizes open meetings across the country (ANSI) or world (ISO), to which interested parties contribute. The process often runs for a decade before agreement can be achieved, even on such minor and uncontroversial subjects as a computer language. Periodic reports are sold at cost to the industry for whose benefit the standard is organized — and yes, industry must be involved if we expect this to work.

This is the scale of effort required to produce something resembling the desired ‘clear and universally accepted statement’. I suggest that IUCN/WWF/UNEP might ask ISO for advice on the necessary protocol to achieve consensus.

Summary

The ethical basis of sustainable development is perhaps the most important philosophical challenge which mankind has faced. Sustainable development requires altruism (that is, enlightened self interest) on a scale never before considered, and altruism seems to be a stable evolutionary strategy only in a regime of repeated encounters⁷⁸. Unfortunately, our encounter with the burgeoning world population is a one-shot experience with exceedingly limited possibilities of a second opportunity, let alone the repeated encounters needed to develop global altruism by trial and error. We are evidently expected to have learned our lesson before we needed it.

The world’s premier ecological organizations — the only international bodies with any professional understanding of how ecosystems work — recognize that consensus on a common (and necessarily altruistic) ethic is the first step in attempting to salvage a working homeostatic environmental support system for human endeavors, as otherwise we foul our nest terminally in dog-eat-dog competition for diminishing ‘free’ goods, of the sort which brought down the Rapanui⁷⁹. This is not a blanket condemnation of profit-based enterprise, but merely a recognition that greed is not a universal solution — a return, if you will, to the Shavian notion that some things are best accomplished by individuals seeking personal enhancement, and others by broad coalitions seeking the common good. The difficulty with this sensible attitude is that it requires our politicians and economists to discern which is which: dogma is no longer sufficient. Is this really too much to ask?

Unfortunately, the clarion call for a ‘universally acceptable statement’ of our survival ethic has not resulted in a working forum for debate on this important matter. Meanwhile, the short-sighted (non-altruistic) portion of the business community has organized its own forum, ‘Wise Use’, to combat the establishment of any consensus which might interfere with their ‘right’ to immediate profit regardless of social and environmental costs — which, on the record, they seem willing to defend by any means whatsoever, including baseless law suits, arson, rape, and murder of those who work against them.

The economists’ best shot at an answer, in terms of a search for North/South and intergenerational equity⁸⁰, internalization of external costs, an economy of abundance⁸¹, increasing efficiency, and globally uniform environmental standards⁸², would be a giant step forward from simplistic market theory, but it is unabashedly anthropocentric and has immense trouble with non-monetizable values.

Attempts by philosophers to redefine the religion of the West to encompass problems never anticipated by desert nomads are laudable but lack the Scriptural foundation which seems essential to

reach the increasing number of fundamentalists looking for surety in a changing world. Lynn White Jr suggested that Abrahamic religion was flawed at its inception by the infamous ‘multiply-subdue-fill-master’ verse at the beginning of the Bible, which at least from the time of Calvin has been interpreted as licence to pillage Nature in search of added value. Christian theological attempts to rebut White’s claim seem only to confirm it by their apparently total ignorance of the one Abrahamic tradition which might work, the rabbinical *tsa’ar ba’ale hayim*, which provides a sound basis from which we might begin to forge a workable ethic.

Further unanswered instances which support White’s thesis include orthodox Christianity’s rejection of the idea of animal souls implicit in the Old Testament (vide *Job* 10:12) in aid of legitimizing exploitation, and Jesus’s petulant annihilation of the fig tree, which set the tone for all future interactions between Church and Nature (*pace* Francis of Assisi’s fraternal preaching to animals).

Yet a careful reading of *Genesis* shows that YHWH had not meant quite what Adam understood by this verse, to the extent that the Noachian Flood was a *specific* corrective measure — an emphatic response which should have washed the misinterpreted verse from the canon. In restating the Divine Will, YHWH explicitly tells Noah that ‘multiply’ and ‘swarm’ apply to **all** the animals coming off of the ark, not merely to humans. Taken together with the purpose for which Adam was created (to tend the Garden of Eden), and his first job assignment (a taxonomy of Creation), the Abrahamic tradition should have been seen from its inception as electing humankind the steward of Creation, not its exploiter.

I see 3 things that might profitably be done immediately; none is easy, but without them I think we will miss the ever narrowing window of opportunity for a civilized, sustainable, and equitable future:

Establish a long-lived, well funded, world-wide, high-profile forum for concerted debate on an ethic emphasizing inter- and intragenerational equity along with global and trans-species altruism as the foundation for sustainability. This might best be handled through the coalition that proposed the debate in the first place: IUCN/UNEP/WWF.

Persuade rank-and-file members of the Abrahamic religions that the fundamental Scriptural function of humankind is the stewardship of nature. Even the US Congress would bow to the political pressure for ecological sanity which would ensue from such an attitude. Are there really no theologians alive with the vision and stature to undertake this task? Biblical support is so obvious that the pre-eminence of stewardship can be introduced as though it had always been the point of the teachings. **No new ideas needed.**

Watch our backs. This is not melodrama: the opposition is organized, amoral, and unscrupulous.

Finally, I submit that even the world’s premier ecological organizations did not get it quite right. It is not our physical survival, but our *ethical* survival as humans worthy of the name, that depends upon ensuring the survival of our fellow creatures and safeguarding their habitats.

It is the *quality* of our relationship with other species that matters. We know from the Holocaust, the Ik⁸³, Rwanda, Bosnia, Kosovo, East Timor, Kurdistan, and the slums of Washington DC, what we become in the absence of concern for others. When we limit ourselves to exploitation, we are behaving like all other animals, and, as the only animal which knowingly inflicts pain, we have no basis for any

claim to higher status. The one role that raises us above the beasts is the role YHWH assigned to us, as stewards to see that the rest of them thrive. Drop our steward's baton, and we are reduced to clever, talkative, and particularly vicious apes. n

Figure Caption

Fig.1. Positive (destabilizing) feedback between quantitative and qualitative aspects of our environmental crisis. The outer boundary (where was it originally?) represents the original Gaia-like⁸⁴ homeostatic system. The single greatest challenge facing life on Earth is how to break this spiral: Evolution has seen to it that most people are blind to the consequences of overpopulation.

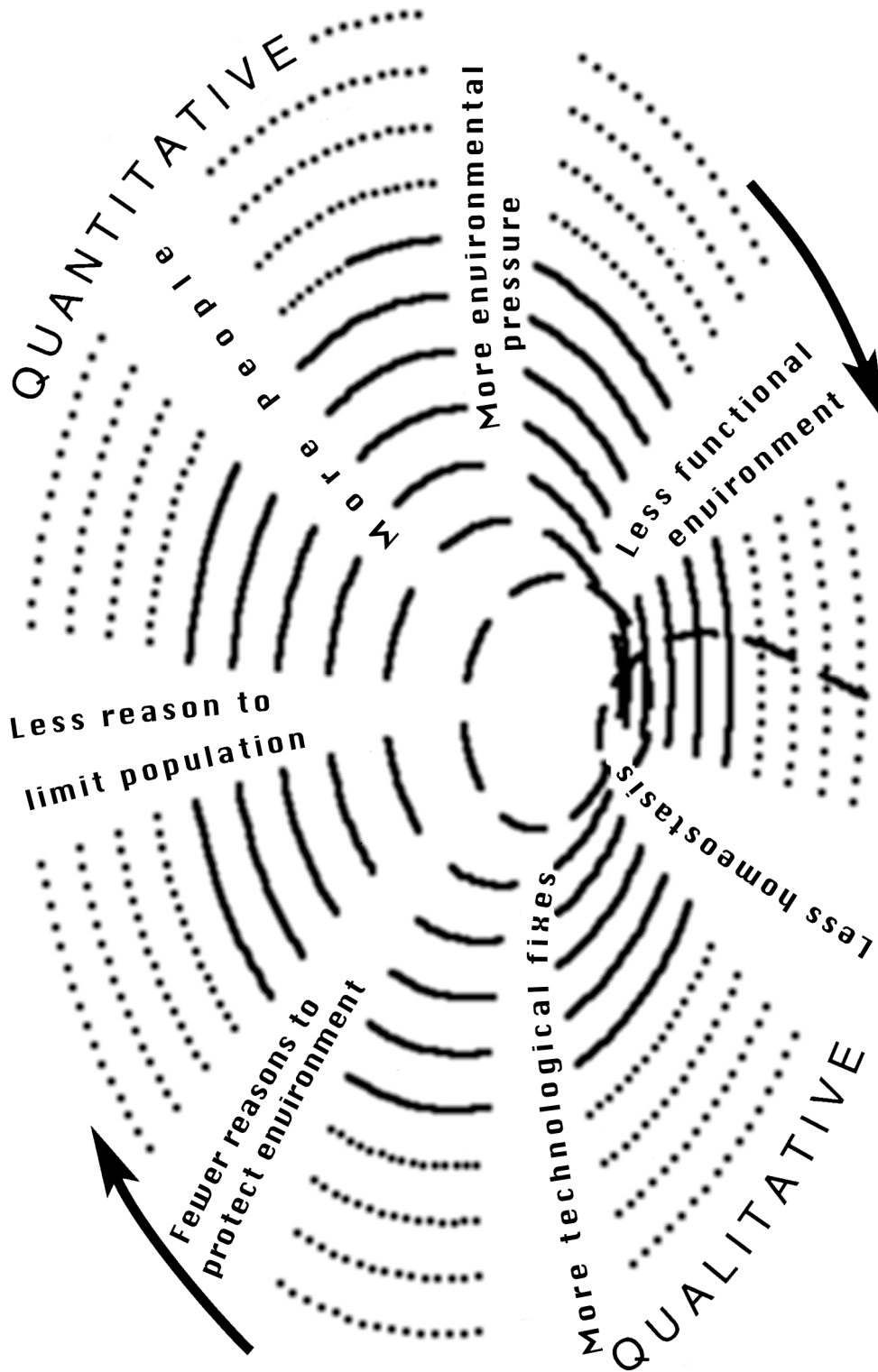


Fig. 1

¹ Dr David Brin, an early reader when my 'YHWH' still had vowels, called my attention to a tradition which does not allow the discarding of the written name of the deity, and suggested 'YHWH' in aid of recycling. According to the Talmud, even the pronunciation of 'YHWH' is proscribed: 'Not as I am written am I pronounced. I am written *yod he vav he*, and I am pronounced *alef daleth nun yod*' — that is, 'Adonai (Kid. 71a). Based on Deuteronomy 12:4, the Talmud (Shev. 35a) forbids writing the name explicitly lest the page on which is written

- be discarded. Shabbetai (17th cent.) and Akiva (19th cent.) state 'emphatically that the prohibition applies only to the names in Hebrew but not in the vernacular' (*Encyc. Judaica* 7: 682). Have I got it right?
- 2 MacIntyre, F, TT Noji, & KW Estep (1995) Is it *deforestation* or *desertification* when we do it to the ocean? *NAGA, The ICLARM Quarterly* 18(3): 4-6.
 - 3 See, e.g., McMichael, A.J. (1993) *Planetary Overload*. (Cambridge University Press, Cambridge.) 352 pp.
 - 4 Engel, J. Ronald (1992) Liberal democracy and the fate of the Earth. In: Rockefeller, S.C. & Elder, J.C. (eds) *Spirit and Nature*. (Beacon, Boston): 59-81.
 - 5 1 gigaperson = 10^9 warm bodies (1 billion).
 - 6 Simon, J & H Kahn (eds.) (1984) *The Resourceful Earth: A Response to Global 2000*. (Basil Blackwell, New York); Wattenberg, Ben (1987) *The Birth Death*. (Pharos, New York); Ray, Dixie Lee (1990) *Trashing the Planet: How Science can Help Us Deal with Acid Rain, Depletion of Ozone, and Nuclear Waste (among other things)*. (Regenergy Gateway, Washington DC); Eberstadt, N. (1995) Population, food, and income: Global trends in the 20th century. In: R. Baily,(ed.) *The True State of the Planet*. (Free Press, New York): 8-47.
 - 7 Fremlin, J.H. (1964) How many people can the world support? *New Scientist* #415: 285-287. — (1972) *Be Fruitful and Multiply: Life at the Limits of Population*. (Hart-Daves, London) 241 pp.
 - 8 Chardin, Père Teilhard de (1955) *Le Phenomene humain*. (Seull, Paris).
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 - 10 IUCN, UNEP, WWF (1991) *Caring for the Earth, A Strategy for Sustainable Living*. (Gland, Switzerland).
 - 11 Tawney, RH (1926) *Religion and the Rise of Capitalism*. (J. Murray, London).
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 - 13 Abbey, E. (1975) *The Monkey Wrench Gang*. (Lippincott, Philadelphia PA).
 - 14 Foreman, D. (ed.) (1980) *Ecodefense: A field guide to monkeywrenching*. (Ned Ludd Books, Tuscon AZ).
 - 15 Watson, P. & Rogers, W. (1982) *The Sea Shepherd: My fight for whales and seals*. (Norton, New York).
 - 16 Palmer, Martin (1990) 'The encounter of religion and conservation'. In: J. Ronald Engel & Joan Gibb Engel, (eds) *Ethics of Environment and Development*. (Belhaven, London): 50-62.
 - 17 Mark 11:13-14, 20-22; Matt. 21:19 has a shorter version.
 - 18 Smith, M. (1978) *Jesus the Magician*. (Harper & Row, New York).
 - 19 Philostratus, Flavius Lemnius, *Life of Apollonius of Tyana*, transl. C.P. Jones. (Penguin, Harmondsworth, Eng., 1970) 255 pp.
 - 20 Hull, J. (1974) *Hellenistic Magic and the Synoptic Tradition*, Stud. Bibl. Theol. 2nd ser. 28, (Naperville IL).
 - 21 Many varieties of figs do bear twice a year, and this may be why. The spring crop requires 'caprification', in which branches from a male tree are placed in female trees. Tiny symbiotic wasps carry pollen to the internal flowers in the syconium, which then grows into the fruit. The summer crop — perhaps the one produced for the Buddha — does not require caprification.

- 22 Toynebee, A. & Ikeda, D. (1976) *Choose Life*. (Oxford University Press, Oxford): 324.
- 23 Yeagerlehner, D.A. (1975) 'Be Fruitful and Multiply, and Fill the Earth...': A History of the Interpretation of *Genesis* 1:28a and Related Texts in Selected Periods. PhD dissertation, Boston University, Boston, MA.
- 24 Jobling, D.K. (1972) 'And have dominion...': The Interpretation of Old Testament Texts Concerning Man's Rule over the Creation (*Gen.* 1:26, 28b, 9:1-2, Psalm 8:7-9) from 200 BC to the Time of the Council of Nicea. ThD dissertation, Union Theological Seminary, New York.
- 25 Cohen, J. (1989) *'Be Fertile and Increase, Fill the Earth and Master It'*. (Cornell University Press, Ithaca, NY).
- 26 Perhaps a case could be made that too many people who were ill at ease with their own sexuality have chosen ecclesiastical and exegetical careers, both before and after Saul of Tarsus. The preoccupation with the sexual aspects of "original sin" could be described as pathological, and this misplaced emphasis has certainly contributed to overlooking the 3 Tasks.
- 27 Some may hold that 1:29 is irrelevant because it was rescinded by *Gen.* 9:3. But this is a separate issue with a separate historical rationale connected to the Exodus and unrelated to the inconsistency we are discussing here. See MacIntyre, F. (unpublished ms.) "Stewardship : Herbivory :: Mastery: Omnivory".
- 28 May, R. (1991) *The Cry for Myth*. (Norton, NY).
- 29 Hoyle, Fred (1948?) I have this paraphrase 2nd-hand from Lynn Margulis, who misplaced the citation.
- 30 Wilson, E.O. (1993) Is humanity suicidal? *BioSystems* 31: 235-242.
- 31 Kosambi, Dharmananda (ed.) (1922) *Abhidhammattha-sangaha*. (Ahmabad).
- 32 Anonymous (1990) *Wise Use Memo*. (Center for the Defense of Free Enterprise, Bellevue WA).
- 33 From an Internet announcement of the fly-in meeting of the Rhode Island Chapter of Wise Use, 7-9 June 1997.
- 34 Popper, Karl (1945) *The Open Society and its Enemies* (Routledge & Kegan Paul, 5th ed. 1966).
- 35 I tried to obtain videos of the burning of Nordnesbodene from NRK's Dagsrevyen for 25 June 1993, but NRK wants an exorbitant price and has driven reasonably priced competitors out of the market. A request for still photos was turned down 'for lack of staff'.
- 36 Helvarg, David (1997) *The War Against the Greens*. (Sierra Club Books, San Francisco) 502 pp.
- 37 Bari, J. (1994) *Timber Wars*. (Common Courage Press, Monroe, NE) 341 pp.
- 38 Day, David (1989) *The Environmental Wars*. (Ballantine Books, New York).
- 39 Gottwald, N.K. (1987) *The Hebrew Bible: A socio-literary introduction*. (Fortress, Philadelphia): §31.1.
- 40 Zelazny, R. & R. Sheckley (1995) *A Farce to be Reckoned With*. (Bantam, New York): 244.
- 41 At 1% annual growth, a rate no one is aware of, the population would have grown by a factor of 14 million in this period. The same story is told in the earlier *Atrahasis* from Babylon: the 'people become numerous', and the Mesopotamian gods decide to get rid of some of their 'black-headed ones' with plagues and a flood (Saggs, H.W.F. *The Greatness that was Babylon*. (Mentor Books, New York, 1962): 384-385).
- 42 There remains a problem with xerophyte plants, who cannot tolerate wet roots for more than a few hours, having lost all antibiotic resistance to the bacteria and fungi which flourish in damp soil.
- 43 Odum, E. (1993) *Ecology and Our Endangered Life-Support System*, 2nd ed. (Sinauer, Sunderland MA): 277.
- 44 Freud, S. (1939) *Moses and Monotheism*. In: *The Origin of Religion*, Penguin Freud Library 13 (Penguin, London, 1990): 237-386.
- 45 Breasted, J.H. (1934) *The Dawn of Conscience*. (Scribner's Sons, London): 281-302.
- 46 Rummel, R.J. (1994) *Death by Government*. (Transaction Books, New Brunswick NJ).

- 47 Klimkeit, H-J (1993) *Gnosis on the Silk Road*. (HarperSanFrancisco).
- 48 Muir, John (1872) *Original Sanskrit Texts on the Origin and History of the People of India, Their Religion and Institutions*. 4 vols. 2nd ed. (London). (Reprinted by The Oriental Press, Amsterdam, 1967). Muir's primary interest in this material seems to have lain in the origin of the caste system, to which most of his commentary is directed. Aryans coming through the Khyber Pass and naively settling in the Punjab ('Land of 5 Rivers') would be exposed to devastating local floods, so that there is no necessity for the deluge tradition to have been imported from Hebraic or Mesopotamian sources. Unfortunately, Muir's internal references have been corrupted by repagination so it is not always clear what he has in mind when he sends the reader off to another story.
- 49 Perhaps the seeds explain the survival of xerophytes.
- 50 Wilson, E.O. (1984) *Biophilia*. (Harvard University Press, Cambridge MA): 106,8
- 51 Melton, J.G. (1978) *The Encyclopedia of American Religions*, 2 vols (McGrath, Wilmington NC); Mead, F.S. (1975) *Handbook of Denominations in the United States*, 6th ed. (Abingdon, Nashville TN); Occhiogrosso, P. (1991) *The Joy of Sects* (Doubleday, New York).
- 52 Clark, S.R.L. (1991) *How to think about the Earth: Philosophical and technological models for ecology*. (Mobray, London): 69.
- 53 Sharrock, David (1995) A nation's faith abused. *Guardian Weekly*, 22 Oct 95:5.
- 54 Bratton, S (1992) *Six Billion and More: Human Population Regulation and Christian Ethics*. (Westminster/John Knox, Louisville KY).
- 55 Kwok Pui-lan (1994) Ecology and the recycling of Christianity. In Hallman, D. (ed) *Ecotheology: voices from the South and North*. (World Council of Churches, Geneva): 107-111.
- 56 McFague, S. (1992) A square in the quilt: One theologian's contribution to the planetary agenda, in Rockefeller, S.C. & Elder, J.C. (eds) *Spirit and Nature*. (Beacon, Boston): 39-58.
- 57 Reynolds, V & RES Tanner (1983) *The Biology of Religion*. (Longman, London).
- 58 Osborn, Ann (1996) *Los Cuatro Estaciones*. (Colección Bibliográfica Banco de la Republica, Colombia). ISBN 958-664-017-5. This is a translation of Osborn's PhD Thesis 'Mythology and social structure among the U'wa of Colombia' (Oxford University, 1984), available from: Theses Orders (RMS), The British Library Document Supply Centre, Boston Spa, Wetherby, West Yorkshire LS23 7BQ, by purchase or inter-library loan.
- 59 Bhatt, Chandi Prasad (1987) The Chipko Andolan: Forest conservation based on people's power. In: Anil Agrawal, Darryl D'Monte, & Ujwala Samarth (eds.) *The Fight for Survival*. (Centre for Science and Environment, New Delhi): 51. 'Tree-hugger' is an honorable term, not to be used lightly. The original tree huggers were Bishois, followers of Guru Maharaj Jambaji (b. 1451) who left behind a ban on cutting green trees and killing animals. C. 1750 the King of Jodhpur sent soldiers after Bishois trees (most others have been cut down by then). The Bishois villagers, led by the women, hugged the trees to protect them. The practice has been revived as the modern Chipko Andolan movement, a grass-roots ecodevelopment movement led by women who have noticed that while their men are willing to sell trees for immediate money, it is the women who thereafter have to walk miles for firewood, the villages that are vulnerable to floods, and the cattle who have no fodder.
- 60 The apostrophes represent gl'o'al stops; the h an aspirated fricative as in *ach* or *loch*. There are alternative spellings: Hayim is perhaps better known in the toast *L'chaim*, 'To life'.

- 61 Dwivedi, OP (1990) *Satyagraha for conservation: Awakening the spirit of Hinduism*, in J. Ronald Engel & Joan Gibb Engle, eds. *Ethics of Environment and Development*. (Belhaven Press, London): 201-212.
- 62 Epstein, I. (1935) *The Babylonian Talmud, Nezikin II, Baba Mezia* (Soncino, London): BM 32(b).
- 63 Lehrman, S.M. (1939) *Midrash Rabbah*. (Soncino, London): Ex. R 2:3.
- 64 Schweitzer, Albert (1932) *Aus meiner Leben und Denken*. (Felix Meiner Verlag, Leipzig): 136. English version, *Out of My Life and Thought*. (Henry Holt, New York, 1933).
- 65 Muir, John (1916-1924) *The Writings of John Muir*, 10 vols. Ed. Wm. F Badé. (Houghton Mifflin, Boston).
- 66 Leopold, Aldo (1949) *Sand County Almanac*. (Oxford University Press, Oxford).
- 67 Nash, Roderick Frazier (1989) *The Rights of Nature*. (University of Wisconsin Press, Madison WI).
- 68 Holm, Jean with J Bowker (eds.) (1994) *Attitudes to Nature*. (Themes in Religious Studies Series, Pinter, London).
- 69 Singer, Peter (1975) *Animal Liberation: a New Ethics for our Treatment of Animals*. (Yale University Press, New Haven CT).
- 70 Carruthers, Peter (1992) *The Animals Issue*. (Cambridge University Press, Cambridge UK).
- 71 Sorabji, R (1993) *Animal Minds and Human Morals*. (Ducksworth, London).
- 72 Taylor, Paul W. (1986) *Respect for Nature*. (Studies in Moral, Political and Legal Philosophy, Princeton University Press, Princeton NJ).
- 73 Brennan, Andrew (1988) *Thinking About Nature, an Investigation of Nature, Value, and Ecology*. (University of Georgia Press, Athens GA).
- 74 Rollin, Bernard R. (1990) *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science*. (Oxford University Press, Oxford).
- 75 Schorsch, Israel (1992) Learning to live with less. In: Rockefeller, S.C. & Elder, J.C. (eds) *Spirit and Nature*. (Beacon, Boston): 25-38.
- 76 Regenstein, Lewis G. (1991) *Replenish the Earth*. (SCM Press, London): 184.
- 77 Cohen, Noah (1976) *Tsa'ar Ba'ale Hayyim, The Prevention of Cruelty to Animals*. (Feldheim, Jerusalem). When I realized the merits of this book, I intended to give credit to the responsible librarian. She was not present when I returned to ask her name, and I ran into the egotistical European system in which The Professor wants credit for everything done in his department: unfortunately, I disremember his name.
- 78 Axelrod, RM (1984) *The Evolution of Cooperation*. (Basic Books, New York).
- 79 Bahn, P.G. & Flenley, J. (1992) *Easter Island, Earth Island*. (Thames & Hudson, London), 240 pp.
- 80 Lumby, AB (1998) Sustainable development and the role of the state in South Africa: Some comments on an apparent paradox. **(This volume •••)**.
- 81 Chase, Stuart (1971) *The Economy of Abundance*. (Kennikat Press, New York).
- 82 Martin, T & O Unterberdoerster (1998) Harmonization of environmental standards in a global economy. **(This volume••••)**.
- 83 Turnbull, Colin (1972) *The Mountain People*. (Simon & Schuster, New York). Deprived of their normal environment by bureaucratic fiat, the impoverished Ik regressed to self-centered survival, a sort of Republican ethics of poverty in which stealing a cockroach from a baby was an acceptable way of augmenting your own diet.
- 84 Lovelock, J (1979) *Gaia: A New Look at Life on Earth*. (Oxford University Press, Oxford).