

Futurewatch

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COMMUNICATIONS/TRANSPORT

I, Robot

MIT robotics specialist **R. A. Brooks** combines personal experience making artificial creatures and predictive visions of robotic creations, in *Flesh and Machines: How Robots Will Change Us*, Pantheon, 02. Already he has developed machines which can express emotional states and respond to those of humans. He foresees robots ranging from household helpers to agents on interplanetary missions. We may have to reconsider the special characteristics of being human, and recognise that humans are machines, though immensely complex ones. **S. Garfinkel**, *Technology Review*, May, 02, p 28 outlines "packbots," rugged, small machines for dangerous or challenging terrains and situations unsuitable for humans, from climbing down oil wells to entering a hostage drama to open communications. The real revolution is not in hand held computers but in mobile systems that can perform useful work. **M. Boyd** reports on UK research to develop an electronic tissue that mimics plant and animal tissue in its ability to grow and to repair itself. Such a system would combine a flexible computational substrate and an artificial tissue, utilising the three biological phases of evolution, development and learning. *NZ Engineering News*, May 02, p 4

Australasian Science, Nov/Dec, 01 extensively reports on robot research and artificial creations, many of them in Australian universities. The range covers Brooks's artificial creations; plus synthetic battlefields using autonomous robots capable of teamwork; household robots (many problems to overcome, but you could have a swarm of mechanical "insects" around the house!); robust machines for the disabled, or outdoor work; robots in medicine, including virtual pathology; utilising the navigational skills of bees for autonomous aircraft, and **S. Inayatullah** on *Rights of Robots*. He continues this in a Symposium in *Journal of Futures Studies*, Nov, 01, in

the context of the emerging electronic judiciary, maybe one day, an all robotic one. Symposium highlight is the brilliant *Jurisprudence of Artefacts* (artificial intellects) by **F.W. Sudia**, for the future when individual or communities of artefacts are integrated into our legal systems.

More Digital Connections

Leading Japanese journalist **Y. Funabashi** considers that the forecasts of an "Asian Century" will depend on how China, India and Japan respond to the present digital abyss. Advances in IT put these nations in a disorganised game of leapfrog, with losers gaining ground at the expense of present leaders. Computer ownership and usage shows marked inequalities between income levels, educational backgrounds, demographic groups and geographical areas. *Survival*, Spring 02.

India is using innovative, indigenous solutions to bring the rural areas online, in the face of enormous illiteracy, many languages and very limited telephone connectivity. The last mile connection between telephone exchanges and homes is being met with wireless corDECT radio waves, a cost effective technology which may also be applied in Europe. Local companies and entrepreneurs bring subscribers into the system. Language and literacy problems are met with a small, low cost, speech synthesiser machine providing most computer applications in three main spoken languages, with a touch sensitive screen. *Nature*, 24 Jan 02, p 358-359.

UK sociologist **N. Selwyn** critiques the governmental drive to bring all UK citizens online. Ensuring widespread inclusiveness in the information society is the apparent goal but the heavy emphasis is on economic competitiveness rather than the social benefits. For many, the high-tech economy offers little beyond low-skill employment and increasing bewilderment. *Journal of Social Policy*, Vol 31/1, 02. **A. Malina**, *Journal of Community Work and Development*, Autumn, 01 analyses electronic community networks, including discussion groups and newspapers, in community devel-

opment, e.democracy and community learning in UK and USA. Locally focused communication which is open to all, supported by adequate training, should enable all to participate and benefit. A wide range of needs and methods of operation can be incorporated, but there are continuing tensions to ensuring that particular interests do not dominate. Political economist C. May, *Information Society: a Skeptical View*, Polity Press, 02, considers that fundamentally, while the information society offers new products and services, little has changed in social systems, in the economy, in politics and in the role of the state.

NZ engineering professor N. Scott is an internationally recognised pioneer in Open Interface technologies, which replace the keyboard and mouse technologies. This benefits all actual and potential users. Initial efforts with the Total Access System focused on enabling disabled users using a variety of sensory control devices. This can also benefit the lifestyles of elderly by use in smart house systems and household appliances. *e.nz*, May/June.

Intellectual Property

US academic D. Halbert explores three scenarios for the future of IP over the next twenty five years. In One, Asia becomes a hegemonic force in IP and IT; in Two the multinational corporations in the Western nations retain the power. In Three, parallel systems of protection and sharing emerge which do not rely upon property rights to protect creative work. Protection is balanced with public interest. *Journal of Futures Studies*, August, 2001.

A UN legal expert foresees the present Western hegemony intensifying, since developing nations lack the Internet access and appropriate infrastructures to change the bias. But the imbalance ensures that tradeoffs are needed since developing nations will not protect the assets of the industrialised world for nothing. Cultural differences underlie both Asian readiness to imitate Western products and the standoff between US common and European civil law on copyrights. As high-tech products become customer-tailored as services, e.g., with pharmaceuticals, there is almost insurmountable challenge in change. *Business Review Weekly*, Sept 5-11, 02, p 64-67.

US Archivist T. Blanton regards the current attempt by US and other governments to tighten the public access to official information as futile. Globalisation is expanding the concept of freedom of information from a moral stance to a more value-neutral contributor to market regulation, efficiency of government and economic growth. More countries are responding of necessity. *Foreign Policy*, July-August, 02.

IT Concerns

Language and the Internet, D. Crystal, Cambridge Univ Press, 01, illuminates the enrichment which the new,

often bizarre forms of Web language are bringing to the English language. **Crystal** calls this "computer mediated communication", and his survey shows the readiness with which people are adapting grammar, semantics and spelling to new situations.

R. Kubey, M. Csikszentmihalyi combine media and psychology skills to explore human "TV dependence." Similar principles apply to video games and computers despite the interactivity. *Scientific American*, Feb, 02.

Army Biometrics: Identifying and Addressing Sociocultural Concerns, J. D. Woodward Jr et al, RAND, 01. Biometrics are automated methods of identifying a living person in real time based on physical characteristics or personal traits. This technology assessment is an important security tool.

Economist Technology Quarterly, June 22, 02, pp21-23 examines issues of network security, highlighted by the havoc caused by worms such as Code Red (see *Scientific American*, Oct, 01) Such intrusions are inevitable but new methods use the principles of the human immune system.

Malaysia, the global giant of disk drive producers, faces major challenges as disks shrink, their price declines and profitability erodes. Restructuring the S.E. Asian electronics industries into service oriented economies places enormous pressures on the workforce and businesses, though the region retains its high quality infrastructures. *Far Eastern Economic Review*, May 2, 02, pp 36-39.

Listings

eGov: eBusiness for Government, D. Holmes, Nicholas Brealey Pub, 01. "In time the Internet will affect the public service much more profoundly than the private sector". Implementation and implications are explored for the ordinary consumer.

The Approaching Age of Virtual Nations, M. Dillard, J. Hennard, *The Futurist*, July-August, 02. Reliable communications access and a significant cause spawn new forms of association. Add a catalytic leader and the virtual nation is set aflame to take action for change.

From Anarchy to Power: The Net Comes of Age, W. M. Grossman, NY Univ Press, 01. An expert observer reflects on how the Web is changing the world in unexpected ways. Provides some useful predictions, anticipations and puncturing of hype.

ECONOMICS/BUSINESS

On Economies ... Knowledge Society

A wide range of research by international experts inform studies of various aspects of this theme, *International Social Science Journal*, No 171, March, 02. They cover the new content, new regulations and per-

spectives for policy and research, including those from developing countries. Notable contributions: **A. Arora et al** on Markets for Technology in the Knowledge Economy, drawing on research into markets for intermediate technologies and implications for business and public policy; **A. Hatchuel et al** on their research into design management of collective learning cycles which create new concepts and products; and **A. Lam** on alternative societal models of learning and innovation in the Knowledge Economy.

...Economic Growth

Macroeconomic historian **A. Maddison**, *The World Economy: a Millennial Perspective* offers a well-documented sweep through long-run trends with a major focus on Western development over the last millennium. Some surprising insights emerge. The most consistent economic performer since 1600 is The Netherlands. Growth in the developing countries over the past quarter century has been much worse than for the previous quarter, except for a number of resurgent Asian nations, and Botswana. Capital flight by corrupt African elites contributes to its dismal economic performance. Labour productivity in some European nations (France, Belgium, Norway, and the Netherlands) approached that of USA by 1998, and during the second half of this century overall Western European growth outpaced that of the US.

...Intangibles

Unseen Wealth: Report of the Brookings Task Force on Intangibles, **M. M. Blair, S. M. Wallman**, Brookings, 01. There is a large and growing gap between the significance of intangible assets in economic growth, and the ability to clearly identify, quantify and account for them. Recommendations for the US government included. See also *Intangibles: Management, Measurement and Reporting*, Brookings, 01, on their nature and impact.

... Ecological

Important recent developments in the theory, and practical applications of ecological economics and sustainable development from masters in the field, *Economics of Nature and the Nature of Economics*, **Eds C. J. Cleveland, D. I. Stern, R. Constanza**, Edward Elgar (pub), 01. Included are studies on tradeable national carbon quotas, alternatives to GDP and green national accounting.

On Poverty

US development economist **W. Easterly**, *Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*, MIT, 01, worked with the World Bank in the optimistic period for continued growth by the developing countries of the late 1980s. The subsequent decades of failure are a mystery but it is

realised that poverty is very complex. In some countries where structural adjustment programmes were properly implemented, growth did occur, and when it does this helps everybody including the poor. The data does not support assumptions that education, or population control or debt relief are essentials. See also interview, *Challenge*, Jan/Feb, 02.

Former World Bank chief economist **J Stiglitz**, *Globalisation and its Discontents*, W.W. Norton, 02, subjects the global economic fiascos of the 1990s to withering scrutiny, with particular focus on the US Treasury and IMF, for their role in structural adjustment policies, and the Russian and East Asian crises.

C. K. Prahalad, A. Hammond, *Harvard Business Review*, Sept, 02, consider that a key to the overcoming global poverty is for multinationals to enter developing markets, investing in local business aimed at the bottom of the pyramid. This untapped market is vast if buying power is aggregated, there is scope for innovation, and good returns have been shown by companies doing this.

Developing Value, the Business Case for Sustainability in Emerging Markets, International Finance Corporation (World Bank) SustainAbility/Ethos, 02, presents a documented case for good corporate citizenship. Higher social, environmental and governance standards and operations are essential for multinationals investing in these markets. Benefits to the local economy are accompanied by lower costs, reduction in risk and higher employee skills. These countries do want to have the high standards of the developed world. *Financial Times*, June 28, 02 p8.

Eds N. Birdsall et al examine the convolutions of the population growth-economic growth debate of the past half century, *Population Matters: Demographic Growth and Poverty in the Developing World*, Oxford Univ Press, 01. Currently the debate has returned to the position, but now based on evidence, that the poor countries who do succeed in breaking out of the poverty trap are those that have reliably made the demographic transition to low fertility and mortality rates. Simple correlations are misleading, subtle factors are influential. Primary factors are education for girls, empowerment for women, market based reforms and effective packages of primary health care.

Brookings Institute Fellow **C. Graham** researched the mobility of the poor in a number of countries, showing how generations move into or out of poverty in a globalising society. Family background, education and income all matter. These can be aggravated by rigid social structures, racial and gender-based discrimination, unequal access to other crucial services such as health, unequal access to political rights. Incentives for workers to invest in their children's education is doubly rewarding. Globalisation can offer new opportunities to the poor by

breaking traditional monopolies and subsidies, but there are new vulnerabilities, especially when the education qualification standards are raised. *Journal of Human Development (UN)*, Vol 3/1/02.

The Australian Population Debate

Business is fiercely determined to increase migration levels, demanding that a bipartisan population growth policy with set targets be forged to ensure long-term strategy. A population policy encompasses more than immigration, extending to all aspects: social, cultural, economic, regional, etc. *Business Review Weekly*, May 9/15, 02, pp 64-69. An official Australian programme is actively encouraging business to be proactive in diversity management in the hugely multi-cultural national workforce. Diversity encompasses ethnicity, age, gender and attitude, and where this is devalued, employee motivation and productivity suffers. *Business Review Weekly*, July, 25/31, 02, pp 64-66. Australians lack ways to talk about race and racism issues according to researchers. It is an offensive term to Australians, whose self-image holds to the fair deal and equality, and is therefore avoided. During training in diversity management, where people explore other cultures, they find more about themselves and can give clearer signals to other cultures. *Business Review Weekly*, April 11/17, pp 70-73.

Listings

The WTO Post-Doha Agenda, **M. Khor**, *Third World Resurgence*, No 141/142, 02, discusses the pressing concerns of developing countries which were not met in this recent Ministerial Conference, which added more to the burdens they already carry in negotiating the framework of work programme.

The Company of the Future: How the Communications Revolution is Changing Management, **F. Cairncross**, Harvard Business School Press, 02. To survive the profound changes which will occur, managers need to steer by ten essential rules for survival. Updated from *The Economist* Editor's 01 edition.

Global E-Commerce Strategies for Small Business, **E. da Costa**, MIT, 01. By US definition these have fewer than 500 employees. They are growing numerically and in importance. E-commerce gives them better opportunities and this study shows how.

When Systems Fail, **K. H. Roberts, R. G. Bea**, Organizational Dynamics, Vol 29/3 01, draws on the social science literature to explore why managerial failures contribute to disasters more often than do systems design errors.

Inside Chinese Business: A Guide for Managers Worldwide, **M.J. Chen**, Harvard Business School Press, 01. A clearly written guide to a different way of doing business in this major new economic magnet.

HEALTH/MEDICINE

Improving Global Health

A recent WHO Commission of Macroeconomics and Health Report offers major recommendations which could really make a difference to the health of the global poor. These are: quadruple donations to developing countries' public health, double the R&D by public and private funds on diseases especially affecting the poor, raise the percentage of GDP developing nations spend on public health and do this for two decades (see www.who.int). Expertise must be co-ordinated internationally and research data captured across national boundaries. *Nature*, 3 Jan, 02, p 1. A special section in *Science*, 15 March 02, provides expert views on Unmet Needs in Public Health including an analysis of this Report, by **P. Jha et al**. Annually it would cost US\$40-52 billion until 2015 in 83 low-income nations. It is feasible and would save millions of deaths annually. Still lacking is public recognition worldwide that present inequities in public health between developed and developing nations are intolerable.

M. Gandy, A. Zumla, *Social Science and Medicine*, Vol 55, 02, consider that historical studies of major global diseases provide useful frameworks for understanding their contemporary dynamics. This is illustrated by multi-drug resistant TB (MDR-TB). It can best be understood and controlled by advances in both biomedical research and socio-economic and political factors, including changing patterns of health care provision. A coherent, persuasive policy agenda needs to be constructed by scholars, health professionals and health care advocates to link such diseases to social injustice and to galvanise political action.

A specific study on Tanzania in the context of the Commission Report (above), *The Economist*, 17 Aug. 02, pp20-22, illustrates how a small health budget can be effectively used if targeted carefully. Research to develop a burden of disease profile in various areas revealed where a tiny increase of money could be most useful.

Other Scourges

P. W. Singer considers that AIDS is now a major international security topic because of its longer-term impact on national stability and armed conflict, with soldiers being at great risk. Old modes of military thinking and aid programmes need to be reviewed, *Survival*, Vol 44/1, 02. See also Report On AIDS and Violent Conflict in Africa, US Institute of Peace, 15 Oct 01, which has nine recommendations covering: increased AIDS programme funding, continued development aid, increased donor focus on civil society capacity building, involvement of women, harmonisation of international AIDS prevention, education of peacekeepers, addressing the needs of AIDS orphans, more effort by political leaders especially

African, and further attention to S Asia and Eurasia.

The Economist, 11 May 02, pp 25-27, examines the contrasting political responses to the threat of AIDS by three African states, Botswana, Mozambique and S. Africa. J. Stover et al, *The Lancet*, 6 July, 02, researched the effect of the global application of the policies used successfully by some countries to reduce AIDS transmission. If achieved by 2005, this could prevent 29 million new infections. China has finally officially admitted to having an AIDS problem, and a public education programme is underway. *Far Eastern Economic Review*, Oct 4, 01 pp 58-60. Pacific Island regional officials now recognise AIDS as an emergency. *Pacific Magazine*, Dec 01, p36.

Cure and prevention of malaria have been boosted with the genomic analysis of both a malaria parasite and a mosquito. French research groups have developed a new, easily prepared and inexpensive compound which kills the malaria parasite in the human blood stream. A promising UK malaria vaccine is being trialed in the Gambia. *Science*, 15 Feb, 02 pp 1207-1208, *The Economist*, 24 August, 02 p 59.

Emerging Threat of Diabetes

Over the past decade, this, especially the Type 2 form, has become one of the major and potentially lethal diseases of the Western world, though all regions are affected. Projections for 2010 are much worse. Changes in human environments, lifestyles and behaviour are aggravating genetic susceptibilities. *Nature*, 13 Dec 01, Insight section, presents an overview with six specialist studies on research into the functioning of the disease, and best ways to prevent it. Type 2 diabetes will require a much more integrated, international approach to slow the epidemic, since it is the symptom of a larger global problem. For development of the epidemic in Asia, see *Far Eastern Economic Review*, 10 Jan 02, pp 37-39. For the impact of even modest increases in wealth in poor countries, accompanied by urbanisation, and sedentary lifestyle, see *The Economist*, 23 Feb 02, pp85-86.

Diabetes describes the potentially deadly linkage of obesity to diabetes, especially Type 2. Over the past two decades obesity levels in children have mounted, initially in Western countries and then in the richer classes of developing nations. But all socioeconomic levels can be affected, since limited diet and exercise opportunities render the urban poor vulnerable. Longer term obesity results in much earlier onset of cardiovascular disease and death. Causes are complex, but the major contributors are reduced levels of physical activity, and high calorie food intake, aggravated by TV. Weight gained is very difficult to lose long term. Programmes for families, or in schools have had limited success, surgical and drug interventions have high risks. *The Lancet*, 10 August, 02, pp

473-477.

Syndrome x describes the dangerous effect of overstimulation of the liver, nullifying the power of insulin to control liver secretion of fats into the bloodstream. Cardiovascular and diabetic problems eventuate, according to recent research, which blames our snacking habits and high fructose diets. *New Scientist*, 1 Sept. 01 pp26-29.

Feeding China's Little Emperors: Food, Children and Social Change, Ed Jun Jung, Cambridge Univ Press, 00 is focused mostly on the better-fed urban children, where obesity levels are rising, and also covers the dynamics of family, food and markets.

All in the Brain

N. C. Andreasen, *Brave New Brain: Conquering Mental Illness in the Era of the Genome*, Oxford Univ Press, 01. A new era of combating mental illness opens as the terrain of the brain is being mapped. Mental illness is so costly that it will need much greater priority with an aging population. New treatments for depression, Alzheimers, schizophrenia are possible.

Psychiatrist, M. H. Teicher discusses research into the effects of early childhood abuse, physical and emotional, on the neurological system. Such experience sets up stress responses which permanently damage key developments in the young brain controlling emotional responses. Such childhood abuse, in war, or in the home, has irreparable impacts. *Scientific American*, March 02.

New Therapies ..or Old

Monoclonal antibodies have fulfilled the promise of the 1980s as they come to market. Each type is a done of a particular molecule in the immune system for a specific target. Mass production of these is cheap, with further advances if they can be produced from GM animals or plants. *Scientific American*, Oct 01.

R. J. Carlson, G. Stimeling, explore *The Terrible Gift: the Brave New World of Genetic Medicine*, Public Affairs, 02. Medically it promises marvellous developments for human health and quality of life. In terms of efficient and fair delivery of these to all in need the outlook is unpromising. The turning point should come 2010-2015 between a laissez-faire, market model, or a state controlled system or a mix.

Chinese Medicine in Contemporary China: Plurality and Synthesis, V. G. Scheid, Duke Univ Press, 02. China is synthesising the modern Western model with traditional Chinese medicine, utilising the advantages of each. An experienced analysis. *Time (NZ)* Aug 26, pp34-41 illustrates how sweet wormwood, or artemisia annua, is one of the major finds in the trove of Chinese traditional herbal cures which western medicine is beginning to understand. Researchers and traditional Maori healers are

exploring the secrets of traditional, indigenous, medicinal flora, *NZ Institute of Food & Crop Research Newsletter*, no36, 01. But fake drugs, often with fatal additional ingredients are rising to 5-15 % of global pharmaceutical sales, with much of the production in China. *Far Eastern Economic Review*, Feb 21, 02, pp34-37.

Listing

Safety on the Roads: What's the Vision? OECD, 02. An assessment of best practise programmes in OECD countries, noting the importance of a clear overall vision for road safety.

FOOD/FIBRES/FORESTS

Sustainable Agriculture

Geography, Vol 87/3, 02 is a special Sustainable Development issue, in which UK Professor I. Bowler examines the unsustainability of modern farming, with its strong incorporation of modernised practices into an industrialised food supply system with strong state protection. Three alternative models are not widely available. These are :- production of environmental goods, integrated farming systems, and alternative agricultures. Environmental goods contains three subsystems:- extensification (reduction of inputs), regulation of agricultural externalities, and agri-environmental measures, often requiring state subsidy. Integrated systems of crop, livestock and pest management may be embedded into existing farming practice and offer the most pragmatic way forward.

Alternative systems cover a number of farming philosophies: ecological, biodynamic, humus, low external input, permaculture, regenerative etc, with holistic emphasis on the farm and localised production. Organic farming has advantages and some disadvantages but the production volume is not sufficient for an urban-industrial population. None of the three sustainable farming models has been widely promoted, as the supportive infrastructure is limited to a mix of voluntarism, development of knowledge communities through education and training, and state regulation for quality control. A new social contract between farmers, food/processors/retailers, consumers and the state is needed..

Insight section, *Nature* 8 August, 02 explores aspects of Foods for the Future, emphasising sustainability, in face of accelerating food demands. A rich assortment of expert studies cover:- sustainability and intensive production, enhanced crops to feed the poor, risks with new agricultural practices, sustainability of global fisheries, the wine industry, and evolution and plant/animal domestication.

A recent international study reports that modern agriculture, if modified, can improve the rather than

degrade biodiversity and that biodiversity preservation should be integrated into all landscapes. Details of eco-agricultural practices worldwide are examined. *Worldwatch*, Sept/Oct 01, p 8-9. NZ farming needs to raise levels of no-tillage, a practice which is being taken up rapidly overseas, since it raises yields and benefits the environment. Fuel costs are reduced, and Roundup herbicide reduces the need to spray resident weeds, formerly killed by ploughing in, which also contributed to erosion. *Countrywide*, S. Island ed, Jan, 02, p 24.

GM - Rice, and Litigation

Rice yields are fast approaching their theoretical limit for efficient photosynthesis. To feed future populations without massive input of nitrogen fertilisers, this efficiency must be raised, a daunting task which genetic engineering may eventually achieve, *Nature*, 11 April, 02, p 576-578. *Science*, 5 April, 02, published two sequences of rice genomes, to be soon combined into a complete rice genome sequence which will become the gold standard for all future investigations of genetic variation in crops.

India and Brazil are two landmarks standouts in the global advance of biotechnology adoption. Finally India has approved introduction of BT cotton modified to resist the bollworm. Brazil is waiting on a judicial decision about waiving an injunction on the pro-biotech government permission to grow GM soya bean. Brazil is a major supplier of GM-free soya beans. Success with biotechnology in such a market as India may not be as overwhelming. Pesticide resistance may eventually be countered by new strains of the pest, while property rights regimes will be bypassed by the mass of poverty-stricken, illiterate farmers. *Financial Times*, 27 March, 02, p12.

Monsanto won its case against the Canadian farmer who was found to have apparently wind-blown GM canola on his property. The legal focus is shifting as in Saskatchewan organics producers are pursuing a class action against manufacturers of GM canola as an environmental "pollutant", because of the unwanted proliferation of GM crops. Argentinian organics farmers want to sue their government for permitting widespread use such crops. *Biotechnology and Development Monitor*, Dec 01, p2-5.

D. G. Victor, C. F. Runge, *Foreign Affairs*, May-June, 02, consider that the US government, rather than markets, must overcome the present polarized impasse over GM in farming. Three essentials in the strategy:- maintain incentives for private investment in GM, especially through trade negotiations; support greater investment in agricultural research to benefit the world's poor, and reform the rules governing intellectual property. Failure in adequate controls will harm GM everywhere, and poor countries with inadequate systems are the chief hazards.

A balanced assessment of all sides in the GM

debate, from D. Charles, *Lords of the Harvest: Biotech, Big Money and the Future of Food*, Perseus Publishing, 01, who sees a "hall-of-mirrors quality to the passionate arguments."

Food Bits

US political science academic G. Kent, *UN Chronicle*, No 1, 02, comments that while the right to adequate food is enshrined in international covenants, the responsibility is left to national governments. Since these are often under severe pressure from the free trade advocates to open up their food markets and concentrate on exports, the poor suffer, for markets benefit those who can pay. The international community must assume responsibility for ensuring the food rights of the poor, by fair trade schemes, by compensatory market mechanisms, or by support for food self-sufficiency programmes in poor countries.

US manufacturers are developing foods especially created for women, according to P. Hollingsworth, *Food Technology*, Jan 02. Three converging trends contribute: widespread information on ingredients for women's health needs, government approval of nutrition claims, and willingness of food manufacturers to address differentiated markets. Breakfast cereals, snack bars and beverages dominate.

Naturally Dangerous: Surprising Facts About Food, Health and the Environment, J. P. Collman, University Science Books, 01 tackles the "natural is safe syndrome" with lively vignettes on food, herbal medicines, environmental pollution, electromagnetic radiation, etc.

The Wood and the Trees

The further development of plantation forests of redesigned, superproductive trees, with little resemblance to the present, is highly controversial and may take decades to achieve. Trees are much more difficult than many plants to bioengineer, and the results take much longer to evaluate. The payoffs, ecologically and economically, may be huge but so are the risks. *Science*, 1 March, 02, pp 1626-1629. An ILO report *Globalisation and Sustainability: Forestry and Wood Industries on the Move*, 01, says failure to meet globalisation challenges and sustain these industries could cost 5% of their global workforce. Active government leadership in regulation and continued promotion of sustainable development is needed, which will also protect the environment and foster social justice.

D. Kaimowitz, Center for International Forestry Research (CIFOR) is promoting a major, research-based rethink among global economic and governance institutions on the value of forests in biodiversity, in poverty reduction, as well as health and climate issues and conflict

reduction. Forest communities are keys to effective long-term management. *New Scientist*, 15 June 02, pp 44-47.

FUTURES THINKING

The Future of the Human Species

F. de Waal, *The Ape and the Sushi Master: Cultural Reflections of a Primatologist*, Basic Books, 01, takes a worldwide tour through animal behaviour to illuminate how humans and other animals are similar but different. Western dualism is uncomfortable with too close an understanding, which may mean an identity crisis in Western, though not in Eastern thinking.

Humans themselves may be at the point of creating a new Homo species. The past evolutions each took two hundred thousand years, and homo sapiens arrived one hundred and thirty thousand years ago. G. Stock, *Redesigning Humans: Our Inevitable Genetic Future*, Houghton Mifflin, 02, takes both a medical and a biological view of possibilities. Rather than cyborgs (bionic people with silicon implants in brain and body), he foresees "fyborgs", functional cyborgs with extracorporeal electromechanical devices to enhance existing organs. The biological possibilities of human gametic engineering, cloning and genetic diagnosis before implantation will inevitably be developed through public pressure. F. Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution*, Farrar, Straus, Giroux, 02, is more concerned with the social implications of human biological experimentation. There is something uniquely different in being human; in a moral sense and dignity which is fundamental to human rights, values (including capitalism). Many human qualities may now be understood in animals but still humans have a factor X, dignity, to be preserved from biotechnological intrusion. K. Malik comments on Fukuyama, *New Statesman*, 20 May, 02, pp 48-49, that human uniqueness lies in our ability to act as conscious agents. We are both objects and subjects of nature and our moral values arise from being conscious agents, which allows us to not only to follow nature but to amend it. *The Economist*, 25 May, 02, p 73-75, examines advances in brain science, with possibilities of human enhancement. Benign modification to impaired neurological conditions may be welcome, but free will is becoming a more debatable possibility, if mental decisions are merely the consequence of electromechanical interactions in the brain. Neurotechnology is already affecting human moral development, and could reduce the number of ways it is acceptable to be a person. *Nature*, 28 Feb, 02, p 963. Research biologists R. J. Aitken, J. A. M. Groves comment on the desperate plight of the human spermatozoon, as species fecundity declines. Environmental impacts and technological interventions

are both reducing the semen quality. Two main causes of germ-cell dysfunction are identified:- genetic deletions on the male sex-determining Y chromosome and oxidative stress.

Club of Budapest member, **E. Laszlo** considers human evolution into the Third Millennium, *Futures*, September, 01. The dominant, extensive mode of the human species since the Neolithic period has been conquest, colonisation and consumption, which is now reaching a crisis in sustainability. A more desirable mode is intensive, with emphasis on connection, communication, consciousness. This exists now, but needs further development and application.

Listing

Predicting the Unpredictable, **E. Bonabeau**, *Harvard Business Review*, March 02. Ways by which the hitherto mysterious behaviour of people in crowds, in markets and organisations can be analysed and predicted.

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STYLE

The Journal of Futures Studies is an English-language revue published in Taiwan for the global futures community. Due to the transnational nature of the publication, JFS will accept either British or U.S. orthography and conventions consistent with objective article and essay composition (as opposed to business, letter, promotional, etc...) usage. For details concerning this usage, authors are urged to consult The Chicago Manual of Style. Parts of this manual and questions about it may be accessed on-line at: <http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/>

Articles must include: title, author's name, author's institutional affiliation, abstract, main text, end-notes (as necessary, see below), and optional correspondence information. Essays follow the same format, however, an abstract is not required.

Manuscripts must be submitted in Microsoft Word document format. Paragraphs should be unjustified and spaced without bias. Sentences should be single-spaced after periods.

JFS utilizes a simplified convention for reference notes. Quite simply: **All notes and citation of sources should be given in the form of end-notes.** In order to observe this rule, certain conventions must be applied:

- 1) Complete bibliographic information should be given in the end-notes.
- 2) No additional bibliography is required, and bibliographies of referenced material will normally be deleted.
- 3) Authors should take care that important reference information is given in appropriate end notes. Please be aware that parenthetical citation (such as [Chang, 1990]) is unacceptable and must be replaced by end-notes.
- 4) End notes should be conventionally sequenced.
- 5) For books:

Elise Boulding and Kenneth Boulding, *The Future: Images and Processes*. London, Sage Publications, 1995, 153.

Eleonora Masini, "Rethinking Futures Studies" in Ziauddin Sardar, ed., *Rescuing All Our Futures: The Futures of Futures Studies*. Twickenham, England, Adamantine Press, 1999, 36-48.

Johan Galtung, *Essays in Peace Research*. Vols. 1-5. Copenhagen, Christian Elgers, 1978.
- 6) For journal articles:

Yongseok Seo, "From the 39th Parallel to a Border: Exploring Alternative Futures of Korea," *Journal of Futures Studies* (Vol. 6, No. 4, May 2002), 5.