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Social

Population: - Waves and Balances

The International Institute of Applied Systems Analysis, Austria, <www.iiasa.ac.at/Research/POP> takes issue with UN forecasts of global population development. It estimates an 85% chance that by 2100 growth will peak at 9 billion, then fall, rather than rising to 9.3 billion by 2050. The UN figure basically assumes that all countries will have long-run fertility figures of 2.1, which is politically uncomfortable if projected towards infinity. It also uses the high, medium and low variant methodology. The IIASA has been perfecting a new approach, population balance, which includes external influences. Rapid population growth can create massive problems, but the transition to a shrinking, ageing pattern has its own difficulties. These turbulent transitions will be exacerbated by environmental impacts. [Options (IIASA), Spring 01; *New Scientist*, 8 Sept, 01, pp 42-43].

Population Studies Professor I. Pool, Waikato University, challenges common NZ demographic assumptions. The history, character and rate of change are fundamental. Growth will be slow in the foreseeable future, yet with turbulence resulting from disordered waves of growth peaks and troughs. Growth of Maori aging is a near future impact, the European NZ one comes much later. NZ policy is skewed regarding age-structural changes, and is dominated by short-term financial and economic forecasts rather than robust study of population waves or percentage distributions. NZ should foster its window of opportunity, the baby-blip peak now entering secondary education, as an investment if well-educated and employed. [Paper, NZFT meeting, Wellington, 24 June, 02].

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A recent Australian Population Policy Summit highlighted the continuing drift from states such as Tasmania, while the popular resort and metropolitan centres sprawl. Some economists consider that Australia could have 50 million by 2050, requiring net migration of nearly 500,000 annually. More advanced countries will soon be competing with Australia for both skilled migrants and homegrown talent. Capital follows population growth. Australia must determine its carrying capacity, how and where people want to live and where it wants to go. [*The Bulletin/Newsweek* (Sydney), 30 April, 02, pp 23-25].

... *City Sprawl*

The Regional City: Planning for the End of Sprawl, P. Calthorpe, W. Fulton, Island Press, 01. This account of leading edge practice shaping the Regional City emphasises the interdependence of sprawl, maturation of suburbs and revitalisation of older urban centres. Policies must work on a metro-wide scale. *Regions that Work: How Cities and Suburbs Can Grow Together*, M. Pastor Jnr et al (Univ of Minnesota Press, 00), covers equity-oriented regionalism, linking economic growth, environmental sustainability and the strengthening of regional social fabric in the metro area.

... *Migratory*

D. Meissner, ex US Immigration and Naturalisation Commissioner, reflects on national regional and global migration policies, *Foreign Policy*, Mar/Ap, 02. She views modern migration as an economic problem. The negative impacts of massive population movements can be minimised when there is relative parity in wage differentials, when other factors can influence decisions to move. Developed countries who refuse waves of immigrants to boost their populations will have to accept decline. Germany's move to liberalise its policies is starting a new European trend, though for the Europeans, becoming pluralistic societies will be very hard.

The asylum regime is bankrupt. The lack of a comprehensive migration policy in many countries means that many asylum cases are treated inappropriately, and the people smuggling problem will intensify. We must address the underlying inequities and unmet needs impelling this desperate flow of people.

Three politically-viable steps forward: 1) more active international law enforcement and co-operation to stem the abuses; 2) strengthen re-

gional initiatives to integrate and solve the real problem; and 3) promote a much deeper understanding of the links between migration and development.

Race/Ethnic Conflict

Italian racism expert A. Burgio, *The UNESCO Courier*, Sept 01, pp 36-37, links racist violence to modernity, which is inclusive and universal; but in practice, politically, socially and militarily, it is discriminatory. It is not simply a response to demographic pressure. Its re-emergence in Europe arises from war returning to inner areas of the Continent, protection of demographics and frontiers as a key part of national policies, and as an ideological weapon to produce national consensus. Racism entrenches an ambiguous view of culture as if it were a natural, unchanging characteristic. Hard conflicts are likely to increase, encouraging the far right in its political stance. The hopeful alternative is to reduce the differences between poor and rich parts of the world.

The Deadly Ethnic Riot, D. Horowitz, Univ California, 01, combines both theoretical and practical analysis of the forms and dynamics of these outbursts, demolishing many assumptions. Four indispensable elements are: 1) a hostile relationship between two ethnic groups; 2) a response of wrath or outrage which engages one group; 3) a keenly felt sense which justifies violence; and 4) an assessment by the participants that the violence carries reduced risks. Short-term prevention requires increasing penalties for violence.

Civil Society: a Developing Debate

Ed A. M. Florini, *The Third Force: the Rise of Transnational Civil Society*, Japan Center for International Exchange/Carnegie Endowment for International Peace, 00, analyses in depth six transnational NGO networks. Longer term questions focus on their power, sustainability and how desirable they may be. Theirs is soft power, grounded in moral authority, but it can be effective in raising issues and shaping and monitoring responses. Though their diversity limits cohesiveness, this is evolving as the commonality of concerns is realised. International efforts to develop governance of the integrating world provide NGOs with opportunities, while technological developments, especially the Internet, and international funding sources, provide their means. Residual fears of their intru-

sion on national state power is reflected in backlashes to exclude them, and efforts to undermine their essential support base of domestic civil activism. The moral power of NGOs as advocates for global common goods may not always make them truly representational of broad public interest. Their accountability may be limited, their capacity for trade-offs in politics restricted by narrow mandates, and some NGOs are morally repugnant to many.

Development economist P. Streeten reflects on social and antisocial capital, *Journal of Human Development*, 3/1/ 02. While economists advocate integration of developing countries into the global economy, achievement of a human world order means that basic human needs must also be met, in a more equitable way. Besides markets and states and transnational companies, international organisations and global civil society must be mobilised. Eventually, a system of global incorporation, global taxation and global accountability should ideally match the reach of the transnational corporations.

Future research is needed on the relationship between the size of a nation, its social capital and its economic growth, since there are successful small countries who cannot build on economies of scale, but may have done so through social cohesion. What is the right balance between civil society, the state and the private sector, to produce good social capital? Does the Internet strengthen community spirit and social capital formation or weaken them?

M. Edwards, governance and civil society expert, discusses the increasing questions about legitimacy, accountability and structure of community-based, global NGOs. They may arise in a particular community, such as slum dwellers in S. Asia, with power and authority residing in these communities. They develop international links with similar groups in order to promote practical solidarity, mutual support and the exchange of useful information about development strategies and alternatives.

While they consider they have right to the level of global influence they hold, their responsibilities in global governance is indistinct. Their legitimacy is strongly questioned. Who do they represent? how do they resolve differences? whose voices are filtered out to achieve a common position? The extreme asymmetry of global networks also needs countering.

Legitimacy and representation can be validated in different ways, e.g. democratic process or recognition for expertise. It is also essential that NGOs strengthen their base support for their advocacy debates within

nations. It is tempting to move to international arenas to access senior officials, but building democratic national responses is essential in a globalising world. *Environment and Urbanisation*, Vol 13/2, 01.

F. W. Song considers that P. Rieff (*The Triumph of the Therapeutic*, 96) best understood the character of virtual communities. They are not replacements for the place-based associations, but therapeutic, enhancing the well-being of individuals at community expense. Historically, community has been a delicate balance between individual and communal good. Virtual communities cannot make the traditional socially-binding demands. *Society*, Jan/Feb, 02.

The Well-Being of Nations: the Role of Human and Social Capital, Centre for Educational Research and Innovation, OECD, 01. This in depth examination finds ways to use more complex measurements beyond GDP, with latest evidence of the value of investment in human capital, clarification of social capital and the role of both in sustainable economic and social development.

A World Fit for Children?

UN Special Session on Children, May 02, produced *A World Fit for Children*, with a Plan of Action, with a large number of young participants contributing. The way forward is with young people and NGOs whose contribution in this area is beyond question. The 2001 UNICEF report State of the Worlds Children highlighted the earliest years of a young life as the critical point to break intergenerational transmission of poverty, violence and disease, and that this is an achievable global goal. *Many to Many Newsletter*, (NZ), June 01& 02.

US Federal Reserve economist G. Stevens analysed the 1996 US welfare reforms finding that its effects were highly damaging to poor children, failing to address the basic problems of poverty, health insurance, teen pregnancy, child care and early childhood education. *Challenge*, Jan/Feb 02. The reforms, aimed at adults, strongly focused on getting them off welfare rolls and into work, but all the provisions seriously affected children. US data on international comparisons in all relevant areas of child well-being is profoundly shocking. Young children from poor families, racial minorities or disadvantaged areas are failing to even reach the starting line above poverty to realise their full potential.

The 1996 reform abolished all entitlements, thereby putting the children affected at risk. Temporary welfare payment forced many parents

off the rolls, though many soon returned because of poor work prospects. Modifications urgently needed are:- full-time jobs (which also may mean training for work preparation, or skill upgrading) for parents, health care for children, good quality child care and early education, plus after-school care. This will not be cheap, but legislative revision may improve the situation.

B. Howe and R. Pridwell Australian policy analysts, examined the same US situation. By constructing all the welfare recipient parents as workers, their responsibility as parents is undervalued, especially single parents. In a buoyant labour market some can win, but there are many more losers. It is easier to come off welfare than to come out of poverty. A different understanding of citizenship underlay the earlier US welfare legislation. By 1996, liberal feminism has conflated the right of middle-class women who had the necessary financial, social and human capital to work outside the home, with the obligation of poor, especially single, mothers, to do so. Some feminists argue now for rights of time to care, but overall feminism is equivocal regarding welfare reform. *Just Policy*, May 02.

Report on the World Social Situation, 2001, UN Dept Economic and Social Affairs, UN, 01, is an excellent resource and analysis, the fifteenth since 1952. Eleven major trends are covered: rising income inequalities, smaller nuclear families, the unprecedented massive 15-24 generation, reassessment of state roles; change in civil society; long-term unemployment and underemployment, food insecurity, inadequate basic housing, armed conflict, greater intolerance of violence, especially against women, crime and corruption.

Violence..

US family research sociologist M. Straus outlines several recent major large-scale research findings, on linkages between physical punishment of children and later violent offending. Discipline and rule setting for children are necessary, but they will be more effective if not enforced by corporal punishment. Types of violence resulting in later life included violence to parents, to fellow students, dates, partners and in society generally. There are also adverse effects on cognitive development. Experts guiding parents on child raising must be more emphatic about the damage done, by saying do not ever spank, use other disciplinary methods. *Society*, Sept/Oct, 01 <www.stophitting.com> .

...and Non-Violence

Non-violent action and its still-to-be-fully-realised potential is outlined by B. Martin, Univ. of Wollongong. Future expansion could be into military defence, technological design (decentralised systems), challenging capitalism and bureaucratic politics, information technology-based struggles and interpersonal behaviour. It may be considered one of the most significant 20th century developments. *Futures*, Sept, 01.

... and Gun Disease

R. F. Corlin, President of the American Medical Association describes the new approach the AMA is taking to the massive issue of US gun violence. It is now a public health crisis. More research is needed to recognise the seriousness of the disease, with data to answer many questions about causes and impacts. AMA is taking risks but it is riskier not to do so. *Vital Speeches of the Day*, August, 01.

Values..in NZ

A. Webster has researched NZ values for the World Values Survey, Spiral of Values:

The Flow from Survival Values to Global Consciousness, Alpha Pub, 01. He sets this in a context of eight different worldviews, with special affinity for the Spiral Dynamics model of C. Graves, with its eight evolutionary world views. Six value-cultures or culture-memes found in the NZ Survey are explored in depth:- New Zealander, Pakeha, European, Maori (2 Value Cultures), Pacific Islander. An Asian sample was too small to use.

...Culturally Creative

The inner-directed transformation of US culture is explored by P. H. Ray, S. R. Anderson, Cultural Creatives, Harmony, 00, based on thirteen years of research into US values and lifestyle. About 26 % of the population is so defined, 50 million people, compared with 48% in the Modern group and 24.5 who are Traditional. The latter two have clashed over two centuries, but the Creatives have grown rapidly over the past three

decades, stimulated by awareness rises that the Modern worldview is causing serious problems. Similar developments are reported from Canada and Europe.

...Newly Religious

Religion is not withering away as once was anticipated. T. Lester, *The Atlantic Monthly*, Feb 01, tours the dynamic of New Religions (no longer sects), as they mutate with endless variants of the mainstream global faiths and unique new ones. A recent encyclopedia study identified ten thousand distinct religions currently, with several new ones forming daily. Religion does not fade, but people change brands as the old institutions fade. Essential features: faith is less important than relationships, as new entrants are involved, while a supernatural sensibility needs to be attached to whatever is the God concept.

Listing

Drugs and Democracy: In Search of New Directions, Eds G. Stokes, P. Chalk, Melbourne Univ Press, 00. This examination of a failing Australian drug regime advocates a strategy to redefine illicit drug use as primarily a health and social rather than a criminal justice issue, with appropriate penalties, drug treatment, and decriminalisation of the cannabis industry.

Economics/Business

On Globalisation... An Index

Suggestions that globalisation is over may be exaggerating a temporary slowdown. The A.T. Kearney/*Foreign Policy* (US) Magazine Globalisation Index (Second and expanded version) ranks the twenty most globalised nations on four measures: technology (Internet penetration and users); political engagement (membership of UN and other international organisations); personal contact (international travel, tourism cross-border transfers); economic integration (trade, foreign direct investment, income receipts and payments). Ireland is the top scorer, followed by Switzerland, Singapore, Netherlands, Canada, several Nordic countries, UK, France, Germany, US, Austria, Portugal, Spain, Czech Republic,

New Zealand and Malaysia. The most globalised nations have more income equality, reflecting impacts of history and socio-economic policies, and many are small nations whose openness encourages access to greater diversity of products. New Zealand scores particularly on Technology, ranking seventh, well behind Australia. *Foreign Policy*, Jan/Feb 02.

...*Ebbing?*

London School of Economics academic J. Gray argues that while globalisation technologically continues, the era of global free markets is over. It is becoming subordinated to the imperatives of war and politics, as a semi-anarchic environment threatens even the strongest states. *New Statesman and Society*, 25 March, pp 25-27.

The Economist survey, *Capitalism and its Troubles*, 18 May, 02, concludes that the worlds economies were almost as globalised a century ago, but it was only the last half century that saw return to globalised capital flows. Reduced capital flows from rich to emerging markets and the financial crisis in Argentina, are worrying trends of another ebb tide. Crucial for a successful reversal is better market appreciation of the political-risk, as well as the standard economic criteria, for investment in emerging economies. Indices for this are being developed. Improvements in the legal frameworks to protect shareholder capital and stronger insistence by shareholders, especially large institutions, on integrity of company performance, are also essential.

... *Poor World Critiques*

"Rethinking Globalisation: Critical Issues and Policy Choices," M. Khor, Third World Network <www.twinside.org.sg>, 01, is an economists approach. It highlights the uneven performance of the globalisation framework for poorer commodity producing nations. The increasing fragility of the system is especially concerning. Measures are suggested to balance problems with opportunities in a more democratic system, with reform of the decision-making powers of the international financial institutions, a better of balance state to market powers and finally South-South co-ordination.

An Oxfam report, headed by its Hon. President, economist A. Sen, argues for a new world trade order, based on a more equitable sharing of the benefits of world trade and a commitment to make globalisation work for the poor. Improved market access for poor countries to rich markets, an end to the subsidised over-production in the rich countries and their export-dumping, and an end to the international financial institutions

forcing poor countries to open their markets regardless of social consequences are standard items. Novel proposals: - an international commodities institution to promote diversification and end of oversupply, enabling a fairer return to producers; and a Double Standards Index, comparing the level of protectionist trade policies used by the rich trading nations against exports from developing nations. *Far Eastern Economic Review*, 18 April, 02, p26.

...a Challenging Critique

Nobel-prize-winning economist and World Bank maverick J. Stiglitz, pushed the boundaries of mainstream economics, though grounded in neoclassical economics, notes H-J Chang, *Challenge*, Mar-April, 02. Of especial interest:- general knowledge needs adaptation to local conditions: "scan globally, reinvent locally." Much knowledge is tacit, requiring person-to-person transmission. Development therefore is a process of democratic social learning, where participation, voice and openness are necessary. There are very limited arguments justifying secrecy. A democratic development transformation means genuine economic democracy, with greater worker participation, teamwork and involvement in decision-making. Full employment is more important than welfare.

... Human Rights v Economics

A UN report by eminent jurists asserts the paramount position of international human rights law over international trade and financial disciplines. Institutions such as WTO are bound to respect this. Globalisation is not only an economic issue. The tensions between economic prescriptions and human rights must be resolved with a New Poverty Agenda. Third World Economics, (Third World Network), August, 01.

...Emerging Governance

Managing Global Issues: Lessons Learned, Eds P. J. Simmons, C de J. Oudraat, Carnegie Endowment for World Peace, 01. Survey of sixteen changing areas of global governance in communications, corruption, organised crime and money laundering, development assistance, global financial architecture, international trade, nature conservation, pollution, global commons, human rights, labour, refugee protection, intrastate conflict, conventional weapons and nuclear-biological-chemical weapons. Despite many limitations in scope or power of enforcement these are the agents to steer globalisations course.

Listings

The NGO-Industrial Complex, G.Gereffi, *Foreign Policy*, July-Aug, 01. Certification is appearing in almost every major industry, in various modes, e.g. codes of conduct, production guidelines, setting behaviour standards. There are four broad categories: self reported compliance, trade association codes of conduct, external standard setting and monitoring often by a NGO, government or multilateral agencies. But it is an imperfect tool.

"The Singapore Developmental State in the New Economy and Polity," L. Low, *Pacific Review*, Vol 14/3, 01. Singapore Inc. is a remarkable success story, on social as well as economic counts, but it is now seeking to reinvent itself. How far can its polity accommodate economic change while meeting social expectations? Several scenarios are explored, with the most likely being flow-through, five star Hotel Singapore

Where Corruption Lives, G. E. Caiden et al, Kumarian Press, 01, is a wide-ranging and expert analysis of a major business, trade, international and political issue, perceived as increasingly prevalent.

*Futures Thinking**Reflections on Elephants*

The late D. Michael reflected on what, and how, we know about the human race and its future, which he likened to story of the blind men and the elephant. Now however, the storyteller is blind and there is no elephant. The human situation now is too complex, interconnected and dynamic to be comprehensible. Yet we need to keep trying.

Six mutually interacting characteristics result in the this blindness. Ignorance: too much and too little information; a lack of shared value priorities; a dilemma of content—how much do we need to know to feel responsible for decisions and actions? the limitations of spoken language which is too linear to deal with multiple factors simultaneously; the increasing and unavoidable absence of reliable boundaries; our self-amplifying, unpredictable acting out of the shadows in ourselves, the source of creativity but also of much that is destructive. These are the ignorance-maintaining aspects.

Seven helpful responses are: being seekers of meaning, acknowledgment of our vulnerability and finiteness, of self and projects; living both pride and arrogance-poor; individually or as groups; living in hope, not optimism, recognising the challenges and moving forward; having tentative commitment, examining carefully, taking risks recognising that the

pitfalls; being context alert, capable of understanding a few things very deeply yet engaging in the democratic process; becoming learners/teachers in the wilderness, asking questions. *Futures*, March, 02.

M. Edelman, political scientist, *Politics of Misinformation*, Cambridge Univ Press, 01, notes "virtually all political groups and individuals benefit at times from misleading and inaccurate assumptions and accordingly have an incentive to disseminate such beliefs." A shrewd examination of the ways by which individuals, groups and institutions go about this.

A New Intelligence

D. Zohar, I. Williams conduct a printed conversation about Spiritual Intelligence: the Ultimate Intelligence, Bloomsbury, 01. This is the third dimension of IQ and Emotional Intelligence. Our search for deep meaning takes us beyond the market-place assumptions, to the boundaries of what it means to be human, in a culture at the edge of chaos. It is not about religion; accessing deeper meaning and value in our lives may be linked to an inbuilt neurological characteristic of humans. Resulting personal qualities include:- a high degree of self-awareness, being vision and value led; resilience, facing and using adversity; a sense of the holistic; having the courage to stand alone; asking fundamental questions and seeking like answers; compassion and reluctance to cause unnecessary harm.

Listing

Lower Fraser Basin QUEST, Envision Sustainability Tools Inc, Suite 302, Health Sciences Mall, Vancouver, Canada, V6T 1Z4, 1999. An interactive systems CD-ROM approach to sustainable development planning, with three valuable areas for adaptation elsewhere:- systems modeling, alternative futures(scenario) development; and sustainable development. Version 1.0 QUEST and Manual available free <www.envisiontools.com/lfbquest>

Science/Technology/Space

The DNA Myths

Biologist B. Commoner, Director of Critical Genetics, City Univ. NY, questions the central dogma of DNA science, established by double helix pioneers in 1953. This affirms that the total component of DNA genes should fully account for its characteristic assemblage of inherited traits. Theory links the genes as the code for the particular protein of the internal cell structure, and that once in the cell the genetic information

cannot escape, despite close molecular contact with other proteins of DNA and RNA. Now we know how few the human genes are, not much more than fruit flies, despite the vast complexity of inherited traits. Human genes may be alternatively spliced, facilitating an extraordinary explosion of the gene/protein ratio. Two critical stages in this involve protein enzymes which ensure that the sequences replicate accurately and repair damages, and protein folding, which endures that the newly-made protein folds into a precisely organised ball. Malfunctions can occur. Nature was able over time to test and select for successful outcomes. *Harpers*, Feb, 02. For details on research into proteins in human cells, C. Ezzell, *Scientific American*, April.

Over the last decade gene expression studies are exploring epigenetic phenomena, gene-regulating activities which do not alter the DNA code, and can persist over several generations. Across human, animal and plant species, there are genes which are parent -specific, only expressed when inherited from one or other parent. Research into diseases based on epigenetics is leading to drugs which modify the phenomena and treat the disease. *Science*, 10 August, 01, pp1064-1067.

Questions as to whether organisms harbour systems for adjusting their own rate of evolution are unresolved, but a heated debate is raging over evidence that organisms such as bacteria, have DNA-synthesising enzymes or polymerases, which are prone to make mistakes and therefore produce mutations, perhaps more so in times of stress. *Science*, 8 June, 01, pp1824-1827.

B Tolkar Ed, *Redesigning Life? the Worldwide Challenge of Genetic Engineering*, Zed Books, 2001, provides a wide ranging selection around the following these themes: health/food/ environment; medical genetics and human rights; patents and corporate power; worldwide resistance to GE—each with extensive bibliographies.

Strategic Consultant in the life sciences, B Sagar, uses the drivers: extent to which biotechnology integrates with society; and the degree to which the public eventually accepts the technology, facilitating market demand, to devise four scenarios for the future of biotechnology. These are: Police-State, Present Day, Techno-Utopia, Grass Roots, with discussion of implications. *Technological Forecasting and Social Change*, vol 68, pp 109-129, 01.

Very Small Getting Bigger

Since the first scanning tunnelling microscope was developed in 1981, a range of devices have been developed to observe the atomic world of

individual molecules and to create structures with them, as envisioned in 1959 by Nobel Laureate R. Feynman. Only the beginnings of understanding this technology have been achieved. Aggregates of atoms and molecules, or mesoscale, show behaviour of both the quantum and the classical physical worlds. Monumental challenges lie ahead, M. Roukes, *Scientific American*, September. Eight more articles include: - nano fabrication, nanomedicine, nanoelectronics, and nano-fallacies.

Chemists are using the power of covalent bonding, the strongest connection between atoms and molecules, to create their own molecular complexes. *Science*, 29 March, 02, Special section, Supramolecular Chemistry and Self-Assembly, brings reports on leading-edge research and potential applications, particularly in new materials and microelectronics.

In 2001, the first assemblages of molecules into base circuits raised hopes for someday replacing conventional silicon-based computing with molecular electronics, *Science*, 21 Dec, 01, pp 2442-2443.

In *The Futurist*, Mar/April, 02, J. Udrich explains how the realisation that this technology potentially will transform industries is encouraging massive funding from venture capital, public money, helped by cross-fertilisation from other technologies.

A summing up for the layman, *Our Molecular Future: How Nanotechnology, Robotics, Genetics, and Artificial Intelligence will Transform our World*, D. Mulhall, Prometheus, 02, includes both the opportunities and the threats, and more questions than answers.

On Science and Scientists

A. Scott et al prepared, *The Economic Returns to Basic Research and the Benefits of University-Industry Relationships*, for the UK Office of Science and Technology, 02. The direct and tangible benefits are often underestimated since the innovation process is not simple. The crucial investment in developing diverse channels of communication between researchers and the private sector, is grossly underfunded.

Nature, 13 June. pp 684-687 reports on the use of animals, especially primates, for research. This is controversial in some countries but primates use is sparingly resorted to as supply is dwindling. Yet before important human clinical trials begin, especially for some drugs, a non-rodent test is required. The moral status of primates and their experience of suffering has been the subject of a recent UK report.

"OECD Science, Technology and Industry Scoreboard: Towards a Knowledge-Based Economy, OECD," 01, the fourth of a biennial series, using over 160 indicators, over half of which are new to this edition.

Nature, Editorial, 6 Sept, 01 on the future of electronic scientific literature, applauds the recent move by the Open Archives Initiative to promote common web standards for digital content. The vast resources of online journals, databases and archives is limited unless federated through unified interfaces. The future electronic landscape should see high-value hubs evolving as overlays to vast, but largely automated literature, archives and databases.

H. Nowotny et al, "Re-thinking Science: Knowledge and the Public in an Age of Uncertainty," Polity Press, 01 examine the two scientific regimes: - the traditional scientific research and values system, deeply entrenched in universities; and the second which contextualises science by focus on broad societal problems, which is more multidisciplinary and involves the general public. This exploration into the social theory of the second mode highlights the new ethical dimensions, assessment of risk, and breakthroughs and innovations which ensure that science is no longer a discrete cultural domain.

For those with mind for it, S. Wolfram, "A New Kind of Science," Wolfram Media, 02, is an iconoclastic thesis which asserts that the computer changes everything, since the phenomena of the world we experience is like the running of a myriad simple computer programmes.

Worth watching, by interested laypersons, are useful survey collections (parts are technical) on leading edge research, monthly, in *Science*, e.g.: "Environmental Microbiology," 10 May 02; "Body Building: the Bionic Human," 8 Feb, 02. Also see *Nature*, similar series, *Insight*, e.g.: "Ultra Cold Matter," 14 March, 02; "Life in the Deep Slow Lane," 10 May, 02.

Space

Microsatellites weighing less than fifty kilos cost only a few million dollars to launch to orbit and require one ground control station. This opens space exploration to poor countries since microsatellites are especially useful for a wide range of communications and monitoring in remote areas, e.g., for disasters, medical services. This also makes them useful for terrorists, who can communicate without interception. Future satellites could be even smaller and cheaper; picosatellites, the size of a pencil, could navigate space, forming a continuous messaging network. *Financial Times*, 23 Oct, 01, p13.

Australia is realising that space is a major high-tech industry for the future with important national benefits. It is pledging \$A100 million to an Asia Pacific Centre on Christmas Is, the worlds first fully commercial

land-based launch facility, to operate by 2003 for a Russian launch vehicle, Aurora. Local industries should benefit. *Australasian Science*, March, 02, pp 23-25.

Asteroids could one day be mined by space probes which will drill down, using solar mirror heat, through the ice to collect ice water . This can be reheated for steam to thrust the probe homeward to Earth orbit. The cargo can be reused for probes or for drinking water on space stations. J. Ingelbretsen reports that such Near Earth Objects have low gravity thus requiring less fuel for transport vehicles. *IEEE Spectrum*, August, 01.

Laypersons can enjoy *Our Cosmic Habitat*, M. Rees, Princeton Univ Press, 01, a survey, with some speculative futures elements, of the main developments in the understanding of the cosmos, the sub-atomic scale and human existence, by a former astronomer.

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 - use page numbers only for direct quotations or specific notes or table - (Braudel 1969:213)
 - for more than 3 authors use "et al."
 - with more than 1 reference to an author in the same year, distinguish them by the use of letters (a,b,c) with year of publication (1975a)
 - earlier publication should precede later publication in brackets with parentheses (Tocqueville [1835] 1956)
 - enclose a series of reference - in alphabetical order - in parentheses, separated by semicolons (e.g., Adler 1975; Adler & Simon 1979; Anderson, Chiricos & Waldo 1977; Bernstein et al. 1977; Chesney-Ling 1973a, 1973b).
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References Following Endnotes List authors alphabetically, by surname. Spell out first names of all authors and editors. For authors with more than one work cited, list works earliest to latest. For articles, next give title of article (caps and lower case), name of journal, volume number, and pagination. For books and monographs, give title, followed by publisher.

Format of References Please spell out the first names of all authors and editors, unless they use only their initials or a first initial and a middle name in the source cited (e.g., Paul Radin, T.S. Eliot, and J. Owen Dorsey).

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