

*my edited version
of Ray's "The Double Planet"*

MORNING THOUGHTS ON THE DOUBLE WORLD

By Ragnar Leopold

Before the mid-1800s, Man's Planet, where people dominated, amounted to a number of enclaves on each continent. Man usually needed only to climb to some easily-reached promontory to see across the borders of his influence into the greatly more vast world dominated by the non-human forms of life--Nature's Planet.

Indeed, man still lived in some fear of Nature's Planet, both because of the extent of its dominance--in jungle, forest, desert and ocean--and because of his age-old struggle, begun in earnest with the invention of the spear, with the larger animals of the natural realm.

But that particular fear was misplaced, for man was rapidly "winning" against Nature's Planet. Extinction of the larger animals began to quicken after that invention

of the spear, and already was complete for the mastodon and other pachyderms of Europe, northern Asia, and North and South America, well before the occurrence of gunpowder. With great energy, Man's Planet has been at work removing the balanced complex of life forms that once was exquisitely adapted to Nature's Planet, until, as habitat after habitat has been broken, extinction is a looming prospect for virtually all species still inhabiting Nature's Planet.

The geography of the double world has been reversed: except for the patches man himself preserves, Nature's Planet has shrunk almost entirely out of the temperate regions, and is eroding as well from the tropics and arctics, and from the mountain country and oceans where inaccessibility or inhospitality of climate once provided the buffer of remoteness. Now it is Nature's Planet that exists in enclaves; the remaining free animals have only to climb to some near promontory to see the vast landscape in every direction dominated by Man's Planet.

Both as a geneticist and as a citizen of Man's Planet, I believe that no more cataclysmic change has occurred in this century than this reversed status of the double world of Earth. During the "ascent" of man, Nature's Planet served as the horn of plenty to provision mankind's continuing existence; the extent and resiliency of the natural realm has been man's margin for error, the omnipresent frontier

to absorb his excesses. That is why there is no worse news for modern man than the grim statistics of extinction rates on Nature's Planet.

Even the best-intentioned dwellers of Man's Planet may not comprehend what the extinction of a species really means. Before man's dominance, extinction rates of Nature's Planet were appreciable, yet by the evidence of the intricacy of linkages evolved between life forms, the pace was infinitely slower than today's. No species can be on earth without an unbroken germ line that goes back, one generation at a time, through millions or billions of generations, to the very beginning of life in our solar systems. In genetic terms, there simply are no exceptions. As the habitat of a species anywhere on Nature's Planet becomes limited, then restricted, then rare, then gone, that species, and the others that depend on it, must disappear, as each is deprived of some vital line in its life cycle.

Where, as today, the rate of species extinction changes from a number of rivulets on each continent into a torrent, it must soon become a flood. It is my deepest belief that even before it reaches full spate, the extinction of so much of Nature's Planet will haunt man's conscience more than any previous guilt he has shared. For to cause even a single extinction of a species is one of the truly moral sins of which man is capable. He alone does so knowingly,

and he alone has a conscience.

He has, too, the instrument which has wrought so much change on our double world: the human brain. Man's brain has been the extraordinary new evolutionary event of the past nine million years, doubling in size in that time span, and the advantages of intellect were sprung on a realm of life completely unprepared for them. Until comparatively recently, the survival of any creature depended upon some combination of physical traits, such as speed, strength or ability to conceal. Thinking was the colossal new competitive advantage, so overwhelming that, without self-constraint, there has been no likely outcome except the plundering of Nature's Planet, and all its creatures, by Man's Planet. It is that outcome--the clear prospect of traveling to eternity on a diminished world with only the few life forms man has domesticated, his vermin, and the rather rare species that thrive in the new niches created by man's dominance--which now must occupy the attention of the human brain.

Certainly it comes into mine in uncomfortable hours of the early morning. As a geneticist, I feel a special doubt that the increasingly imbalanced system, Man's Planet incessantly exterminating the chances of the creatures of Nature's Planet, can long persist.

Man learned long ago that his survival and well-being were tied to the domestication of certain living things. But he has been terrifyingly slow to accept that the outcome of his utter domination of the natural realm is that he, in turn, must somehow become its steward in order for both nature's world and his own to survive indefinitely.

To find a pattern that can sustain itself indefinitely. That's the rub. Zoos, botanical gardens, seed banks, gene banks, wildlife refuges, major preserves, all have a place in such sustenance. But they fall far short of providing a sustaining pattern. The initial requirement for any sustaining pattern is habitat devoid of man's influence. Put one man, modernly equipped, on a 10 square miles of any refuge, and in his lifetime he could wipe out all the larger mammals and upset most of the natural balances.

This need for man to be entirely absent is not as broadly understood as it might be, simply because it is only a rapidly dwindling minority of us who have intimately known portions of the world in its natural state, and have measured or observed the profound changes as man has entered. In my own case, I had the privilege of "developing" a 15,000-acre portion of mountain ecosystem that had no detectable influence of man. The richness of life forms and numbers in this balanced Natural World continually amazed me.

An example, in which actual counts were made, was

the trout population in one of the area's cascading streams. In a swirling hole between two riffles, some ninety feet long and a third as wide, occasionally as deep as five feet but mostly less than two feet, we began to sample the native fish population. Placing nets across the riffles to contain the fish, we then repeatedly netted through the hole, clipping a fin from each captured fish of more than four inches. I had estimated there might be fifty or a hundred such fish. After four passes, the total was more than eleven hundred. In a smaller hole upstream, we counted another unexpected plenitude, more than four hundred. But now, as man regularly enters that area, both the surprising experience of coming onto such abundance and the actual numbers have waned almost out of recognition: today a dozen four-inch trout would be thought a bonanza in either of those holes.

Since that time, I have heard the epitaph of that wild area, spoken to me by a man of the generation before mine: "Man first came and took the fish, then the game, then the gold and silver ores, then the forests. Now they want the water, and I expect they will someday haul away the soil."

I recount this incident by way of saying that the mental struggle toward a pattern that would sustain indefinitely both Man's Planet and Nature's Planet has

gone on in me for years. Only recently has it occurred to me that the ever-present blockade--"how can this be achieved?"--is indeed perpetual, at least for the mind of just one man, and that there is new territory to be explored by skirting the eternal "how?" In those morning hours, I began anew under fresh rules, simply vowing that as a geneticist and a troubled neighbor of Nature's Planet, I would weigh the alternatives which bore on the goal of withdrawing man from nature's realm, single out what seemed to me the most logical ones available, and see what resulted. Whenever "how" got in the way, I would mentally slam it in the bedroom closet.

The morning thoughts began to muster. Freed from the nagging of "how," the first of them asked" what is the minimum that must be done to set a pattern which would save Nature's Planet?

The need speak itself plainly enough: each species must have undisturbed habitat as extensive as its natural range.

For many creatures, that natural range would be small. Indeed, for some, such as. . . , it already has been provided in natural areas set aside for them. But for others--migrating birds, whales--the range is almost worldwide. Yet the principle has to hold: every natural being needs

its natural habitat undisturbed, across the extent of its natural range of migration.

Here the thought struck me that what is needed is, in effect, a set of double worlds--man's and nature's--but the societal declaration that nature's portion must be left in peace to continue its evolution. We have vast evidence that Nature's Planet has shown little capacity to cope with a man-influenced evolution. Somehow, then, man must declare enough of the earth's surface surplus to his needs that all the rest of creation will have natural habitat. There must be Nature's Planet, and there must be Man's Planet, delineated and kept apart from its more fragile neighbor.

What that bespeaks, in the cold morning light of reason, is nothing less than the freeing of vast expanses from Man's Planet and returning them to Nature's Planet as inviolably undisturbed habitat.

As unacceptable as this first appears, another morning thought points out that such action is not altogether unprecedented for mankind. Man already has designated some not inconsiderable areas for this very purpose of preserving the natural realm--national parks and wildlife refuges. True, many of these portions of the world have been yielded up by man because their value to him is relatively low: lands, that is, usually outside the temperate zone or at

high elevations. Yet there are examples even of high-value land being set aside for nature, enough such examples to encourage the next question: "If man occasionally is able to yield land to nature without dire effect, why isn't he able systematically to yield a portion of his land?"

This touches against an almost sacred precept of western man, the concept of land ownership. As a resource, land is part of man's riches. It is not too much to say that western man may feel a genuine kind of love for land that he can call his own. But western man also harbors the general assumption that he must "develop" land in some way that provides a "return." Any acre that will make a dollar somehow must be used to make a dollar, if only to pay its taxes.

Yet, why is it that man needs extensive land? In the last analysis, it is because land has been a producer of his goods, services and enjoyments. If those could be supplied adequately on less land, or by processes that did not involve land, there is no longer any reason to dominate--"own"--the portion of land that has become surplus to his needs.

About now, the closet door begins to be busy with "how"--the "how" of increasing the efficiency of our agriculture and forestry and other uses of the land to meet more and more of man's needs on less and less acreage;

the "how" of world population control; the "how" of alternative energy sources to leave inviolate some of the lands which now stoke our needs for coal, oil and wood. All are daunting, but each already has the beginning of a response--man's record of increasing sophistication in survival skills, proven methods of birth control, the solar promise--and so, reassured that the as-yet-unresolved dilemmas aren't overflowing the closet, my thoughts return to the "what" of the matter.

What must be achieved, I believe, is a pattern of land use which would re-weave the relationship between Man's Planet and Nature's Planet into a vast reticulum: a global network of undisturbed habitat, with continuous inviolate boundaries to protect creatures from man and man from creatures.

The pattern must be earth-wide, both because the need for habitat for all life forms demands refuge lands in every sector of the globe and on all its types of surface, and because the natural ranges of some creatures are so extensive that only a continuous pathway of habitat will serve. Isolated "islands" of refuge will not be sufficient.

The portion of Earth to be devoted to his purpose--"rewoven" into the necessary reticulum of refuge, so to speak--will have to derive from man's enlightened decision about what is "surplus" to him. Mankind will be able to reserve all of the world's surface to really need.

reserve all of the world's surface it really needs; the recognition that the remainder is more essential for nature's purposes will be the key. Man's Planet still will include all his cities, his interconnecting roads, his lands needed for food and fiber production, for his recreation, his sports and his managed game areas. In this realm of mankind, Man's Planet, there would be no constraints upon man's domination, even at the expense or obliteration, if appropriate, of remainders from the natural realm.

I picture the possible pattern of Man's Planet, under these new terms for survival of the double world, as including much of mankind's present way of life: city, suburbia, industrial parks, surrounding agricultural and forest land intermingled with reserves for increased game populations. As now, the land would become successively less densely populated outward from the urban centers.

And then the essential difference: at some definite point, the sharply definable barrier beyond which Nature's Planet begins, in secure solitude.

There would be instances where Nature's Planet could finger into Man's Planet practically to the city's edge. The thought of having the realm of the natural come so close into our communities that we could conveniently observe is an exciting prospect. Our children could grow up with an enhanced appreciation of the double world.

Similarly, the necessary pattern of interconnecting roads and other transportation links between population centers would emphasize the continuity, the continuous flow, needed for nature. The constant boundary would be at either edge of the right-of-way, widening here and there to provide for man's amenities, but in as many places as possible, nature's reticulum ought to be connected across man's transportation routes. Overpasses, underpasses, tunnels could provide quite free migration for the creatures of Nature's Planet. In a very real sense, the transportation and migration patterns would show that both Nature's Planet and Man's must be a complete, uninterrupted reticulum, with neither set of inhabitants being much restrained by the other from freedom of movement. The only constraint necessary is that the boundary between Nature's Planet and Man's, no matter how near and familiar, be kept inviolate.

Without an absolutely inviolate boundary, and precautions that it perpetually be kept so, Man's Planet and Nature's will not be able to coexist in the double world. The disastrous consequences of a broken boundary are clear: great animal herds could develop and, if loosed, wreak destruction in mankind's realm. Epidemics could surge out with them. Wildfire, a necessity of nature's realm, could sweep out. On the other hand, in some portions of the world, seas and deserts easily could serve as

boundaries; a simple fence might be adequate in some regions, moats and walls in others. Here again, man's capacity for survival will have to contrive the boundary methods needed; it is enough to say at this point that mankind has shown great ingenuity in the past in subsisting within defined borders.

Freed of "hows," such is the truce--indeed, the permanent peace--which I feel must be worked out between Man's Planet and Nature's Planet. In this double world we share, each realm to have its own inviolate reticulum, to insure its own evolution. The benefits would be colossal on both sides. Man no longer would have the internal conflict that his increasing sophistication must devastate nature; the reticulate pattern reverses that, by establishing that only through man's sophistication can nature be preserved. Nature's Planet likewise is freed: instead of the steady elimination of its life forms, with the largest and best always at peril from man's incursions, its global patterns of evolution could once more proceed.

Nothing, I believe, is of more importance than the establishment of such a balance between the two realms of our double world. As I have said, these are morning thoughts, lifted over the barriers of "how" to see how far they can go. Both as a geneticist and a member of mankind, I think they advance far enough to report back to us the glimmer,

in morning's earliest light, of two steady new spheres,
Man's Planet and Nature's Planet.

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ROY SILEN

--6/2-76:

S called about gene pool piece, incidentally mentioned his "tome". Said he carried it around and works on it as he can, but finds it hard, slow going. Had told me before that it's about how to save the natural world. Says it takes about 2 hours to explain what he's up to. The written version apparently would not be a book, but a longish article or monograph. We agreed he shd explain it to me next time we see each other.

Asked him for more detail about W'hser response to genes piece, said they'd been putting research money into clonal propagation-- covering entire hillsides with identical genex type -- now have cut out plans to do so. S said he's also getting response from the South, where all the years of tree farming have spread the same gene type over 4-5 states; Southern Tree Improvement people now being asked by owners what they're doing to them, does this guy in the NW have something? S: "South went whole hog into improved seed -- nobody even brought up the gene pool" until now.

Asked him if he's getting any flak inside USFS, he said on the contrary, both his immediate boss and the Svce-wide boss favor his thinking; immediate boss -- Romancier? -- went to some effort to promote the genes article, so now he too has a stake in its argument.

ROY R. SILEN

--called 3/29/77 to ask me to look over his "tome" on how to save the natural world. I agreed. He said *gene pool article has had repercussions. George W'hsler had his research people write him a "light" paper on the article's thesis, and as result W'hsler genes research has become "more consvty, closer to the chest"; "I think the 2 are tied." Also, Calif. Research Station has sent the article around, brought forth a vitriolic letter from Cal. Assn of industrial foresters against the piece to their 1200 members. S said he had thought main impact of article would be "about 5 yrs down the line, but it may come sooner. Also mentioned he's working with Citizens for Clean Envrnmt in Corvallis, targeting the Wa Chang plant in Albany. Said it's the only one that produces zirconium for nuclear plants, so gets away with its pollution -- "but we're in Oregon and we don't have to put up with that."

--called 4/11/77 to see what my 1st impressions of "tome" were; told him I'd only had time to glance, was impressed with double planet theme.

over

*"The Care and Handling of the Forest Gene Pool," Pacific Search,
June '76

7 April 1977

C
O
P
Y

Roy R. Silen
Forestry Sciences Laboratory
3200 Jefferson Way
Corvallis, OR 97331

Dear Roy:

Just a quick line to let you know that your opus arrived. I want to clear some time so the pages can have the undivided attention they deserve, so it will be about the end of April or early May before I get back to you. The first thing I'm going to do, though, is to have a typescript made, unless you have some screaming objection. I'm pretty sure my typist can do it for no more than \$50-\$75 (her rate is \$5 an hour for transcription); and a clean typescript would be highly helpful both to me in my looking over the piece -- I am an inveterate underliner and writer-in-the-margins -- and to you for any further pondering. Also, it'll give us a firm idea of the word total, a big consideration in figuring what to do with the material.

So, you'll hear from me in the next month or so. Did I tell you, incidentally, that I did a very brief follow-up piece for Pacific Search on the work of Libby and his Berkeley colleagues, from the genes bank material you sent me? Just a couple of hundred words, but worth doing, I thought.

best regards

12 April 1977

C
O
P
Y

Roy R. Silen
Forestry Sciences Laboratory
3200 Jefferson Way
Corvallis, OR 97331

Dear Roy:

Here is the tome back for typing. Sorry I didn't think to mention it when you originally called, but I'm so grooved into working on typed manuscript material that I'm almost helpless on any other sort. The idea, of course, is that I need room to write in margins, and to cut-and-paste-in any paragraphs of comment I may have at pertinent places. I won't do any editing on this first look-through -- just provide you any comment and evaluation I can -- but some of the physical going-over of the manuscript is much like that of editing.

As I mentioned on the phone, double-spaced typing with wide margins -- I usually have my own manuscripts done at about 10-12 words per line -- would be ideal. And on bond paper, which takes pencil writing the best.

I've just had the quickest of looks into your material, Roy. There's been an enormous distraction this past week or so: my agent has been negotiating a book contract with Harcourt Brace for my own opus -- a memoir of my growing up in Montana. We seem to have that in hand now, and I can settle down to work again. But from my glimpses into what you've put down on paper, it looks marvelously interesting and promising. I'll look forward to going through it thoroughly, and seeing what might be done with it, if we agree something should be.

best regards

Roy R. Silen
2135 SW Whiteside Drive
Corvallis, OR 97330

Dear Roy

Well, The Double Planet is quite an interesting proposition--interesting enough that I believe we can give some thought about putting it into print. It may not be easy, since "idea" pieces don't have a very big marketplace, and heaven knows, this piece is chocked with ideas. My instinct, Roy, is that the material should be thought of as a longish magazine article; if it doesn't pan out that way, it could become the prospectus for a short book. Assuming we could mull the material into shape, I can think of these possible magazine markets: Saturday Review; National Observer; Not Man Apart (published by Friends of the Earth); a new publication begun by the former editor of Harper's and called, I think, Public Interest; and possibly a few others.

For my part, I'd be willing to repeat the "Gene Pool" working arrangement: to do the editing for whatever fee the article would bring--which would be no more than a few hundred dollars from any of the above publications, I think--and to have the by-line again read "with Ivan Doig", to show you as the prime author.

Now, the clinker here is that I absolutely dare not take on a project of this sort before early next year. This Montana memoir I'm contracting with Harcourt Brace to publish is my main shot as an author: I've got a huge amount of writing to do on it yet, and all of it has to be good. So, I'm clearing the decks for that, entirely, from now until my end-of-the-year deadline. But sometime in the first months of '78, I plan to begin on a regional book which will have me coming to Oregon, and give me some time and opportunity to talk over The Double Planet with you. If you're willing to wait that long, I think we can do some good with the material.

In the meantime, can you do some mulling and refining? If you have a colleague or two whose opinion you think would be valuable, how about submitting the material--as a quite preliminary draft--for comment? And I'm attaching a page of hasty notions and criticisms which came to me as I read it over:

p.3--Your material here about conscience seems to me to be strong stuff, and maybe can become even stronger. Are you in effect forecasting unprecedented guilt -- a kind of global guilt, or at least guilt which will encompass our own civilization -- which the environmental movement may be the first stirrings of? It occurs to me that man has come to regret his habit of warfare, come to see it as the worst of his traits; are you saying -- or do you want to say -- that in time he'll realize his constant and colossal aggression against the Natural World?

p. 7 -- Your phrase about "complete refuge", 2/3 way down the page, struck me: in a way, aren't you saying that the two worlds, Man's and Natural, are going to have to become refugee camps: the inhabitants of each kept secure from the consequences of the other?

reticulum

p. 13 -- Worth noting that exchange of territory, as you're suggesting at top of page, is not historically new: boundaries have shifted constantly under pressures of the moment.

p. 14 ** Let me give you the devil's advocate response to your line that "saving the natural world finally depends upon man's increasing sophistication." Hasn't sophistication -- technology -- almost automatically meant a bigger drain on resources: i.e., new products, new substances, new feeding of consumer habits? What of Schumacher's "small is beautiful" notion; any room for it here?

p. 18 -- The problem of boundary between the Natural World and Man's is one of the few I may be much help on, since much of my graduate work in history was about frontiers. Some quick notions which occur: in a way, you're talking about a global DMZ -- demilitarized zone -- between the Worlds, aren't you? You're also talking about mankind having, in effect, to live behind walls -- and there's vast historical background for this: man long lived in walled cities, or behind fortified or ~~xxx~~ otherwise fearsome borders. On this continent, we've lived a kind of "walled" existence -- behind our barriers of ocean -- until the past generation, when long-range bombers and missiles came into being. A thought for your boundary proposal: would there be a buffer zone, as a transition between the two Worlds, where perhaps ecologically-minded and -trained settlers could live -- perhaps practice forestry, truck farming or small craftwork, as a modern counterpart of the pioneers? In a way, that is the role the Indians could ~~xxx~~ have played on this continent, if the decisions hadn't been made to push them onto reservations and try to retool them into white folks. There was an interesting attempt in that direction, quickly abandoned, during Washington's administration: a system of fur "factorys" -- i.e., where "factors" bought fur -- was tried as a way for the Indians to continue their hunting ways and have a source of support from it.

Also, I'm enclosing a book which may suggest ideas to you about how concepts of law--and thus society-- might be changed on matters such as protecting the Natural World.

I'm off to Montana for several weeks on or about June 15. This is all pretty preliminary stuff, Roy, but it's meant to be some encouragement, and a kind of holding action. I feel that you've got ideas here which ought to be heard; let's plan to pace ourselves and see if we can make that happen.

best regards

2135 SW Whiteside Drive
Corvallis, OR 97330
May 5, 1977

Mr. Ivan Doig
17021 10th Avenue NW
Seattle, Wa 98177

Dear Ivan:

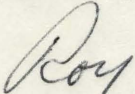
The typed manuscript is ready to be sent. It took a bit longer to get at it than I had hoped, but there is really no time frame involved other than convenience.

Reading your 12 April letter again, the general evaluation is what I have in mind, too. While it may seem I've covered a lot of detail already, I see I've left out the thought in the introductory pages emphasizing the desirability to let natural evolution proceed (at about page 17). Probably other items are also left hanging. If you uncover obvious gaps, please call attention to them.

Nobody has read this other than the typist, so if we decide it is best left unpublished, I won't have any explaining. That is an advantage.

Again, I appreciate your help.

Sincerely,



ROY R. SILEN

enclosure

9 May 1977

Roy R. Silen
2135 SW Whiteside Drive
Corvallis, OR 97330

Dear Roy

Just a quick line to let you know The Double Planet arrived okay, and to give you some idea of my schedule on it. I should be able to get it back to you, commented upon, within a month -- but maybe not much sooner than that. Then I'm off to Montana from about June 15-August 1, which will give you some time to mull my comments. And we'll go on from there, as fate dictates...

A totally separate topic: by coincidence, I just learned today of a young woman I know well -- my wife and I are close to her family, and watched her grow up -- who's casting about for her first job in forestry after graduating from the UW. She intends to work for awhile, if she can, before going on to grad school, and is interested in the field of forest regeneration. From your eminent regional angle of vision, do you have any clues at all about which direction she should turn in today's job market -- i.e., any notion what you would do if you were in her shoes right now? She's a bright and industrious gal, with some summer experience; also, she doesn't know I'm writing this, so no harm is done if you don't have anything to suggest on this score.

On the personal front, I'm negotiating a book contract with Harcourt Brace Jovanovich for my own opus, a Montana memoir I've been jotting at for years. It is grandly good news, and has a small bonus for you: a contract of this sort, and articles such as the travel pieces I've been doing for the New York Times, provides me more clout in the publishing world for a project such as The Double Planet. Dr. Silen always has been worth listening to; Dr. Doig is getting more so.

best

BN - St. Regis -
consultant
not p'work
of S + BLM
may have a lot
7 times
helping people
and works

Notes on meeting with Roy Silen in Olympia, May 16, '78:

--told him I would try sound out Not Man Apart about Double Planet article during my Calif. swing.

--agreed I'd mull, and perhaps query, Wm. Kauffmann as possible publisher, in that he pub'd "Should Trees Have Standing."

--told Roy that magazine market for idea pieces is damned thin: Sat. Review, Quest, a few others. Said if we do go that route, it's probably best done by me in person if I make an autumn NY trip.

Morning-after thoughts: probably best to try the material as an article, which could then become book. Sat. Rev. might be a bet; Audubon; Harper's. I think the piece will have to be done as something like "Night Thoughts of a Scientist"--be a personal musing

add to Silen phone call, April 17, '78:

He recently had flown cross-country, I think back from Florida, and looked down on the land all the way across: "We're beating the country to death. I think we need "The Double Planet."

25 May '78

Dear Roy--

I see no reason why you shouldn't send Dr. Stanton the draft of The Double Planet. I'd say neither one of us is very impulsive by nature, and that when an impulse does arise, probably it ought to be carried out, just to see what'll happen.

The information for your daughter: it turns out that the Argonne National Lab program is for journalists to learn about science, not vice versa, but my friend at Cal State, Northridge, says the American Association for the Advancement of Science has a program for scientists. It's called the AAAS Mass Media Intern Program, and apparently finds summer work for scientific folks who are interested in journalism. It can be inquired about, he says, from the AAAS, 1515 Massachusetts Ave., NW, Washington, DC 20005. He cautions that it's likely too late to qualify for this summer's program, and adds that in any inquiry, she'd do well to ask about the existence of any other programs ~~than~~ besides this one.

My wife the professor confirms that she still thinks of Northwestern and Columbia as the best schools of journalism. Northwestern, however, still believes in requiring an undergraduate degree in journalism. Columbia doesn't, in its master's program, so far as we know. But we don't know anything about whether Columbia has a science writing curriculum. Northwestern does, and it's taught by one of our former professors -- Ben H. Baldwin. If she's interested in some off-chance of taking some science writing there, she probably could write him, c/o Medill School of Journalism, Northwestern U., Evanston, Ill, 60201.

On the Double Planet again: I've written to Stephanie Mills, editor of the Friends of the Earth publication NOE MAN APART, to see if I can talk to her during my late-June California trip. I am still trying to get a feel for a possible New York trip, during which I could talk to anyone there--right now, prospects point to late October or early November.

all for now

TO

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Ivan Roy

FROM

Roy film

SUBJECT

News Clipping

MESSAGE (WRITE CONCISE MESSAGE. SIGN AND FORWARD PARTS 1 AND 2 TO ADDRESSEE. RETAIN PART 3)

I'm tempted to send Dr Stanton the paper for review after reading the article. Here is the "Double Planet" in action. Note that Nature Conservancy has thought out rules for use. Note also that the funds are coming from industry for the purchase. Do you suppose he would feel encouraged to know that quite independent efforts seem aimed in the same direction?

SIGNATURE

Roy

REPLY (USE THIS SPACE FOR REPLY. SIGN AND DATE, RETURN PART 2 TO SENDER. RETAIN PART 1)

SIGNATURE

DATE

23 May 1978

Stephanie Mills
Editor, NOT MAN APART
124 Spear Street
San Francisco, CA 94105

Dear Stephanie Mills--

Although I'm primarily a writer on historical topics rather than the environment, I have done occasional pieces on environmental issues for PACIFIC SEARCH magazine here in the Northwest. (A couple of examples enclosed.) One of the bonuses of that work has been the confidence of a very senior genetics researcher, who has sought help from me in writing what he calls his "tome" about what he thinks must be done if man and nature are to continue in any kind of equable coexistence at all. I'm going to be in the Bay area June 22 and 23; if you can spare a little time, I'd like to talk with you or someone else on the NMA staff about the prospect of an article from this gent's ideas.

Put simply, the piece would be the night thoughts of a distinguished, and deeply worried, scientist. His theme is what he calls "the double planet" -- man's enclave, and nature's -- and the measures needed for two segments to abide, without man's portion elbowing the other to disaster. It is, needless to say, a boggling and fascinating theme.

I might explain that my stake in this is more a citizen's than a writer's. I or some other writer will have to co-author the genetecist's draft into readability, and he's fingered me. Anyway, if you'd like to hear about the prospects of this piece, I'd like to come by and tell you.

cordially

call from Roy Silen, 6/10/77:

--wanted to tell me he'd received my comments on Double Planet. Then went through it, making it plain enough that he wasn't much impressed my commenting--"You probably did them before you got all the way through it." Made me thankful that I hadn't spent a great amount of time commenting on the entire ms; must keep reminding myself that S is not without ego, and takes some negotiating. That is, he can be edited, but maybe not much persuaded otherwise, at least on paper.

Anyway, agreed that we'd let Double Planet take its course over the next several months--he'll try refine it, I'll try place it with a magazine when I have $\frac{1}{2}$ life out of the way.

Interestingly, as he signed off, S said he thought we both needed each other--an intriguing admission from him.

FRIENDS OF THE EARTH

124 SPEAR SAN FRANCISCO CALIFORNIA 94105

(415) 495-4770

13 JUNE 1978

DEAR MR. DOIG,

Thank you for your query of
23 May. I would be glad to meet
with you when you are in the Bay
Area. Your proposed article sounds
fascinating and I look forward to
discussing it with you at length.

Sincerely,

Jamie Nelson

Managing Editor

Not Man Apart

Ray :

7/7/78

I enjoyed reading your paper - even though I don't agree with everything you say.

I see two areas for improvement -

1. General tightening. Your writer-friend will undoubtedly contribute here.

2. Presenting your boundary idea sooner.

I knew what was coming, but I think many readers might "turn-off" before they get to your main plan. The earlier material is similar in theme to many things that your readers will have already been exposed to - especially those that will read this.

Also, I think you emphasize your plan's ^{main} flow too much (i.e. how to control population).

One more point - the idea of a continuous boundary doesn't come across initially, and I think it should.

Good luck, Pete D.

Frank Brennan's Review

Frank says he was left cold by two ideas

1) My example of giving up half of my 13 acres means that I expected to keep 6 1/2 acres. For the US if everybody did that it would require most of the country's acreage. I had lost touch the example in terms of how many acres per person is now needed, and not my get an impossible example.

2) He did not believe I had much of a point about getting the funding from bequests unless I had better data on prospects.

Both the above are side issues that could be easily handled. They do bring up the point that most people will be critical of the details, while probably not finding fault with the overall objective or the thought to it.

He found no technical problems that would indicate I had goofed in the Meeteetse interpretations.

He was impressed by the example of the fish on Forkout Creek and felt the lack of examples was a major failing. I explained that ~~this~~^{it} would not be difficult for me to flesh out most portions with examples, but deliberately reduced them to the ones I actually thought about that night.

I had the feeling my paper was not convincing, though interesting and provocative to him. I may sound him out later for afterthoughts, to see if it had lingering, hopefully disturbing reflections.

Bob Treahel's Review

I had asked Bob to review it from the standpoint of how a seasoned environmentalist might react to it.

Unlike forecasters, he had no previous warning about it. I received his report over the phone.

He said he spent about 1 1/2 hours with it, claiming to be a slow (and I know careful) reader. He said he had no inclination to put it down, which he says he does with much stuff nowadays. We had a long conversation and my note keeping was not the best. At the end he made these points as part of a review which I asked for.

1. The material deserves to be expanded rather than shortened, needing examples and more explanation at various parts.
2. The audience he had assumed was the college trained, thinking reader with a fairly good

science and ecology background.
Although there was much explanatory
stuff in it, occasionally it became
plain that the intended audience
would have to be quite knowledgeable.

3. A part should be devoted to
contrasting the Double Planet with
single planet proposals (also with
someones 4 planet proposal - with
"Prove how lived Harlequin) and compelling ideas

4. He felt I was fuzzy about what
the size of the natural world would
be. We talked at length about the
various concept that would be competitive
with this one, but conceded this one had ^{features} unique.

5. The idea that this was different
than the views on simply dispersing
the people as opposed to concentrating
them in cities seemed to have some
special significance in some context that
I didn't quite understand or I had
misheard, Anyway I have a note about it

As an aside he commented - that
my last paragraph about the futility
of trying to get my ideas expressed
was especially poignant.

6 August '78

Dear Roy--

Here's the couple of clippings I've been intending to pass along to you, and some directions to the house, if you and the Mrs. can come by sometime the weekend of the 19-20th.

Come north on I-5, past downtown, to the NE 145th Street exit. Take that exit, turn left (west) onto 145th, continue to the second stoplight, which will be Aurora Avenue North.

Turn right (north) on Aurora, continue to the second stoplight again, which will be N. 160th; turn left there.

On 160th, you'll go past one stoplight, and come to a stop sign at Greenwood Avenue. Turn right there, then make an immediate left, past Shoreline Community College. You're now on Innis Arden Way, and follow it all the way down the hill and up a little rise to the stop sign.

This is our street, 10th NW; turn right, and our house is the fourth one on the left --the one with a screen of trees, and the driveway immediately beyond a set of 3 mailboxes. Pull your car into the driveway, and you're here.

So, we'll hope to see you. Come for lunch if you can, or a cup of coffee if you can't.

best

18 Dec. '78

Dear Roy--

Enclosed is my edited version of the Double Planet. And I truly did edit, perhaps more than you wanted. This version is under 3,000 words, and concentrates on the reticulum idea, at the expense of a lot of your original manuscript. Will be glad to tell you more of my reasoning on the phone, but briefly, I found that in any number of cases, your supporting arguments on the need for the Double Planet, or illustrations from your work or thinking, either were or could be entire article topics in themselves. That is, in magazine terms, the mix seemed too rich, and I chose to do a version which would focus more narrowly on your main point, the reticulum idea. In book terms, of course, any number of your other points could be dealt with at length.

Also, at a few points, in doing some shortening I found that I had to guess at terminology or reasoning. If you see such places, fix them up; they're simply the best my non-scientific mind could do.

I put the "Ragnar Leopold" byline on just for whim; rather thought the ghost of Aldo Leopold would like the Double Planet.

Now: I realize this is a pretty truncated version. But a lot of times in the magazine world, that's not too bad an idea. Editors being so damned lazy, they're generally more willing to say of an article, "this is a bit short, how about expanding?" than they are to take on something they think they'd have to spend time editing down. I know, though, that this may be more truncated than you're comfortable with. We'll simply have to talk it over.

I'm about to begin the writing schedule on my next book--likely will have the phone shut down in the mornings, though the answering device will be on duty. So, when we all get shut of the holidays, give a call some afternoon, hmm?

Best. Hope Washington went well.

p.s. Am enclosing a Harper's piece which makes me think they're never going to be much interested in the Double Planet.

1
my rough-draft review
of Ragnar "Double Planet"

2 # MORNING THOUGHTS ON THE DOUBLE ~~WORLD~~
~~PLANET~~

4 # By Ragnar Leopold

Before the mid-1800s, Man's Planet, where people dominated, amounted to a number of enclaves on each continent. Man usually needed only to climb to some easily-reached promontory to see across the borders of his influence into the greatly ^{more} ~~vaster~~ world dominated by the non-human forms of life--Nature's Planet.

Indeed, man still lived in some fear of Nature's Planet, both because of the extent of its dominance--in jungle, forest, desert and ocean--and because of ^{his} ~~the~~ age-old struggle, ^{in earnest} ~~which~~ begun with the invention of the spear, ~~between~~ with the larger animals of the natural realm.

But that particular fear was misplaced, for man was rapidly
"winning" against ~~the~~ Nature's Planet. Extinction of the larger
animals began to quicken after that invention of the spear, and
already was complete for the mastodon and other pachyderms of Europe,
northern Asia, ^{and} North and South America, ^{well} ~~even~~ before the occurrence
of gunpowder. With great energy, Man's Planet has been at work
removing the balanced complex of life forms that once was exquisitely
adapted to Nature's Planet, until, as habitat after habitat has been
broken, extinction is a ^{looming} ~~definite~~ prospect for virtually all species ^{still}
~~inhabiting~~ ~~Nature's Planet.~~ ^{9/} The geography of the double world, has been
reversed: except for the patches man himself preserves, ~~the~~ Nature's
Planet has shrunk almost entirely out of the temperate regions, and
is eroding as well from the tropics and arctics, and from the mountain
country and oceans where inaccessibility or inhospitality of climate
once provided the ~~buffer~~ of remoteness. Now it is Nature's Planet
that exists in enclaves; the remaining free animals have only to climb
^{some near} to a promontory to see the vast landscape in every direction dominated
by Man's Planet.

3
FOLLOWING OLIPHANT TRACKS
THROUGH IDAHO

To me, as a geneticist,

Both as a geneticist and ^{as} a citizen of Man's Planet, I believe

~~greater~~ that no more cataclysmic change has occurred in this century than

~~of Earth.~~ this reversed status of the double world. During the "ascent" of man,

Nature's Planet ~~has~~ served as the horn of plenty to ~~provide for~~ provision

and resiliency mankind's continuing existence; the extent of the natural realm has

been man's margin for error, the omnipresent frontier to absorb his

That is why

excesses. ~~But~~ There is no worse news for modern man than the grim

statistics of extinction rates on Nature's Planet.

Even the best-intentioned dwellers of Man's Planet may not

comprehend what the extinction of a species really means. ~~Now~~ before

man's dominance, extinction rates on Nature's Planet were appreciable,

yet by the evidence of the intricacy of linkages ^{evolved} between life forms,

the pace was infinitely slower than today's. No species can be on

earth without an unbroken germ line that goes back, one generation

at a time, through millions or billions of generations, to the very

beginning of life in our solar systems. In genetic terms, there simply

are no exceptions. As the habitat of a species anywhere on Nature's

170

Planet becomes limited, then restricted, then rare, then gone,

that species, and the others that depend on it, must disappear, as

each is deprived of some vital link in its life cycle.

Where ^{as} today, the rate of species extinction ~~is~~ ^{is} changing from a number of rivulets on each continent, ~~the rate must soon converge~~ ^{it must soon become} into a torrent, ~~then~~ a flood.

It is my deepest belief that even before it reaches full spate, the extinction of ^{as much} ~~most~~ of ^{Nature's Planet} ~~the Natural World~~ will haunt man's conscience more than any previous guilt he has shared.

~~system.~~ To cause even a single extinction of a species is one of the truly moral sins ^{of} to which man is capable. ~~For~~ ^{he} alone does so knowingly, and he alone has a conscience.

FOLLOWING OLIPHANT TRACKS THROUGH IDAHO

He has, too, the instrument which has wrought so much change

on our double world: the human brain. Man's brain has been the

extraordinary new evolutionary event of the past nine million years,

doubling in size in that time span, and the advantages of intellect

were sprung on a realm of life completely unprepared for them. Until

comparatively recently, the survival of any creature depended upon

some combination of physical traits, such as speed, strength or ability

to conceal. Thinking was the colossal new competitive advantage, so

overwhelming that, without self-constraint, there has been no likely

outcome except the plundering of Nature's Planet, and all its creatures,

by Man's Planet. It is that ~~new~~ outcome--the clear prospect of

traveling to eternity on a diminished world with only the few life

forms man has domesticated, his vermin, and the rather rare species

that thrive in the new niches created by man's dominance--which now

must occupy the attention of the human brain.

WITH A BEAUTIFUL BOOK

159¢

1000 MINTA

Seattle

IVAN DOIG

February 1976

FOLLOWING OLIPHANT TRACKS THROUGH IDAHO

Certainly it comes into mine in uncomfortable hours of the early morning. As a geneticist, I feel a special doubt that the imbalanced increasingly system, Man's Planet incessantly exterminating the chances of the creatures of Nature's Planet, can long persist.

Man ~~He~~ learned long ago ^{well} that his survival and ~~well-being~~ ^{terrifyingly} were tied to the domestication of certain living things. But he has ~~been~~ ^{slowly} to accept that the outcome of ~~the~~ ^{his} utter domination of the Natural World might ~~be in~~ ^{realm is that} turn that he ~~has~~ ^{in turn, must somehow} become its steward in order for ~~him~~ ^{both nature's world and his own} to survive indefinitely.

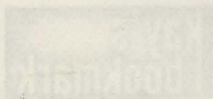
A PATTERN

A To find A pattern that can sustain itself indefinitely. That's the rub. The ~~ideas of~~ ^{in such sustenance.} zoos, botanical gardens, seed banks, gene banks, wildlife refuges, major preserves, all have a place. But they fall far short of providing a sustaining pattern. ^{The initial requirement for} The ~~crux of~~ any sustaining pattern ^{is} involves habitat devoid of man's influence. Put one man, modernly equipped, on a 10 square miles of any refuge, and in his lifetime he could wipe out all the larger mammals and upset most of the natural balances.

WARN SOMEONE YOU LOVE

WITH A BEAUTIFUL

BOOK



University Village
622-0400
Seattle

IVAN DOIO

...ing will was once with country where
loggers were cutting down the last trees.
On the bank, the beamed water
now lay along 10,000 acres for use by the
camping-boating-fishing public. There are
campuses which can be reached only by
boat, and others available only by spurs
back roads. The area is a handsome region of
lofty ridges with timber, and the new
roads and bridges and the water route open it
wide. Convention to this new Dinosaur
restoration area is the town of Orderville, 100
and pleasantly tucked into its south.
All in all, this is a sudden new lake district
amid the high Idaho ridges, and in-
viting for the camper and boater.
(The Dinosaur Dam-Orderville area is east
from Lewiston on U.S. 12. Recreation area
information is available at the dam's visitor

understood as it might be, simply because it is only a rapidly dwindling

dwindling rapidly who have intimately known portions of the world in its natural state, and have measured or observed the profound changes as man has entered. In my own case, I had the privilege of "developing" a 15,000-acre *mountain ecosystem* portion of the Oregon Cascades Mountains that had no detectable influence

of man. The richness of life forms and numbers in this balanced Natural World continuously ^{ally} amazed me. ~~I will give only one example,~~ ^{I can} ~~one~~ ⁱⁿ which actual counts were made, ~~This concerns the trout population in the cascading streams,~~ ^{was} ~~one of the area's~~

In a swirling hole between two riffles, some ninety feet long and

a third as wide, occasionally as deep as five feet but mostly less

than two feet, we began to sample the native fish population. Placing

nets across the riffles to contain the fish, we then repeatedly netted

through the hole, clipping a fin from each captured fish of more than

four inches. I had estimated there might be fifty or a hundred such

fish. After four passes, the total was more than eleven hundred.

In a smaller hole upstream, we counted another unexpected plenitude,

more than four hundred. But now, as man regularly enters that area,

both the ~~number of fish~~ ^{surprising} experience of coming onto such abundance

and the actual numbers have waned almost out of recognition: today a

dozen four-inch trout would be thought a bonanza in either of those

holes.

~~But in the last few years~~

Since that time, I have heard the epitaph of that ~~area~~ wild area,

spoken to me by a man of the generation before mine: "Man first came

and took the fish, then the game, then the gold and silver ores, then

the forests. Now they want the water, and I expect they will someday

haul away the soil."

I recount this incident by way of saying that the mental struggle
toward a pattern that would indefinitely sustain both Man's Planet and Nature's Planet

has gone on in me for years. Only recently has it occurred to me
that the ever-present blockade--"how can this be achieved?"--is indeed

perpetual, at least for the mind of just one man, and that there is
new territory to be explored by skirting the eternal "how?" In those

morning hours, I began anew under fresh rules, simply vowing that,

~~I would weigh the alternatives for which I,~~ as a geneticist and a
troubled neighbor of Nature's Planet, I would weigh the alternatives
withdrawing man from
which bore on the goal of sustaining nature's realm, ~~which~~ single out

what seemed to me the most logical ones available, and see what resulted.

~~"How,"~~ Whenever "how" got in the way, I would ^{mentally} ~~mentally~~ slam
it in the bedroom closet.

1250

The morning thoughts began to muster. Freed from the nagging

of "how," the first of them asked: what is the minimum that must be

done to set a pattern which would save Nature's Planet?

The need speaks itself

plainly enough: each species must have undisturbed habitat as extensive as its natural range.

For ~~many~~ many creatures, that natural range would be small. Indeed, for some, such as....., it already has been provided in natural areas set aside for them. But for others--migrating birds, whales--the range is almost worldwide. Yet the principle has to hold: every natural being needs its natural habitat undisturbed, across the extent of its natural range of migration.

Brooks was gone tomorrow

Best. Carol--

New York, NY 10011

321 West 4th Street

New York, NY 10011

General Books

Editor-in-Chief and Publisher

Carol Hill

11

Here the thought struck me that what is needed is, ~~in effect,~~

not simply the tacit scientific recognition that the earth is, in

effect, a set of double worlds--man's and nature's--but the societal

declaration that nature's portion ^{must} ~~shall~~ be left in peace to continue

its evolution. We have vast evidence that Nature's Planet has shown

little capacity to cope with a man-influenced evolution. Somehow,

then, man must declare enough of the earth's surface surplus to his

needs that all the rest of creation will have natural habitat. There

must be Nature's Planet, and there must be Man's Planet, delineated

and kept ^{apart} ~~separate~~ from its more fragile neighbor.

bespeaks, in the cold morning light of reason, is nothing less than
 What that ~~bespoke~~ was the freeing of vast expanses from Man's

Planet and returning them to ~~the~~ Nature's Planet as ^{inviolably} undisturbed habitat.

As unacceptable as this first appeared, another morning thought
 pointed out that such action ~~was~~ not altogether unprecedented for
 mankind. Man already has designated some not inconsiderable areas

for this very purpose of preserving the natural realm--national parks

and wildlife refuges. True, many of these portions of the world have
 been yielded up by man because their value to him is relatively low:
 lands, that is, usually outside the temperate zone or at high elevations.

Yet there are examples even of high-value land being set aside for
 nature, enough such examples to encourage the next question: "If man

occasionally is able to yield land to nature without dire effect,

~~therefore~~ why isn't he able systematically to yield a portion of his

land?"

This touches against an almost sacred precept of western man, the concept of land ownership. As a resource, land is part of man's riches. It is not too much to say that western man may feel a genuine kind of love for land that he can call his own. But western man also harbors the general assumption that he must "develop" land in some way that provides a "return." Any acre that will make a dollar somehow must be used to make a dollar, if only to pay its taxes.

Yet, why is it that man needs extensive land? In the last analysis, it is because land has been a producer of his goods, services and enjoyments. If those could be supplied adequately on less land, or by processes that did not involve land, there is no longer any reason to dominate--"own"--the portion of land that has become surplus to his needs.

4 About now,

The closet door begins to be busy with "hows"--the "how" of increasing the efficiency of our agriculture and forestry and other uses of the land to meet more and more of man's needs on less and less acreage; the "how" of ^{world}population control; the "how" of ^{alternative}energy sources to leave inviolate some of the lands which now stoke our needs for coal, oil and wood. All are daunting, but each already has the beginning of a response--man's record of increasing sophistication ~~in~~ in survival skills, proven methods of birth control, the solar promise--and so, reassured that the as-yet-~~closed~~ ^{unresolved} dilemmas aren't overflowing the closet, my thoughts return to the "what" of the matter.

What must be achieved, I believe, is a pattern of land use which would re-weave the relationship between Man's Planet and Nature's Planet into a ^{vast}reticulum:

1800

SO Sept. '78

a global network of undisturbed habitat, with continuous inviolate boundaries to protect creatures from man and man from creatures.

The pattern must be earth-wide, both because the need for habitat for all life forms demands refuge lands in every sector of the globe and on ~~all~~ its types of surface, and because the natural ranges of some creatures are so extensive that only a continuous pathway of habitat will serve. Isolated "islands" of refuge will not be sufficient.

The portion of Earth to be devoted to this purpose---"rewoven" into the necessary ~~of~~ reticulum of refuge, so to ~~rework~~ speak---will have to derive from man's enlightened decision about what is "surplus" to him. Mankind will be able to reserve all of the world's surface it really needs; the recognition that the remainder is more essential for nature's purposes will be the key. Man's Planet still will include all his cities, his interconnecting roads, his lands needed for food and fiber production, for his recreation, his sports and his managed game areas. In this realm of mankind, Man's Planet, there would be

no constraints upon man's domination, even at the expense or obliteration, if appropriate, of remainders from the natural realm.

I picture the possible pattern of Man's Planet, under these new terms for survival of the double world, as including much of mankind's present way of life: city, suburbia, industrial parks, surrounding agricultural and forest land intermingled with reserves for increased game populations. As now, the land would become successively less densely populated outward from the urban centers.

And then the essential difference: at some definite point, the sharply definable barrier beyond which Nature's Planet ^{begins} ~~began~~, in secure solitude.

There would be instances where Nature's Planet could finger into Man's Planet practically to the city's edge. The thought of having the realm of the natural come so close into our communities that we could conveniently observe is an exciting prospect. Our children could grow up with an enhanced appreciation of the double world.

Similarly, the necessary pattern of interconnecting roads and other transportation links between population centers would emphasize the continuity, the continuous flow, needed for nature. The constant boundary would be at either edge of the right-of-way, widening here and there to provide for man's amenities, but in as many places as possible, nature's reticulum ought to be connected across man's transportation routes. Overpasses, underpasses, tunnels could provide quite free migration for the creatures of Nature's Planet. In a very real sense, the transportation and migration patterns would show that both Nature's Planet and Man's must be a ~~far~~ complete, ^{uninterrupted} ~~functioning~~ reticulum, with neither set of inhabitants being much restrained by the other from freedom of movement.

The only ~~xx~~ constraint necessary is that the boundary between Nature's Planet and Man's, no matter how near and familiar, be kept inviolate.

Without an absolutely inviolate boundary, and precautions that it perpetually be kept so, Man's Planet and Nature's will not be able to coexist in the double world. The disastrous consequences of a broken boundary are clear: great animal herds could develop ~~that~~ and, if loosed, wreak destruction in mankind's realm. ~~Disease~~ epidemics could surge out with them. Wildfire, a necessity of nature's realm, could sweep out. On the other hand, in some portions of the world, seas and deserts ^{easily} could serve as boundaries; a simple fence might be adequate in some regions, moats and walls in others.

Here again, man's capacity for survival will have to contrive the boundary methods needed; it is enough to say at this point that mankind has shown great ingenuity in the past in subsisting within defined borders.

Freed of "hows," such is the truce--indeed, the permanent peace--
which I feel must be worked out between Man's Planet and Nature's Planet.
In this double world we share, each realm to have its own inviolate
reticulum, to insure its own evolution. The benefits would be colossal
on both sides. Man no longer would have the internal conflict that
his increasing sophistication must devastate nature; the reticulate
pattern reverses that, by establishing that only through man's
sophistication can nature be preserved. Nature's Planet likewise is
freed: instead of the steady elimination of its life forms, with the
largest and best always at peril from man's incursions, its global
patterns of evolution could once more proceed.

Nothing, I believe, is of more importance than the establishment
of such a balance between the two realms of our double world. As I
have said, these are morning thoughts, lifted over the barriers of "how"
to see how far they can go. Both as a geneticist and a member of mankind,
I think they advance far enough to report back to us the glimmer,
in morning's earliest light, of two steady new spheres, Man's Planet
and Nature's Planet.

THE DOUBLE PLANET

(A Long-Range Goal for the Environmental Movement)

Of all the revolutions accompanying the Industrial Revolution, none has been any more profound than that undergone by the Natural World. Before the mid-, or even the late, 1800's, Man's World, the part people dominated ^{to} the virtual exclusion of the Natural World, amounted to a number of enclaves on each Continent. Man usually needed only to climb to some easily-reached viewpoint to see the vast landscape beyond his enclave dominated by the Natural World.

Should he be driven out of his enclave by some collapse of his society the Natural World moved back with great resiliency, and within a few years restored its domination, whether the enclave was wholly on land or partly on water. Except where man had settled most densely and longest-- ^{before 1800} Already/some of the resiliency was gone in the valley systems surrounding the Mediterranean, western Europe, and parts of Asia. The valley floors had been cropped too regularly, the best trees removed from their forests too often, and the animals plundered to local extinction.

Broadscale extinction of the larger animals had begun, coinciding perhaps with the invention of the spear, and already was complete for such animals as the mastadon and other pachyderms in Europe, northern Asia, North and South America, before the invention of gunpowder. Even so

the Natural World dominated most of the planet. With the invention of the spear, there has always been a Double Planet made up of the Natural World and the Man's World. Until the 1800's the world was still predominantly Natural. Man still lived in fear of it as if it were an enemy and, conversely, where fear was possible all creatures lived in utter horror of bands of men, for no creature except their vermin could prevail against them.

As the 20th Century draws to an end, the Revolution is virtually complete. The Natural World has shrunk to a few enclaves. The remaining free animals usually have only to climb to some high viewpoint to see the vast landscape in every direction dominated by Man's World. Should they be drawn out of these enclaves finally, Man's World enters with great energy removing often the last vestiges of the balanced complex of life forms that once was exquisitely adapted there, whether it be on land or sea. The Natural World is virtually gone from the temperate regions except for the enclaves man himself protects. The pace with which this flip-flop has occurred is accelerating into the tropics and arctics, to the mountain tops and oceans where inaccessibility or inhospitability of climate once provided the protection of remoteness to the Natural World. And as vital links in the chains of habitats essential to each species of the Natural World have been broken, extinction has been or is being faced by practically all species of the Natural World.

No more cataclysmic change (si) occurring as an accompaniment to the 20th Century than that associated with loss of the Natural World. During the "ascent" of man, the Natural World has served as the inexhaustible horn of plenty to provide for his existence, and as the inexhaustible blotter to absorb his excesses. He has never faced the prospect before of going it alone, and its loss could well be the final act in his collapse. But the

first challenge to man may be his guilt-ridden conscience as extinction of species of the Natural World becomes a crescendo.

Extinction rates are grim statistics. Few comprehend the utter ^{finally?} meaning of extinction of a species. No species can be on the earth without an unbroken germ line that goes back one generation at a time through millions or billions of generations to the very beginning of life in our solar system. To cause even a single extinction of a species is one of the truly moral sins to which man is capable. For he alone does so knowingly, and he alone has a conscience.

Extinction rates in the Natural World were appreciable. They became many times greater after the invention of gunpowder. By the opening of the 20th Century, they had become cause for concern in the scientific community. By today the rate has mushroomed and is of wide concern among the environmentalist groups. As natural habitats everywhere on each continent become limited, then restricted, then rare, then gone, the creatures depending on them must disappear, as each is deprived of some vital link in its life cycle. Where today the rate of species extinction is changing from a number of rivulets on each continent, the rate must soon converge into a torrent, then a flood. Before it reaches its crescento, the extinction of most of the Natural World will haunt man's conscience more than any previous guilt he has shared.

The sad fact of life is that there is no return from extinction. Even if it were somehow possible to halt everything and try to restore the Natural World, the extinct species are irretrievably gone. But today ^{the Natural World} ~~it~~ would still bound back in most habitats with resiliency. Each decade henceforth reduces the resiliency potential.

But what is to halt us. The stage is now set for the mass extinction of the Natural World. There is little time left between now and the clear prospect of traveling to eternity on Spaceship Earth with man and the few life forms he has domesticated, his vermin, and the rather rare species that thrives in the new niches he creates.

How long ^{will} can such an ^{unnatural,} imbalanced system persist? For billions of years comparable to the period the Natural World has existed previous to man? For even a century? What a prospect for our children!

The time grows short for us to ponder the question of the fate of the Natural World. In some form or other, many have before me. My own attempts are represented by this outpouring. For many years I, too, have been concerned. Being of practical bent, any ideas or solutions I have had never even withstood my own analysis. The question, most simply put, was "How will man save the Natural World?" It is an odd question in terms of geologic time. For billions of years man's lineage was with the Natural World. If any thinking being had then been able to pose the pertinent question, it would have been "How will the Natural World save man now that he has evolved?" This is another interesting flip-flop, well worth discussing at this point as an aside.

In the Natural World -until recently all survival depended upon some combination of physical trait like speed, strength, or concealment. Thinking, as a competitive advantage, is a very recent development. Considering that man's brain has been the extraordinary new evolutionary event, doubling in size is less than 9 million years, he was sprung on the planet completely unprepared for him. His brain evolution was so rapid and its advantage so

overwhelming that, without self constraint, there never could be any outcome but plundering of all other creatures-. Natural evolution of any clear advantage by any creature was always accompanied by wiping out competing forms of life in the dominated niches. What has happened to man is the same. But there is a new feature. Man can think ahead to a logical outcome. Man has something else--a conscience. He alone of all creatures can grasp that while the Natural World nurtured him through the billions of years he evolved, the role has suddenly changed. If he is to survive infinitely long he now knows he has the obligation to nurture his fellow creatures of the Natural World. This notion is not so strange, for it has been developing over a long period also.

He learned long ago that his survival and well being were tied to the domestication of certain living things. But he has been slow to accept that the outcome of the utter domination of the Natural World might be in turn that he has become its steward in order for him to survive indefinitely. He grudgingly wishes the earth's natural resources were inexhaustible so he could go on and on in dominating and plundering it with little more permanent consequence than the lion making its kill. But he is also equipped to think ahead far enough to see that such an outcome is absurd. He had better get about setting up what is left into a world pattern that can sustain itself indefinitely. One major question is what kind of relationship should become permanent with the Natural World. Left alone, his only prospect is a world depauperized of other life forms to the few that can survive indefinitely with him through rapid, endless changes. This is so bleak a prospect in a world now still visibly so full of life forms that the thinking human rejects it.

A PATTERN

A pattern that can sustain itself indefinitely. That's the rub. The ideas of zoos, botanical gardens, seed banks, gene banks, wildlife refuges-major preserves, all have a place. But they fall far short of providing a sustaining pattern. The crux of any sustaining pattern involves habitat devoid of man's influence. Put one man, modernly equipped, on a 10 square miles of any refuge, and in his lifetime he could wipe out all the larger mammals and upset most of the natural balances. The number of us is dwindling rapidly who have intimately known portions of the world in its natural state, and have measured or observed the profound changes as man has entered. In my own case, I had the privilege of "developing" a 15,000-acre portion of the Oregon Cascades Mountains that had no detectable influence of man. The richness of life forms and numbers in this balanced Natural World continuously amazed me. I will give only one example, one which actual counts were made. This concerns the trout population in the cascading stream.

In one swirling hole between two riffles that measured 90' long x 30' wide, and mostly less than 2' deep but an occasional spot nearly 5 feet deep, we sampled the native fish population. Nets were placed at the two riffles to contain the fish, and we repeatedly passed a net through the hole, clipping a fin from each encountered fish over ^{about 5} ~~6~~ inches. ^{those that slipped through the net} After four such passes, we were able to estimate quite accurately the number. I had expected 50 or perhaps 100 trout over ⁵ ~~6~~ inches in length. The number 1120 ^{±20}. In a smaller hole 5 miles upstream 50' long, 8' wide and mainly 2-4' deep, we encountered over 400. As regular entry into the area began, the numbers dropped until today a dozen 6-inch trout would be a bonanza in either hole.

The world has changed so rapidly that man has accepted a new lower norm for his "Natural World" with each generation. Newcomers into Oregon today arrive from such impoverished environments that they are usually delighted with

even the tattered remnants of such natural populations we view today, and proceed to plunder it further. Yet one can still travel to major remaining areas of Natural World such as Alaska where this richness of fauna and flora exists even in harsh habitats. The pity is that the world is now ^{mainly} populated with humans, ~~most~~ of whom have no experience or little concept of the Natural World except as it appears distorted on the television.

As

one man in the portion of the Cascades I then lived, who preceded me by a generation, observed, "Man first came and took our fish, then our game, then our gold and silver ores, then our forests. Now they want our water, and I expect they will haul away our soil"

The point of this whole diversion from the main theme is that we must accept the concept that any saving of the Natural World -must provide habitats removed from the influence of man. He can enter it, study it, enjoy it, but must be content to have zero impact on it. Any half-hearted, compromising approach simply ends up in man's domination, and with him directing the outcome of the balance of creatures that succeed and fail. Complete refuge is the only practical way of providing the complete habitats necessary for a whole life zone and with all its natural inhabitants living in a sustained dynamic balance.

The mental struggle to pose a pattern that will save both Man's World and the Natural World indefinitely has been for me a sustained though sporadic one for years. One must understand at the outset that no one has ever succeeded in this mental struggle, nor have I. What any of ^{us} can do at best is to advance the thinking toward this goal, and set it down so the next who tries can carry it further. The pattern that is being evolved here represents

the most satisfying one for me of the alternatives I know about. Simply having worked it out permits me to draw more precise inferences and make finer distinctions in the decisions I can influence than I have ever made before. In fact the entire pattern was developed through a series of choosing of the best among the alternatives ^{of which} I was aware of.

If the reader, now, is prepared to accept the idea that the proposal has an ~~inherent~~ⁱⁿ and known weakness, we can go on to a limited conclusion. Let me discuss the weakness.

^{SETTING} "HOW" ASIDE
This is involved with the word "how." No matter what idea I could propose toward the goal of saving the natural world, I would soon ask the question, "How?" and reach a dead end. For example, it becomes obvious at the outset that any proposal must assume a limited human population. If man's numbers continue to double at rapid rates, the natural world must become a casualty everywhere. So one of the prerequisites to any plan indefinitely sustainable is control of human populations at some reasonable level.

Likewise, another prerequisite is that humans must avoid a war involving a nuclear exchange since the Natural World would be the first casualty. When one asks the question "How?" he realizes that the solution to these two prerequisites is at least as difficult as the solution to saving the natural world. And, ~~without~~^{without} laboring the point with further examples of insoluble problems, my experience has always been that as soon as the question "How?" was raised, I had no answer. My thinking process ran up on a reef. This was always the weakness of my theme, and still is.

Perhaps I would have gone no further in thinking of a pattern were it not for waking at 4:00a.m. one morning. My mind was unusually clear. I began pondering the question of saving the Natural World as I had many times before.

Again I found myself nearing the shoals of the question of "How?" concerning world population. It suddenly occurred to me that I would never advance further this direction. I would always shipwreck upon some insoluble question involving the word "How?". I simply suggested to myself that I should play a game in which the basic rule was to ignore the question of "How" and go forward weighing each alternative for man that ~~had~~ a bearing on the goal, choosing the best of the ones available in my judgment.

In the clarity of 4:00 a.m. I was finally able to go through all the facets of various choices so that by 5:00 a.m. I had virtually swept the decks clean of choices and was searching for new problem areas to explore. It was as if the pent-up questions of a lifetime concerning the saving of the Natural World had burst to freedom. I did not know how the Natural World would be saved, but I felt I knew the alternatives I would choose to form a satisfying pattern for me.

So without exploring "how", let me ~~take~~ you through the many facets of "best alternatives" until the pattern emerges.

HUMAN POPULATION

As I now recall the question of world population was the first to be resolved. What should be the appropriate level of world human population for a sustainable balance of both worlds? Since I had no constraint for "How", the real question became, "What level of population is appropriate?" Quite obviously the world is already overpopulated. Each individual would have a better life if there were fewer to share what we have. Certainly fewer could produce all the goods and services we now have. So what might be an appropriate figure. Bracketing the possible range, it has to be more than two, and obviously smaller than now. My first thought was that roughly half of what we have now would be a good goal--2 billion. But it quickly

became clear that this was not a very basic answer for arriving at a best alternative. The number should be based upon how many people are needed to enhance the life for each. This number is still very large. Communities of 200,000 are needed to be self sufficient in producing the goods and services in the kind of life style that the human seems to desire. How many communities of 200,000 or larger? Fifty? One hundred? Perhaps. Add to this the factor that most humans, by preference, desire smaller communities, the best alternative I could propose for a starter was a population of 2 billion divided, as now, between communities half as large as now. I then realized that I did not need to resolve the number to any finer degree now.

Reaching this desired population goal sets a time frame. Freed from the constraint of how such a reduction might take place, another choice among alternatives was quickly reached. When one considers the ways the human population could be reduced by half, there appears only one acceptable alternative. War, famine, genocide, or forced reductions are not morally or humanly acceptable ones. Since birth control methods provide the only acceptable alternative, such a goal as halving the world population could not be achieved in less than three generations. Thus, the time frame in which my thoughts began to gel was minimally 60 years, or more likely a century. With so long a time frame, the answer of saving the natural world by ^{attaining} so small a human population as to put no demands upon it became an unviable alternative. A world population perhaps as large as now might need to be part of the sustainable pattern.

NAMING GENERATIONS

The thought process, as I lay at 4:00 a.m., raced along. I recall that

I placed names on the three generations. The present generation has an immediate appropriate name. Considering how unconcerned were my parents and their generation in anything but exploitation, they differed in no way from past generations. As a generality, we, for the first time, become the ones that are aware of the outcome of environmental distinction. Thus we are distinguished as the "Generation of Awareness." The next is as easy to name. All the problems that are surfacing in our generation will reach a crisis stage in theirs. Thus, they can already be labeled as living the "Generation of Crisis." We can only hope that the following generation can be labeled the "Generation of Solutions."

SOPHISTICATION OR THE CAVE?

Freed from the "how" constraint, the alternative sometimes posed of the human solving his problems by a simpler life that demanded considerably less of the natural world could be taken up in the cold light of reason. Could man, in a sense, go back to the cave? This alternative proved inviable. Man's brain has evolved irreversibly to greater size and capacity as a survival mechanism. It cannot reverse. We must simply face the prospect that man is shackled to the path of continuing sophistication that he launched upon with the discovery of tools. While he might voluntarily change his life style to reduce his demands on the natural world, this, in itself, is more sophistication.

THE HEIGHTENING DILEMMA

Realizing quickly the full potential dilemma that this thought train was taking did not shake me as such a direction would have before. The prospect for man of ever more sophistication could only add to the burden on the remaining resources of earth, living and non-living. "So what?", I recall thinking. "It's only another impossible mountain to climb. There must be some alternatives still that offer better approaches than others. Where will they lead?,"

Exploring this seemingly dark mine brought out to light the first promising ore. But first some more horns had to be added to the dilemma.

THE NEW RULES OF THE GAME

What, I next asked, must be done minimally to set a permanent pattern to save the natural world. From the many threads of the background fabric, the needs suggested themselves. Each species, including man, must have undisturbed permanent habitat as extensive as its natural range. For many, a natural range would be small. Indeed for some it has already been amply provided in natural areas set aside for them. But for others, the range is almost worldwide. The migrating birds on land and the whales at sea come immediately to mind. Surely, I began to reason, the whole world cannot be set aside as permanent refuge. "Another horn to the mounting dilemma," I recall thinking. "Oh, well!" As long as I was not letting the question of "how" constrain me, I accepted the obstacle. If the natural world was to be saved, why be chintzy. Every natural being needed its natural habitat permanently undisturbed over its natural range, so it must somehow be provided in any pattern I might propose.

What's Worth Saving

Pausing momentarily, the train of thought changed to the question, "Which species shall we save?" Of the multitudinous criterion that rushed to the fore as a basis for picking and choosing, only one alternative made any sense. The human has no defensible criterion on which to pick and choose. In my expansive mood, it was not only easy to choose the one alternative, but also logical. We must save them all.

THE NEXT RULE

It now became clear that the thrust of any further thinking had to be aimed at freeing vast expanses from Man's World and returning it to the Natural World as undisturbed habitat. As unacceptable as this first appeared, I observed that this was not a thought foreign to our minds. We already set aside extensive areas for the purpose. True, most of these are characterized by being generally remote, such as outside of the temperate zone or at high elevations. Generally the value to man is characterized by being relatively low. But there are marked exceptions, too, where the land set aside permanently is of high value. I asked the question, "If we had to set aside habitat wherever it was needed, even in our most valuable valleys, what might be the best alternative way?" In other words, the thrust of the unbridled thought process was to consider alternatives that would return ample habitat everywhere to the natural world, and to search for ways to do it under rules or conditions or alternatives that would be most acceptable, or at least with minimal impact.

It was here that the thought struck me that what we needed was two planets, one for man and one for the natural world to continue its existence and its natural evolution. The natural world has shown little capacity to cope with both natural evolution and a man-influenced evolution. Somehow we had to make do with one planet. Somehow man had to declare enough of it surplus to his needs to provide natural habitat for all the rest of creation. Somehow we had to make the earth into a double planet. This seemed the key--**declaring** land surplus to man's needs--truly unneeded and surplus.

EXPANDING ON THE WORD "SURPLUS"

By now some pieces of the racing thoughts were beginning to surmount the obstacles. Why does man need so much land, I began to ask. He needs it, in the

final analysis, to produce the goods, services, and enjoyments he needs. If he could supply them adequately on less land, or by processes that did not involve land, there is no reason to simply dominate land. Thus it became apparent that ^{at a time} anytime man could produce his good, services and enjoyments more efficiently on less land, he could declare the portion he freed as surplus to his needs. This is only if his population has stabilized and his total needs are finite. So, I recall thinking, the saving of the natural world finally depends upon man's increasing sophistication. He can save the natural world in his own interest only by becoming more sophisticated so that he can produce more and more of his needs on less and less land and incrementally declare what he has freed as surplus, as habitat, for the natural world--for the other half of the "double planet."

THE PHILOSOPHICAL FLIP-FLOP

It was ^{at} ~~plan~~, by now, that I was touching upon some almost sacred precepts of western man. Pitted against this stream of best alternatives was the concept of ownership. Land is a resource that is part of man's riches. He loves land that he can call his own. But western man also feels he must "develop" the land in some way that provides a "return." Any acre that will make a nickel must somehow be used to make a nickel, if only to pay taxes. What my racing thought process was saying was that another philosophy had to prevail. Reasonably man should only use the amount of land he needs to provide his increasingly sophisticated wants--all else was needed by the natural world for habitat. In fact, even some areas he "needs" must be used for natural habitat when essential habitat can be provided nowhere else. Plainly this flip-flop in our philosophy was not going to be very popular. Like solving the question of stabilizing world population, I was quite content to leave the question "how" the flip-flop might be accomplished behind and go on.

THE ROLE OF MAN'S SOPHISTICATION

If the success of saving the natural world depended upon man's ability to provide his needs on less and less land, then the goal began to be clear. For example, vast areas of the earth's surface are used to produce carbohydrates. If man could produce them from air, water and energy in harmless artificial processes, he could declare vast areas as surplus. If he could produce the fibers now produced by forests in artificial ways from air, water, and energy, other vast portions of the globe could be declared surplus to his needs as habitats. This seemed a long way off. But with the time span of a half century or more, these goals seemed more reasonable. Meanwhile any heightening of the efficiency of our agriculture, forestry and other uses of land would be the interim methodology. A thrust of science should be quickly devoted to learning the methodology that could produce more and more of man's needs on less and less land in ways that approach zero environmental impact. What a challenging direction for our world science. The pent-up sophistication of the new developing biology now seemed to have an overall purpose after all. It becomes the methodology with which Nature can be saved in man's interest.

THE NEED FOR ENERGY

The saving of Nature at this point was still the impossible dream because I had left behind in the closet called "how" the issues of world population expansion, control of nuclear war, a philosophic flip=flop for man, and the production of man's goods and services on increasingly less land. Now I had to closet another. "Where would the wherewithal come from?"

This immediately divided itself into two major segments--money and energy. The latter was more amenable to the thought train on which I was chugging

upgrade. The sophistication of our processes for producing our needs on less land with virtually zero environmental impact was a big order. We needed more energy than exists on the earth.

This was an old question even before the "oil crisis", and certainly was receiving its relative share of man's attention. But now I was adding a larger dimension. Energy demands to supply such increased needs in man-made processes would seemingly be multiplying previous concepts of energy needs. It was obvious that the only place energy was being wasted in virtually unlimited amounts was from the sun. This, or the atomic fusion, would have to be the source. All others simply will not last long enough to be the basis for saving the natural world. Science had ^best get on with learning how, because my dream was waiting on them.

But the associated problem of how to get rid of waste, low-grade heat will be waiting in the wings if the energy source is answered. Best alternative, of course, is to learn how to make needed food, fiber and amenities in chemical steps that require as low grade energy as they are made in Nature. There was little point in pursuing this thread further, and it also came to rest in the same closet as the other "how" questions.

WILL THE HUMAN BE SATISFIED WITH ARTIFICIAL PRODUCTS?

I saw no reason why man should rebel against use of artificially manufactured food, goods and services. Where the quality of present artificial foods is sufficiently high, they are presently accepted. I expect to eat a perfectly acceptable artificial steak in my lifetime.

MONEY

The accompanying question of Money to fuel the research and to set aside the land, like all money questions, responds to need. Money will probably

come in a flood after the "crescendo of extinction" begins to wrack man's conscience. But by then it would be too late. Part of the funding would certainly come from industry foreseeing the need for research into the artificial processes where they sensed profitable future opportunities in this direction. Precious starts might come early enough, with redirecting public moneys now spent in compatible activities to preserve life forms all over the world. The basic need is to provide a widely accepted goal and a practical pattern that every human could accept and with which he could personally identify. My racing mind began to choose the best available alternatives for such a pattern.

ELEMENTS OF A PATTERN

Several elements of any pattern that might attain the goal of saving the Natural World were already apparent. Habitat for all life forms carries with it the need for refuge land in every sector of the globe, and on all types of earth surface. For widespread species, particularly plants, the races within a species are often as genetically different as between species with limited ranges. Habitat land has to have inviolate boundaries both for protection of creatures^e from man, and man from creatures. Because some natural ranges are so extensive, *and because cross fertilization of populations is desirable*, the portion of the planet devoted to habitat had best be interconnected rather than a series of isolated islands. Habitat must be on land and sea. Strangely, I recall thinking, these same habitat requirements also were man's. All these best alternatives were arrived at in decisions or earlier best alternatives.

What best alternative pattern fitted such needs?

The problem of the boundary of the Natural world portion of the double planet came next to mind. It had to be one that gave man absolute protection from the Natural World. A simple fence would do in many areas. Deserts

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and seas may do in others. Moats and walls may be necessary in still others. Without a boundary, depredation of wild creatures into man's crops and resources would be an intolerable nuisance. But also some rather disastrous consequences could occur at some habitat boundaries without an inviolable boundary. Wildfire, a part of the Natural habitat, would sweep out. Great animal herds could develop that would occasionally sweep out destructively into man's world without adequate boundary. Disease epidemics might surge out of the Natural World. The design of an appropriate mechanical or other boundary is a foreseeable need for science to address itself even if only to improve boundaries of present refuges. But the success of a ^Pdouble ^Pplanet concept depends upon better boundaries than we now have.

Generally, the portion of the planet devoted to Natural World will depend upon a wider definition of the word "surplus." Man will reserve for his use all he needs. His world will include all his cities, his inter-connecting roads, his lands needed for food and fiber production, for his recreation, his sports, and his managed game areas. In this, Man'sWorld, there can be no constraints upon his domination of it at the expense and complete obliteration, if appropriate, of the Natural World.

I began to picture the typical pattern of Man's ^SWorld as including a present city, its suburbia, its industrial parks, its surrounding agricultural and forest land actually needed for food and fiber, these intermingled with reserves for increased game, its recreational sites, and its roads and transportation system. Proceeding from the population centers outward in any direction one would encounter some such use pattern. As now, the land would become successively less densely populated from the urban center. At some definite point one would always come to a definable barrier beyond which the Natural World began. There would be instances where the Natural World would finger into Man's World practically to the city's edge. There

would be plenty of opportunities to set aside land, surplus to man's needs, quite close into the cities, that is now relatively worthless to man's use but forced into some unworthy use by tax or economic systems. But always separating the two worlds one would find the ubiquitous continuous inviolate boundary.

The pattern between cities and other population centers would at some distance become one in which interconnecting roads and other transportation links would be the only element of Man's World in otherwise continuous Natural World. Here the continuous boundary would be at either edge of the right-of-way, widening here and there to provide for man's amenities. Finally it would widen at the approach to a population center to join the boundary of adjacent roads into a continuous Man's World.

But in as many places as feasible, the Natural world would also be interconnected. Overpasses, underpasses, or tunnels could permit rather free migration of the Natural World. In a sense both Man's and Natural World could each be a reticulum, neither being restrained much by the other from free movement,

I thought of my own small properties. If somehow I could depend upon no more need for land for Man's World than now, there would be good reason to declare about half of my river property of 13.5 acres as surplus to any realistic need. It could just as well be part of the Natural World. In fact, about a quarter of my city lot is of rather questionable need. Once my thinking became accustomed to the idea of separating what is actually needed from what is simply a joy to own, the thought of declaring it forever as surplus was not so strange. But I noticed that it was much easier to

consider the steep and unworkable part as surplus than to consider such for the field and stream edge. As I became more used to the idea, I began to realize that ownership for ownership's sake was a rather deeply ingrained idea, one more of emotion than logic. Actually I could see that everything I really needed the property for was served by a rather small portion of my property. I wondered if a fair portion of the earth's surface couldn't be declared surplus right now and hardly be missed. It is only the spectre of a world population so large that every acre, and more, will be needed that promises to quench the remaining habitats of the Natural World.

To me the emerging pattern was becoming quite satisfying. The thought of having the Natural World finger into our communities so that we could conveniently observe it was an exciting prospect. Our children could grow up with an enhanced appreciation of their total world, and their deep roots in the land. There would be no constraints to design the boundary so that contacts with the Natural World could be extremely intimate, as long as the boundary was kept inviolate.

But the rules under which man entered the Natural World would have to be strict. He could study it, or enjoy being in it, only as long as he did so under conditions that had zero impact upon it. He would have to travel self-contained, with means of protection that immobilized molesting animals only briefly. He would have no reason to manage it in any way. His wilder areas managed for his use and play would be on the other side, man's side, of the continuous boundary. On the side of the Natural World, natural evolution would once more prevail. Hopefully, there would be enough Natural World left to rebound with great resiliency.

Man's World would still be likely to affect it with polluted air and water unless this thrust of our present "generation of awareness" is unsuccessful. For the water courses that run through both Man's and Natural Worlds the concept of water withdrawals without return should prevail. Water, if withdrawn, should be purified and reused until it all evaporates and none returns to the water course. We have already approached the technology to do this. Runoff from fields and forests should also be non-polluting by controlling use of additive substances.

The same considerations should be given to air pollution of the Natural World.

Both kinds of pollutions should respond to the required thrust of science to produce more and more of man's goods, services and amenities in processes that have virtually zero total impact on air and water.

BEFORE CLOSING THE CLOSET

The thought process had occurred with surprising speed. By 5:30 am I was casting around in my mind for details upon which I might subject to the "best alternative" thought pattern. I was relaxing under the relief of having satisfied an inner craving and soon was asleep.

Since then I have added little to improve the alternatives and resulting pattern. My continuous gnawing questions concern those in the "how" closet. No encouraging words have come regarding world population. Growth has slowed in the western world but accelerated elsewhere. Perhaps, like the continuous warring that goes on somewhere on the planet, there is no solution except the age-old one of confinement. The only practical answer to warfare has been to keep it localized. Perhaps this practical non-solution is really the only one that will prevail with overpopulation. If so, there may be portions

of the world that will utterly lose all natural habitat. Better answers have to lie in the future. The overpopulation "how" has remained in the closet.

Much thought has gone into how a concept of the "Double Plante" might be implimented. The natural first impression of government-sponsored programs with such goals are to me no longer an attractive avenue. Undoubtedly governments can successfully contribute to permanent reserves as they have in many parts of the world. But lately I have considered the private sector as more useful. Governments have a way of yielding to subtle pressures for the privileged. The Natural World, once set aside, would ultimately be economically more attractive than Man's World. It would then represent tremendous developable opportunities for profit. The government that could prevail against all inroads of special interests is rare indeed.

What has become more attractive is the private non-profit foundation. These have proved to be at least as stable as most governments, particularly in maintaining their original purpose. A foundation, with the goals of expanding habitats, could enlist the best talent toward planning priorities for a long range acquisition of the sensitive habitats. A Foundation could accept ownership of the property under as stable conditions as have applied to private property rights for centuries in the western world.

Where would the money come from? A foundation could accept grants of property that could be exchanged for the desired properties. May feelings suggest that much of the wealth needed to acquire the lands would arise from bequests. The motivation for mature individuals to contribute a portion of their lifetime accumulated resource to preserving the Natural World would seem very powerful. It has a semi-religious connotation even in the western world. In much of the world-s culture, the preservation of nature is already

part of their heritage and welcomed as a proper activity. Perhaps I am sensing poorly the strength of the motivation. But this concept should be given a try initially. Organizations like Nature Conservancy have goals so nearly compatible that they appear ready now for the role. Once started, the various foundations over the world should quickly federate into producing common goals and plans. This "how" does not need to remain closeted.

CONCLUSION

What can one man without resources do to turn the world around? For what the thinking of that weird night five years ago has led me to conclude amounts to swerving the "ascent of man" into a new direction. The answer is, probably not much. Much as I hate to admit it, the prospect is dim. I'm afraid my children and their progeny will never really know the Natural World. This is sad. In fact, the dim prospect, and the suspicions that would be cast upon my own motivations in my job and community have prevented even setting the ideas out for review. But I guess I should at least give give them a try, for in the five years I have seen nothing more satisfactory proposed as an overall, long range view. So let's see what might come of this.

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The general public and much of the scientific community fails to appreciate the concept of succession even though it is the cornerstone of ecology. The thought is common that a very restricted land acreage can be set aside to preserve some plant or animal type henceforth. Successional changes often eliminate such a possibility. What one finds on an undisturbed plot in one century will likely be quite different in species composition the next century. The pattern of change is reasonably predictable as a succession of species.

For example, a typical natural succession of forests in the Cascades would begin with a forest fire starting during severe seasonal drought that devastates vast acreages, burning even the humus in the soil. In the shade of the dead trees, first annual, then perennial, then brushy species would, in turn, dominate the landscape. Finally a young Douglas-fir forest would emerge to dominate for perhaps 500 years. Without another severe forest fire, there would be gradual replacement by more shade-tolerant trees growing in the openings as the Douglas-fir died. The species does not reproduce successfully in its own shade. By the time a thousand years had passed without severe fire, the forest would be virtually all of cedars, hemlocks and true firs. The understory vegetation and animal population would change as dramatically from century to century.

What one finds in the natural situation is a confusing array of successional stages, side by side. To set aside any small acreage to preserve one particular stage for its composition of life forms is unrealistic. It will change inevitably. However, the same life forms will show up again in full glory in some other spot that has reached the same successional stage. Thus saving the Natural World needs full awareness of the constraint of natural succession requiring an ample space.

A Double Planet, with Man's and Natural World, each in its own inviolate reticulum, has become a satisfying concept for me. For with it the human no longer struggles with the potential for biological self destruction. Man no longer has an internal conflict to his fulfillment of increasing sophistication. In fact, the pattern demands it. The Natural World can likewise evolve. Instead of the steady elimination of life forms, with the largest and best always heavily selected against, such evolution could once more proceed. And the environmentalist would relax in his unrelenting attack on the commercial if he were once assured that there was a way that Nature would be saved intact. But nothing of importance to save the Natural World will occur until there is prospect that human populations will become finite, and nuclear war held permanently in check. The thinkers and doers in these fields have a job to do.

Notes on THE DOUBLE PLANET:

--title change: The Two-Hearted Planet?

p. 2--invention of spear as invention of pointed projectiles leading all way to bullet and missile?

p. 3 -- expand mention of ecological conscience, forecast of unprecedented guilt. Sidenote: Man has regretted his ways, come to see them as worst of his traits-- what will be consequence when he realizes constant aggression against the Natural World?

pseudonyms: Ian Clark and Ragnar OO

p. 7 -- "complete refuge": expand to a mea culpa by S as geneticist

The Refugee Planet: Man a refugee from his own past, the natural world a refugee from him. And both must live in refugee camps

7-8 -- enliven author's recounting of thinking process. Or cut entirely-- especially the 4 a.m. wakening-- ~~xxx~~ as making it all sound like brainstorm?

9-10 -- setting population level needs more explicit reasoning: focus it on the three-generation process

13 --exchange of territory, as nations have done in past

14 --saving of Natural World depends upon more sophistication: my distrust of technological sophistication.

16-17 --energy-food innovations need more explication

18--Boundary problem: DMZ (we are at war with evolution. Or are we, as Eiseley sees us, just one more species within evolution? Even if we are, our reasoning capacity and conscience guide us just as other species follow migratory boundaries or territorial zones). McNamara's electronic death zone did not work in V Nam. Could zone be new frontier -- transition, populated by light population of settlers? Play the role the Indians could have--buffers between us and the Natural World? (Factory system set up in Wash'n's adminstrn as historical model.)

a prospect for the planet

22--change laws of inheritance to facilitate contribution to Natural World? Christopher Stone's rights of nature.

3/17/79
2135 S.W. Whitehead Dr
Corvallis, Oregon 97330

Dear Aron,

After many false starts I finally put together my additions and changes on the draft you sent. It was not as bad getting through it finally as I had pictured at first reading. I guess that I had not realized how much of my version you had covered because of the changed order of yours.

I wonder if I really object to your title, even though I was hit a bit wrong by the "Morning thoughts". They impressed me first with the connotation of sleepiness.

You might consider this possibility. The pen name is o.k., but there are so few "Ragnars" who are geneticists or genealogists that it would be hard for knowledgeable people to put it all together. How about "Yorgi", the nickname of my brother, killed in a logging accident?

The opening sentence wasn't very lively, and my substitution may have problems too. But it does introduce the main point.

I felt that page 1a was the main need. Perhaps I felt the paper a bit milk-toast without telling my "crusading" purpose quite early. I'd hope that the reader would come away saying "he's right - we can't just drift - we have to get the remnants preserved and start a program".

After that the changes were mainly reordering sentences, or expanding thoughts. The part on page 8-9 was considerably worked over. I would like to have gotten in the idea that most people don't know enough of how things were to realize that few places have the biological richness of the past even if they look rich in their eyes. I also had trouble with the idea of including the "morning thoughts" concept and wished to leave it out. But it struck me a bit better on second ^{and later} readings, so I worked in it too.

Note that I pulled a point on page 10 where I go from "world" to "Planet". See my note on page 1.

On page 11 I felt the mention of the potential of surplus from any breakthrough of

science in ^{low cost} artificial synthesis of carbohydrates.
It makes the concept of surplus a bit
more believable.

On page 15 I added a paragraph to
picture the reticulum from the air.
Since I saw you I have crossed the
U.S. by plane in good weather and was
picturing the reticulum as I went. This
had to be the pattern.

I now feel pretty good about
the paper again. For a while I wasn't
sure that I really wanted it out. Now
I do. Do you think "Not Man Apart" is
still the place for it?

Sincerely
Roy

P.S. The "Care & Handling" article is still working
its effect. The US Med Service is preparing a
policy on conservation of greater diversity. The
Sierra Club Defense Fund has very recently gotten
into the act, but after the Forest Service.

REFERENCE SLIP

5/16/79

TO

Evan Doig

☒ ACTION☐ NOTE AND RETURN☐ APPROVAL☐ PER PHONE CALL☐ AS REQUESTED☐ RECOMMENDATION☐ FOR COMMENT☐ REPLY FOR SIGNATURE OF☐ FOR INFORMATION☐ RETURNED☐ INITIALS☐ SEE ME☐ NOTE AND FILE☐ YOUR SIGNATURE

REMARKS

Here is the
final typed version.
I'm satisfied, though
perhaps uneasy about
it. You may wish
to revise. If so
we can type it here.

FROM

Roy Allen

1 THE DOUBLE PLANET RETICULUM

2 by

3 Gifford Leopold

*Ray's revision
of my edited
version?*

4
5 No more cataclysmic change has occurred to this planet than the
6 silent reversal of the roles of Nature and Man.

7 Before the mid-1800's, ~~Man's~~ world, where people dominated,
8 amounted to a scatter of enclaves on each continent. Man usually
9 needed only to climb to some easily-reached promontory to see across
10 the borders of his influence into the greatly more vast world dominated
11 by non-human forms of life--the natural world.

12 In mainly the last two centuries, geography of the double
13 world has been reversed: except for the patches man himself preserved,
14 ~~The~~ natural world has shrunk almost entirely out of the temperate
15 regions, and is eroding as well from the tropics and arctics, and from
16 the mountain country and oceans where inaccessibility or inhospitality
17 of climate once provided the buffer of remoteness. Its very fabric,
18 undisturbed habitat, is being taken over by man. Now, it is the natural
19 world that exists in enclaves, ~~the~~ the remaining free animals have only to
20 climb to some near promontory to see the vast landscape in every
21 direction dominated by Man's Planet.

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1 This, then, is a plaintive call to save the doomed natural
2 world, and a proposed pattern for how to do it. A new conceptual
3 relationship between man and nature will be needed, but the
4 concepts have altered many times before in human history. What
5 is required now, as this creature with an enlarged brain has
6 suddenly burst out of four billion years of evolution to dominate
7 an unprepared natural world, is for man's relentless sophistication
8 to be focused toward a livable future for all creatures. No article
9 as brief as this one can resolve all facets of the new relationship
10 so desperately needed; my wish is that this sketchwork of ideas
11 may foster some hope of achievement.

12 As little as 200 years ago, man still lived in some fear of the
13 natural world, both because of the extent of its dominance--in
14 jungle, forest, desert, and ocean--and because of his age-old
15 struggle with brutal animals of the natural realm that could kill
16 him.

1 That particular fear was misplaced, for man was rapidly
2 "winning" against the natural world. Extinction of the larger
3 animals began to quicken after the invention of the spear, and
4 already was complete for the mastodon and many other larger
5 mammals of Europe, northern Asia, and North and South America,
6 well before the advent of gunpowder.

7 But outright killing-off of animals is the less destructive
8 role of man. Loss of habitat is overwhelmingly the main
9 destroyer of the species of the natural world. With great energy,
10 man has been at work removing the balanced complex of life forms -- the ecosystems --
11 that once were exquisitely adapted to each niche of the natural
12 world, as habitat after habitat has been usurped. Extinction is
13 a looming prospect for virtually all species still inhabiting the
14 natural world as man's population explodes and his needs finally
15 become total.

16 During the "ascent" of man, Nature's Planet served as the
17 horn of plenty to provision mankind's continuing existence; the
18 extent and resiliency of the natural realm has been man's margin for
19 error, the omnipresent frontier to absorb his excesses. That is why
20 there is no worse news for modern man than the grim statistics of
21 extinction rates ~~on~~ Nature's World.
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1 Even the best-intentioned dwellers of Man's World may not
2 comprehend what the extinction of a species really means. Before
3 man's dominance, extinction rates of the natural world were
4 appreciable, yet by the evidence of the intricacy of linkages
5 evolved between life forms, the pace was infinitely slower than
6 today's. No species can be on earth without an unbroken germ line
7 that goes back, one generation at a time, through millions or
8 billions of generations, to the very beginning of life in our
9 solar systems. In genetic terms, there simply are no exceptions.
10 As the habitat of a species anywhere on the natural world becomes
11 limited, then restricted, then rare, then gone, that species, and
12 the others that depend on it, must disappear ^{forever,} as each is deprived
13 of some vital link in its life cycle.

14 On every continent, in every river system, man has rapidly
15 extended his world; through the temperate zone, into the tropics
16 and arctics, always obliterating the habitat of the natural world,
17 until remaining undisturbed habitats dwindle toward nothingness.
18 Where, as today, the rate of species extinction changes from a
19 number of rivulets on each continent into a torrent, it must soon
20 become a flood.
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1 To cause even a single extinction of a species is one of the
2 truly moral sins of which man is capable. He alone does so
3 knowingly, and he alone has a conscience. It is my deepest belief
4 that even before it reaches full spate, the extinction of so much
5 of Nature's Planet will haunt man's conscience more than any
6 previous guilt he has shared.

7 Man has, too, the instrument which has wrought so much
8 change on our double world: the human brain. Man's brain has been
9 the extraordinary, if not cataclysmic, new evolutionary event
10 of the past four million years, doubling in size in that time span,
11 and the advantages of intellect were sprung on a realm of life
12 completely unprepared for them. Until comparatively recently,
13 the survival of any creature depended upon some combination of physical
14 traits, such as speed, strength, armor, or ability to conceal.
15 Thinking was the colossal new competitive advantage, so overwhelming
16 that, without self-constraint, there has been no likely outcome
17 except the plundering by man of the natural world, and all its
18 creatures. It is that outcome--the clear prospect of traveling
19 to eternity on an impoverished world with only the few life forms
20 man has domesticated, his vermin, and the rather rare species that
21 thrive in the new niches created by man's dominance--which now must
22 occupy the attention of the human brain.

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1 Can Man expect to go it alone for long in this otherwise sterile,
2 inhospitable environment we now know or we know know our solar system
3 to be? Certainly it has come into mind many times in the dark,
4 uncomfortable hours of the early morning. As a genecologist, I feel
5 a special doubt that the increasingly imbalanced system, Man's world
6 incessantly exterminating the chances of the creatures of the natural
7 world, can long persist.

8 Man learned long ago that his survival and well-being were
9 tied to the domestication of certain living things. But he has
10 been terrifyingly slow to accept that the outcome of his utter domination
11 of the natural realm is that he, in turn, must somehow become its
12 steward in order ~~to~~ for both nature's world and in turn, his own, to
13 survive indefinitely.

14 To find a world pattern that can sustain the natural world
15 indefinitely, that's the rub. Zoos, botanical gardens, seed and gene
16 banks, wildlife refuges, major preserves, all have a place in such
17 sustenance. But they fall far short of providing a sustaining pattern.
18 Nothing short of adequate expanses of natural habitat will provide the
19 balanced ecosystems and allow for successful changes over a long
20 enough time. The initial requirement for any sustaining pattern is
21 habitat devoid of man's influence. Put even one man, modernly equipped,
22 on a 10-square mile of any refuge, and in his lifetime he could wipe
23 out all the larger mammals and upset most of the natural balances.

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1 This need for man to be entirely absent is not as broadly
2 understood as it might be, simply because it is only a rapidly
3 dwindling minority of us who have intimately known portions of
4 the world in its natural state, and have measured or observed
5 the profound changes as man has entered. In my own case, I had
6 the privilege of "developing" a 15,000-acre portion of mountain
7 ecosystem that had no detectable influence of man. The richness
8 of life forms and numbers in this small sample of a balanced
9 natural world continually amazes me.

10 An example, in which actual counts were made, was the
11 trout population in one of the area's whitewater streams. In a
12 swirling hole between two riffles, some ninety-feet long and a third
13 as wide, occasionally as deep as five feet, but mostly less than two
14 feet, we began to sample the native fish population. Placing nets
15 across the riffles to contain the fish, we then repeatedly netted
16 through the hole, clipping a fin from each captured fish of more than
17 four inches. I had estimated there might be fifty or a hundred such
18 fish. After four passes, the total was more than eleven hundred.
19 In a smaller hole miles upstream, we counted another unexpected
20 plentitude, more than four hundred. But now, as man regularly
21 enters that area, both the surprising experience of coming onto such
22 abundance and the actual numbers have waned almost out of recognition:
23 today a dozen trout over 4 inches would be thought a bonanza in either
24 of those holes.
25

1 Since that time, I have heard the epitaph of that wild
2 area, spoken to me by a man of the generation before mine:
3 "Man first came and took the fish, then the game, then the gold
4 and silver ores, then the forests. Now they want the water, and
5 I expect they will someday haul away the soil."

6 I recount this incident by way of saying that the mental
7 struggle, mostly in the morning hours, toward a pattern that would
8 sustain indefinitely both Man's world and the natural world has
9 gone on in me for years. Like all others before me, the question
10 of "how" has been the stubborn obstacle. How, for example, will
11 any habitat be left if the world's population reaches 10 billion?
12 Or after a nuclear war that would make the natural world its
13 first innocent casualty?

14 Only recently has it occurred to me that the ever-present
15 blockade--"how can this be achieved?"--is indeed perpetual. In
16 one of those morning hours, I began anew under a fresh rule. Like
17 the mathematician who shuts out all irrelevant operations within
18 a pair of parenthesis, my rule was that I would simply set
19 aside the question of "how." I would weigh the alternatives which
20 bore on the goal of withdrawing man from enough of nature's habitat
21 to save the natural world, single out what seemed to me the most
22 logical ones available, and see what resulted. Whenever "how" got
23 in the way, I would mentally slam it in the bedroom closet.
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1 The first two candidates--nuclear war and overpopulation--would
2 not be solved by me anyway. I would assume that there will be no
3 nuclear exchange and that world population is kept in bounds.

4 The early morning thoughts began to muster. Freed from the
5 nagging of "how," the first of the ^{questions} asked; what is the minimum that
6 must be done to set a pattern which would save the natural world?

7 The need speaks itself plainly enough: each species must have
8 undisturbed habitat as extensive as its natural range.

9 For many creatures, that natural range would be small. Indeed,
10 for some, such as the snail darter, it could be provided in a
11 natural area as large as the reach of a single river. But for
12 others--migrating birds, whales--the range is almost worldwide. Yet,
13 the principle has to hold: every natural being needs its natural
14 habitat undisturbed, across the extent of its natural range of
15 migration.

16 Here the thought struck me that there must be Nature's Planet,
17 and there must be Man's Planet, delineated and kept apart from its
18 more fragile neighbor. What is needed is not simply the tacit
19 scientific recognition that the earth is, in effect, a set of double
20 worlds--man's and nature's--but the societal declaration that nature's
21 portion must be left in peace to continue its evolution. We have
22 vast evidence that Nature's Planet has shown little capacity to
23 cope with a man-influenced evolution. Without another planet handy,
24 somehow, then, man must declare enough of this earth's surface surplus
25 to his needs that all the rest of creation will have natural habitat.

1 This is the key. Land must be made truly surplus. The
2 trick is to meet more and more of man's needs on less and less
3 land so he can declare more and more habitats as surplus.

4 What these two concepts bespeak, in the cold morning light
5 of reason, is nothing less than the freeing of adequate expanses,
6 wherever they are truly ~~needed~~ ^{unneeded} from Man's Planet and returning
7 them to Nature's Planet as inviolably undisturbed habitat.

8 As unacceptable as this first appears, another morning
9 thought pointed out that such action is not altogether unprecedented
10 for mankind. Man already has designated some not inconsiderable
11 areas for this very purpose of preserving the natural realm--national
12 parks and wildlife refuges. True, many of these portions of the world
13 have been yielded up by man because their value to him is relatively
14 low: lands that are usually outside the temperate zone or at high
15 elevations. Yet, there are examples even of high-value, low-elevation
16 land being set aside for nature, enough such examples to encourage
17 the next question: "If man occasionally is able to yield land to
18 nature without dire effect, is there some way he can systematically
19 yield a portion of his land according to a planned pattern?"
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1 This touches against an almost sacred precept of western man,
2 the concept of land ownership. As a resource, land is part of
3 man's riches. It is not too much to say that western man may feel
4 a genuine kind of love for land that he can privately call his
5 own. But western man also harbors the general assumption that he
6 must "develop" land in some way that provides a "return." Any
7 acre that will make a dollar somehow must be used to make a dollar,
8 if only to pay its taxes.

9 Yet, why is it that man needs extensive land? In the last
10 analysis, it is because land has been a producer of his goods,
11 services, and enjoyments. If those could be supplied adequately on
12 less land, or by processes that did not involve land, there is no
13 longer any reason to dominate--"own"--any portion of land that has
14 become truly surplus to his needs.

15 For example, vast areas of the world might become "surplus"
16 if carbohydrates, proteins, and fibers were to be made directly from
17 air, water, and sunlight. What an inspiring new motivation for the
18 biological sciences. Man's very sophistication could rescue the
19 natural world! And, in another direction, vast areas of the world
20 might become surplus if only there were fewer people.

1 About now, the closet door begins to be busy with "how"--
2 the "how" of increasing the efficiency of our biological sciences,
3 our agriculture and forestry and other uses of the land to meet
4 more and more of man's needs on less and less acreage; the "how"
5 of world population control, for without a finite population there
6 can be no surplus; the "how" of alternative energy sources to
7 leave inviolate some of the lands which now stoke our needs for
8 coal, oil and wood. All are daunting, but each already has the
9 beginning of a response--man's record of increasing sophistication
10 in survival skills, proven methods of birth control, the solar
11 promise--and so, reassured that the as-yet-unresolved dilemmas
12 aren't overflowing the closet, my thoughts return to the "what" of
13 the matter.

14 What must be achieved, I believe, is to begin a pattern
15 of land use which would re-weave the relationship between Man's
16 Planet and Nature's Planet into a vast reticulum: a global network
17 of undisturbed habitat, with continuous inviolate boundaries to
18 protect creatures from man and man from creatures--a double planet
19 reticulum.

1 The pattern must be conceived as earth-wide, both because
2 the need for habitat for all life forms demands refuge lands in
3 every sector of the globe and on all its types of surface, and
4 because the natural ranges of some creatures are so extensive
5 that only a continuous pathway of habitat will serve. Isolated
6 "islands" of refuge alone will not be sufficient. The need is
7 most acute, but least relinquished, in the populous valleys of the
8 world.

9 From the air the natural planet's reticulum might appear
10 like a network of heavy cords in some places and mere threads in
11 others. A typical large valley might be pictured as having a broad
12 band through the uplands on either side, with connecting narrower
13 bands across the valley at perhaps 20-mile intervals in low
14 populated places between population centers. A portion of the
15 flood plain paralleling the river might also connect into or form
16 part of the reticulum to provide low-elevation habitat. The
17 skeleton for the reticulum would be formed by connecting existing
18 parks and refuges.

1 The portion of Earth to be devoted to his purpose--"rewoven"
2 into the necessary reticulum of refuge, so to speak--will have to
3 derive from man's enlightened decision about what is "surplus"
4 to him. Obviously, mankind will reserve all of the world's surface
5 it really needs; the recognition that the remainder can be declared
6 surplus as more essential for nature's purpose will be the key.
7 Man's Planet still will include all his cities, his interconnecting
8 roads, his lands needed for food, fiber and metal production, for
9 his recreation, his sports and his managed game areas. In this
10 realm of mankind, Man's Planet, there would be no constraints upon
11 man's domination, even at the expense of ~~obliteration~~^f, if appropriate,
12 of remainders from the natural realm.

13 I picture the possible pattern of Man's Planet, under these
14 new terms for survival of the double world, as including much of
15 mankind's present way of life: city, suburbia, industrial parks,
16 mining activities, surrounding agricultural and forest land
17 intermingled with reserves for increased game populations. As now,
18 the land would become successively less densely populated outward
19 from the urban centers.

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1 And then, the essential difference: at some definite point,
2 the sharply definable barrier, be it fence, moat, or water expanse,
3 beyond which Nature's Planet begins, in secure solitude.

4 There would be instances where Nature's Planet could finger
5 into Man's Planet practically to the city's edge. The thought
6 of having the realm of the natural come so close into our communities
7 that we could conveniently observe is an exciting prospect. Our
8 children could grow up with an enhanced appreciation of the double
9 world.

10 Similarly, through^{out} Nature's portion on land the necessary
11 pattern of interconnecting roads and other transportation links between
12 human population centers would emphasize the continuity, the continuous
13 flow, needed for nature. The constant boundary would be at either
14 edge of the right-of-way, widening here and there to provide for man's
15 amenities, but in as many places as possible, nature's reticulum ought
16 to be connected across man's transportation routes. Overpasses, or
17 underpasses, possible^y tunnels, would provide quite free migration
18 for the creatures of Nature's Planet. In a very real sense, the
19 transportation and migration patterns would show that both Nature's
20 Planet and Man's must be a complete, uninterrupted reticulum, with
21 neither set of inhabitants being much restrained by the other from
22 freedom of movement. The only constraint necessary is that the boundary
23 between Nature's Planet and Man's, no matter how near and familiar, be
24 kept inviolate.

1 Without an absolutely inviolate boundary, and precautions
2 that it perpetually be kept so, Man's Planet and Nature's will
3 not be able to coexist in the double world. The disastrous
4 consequences of a broken boundary are clear: great animal herds
5 could develop and, if loosed, wreak destruction in mankind's
6 realm. Epidemics could surge out with them. Wildfire, a necessity
7 of nature's realm, could sweep out. On the other hand, in some
8 portions of the world, lakes, rivers, seas and deserts easily
9 could serve as boundaries; a simple fence might be adequate in
10 some regions, moats and walls in others. Here again, man will ingeniously
11 contrive the boundary methods needed; it is enough to say at this
12 point that mankind has shown great ingenuity in the past in subsisting
13 within defined borders.

14 Freed of "how," such is the truce--indeed, the permanent peace—
15 which I feel must be worked out between Man's Planet and Nature's
16 Planet. In this double world we share, each realm to have its own
17 inviolate reticulum, to insure its own evolution. The benefits would
18 be colossal on both sides. Man no longer would have the internal
19 conflict that his increasing sophistication must inevitably devastate
20 nature; the reticulate pattern reverses that, by establishing that only
21 through man's sophistication can nature be preserved. Nature's Planet
22 likewise is freed: instead of the steady elimination of its life forms,
23 with the largest and best always at peril from man's incursions, its
24 global patterns of evolution could once more proceed.

1 Nothing, I believe, is of more importance than the establishment
2 of such a balance between the two realms of our double world. As I
3 have said, these are morning thoughts, lifted over the barriers of
4 "how" to see how far they can go. As a member of mankind, I think
5 they advance far enough to report back to us the glimmer, in morning's
6 earliest light, of two steady new congruent spheres, Man's Planet
7 and Nature's Planet.

3 May '79

Dear Roy--

Carol and I have been back from Britain for about 3 days, and the jet lag is finally wearing off. We had a good trip, despite the damnably cold and rainy weather nearly all the time. My business went pretty well: I did find a British literary agent to handle House of Sky for me, though I don't know what luck she will have there, and also gathered the material and scenery I wanted to in Scotland, towards a possible novel about homesteaders such as my grandparents.

You may know that I didn't win the National Book Award. The Snow Leopard, which I had thought all along would be the winner, was. I was considerably downhearted the night I got the news, but more in the sense of feeling that I might never again be that close to such a chance than feeling I absolutely deserved the award. I've had ample good luck with this book without it, I realize.

I'm glad you worked over the Double Planet, and it looks okay to me. Why don't you go ahead and have it typed, and we can start submitting it? Your new first sentence is fine. Page 1a is an okay idea, but runs pretty long at that point of the article, where you're trying to keep the reader moving into the piece. See what you think of the briefer version I'm attaching. There's simply a maxim of writing to show rather than to tell, and we have to be careful to keep your ideas on display rather than too often telling the reader they're on the way. Also, what about a title something like this: A Reticulum for Nature: Safety Net for the Double Planet.

Will be out of town May 9-13--in Missoula--and then likely will have the damned answering machine on the phone, for the sake of getting back to my book ms. But I usually shut it off by 2:30 or 3, so likely am reachable then. By the way, I'm pleased as hell to hear about the Forest Service's genetic diversity policy. It's damnably rare for a writer to see direct betterment from anything he's had a hand in; "Care and Handling" clearly is the most useful of the 200 or so articles my name has been attached to, which, of course, you knew all along.

best

23 May '79

Jamie Nelson
Managing Editor
Not Man Apart
124 Spear St.
San Francisco, CA 94105

Dear Jamie--

A torrential amount has happened in my life--including nomination for a National Book Award, with all attendant drain of time and attention--since I asked you several months ago if you'd like to see this "Double Planet" piece. The scientist whose material this is spent some months thinking through his manuscript again, I did a rough editing job, and the result is enclosed. We've agreed we'd like to see what you think of the material, since it obviously is a colossal topic he--and I--could spend all the rest of our lives on.

I realize, too, that if you're interested in running the piece, you'll want to know who "Gifford Leopold" is. I think that'll be okay with him; the pseudonym is simply a matter of protection on the job. The material in the article, incidentally, is entirely his; my contribution, simply because I happen to be the ~~not~~ only writer he knows, has just been nuts-and-bolts editing, and probably not enough of that.

regards

Juan Borg

17 Sept. '79

Dear Jamie--

the

I judge from the lack of word that "Double Planet" article I sent along in the spring hasn't proved right for NWA. Would you put in the mail back to me pronto? The scientist whose material it is anxious to try it elsewhere.

regards

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Pacific Northwest Forest and Range Experiment Station
Forestry Sciences Laboratory
3200 Jefferson Way, Corvallis, Oregon 97331

1630
October 1, 1980



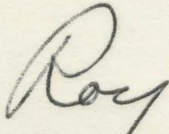
Mr. Ivan Doig
17021 NW 10th Avenue
Seattle, WA 98177

Dear Ivan:

Quite some time ago I mentioned that I had another article coming along that might have the impact of the "gene pool." You wanted to see it.

Any comments?

Sincerely,



ROY R. SILEN, RESEARCH PROJECT LEADER
Breeding Pacific Northwest Trees

Enclosure

P.S. I'll call you
Roy

23 Oct. '80

Dear Roy--

Your call to me likely would fall within the next couple of weeks, when I'll be in Montana, so I thought I'd better grab the chance to give you a line instead.

Your article looks strong to me, and significant. Of course, you may be preaching to the converted, in my case.

If you have a home for it, what I'll say here probably won't obtain. But if you're looking for a way to broaden the audience for you ideas--perhaps for the Double Planet as well, if you'd want such a tandem--I would volunteer to pass along your material to a writer named John McPhee at The New Yorker. I don't know McPhee, and don't know what his response would be, but he is a well-known and acute writer, and has the best magazine job in the country: The New Yorker lets him do pretty much what he wants. There's an example of his work, a piece about geology, in the current issue, Oct. 20. His articles often go on to become books; perhaps his most important was The Curve of Binding Energy, on nuclear energy.

I mention McPhee simply because he has what I don't, and evidently won't: access to a big influential money, and time and support to write of important topics such as yours. I'm going through a kind of mid-life retooling: have given up magazine work entirely and am turning, for awhile, to fiction, which I seem to need to do to survive and grow as a writer.

A secondary thought: a columnist for the old Pacific Search magazine--now Pacific Northwest--is Dan Chasan. His "Closer Look" column, such as the current one I'm enclosing, could be a forum for your work, albeit a limited one in terms of space. Dan is a much better reporter than I am, and has done a lot of work on complicated public issues.

So those are quick ideas, and I don't know how helpful they are. Damn such a world where a Roy Silen doesn't have instant access to print.

How are you? Things are pretty well here, although I'm having to buckle down to the novel I've begun, to get any money out of this writing business. I'll likely have the phone machine on during mornings thru November, but am available in afternoons; give a call when you can?

all best

P.S. - waking

Alvin Toffler, 3d Wave
reticulum



- how come to think of Double Planet? Spec/cly?
- writing method
- who has done anything similar?
- why listen to us?
- what is a weather?
- some of argmt mo tech'y got us to 2nd mess.
- possible 2nd world govt?
 - world govt poss cont totl m?
- creating retclm complt to creation of Forests & Nat'l Parks?
- your special concern as gentet. is some?

Must make pt some is some must be done, to clinch gentet terms -
however poles can manage it

- Brief - pt out how few probs when S born in 1918, ^{1 1/2 bil}
- "crescendo" is silent; extinction is silent
 - expand on extinction rates on p. 3
 - Sci Am rectly docmnts change to brain size
 - domestication of nature of Indians.
 - p. 7 - complt habitats must have time frame, ranging over successional states.
 - counter argmt mo ext'n hapnd large-scale @ various geologic periods
 - abrupt rise to pop'n due to antibiotics, changing death rate
 - subtle examples: O'ly Nat Park is retclm such as S talks of; st of NY is too - Catskills, etc.
(S. concluded he shd. pose ex, no raise gns, to putting 1 retclm to area such as NY - pose as prob rather than working ex)

Selen (cont.)

- Briggs cont: carrying capacity for human races is limited @ any stl of living.

Selen: pic of struggle of natural v. man to Siskiyou

- 17 sq mi of HJ Andrews; began b '49, then '54

- last virgin expe'l counts, "c 400-yr stand."

- 189 mi rd ~~out~~ ^{out}

tape #

525

- "fel to love: entry & hated to hurt it."

- "attention to details" saved land to HJ Andrews

→ Army phrase:

- Similar: French writer o "death of nature"

- Wines: idea papers don't excite many peopl.

- wd like to have gd zoologist take it on.

835

- "hardest thing to fight is expectations" - i.e. to forestry

- use tech'g instead of fighting it.

- hope for gov't to coop'te

912

- "I can't take dim view of human part of envs."

- Feelings o exten: anything man has survived is

s'th special - "it's a sin to do envs"

Look up Landscape mag.