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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. A cumulative subject index for all issues is available on request.

LITERA SCRIPTA MANET

by Dale Speirs

The one invention of *Homo sapiens* that separates it from all other species is the invention of writing, a method of transmitting specific information not just from one generation to the next, but to generations millennia removed from the author and to others far removed in space. It is not perfect, however, if the language and alphabet die out, and we have many examples of that tragedy. THE DISAPPEARANCE OF WRITING SYSTEMS (2008, hardcover), edited by John Baines, John Bennet, and Stephen Houston, is a collection of papers presented at a 2004 conference at Oxford University.

John Bennet starts off by discussing the Linear A script used in Crete four millennia ago in the Minoan civilization of the Bronze Age. Arthur Evans, the first archaeologist to examine the script, wanted to believe it was a precursor to Greek. Subsequent studies showed the Minoans actually were Greeks, not ancestors. The majority of Linear A inscriptions found are on administrative documents (clay tablets) and stamped seals (the ancient equivalent of rubber stamps). The script was eventually replaced by Linear B, which is similar in structure. That replacement was swift, between 1450 and 1400 BC, and appears due to a new government in Crete trying to distance itself from the old culture. As Bennet writes: "*Linear A did not simply disappear; rather, it*

was killed.". It was not the last time that a new power tried to eradicate the past by changing the language and the script. Orwell wrote on its theory, and Mao Zedong did it in practice.

Next up, J. David Hawkins writes on the disappearance of Hieroglyphic Luwian, a Hittite language in what is now Turkey. Strangely, Luwian was written in hieroglyphics only for monumental inscriptions, while books and records were written in cuneiform script. The Hittite Empire fell circa 1200 BC, and the major use of cuneiform ended with it. However, various petty states arose from the wreckage, and hieroglyphic Luwian survived another five centuries. In 700 BC, the Assyrian Empire occupied those lands. The Assyrian kings had a policy of deporting enslaved subjects to other parts of the Empire and replacing them in their homelands with deportees from elsewhere. The idea was to disrupt local cultures and languages, and force a blending in a new culture. (The Soviets did the same thing 26 centuries later.) The new language was written in cuneiform, so that style made a comeback. Meanwhile, alphabetic systems of writing were slowly spreading north from Phoenicia and after a couple of centuries permanently displaced cuneiform writing once and for all. By then, hieroglyphic Luwian vanished into the dustbin of history.

Jeremy Black looks at "The Obsolescence And Demise Of Cuneiform Writing In Elam". The Elamite civilization was based in Iran, in the area adjacent to Iraq, and wrote its language in cuneiform for 2,000 years. Elam initially began using its own writing system circa 3200 BC, with up to 800 signs in the language. About 2300 BC, cuneiform writing was introduced from nearby Mesopotamia, and within a century the Elamite system was gone. The Elamites gradually adapted cuneiform to their language, and by 2000 BC their version of cuneiform was noticeably different from the Mesopotamians. The Aramaic language, written in an alphabet, gradually spread throughout the Middle East as a lingua franca, and displaced the Elam language. By the 800s BC, cuneiform Elamite died out, excepting that it was used for monumental inscriptions for several centuries afterwards, in the same way we still use Roman numbers today. As Black remarks, the interesting thing about cuneiforms is not that they died out, but that they lasted as long as they did.

David Brown takes this further in "The Growing Obsolescence Of The Cuneiform Script In Babylonia From 539 BC", where he discusses Mesopotamia and its use of cuneiform script. Although various conquerors swept over the country after 539 BC, Mesopotamia retained its legal and administrative writings in cuneiform for centuries thereafter. What finally killed it off were changes in the economy of the region as trade and political power shifted eastwards away from Babylon. Brown comes up with a surprising reason for these changes, the domestication of the camel in early first millennium BC that eventually spread across the Middle East.

The camel caravan enabled traders to take shortcuts across deserts instead of having to follow rivers or coastlines, which re-wired all the trade routes. Babylon was no longer essential, and fell off the trade routes, with only its temples providing any commerce or keeping up the old ways, including cuneiform. The rest of the Middle East went Aramaic and alphabetic for international trade. The Babylon temples continued to produce for sale various astronomical ephemerides and horoscopes written in cuneiform. Eventually the dead hand of tradition was over-ridden by scholars who found it easier to write with a pen in an alphabet than to press quills into wet clay. Fewer and fewer scribes studied cuneiform, and then there were none.

Kathryn Lomas looks at ancient Italy's transition from pre-Roman to Roman writing. The various tribes of Italy began urbanizing and forming complex societies, with distinctive scripts and writing forms, by the sixth century BC. Two centuries later, the Latin tribe began to predominate, and by 270 BC most of the peninsula was under their control. The Romans did not wipe out local cultures and languages, but rather became more and more dominant. By the first century BC, Latin had displaced most other languages on the peninsula. The languages remaining were increasingly written in Latin script, not the native script. Rome planted colonies throughout Italy, which acted as bases for Latin to spread from and out-competed local languages. In 90 BC, Rome extended its citizenship to anyone living on the peninsula, and Latin became the lingua franca. It was the elite's script and language, and every ambitious young businessman and military officer had to know it. Lomas makes the point that there was never any systematic attempt by Romans to eradicate other languages. They just simply overwhelmed them over time.

Richard Salomon asks "Whatever Happened To Kharosthi?", a question I'm sure has puzzled many of us in the clerisy. This Indic script was once widely used in the Kusana empire, in what is now northern Pakistan and eastern Afghanistan, but died out suddenly 1,500 years ago. It was a medium of Buddhist literature as well as the usual legal and bureaucratic records. The script came into existence as early as the fourth century BC, and was originally an adaptation of the Aramaic script to an Indian language. It was also used to write Sanscrit. Kharosthi seemed to be on its way to becoming a lingua franca in the Indian sub-continent when it abruptly fell out of use circa 200 to 250 AD. It was the Brahmi script which instead dominated thereafter. Salomon suggests that the decline dates from the break-up of the Kusana empire into petty kingdoms. Power subsequently shifted from the northern frontiers to the Ganges River drainage, where Brahmi script was used. There was no conquest involved; the scribes simply started writing their language in Brahmi script because that was what the dominant powers to the south used.

Martin Stadler discusses the demise of Egyptian demotic script, an everyday-use script that persisted long after hieroglyphics died out. The script eventually became restricted to religious purposes and died after 536 AD, when the last temple to Isis was shut down by order of the newly-Christianized government. The Egyptian priests had made the mistake of turning their religion into an exclusive one with secrets, as opposed to the rising Christianity which was open to all who would study the texts. Christians wrote in Greek or Latin, and since there was no restriction on their use, their alphabets spread widely and the languages universal.

Claude Rilly looks further upstream the Nile River to Sudan, and examines the disappearance of Meroitic script. It was the script of the kingdom of Kush, and lasted from 300 BC to 350 AD. Although the script is known, the language written in it is not, and the result is that texts can be recognized as Meroitic but not translated. The Kushites adapted their script from Egyptian demotic script, even though the languages were different. An analogy would be German, Italian, and other western European languages using Roman letters even though the languages are different. The Kushites did not follow the same system as Egyptian demotics, but instead used the script as a phonetic syllabary. (A syllabary is an alphabet where each sign stands for a syllable, not an individual letter or sound.) Strangely, they later adopted hieroglyphics for use as prestige inscriptions, such as monuments or proclamations.

During the six centuries of Meroitic script, the signs changed. The squat shapes of the signs became slender, so more text could be squeezed onto a sheet of papyrus, which was expensive. The signs became slanted, because it enables faster handwriting. Conversely, some signs developed long tails in formal documents, indicating calligraphy had developed. There was a tendency to weaker differentiation of the signs in a word, indicating that speed reading had developed. (Speed readers identify words by their overall shape, not by puzzling out each individual letter.) The Kushite kingdom was eventually overrun by the Nubians. Being Christianized, their alphabet was Greek/Coptic, although they incorporated three Meroitic signs into their script for Nubian sounds for which there were no Greek letters. The Nubians destroyed the Kushite elites, their religion, and their prestige, and with those gone, the Meroitic script perished in 350 AD.

M.C.A. Macdonald discusses the alphabets of the Arabian peninsula and the near-death of some of them. The invention of the alphabet in the second millennium BC was followed not long after by its split into two groups as it spread out. The most widespread was Phoenico-Aramaic, which became the ancestor of all alphabets in use today except one. The other half of the split was South Semitic, which was confined to the Arabian peninsula and left only one descendent living, when it jumped across the Red Sea into Christian Ethiopia.

The Arabic language was not written in script until the sixth century AD. Prior to that, it was a spoken language only. With the rise of Islam, the Arabic language spread. Through a complicated series of changes, Arabic script developed from the Phoenico-Aramaic alphabets but modified by South Semitic rules of writing. This led to the peculiar situation whereby today the alphabet used by Islam is descended from a Christianized alphabet, and the sole remaining Arabian peninsula alphabet is used by a Christian country. South Semitic rules of writing used dots on the letters to indicate vowels, and written Arabic followed this sometimes to excess. One Arabian governor remarked circa the 840s AD, when presented with an elaborate piece of Arabic calligraphy : "*How beautiful this would be if there were not so much coriander seed* [diacritical dots] *scattered over it.*"

Stephen Houston writes on "The Small Deaths Of Maya Writing", which scripts died out shortly before 1600 AD. He first makes a long digression into the subject of literacy before getting back to the subject at hand, which the editor of this anthology should have chopped out because it contributes nothing to the paper. Mayan scripts did not die out simultaneously everywhere across their empire. Rather, they died out in fits and starts, as individual villages gave up literacy under the stress of two major extended droughts which crippled the Mayan Empire and left it in a weak state by the time the Spanish arrived. Some places retained the script in corrupted form, reduced or simplified as teachers failed to pass on their knowledge fully. The Spanish were not solely responsible for the death of Mayan writing but did supply the final push.

"The Death Of Mexican Pictography" by Elizabeth Boone discusses a pictorial script that was used by Aztecs, Mixtecs, and others in Mexico to facilitate written communication between cultures of different languages. Pictographs expressed ideas or identified objects, which could be drawn by a speaker of one language and re-interpreted by a reader in a different language, much like Chinese ideographs. The Spanish conquest did not destroy the use of pictographs. Indeed, the conquistadors and priests went out of their way to collect manuscripts and bureaucratic records, in order to document their new possessions. Pictographic documents were accepted as evidence in Spanish courts and in communications to the homeland, and such documents were bound into codexes. Land titles and chattel ownership disputes were settled on the basis of pictograph records. Native scribes added new pictographs to represent the Spanish and their culture. Priests translated catechisms and biblical extracts into pictographs. As Spanish influence increased, pictographs became more phonetic, representing sounds instead of ideas. From there it was an easy progression to text instead of pictographs because it was faster to write letters than draw little pictures.

By 1600 AD, alphabetic Mayan script had taken over, and in the next logical step it was in turn replaced by the Roman script used by Spaniards.

Frank Salomon writes on "Late Khipu Use", the system of knotted cords used to store information in the Andean nations. I suppose it might qualify as a script of sorts. Although popularly associated with the Incas, it pre-dated them and survived them by four centuries. Khipu was not, as once believed, a mnemonic aid for messengers, but could be read by third-parties not in contact with the senders or messengers. It has been established as a base-ten code but no one has decrypted it. It was not based on a single language but was like pictographs or ideographs that could be read in any language as long as one knows what the signs mean. Strangely, the conquistadors accepted it for legal and commercial records, even though they never made any effort to learn it or document it as they did with written languages. Khipu records were allowed as evidence in court cases as interpreted by natives. Khipu lasted so long after the conquest because the natives preferred a means of record-keeping that the Spanish could not or would not understand. Fragmentation of the native elites as the Incan Empire fell apart meant fragmentation of the code used in khipu. Each local area that retained it, and they became fewer with time, developed its own code, making it impossible to communicate across the Andes with them. Once Spanish settled in as the lingua franca, the genuine use of khipu died out since it is easier to write an alphabetic script on paper than it is to tie knots in a bundle of cords. Khipu is still used today for ceremonial occasions, even though the natives no longer know the codes. This hasn't stopped antique dealers and tourist operators from creating new codes for gullible buyers.

Giovanni Stary writes about the Manchu, who first came into being as a political unit in the early 1600s and less than a half-century later ruled China. The Manchu and Chinese scripts and languages existed side-by-side, but the weight of numbers meant the latter eventually prevailed and swamped the Manchus. The script of the Manchus was borrowed from Mongolia in 1599 AD but because of differences between the two languages it was modified in 1632 and remained unchanged thereafter. The language fell in 1911 when the Qing dynasty did, but the epilogue is a strange one. The script held on as a lingua franca in Manchurian areas into the 1930s. The Manchu minorities quit using it because anyone wanting to get ahead in life had to learn Chinese. In the late 1980s, the Communist government began erecting bilingual signs in Manchuria to demonstrate their kind and gentle nature towards minorities, but since none of the locals can read their own script anymore, these signs are purely symbolical. (A similar situation exists in Alberta, where the Canadian federal government puts up English/French signs but few can read the latter because French was and is never commonly spoken here.)

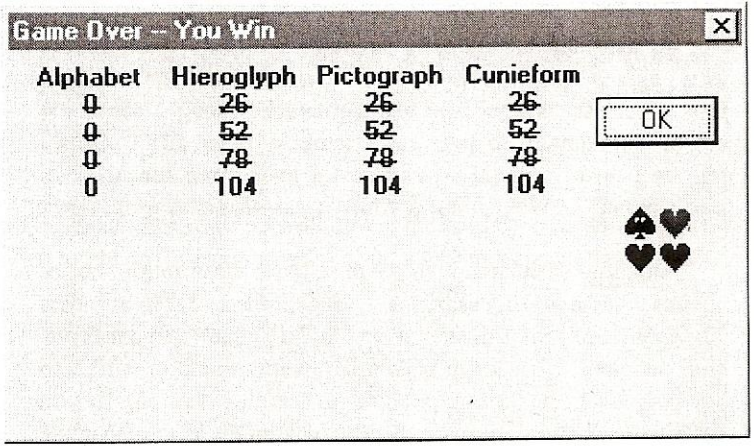
John Monaghan takes a different tack by looking at revelatory scripts, which are writing systems invented by illiterates who received them in dreams or visions. They mostly occur among peoples being colonized by imperialist nations. These scripts are not uncommon, although they usually disappear without leaving a good record due to the small number of people using them. Revelatory scripts are associated with religious movements and troubled times. The prophets who develop these scripts define them as an essential part of the religion, and those who learn it are on the path to salvation. Often only the inner circle of adepts are allowed to learn it, so as to keep the script pure and fixed. In African and Asian tribes that never had writing, these scripts were accepted as an attempt to elevate themselves to the level of the white man. The subjugated peoples correctly identified writing as one of the key sources of colonial power, as it enabled the overlords to communicate with each other at a distance in time and space without having to meet in person. Not surprisingly, the response of the overlords was to suppress the movements and the scripts, which were often as much nationalistic as religious.

Chris Gosden discusses "History Without Text". The loss of a script means the loss of history, and a reliance instead on oral history. The latter is quite often tied by mnemonics to the landscape. People remember specific names associated with hunting territories, farms, and pasture, and events with topographical features. Studies have shown they can by this method recall detailed genealogies accurate to 500 years in the past. Which, I think, explains so many ongoing ethnic feuds. I'm sure there are plenty of valleys in the Balkans or central Asia whose names translate along the lines of "place where the other tribe stole our chickens 500 years ago".

John Baines wraps up this book with a final summary "Writing And Its Multiple Disappearances". Writing requires considerable effort by cultures to sustain, such as teaching it, maintaining a redundancy of writers, and paying the cost of writing materials (cheap paper and pens are relatively new). Historically only a small percentage of the population used to be literate, and often it was only used by the local elite. A given script is more likely to survive if it is used by several different languages. As an example, the Latin language is dead but its script survived because it was used by various European nations. The vast majority of writing systems that once were, no longer are.

As with most anthologies, there is some unevenness in the contributions, but by and large this book makes interesting reading for those of us fascinated by the written word. Oral literature dies out with cultures but the written word has a better chance of survival.

Scripta manet, verba volat.



VAPOURPUNKT
by Dale Speirs

Steampunk, the idea of a Victorian world with steam-powered robots, mechanical computers a la Babbage, and other marvels, has been around for decades, but in the last few years it has surged. STEAMPUNK, edited by Ann and Jeff Vanderneer (2008, trade paperback), is an anthology of short stories and novel extracts from the last four decades. Jeff Nevins starts it off with an introductory essay in which he traces steampunk back to the 1800s, which actually puts it in the Victorian era. These were stories of steam men and electric horses. Nevins dates steampunk as a self-aware genre from the late 1970s/early 1980s.

The first story is an extract from the 1971 novel THE WAR LORD OF THE AIR by Michael Moorcock, who also wrote a sequel to it called THE LAND LEVIATHAN. The former is set in 1973 in an alternative timeline. There are zeppelins but it can't be considered AH since there is time travel and parallel universes. Not really steampunk but since I have both novels in my library I'll review them in some future issue and skip this first story for now.

Next up is "Lord Kelvin's Machine" by James Blaylock, a 1985 short story that was later expanded into a novel. A comet is approaching Earth, and a mad scientist is threatening to draw it in to an impact, destroying civilization as we know it. H.M. Government hope to cancel his threat by temporarily reversing the polarity of the Earth's magnetic field. (This is one of Hollywood's rules for sci-fi movies; save the spaceship/country/Earth/universe by reversing the polarity of something.) The heroes propose instead to activate some volcanoes and use them as thrusters to temporarily change the Earth's orbit and move it out of the way of the comet. Both methods would, of course, destroy civilization as we know it. The third method is to stop the mad scientist from carrying out his nefarious scheme, as it indeed works out. The ending of this story

will be instantly recognizable to any Sherlockian, a struggle between the hero and the mad scientist on the cliffs of a Norwegian fjord. It bears more than a little resemblance to Holmes' and Moriarty's final combat at Reichenbach Falls. All told, a good story.

"The Giving Mouth" by Ian Macleod starts in a mill town with a feudal society and steam horses. There is a blight on the land rendering the crops inedible, but the narrator, a young boy who will become the King, saves the people. Basically a boilerplate fantasy story with steam-powered horses. One neat little detail I liked was the horses grazing on coal seams and having headlights for eyes.

"A Sun In The Attic" by Mary Gentle has airships and steam engines, so that's alright then. It is, nonetheless, a medieval society. One faction thinks that there are some things man was never meant to know, and when a scientist invents the telescope, something must be done.

"The God-Clown Is Near" by Jay Lake is about a man named Ferrante who builds androids. The Sueno brothers have asked him to build a moral clown, but the supplied blueprints indicate a killing machine underneath the skin. The android will judge people and carry out the sentence as per Sueno, but Ferrante decides to even up the odds by using the brain of a goat in it, not a human. All very bizarre.

"The Steam Man Of The Prairie And The Dark Rider Get Down" by Joe Lansdale throws in a space-time continuum wrecked by a time traveler. There are rips in space, crashed flying saucers, a giant steam man, a vampire, and everything else but the kitchen sink. Timelines have been tangled and are collapsing together. The second half of the story turns into a splatter and graphic torture horror story. It reads like a New Wave story from the SF of the 1960s, but with more narrative sense and a straightforward plot, albeit gory.

"The Selene Gardening Society" by Molly Brown is a sequel to Jules Verne's "From Earth To The Moon", in which a Baltimore ladies club decides to take up gardening on the Moon. This would entail shipping compost up there for vegetables to grow on with, and in their turn produce oxygen. It would cost too much to buy gunpowder to fire the giant cannon repeatedly, so Plan B is to use giant electromagnetic rail guns. At this point the story abruptly skips forward to a successful ending, making for a dislocated narrative.

"Seventy-Two Letters" by Ted Chiang is a Victorian-era Golem story where science is the doctrine of names and signatures. Researchers study which names animate what type of golem.

As different types of golems are created to do different types of work, the automation of factories is taken as a threat by union workers who don't want to see their jobs taken over by golems. Meanwhile, in a separate thread of the story, scientists have determined that the human race will become sterile in five generations. Humans are being cloned from sperm but they are not sentient. The answer ties in with the golems. By stamping an unfertilized ovum with a name imprinted by a needle, a new human can be created, since every cell will be animated like a golem. There are consequences both expected and unexpected. Chiang does a good job in extrapolating the initial conditions and thinking through the ramifications.

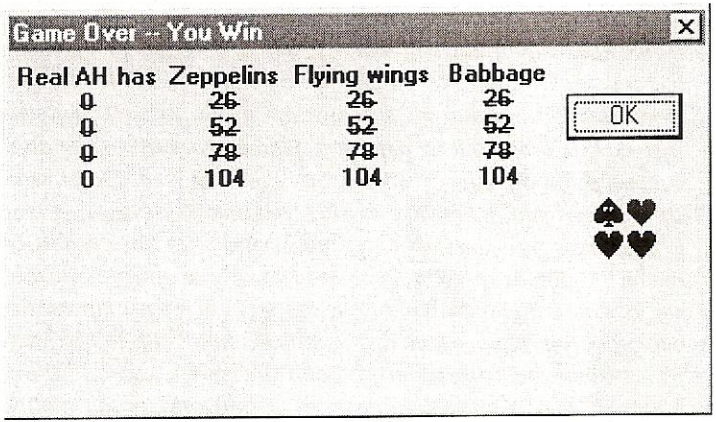
"The Martian Agent, A Planetary Romance" by Michael Chabon is an alternative history (there are airships) of 1876, where the British Empire still reigned over North America but for the French Louisiana Territory and the Republic of Texas. Despite the divergence, Abraham Lincoln and George Armstrong Custer still exist, albeit as freedom fighters against H.M. Government. The narrative is overwritten with florid adjectives in a style that even H.P. Lovecraft would consider excessive. The story concerns a failed revolutionary trying to reach the safety of the territory, while being pursued by steam-powered land sloops. The excess verbiage, intended by Chabon to be a homage to the Victorian era, renders this story unreadable in places.

"Victoria" by Paul di Filippo concerns an early-1800s scientist named Cowperthwait who has created an android from a mixture of newt and human cells that is a simulacrum of the newly-enthroned Queen Victoria. Unfortunately she has no intellectual capability, so he puts her away in a brothel. When the real Victoria decides to disappear and get away from it all, the Prime Minister substitutes one for the other. Meanwhile the search for the real Victoria meanders on through a steampunk landscape.

"Reflected Light" by Rachel Pollock is a vignette about a leatherworker in an oppressed land, expressing her thoughts on wax cylinders. The cylinders were invented a few decades earlier than in our timeline. Written well enough but only a vignette, not a short story.

"Minutes Of The Last Meeting" by Stepan Chapman is set in a Tsarist Russia with nanotechnology spy cameras and an invisible master computer to rule them all. The computer cannot stop an assassination attempt on the Tsar, but he survives somehow. The Tsar decides to detonate an experimental atom bomb as a warning to dissidents. In our timeline, people once worried that nuclear bombs would ignite the atmosphere. In the story's timeline, it really did.

"Excerpt From The Third And Last Volume Of "Tribes Of The Pacific Coast"" by Neal Stephenson is not steampunk but rather a post-apocalyptic battle between government forces and 4WD nomads. It reads well but is off topic.



SEEN IN THE LITERATURE
noticed by Dale Speirs

Lingham-Soliar, T., and G. Plodowski (2010) **The integument of *Psittacosaurus* from Liaoning Province, China: taphonomy, epidermal patterns and color of a ceratopsian dinosaur.** NATURWISSENSCHAFTEN 97:479-486

"Here, a specimen of the ceratopsian dinosaur, Psittacosaurus, presents some of the best preserved epidermal scales observed to date in a relatively small dinosaur, over wide areas extending from the head to the tail. Three types of scales are preserved, large plate-like scales, smaller polygonal scales or tubercles, and round pebble-like scales. The sizes of the plate-like scales vary in different parts of the body and vanish altogether posteriorly. Light and dark cryptic patterns are created by the associations of the tubercle and plate-like scales, and there is also evidence of countershading in the proximal caudal region, the body darker dorsally and lighter ventrally. Perhaps most impressive are the distinctive pigmented impressions of scales over most of the skeletal elements. The pigmentation follows the curvature of the bones implying that when it was deposited, the skin was still pliable and able to wrap around the visible parts of the elements. The present record of color is the first in a non-theropod dinosaur and only the second record in a non-avian dinosaur. Because of its resistance to degradation and ability to produce various color tones from yellows to blacks, we suggest that melanin was the dominant chemical involved in the coloration of Psittacosaurus. The data here enable us to reconstruct the colors of Psittacosaurus as predominantly black and amber/brown, in cryptic patterns, somewhat dull, but useful to a prey animal."

Garcia-Castellanos, D., et al (2009) **Catastrophic flood of the Mediterranean after the Messinian salinity crisis.** NATURE 462:778-781

"*The Mediterranean Sea became disconnected from the world's oceans and mostly desiccated by evaporation about 5.6 million years ago during the Messinian salinity crisis. The Atlantic waters found a way through the present Gibraltar Strait and rapidly refilled the Mediterranean 5.33 million years ago in an event known as the Zanclean flood. The nature, abruptness and evolution of this flood remain poorly constrained. Borehole and seismic data show incisions over 250 m deep on both sides of the Gibraltar Strait that have previously been attributed to fluvial erosion during the desiccation. Here we show the continuity of this 200-km-long channel across the strait and explain its morphology as the result of erosion by the flooding waters, adopting an incision model validated in mountain rivers. This model in turn allows us to estimate the duration of the flood. Although the available data are limited, our findings suggest that the feedback between water flow and incision in the early stages of flooding imply discharges of about 108 m3s-1 (three orders of magnitude larger than the present Amazon River) and incision rates above 0.4 m per day. Although the flood started at low water discharges that may have lasted for up to several thousand years, our results suggest that 90 per cent of the water was transferred in a short period ranging from a few months to two years. This extremely abrupt flood may have involved peak rates of sea level rise in the Mediterranean of more than ten metres per day.*"

Hyndman, R.D., and G.C. Rogers (2010) **Great earthquakes on Canada's west coast: a review.** CANADIAN JOURNAL OF EARTH SCIENCES 47:801-820

"[There is] *compelling evidence for past great earthquakes along the Cascadia subduction zone from Vancouver Island to northernmost California, and for present elastic strain build up toward future great events. There is evidence of sudden coastal subsidence up to 2 m and of deep-sea turbidite deposits indicating strong shaking from huge earthquakes at irregular intervals averaging about 500 years, the last in 1700. Precision geodetic measurements define the present buckling of the coastal region, diagnostic of elastic strain accumulation on a locked thrust fault. The landward extent of rupture and, therefore, shaking at coastal cities is constrained by (i) the pattern of elastic strain buildup, (ii) the estimated temperatures on the fault, (iii) the updip limit of episodic tremor and slip (ETS), (iv) the downdip change in reflection character of the thrust, and (v) the magnitude of coastal subsidence in the most recent, 1700, and previous great events. The major earthquakes are very large, M9, rupturing most of the Cascadia margin, but mainly offshore, limiting somewhat the*

shaking at inland cities but producing large tsunamis. The ETS that occurs at intervals of just over a year appears to involve slow slip on the subduction thrust downdip of the rupture zone that increases stress on the locked zone and may indicate time varying potential for great events."

[Another good reason not to live Vancouver.]

LETTERS TO THE EDITOR
[Editor's remarks in square brackets.]

FROM: Stuart Stratu 2010-07-04
Box 93
Paddington, New South Wales 2021, Australia

[Re: Ken Sanford's announcement of my new book THE HISTORY OF MAIL BOMBS] Part of my job involves working in and managing the mail room of a large museum. We've got big posters showing examples of potential mail bombs with markings, excessive postage, etcetera. Something arrived a couple of years ago that had most of the check points. I reported it to my manager, it was then reported to security who called the cops, who called the emergency services who had to X-ray it twice before deciding it posed no threat. It turned out to have been a Christmas card with bits and pieces (buttons, feathers) sent by a museum volunteer who had an intellectual disability.

[I've gotten occasional mail art items in the past that came over the border for which I'm amazed that Canada Customs didn't take them out to the firing range for dismantling by a remote-control robot. Here in Calgary, mailroom workers have learned that white powder is not cause for alarm, especially after Hazmat authorities adopted the practice of stripping them down and hosing them with disinfectant. This cut down false alarms dramatically after word got around.]

FROM: Sheryl Birkhead 2010-06-07
25509 Jonnie Court
Gaithersburg, Maryland 20882

Gold has been in the wish-I-could-buy-some state for many years. Each time I think I can afford to buy a small coin, I re-think the cost and it never gets done. I poked around on
the Internet,

looking at Maple Leaf coins, but finally stopped when I realized I couldn't feel confident in the sellers. Where do Canadians purchase theirs? Right now gold is out of the question, but maybe some small silver.

[You can purchase fractional-ounce gold coins if a full ounce is too pricey. In your case, American Eagles might be more accessible. For those who don't have a local dealer, there are reliable on-line dealers such as Kitco.com and Albern.com Both Maple Leafs and American Eagles are also available in silver, which is very popular in the USA because it is more affordable. The disadvantage of silver is that it is more volatile in price.]

FROM: Lloyd Penney 2010-06-15
1706 - 24 Eva Road
Etobicoke, Ontario M9C 2B2

Jules Verne is considered one of the fathers of steampunk, mostly because of that fictional yet appealing past, where there was detail in workmanship and adventures for the ladies and gentlemen who chose to pursue them. The continual re-writes of JOURNEY TO THE CENTRE OF THE EARTH shows it's a good story, but they seem to have formed the basic story to copy in whole or in part, much like LORD OF THE RINGS may have been the template from which most heroic quest fantasies come from.

FROM: Franz Zrilich 2010-06-01
4004 Granger Road
Medina, Ohio 44256-8602

Re: DOLLAR MELTDOWN: What we need here are a series of amendments to the U.S. constitution on having a gold-silver currency, no new direct or indirect national debt, discharging the national debt in ten years, and phasing out the indirect debt.

[The American constitution already specifies that the dollar must be a silver coin with a certain weight of silver. As far as national debts go, no politicians anywhere in the world are going to pay it down. They will instead inflate it away whenever it gets too big.]

FROM: Joseph Nicholas 2010-05-07
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Your assertion that agriculture will carry on in some form seems to ignore the fact that most organisms have evolved to operate in a very narrow range of temperatures, and cannot survive when pushed outside them. It's all very well to say that it would be

possible to graze cattle in the western Arctic, but without soil-fixing bacteria to support crops and invertebrates to sustain soil health, farming in the Arctic is unlikely to be very sustainable or last very long. Cattle are the most resource intensive of farmed livestock, one reason why early farmers preferred the hardier and more adaptable sheep and goats.

[The Canadian prairies have an annual temperate range between -40° and +35°C. Soil bacteria are just as abundant here and in the Arctic as anywhere else, and if climate change warms up the western Arctic, they, crops, and livestock would do just as well. As anyone can testify who has ever been in the Arctic, the prairies, or the boreal forest today, insects have no difficulty thriving. Rangeland cattle such as we had on our farm are far less intensive that any other type of animal husbandry. In Alberta, we refer to sheep as coyote kibbles; some people do raise them but only under intensive care conditions. Goats can only be kept in barnyards; coyotes like them even more because they don't get mouthfuls of wool while tearing out the meat. Our ranch was Charolais cattle, first imported into Canada from France in 1965 and which proved well adapted to the open range year-round. Yet they are also popular in tropical countries such as Brazil. Most crops in Canadian agriculture can survive in a wide range of conditions. Wheat is native to hot, arid Syria and Iraq, but the Canadian prairies produce lots of it, both spring wheat and winter wheat. Our pasture and hay grasses are all introduced but survive conditions not experienced in their original habitat in Europe. Alfalfa and its symbiotic nitrogen-fixing bacteria are unfazed by -40° winters, and are a major hay crop here. Apples, plums, cherries, and pears are common backyard trees that survive -40° to +35°C. Most vegetable crops are annual, so climate change doesn't enter in to it, but Alberta gardeners produce perennial vegetables such as asparagus, various herbs, rhubarb (I have a 50-year-old patch in my back yard), and horseradish.]

[Re: financial investing] You strike me as belonging to what's here the "maximising tendency", people who spend hours reading the financial pages, monitoring their investments on the Internet, constantly moving their cash assets from one account to another to obtain a better marginal rate of interest, always looking for incrementally better deals on their utility bills and other major consumption items. The majority of us, those whom you deride as preferring to watch television, belong to what's called the "satisfying tendency", people who make an investment choice or sign up with a particular utility company and then stick with that unless and until things start going seriously wrong. It is not because we don't care about our personal futures but because we have neither the time nor the inclination to search out and run down every last scrap of information that might give us another 0.5% here or save us 0.3% there. ... As government employees, Judith and I will have reasonable pensions to keep us through our twilight years and no debts to pay off.

[If you wait until things start going seriously wrong, it will be too late. I probably spend about two hours a week researching, reading, and transacting business to build up my portfolio. I do not day trade; my investments are buy-and-hold based on long-term fundamentals. The rest of the time my spare hours are taken up by recreational reading, hiking in the Rockies, volunteering with local clubs, publishing this zine, and just loafing about. Hint: if you have any savings or investments paying less than 4%, you are losing money because of inflation, so it is more than just eking out a 0.5% change.]

[I will be retiring on a government pension this year, but I expect that about ten years from now it will have been shrunk by inflation or cut back by cash-strapped governments, just as you and Judith will be hurting if you have the misfortune to live long enough. Like General Motors workers or Greeks, government workers around the world are in for a nasty shock about just how well their pensions will support them. Governments may or may not cut back pensions but they definitely will depreciate them by inflation. I well recall as a young man back in the 1970s watching people who retired on a good pension of $200/month in the late 1960s struggling to survive in the 1970s as inflation kicked in. People don't realize how fast inflation builds up.]

Re: GET THE SKINNY ON SILVER, I would be careful with metals. What are currently unknown deposits or uneconomic deposits might become not so.

[Like oil, they would require higher prices. There is no $40 oil left anywhere in the world. If gold dropped to $400, the mines would shut down because they can't produce it at a profit at that price. No new elephant fields of oil have been discovered since the 1970s, not even in Saudi Arabia, and all the new mineral deposits being mined today are low-grade ore. Recently there was a fantasy story in the mass media about Afghanistan having a trillion dollars worth of minerals. Does anyone seriously think that even if those deposits existed (the estimate is a back-of-the-envelope guess) they could be mined at a profit? In a mountainous country with no infrastructure, an endless civil war, and landlocked? If oil is so abundant, why would BP and Petrobras be drilling in water kilometres deep, then down twice as much through the bedrock? The Athabasca Tar Sands can only exist with high-priced oil in the $70+ range. It is not that we are running out of minerals and petroleum, but that our societies were built on cheap supplies that no longer exist, and now we must pay far more in currency and in environmental costs.]

I Also Heard From: John Held Jr, Pholx Icona, Mike Dickau, Ken Bausert, Peter Netmail, Anna Banana, Marc Schirmeister, Jason Rodgers