

OPUNTIA

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Whole-numbered OPUNTIAs are sercon, x.1 issues are reviewzines, x.2 issues are indexes, x.3 issues are apazines, and x.5 issues are perzines.

LETTERS TO THE EDITOR

[Editor's remarks in square brackets]

FROM: Lloyd Penney
1706 - 24 Eva Road
Etobicoke, Ontario M9C 2B2

2005-06-16

[Re: Westercon 58 in Calgary] I wish I could be there, but money just doesn't allow for any kind of travel for both of us. Given the near-lack of interaction between two fans in the two halves of the country, I would have to wonder how many eastern fans will get out there.

[Brian Davis came out from New Brunswick, having won the CUFF travel fund. The Canadian Unity Fan Fund is intended to pay travel costs for an eastern fan to visit a western convention, or vice versa, usually the national convention called Canvention. Canvention often piggybacks onto some other convention, this year the Westercon in Calgary, and among other things is the venue for the Prix Aurora Awards. Other than Davis, I don't recall seeing any easterners other than some Torontonians. There is no real Canadian fandom, rather a series of disconnected fandoms in major cities that only occasionally make contact. What disappointed me was how few Americans came up to Westercon.]

2005-07-20

After some years of trying to tell mediafans what fanzines were all about, and why they weren't gigantic pieces of fanfic, I had someone tell me a few years ago that zines such as the ones we all enjoy are rare in media fandom, but they do exist. They are called letterzines, and sometimes have articles about media fandom. However, I've never seen these letterzines, and I wasn't told about any titles.

[The only mediazines I've seen out west are clubzines, but they have no interest in trading as per The Usual. I've also seen the \$15 "zines" but never a letterzine. Calgary fandom these days seems to be almost entirely anime fans, with zero interest in anything outside their field.]

FROM: Frank Denton
14654 - 8 Avenue SW
Seattle, Washington 98166

2005-08-30

[Re: Westercon 58 in Calgary] Fanzine reports of conventions usually concern which fans were in attendance, who the person reporting attended room parties with, went out to dinner with, or talked to at some length. All very social and I guess that's all right. People are allowed to attend conventions for social reasons.

Reporting on every panel or programme item
attended is a very serious thing to do, and quite informative.

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[Some fannish writers are notorious for bad convention reports, such as the lady whose reports are always on the lines of "My husband had the steak and rice but I ordered the lobster thermidor. Then we went to a panel. We met some friends in the hallway afterwards and talked for a while. Then we went back to our hotel room. For breakfast the next morning, my husband had sausages with scrambled eggs but I ordered a strawberry waffle. We both had orange juice." Nor should I omit the dealer fan whose reports are largely about troubles with loading docks or table set-up in the bourse, or the fan who always books last minute for discount flights via three different airports, with thirty seconds between flight transfers, and consequently spends most of his convention report complaining about airlines and missed flights.]

FROM: Kris Mininger
Calle Obispo 4 Bajo
Plasencia 10600, Caceres, Spain

2005-06-01

You mentioned that the perzine became dominant in the world of zines in the 1950s due to the activities of a small group of Irish zinesters. Who were they? What were the titles of their zines? More info, please.

[Walt Willis was the main figure of Irish zinedom in the 1950s, and his writings were often reprinted. The definitive source of his works is a collection in issue #28 of Richard Bergeron's zine WARHOON. As far as I know, this issue is the largest single issue ever published of any zine, with 614 pages hardbound, all devoted to Willis and Irish fandom. You can probably find copies on the Internet, as it is a major historical text in the history of SF zinedom. The major zines of Irish fandom were SLANT and HYPHEN.]

FROM: E.B. Frohvet 2005-07-25
4716 Dorsey Hall Drive #506
Ellicott City, Maryland 21042

Many American conventions have discontinued serving alcohol altogether, or confine it to private parties for which the committee can disavow control or liability. At large conventions such as Worldcon one can largely live by grazing enthusiastically at parties. Such a diet will be long on salt and short on protein, but survivable for a short period.

[Actually, long on salt and short on protein sounds like the typical North American diet over a long period.]

FROM: Ross Priddle 2005-06-01
21 Valleyview Drive SW
Medicine Hat, Alberta T1A 7K5

You are way off the mark when it comes to add-and-pass-on sheets [in mail art]. They are the very heart and soul of the network. Don't throw them out! Bad karma!

[I don't throw them out. I have a fireplace and can always use scrap paper to start the logs.]

FROM: Joseph Nicholas 2005-07-31
15 Jansons Road
Tottenham, London N15 4JU, England

My attention was caught by your summary of the "Future of Energy" panel at Westercon 58, in which it was remarked that the Earth has centuries of uranium supplies available. To which I say: yes, but only if they continue to be consumed at the current rate. If usage is greatly expanded, then those reserves would be exhausted before the end of the century.

One response to this might be that similar predictions have been made in the past about oil and that we have still to run out of it.

Such a response would firstly muddle together total reserves and recoverable reserves, and then confuse matters by assuming that all the recoverable reserves can be economically recovered. But any prediction about economically recoverable reserves will be based on the economics of extraction as they then stand. For example, the 1970s predictions about the imminent end of the oil economy failed to anticipate the development of the deep-sea drilling technology that has since enabled us to exploit reserves beneath the North Sea. Thus what was once uneconomic to extract becomes, over time, economic. The proportion of total reserves classifiable as recoverable increases, effectively masking the fact that total reserves themselves haven't increased, and fooling people into thinking that more of the stuff is being found and that it won't run out any time soon, if at all.

[This is, of course, what happened in Alberta with the Athabasca tar sands, which have more oil than the Arabs. At \$2 a barrel, the tar sands were hopelessly uneconomic, not even suitable for road paving because it would cost too much to haul it south to the cities. At \$20 a barrel, they became break-even. At \$40 to \$60 a barrel, Alberta has become the economic hotspot of North America. Its citizens are laughing all the way to the bank as we deposit our \$400 prosperity dividend cheques (a share of the government's oil royalties) issued by the Alberta government to anyone who filed an Alberta income tax form last year.]

So it has been with oil, and so it will almost certainly be with uranium. If nuclear power develops as the enthusiasts for it would wish, then the technologies to recover raw uranium from the ground will develop alongside it, acting to increase the proportion of total reserves which can be used. But the total amount of uranium in the ground won't increase at all. Ultimately, supplies will run out altogether and that will be the end of nuclear power.

Fusion? Fast-breeder reactors? Forget them. These are technologies which have been "fifty years away" for the past fifty years. On present evidence, they will never get any closer, no matter how much money continues to be squandered investigating their alleged promise. The money would be better spent on securing maximum efficiency in renewable resources.

[The Alberta Tories, surprisingly, are opposed to nuclear reactors in this province (there are none now). Premier Ralph Klein has stated the main reason is that no one has developed any method of disposing of radioactive wastes, and he does not consider burial to be a method of disposal since it only passes the problem on to the next generation.]

I Also Heard From: Phlox Icona, Peter Netmail, Ned Brooks, John Held Jr, Chester Cuthbert

PROSPERITY CHEQUES: THEN AND NOW

by Dale Speirs

Now.

Like all other Albertans, at the end of January 2006 I received a \$400 tax-free cheque from the Alberta government. Officially titled "Alberta 2005 Resource Rebate", it was payable to all those who lived in Alberta in 2005 and filed a 2004 Alberta tax return, or were children of same. A family of two parents and two children received \$1,600, for example. Albertans who were alive in 2005 but since died had their cheques sent to their executors (determined from probate records) who were required to include it in the estate and distribute the money to the beneficiaries. Welfare organizations scoured the streets to get homeless people to file retroactive 2004 income tax returns, and thus be eligible for the cheques, which were then sent in care of the agencies.

While it was called by the government, and correctly so, a resource rebate, Albertans generally called it the prosperity cheque. The news media used the term "Ralph bucks" but this term never caught on among the general public. Ralph Klein is the premier of Alberta, which has multi-billion dollar budget surpluses from oil royalties, no provincial debt, and the best economy in North America. Some people initially referred to it as a tax rebate, but that was incorrect. It was not a refund of

provincial income taxes but a direct share of the oil royalties, most of which came from the Athabasca tar sands.

The prosperity cheques triggered an economic spike unprecedented in Canadian history. Normally January is the slowest month for business, but the prosperity cheques suddenly dumped \$1.3 billion of tax-free discretionary income into the province in one week. Charities begged people to sign the cheques over to them. Every retailer in the province advertised madly, with all kinds of specials, such as Sears Canada offering a \$440 gift card to anyone bringing in a prosperity cheque. Banks set up special savings plans, and stores everywhere advertised \$400 items. Many took a humorous approach. Ikea had radio ads telling listeners that their \$400 sale was pure coincidence and they had picked the number entirely at random (nudge, nudge, wink, wink). During the last weekend of January, Alberta shopping malls looked like a Boxing Day sale was on. The news media did well from the sudden unexpected burst of advertisements.

As was expected, the lower income class mostly spent their prosperity cheques, either to pay down debt or buy things they could not previously afford. The middle class mostly saved their money or put it to credit card balances, and the rich folk tended to donate them to charity. The popular joke throughout Alberta was that, crowded malls notwithstanding,

The Liberal party (Official Opposition in the provincial legislature) and the NDP (labour-socialist, the third party) condemned the prosperity cheques, saying that they should go to government welfare services, not directly to the people. Yet they wonder why they can't defeat the Tories.

Then.

The term "prosperity cheque" was not popularly used by Albertans in 2006 at random. Most people made a direct analogy to the last time that the Alberta government issued a prosperity cheque, back in 1936. It was, however, a completely different species of financial animal, and far from a blessing to Albertans of that time, it was considered a curse.

In 1935, the Social Credit party swept into power, obliterating the governing party, the United Farmers of Alberta, and sending them into the dustbin of history. The Socreds would rule in an unbroken run until 1971, when the Progressive Conservative party knocked them out of office. The Tories have ruled ever since, and the Socreds followed the UFA into oblivion. The initial Socred party leader was William "Bible Bill" Aberhart, leader of the monetary reform branch of the party. After his death, the party was taken over by the pragmatist faction, who swept the talk about currency reform under the carpet and were basically Tories in drag.

Bible Bill had done a foolish thing during the 1935 election campaign. He promised Albertans a \$25 prosperity cheque (which would be about \$400 or more in today's money). Unfortunately for him, Alberta was broke. It was the height of the Great Depression, and oil wouldn't be discovered until 1947.

You Mean We Have To Keep Our Promises?

On taking office, the Socreds were faced with the reality that there was no way they could pay out a dividend. Casting about for a face-saving substitute, they hit on the idea of scrip money. This was not a Social Credit idea, as a number of municipalities in Canada used local scrip to pay their bills and increase the circulation of money in their area. Many people correctly recognized that the root cause of the Great Depression was the lack of money circulating, firstly from losses in the 1929 stock market crash, and made worse by governments cutting back on spending thereafter.

The difference between those municipalities and the Alberta government was that the former accepted their scrip as payment for taxes, thus making it fiat money. Today, all countries use fiat currency, which is paper money not backed by gold or anything else. The reason we accept fiat money is because our governments will take it for payment of taxes and fees.

This provides confidence in the money.



Figure 2: Front of Alberta 1936 prosperity certificate.

What the Socreds did was issue scrip with a twist. Each \$1 prosperity certificate had on its back 104 spaces for tiny stamps to be affixed. Each stamp cost 1 cent and every week, one stamp had to be affixed in order for the certificate to be valid [5]. The idea was to encourage the scrip to stay in circulation and thus speed up the velocity of money circulating in Alberta. No one would want to hoard prosperity certificates since to maintain their face value the hoarder would have to add a 1-cent stamp each week. At the end of two years, which was August 5, 1938, the government would redeem the certificates at \$1 each, thus giving them a 4 cent profit. This basically made the prosperity certificates a hidden tax.

The monetary reformists of the Social Credit party, unfortunately, did not have the courage of their convictions, and the Alberta government announced that they would not take prosperity certificates in payment for taxes or government fees. This doomed the certificates from the start, and led to them being referred to as “funny money”. It also led to the monetary reformists being ousted from control of the party and replaced by the pragmatists. Matters were made worse by printing the prosperity certificates on the cheapest grade of paper, which could not withstand handling or being folded into wallets, and fell apart easily [4].

The Minister Responsible for the prosperity certificates was Lucien Maynard. In May 1936, he announced that the certificates would be issued in amounts of \$1, \$2, and \$5, but only the \$1 version was ever issued. The original proposal was that people on relief (what is known as workfare today) would be paid in certificates. Further, they would not be paid all at once but would only receive part of their wages and the rest in deferred installments. The reason was to prevent people from cashing in all their certificates at once [1]. The response from the public was about what you would expect.

Shopkeepers mostly refused to take the certificates, although some either had naive faith in the Socreds or were fanatic monetary reformists. Dealers foolish enough to take them soon found they had a stock of certificates that no one wanted as change for purchases. Worse yet, they had to affix the 1-cent stamps every week to keep them valid. Maynard threatened to publish a list of non-cooperative merchants but barristers pointed out to him that this would lay him open to blackmail charges [2].

By April 1937 the certificates were largely fallen out of use [3]. \$500,000 of them had been printed, although the actual amount issued was only \$239,391. Not all of them were redeemed. Some fell apart before redemption, some were lost or accidentally destroyed, and many people kept one or two as souvenirs, which eventually came onto the philatelic market.


									OCT. 14, 1936	OCT. 21, 1936	OCT. 28, 1936	NOV. 4, 1936	NOV. 12, 1936	NOV. 18, 1936
NOV. 25, 1936	DEC. 2, 1936	DEC. 9, 1936	DEC. 16, 1936	DEC. 23, 1936	DEC. 30, 1936	JAN. 6, 1937	JAN. 13, 1937	JAN. 20, 1937	JAN. 27, 1937	FEB. 3, 1937	FEB. 10, 1937	FEB. 17, 1937	FEB. 24, 1937	MAR. 3, 1937
MAR. 10, 1937	MAR. 17, 1937	MAR. 24, 1937	MAR. 31, 1937	APRIL 7, 1937	APRIL 14, 1937	APRIL 21, 1937	APRIL 28, 1937	MAY 5, 1937	MAY 12, 1937	MAY 19, 1937	MAY 26, 1937	JUNE 2, 1937	JUNE 9, 1937	JUNE 16, 1937
JUNE 23, 1937	JUNE 30, 1937	JULY 7, 1937	JULY 14, 1937	JULY 21, 1937	JULY 28, 1937	AUG. 4, 1937	AUG. 11, 1937	AUG. 18, 1937	AUG. 25, 1937	SEPT. 1, 1937	SEPT. 8, 1937	SEPT. 15, 1937	SEPT. 22, 1937	SEPT. 29, 1937
OCT. 6, 1937	OCT. 13, 1937	OCT. 20, 1937	OCT. 27, 1937	NOV. 3, 1937	NOV. 10, 1937	NOV. 17, 1937	NOV. 24, 1937	DEC. 1, 1937	DEC. 8, 1937	DEC. 15, 1937	DEC. 22, 1937	DEC. 29, 1937	JAN. 5, 1938	JAN. 12, 1938
JAN. 19, 1938	JAN. 26, 1938	FEB. 2, 1938	FEB. 9, 1938	FEB. 16, 1938	FEB. 23, 1938	MAR. 2, 1938	MAR. 9, 1938	MAR. 16, 1938	MAR. 23, 1938	MAR. 30, 1938	APRIL 6, 1938	APRIL 13, 1938	APRIL 20, 1938	APRIL 27, 1938
MAY 4, 1938	MAY 11, 1938	MAY 18, 1938	MAY 25, 1938	JUNE 1, 1938	JUNE 8, 1938	JUNE 15, 1938	JUNE 22, 1938	JUNE 29, 1938	JULY 6, 1938	JULY 13, 1938	JULY 20, 1938	JULY 27, 1938	AUG. 3, 1938	

Figure 3: Reverse side of 1936 prosperity certificate. This one went out of circulation after a week and a half.

In the epilogue, the standard catalogue of Canadian revenue stamps [6] values the tiny little 1-cent stamps at \$10 each in mint condition, and the certificate (with stamps attached) at \$250.

The sad part is that if the Socreds had only shown a little backbone and accepted the certificates for taxes and fees, printed them on linen paper, and done away with the 1-cent weekly stamp nonsense, it would have worked. The certificates would have been accepted by the public, circulated as money, and helped ease the Great Depression by increasing the amount of money available. Unfortunately that first Social Credit government was comprised of small-town merchants, evangelists, and farmers, none of whom knew how to run a provincial government. They froze at the wheel, victims of their own timidity, and forever ruined the reputation of Social Credit.

References.

- 1] Anonymous (1936-05-18) Plan certificates as wages June 1. EDMONTON JOURNAL, page 1
- 2] Anonymous (1936-06-16) Aberhart minister threatens blacklist. EDMONTON JOURNAL, pp 1-2
- 3] Anonymous (1937-04-07) Province abandons stamp scrip experiment. EDMONTON JOURNAL, page 1

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5] Richardson, Ed (1960) Alberta Prosperity Certificate. BNA TOPICS 17:182-183

6] van Dam, E.S.J. (2000) THE CANADIAN REVENUE STAMP CATALOGUE. Published by Unitrade Press, Toronto. Page 32.

MOVIE REVIEW: SYRIANA

by Dale Speirs

Usually I keep reviews to the x.1 issues of OPUNTIA, but as this issue seems to be taking the theme of petroleum, I will bring a movie review in here. **Syriana** will probably be gone from the theatres by the time you read this, but if you haven't seen it, then rent the video. It is a multi-thread movie about oil and money, and had an extended run throughout Alberta, which has about the same amount of oil as the Middle East but without the jihads. Normally I wouldn't have bothered to go, but having inherited oil royalties from my mother in 2002, and in 2005 having bought a small share of a start-up natural gas company, I find that the petroleum news is more interesting than it used to be.

Alberta has the fastest growing economy in North America, and everybody here cheers when the price of oil takes another jump.

But back to the movie. The separate plot lines at first don't appear connected but slowly converge until they combine in a rush in the final scene. There is no heroic ending; the bad guys win. But the bad guys are only giving their customers what they want; cheap oil, so they can keep driving those SUVs.

The movie begins with American petro-executives upset that China is getting a foothold in an emirate which they had considered their own. They want the younger son of the emir, the one who invited the Chinese in, taken out by the CIA, the lapdog of the plutocrats. The Agency, in its turn, is having problems with a lone-wolf agent (George Clooney) who is worrying about what happened to a stolen shoulder-launched missile. No one else is concerned because what's one missile more or less in the Middle East? Clooney passes himself off as a Canadian, causing loud laughter in the Calgary theatre, especially since he mentions it more than once. (Humphrey Bogart also gets loud laughs in the movie *THE AFRICAN QUEEN* when he, too, claims to be Canadian.)

Another plot line involves a government investigator (Jeffrey Wright, who I haven't seen before but is an up-and-coming actor to look for) auditing the books of an oil company merger, the

same companies upset at the Chinese. Wright is -12- basically honest, but not above "discovering" a few financial irregularities that take out his supervisor and open up a promotional opportunity.

The weakest plot line is Matt Damon as an energy analyst who spouts cliches and regurgitates information from the Internet for a substantial fee. One of his clients, the emir's son, tells him he doesn't need a lecture from Damon. The emir's son tells him that he has a Ph.D. in economics. The point of this scene is to remind us that not all Arabs are goat herders, and they can learn things.

That big oil company merger triggers another plot line, among expatriate Pakistani oil workers in the emirate. They are treated little better than slaves, and when the companies merge, are laid off due to "economies of scale". An Islamic school finds many recruits among them, and gradually bends them into suicide bombers. There is no stereotyping here. The Islamic radicals are fleshed out as individuals who have their own worries and dreams, which happen to conflict with the American way of life. We watch the progression of one laid-off oil worker into a suicide bomber who is given that missing missile and a boat to ram it against a LNG (liquid natural gas) supertanker.

The movie is two hours, and takes a long time to bring together all the plot lines. Paradoxically, it was annoying to tolerate a

continuous two hours of jump shots. The camera doesn't stay on anything or anyone for more than about ten seconds. I suppose this is a technique to make it seem that time is passing by faster, but two hours of this is too much. Nonetheless, the movie is not an exaggeration or demonization of the characters. Even the evil ones have what they think is just cause, whether it be looting an emirate or striking a blow for Islam. As you sow, so shall you reap.

SEEN IN THE LITERATURE

noticed by Dale Speirs

Ronconi, R.A., and C. Cassady St. Clair (2006) Efficacy of a radar-activated on-demand system for deterring waterfowl from oil sands ponds. JOURNAL OF APPLIED ECOLOGY 43:111-119

"We tested a new radar-activate on-demand system of deterrence in the oil sands region of Alberta, Canada, by comparing the proportion of birds that landed on a tailings pond while it was

activated with the proportion that landed during two other treatments: a continuous, randomly-activated, deterrent system, and control periods with no deterrents. Across several bird guilds, only the on-demand deterrent system significantly reduced the probability of birds landing in comparison with the control treatment. In addition to treatment effects, birds were more likely to land earlier in the spring and when they flew at lower altitudes, and shorebirds were more likely to land than ducks, geese, and gulls. The comparison of stimuli revealed that cannons elicited significantly more response by birds in flight than mechanized peregrine falcon effigies with speakers broadcasting peregrine sounds."

Marriner, N., et al (2006) **Geoscience rediscovers Phoenicia's buried harbors.** GEOLOGY 34:1-4

"After centuries of archaeological debate, the harbors of Phoenicia's two most important city states, Tyre and Sidon, have been rediscovered, and including new geoarcheological results reveal how, where, and when they evolved after their Bronze Age foundations. The early ports lie beneath their present urban centers, and we have identified four harbor phases. (1) During the Bronze Age, Tyre and Sidon were characterized by semi-open marine coves that served as protoharbors. (2) Biostratigraphic and lithostratigraphic

data indicate the presence of early artificial basins after the first millennium B.C. (3) The harbors reached their apogees during the Greco-Roman and Byzantine periods. (4) Silting up and coastal progradation led to burial of the medieval basins, lost until now."

Stern, Roger (2006) **Oil market power and United States security.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 103:1650-1655

"It is widely believed that an oil weapon could impose scarcity upon the United States. Impending resource exhaustion is thought to exacerbate this threat. However, threat seems implausible when we consider strategic deficits of prospective weapon users and the improbability of impending resource exhaustion. Here, we explore a hypothesis relating oil to national security under a different assumption: abundance. We suggest that an oil cartel exerts market power to keep abundance at bay, commanding monopoly rents (or wealth transfers) that underwrite security threats. We then compare security threats attributed to the oil weapon to those that may arise from market power. We first re-examine whether oil is abundant or scarce by reviewing current development data, then we estimate a competitive price for oil. From this, we derive 2004 wealth transfers by Persian Gulf states about \$132 to 178 billion. We find that wealth transfers and the behaviour of states collecting it interact to actuate security

threats. Threats underwritten by wealth transfers are: **-14-**
(i) the potential for emergence of a Persian Gulf superpower, and (ii) terrorism. It is therefore oil market power, not oil per se, that actuates threats. We also describe a paradox in the relation of market power to the United States' defense doctrine of force projection to pre-empt a Gulf superpower. Because the superpower threat derives from wealth transfers, force alone cannot pre-empt it. A further paradox is that because foreign policy is premised on oil weapon fear, market power is appeased. Threats thereby grow unimpeded."

Speirs: The Russian Communists bragged that the capitalists would sell them the rope with which the capitalists would be hanged. This study suggests that much the same thing is happening with oil. Not all of that oil money is being spent on \$50,000 a day hotel suites; a noticeable portion is funding terrorists.

Toth, F.L., and H.H. Rogner (2006) **Oil and nuclear power: Past, present, and future.** ENERGY ECONOMICS 28:1-25

"While the past expansion of nuclear energy occurred to the detriment of oil in the power sector, this is no longer the case today and highly unlikely to reoccur in the future. The respective market structures in which nuclear and oil operate now display

little overlap and an expansion of nuclear power would not impinge on oil sales to power generation. Nuclear supplies base load to large grid-integrated markets where oil provides some peak supply, back-up capacity, small-scale and non-grid applications. Oil's main markets are the low energy demand intensity rural and remote areas usually with little or no grid integration. In an environmentally unconstrained future, nuclear power competes primarily against coal and possibly natural gas, depending on how closely natural gas prices track oil market prices and whether or not gas infrastructures are in place. However, current trends towards electricity market liberalization relying more on private sector shareholder value maximization create economic barriers to the expansion of present-day nuclear plants because of their high up-front capital costs and long amortization periods. In the absence of public policy support and/or the emergence of innovative reactor designs that lower the costs and further improve operating safety, nuclear power's market share might indeed follow a downward trajectory."

"Nuclear power has many, especially environmental, benefits but encounters political and public resistance to its use in some countries while there is political support and at least public acceptance in others. So far, there is no consensus on the future role of nuclear power even in the short to medium run. Plausible long-term energy demand and supply analyses consistently foresee a growing role for nuclear power. ... This scenario projects very

high annual growth rates for nuclear power, especially between 2020 and 2040, implying a 14-fold increase in global nuclear energy production between 2000 and 2050."

"In an environmentally conscious future, nuclear power fares best against coal and, depending on the degree of environmental regulation, also against gas. Policies protecting global climate will certainly affect oil production and use as well but primarily with regard to oil substitutes in end-use markets, and, depending on the future techno-economic performance of renewables, also in the non-grid electricity markets. Nuclear generated electricity may indirectly challenge some oil use in the residential, commercial, and industrial sectors. However, electricity—no matter how generated—is expected to expand its market share because of its intrinsic features to improve productivity, cleanliness, and convenience. Policies enforcing an internalization of the externalities associated with the production and use of energy services will eventually improve the competitiveness of clean technologies such as nuclear power. In the global warming context, the key questions are how fast the world society decides to reduce CO₂ emissions, how high will be the costs of other mitigation options, and how the public acceptance of nuclear energy will change in some countries."

Figure 4: Canada 1978 stamp honouring the Athabasca tar sands.
The excavator is the size of a low-rise skyscraper

