

OPUNTIA

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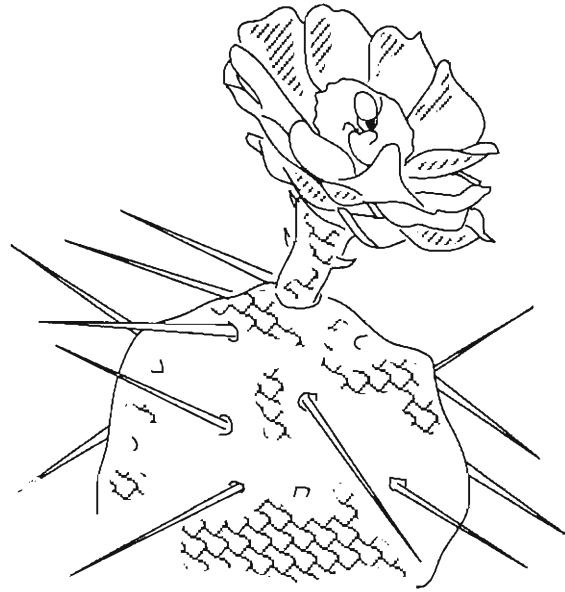
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Cover art by Sheryl Birkhead, 25509 Jonnie Court, Gaithersburg, Maryland 20882, USA.



LETTERS TO THE EDITOR

[Editor's remarks in square brackets]

FROM: Lloyd Penney
1706 - 24 Eva Road
Etobicoke, Ontario M9C 2B2
2006-03-20

I guess most Albertans have received their prosperity cheques, which can easily be construed as “financial incentives to vote Tory next election”. I was living in British Columbia in the late 1970s when the government decided to issue five free shares in a suddenly-new Crown corporation called the British Columbia Resources Investment Corporation, or BCRIC, pronounced “brick”. Every share was initially valued at \$5 and about half of all British Columbians cashed them in. They were the smart ones. The price of shares rapidly dwindled to penny stock, and less. I kept my share certificate and now it is a pretty piece of paper, and valueless.

[It might be worth something as a collectible; after all, the 1936 Alberta prosperity certificates are worth about \$250 each to stamp collectors. As far as the 2006 prosperity cheques being an incentive to vote Tory, they were not needed. Alberta has been Tory since 1971. However, there was an interesting development in April 2006. Premier Ralph Klein outstayed his welcome, and at the regular leadership review of the Progressive Conservative

party, received only 55% of the yes vote. It is generally accepted in Canadian politics that a party leader needs about 75% of the membership to stay on. Klein bowed to the inevitable, and a new Tory leader will be chosen this November. He says he is jumping, but the other 3,000,000 Albertans all agree that he was pushed.] -2-

FROM: Henry Welch
1525 - 16 Avenue
Grafton, Wisconsin 53024
2006-03-13

Interesting history of the 1936 prosperity certificates. This would not have happened in the USA because its Constitution prohibits the states from printing money.

[In Canada, the provinces and territories are likewise prohibited from issuing currency. Scrip and trade dollars are legal though, because they are a promise to redeem in Canadian currency.]

FROM: Chester Cuthbert
Winnipeg, Manitoba
2006-03-05

Since currencies fluctuate daily on the market, I have never trusted money and have based my idea of wealth on physical

things like houses, books, and machinery. Your view seems to amount to nations using money as a promise to pay rather than that money itself has value. I considered it simply as the oil which facilitates trade.

[Money was originally a shorthand system to save the trouble of physically carrying 100 jugs of wine to the marketplace in search of someone who would accept them as fair barter for a horse. In modern times, money has become a commodity itself, to be traded on currency exchanges as if it were pork bellies or barrels of oil.]

FROM: Sheryl Birkhead
25509 Jonnie Court
Gaithersburg, Maryland 20882

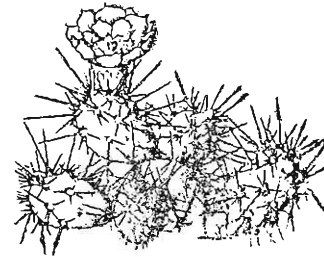
2006-03-20

Are Alberta prosperity cheques like the rebates to Alaska residents, annually from oil proceeds?

[Unfortunately no. The Alaska cheques are paid from a trust fund's interest and dividends. The Alberta cheques were paid directly from oilsands royalties. Despite the Tories spending like drunken sailors, they still manage to rack up \$3 to \$10 billion surplus each year. Some of it goes to a trust fund for future generations (not enough in my opinion). The Tories are pragmatists with no long-term plans or ideology. Premier Klein,

desperately trying to think what to do with the money, decided to give every Albertan \$400, a number pulled out of thin air. It seems likely that Klein's successor will spend the money instead on infrastructure or put it into a trust fund. Klein was a populist, never an ideological Tory, and simply drifted from crisis to crisis while in office. Hence the spectacle of the richest government in North America wandering about like a squirrel trying to locate a buried peanut.]

I ALSO HEARD FROM: Terry Jeeves, Ficus, John Held Jr, Ruggero Maggi



THE EARLY HISTORY OF ENVELOPES

by Dale Speirs

In The Beginning.

Envelopes were invented thousands of years ago, but inexpensive, mass-produced envelopes date only from Sir Rowland Hill's postal reforms of 1840. Stamp collectors tend to fixate on the Penny Black, the world's first postage stamp, as Hill's major accomplishment in life, but in fact the postage stamp was only a minor part of his reforms. His greatest effect on the postal system was to prove that postal rates depend on how many times a letter is handled en route, not the distance. Hill showed that counting sheets of paper to calculate postage was inefficient, and that standardizing weight increments was the better method of charging fees.

Prior to Hill's reforms, letters were paid for by the recipient, not the sender, and the postage was calculated by the number of sheets of paper. Envelopes were not used because they counted as a sheet. Senders instead folded the letters in from the side to prevent people peeking at the contents, then folded the sheets horizontally and sealed them with wax. Each post office had to individually account for each letter and add its mite. As a consequence, letters were extremely expensive via the postal system and most people sent them by friends. An alternative was

to send letters with blank pages but mark them on the address with some kind of code to let the recipient know the message. As an example, Mama would get a letter from her son in the colonies which addressed her as Mrs. Jane W. Doe if he was well and Mrs. Jane M. Doe if he wanted money. She would examine the address, get the message, and then refuse the letter, which would be returned postage free. The postal system was, by the 1840s, clogged with mail making round trips free of charge. There is a comparison with the Internet of today; if it cost 1 cent to send an e-mail, spamming would quickly dwindle. However, we learn very little from history, and it will take some major crisis to resolve the problems of the Internet.

Envelopes were invented not long after clay tablets. Such tablets were baked inside a clay wrapper and the wrapper inscribed on the surface as to the contents. A rather bulky method of record keeping. Paper was very expensive and difficult to come by until a few centuries ago, and combined with widespread illiteracy, was in little demand. Communications were almost entirely restricted to government officials, businesses, and nobility. Paper envelopes were therefore rare. As long as letters were assessed on the number of sheets of paper, envelopes were seldom used, as the envelope constituted a sheet in its own right and therefore bumped up the postage required.

Before The Envelope There Was Sealing Wax.

Sealing wax is known at least as far back as ancient Egypt [13]. Although wax was the most common method of sealing a letter sheet, other alternatives were occasionally used. The Chinese used rice paste, for example [14]. Sealing wax was usually red, but other colours are known. Black wax dates from as early as 1556 for use as mourning [15].

Just why sealing wax was needed was illustrated by a famous painting of a maidservant peeking into a folded letter [17]. For this reason, anyone writing a folded letter sans envelope would first fold in the vertical edges to cover the text, then fold it horizontally to produce the cover [16].

The advent of mass-produced envelopes after 1840 quickly finished off the sealing wax industry, which dwindled to no more than a minor specialty. By 1872, a correspondent was lamenting: *“Can anyone inform me why no good sealing wax is to be had anywhere nowadays for love or money, with the exception perhaps of what is called ‘India sealing wax’? I say perhaps, because even that is not easily worked. ... I have letters of the seventeenth, eighteenth, and nineteenth centuries with bright red wax seals, the coats of arms on which have maintained to this day as sharp edges as though the impression had only just been taken, whereas now, after enclosing a letter but a short time in a portfolio or*

autograph book, the seal will soon get obliterated. Fifty years ago good solid sealing wax could still be procured.” [18].

This did not stop an 1890 etiquette book [37] from snobbishly remarking: *“The gummed envelope without a seal is perfectly correct, but a neat seal of red sealing-wax always gives a refined look to a letter and is a desirable adjunct thereto. Every one should have an engraved seal containing the initial letter of his surname, his monogram, or if he be so fortunate as to own one, his crest, and should use it with red sealing wax on ceremonious notes and letters. If the writer is in mourning, black sealing wax should, of course, be used, but no other colors except black and red are good form. “To get a good impression from your seal”, says Mrs. Sherwood, “you may first rub it with linseed oil, then dust it with a little rough powder, and then press it quickly and firmly on the wax.” Every lady’s desk should have on it a wax taper, a seal, and a large stick of red or black sealing wax. The impression must not be made with anything save a proper seal. When finished the seal should show neatness and care.”*

By 1930, an editorial in THE TIMES was reduced to grumbling that, much to the Editor’s regret, use of sealing wax had died out [19]. But never entirely so, for in 1916 a New York City woman died of sealing wax. Miss Mabel Elliott died of blood poisoning ten days after burning her index finger with hot sealing wax [20].

I have not found any statistics comparing sealing wax burns versus envelope paper cuts. One would expect that out of all the millions of paper cuts sustained since 1840 from opening an envelope by running the finger under the flap, there would have been at least one septic case. But this takes us into realms of invisible postal history that are essentially unresearchable.

The Mulready Disaster.

In our time we had the Ford Edsel and New Coke, ideas that seemed good at the time but subsequently were laughed or shouted out of the marketplace. The story of the Mulready prepaid envelopes, issued at the same time as the Penny Blacks, has been well told elsewhere [3, 9, 35]. The basic problem was that the envelopes, which included the cost of postage, were over-illustrated with elaborate symbolic figures and clutter that was excessive to even the Victorians.

The reception of the British public was not favourable. An editorial in THE TIMES commented on May 2, 1840, that: *“We have been favoured with a sight of one of the new stamp covers, and we must say we never beheld anything more ludicrous than the figures or allegorical device by which it is marked with its official character. ... Britannia is seated in the centre, with the lion couchant (Whigish) at her feet. Her arms are distended, scattering little flying children to some elephants on the left, and*

on the right to a group of gentlemen, some of whom at all events are not enclosed in envelopes, writing on their knees, evidently on account of a paucity of tables. There are, besides sundry figures who, if they were to appear in the streets of London or any of our highways, would be liable to the penalties of the Vagrant Act for indecent exposure ... “ [2].

The Mulready envelope wasn't universally panned however. THE MIRROR commented favourably on the design [32]. An editorial published just before the release of the envelope said: *“As a work of art it reflects the highest credit on the British school.”* An 1891 commentator suggested the reason for the Mulready disaster was that: *“Unfortunately, this design, however beautiful as a work of art, was altogether unsuited to the prosaic purpose for which it was intended.” [9].*

Matters were not helped by a monopoly dispute involving John Dickinson & Co., which had an exclusive patent on thread paper. Coloured threads were embedded in straight lines in the paper used to make the Mulreadys, as an anti-forgery measure. It was effective but expensive, and Dickinson lost the paper supply contract for postal stationery by 1859. De La Rue took over as the new monopoly, using ordinary paper for postal stationery [31].

Another difficulty that the British Post Office experienced was the preference of the general public for privately made envelopes,

rather than stamped envelopes. From 1846 to the middle of 1849, sales of unstamped envelopes more than doubled, while the volume stamped envelopes declined by about 20%. The reason was that unstamped envelopes were made of better paper and had gummed flaps. The Post Office finally took note of this and in 1850 introduced the new style envelopes [33]. It was also the case that some etiquette guides sniffed at using stamped envelopes for personal use [37]. There were occasional glitches along the way even as late as 1894, when an M.P. asked in the House of Commons why the latest 2 ½ d prestamped envelopes were so thin [39]. It seems the paper was so thin that the letter inside could be read, leading to complaints from the general public. The Postmaster General replied that there had been an effort to make the envelope as light as possible so that users had more weight available for their letters before going over the increment limit. Obviously it was too far in the extreme, and while the defective envelopes would not be recalled, the next batch would be on thicker paper.

By Gum, What'll They Think Of Next?

We take pre-gummed flaps on envelopes for granted, but it was not an obvious thing back when. As with all successes, there are several claimants to paternity (no one ever wants to take credit for failures such as the infamous Mulreadys). Henry Dobb of England was named as one father of mass-produced envelopes

with gummed flaps. But then again, so was a J. Smith, who sold the Smith's Patent Adhesive Envelopes, "*requiring neither wax nor wafer*" circa May 1847. Just as the first postage stamps included instructions on how to use them, so it was that Smith had to instruct his customers: "*These Envelopes are made perfectly safe in an instant; the flap of the Envelope being prepared with a strong cement renders it more secure than those which are fastened in the usual manner, the cement only requiring to be damped and the flap pressed down, after which it becomes dry and firm in seconds.*" [1].

The original mass-produced envelopes had ungummed flaps, since people still used sealing wax. An intermediate step to the gummed flap was to seal the flap with gummed labels, cut off from sheets with scissors as required. The labels could be privately produced, such as Isaac Pitman's labels with shorthand mottos on them [10]. A more obvious method was to put the postage stamp on the flap to seal the envelope, with the address obviously being written on the flap side as well [11]. Actually even today that makes more sense, as it would provide a better method of tamper-proofing a letter, but of course the universal practice is to keep the flap on the reverse side.

One minor bit of envelope silliness was recorded in the British postal system in the 1930s when a Scotsman sent a letter to his young lady and sealed the flap with the stamp.

Next to the stamp he wrote “*Hi diddle diddle, the stamp’s in the middle.*”. This was a mistake, as it attracted the attention of a postal official who noticed the letter was shortpaid and therefore assessed postage due with the equally cheerful “*Hi diddle day, there’s twopence to pay.*” [12].

Gumming envelope flaps was an inconsistent operation at first, leading an 1871 writer to complain: “*Who has not been annoyed again and again at the difficulty of opening letters with envelopes gummed up all along the top, as if they were never to be opened.*”. One method of obviating this problem was for the manufacturer to run a thread inside the flap and leave one end dangling outside the envelope [21]. The recipient then took hold of the thread end and pulled on it to neatly tear open the envelope. Although this type of envelope is still available today, its additional manufacturing cost has always kept it a specialty item. Tear strips, however, are more common on express document packages. Not all envelopes are sold with gummed flaps, even today. In China, circa 2000, the flaps were ungummed in humid areas [40].

Mass Production Of Envelopes.

Envelopes were no new thing in Rowland Hill’s time. There are occasional breathless reports in the philatelic literature announcing the discovery of ‘the earliest known envelope’, such as one that

detailed an 1833 envelope [22]. In actual fact, occasional use of envelopes is as old as paper, with examples known, for instance, from England in the 1500s [24] and 1600s [25], and France in the late 1600s and early 1700s [26,34]. General use of envelopes was known in France by the early 1700s but not in England until the 1840s [23].

Mass production of envelopes cut the cost considerably from pre-Hill days. In 1832, common envelopes were sold at one shilling per dozen, but by 1844 the wholesale rate had dropped to half a farthing each [29]. In 1837, envelopes sold at 2/6 per hundred, but this was as flat and ungummed paper, not a finished envelope. After preparing the enclosure, the corners were brought together under the seal [31]. In the transitional stage between individually handmade and mass production, it was common for individuals to have cardboard templates and cut and fold them personally [27]. There was no one single manufacturer or person who can be considered as the father of the envelope. Prior to 1840, envelopes were carried by stationers as a specialty item. When the demand increased after 1840, many people simultaneously went into the business of manufacturing them [6]. All manner of patented envelopes were created, and this would be a full-line philatelic collection in its own right [28]. By 1851, machines were in use that could cut 480 envelopes at one stroke, then automatically fold and gum them. De La Rue, better known to philatelists as a stamp printer, could manufacture 396,000 envelopes in a day [30].

Neo-Luddites Of The World Unite! You Have Nothing To Lose But Your Wax.

As with any new invention, there were always a voluble fraction who felt that nothing would come of the new-fangled idea. An indignant letter to THE TIMES in 1842 said that: “ ... *the envelopes are pretty playthings and convenient enough for invitation circulars, but they should never be used by the merchant or lawyer.*” [4]. Long before Sir Rowland Hill, the author Charles Lamb was fulminating against the use of envelopes. In August 1825, he wrote: “*You’ll know who this letter comes from by opening slap dash upon the text, as in the good old times. I never could come into the custom of envelopes. ‘Tis a modern foppery.*” [5]. In March 1826, he was still ranting that: “*I never enclosed one bit of paper in another, nor understood the rationale of it.*” [6].

The acceptance of envelopes with gummed flaps was quick among the general public. As early as 1845, an American etiquette book advised that: “*A lady’s letter should always be enclosed in an envelope, unless it is going some distance, and the postage would be increased by the extra sheet. ... All notes should be enclosed in envelopes. ... Wafers are of course never used; a large seal to a lady’s letter is in bad taste.*” [36].

Envelope Oddities.

In our time, the Internet has raised questions on points of law such as copyright infringement and cross-border taxation, which will take a number of years to settle in the courts and legislatures. Rowland Hill’s postal reforms stirred up many such issues, such as libels on postcards and illegible postmarks allowing murderers to go free (the infamous Madeline Smith of Glasgow). The advent of mass-production envelopes caused at least one concern in evidence law in 1842: “ ... *the postage stamp attached to an envelope in which a letter is merely enclosed will not qualify that letter to be read as evidence in a court of law, the postage stamp being required to be attached to the letter itself*” [8]. This matter has long since resolved itself in courts, but in the early years of Hill’s reforms it did not appear as simple as might be.

During the 1800s, it was the custom of American railroads to fire employees by sending them a blue envelope containing a letter of dismissal and their final paycheque [7]. No pink slips in those days. What happened on one railroad was that the company president began using blue envelopes for ordinary correspondence, sowing unnecessary alarm among his minions. One conductor who received a blue envelope with a routine letter had to go home and change his uniform! It was a lesson that had to be re-learned many times, such as the rural USA bank that sent out direct mail advertising in 1911

and got poor response [41]. They eventually discovered that they were using the same envelopes they used for dunning debtors. When the bank switched to a different style of envelope, they then started getting better sales.

Paper, at one time scarce and valuable, is now so cheap that we have to be reminded to recycle it. In modern times prior to the growth of the recycling industry in the late 1970s, wars provided a rare impetus to save paper. Envelopes in particular are obvious targets to be reused. The American War Between The States put the Confederacy in difficulty due to the blockade by the Union. Paper of all kinds were used for envelopes by the Confederates and envelopes were recycled by turning them inside-out [42]. Perhaps a record was the envelope re-sent 59 times between two boys in England during World War Two [38]. Each time they pasted a new address label over the old. It came a cropper on the 59th go-around when the weight of the labels pushed the envelope into the next increment of postage, and postage due was assessed.

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noticed by Dale Speirs

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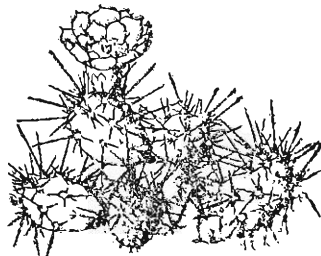
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Rosing, M.T., et al (2006) **The rise of continents: An essay on the geologic consequences of photosynthesis.** PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 232:99-113

“Earth accreted 4567 Myr ago from largely homogeneous material. From this initial capital of matter, differentiation formed the chemical and physical compartments of core, mantle, continents, ocean and atmosphere, that characterize Earth today. Differentiation was, and still is, driven by energy from various sources including radioactive heat and relic heat from accretion. With evolution of photosynthesis, living organisms acquired the ability to harvest solar energy and channel it into geochemical cycles. On our present Earth, the primary production from life contributes 3 times more energy to these cycles than Earth's internal heat engine. We hypothesize that the emergence of this energy resource modified Earth's geochemical cycles and ultimately stimulated the production of granite during the earliest Archaean, which led to the first stabilization of continents on Earth. Such biological forcing may explain the unique presence of granite on Earth, and why stable continents did not form during the first half billion years of Earth's history. We find it striking that stable continents did not form during the first 600–800

million years of Earth's history, and that there exists a temporal correlation between the emergence of photosynthesis and the rise of the continents. Although we do not understand the geochemical processes in detail, we claim that the environmental impact of a high rate of metabolic activity fueled by photosynthetic life caused a forcing of the weathering cycle, which eventually translated into an increased rate of granite production through the plate tectonic cycling of weathered primary crust.”

Kottela, M., et al (2006) ***Paedocypris*, a new genus of southeast Asian cyprinid fish with a remarkable sexual dimorphism, comprises the world's smallest vertebrate.** PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON 273B:895-899

“*Paedocypris* is a new genus of paedomorphic cyprinid fish from highly acidic blackwater peat swamps in Southeast Asia. It includes two new species, one of which (*Paedocypris progenetica*) appears to be the smallest fish and vertebrate known, with the smallest mature female measuring a mere 7.9 mm. *Paedocypris* has many 'larval' features typically associated with paedomorphic fish (e.g. narrow frontals that leave the brain unprotected dorsally by bone and a precaudal larval-fin-fold), but, uniquely among fishes, males also possess highly modified pelvic fins with hypertrophied muscles and a keratinized pad in front of the pelvic girdle, which, we hypothesize, function together as a clasping or

holding device, thereby suggesting an unusual reproductive mode. Unfortunately, habitat destruction jeopardizes the survival of these fishes and thus opportunities for further research.”

Wells, J.C.K. (2006) **The evolution of human fatness and susceptibility to obesity: an ethological approach.** BIOLOGICAL REVIEWS 81:183-205

“Human susceptibility to obesity is an unusual phenomenon amongst animals. Fat deposition peaks during late gestation and early infancy, and again during adolescence in females. As in other species, human fat stores not only buffer malnutrition, but also regulate reproduction and immune function, and are subject to sexual selection. Early hominid evolution was characterised by adaptation to a more seasonal environment, when selection would have favoured general thriftiness. The evolution of the large expensive brain in the genus *Homo* then favoured increased energy stores in the reproducing female, and in the offspring in early life. More recently, the introduction of agriculture has had three significant effects: exposure to regular famine; adaptation to a variety of local niches favouring population-specific adaptations; and the development of social hierarchies which predispose to differential exposure to environmental pressures. Thus, humans have persistently encountered greater energy stress than that experienced by

their closest living relatives during recent evolution. The capacity to accumulate fat has therefore been a major adaptive feature of our species, but is now increasingly maladaptive in the modern environment where fluctuations in energy supply have been minimised, and productivity is dependent on mechanisation rather than physical effort.”

González, S., et al (2006) **Human footprints in Central Mexico older than 40,000 years.** QUATERNARY SCIENCE REVIEWS 25:201-222

“The timing, route and origin of the first colonization to the Americas remains one of the most contentious topics in human evolution. A number of migration routes have been suggested and there are different views as to the antiquity of the earliest human occupation. Some believe that settlement happened as early as 30 ka BP, but most of the currently accepted early sites in North America date to the latest Pleistocene, related to the expansion of the Clovis culture, while the oldest directly radiocarbon dated human remains are 11.5 ka BP. In this context new evidence is presented in this paper, in the form of human footprints preserved in indurated volcanic ash, to suggest that Central Mexico was inhabited as early as over 40 ka BP. Human and animal footprints have been found within the upper bedding surfaces of the Xalnene volcanic ash layer that outcrops in the Valsequillo

Basin, south of Puebla, Mexico. This ash layer was produced by a subaqueous monogenetic volcano erupting within a palaeo-lake, dammed by lava within the Valsequillo Basin during the Pleistocene. The footprints were formed during low stands in lake level along the former shorelines and indicate the presence of humans, deer, canids, big felids, and probably camels and bovids. The footprints were buried by ash and lake sediments as lake levels rose and transgressed across the site. The ash has been dated to at least 40 ka BP by OSL dating of incorporated, baked lake sediments.”

Kubodera, T., and K. Mori (2005) **First-ever observations of a live giant squid in the wild.** PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON 272B:2583-2586

“The giant squid, Architeuthis, is renowned as the largest invertebrate in the world and has featured as an ominous sea monster in novels and movies. Our camera and depth recorder system recently photographed an Architeuthis attacking bait at 900 m off Ogasawara Islands in the North Pacific. Here, we show the first wild images of a giant squid in its natural environment. Recovery of a severed tentacle confirmed both identification and scale of the squid (greater than 8 m). Architeuthis appears to be a much more active predator than previously suspected, using its elongate feeding tentacles to strike and tangle prey.”

Parfitt, S.A., et al (2005) **The earliest record of human activity in northern Europe.** NATURE 438:1008-1012

Humans spreading out from their origin in Africa colonized the southern Caucasus about 1.8 megayears ago, and reached Spain and Italy about 780 to 800 kiloyears ago. This report discusses fossils in Suffolk, England, that date back to 700 kiloyears ago.

Bulte, E., et al (2006) **Megafauna extinction: A paleoeconomic theory of human overkill in the Pleistocene.** JOURNAL OF ECONOMIC BEHAVIOUR AND ORGANIZATION 59:297-323

“After centuries of debate, paleontologists are converging towards the conclusion that human overkill caused the massive extinction of large mammals in the late Pleistocene. This paper revisits the question of megafauna extinction by incorporating economic behavior into the debate. We allow for endogenous human population growth, and labor allocation decisions involving activities such as wildlife harvesting and (proto) agriculture. We find that the role of agriculture in deciding the fate of megafauna was small. In contrast, the presence of ordinary small animals that have been overlooked in previous non-economic extinction models is likely to have been much more important.”

“While a consensus appears to have emerged that implicates overkill, some researchers still believe that climate change was the principal cause of extinction. Our findings provide some middle ground between the two views. The results suggest the interaction of climate and harvesting might have played an important role in triggering the demise of megafauna. The reason why minifauna emerged as an important complementary activity in North America, and not more benign activities like large-scale gathering or agriculture, may be the harsh climatic conditions that prevailed in the late Pleistocene. The climate may have set the stage for humans to behave in a way that was detrimental for megafauna; the location of megafauna in relation to climate and the prevalence of agriculture is likely to be of special relevance. Finally, our results suggest that abundant small prey is a necessary condition for humans to reach critical densities to drive megafauna to extinction. Early humans were successful predators in a naive ecological system, and they could have quickly reached critical densities to wipe out major prey species, provided they had small animals as an outside option. In fact, we biased our model toward megafauna survival by ignoring technical change or learning-by-doing and ignoring possible adverse effects of human habitat conversion (e.g., habitat burns) on megafauna's potential to replenish. Nonetheless, our results suggest human overkill should be considered a real possibility, suggesting the popular image of early man as a “noble savage” living in “harmony with nature” might need revision.”

Nof, D., et al (2006) **Is there a paleolimnological explanation for “walking on water” in the Sea of Galilee?** JOURNAL OF PALEOLIMNOLOGY 35:417-439

“Lake Kinneret (the Sea of Galilee) is a small freshwater lake (148 km² and a mean depth of 20 m) situated in northern Israel. Throughout recent history there have been no known records of a total ice formation on its top. Furthermore, given that convection requires an initial cooling of the entire lake down to 4 °C, it is difficult to imagine how such a low-latitude lake, presently subject to two-digit temperatures during the winter, could ever freeze. Lake Kinneret is, however, unique in the sense that there are dense (warm and salty) springs along its western shore. We show that, because the water directly above the plume created by the salty springs does not convect when it is cooled down to 4 °C, freezing of the region directly above the salty springs was possible during periods when the climate in the region was somewhat cooler than it is today. We refer to this localized freezing situation as “springs ice”. The analytical ice-model involves a slowly varying approach where the ice is part of a thin fresh and cold layer floating on top of the salty and warm spring water below. During the ice formation process, the ice is cooled by the atmosphere above and warmed by the spring water below. The plumes created by the springs have a length scale of 30 m, and it is argued that, during the Younger Dryas when the air temperature in the region was probably 7°C or more

cooler than today, springs ice thick enough to support human weight was formed once every 27 years or less. ... -16-

On this basis, it is proposed that the unusual local freezing process might have provided an origin to the story that Christ walked on water. Since the springs ice is relatively small, a person standing or walking on it may appear to an observer situated some distance away to be walking on water. This is particularly true if it rained after the ice was formed because rain smooths out the ice's surface.”

Speirs: Nof reported in a sidebar story that he was getting about one threatening e-mail every three seconds for having published this research.

Hoyos, C.D., et al (2006) **Deconvolution of the factors contributing to the increase in global hurricane intensity.** SCIENCE 312:94-97

This study analyzed Atlantic hurricanes from 1970 to 2004 and showed that hurricanes are becoming more intense, with a greater number of category 4 and 5 storms. Of the variables affecting hurricane intensity, the only one that was correlated with this trend was sea surface temperature.