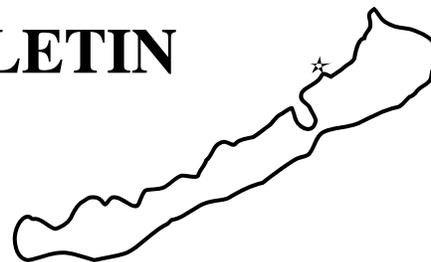


THE BALATON BULLETIN



Newsletter of The Balaton Group

SUMMER 1998

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LOUTER WOUTER

(When a network loses one of its nodes, the impact radiates out in many directions. We have lost our colleague Wouter Biesiot. But in the process we have also gained by the lessons he taught us, the love he showered on us, and the openness of his heart, most especially during the last few months he was with us. In tribute to him, and in deep gratitude to him, we reproduce here just a small part of the Balaton email correspondence of those last few months, from and about Wouter.)

Date: Mon, 8 Dec 1997 18:09:30

From: **Wouter Biesiot**

Dear Dana,

The roller coaster is going down rather deep nowadays. The long weekend away with Nanda was spend in the dunes and near the coast of North-Holland. Great to have been in the middle of “eternal” cycles of nature (dunes, forests, sand beaches, North Sea waves rolling). Confronting at the same time the shortness of life, with a reduced outreach. In our car trip from Groningen, a harsh pain in my back started. During the weekend I had to swallow pain killers in order to function more or less normally.

Bicycling on Saturday went quite all right, so that was a great time. On Sunday we tried to walk for a few hours, but every step I felt things bump painfully on each other in my belly. Hard to enjoy nature under those circumstances! We decided to return earlier than planned, late Sunday afternoon. So we were glad to have shared some good moments, disappointed by all the trouble, scared by the fallback in options, tired of all the energy consuming events.

Well, that triggered the roller coaster to go down. You were very right — my trip is sure not a comfortable one, and sometime it does not feel like a sacred one either! Waves of sadness and anger are coming every now and then — part of the necessary mourning I enter from time to time. The old fear of dying and death: I don't want to die (at least not now), I've learned so much about life and real living that I want time to experience that more — you know that kind of begging and negotiating. I have to face that fear, not suppress it — but that is terribly frightening! And sometimes very lonely too — feeling your blanket of love around me is a great comfort as well as Wouter time is. It makes me cry every time nowadays.

The puzzle of (my) life — I owe you that story. In the aftermath of our trip to Bristol it suddenly occurred to me how deeply engrained in me are the consequences of some basic shortcomings in my younger years. It is not a unique story, but it is mine, and I've got to live with it. For reasons from their own childhood, my parents were unable to give me the unconditional love and confirmation I needed so badly. I perfected the lessons they taught me: I was acceptable only as far as I lived up to their (or any peer group's) expectations, and I was

not to be proud of anything I accomplished (because that followed from the talents I was given by God, so it had little to do with me). Typically Protestant ethics — but that is not a great help if you have to deal with it. No systematic encouragement in self esteem or self confidence — but the active promotion of fear and guilt. It took me 40 years before I could reach that feeling of self esteem, after hard work with my therapist. It suddenly was there — like a light wind in spring, when you expect a storm. Great feeling!

So I worked very hard for super A grades at school, did a good job at the university, worked long hours to complete my Ph.D. thesis (that was really a deep fear of failure to kept me going!). I developed strategies to deal with life and its inhabitants — like a chess player, always contemplating many steps in advance in order not to be surprised by adversaries. (In the world of my parents there were almost only adversaries).

Of course I married a wife with the same kind of problems as I had. With two little children trouble is there: a relationship fails if there is no more than comradeship. You need real love in order to overcome the challenges of raising kids. There came then one of the major decisions in my life of which I've always been proud: I talked my (then ex-)wife into resuming school and took the daily responsibility for Hester and Janna, next to a part-time job (granted by **Bert de Vries**, by the way). A life-time chance of changing life without someone asking why all these changes? At least Hester and Janna did not — they only enjoined the coziness of the three of us, and turn out to remember only the nice events from that period. (I checked that recently). After more than five years we joined with Nanda, and after a few years Marijn was born. Hard work to combine relationships with work at IVEM (rescuing it from collapse as many senior researchers left, including Bert) and with raising Marijn. But hard work I had learned very well! Until colon cancer stopped me and offered me the chance to change life again.

The second great decision I'm proud of: trying to get rid of unnecessary mental garbage with my therapist. If I had realized what a complexity that decision implied, I might not have had the courage to start! But I

did, and it worked! I learned to face a series of challenges that all were parts of my fear of death and dying. And again old talents and abilities turned out to be very helpful in learning things quite fast.

Now I see more and more how reaction and interaction patterns are influenced deeply by my early experiences. I told you last summer about my fear of being lonely at the top, being exposed to everyone without hiding options. Perfect fit. Looking back I see the plus and the minus of it all.

My particulars have brought me to where I am now: IVEM is consolidated, my research group is still intact and continues working on a series of issues we all believe to be relevant to sustainability, an oeuvre is growing out of ten years of group work, etc. They have also brought me into close and loving contact with people — I have learned the immense value of gentleness, care, love, and how to enjoy them.

Funny enough, I notice in my life a transition from fighting *against* (university hierarchists as a student activist, nuclear power and nuclear weapons, university bureaucracy that tried to crush IVEM) via fighting *for* (money for my colleagues, research programs, supervising colleagues) to *no more fighting* (giving up my position as research group leader, concentrating on writing down the essentials I've learned, etc.). Trying to establish a better balance between outer and inner traveling.

And I see the minus side of all that too. How a “black” education can reproduce itself in the next generation (and how you can break that cycle if you really try with all your energy and some luck), how society can exploit individuals that are driven by external forces, not by internal standards and feelings.

That's life, I guess — starting with talents, education and associated scars, stretching where you can, hiding where your fears are highest, exploiting events for the better, balancing outer and inner traveling, releasing more and more of the inessentials, enjoying more and more of the essentials of life.

Can you imagine that I want to live longer to experience these insights more and more? But there is no way of knowing how long we have individually — and there is no “right to time.” I know all that, but I still find it hard to swallow. And it makes me angry from time to time.

It's almost Wouter time now. I send this off afterwards.

Lots of love, Wouter

Date: Thu, 22 Jan 1998 18:23:27

From: **Wouter Biesiot**

Dear Dana and Joan,

During Wouter time I felt your presence and love so much. I'm in terrible pain from the large intestine for the last 24 hours, and that's exhausting, because I almost had no sleep. Is this the bottom which one can use to push oneself up? It does not feel like that now. Can you send an extra series of hugs?

Staying in the heart — that goes well.

Being without suffering — that ain't easy! but I try!

Feeling healed — to a great extent.

Being at peace — that makes me cry.

MAY YOU STAY IN THE HEART
MAY YOU BE WITHOUT SUFFERING
MAY YOU BE HEALED
MAY YOU BE AT PEACE

Love, Wouter

Date: Tue, 10 Mar 1998 18:44:21

From: **Wouter Biesiot**

Dear Dana,

Now I've got two good quality pictures of last year's Balaton Group meeting. Thanks for organizing that.

Over the last 2 weeks we've been in big trouble with killing the pain caused by the growth of the tumors on my liver. We had a terrible night, not knowing what to do except for meditation — if the panic went away.

Last Monday we visited again our GP after consultation with “our” liver specialist at the hospital. They came up with the same advice: switching to some morphine that causes side effects like nausea, but keeps your head clear. So now our strategy is to use the diclophenac during the day, and to use the morphine during the night (and part of the evening, if the pain becomes too strong). Last night we had our first try-out. It really worked! So, I could sleep! What a relief was that.

So we have to develop a complicated kind of equilibrium, weighting pro's and con's. But the major thing is that the panic has gone now we have some solution at hand — albeit with nasty side effects. Simply to say that we had pain problems although I did not mention them to you.

More good news: today we visited IVEM to make print outs of the chapters of my writing (on the wall?) that are already finished, and multiplied the last two for comment from my senior colleagues. I've the feeling that my minimum program will be completely finished

by the time you visit us. Sorry it is in Dutch. Alan told me not to bother about that. Others can do translation if needed.

So it looks like within reach. And that's a great relief!

Today I felt very cold at Wouter time. But afterwards I was warm again, thank to the warmth and love and energies sent by the Wouter time participants. Great!

May you stay in the heart, may you be at peace.

Love, Wouter

Date: Mon, 6 Apr 1998 13:25:30

From: Nanda Gilden

Dear Joan and Dana,

This is a time of extremes. The happiness we feel, when we are together. The sadness of letting go. The feeling of impotence when Wouter is in pain, hallucinating, feeling sad about the unfortunate state of the world and the behavior of people in that world. And also knowing that he did what he could do, giving hope. Practical hope, it doesn't happen when we are waiting. It is hope with a program of action that others have to carry out. Every day, there are clear moments when he can feel this. And it is so difficult for him to really let go. In Dutch I even haven't the words for this difficult process he is in....

It hurts me, seeing him suffering. Suffering himself about the incapability of humankind in making a good and sustainable society, suffering because of all useless suffering and injustice in the world, because of the consumption-production cycle, that has become out of proportion and non-functional. And yesterday he felt that as a penance for him and for us. He said: Marijn is in the end the victim. I wish I could take this away from him. This last part is so very difficult. But I also think he can do it. He can let go this too, but for a man who always had the control of everything, letting go is very difficult.

I told him about your e-mails. He really wanted to read them, but has not enough concentration for that anymore. But he is very glad you send them, so it would be wonderful if you again send him a e-mail and perhaps you can make a very short one for him. Just one or two sentences that I can read to him. He is so glad that both of you came 'in time'.

Yesterday, **Wim Hafkamp** and Maxime visited us. He was very glad with Wim's reaction on his book. And those are really beautiful moments.

much love, Nanda

April 15, 1998

From **Alan AtKisson**

Dear Joan and Dana,

I wanted to tell you about my visit with Wouter.

I came up in the morning from Brussels, and stayed some hours, and left in the late afternoon. Physically, he was as you described him, Dana, and perhaps not much different, although the pain and the feeling of decline began in earnest the day after he finished his book (shortly after you left). Apparently he perked up at my visit, and had more clear-minded time than he'd had in recent days. He faded out a time or two, but mostly it was still Wouter there, even more translucent, and more prone to the emotional or the witty. He needs a bit more morphine each day.

We mostly just sat together. I felt it impossible not to touch him, to hold his arm or his shoulder or hand, rub them. He told me how he's been feeling. He gave himself about two weeks; he doesn't think he can stand the pain much longer than that.

I told him, again, what an extraordinary contribution he's made to all of us. Not only intellectually, but emotionally and spiritually. No one should suffer what he's been suffering. But in doing it with such grace and realness and integrity and openness he has taught us all so much.

We remembered our times together. I learned more about other important relationships in his life that had involved conflict and difficulty, all beautifully resolved now. We laughed a lot. He cried just once. I was teary on and off, but strangely joyful.

He's very proud of having finished his book. He's equally proud of the children's story Nanda wrote for Marijn, to give the gift of metaphor and understanding. And Marijn's drawings for his book are fantastic.

All the daughters were there, all shining and loving and translucent in their own way.

Nanda is so strong. We took a long walk, talked of many things, about Wouter and also other topics. She told me of their plans for Wouter's funeral. I told her that after Wouter is gone, she will still be very much in this circle of friends, and this touched her very much. She is a very special woman. We should all stay in touch with her.

When I left, he rose, and held me, and gave me one very light and tender kiss on the lips. It's a moment I will remember with intense vividness for the rest of my life.

Thank you for encouraging me to go ...

Much love to you both, Alan

Date: Tue, 28 Apr 1998 15:20:15

From: Nanda Gilden

Dear friends,

Wouter's funeral will be on Friday 1 May, at 11.00 a.m. I know Wouter very much wanted all of you to be there, but because of the distances it is all right if you are with us in the mind. You are very welcome, but we'll understand if it is not possible for you to come.

We made Wouter a lovely room in the house, where he is lying peacefully. We can walk in every now and then and talk to him and comfort him. It feels so good.

with love, Nanda

Statement from the Balaton Group, read by **Wim Hafkamp** at Wouter's funeral:

There were many ways in which Wouter Biesiot worked with others to help pave the way to a more sustainable, equitable world. A group with which he shared a strong commitment toward this goal is the Balaton Group — a network of scientists and activists from all parts of the world. For over a decade, he significantly contributed to its work. It is out of deep appreciation that the Balaton Group would like to celebrate the life and contributions of our dear friend and colleague Wouter Biesiot.

In our group Wouter was a “servant leader,” a quiet, steady pillar of integrity and dedication. He made his impact not only through his intellectual work, but also through helping others to do their work. The Balaton Group's strength comes from networking — from reaching out to share with and support each other so that we add up to more than the sum of our parts. Wouter was a strong, gentle, productive, and beloved link in that network.

He helped to develop and improve training games that teach people how to understand and manage complex systems in which the human economy fits in harmony with nature.

He and his IVEM colleagues developed a data base on household energy use that will help not only the Netherlands but many other countries plan how to meet global targets for reducing greenhouse gas emissions.

He contributed important new ideas to the global search for indicators of sustainable development. That contribution alone will have a lasting impact on the world's future.

He completed, in his last months, a book summarizing his energy research and his hopes for a saner future — a book we look forward to translating into En-

glish and bringing to a wide audience.

With wisdom and friendship he trained many fine young people, sustainability leaders of the next generation.

He encouraged and supported all of us, through his willing, thoughtful participation in our meetings and projects.

Increasingly he reminded us that we had both inner and outer work to do.

Above all, through a long struggle that must have been as surprising to him as it was to us, Wouter Biesiot taught us how to die — and therefore how to live. He was a teacher all his life. When the lessons were about the transitoriness and preciousness and purpose of life, he taught those lessons too. “I have learned the immense value of gentleness, care, love, and how to enjoy them,” he wrote to us. He did not hide away during his illness; he reached out and shared his ups and downs, his insights and realizations, his love and forgiveness. He grew spiritually as he sank physically, until he became for us a lodestone of peace and enlightenment. Many of us visited him during his last weeks. We came away calmer, better, more loving people, more grateful for the amazing gift of life, more determined to use that gift well, more willing to let it go. It was not only Wouter, but his family, Nanda, Hester, Janna, and Marijn, who grew steadily in strength and love during that difficult time, and who taught us all.

Toward the end of his life, Wouter spent some time grieving about the state of the world he was leaving. He agonized over — as Nanda wrote to us — “the incapability of humankind in making a good and sustainable society, about all the useless suffering and injustice, about the extreme resource consumption that has become out of proportion and non-functional.” He saw that his children and all our children would be the victims of our heedlessness. Having healed nearly every other pain and incompleteness in his life, this was the part he could not heal. It is the part he had to hand on to us.

The Balaton Group invites the friends of Wouter Biesiot, to build upon the work that he did, to care for the world as he cared for it, to carry forward the work that he gave himself to, and to do it in the spirit of loving-kindness in which Wouter dwelled. We invite you to join in the prayer that we and he repeated to each other, from all corners of the world, as we sent love and support to each other.

*May you, may I, may all people, everywhere,
dwell in the heart.*

May we be free from suffering.

May we be healed.

May we live in peace — inner and outer peace.

Date: Thu, 30 Apr 1998 18:35:15

From: **Carlos Quesada**

Dear Dana:

Thank you for a most appropriate message in the name of all of us, who got to appreciate and love him as a very special person and friend. In our last emotional hug at the end of the past Balaton meeting, he added some kind and wise words of advice, which touch me greatly, are a constant reminder of the need to live a more sustainable and meaningful life.

Even through his death, Wouter added to his many great contributions already offered in plentiful ways to the Balaton Group, to his profession and to the world. We will miss him greatly, but his memory will always remain with us.

Love, Carlos

Date: Fri, 1 May 1998 09:26:31

From: **Aromar Revi**

Dear Dana, Joan, Alan & Bert,

When I said good-bye to Wouter from Joan's place last December on the phone, both of us knew we would not be meeting in person again, so it was a brief bitter-sweet parting and a promise to meet on the 'other' side.

Most of us, either through day or night, walk on the other-side. But Wouter's yoga, like other mystics of the emerging age, was to bring Light and Power into the daily struggle of material existence, tearing the veil between the other and the ordinary.

His struggle for a conscious and compassionate death, was a great gift not only to him but to us, fellow-travelers in the round of life-death-life.

Bert was with us last week, sharing an important watershed in his life, and our seemingly insane existence. He shared his last moments with Wouter with me, as have Joan & Dana through great waves of love with which you enveloped Wouter's last years; and his parting kiss to Alan, which was a gift to us all.

Thank you all, and thank you Wouter for a boundless bond of fellowship ... sustainability, after all is only a transient movement in an ocean of eternity ...

Love, Aro

Date: Fri, 1 May 1998 10:38:06

From: **Faye Duchin**

I also was deeply touched by knowing Wouter.

In addition, I greatly appreciate his efforts to uncover the material implications of modern lifestyles.

Thank you for your expression of all of our sentiments, Dana.

Regards to everyone, Faye

Date: Fri, 1 May 1998 00:21:20

From **Anupam Saraph**

Dear Wouter,

You have slipped away from our feeble five senses. But you cannot from our minds and we continue to join you at Wouter time, as always.

To those of us who were part of Wouter time, a time to be with you, to support you through the difficult times for you, your family and friends, Wouter time turned to be a support to draw strength to overcome our own weaknesses, our inabilities to accept what we could not change. Even in your deepest pain, greatest agony and sinking moments you created a support system for many of your friends to be in touch with that in us that is common and eternal. Wouter, we will continue to meet there...

For those milestones in life, those artifacts you leave behind there have been countless that you let go, you could not have. But you realized the value of that single milestone above all, light up the spirit of fellow humans. For whatever posterity may recall your presence on this planet for, and there is much that I could list and much more that I would still miss. But every work of energy you put in your institute, you can be glad that your 'seven' were charged with magnified energy to continue what you begun. I know I speak on behalf of the other six too when I promise you we will not let you down.

I pray for strength to all of your friends and family, to help us to be charged with this magnified energy to give light, warmth and support to all those around us so that the vision of a sustainable world, that you strived for, could one day become real. I pray for strength to change whatever we can to make your vision real. I pray for the serenity to accept what we cannot change and the wisdom to know the difference.

I know my family, Arundhati, Sphurti and Aarth join me as do our friends from all over the world, to respect and salute the friend and even more so the human in you that we will continue to learn from and cherish.

Date: Fri, 1 May 1998 08:43:34
 From: **Ulrich Loening**

In Wouter's presence I always felt a warmth and understanding — a deep intuitive feeling of friendship and mutual caring. And especially privileged to have met last September at Balaton, and his moving few words about himself at the end of his talk; no words were needed then — I just squeezed his hands in support.

Love, Ulrich

Date: Sat, 2 May 1998 21:59:15
 From: **Niels I. Meyer**

We shall all miss Wouter in our future Balaton meetings. I believe he was the first one among the faithful Balaton members to die and I think many of us wonder why it should be one from the younger group and not one of us from the older group. Under normal circumstances Wouter would have had many creative and fruitful years in front of him, but so it should not be.

This should remind us that we better fully appreciate our friends in the Balaton group when we have them — and let them know it when they can still hear it. Maybe we sometimes take each other too much for a naturally given thing.

Excuse me for my poorly expressed message — it is difficult to express serious feelings in other languages than one's own. But then Dana has done it for all of us.

Warm greetings from Niels

Date: Mon, 4 May 1998 09:59:08
 From: **Wim Hafkamp**
 Dear friends,

Joan and Dana asked me to tell them about the ceremony of Wouter's burial. Well, I just returned from Groningen, with Maxime. Here's an account of my impressions.

Today was a very sad day. Our Wouter was buried. It was a day that he and Nanda had planned very consciously and considerately. At around ten o'clock Wouter, in his coffin, was carried out of their house in Mozartstraat. Nanda, Hester, Janna and Marijn followed, with parents and relatives, and their neighbor Henk van Halsema who led the whole ceremony. Many neighbors joined them and followed the coffin to the church in nearby Haydnstraat.

By eleven, a large number of people had gathered in the church. More family and friends, colleagues of IVEM and former colleagues, fellow researchers and activists, students and former students. Sad faces, tears, hi's, handshakes, and hugs. Through all, grief, sheer grief.

The coffin was in front of the church, with a decoration made by Marijn. With many bouquets of flowers. One that we brought on behalf of the Balaton Group. Yellow flowers, sunflowers and others in different shades of yellow, with Joan's words: "for the light he gave us, and that which he now has on the other side." Signed The Balaton Group.

The commemoration service started. As it went on I realized it was non-religious most of the time, and anti-religious some of the time, and then religious. Henk van Halsema, Wouter's next door neighbor, is a very religious man who expressed appreciation of Wouter's alienation, or even dismissal, of the reformed church.

Music and speakers alternated. Wouter and Nanda had carefully selected the music. Beethoven (Piano concerto nr. 3 c-moll op.37), G.F. Handel 'Ombra mai fu,' sung by Kathleen Ferrier, Franz Schubert (Impromptu nr. 3 in Ges-dur), The End of a Perfect Day (sung by Davey Arthur) and from the requiem of Gabriel Faure 'In Paradisum deducant Angeli' (angels show the way to paradise, my translation). This is no light selection, but granite depressing solid state grief transcended into panoramas of a rolling griefscape, under a sky of tactile togetherness.

Speakers had also been arranged by Wouter and Nanda. Henk van Halsema started, as a neighbor, in a very personal, religious but above all human tone. Ton Schoot Uyterkamp, the full professor in charge of IVEM, talked of Wouter: his contribution to IVEM over many years, his vision and ability to formulate research questions, his ability to organize and finance research, his Ph.D. candidates. Ton concluded in ultimate conciseness: 'Louter Wouter.' Louter is a Dutch adjective, a strong one, meaning 'pure, genuine, crystal clear, essential, significant, (omni)present.'

Jan Commandeur elaborated Wouter's role in the history of IVEM, the academic climate, the frictions between disciplines, faculty, ranks, beliefs.

Phil Smith, Wouter's Ph.D. supervisor many years ago, is an older man now. Seemingly fragile he shook the audience in their chairs. "He was a red!" he cried almost immediately. And he discussed how injustice had always moved Wouter. "He was a red, and here, today, at his funeral on May First, Labor Day, they do not play the 'Internationale', the socialist hymn around the world. Well, when I die it will surely be played, loudly. And

that's the difference between Wouter and me. That's the value-added that Wouter brought to this world. He reached out to people, established the link” Phil brought an emotion, a directness, a helplessness that went through everyone's spine, heart and spirit. He brought us together in today's losthood. But he was the first one to say it: ‘Wouter will be with you, with me, with us. Now there is only pain, but then it will not hurt’.

After the ceremony we met, and Phil promised me he would translate his words into English. I promised I would e-mail them to you. He liked the idea and then said “the Americans won't like this” and I responded “*these* Americans will.” This was all in Balatone.

Arthur Mynett was a friend and activist with Wouter in their rebellious student years at the Technical University of Delft. He brought episodes to life that took place twenty five to thirty years ago. Louter Wouter.

Henk Moll came, who painted an ‘old Dutch Master’ of Wouter by alternating between work and ice skating. He had stamina, drive, energy and then he was helpless like we all are. Yes Dana, Joan, in different words, Henk presented a similar picture. There is Balaton in Moll (not to be confused with Mol in Balaton), and in IVEM. (And Henk will come in Wouter's place to the next Balaton meeting.)

In between speakers and music there were chairs scraping over the floor, people shifting their balance; there were throats scraping, and there were loud handkerchiefs. Many handkerchiefs.

On behalf of the Balaton Group, I read the Dutch translation of the words that Dana, in communication with Joan, had written on Tuesday and Wednesday. It had taken me half of Thursday to translate it, with the help of Maxime. The three minutes it took me to read it, alone, were the most difficult minutes ever. Among the dearest minutes ever. I felt you were there Dana, Joan, Dennis, Bert, Anupam and other Balaton friends. We were all there. And Wouter is in us, now that he isn't around anymore.

Then ‘The End of a Perfect Day’ sounded, and Henk van Halsema spoke a blessing. A blessing which Wouter remembered having heard often in his childhood, in church. A blessing they discussed the night Wouter died. Wouter had asked Henk to speak this blessing at the ceremony. And then he had said to Henk “Go in Peace”.

When we left, we were given a small book. Nanda wrote it for Wouter and Marijn. Her thoughts on illness, death and dying. The story is about a father rabbit. He had been shot. The surgeon gnome who had operated on him had good news and bad news. The good news was that the bullets had been removed. The bad news was that father rabbit would never recover, and would eventually die.

Father rabbit, mother rabbit and children rabbits are struck by utter confusion. They must try to come to terms with death. Especially for the children, this is incomprehensible. Then there is the gnome Wise Nose. He tells them stories about dying. And how people may die and still be present. Because their soul lives in those who love them.

Father rabbit dies and the children rabbits discover in their own way how father lives in them. At the end of the day, under a clear sky they select a ‘father star.’ There he is! He watches over me, so I can now safely go to sleep. This is illustrated with water colors by ‘Tante An,’ an aunt of Wouters’. I will bring it to Balaton. It is beautiful.

We left, on our rental bikes, for the station, and spent the rest of the day in a kaleidoscope of sad reflection, appreciation, anger and wonder.

Today, there was Balatone in Groningen, in Louter Wouter.

READINGS FOR ENERGY SCENARIOS

So many top corporate managers around the world are utterly shell-shocked by change that nothing seems implausible any more. The acknowledgment by many [is] that they have absolutely no idea what a career in their industry will look like in 20 years, much less how to educate and prepare their staffs for that future — all they know is that business-as-usual means death.

— *Wired magazine*, quoted in a Global Business Network brochure for training in scenario development

*(In preparation for our coming meeting on long-term energy scenarios — and in preparation for the next few decades of life on earth — we have compiled a few recent readings on the “facts” of the world energy situation, as seen from several different angles. We are grateful to **Philip Sutton** for forwarding the first two items in this compilation.)*

New IEA World Oil Supply Prospects To 2020

(IEA paper for the G8 Energy Ministers’ Meeting in Moscow, 31 March 1998)

Prospects for oil production have been analyzed by region, paying particular attention to the distinction between OPEC, Middle East and all other producers. Account has been taken of estimates of conventional oil reserves and the production profiles for oil in each region.

Oil reserve estimates are inevitably uncertain and studies normally report oil reserve estimates as ranges, rather than as point estimates. For example the United States Geological Survey in 1993 reported a range of 2.1 to 2.8 trillion (10^{12}) barrels for worldwide recoverable reserves of conventional oil. Experts differ on these figures; some take a static view, emphasizing geological and statistical issues that lead to a low reserve estimate, and some take a dynamic view, arguing that rapidly advancing technology will help discover more reserves and make a wider range of already known deposits economically recoverable.

Experience in mature oil regions indicates that production builds to a peak when approximately half of the ultimately recoverable reserves has been produced, and then falls away. The application of new technologies, such as horizontal drilling and 3D seismic analysis, determines the ultimate size of recoverable reserves.

It can extend the peak and delay or slow the decline in production. But eventually production falls, given a fixed oil resource. This has been the experience, for example, in the United States.

This approach has been applied on a regional basis. It indicates that **a peaking of conventional oil production could occur between years 2010 and 2020**, depending on assumptions for the level of reserves. Oil production outside OPEC Middle East would peak before OPEC Middle East production implying a greater reliance on OPEC Middle East supply between the two peaks. A plateau in oil production for OPEC Middle East of 47.9 mbd has been assumed, rather than a sharp peak, following an IEA study.

Table 1 gives details of supplies for conventional and non-conventional oil. The transition from conventional to non-conventional oil as the marginal supply in 2015 is assumed to raise the oil price from \$17-25 per barrel (1990 money values) over the period 2010 to 2015. The use of non-conventional oil expands rapidly after 2015 as it meets the increase in demand for liquid fuels and compensates for the decline in conventional oil production.

Table 1: Oil Supply 1996-2020, assuming a lower estimate of conventional oil reserves (2.3 trillion barrels)				
(million barrels per day)	1996	2000	2010	2020
Total Demand For Liquid Fuels	72.0	78.3	94.5	110.1
Total Natural Gas Liquids, Processing Gains and Identified Unconventional Oil	9.3	11.6	15.5	20.6
Conventional Crude Oil — Total Crude Oil	62.7	66.7	78.9	72.2
Middle East OPEC	17.2	20.1	40.9	45.2
World excluding Middle East OPEC	45.5	46.6	38.0	27.0
World Liquids Supply (excluding Unidentified Unconventional Oil)	72.0	78.3	94.5	92.8
<i>Balancing Item - Unidentified Unconventional Oil</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>17.3</i>

The extent of the future rise in the world oil price is in some doubt. **To produce large and increasing volumes of oil from non-conventional sources will require many major multi-billion dollar projects. Some unevenness in supply availability is possible because of the long lead times required for these big projects** and the difficulties in matching supply to demand in what promises to be a highly competitive market.

It is necessary to distinguish fluctuations in the world oil price from its longer term average level. Some short-term price movements could well arise from supply-demand mismatches, as non-conventional oil sources take over the marginal supplier role. But opinion on the effect of this changeover on the longer-run oil price is mixed. Some observers expect long run supply costs from major non-conventional oil production projects to be higher than current long run supply costs from non-OPEC sources, lifting the world oil price to a new long-

Forbes Magazine on Future Oil Price

By Howard Banks, from Forbes, June 15, 1998, pp.84-86. Also see www.dieoff.org/forbes.pdf

NOT THIS YEAR, nor the next, but maybe as soon as five years hence, oil prices will start to rise, says Franco Bernabé, chief executive of the Italian oil company ENI SpA. **Well before 2010, he believes, the world will be vulnerable to 1970s-style oil shocks.**

Speaking to FORBES in London in early May, he says, "There is a great deal of complacency among politicians and economists that the oil problem is over. But despite today's low prices, in the long term we will be back to a high-price scenario in the oil sector."

It sounds unlikely, at a time when crude prices have sagged below \$15 a barrel. In real inflation-adjusted terms, that's not much above the price level just before OPEC sandbagged the world with \$30 oil in the mid-1970s. In short, on balance, the price of oil has gone nowhere in a quarter of a century. However, Bernabé - who is a former economics professor and in the 1970s was a senior economist at the Paris-based Organization for Economic Cooperation & Development - puts forward a well-argued case that oil will be a lot dearer in the 21st century than it is in the 20th.

What about technology? Haven't things like horizontal drilling greatly increased the yield from existing fields in recent years? Sure, says Bernabé, but there's not a lot more scope to increase recoverable reserves this way.

Today's conventional view is that prices will remain low for the foreseeable future because reserves of oil have been increasing, especially with the discoveries

run level of \$25-\$30 per barrel. Others suggest there will be no upward pressure on the world oil price. An upward ramp from \$17/bbl to \$25/bbl has been assumed from 2010 to 2015 as a response to the transition to non-conventional oil, with the oil price remaining at \$25/bbl after 2015. All prices are quoted in the money values of 1990.

Natural gas prices are increased along with oil prices because the two products are close competitors. The coal price has been adjusted upwards to account for the transport cost element. A higher view of oil reserves would assume an ultimate stock of recoverable conventional oil of 3 trillion barrels, compared with the lower assumption of 2.3 trillion barrels (see Table 1). This view postpones the production peak of conventional oil and the associated rise in world oil price to 2020. The effect of the lower oil price on world oil demand is estimated to be small. (From <http://www.iea.org/g8/world/oilsup.htm>.)

of oil outside the OPEC countries (the North Sea, Alaska's North Slope). On paper, the world's declared reserves, when related to production, are one-fifth higher than pre-1973.

"Actually, the exact opposite has happened," Bernabé says. Most of the increase in world reserves has been within OPEC, and occurred in 1987 and to a lesser extent in 1989. These were years with low oil prices. "OPEC countries boosted their reserve figures as a way (under their calculation method) to increase their shares of OPEC production through the quota system." A negotiating ploy to pay for their rising debt? "It was simply a trick," he says. **Either the newfound oil existed only on paper, or it had been there all along but the owners hadn't declared it. In either case, not new oil.**

Another region claiming growing reserves is the former Soviet Union. "These countries, too, overstate their reserves, in this case because they use the concept of geological reserves (everything that might be in the ground) rather than the West's concept of economically producible reserves," he explains.

Bernabé's key concern is the reserve-to-production ratio - the ratio of proven economically producible reserves to actual output - of the non-OPEC oil companies. He looks at the world's 200 largest oil companies that are not owned by an oil-producing country, eliminating from his list such national companies as Saudi Arabia's Aramco and the Iraq National Oil Co. (a group which accounts for over 60% of the world's oil reserves).

For his list of 200, Bernabé says, new reserves are failing to keep up with growing output. “From 1980 to 1997, their reserve-to-production ratio declined from 18 years to 12 years.”

Bernabé thinks the figure will continue to decline. “Even to maintain this ratio at today’s 2.5% annual increase in world production, this group would need to replace 140% of their reserves over the next five years,” he says. This simply isn’t on the cards.

The amount of new discoveries in the world has dropped from a peak of 41 billion bbl a year in 1962 to 5-6 billion a year now,” he says. The peak of new discoveries was in the 1960s, with just half a dozen major fields found since then.

“The only really major new basin recently has been Africa’s Gulf of Guinea, off Angola, Congo, Gabon and Nigeria. Even the new North Slope field in Alaska contains less oil than was once hoped.

“For the US as a whole, the industry is spending 15% more than five years ago on upstream capital expenditure, but without seeing an increase in reserves,” he says.

“The North Sea has accounted for over half of increased production in the last 15 years. But output there will start to decline in the next 2-3 years.”

Joe Romm and Charles Curtis on The Renewables Revolution

(The following is excerpted from an article in The Atlantic Monthly, April 1996. Joe Romm is a former denizen of Rocky Mountain Institute and now the acting principal deputy assistant secretary for energy efficiency and renewables at the US Department of Energy. Charles Curtis is deputy secretary of the US Department of Energy.)

Imagine a world in which the Persian Gulf controls two-thirds of the world’s oil for export, with \$200 billion a year in oil revenues streaming into that political troubled region. Imagine America importing nearly 60 percent of its oil, with a \$100 billion a year outflow. That’s the “reference case” for 2006 from the federal Energy Information Administration.

Imagine another world in which fossil fuel use has begun a slow, steady decline. More than a third of the market for new electricity generation is supplied from renewable sources, the renewables industry has annual sales of \$150 billion, and the fastest-growing source of power is solar energy. That’s a planning scenario for three to four decades from now, developed by Royal Dutch/Shell Group.

Bernabé points to what has been happening in the Norwegian sector. “They have announced that their planned increase in natural gas production to 100 billion cubic meters a year from 2000 to 2010 will now be trimmed to 80 billion cubic meters. The reason is that they can only keep oil production up by injecting gas into their wells,” says Bernabé. The new field west of the Shetland Islands is also proving to be much harder to produce from than predicted.

“My forecast is that between 2000 and 2005 the world will be reaching peak production from our known fields, and after that, output will decline.” But demand will keep growing, slowly but inexorably.

Does this mean that oil prices will stay down well after the turn of the millennium and then start to go up? Not necessarily. **Once the markets recognize that production has peaked while demand continues to grow, prices could move up in advance of any actual shortages.**

If Bernabé is right, oil and oil shares should be good investments for those who can take a genuinely long-range point of view. But there are other, more dire implications. “It will shift the power in the oil market back to the Gulf region,” he points out. More than ever, the Middle East will become a potential powder keg for war.

World 1: Oil Crunch, Middle East Wealth, Increasing Geopolitical Mischief

Forecasting is always risky, especially where oil is concerned, but consider what a variety of experience energy hands from every point on the political spectrum have said in the past year. Donald Hodel, who was Secretary of Energy under Ronald Reagan, has said that we are “sleepwalking into a disaster” and predicts a major oil crisis within a few years. Irwin Stelzer of the American Enterprise Institute says that the next oil shock “will make those of the 1970s seem trivial by comparison.” Daniel Yergin says, “People seem to have forgotten that oil prices, like those of all commodities, are cyclical and will go up again.” James Schlesinger, Secretary of Energy under Jimmy Carter, has said, “By the end of this decade we are likely to see substantial price increases.”

Concerns about a coming oil crisis have surfaced in the financial markets as well. Last October, in an article titled "Your Last Big Play in Oil," *Fortune* magazine listed several billionaires and "big mutual fund managers" who were betting heavily that oil prices would rise significantly.

Fundamental trends in oil demand and supply underlie this emerging consensus. First the world will probably need another 20 million barrels of oil a day by the year 2010, according to the Energy Information Administration (EIA). The International Energy Agency (IEA) projects an even greater growth in demand, following the inexorable tide of population growth, urbanization, and industrialization.

Second, the world's population is expected to increase by 50 percent by 2020, with more than half those additional people born in Asia and Latin America — and moving to cities. The fundamentals of urbanization — commuting, transporting raw materials, constructing infrastructure, powering commercial buildings — consume large amounts of energy. At the same time fewer farms will have to feed more people, so the use of mechanization, transportation, and fertilizer will increase. An analysis by one of the Department of Energy's national laboratories found that a doubling of China's and India's urban populations could increase per capita energy consumption by 45 percent — even if income per capita remains unchanged.

Finally industrialization has an even greater impact on energy use. Crucial industries for development are also the most energy-intensive — primary metals; stone, clay and glass; pulp and paper; petroleum refining; and chemicals. In the U.S. these industries account for more than 80 percent of manufacturing energy consumption (and more than 80 percent of industrial waste).

As *Fortune* has noted, if the per capita energy consumption of China and India rises to that of South Korea, and if the Chinese and Indian populations increase at currently projected rates, **"these two countries alone will need a total of 119 million barrels of oil a day. That's almost double the world's entire demand today."**

The Persian Gulf, with two-thirds of the world's oil reserves, is expected to supply the vast majority of that increased demand — as much as 80 percent according to the EIA. Although non-OPEC nations did increase production by almost 15 percent from 1980 to 1990, they increased proven reserves of oil by only 10 percent. The remaining years of production for non-OPEC reserves has fallen from 18 to 17 years.

The United States is expected to be importing nearly 60 percent of its oil by ten years from now, with roughly a third coming from the Persian Gulf. Its trade deficit in

oil is expected to double, to \$100 billion a year, by that time. Meanwhile the Persian Gulf nations' oil revenues are likely to almost triple, from \$90 billion a year today to \$250 billion a year in 2010. This represents a \$1.5 trillion increase in wealth for Persian Gulf producers over the next decade and a half. And the breakup of the Soviet Union, coupled with Russia's difficulty in earning hard currency, means that for the next decade and beyond, pressure will build to make Russia's advanced military hardware and technical expertise available to well-heeled buyers.

The final piece in the geopolitical puzzle is that during the oil crisis of the 1970s, the countries competing for scarce oil were mainly all NATO allies. During the next oil crisis, they will be NATO countries again, plus the rapidly growing countries of Asia. In the early 1970s East Asia consumed well under half as much oil as the United States, but by the time of the next oil crunch, East Asian nations will probably be consuming more oil than the United States.

World 2: The Renewables Revolution

Chris Fay, the chairman and CEO of Shell UK Ltd. Said in a speech in Scotland last year, "There is clearly a limit to fossil fuel.... Shell analysis suggests that resources and supplies are likely to peak around 2030 before declining slowly.... But what about the growing gap between demand and fossil fuel supplies? Some will obviously be filled by hydro-electric and nuclear power. Far more important will be the contribution of alternative renewable energy supplies."

Shell's analysis does not rely exclusively on supply limits — after all, for decades people have been worried about such limits and the supply has continued to expand — but also incorporates a recognition of the tremendous advances that have been made in renewable energy technologies over the past two decades and that are expected to be made over the next two decades. These advances have persuaded Shell planners that **renewables may make up a third of the supply of new electricity within three decades even if electricity from fossil fuels continues to decline in cost.**

A scenario they have prepared does not assume price increases in fossil fuels (though such increases are probable). Nor does it assume any attempt by governments to incorporate environmental costs into the price of energy (though that would be a big help). Even in a genuine "Business as Usual" scenario, renewables win on a lower cost basis alone.

In the past 15 years the Department of Energy, working with the private sector, has reduced the costs of electricity from biomass (such as crops and crop wastes) and wind, bringing them into the current range of whole-

sale costs for coal and other traditional sources of electricity. Gasifying biomass and using advanced turbines could bring biomass power to 4.5 cents per kilowatt-hour within a decade. Shell projects that by 2010 commercial energy from biomass could provide five percent of the world's power, the value of which could exceed \$20 billion.

Over the past fifteen years electricity from wind power has declined in cost by 10 percent a year. Utilities are receiving long-term bids for electricity from wind at 4.5 cents per kilowatt-hour. Wind could hit three cents per kilowatt-hour by 2020, and soon after that its annual sales could reach \$50 billion.

Photovoltaic cells now cost one-tenth what they did in 1975. Shell expects that PV, along with fuel cells and small gas-fired power plants, will permit the growth of widely distributed power systems. That could obviate the need for huge power lines and other costly elements of an enormous power grid, especially in developing countries where such a grid has not yet been built. PV module sales worldwide totaled less than four megawatts in 1980 and now exceed 80 megawatts per year; sales continue to grow. The Shell scenario predicts that PV and other direct conversions of sunlight will be the most rapidly growing form of commercial energy after 2030. Sales could exceed \$100 billion. Shell has bought two photovoltaics companies.

To go beyond the Shell scenario, there is also the possibility of a superefficient hybrid vehicle as described by Amory Lovins. And the DOE investment of \$1.1 billion in energy-efficient industrial technologies has yielded approximately \$2.5 billion in documented energy savings — which should reach \$10 billion by the

year 2000. For example, a process for dezincing (removing the galvanized coating from) scrap steel allows in the U.S. the recycling of 10 million tons of scrap metal annually, reducing raw material costs by \$220 million a year, saving 50 trillion BTUs, and eliminating the import of 70,000 tons of zinc. Another technology, vacuum-pressure swing adsorption, reduced emissions of NO_x from glass-making by 90 percent and furnace energy use by 25 percent.

The Japanese government is betting heavily on clean technologies and renewable energy. It has quadrupled its spending on its Green Aid Plan, designed to help Asian countries prevent water and air pollution, recycle waste, conserve energy and develop alternative energy scenarios. Germany, too, is moving this direction, with regulations that push industry toward prevention, recycling, and life-cycle analysis. The Netherlands spends about \$500 million a year on environmental technologies — equivalent on a per capita basis to \$9 billion in the United States.

Meanwhile the U.S. Congress has cut by a third the Department of Energy's budget for energy-efficient and pollution-prevention technologies, though it cost the average American only \$4 per year.

Nothing is clearer to those who study the matter than that the world is on the verge of a revolution in energy and environmental technologies. It will create a number of industries that collectively will provide one of the largest international markets and sources of high-wage jobs in the next century. Yet Congress wants to pull the federal government and the nation out of these technologies. Only a misbegotten ideology could conceive a blunder of such potentially historic proportions.

MORE SCI-FI FUTURES

compiled by Garry Peterson

(Raw material for releasing constraints on our thinking about possible future scenarios.)

The World, the Flesh, and the Devil: an enquiry into the future of the three enemies of the rational soul,
J.D. Bernal, 1929 (see <http://www.physics.wisc.edu/~shalizi/Bernal/>)

There are two futures, the future of desire and future of fate, and man's reason has never learnt to separate them. Desire, the strongest thing in the world, is itself all future, and it is not for nothing that in all the religions the motive is always forward to an endless futurity of bliss or annihilation. Now that religion gives place to science and the paradisaical future of the soul fades before the Utopian future of the species, still the future rules. But always there is, on the other side, destiny, that which inevitably will happen, a future here concerned not as the other was with man and his desires, but blindly and inexorably with the whole universe of space and time.

* * *

... The stage should soon be reached when materials can be produced which are not merely modifications of what nature has given us in the way of stones, metals, woods and fibres, but are made to specifications of a molecular architecture. ...All these developments would lead to a world incomparably more efficient and richer than the present, capable of supporting a much larger population, secure from want and having ample leisure, but still a world limited in space to the surface of the globe ...

Once the earth's gravitational field is overcome, development must follow with immense rapidity. ... Imagine a spherical shell ten miles or so in diameter, made of the lightest materials and mostly hollow ... The initial stages of construction ... will probably consist of attaching an asteroid of some hundred yards or so diameter to a space vessel, hollowing it out and using the removed material to build the first protective shell.

* * *

But the processes of natural evolution are so much slower than the development of man's control over environment that we might, in a such a developing world, still consider man's body as a constant and unchanging.... We must alter either the germ plasm or the living structure of the body, or both together.... The decisive step will come when we extend the foreign body into the actual structure of living matter. Parallel with this development is the alteration of the body by tampering with its chemical reactions — again a very old-established but rather sporadic process resorted to to cure illness or procure intoxication. But with the development of surgery on the one hand and physiological chemistry on the other, the possibility of radical alteration of the body appears for the first time. Here we may proceed, not by allowing evolution to work the changes, but by copying and short-circuiting its methods.

... Sooner or later the useless parts of the body must be given more modern functions or dispensed with altogether, and in their place we must incorporate in the effective body the mechanisms of new functions.... We badly need a small sense organ for detecting wireless frequencies, eyes for infra red, ultra-violet, and X-rays, ears for supersonics, detectors of high and low temperatures, of electrical potential and current, and chemical organs of many kinds.... Normal man is an evolutionary dead end; mechanical man, apparently a break in organic evolution, is actually more in the true tradition of a further evolution."

....There remains another possibility: the most unexpected but not necessarily the most improbable, the development of a dimorphism in humanity in which the conflict between the humanizers and the mechanizers will be solved not by the victory of one or the other but by the splitting of human race — one developing a fully-balanced humanity, the other groping unsteadily beyond it. ...

Brave New World, Aldous Huxley 1932.

He rubbed his hands. For, of course, they didn't content themselves with merely hatching out embryos: any cow could do that. "We also predestine and condition. We decant our babies as socialized human beings, as Alphas or Epsilons, as future sewage workers or ..." He was going to say "future World Controllers," but correcting himself, said "future Directors of Hatcheries" instead.

* * *

"And that," put in the Director sententiously, "that is the secret of happiness and virtue — liking what you've got to do. All conditioning aims at that: making people like their unescapable social destiny."

"Observe," said the Director triumphantly, "Observe."

Books and loud noises, flowers and electric shocks — already in the infant mind these couples were compromisingly linked; and after two hundred repetitions of the same or a similar lesson would be wedded indissolubly. What man has joined, nature is powerless to put asunder.

"They grow up with what psychologists used to call an 'instinctive' hatred of books and flowers. Reflexes unalterably conditioned. They'll be safe from books and botany all their lives."

One of the students held up his hand; and though he could see quite well why you couldn't have low-caste people wasting the Community's time over books, and there was always the risk of their reading something which might undesirably decondition one of their reflexes, yet ... well he, couldn't understand about the flowers. Why go to the trouble of making it psychologically impossible for Deltas to like flowers?

Patiently the D.H.C. explained. If children were made to scream at the sight of roses, that was on the grounds of high economic policy. Not so very long ago (a century of thereabouts), Gammas, Deltas, even Epsi-

lons, had been conditioned to like flowers — flowers in particular and wild nature in general. The idea was to make them want to be going out into the country at every available opportunity, and so compel them to consume transport.

"And didn't they consume transport?" asked the student.

"Quite a lot," the D.H.C. replied. "But nothing else."

Primroses and landscapes, he pointed out, have one grave defect: they are gratuitous. A love of nature keeps no factories busy. It was decided to abolish the love of nature, at any rate among the lower classes; to abolish the love of nature, but not the tendency to consume transport. For of course it was essential that they should keep on going to the country, even though they hated it. The problem was to find an economically sounder reason for consuming transport than a mere affection for primroses and landscapes. It was duly found.

"We condition the masses to hate the country," concluded the Director. "But simultaneously we condition them to love all country sports. At the same time, we see to it that all country sports shall entail the use of elaborate apparatus. So that they consume manufactured articles as well as transport. Hence the electric shocks."

* * *

"Now — such is progress — the old men work, the old men copulate, the old men have no time, no leisure from pleasure, not a moment to sit down and think — or if ever by some unlucky chance such a crevice of time should yawn in the solid substance of their distractions, there is always soma, delicious soma, half a gramme for a half-holiday, a gramme for a weekend, two grammes for a trip to the gorgeous East, three for a dark eternity on the moon, returning when they find themselves on the other side of the crevice, safe on the solid ground of daily labour and distraction, scampering from feely to feely, from girl to pneumatic girl, from Electro-Magnetic Golf Course to ..."

Neuromancer, William Gibson, 1984.

The sky above the port was the color of television, tuned to a dead channel.

* * *

Night City was like a deranged experiment in social Darwinism, designed by a bored researcher who kept one thumb permanently on the fast-forward button. Stop hustling and you sank without a trace, but move a little too swiftly and you'd break the fragile surface tension of the black market; either way, you were gone, with nothing left of you but some vague memory in the mind of a fixture like Ratz, though heart or lungs of kidneys might survive in the service of some stranger with New Yen for the clinic tanks. Biz here was a constant subliminal hum, and death the accepted punishment for laziness, carelessness, lack of grace, and failure to heed the demands of an intricate protocol.

* * *

Home was BAMA, the Sprawl, the Boston-Atlanta Metropolitan Axis. Program a map to display frequency of data exchange, every thousand megabytes a single pixel on a very large screen. Manhattan and Atlanta burn solid white. Then they start to pulse, the rate of traffic

Green Mars, Kim Stanley Robinson, 1994.

Next morning in the conference room Fort circled the room in his usual way. "The new opportunities for growth are no longer in growth."

"That's what all this full-world thinking comes down to. So we've got to identify the new nongrowth markets, and get into them. Now recall that natural capital can be divided into marketable and nonmarketable. Nonmarketable natural capital is the substrate from which all marketable capital arises. Given its scarcity and the benefits it provides, it would make sense according to standard supply/demand theory to set its price as infinite. I'm interested in anything that has a theoretically infinite price. It's an obvious investment. Essentially, it's infrastructure investment, but at the most basic bio-physical level. Infra-infrastructure, so to speak, or bioinfrastructure. And that's what I want Praxis to start doing. We obtain and rebuild whatever bioinfrastructure has been depleted by liquidation. It's a long term investment, but the yields will be fantastic."

"Isn't most bioinfrastructure publicly owned?" Art asked.

starting to overload your simulation. Your map is about to go nova. Cool it down. Up your scale. Each pixel is a million megabytes. At a hundred million megabytes per second, you begin to make out certain blocks in midtown Manhattan, outlines of hundred year old industrial parks ringing the old core of Atlanta ...

* * *

"Hey, Christ," the Finn said, taking Case's arm, "looka that." He pointed. "It's a horse, man You ever see a horse?" Case glanced at the embalmed animal and shook his head. It was displayed on a sort of pedestal, near the entrance to a place that sold birds, and monkeys. The thing's legs had been worn black and hairless by decades of passing hands. "Saw one in Maryland once," the Finn said, "and that was a good three years after the pandemic. There's Arabs still trying to code 'em up from the DNA, but they always croak."

The animal's brown glass eyes seemed to follow them as they passed. Terzibashjian led them into a cage near the core of the market, a low-ceiling room that looked as though it had been in continuous operation for centuries. Skinny boys in soiled white coats dodged between the crowded tables, balancing steel trays with bottles of Turk-Tuborg and tiny glasses of tea.

"Yes. Which means close cooperation with the governments involved. What we need to do is find countries with small GNP's and bad CFIs."

"CFI?" Art said.

"Country Future Index. It's an alternative to the GNP measurement, taking into account debt, political stability, environmental health and the like. A useful cross-check on the GNP, and it helps tag countries that could use our help. We identify those, go to them and offer them massive capital investment, plus political advice, security, whatever they need. In return we take custody of their bioinfrastructure. We also have access to their labor. It's an obvious partnership. I think it will be the coming thing."

* * *

Art hefted the white block. "But what's this get nitrogen, and give nitrogen, and burn nitrogen? What, do you torch your money when you get it?"

"Well some of it, yeah."

“So both of them were trying to lose?”

“To lose?”

“To come out short in the deal?”

“Short?”

“To give more than they got?”

“Well, sure. Of course.”

“Oh, of course!” Art rolled his eyes. “But you ... you can’t give too much more than you get, did I understand that?”

“Right. That would be potlatching.”

Nirgal watched his friend mull this over.

“But if you always give more than you get, how do you get anything to give, if you see what I mean?”

Nirgal shrugged, glanced at Vijjika, hugged her waist suggestively. “You have to find it, I guess. Or make it.”

“Ah.”

“It’s the gift economy,” Vijjika told him.

“The gift economy?”

“It’s part of how we run things out here. There’s the money economy for the old buy-and-pay system, using units of hydrogen peroxide as the money. But most people try to do as much as they can by the nitrogen standard, which is the gift economy. The Sufis started that, and the people in Nirgal’s home.”

THE INDUSTRIALIZATION OF THE ORGANIC MOVEMENT

by Michael Ableman

(Michael Ableman is the executive director of the Center for Urban Agriculture at Fairview Gardens in Goleta, California. His comment here on organic labeling in U.S. agriculture also raises questions for other countries and for world trade. It raises the question of whether sustainable ways of doing anything automatically succeed when they become big and mainstream? Or is that the point where they begin to fail? Should we oppose mainstreaming technologies such as organic production? If we do, are we consigning ourselves to be marginal forever?)

In December 1997 the U.S. Department of Agriculture completed its interpretation of the Organic Foods Production Act of 1990 and released the first proposed national-level regulations on the growing and labeling of organic foods. (Many states already have such regulations.) Five years of backroom deliberations produced a 600-page document that shocked organic farmers and consumers. The USDA's proposed rules not only watered down the definition of the word "organic," but also extended it to include genetically engineered organisms, irradiated food, factory-farmers livestock, and food grown with municipal sewage sludge.

No one is more surprised and distressed by this draft regulation than organic farmers. Yet these same farmers fought for years to win the government's benediction, signing petitions and writing letters to insure the passage of the OFPA. It was as if a spell had been cast over independent-thinking, self-sufficient and contrary farmers that made them invite the federal government into our farms and businesses. Did we forget we were dealing with a government whose policies consistently encourage industrial chemical agriculture? Did we really believe that we could trust the fox to guard the chicken coop?

Secretary of Agriculture Earl Butz confirmed federal policy in the 1970s, when he coined the phrase "get big or get out." The organic movement remained a local, community-based alternative that focused on the importance of building and sustaining living soils. We rejected the arsenal of chemicals that were vigorously marketed by manufacturers and their government representatives. But more than substituting "organic" materials for chemicals, we wanted to redefine the food system as a whole, to offer an alternative in which individual, social, and environmental health did not have to become a casualty of agriculture. Instead we were seduced by the very food production and distribution system we sought to oppose.

Now we can see the products of corporate "organic" farms on supermarket shelves, shrink-wrapped next to the Cheerios. The vast organic farms of Gallo, Pandol, or Tanamura, though an improvement in some ways, are in other ways indistinguishable from their chemically farmed neighbors. Our own success threatens the

values of our movement, as organic farming is industrialized, helped along by laws such as the OFPA and a host of "organicrats" who have never had their hands in the soil.

We should honor any farm that eliminates poisons from its growing practices. But we don't want to be left with the same linear production system, the same factory-consciousness.

The push for a national organic standard seems a reasonable and innocent idea. Such standards may be important for larger producers involved with interstate and international trade. But to call on Washington to regulate grassroots "organic" markets is to summon an army of bureaucrats replete with forms and affidavits, followed by fee collectors lining up with their hands out. It will bury the small producers who have been the foundation of the organic movement.

Organic growers and consumers need to start asking questions again: How far does food travel from the field to the plate, and at what cost in electricity and fossil fuel? Whose hands grow and harvest our product, and are they paid a living wage? Does the farmer own the land, or does the community? Will we rebuild soils only to lose land to real estate development? How do we make pure food available to all, not just those who can afford it? How do we educate consumers and future farmers about sustainability?

Washington cannot answer these questions for us, for they are questions about spiritual values, and they rely upon a system of regulation and a consciousness that far exceeds anything legislated by government.

Instead of regulation or certification by a federal agency, we need "community certification." It is carried out by people who look each other in the eye at farmers' markets, in community meeting places, at produce stands. It is based on honor and trust. No federal program will ever match the integrity of such a system.

Such an integrity-and-health system is used by small farmers all over this country, many of whom have given up using the "o" word. It is born out of a fundamental need that people have to know their food and regain

some sense of control over its safety, taste, and security. This kind of control, exchange, relationship does not take place in the fields of large-scale industrial farms or in corporate-controlled supermarket chains. It takes place at farmers' markets, on small rural farms, in urban community gardens and in membership programs that bring farmers and communities together. It is being carried out by small farmers who have not only escaped the chemical treadmill but have discovered the importance of building relationships with those they feed.

These farms and farmers were ignored in the discussion that led to the OFPA and the recent regulations, drowned out by the fact that government action is always dictated by those who wield the most cash.

The USDA's proposed rules have stimulated positive public discourse on something that is too often taken for granted: the safety and long-term security of our food. But the discussion has focused on the rules, while ignoring more fundamental concerns about organic agriculture's place in the food system. The OFPA brings fees and paperwork that punish organic growers. It assumes guilt and requires policing and inspections that only increase dishonesty in producers and handlers. One-size-fits-all regulations ignore the successful self-regulating system that small-scale growers currently operate. And as the USDA has demonstrated, a government agency beholden to corporate agriculture cannot fairly and properly regulate organic agriculture.

Real food security and the true spirit of "organic" will only be regained if we allow local and regional food systems to regulate themselves.

(Note: shortly after this article was written, the USDA announced that it had received over 200,000 comments from the public strongly objecting to the proposed organic standards. The worst parts of the proposed rules — including allowing genetically-engineered, irradiated, or sludge-treated foods to be labeled organic — will be changed. Even Monsanto, the genetic-engineering company, suggested that for three years their products not be allowed an organic label — fully intending, the company says, to prove to the public within that three years that genetically altered foods are safe. Organic growers are relieved that the USDA has backed down but are still unhappy about the laxness of the proposed rules. There is a beginning movement to dump the word "organic," define some new word to mean safe, locally grown food, go back to self-certification or state-level certification, and ignore the federal ruling altogether.)

THE WHOLE HORSE

by Wendell Berry

(This stunning article was printed in the Amicus Journal, published by the U.S. Natural Resources Defense Council and in the May/June 1998 issue of Resurgence, edited by our friend Satish Kumar. The emphases in bold type have been added by us.)

This modern mind sees only half of the horse — that half which may become a dynamo, or an automobile, or any other horsepower machine. If this mind had much respect for the full-dimensioned, grass-eating horse, it would never have invented the engine, which represents only half of him. The religious mind, on the other hand, has this respect; it wants the whole horse, and it will be satisfied with nothing less.

I should say a religious mind that requires more than a half-religion.

— Allen Tate, “Remarks on the Southern Religion,” in *I’ll Take My Stand*.

One of the primary results — and one of the primary needs — of industrialism is the separation of people and places and products from their histories. To the extent that we consent to and participate in the industrial economy, we do not know the histories of our families or of our habitats or of our meals. This is an economy, and in fact a culture, of the one-night stand. “I had a good time,” says the industrial lover, “but don’t ask me my last name.” Just so, the industrial eater says to the svelte industrial hog, “We’ll be together at breakfast. I don’t want to see you before then, and I won’t care to remember you afterwards.”

In this condition, **we have many commodities, but little satisfaction, little sense of the sufficiency of anything.** The scarcity of satisfaction makes of our many commodities, in fact, an infinite series of commodities, the new commodities invariably promising greater satisfaction than the older ones. People who have much satisfaction do not need many commodities. And so we can say that **the industrial economy’s most-marketed commodity is satisfaction, and that this commodity, which is repeatedly promised, bought, and paid for, is never delivered.**

This persistent want of satisfaction is directly and complexly related to the dissociation of ourselves and all our goods from our and their histories. If things do not last, they can have no histories, and we who use these things can have no memories. We buy new stuff on the promise of satisfaction because we have forgotten the promised satisfaction for which we bought our old stuff.

One of the procedures of the industrial economy is to reduce the longevity of materials. A second procedure is to increase the longevity of waste: plastics are manufactured into commodities of the most ephemeral usefulness, but which, as junk, last virtually forever.

We do not cherish the memory of shoddy and transitory objects, and so we do not remember them. That is to say, we do not invest in them the lasting respect and admiration that make for satisfaction.

The problem of our dissatisfaction with all the things that we use is not correctable within the terms of the economy that produces those things. It is virtually impossible for us to know the economic history or the ecological cost of the products we buy: the origins of the products are typically too distant and too scattered, and the processes of trade, manufacture, transportation and marketing too complicated. There are, moreover, too many good reasons for the industrial suppliers of these products not to want their histories to be known. For the time being at least, both our necessities and what we have been persuaded to consider necessities are fairly reliably delivered to us upon payment; no questions are asked and no answers are available.

Where there is no reliable accounting and therefore no competent knowledge of the economic and ecological effects of our lives, we cannot live lives that are economically and ecologically responsible. It is futile to plead and protest and lobby in favor of public ecological responsibility while, in virtually every act of our private lives, we endorse and support an economic system that is by intention, and perhaps by necessity, ecologically irresponsible.

If the industrial economy is not correctable within its own terms, then obviously what is required for correction is a countervailing economic idea. **The most significant weakness of the conservation movement is its failure to produce or espouse an economic idea that could correct the economic idea of the industrialists.** Somewhere near the heart of the conservation movement is the romantic assumption that, if we have become alienated from nature, we can become un-

alienated by making nature the subject of contemplation or art, ignoring the fact that we live in and from nature — ignoring, in other words, all the economic issues that are involved.

This nature-romanticism sets the agenda for modern conservation groups. This agenda has rarely included the economics of land use, without which the conservation effort becomes almost inevitably long on sentiment and short on practicality. The giveaway is that when conservationists try to be practical they are likely to defend the “sustainable use of natural resources,” with the argument that this will make the industrial economy sustainable. But the longer the industrial economy lasts, the further it will demonstrate its ultimate impossibility. **Every human in the world cannot, now or ever, own the whole catalogue of shoddy, high-energy industrial products that cannot be sustainably made or used.**

The longer the industrial economy lasts, the more it will eat away the possibility of a better economy. Our acts are being measured by a real and unyielding standard that was invented by no human. Our acts that are not in harmony with nature are inevitably and sometimes irremediably destructive. The standard exists. But having no opposing economic idea, conservationists have had great difficulty in applying the standard.

What, then, is the countervailing idea by which we might correct the industrial idea? There is only one, and that is agrarianism.

The fundamental difference between industrialism and agrarianism is this: **Whereas industrialism is a way of thought based on monetary capital and technology, agrarianism is a way of thought based on the land.**

Agrarianism is a culture at the same time as it is an economy. Industrialism is an economy before it is a culture. Industrial culture is an accidental by-product of the ubiquitous effort to sell unnecessary products for more than they are worth.

An agrarian economy rises up from the fields, woods, lakes and streams — from the soils, slopes, weathers, connections, influences, and exchanges that we mean when we speak of the local community or the local watershed. The agrarian mind is not regional or national, let alone global, but local. It must know on intimate terms, the local plants and animals and soils. It must know local possibilities and impossibilities, opportunities and hazards. It depends and insists on knowing very particular histories and biographies.

Because a mind so placed meets again and again the necessity for work to be good, the agrarian mind is

less interested in abstract quantities than in particular qualities. It feels threatened and sickened when it hears people and creatures and places spoken of as labor, management, capital, and raw material. It is not at all impressed by the industrial legendry of gross national product or numbers sold or dollars earned by gigantic corporations. It is forever fascinated by questions leading toward the accomplishment of good work. What is the best location for a particular building or fence? What is the best way to plough this field? Should this tree be cut or spared? What are the best type of livestock for this farm? — questions that cannot be answered in the abstract, and which yearn not toward quantity but toward elegance.

And though this mind is local, placed, little attracted to mobility either upward or lateral, it is not provincial; it is too taken up by its work to feel inferior to any other mind in any other place.

An agrarian economy is always a subsistence economy before it is a market economy. The function of the household economy is to assure that the farm family lives so far as possible from the farm. It is the subsistence part of the agrarian economy that assures its stability and survival. The industrial economy alienates people from the native landscape precisely by breaking these direct, practical ties and introducing distant dependencies. The farm family that gives up its subsistence and industrializes its farm or depends on factory work to sustain its farm, however necessary these measures may be or seem, introduces irreconcilable stresses into its life.

Agrarian people, knowing that the land must be well cared for if anything is to last, understand the need for a settled connection, not just between farmers and their farms, but between urban people and their surrounding tributary landscapes. Because the knowledge of good care-taking must be handed down to children, agrarians recognize the necessary of preserving the coherence of families and communities.

The stability of human occupation requires that the land should be divided among many owners and users. The central figure of agrarian thought has invariably been the smallholder who maintains a significant measure of economic self-determination. The scale and independence of such holdings imply two things: intimate care in the use of the land and political democracy resting upon the indispensable foundation of economic democracy.

In the written record of agrarianism there is a continually recurring affirmation of nature as the final judge, law-giver and pattern-maker for the human use of the earth. The idea is variously stated: we should not work until we have looked and seen where we are; we should

honor nature as our teacher; we should consult the genius of the place; we should make the farming fit the farm; we should carry over into the cultivated field the diversity and coherence of the native forest or prairie.

The agrarian mind is, at bottom, a religious mind. It subscribes to the doctrine of “the whole horse.” It prefers the Creation itself to the powers and quantities to which it can be reduced. This is a mind completely different from that which sees creatures as machines, minds as computers, soil fertility as chemistry, or agrarianism as just an idea.

Although industrialism has conquered agrarianism and very nearly destroyed it altogether, **in every one of its uses of the natural world industrialism is in the process of catastrophic failure.** Industry is now desperately shifting — by means of genetic engineering, global colonialism, and other contrivances — to prolong its control of farms and forests, but the failure nonetheless continues.

It is not possible to argue sanely in favor of soil erosion, water pollution, genetic impoverishment and the destruction of rural communities and local economies. Industrialism, unchecked by the affections and concerns of agrarianism, becomes monstrous. **This is because industrialism always proposes to correct its errors and excesses by more industrialization.**

If we look ahead, we will see two economic programs that conform pretty exactly to the aims of industrialism and agrarianism as I have described them. The first is the effort to globalize the industrial economy, the most prominent of which is the new General Agreement on Tariffs and Trade. **The new GATT is a product of the industrial ambition to use, sell, or destroy every acre and every creature of the world.**

The second program, counter to the first, is comprised of many small efforts to preserve or improved or establish local communities. These efforts are taking place in countries both affluent and poor all over the world.

Whereas the corporate sponsors of GATT, in order to promote their ambitions, have required only the hazy glamour of such phrases as “the global economy,” “the global context” and “globalization” — thus apparently have vacuum-packed the mind of every politician — the local economists use a much more diverse vocabulary that you can actually think with: “community,” “ecosystem,” “watershed,” “place,” “homestead,” “family,” “household.”

And whereas the global economists advocate a world-government-by-economic-bureaucracy that would destroy local adaptation everywhere by ignoring the peculiarities and uniquenesses of places, the local economists found their work upon respect for these very peculiarities and uniquenesses. Places differ from one another, the local economists say, therefore we must behave differently in them. The ability to tender an appropriate practical regard to each place in its difference is a kind of freedom; the inability to do so is a kind of tyranny. The local economists are even learning to see the city not just as a built and paved municipality, living by trade and transportation from the world at large, but as a part of a community that includes the city’s rural neighbors, its surrounding landscape and its watershed, for the health of which it might exercise a competent concern and responsibility.

Though agrarianism proposes that everybody should have agrarian responsibilities, it does not propose that everybody should be a farmer or that we do not need cities. Nor does it propose that every product should be a necessity. Any thinkable human economy would have to grant to manufacturing an appropriate and honorable place. **Agrarians would insist only that any manufacturing enterprise should be formed and scaled to fit the local landscape, the local ecosystem, and the local community, and that it should be locally owned and employ local people.** They would insist, in other words, that the owner should be a sharer in the fate of the place. **The deciders should live with the results of their decisions.**

Between these two programs — the industrial and the agrarian — the most critical difference is that of knowledge. The global economy can only institutionalize a global ignorance, in which producers and consumers cannot know or care about one another and in which the histories of all products will be lost. In such a circumstance, the degradation of products and places, producers and consumers, is inevitable.

But in a sound local economy, in which producers and consumers are neighbors, nature will become the standard of work and production. **Consumers who understand their economy will not tolerate the destruction of the local soil or ecosystem or watershed as a cost of production.** Only a healthy local economy can keep nature and work together in the consciousness of the community. Only such a community can restore history to economics.

A NEW CULTURAL REVOLUTION IN CHINA

by Bishan Singh

(Bishan sent this article draft to us in April.)

In April of 1998, I was on an evaluation mission to China. I went through Beijing and traveled extensively in the Provinces of Shaanxi and Gansu, meeting with many scientists, government officials and farm communities. An awareness that was building during my earlier work and travels through Guangzhou, Hangzhou, Shanghai, Kunming, Nanning and other areas in China finally began to unfold and shape up as an insight of a potential scenario that could engulf China and the world in future.

That insight is that China is undergoing another cultural revolution - one that is totally opposed to the historical "Great Proletarian Cultural Revolution." This other revolution is the "Cultural Revolution of the Market Economy."

Each revolution, as we know, is propelled by certain ideas and goals. These ideas when applied catalyze a set of actions that build certain attitudes, behavior, norms, and ethos of the society. The idea when accepted and supported by the masses transforms itself from an idea to an ideology. This change shapes up its own world view and unleashes its own social, political, economical and cultural impacts on society. The ultimate aim of the ideology is to bring about transformation and change towards a desired end. To attain such transformation and change requires specific organizing principles or a framework that can motivate and guide the masses towards such a change.

I have managed to identify ten distinctive organizing principles that propelled the Great Proletarian Cultural Revolution and ten opposite principles of the new Cultural Revolution of the Market Economy that is now gathering tremendous momentum in China. These principles are listed below. They are by no means complete, nor are they perfect. There can be more principles added, and at the same time we can reduce a couple of principles from the current ten, as it can be argued that they are repetitive. But I have selected them as an initial exercise to provide a framework for investigation, research and analysis and to improve understanding of the situation. I am sharing this list with others to generate some thinking and debate and to help crystallize these thoughts and make them more clear and accurate. Meanwhile I am continuing further the investigation to validate my initial experiences. Suffice for now to state the principles and to give an outline of the insight that is unfolding.

The Organizing Principles of the Revolution

<i>The Historical Cultural Revolution</i>	<i>The Other Cultural Revolution</i>
<i>State Economy</i>	<i>Market Economy</i>
<i>State Enterprise</i>	<i>Private Enterprise</i>
<i>Collectivism</i>	<i>Individualism</i>
<i>Collaboration</i>	<i>Competitiveness</i>
<i>Frugal Conserver Lifestyle</i>	<i>Affluent Consumer Lifestyle</i>
<i>Reliance on Local Knowledge</i>	<i>Preference for Foreign Knowledge</i>
<i>Extended Family</i>	<i>Nuclear Family</i>
<i>Self-centered Traditional Health Care</i>	<i>Doctor-centered Modern Health Care</i>
<i>Think Chinese and be Chinese</i>	<i>Think foreign and act foreign</i>
<i>State before Self</i>	<i>Self before State</i>

History has judged that the Great Proletarian Cultural Revolution of 1966 to 1976 was not only a failure but a destructive failure. The revolution "...provoked a mass movement of the Red Guards so that the country was once again in chaos and close to civil war. Politicians, intellectuals and artists fell victims to the terror of the Red Guards.... Hundreds of thousands of people lost their lives during the 'revolutionary excesses.' Schools were closed for years, artistic life came to a stand-still," writes Helmut Forster-Latsch in the travel guide book, *Insight Guides: China*.

In the second cultural revolution the thesis is not that the State exists to organize the society, but the reverse: the society has the responsibility to organize the State. It mandates the State to govern and facilitate the development aspiration of the civil society. Based on this belief, the State is adopting a number of organizing principles to meet this goal of fulfilling the responsibility. These of course run contrary to the organizing principles of the first cultural revolution.

It is not my contention to argue that the other cultural revolution that is being unleashed by the adoption of the market economy in China is destructive and inherently bad. That is not the argument. The argument is that the market economy is a double-edged sword. It increases production, creates wealth and generally improves the quality of life of many to a certain point. But when it reaches its outer limits, it can turn destructive. The key phrase to note here is 'revolutionary excesses.' If the pursuit of the market economy is stretched to excess the society can become unsustainable ecologically, socially, politically, economically and culturally.

When the word "sustainable developed" first appeared, it was a clear indication that the market economy has reached its limits. Physical growth has a limit. Second, the articulation of the concept of the "full world" due to population growth and accelerated growth of economic activities coupled with an affluent and wasteful consumer lifestyle is endangering the "carrying capacity" of the earth. At the same time such a development approach has begun demonstrating social instability. Distributive inequity in resource use is growing, wealth is being concentrated, poverty and social strife is increasing.

This fact was well articulated by the UNDP's Human Development Report of 1996. The report says, "Human development is the end — economic growth a means." Richard Jolly, the author of the report points out that, "policy makers are often mesmerized by the quantity of growth. They need to be more concerned with its quality and to take timely action to prevent growth that is lopsided and flawed." The report points out that there are five types of growth that gives people less and not more. They are:

- **Jobless growth**, where the overall economy grows, but does not expand opportunities for employment.
- **Ruthless growth**, where the fruits of economic growth mostly benefit the rich. Today asset's of the world's 358 billionaires exceed the combined annual income of countries with 45 per cent of the world's population.
- **Voiceless growth**, where economic growth is not matched by democracy or individual empowerment. Too many people are denied the most basic form of democracy, and many of the world's people are in the grip of repressive regimes.
- **Rootless growth**, where people's cultural identity withers as economy grow. There are thought to be about 10,000 distinct cultures in the world but many risked being marginalized or eliminated.

- **Futureless growth**, in which economic growth consumes its very foundations, squandering resources needed for future generations. Environmental destruction is often masked by strong economic statistics.

China must take cognizance of this reality. China being the largest nation of the world can have tremendous impact both positive and negative. If the economic reform in China is to be determined by quantitative economic growth both China and the world are in danger. This is because with one billion people in a world of five billion the Chinese comprise one-fifth of humanity.

This does not mean China must remain poor and economically backward so that others can live in plenty and affluence. What it means is that China cannot afford to be like the Northern developed countries. The economic approach of the Northern developed countries is very unsustainable. As has often been said, these countries with only twenty percent of the world's population consume eighty percent of the world's resources. If China joins this rat race, we probably need the resources of more than one planet earth to sustain such consumption or face destruction.

The option for China as a world leader is to undertake two strategic actions. First it must think more in terms of qualitative than quantitative growth. It must think in terms of food security, increased distributive justice both in terms of economic opportunities and wealth sharing, increased environmental regeneration and improved pollution control and promotion of a consumer lifestyle of judicious consumption. It must discourage the consumer lifestyle of affluence and waste.

Second, as one of the global leaders China must use its political and economic power to get the developed countries to adopt a more sustainable lifestyle. This will enable countries in the South to improve their quality of life. Developed nations have forfeited their leadership role in this area. Their economies are by nature extractive and exploitative. They have stretched their tentacles around the globe taking wealth and resources wherever they can. They do not have the historical experience nor the political will for reforms as China does.

The survival of people with dignity and comfort is only possible with resource equity. Equity in resource use is a fundamental human right. Consuming more and depriving others of the availability of such resources is tantamount to denying this fundamental right. Encapsulated into this right is the concept of inter-generation equity in the use of resources. If there is one nation that can make sustainable development possible it is China. On the other hand, if one nation can impact the unsustainable approach most strongly in the turn of the twenty first century, that nation is also China.

NEWS FROM THE MEMBERS

ABLEMAN SAVES FARM, PUBLISHES NEW BOOK

Michael Ableman, our urban organic farmer from California writes:

Thanks so much for keeping me on the list and so well informed. I apologize for being out of touch for so long, but think of you all often.

In a nutshell, we saved the farm this last year. We raised three quarters of a million dollars in less than two years and placed the land under a conservation easement that keeps it preserved as an organic farm and educational center forever. We're now building a market garden in the heart of Watts, a low-income district in Los Angeles, as well as running a number of school garden and outreach projects.

I've also complete a new book call *On Good Land: The Autobiography of an Urban Farm* (Chronicle Books). Publication date is July 1. Anything you could do to get it publicized would be appreciated. I'll be on book tour during the last half of June and the first part of July and again in the fall. I'd love to connect with any folks who would be interested in my message.

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GADGIL INVENTION RECOGNIZED BY SMITHSONIAN

News of **Ashok Gadgil** comes via the Pew Scholars listserv:

UV Waterworks, a solar-powered water disinfection device developed by Ashok Gadgil, F 91, was inducted into the permanent collection of the Medical History section of the National Museum of American History, Smithsonian Institution, in Washington DC at a ceremony on 28 April.

According to Ashok, biologically contaminated drinking water kills approximately 400 children below the age of five every hour in the developing world. He devoted a significant portion of his Pew Fellowship (and additional funding leveraged through the Fellowship) to the creation of the invention, designed to aid developing countries to access clean drinking water.

His device, based on UV disinfection technology, won the Discover Award for most significant environmental invention in 1995, and also the 1995 Popular Science Award for "Best of What's New." The technology is now licensed by the University of California to a small CA start-up firm which began production in November 1997. For more information on the UV Water-

works project visit the following websites: <<http://eetd.lbl.gov/CBS/archive/uv>> and <<http://waterhealth.com>>.

It is also significant to note that Ashok's Pew Fellowship work on energy efficient lighting in developing countries has been extremely successful. In particular, the project in Mexico attracted more than \$20 million in funding from the Global Environment Facility (\$10M grant), the Norwegian government (\$2M grant) and the World Bank (\$10M loan). Based on the achievements in Monterrey and Guadalajara, Mexico, where 5,000 CFLs are sold each week under Ashok's IlluMex Project, the International Finance Corporation (IFC) implemented the Poland Efficient Lighting Project which saved 621 GWh of electricity in 1995-97 alone. The IFC has now proposed a \$150M project on efficient lighting spanning ten countries to start in late 1998.

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HALLSMITH VISITS UKRAINE COLLECTIVE FARM AND MOVES TO ALMATY

Gwen Hallsmith wrote in early June:

I just got back from a trip to visit our sister city in Ukraine, and for the first time in all my work in Eastern Europe, I had the chance to tour a collective farm. It was a great experience, in fact, even though the collective farms are a bit of an endangered species over there. The ways in which they have adapted to the new economy are interesting, and the integrated systems they have set up on the farm for processing their products and insuring that they are pure and high quality were very encouraging.

The shortage of money has forced them to work out barter arrangements with a wide variety of actors, from international investors to their own ministries, where they get needed agricultural inputs (machinery, seeds, fertilizers, etc.) in exchange for produce. They have an active research program, investigating ways in which crop rotation can reduce the need for pest control and fertilizers. They have several fields devoted to experimenting with different varieties of crops - monoculture does not seem to be a word in their vocabulary.

The farm was enormous - 14,000 hectares. It supported a workforce of several hundred people. In addition to the area of the farm that was devoted to products for market, each resident was given two hectares for their own production. The farm itself also had a lot of leeway with regard to the end buyers of its products. They needed to meet production targets for the repay-

ment of “loans” for the agricultural inputs, but these targets were only about 10% of their total production - assuming the translation was correct. I wouldn't be surprised if it was somewhat higher.

The farms are not really state owned anymore, although to call them private is also a little misleading. Apparently the reluctance of Ukraine to change the ownership structure of these farms is a sticking point in terms of their relation with the west, but in my brief tour I can't see why it should be.

Anyway, after coming from a place where almost no one owns cars, where every family works some to raise their food, where the consumer demands are quite low in comparison to the US, and where as a result they have tons of time for art, culture, dance, and just plain play, it seems like we have something to learn from them as well.

And in late June Gwen adds the following stunning information:

My family and I will be moving to Almaty, Kazakhstan in July. I have accepted a position with the International City/County Management Association, to work in Kazakhstan and Kyrgyzstan with municipal officials. I will be developing training materials on general management, financial management, and sustainable development issues. Any ideas that people in the Balaton Group have about the possibilities for training will be welcome.

Of course, I would like to spend as much of the time and resources as possible on sustainable development. USAID's focus is financial management. Municipalities in the two countries are just in the process of having some real authority over local issues delegated to them, so it is an exciting and challenging time to be working there.

From July 20, my e-mail address will be: icma@kaznet.kz.

If anyone is in the area, please get in touch! We'd be happy to have Balaton Group guests!

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KRISHNAYYA OPPOSES BOMB AND SETS UP SATELLITE DATA PROTOTYPE

The Bomb tests have cast a shadow over us all in the subcontinent, and like **Isa Daudpota** and others I have been using my e-mail link to circulate notes that might help cast light. It does seem, however, that a breakthrough may only come if and when the present government in India falls (for other domestic reasons) and

(if) a new government decides to bite the bullet and declare various unilateral steps which may (a) lead to Pakistani and Chinese nuclear disarmament and (b) lead to the P-5 taking more seriously their 30-year-old commitments to reduce levels of armament, and actually demonstrating their willingness to bring the numbers of weapons down to below 200 (which in the 60s was thought to be an entirely sufficient deterrent).

At present there are too many hotheads both within the government and in the backrooms to hope for any such action (despite the Prime Minister's own 20-year old heartrending poems on Hiroshima).

Meanwhile life must go on, and I am glad to say that our small group at Systems Research Institute is involved in two very creative projects - one on creating the prototype for hundreds of “Intermediate Institutions” to interpret between the high-tech world of space satellites and space imagery, and the end-users (laymen) at the grass roots; and the other to construct a new desktop vector-GIS for Grass Roots workers involved in Micro-Watershed Planning and Management for Sustainability.

This latter is getting us into all kinds of new areas of terrain analysis, water-flow analysis, and whatnot. We are trying to network as much as we can to piggy-back on what is already known since this software will be placed in the Public Domain when it is ready (2+ years time), and should be used in hundreds if not over a thousand locations (let's hope!). We expect to have to give a lot of attention to training modules which will go with the package, which otherwise will be self sufficient, including a digitizing module, etc.

In order to get up to the state of the art, I intend to attend Balaton 98 and to visit some centers of work in Europe this August/September. I look forward to meeting all the 'sustainable development' experts there! Any suggestions of places to visit which lie along my route: Milan-Vienna-Budapest-Zurich-France & back? Please e-mail me at jgk@soochak.ncst.ernet.in. Thanks!

* * *

DENNIS AND VALDIS INVEST IN REAL ESTATE; DENNIS TAKES ON LEAD

Dennis Meadows and **Valdis Bisters** have cooperated to buy 10 hectares of land in Latvia outside Riga near Valdis's home for use as a team-building center.

It has always seemed there should be a natural, mutually-beneficial partnership between the Balaton Group and LEAD, the program created by the Rockefeller Foundation to create a new generation of leaders on environmental protection and sustainable

development in the major nations of the world. Now that relationship is starting to develop. **Dennis Meadows** has become a senior academic advisor to LEAD. He has conducted a variety of sustainable development games for LEAD/Canada. In May he spent two weeks in Zimbabwe with 200 second year LEAD associates doing team building and teaching systems thinking and principles of sustainable development (with the help of **Chirapol Sintunawa**). He will be with the first year LEAD associates in China in October. In April 1999 the entire LEAD group will visit Dennis's Browne Center for team building activities.

Gillian Martin-Mehers, a central member of the team that developed the Sasakawa workshop, "Creating High Performance Teams for Sustainable Development," will attend the Balaton Group meeting this year. She is now Academic Director of LEAD/International. We will also have the chance in Csopak to meet **Michael Hansler**, Assistant Director of LEAD/Europe.

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NEW HUNGARIAN-CANADIAN BALATONIAN

From **Laszlo Pinter** at IISD:

I am pleased to let you know that on May 16, 1998 at 4:52 PM we gave birth to our second daughter, Margaréta Hanna Pinter. Both she and Eموke are doing well and recovering after a planned home birth that was a lot more pleasant than our first in the hospital. Margareta Hanna was born with 3.4 kg, blue eyes and brown hair. We are looking forward to exploring and re-exploring the world with our new daughter and friend.

* * *

QI HOSTS SUSTAINABLE DEVELOPMENT TOUR IN SOUTH CHINA

Qi Wenhui emails:

I have had a long trip to Southern China leading a project team to visit our case study sites in Jitai Basin in Jiangxi province and the Pearl River Delta in Guangdong province. The project is to study the interaction between population growth, consumption and land use change. It is a Tri-Academy cooperative project from US, India and China. There were seven people from the US Academy of Sciences, five from the Indian Academy and five from the Chinese Academy in the team.

The leading American colleague in this team wrote to me: "It was a highly revealing exploration of the vast changes that are taking place in that part of the country that I, at least, could not have understood and would

not have believed without the visit. You have a real challenge to capture in the scholarly papers on the Jitai Basin and Guangdong Province the excitement of what is going on there. I feel that the whole project will be strongly and positively affected by the trip."

We will publish a book jointly on this project. I will give provide a copy for the Balaton library and hope it will interest you.

* * *

SATTERTHWAITE RECOMMENDS GOOD CITIES READING

David Satterthwaite sends some reading recommendations:

Thankfully, there is suddenly a host of good material on sustainable cities. Two that might interest you, if you have not seen them already, are:

"Achieving sustainability: reform or transformation" - William E. Rees, *Journal of Planning Literature*, Vol.9, No.4, May 1995, pp 343-361.

"Environmental justice and the sustainable city" - Graham Haughton, *Journal of Planning Education and Research* 1998 (forthcoming), c. 14 pages.

And we can include some publications by David himself:

"Environmental Transformations in Cities as they get Larger, Wealthier and Better Managed," - David Satterthwaite, *The Geographical Journal*, Vol. 163, No. 2, July 1997, pp. 216-224.

"Sustainable Cities or Cities that Contribute to Sustainable Development?" - David Satterthwaite, *Urban Studies*, Vol. 34, No. 10, 1997, pp. 1667-1691,

* * *

SINTUNAWA CAUSES HYDRO-DAM SHUTDOWNS

Email from early May from **Chirapol Sintunawa**:

I just came back from a week trip to the LEAD Program in Zimbabwe where I had the opportunity to work with **Dennis Meadows** and **Gillian Martin** on Team Building and Leadership skills.

During our economic difficulties in Thailand I have been able to contribute to several public awareness programs on reducing our resource wastes in order to help our economy. Those programs I am involved with are:

- A Nationwide Campaign on Energy Efficiency in Buildings (Targeting hospitals, hotels, office buildings, and department stores),
- The Redesigning of our Everyday Clothes (to come up with appropriate clothes tuned to our climate and thereby reduce the need to set our thermostats at 18 degree C. instead of the more energy efficient temperature of 25 degree C.)
- A Nationwide Campaign to Increase Energy Efficiency: On May 7 at 9.00 pm the Thai television network will televise the Prime Minister's speech giving, together with other leaders of various sectors, policies on how we could contribute to the nation's economic development through energy conservation. Every TV channel will televise my talk show after the nation's leaders' speeches. I will try to motivate the public to help through simple activities like switching off light that is not needed or avoiding switching it on, as well as other energy conservation practices.

May 7 will be the marking day of Thai Energy Conservation Year. At 9.00 pm every family will be asked to switch off one light bulb that is not needed, and on TV screens audiences will see the nation's power meter showing how much we could save and how many dams could we shut down, which could save water for dry season uses. This will be our first time to get nationwide public attention since our financial difficulties in the Middle of 1997. We hope that by asking people to switch off a light bulb we will be able to demonstrate our potential to save the nation's economy.

Our campaign also includes taking off suit jackets in government buildings and business offices in order to reduce energy use in air conditioning. Activities at school will also be launched to get a greater impact through reducing energy use in transportation.

Last year May 8 was the hottest day and our electricity use peaked at 7 to 8 pm using 14500 MW from our total installed capacity of 17000 MW. In this year May 7 is picked to launch a one-year campaign on energy conservation. I will keep you informed about the progress and outcomes of our activities in Thailand.

And a dramatic follow-up note a few days later:

Our campaign received significant support from the public on switching off one light bulb at 9.00 pm on May 7 in order to demonstrate our potential cooperation and participation in energy saving. From 9.00 - 9.18 pm our electricity consumption went down 420 MW. With a more intense public relation program prior to May 7 we would definitely have saved more than 700 MW. Only four dams could be shut down at 9.18 pm of May 7. We will now plan other strategic approaches to launch other activities to raise public awareness on how the public could help protect the environment and natural resources.

* * *

WACKERNAGEL CYCLES FOR SUSTAINABLE CONSUMPTION

Mathis Wackernagel says, "I've just come back from a great seminar trip. The best part was the bicycle ride from Vancouver (Canada) to California during which we had about 40 speaking events. Enclosed is our report."

Nine years ago, Jimi Merkel quit his job as a defense engineer and retired at age thirty-one. All he did was ask himself how much he needed rather than how much he could make. He realized that he had saved enough to become financially independent as long as he would live on five thousand dollars a year. Hence he quit "money work" and shifted his focus to realizing his dreams of a sustainable future. After doing research on Kerala (a state in southern India), one of the most resource efficient societies on the planet, he formed the Global Living Project. This project, a yearly six week program in the heart of British Columbia, where 15 researchers and educators work, live, play and learn together, was also inspired by Mathis Wackernagel and William Rees's ecological footprint research. It has taken on as its primary research question "is it possible for humans to live equitably and harmoniously within the means of nature?" Now in its third year, the answer has been a resounding "Yes!" By reducing their impact by a factor of ten, the participants were able to make the first quantum leap towards global equity — simply by living better on less.

To find new participants and share the results of the Global Living Project, Jimi Merkel, Richard Gould, an environmental educator, Monk Devereaux, an environmental activist, and Mathis Wackernagel, now Professor and Coordinator of the Centre for Sustainability Studies at Anáhuac University of Xalapa, Mexico joined forces this spring for a bicycle tour down the West Coast.

Their “Cycling For a Sustainable Future” tour made them push their pedals for over 1000 miles from Vancouver, B.C., down to Chico, Ca. On the way they gave more than 40 presentations and workshops to universities, high school, government departments, community groups, and radio programs.

Mathis carried a yellow balloon in his pocket. During the presentations, he would ask the audience to shout out today’s growing trends. As people yelled, “green house gas emissions! and species extinction!” Mathis casually blew air into the balloon, mingling among the people in the front row. “Over population! over consumption!” As the balloon stretched near capacity, the people in the back of the room began to giggle at those close to the balloon who were squirming in their seats. “The most interesting part of the experiment isn’t the question, “Is bigger really better?,” Mathis explained. “It’s the fact that unless the ecological limits are experienced and become meaningful to our lives, we will not react.” The ecological footprint is a tool to help us recognize nature’s limits and motivate action since people don’t like to have their bubbles burst.

An ecological footprint is the amount of biological productive space (sea and land) per person that it takes to sustain our current life style. We all must use nature to survive. However, we run into troubles once we use more than what the planet can regenerate. Currently there are close to six billion of us clumsy, balding monkeys. That means that there are approximately 5.5 acres of biologically productive land and sea available to each of us on the planet — and those 5.5 acres are not all for us since they should house also the other 25 million species with whom we share this planet. “How much nature should be set aside for the mountain lion, moose, and rainforest ants, at least until we learn how to walk lightly among them?” Jimi and Mathis asked each audience. Almost unanimously, people felt that we should leave at least 80% (4/5) to the Earth’s other inhabitants. That leaves humans about one acre each. In other words, we have to become “wise acres.”

How much do we use in contrast? An average American requires currently 25 acres to produce all her resources and absorb her waste. For the average Canadian it is 19 acres. If the rest of the world consumed at the rate Americans do, we would need five planets — still not leaving any space for most of the other species.

Luckily, not everybody on the planet lives such a wasteful lifestyle as average Americans or Canadians. But then, a large share of humanity still needs to increase their footprint only to meet their basic needs. Adding up all the current footprints, the Centre for Sustainability Studies calculates that humanity currently consumes 140% of what the Earth’s biologically productive space can regenerate. As a result, humanity is

accumulating ecological debts as manifested by deforestation, soil erosion, water depletion, biodiversity loss or CO2 accumulation in the atmosphere. Considering other species and the anticipated world population of 10 billion within 50 years, this emphasizes the challenge: “How can we secure everyone’s quality of life on approximately 1 acre per person?”

The Global Living Project is taking on this question. Last summer’s research team lowered their footprint to roughly one tenth of the average American — to just over two acres per person, which is slightly above that of India. Participants had so much fun that they did not want to leave at the end of the program, which suggests that the quality of life part of the challenge was met.

For 1998, the Global Living Project is gathering a new team of pioneers, who are prepared to make a second quantum leap, reducing our footprint even further, while increasing our quality of life. Monk explains how it is done, “We do it with forests, flowers, and fire. We use appropriate technology such as composting toilets, cob ovens for bread baking, straw bale houses, gardens and bicycles. We work together and listen to one another. We drink clean water right from the streams, and we travel the same paths as bear, cougar, and deer. We celebrate. We cry tears of sadness and frustration, but also tears of thanks for the sun on our face, the moss between our toes, and the friends by our sides. These things happen when we leave the artificial, protective bubbles behind.”

A similar experience happened on our bicycle tour, Monk remembers: “By abandoning the automobile, that big, speedy bubble, and mounting our bikes, we became vulnerable as we toured. Like a foot that’s regaining circulation after falling asleep, life tingles for a while until feeling returns. Suddenly, we are affected by little big things like the weather. Road kill and clearcuts pass by slower, their sting hurts more, and lingers longer. Likewise, pleasure and satisfaction increase ten fold. An entire mountain pass that rolled by unnoticed from a car becomes an accomplishment when, eyes burning with sweat, jelly-legged, we finally reach the top. Jimi lets loose with a little dance he can do from the saddle of his bike, and we all join in the victory celebration.”

“We’ve got a long road in front of us. We can live better on less. We can. Let’s get riding.”

For more information on the Global Living Project, contact: Jimi Merkel, GR4 C.17 RR#1 Winlaw, B.C. VOG 2J0 Canada 250-355-2585 jmerkel@netidea.com. More on the ecological footprint you can find on the homepage <http://www.edg.net.mx/~mathiswa>.

STORIES, QUOTES, JOKES

History Of Medicine

2000 B.C. - Here, eat this root.

1000 A.D. - That root is heathen. Here, say this prayer.

1850 A.D. - That prayer is superstition. Here, drink this potion.

1940 A.D. - That potion is snake oil. Here, swallow this pill.

1985 A.D. - That pill is ineffective. Here, take this antibiotic.

2000 A.D. - That antibiotic doesn't work anymore. Here, eat this root.

Quotes from Wise Women

(The following quotes were sent via e-mail by a Balatonian who prefers not to be identified except for the fact that he is male.)

1. I'm not offended by all the dumb blond jokes, because I know I'm not dumb and I also know that I'm not blond. - Dolly Parton

2. You see a lot of smart guys with dumb women, but you hardly ever see a smart woman with a dumb guy. - Erica Jong

3. I think — therefore I'm single. - Lizz Winstead

4. When women are depressed they either eat or go shopping. Men invade another country. - Elayne Boosler

5. Behind every successful man is a surprised woman. - Maryon Pearson

6. In politics, if you want anything said, ask a man; if you want anything done, ask a woman. - Margaret Thatcher

7. I have yet to hear a man ask for advice on how to combine marriage and a career. - Gloria Steinem

8. Some of us are becoming the men we wanted to marry. - Gloria Steinem

9. Sometimes I wonder if men and women really suit each other. Perhaps they should live next door and just visit now and then. - Katharine Hepburn

10. I never married because there was no need. I have three pets that answer the same purpose as a husband. I have a dog that growls every morning, a parrot that swears all afternoon and a cat that comes home late at night. - Marie Corelli

11. If men can run the world, why can't they stop wearing neckties? How intelligent is it to start the day by tying a little noose around your neck? — Linda Ellerbee.

Beating a Dead Horse

(How did jokes ever circulate before there was an internet? This one came to us via Isa Daudpota.)

Ancient wisdom says that when you discover you are riding a dead horse, the best strategy is to dismount. In organizations, however, we often try many other strategies, including the following:

1. Changing riders.
2. Buying a stronger whip.
3. Falling back on: "This is the way we've always ridden."
4. Appointing a committee to study the horse.
5. Arranging a visit to other sites to see how they ride dead horses.
6. Increasing the standards for riding dead horses.
7. Appointing a committee to revive the dead horse.
8. Creating a training session to improve riding skills.
9. Comparing the state of dead horses in today's environment.
10. Changing the requirements so that the horse no longer meets the standard of death.
11. Hiring an external consultant to show how a dead horse can be ridden.
12. Harnessing several dead horses together to increase speed.
13. Increasing funding to improve the horse's performance
14. Declaring that no horse is too dead to ride.
15. Doing a study to determine if outsourcing will reduce the cost of riding a dead horse.
16. Buying a computer program to enhance dead horse performance.
17. Declaring a dead horse less costly to maintain than a live one.
18. Forming a work group to find uses for dead horses.
19. Changing performance requirements for dead horses.
20. Promoting the dead horse to a supervisory position.

The Biosphere Belongs to Whom?

(Ulrich Loening sent this tale, in response to the European Parliament's recent vote to enable patenting of biological materials. Ulrich says, "Discovery will be regarded as invention and the biosphere becomes open to be captured for private ownership, turned into commodities... It made me think of our Balaton meetings 'poster pictures' of our grandchildren. This is a story I read a few days ago to our 4 year old grandchild. A picture for each paragraph is described in parentheses.")

DINOSAURS and all that rubbish.

A man stood on a hill and looked at a star.
All he thought about and dreamed about, was the star.

Grass grew high and trees grew tall.
The man climbed to the top of a tree and tried to reach the star.
But he was nowhere near it.

The trees filled with birds which flew still nearer the star.
"I must fly" said the man.
"I have money.

I have many men working for me.
I must fly, somehow I must fly."
(trees and birds)

The man owned some factories nearby.
"Build me a rocket," he ordered.
"Cut down the trees, dig out the coal,
burn whatever will burn,
and build me a rocket to reach the stars."
(filthy chimneys, junked cars, man cutting trees, smoke and pollution)

At last the rocket was ready, but
there was nowhere for it to be launched.
Everywhere was piled high
with heaps of waste from the factories.
(smoke, chimneys, heap with rocket on top)

The man took his rocket
to the top of a heap
and set off for the star.

When he landed on the star the man looked about him.
There was nothing to see. He walked and walked,
looking for something to admire.
But still there was nothing.
No trees, no flowers, not a blade of grass.
Sadly he looked around, but the only thing of wonder
was another star, far off in the black sky.
“I will go to that star,” said the man, and away he
went again in his rocket.
(cratered surface, distant star looking
like Earth)

On Earth the piles of rubbish smouldered and burned,
and the mountains rumbled.

Far below the surface, the heat disturbed the sleep
of the dinosaurs who had lain hidden away for hun-
dreds of years.
(barren, dark, smouldering landscape)

They heaved and stretched.
The earth cracked, and out came all sorts of creatures.

A dinosaur held his nose as he looked around.
“POOH!” he said.
“There is nothing on this planet but a mess.
If we are going to live here we’ll have to get busy.”
(reptile-like animals coming out
of cracks in mounds)

Some of the dinosaurs burned rubbish in volcanoes.
Dancing dinosaurs broke up the roads.
(cars being tipped into volcanic craters)

As the rubbish was cleared, green shoots appeared,
bursting through the cracks and climbing over
old forgotten walls.

Telegraph poles and iron pylons vanished beneath
trailing blossoms,
and a fresh new forest of flowers and trees spread
like a smile around the world.
(cheerful dinosaurs and mammoths, trees)

And all this time the man was heading for his new star,
unaware that it was the very same planet Earth
he had once left behind him.

He landed in a jungle alive with beautiful plants,
sweet with the scent of flowers,
and filled with the song of birds.
“At last,” he said, “I have found my paradise.”
(beautiful green land)

“WHOSE paradise?” said the biggest dinosaur.
“Mine,” said the man.
“RUBBISH!” said the dinosaur.

“What do you mean by rubbish?” said the man,
“you can’t talk to me like that. Why, with a head as
small as yours, you can’t possibly have enough brain
to look after this star.”
(huge dinosaur looking down on small man)

“Our heads are the same size,” said the dinosaur,
“but my heart is much bigger than yours.
If you had been ruled by your heart instead of your
head you would not have destroyed this paradise
before.”

“I destroyed it?” said the man, “you mean this is
EARTH?”

“Yes it is,” said the dinosaur.
“But it can’t be,” said the man.
“It is,” said the dinosaur.

The man looked about him and saw that the dinosaur
was right.

“Please may I have a small part back?” he asked.
“Please. Just a hill, or a tree, or a flower?”

“NO,” said the dinosaur.
“Not a part of it,
but all of it.
It is all yours,
but it is also all mine.
Remember that.

This time the Earth belongs to everyone,
not parts of it to certain people
but all of it to everyone,
to be enjoyed and cared for.”
(dinosaur peering down on man,
many animals cheerfully looking on)

“Yes, EVERYONE!” sang the birds and the cats and
the mice and the mammoths, the serpents,
the dodos, and the apes.
(lots of vocal animals)

“EVERYONE!” came the chorus from all living things.

“EVERYONE! EVERYONE!”
(man riding cheerful on dinosaur’s neck)
—Michael Foreman, 1972 - 1982, Puffin Books.

To which Osbert Lancaster, one of Ulrich's colleagues at the Centre for Human Ecology added the following postscript:

There is a new edition of the book aimed at the corporate market, with an introduction by the Chairman of the Galactic Business Council for Sustainable Development. The book has been re-titled: Dinosaurs and all that Wealth, and the ending has been changed:

'EVERYONE!' shouted the man,
but he smiled a secret smile,
and took a bridle out of his pocket,
and slipped it quickly over the dinosaur's head.

