

# OPUNTIA

## 292

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When sending me an emailed letter of comment, please include your name and town in the message.



**THE CITY OF CHAMPIONS**  
photos by Dale Speirs

2014-12-02

The Calgary Stampeders defeated the Hamilton Tiger Cats 20 to 16 at Vancouver to win the 102<sup>nd</sup> Grey Cup on November 30. The official welcome-home ceremony was held today at City Hall Plaza. I'm not a sports fan but any excuse for a party, so I went on down.

I arrived early enough to be in the second row in front of the podium.

Turning around, I got this photo of about one-third of the crowd.





There were only two cheerleaders on the stage. The other one stayed at the opposite end of the stage, so I couldn't get a photo of the two of them together.



The Calgary Stampeders mascot is Ralph the Dog. The club logo is a galloping horse, the team name refers to our western heritage, and no one can say why Ralph the Dog is the mascot.





The Grey Cup is brought out. The funniest thing was that all the team players held up smartphones and tablets to photograph the audience and do selfies.

Mayor Naheed Nenshi at left, speechifying and welcoming home the team.



City Hall LRT platform after the ceremonies.



## DISCWORLD: PART 3. WITCHES

by Dale Speirs

The Witches story arc begins with the third Discworld novel *EQUAL RITES* (1987), set in the village of Bad Ass, the kingdom of Lancre, high in the Ramtop Mountains of Discworld. In other words, the boondocks. The book introduces Granny Weatherwax, an elderly witch who will reappear in many subsequent novels. She doesn't use too much in the way of magic, preferring herbalism and applied psychology as being easier, but she does have the ability to send her mind into animals and "borrow" them, frequently using birds for aerial reconnaissance.

The story at hand is about Eskarina Smith, a young girl who was mistakenly endowed with the powers of a dying wizard, about which she doesn't know. She was also gifted with a magical sentient wizard's staff that acts as her guardian. Granny doesn't hold with the idea of female wizards, and takes Eskarina under her wing to keep control, while engaging in a battle of wits with the staff. The time comes when Granny acknowledges that Eskarina has surpassed her teacher and must be taken to the Unseen University for further schooling, even though the wizards there hold that there is no such thing as a female wizard. The trip has its usual diversions and finally they arrive at the gates of the University.

A nine-year-old girl telling the wizards she wants to become one herself gets a big laugh, but Eskarina and Granny infiltrate below stairs and in the guise of servants become established inside UU. They meet a boy student named Simon who definitely has the makings of a wizard but mistakenly attracts the attention of the Things from the Dungeon Dimensions (and a tip of the hat to Mr. Lovecraft wherever he may be). There is a titanic battle with the Things, a tiff between Granny and the Archchancellor of UU, and other excursions. It ends well, more or less, as Eskarina is accepted as a student.

The book is a good start to the Witches series. Several characters pass by in the background who will take on larger roles in subsequent novels. The ending is slightly wimpish but not overly so, as there are several plot points that fizzle out with weak endings.

*WYRD SISTERS* (1988) is basically a rewrite of *HAMLET* from the witches' point of view. The three witches are Granny Weatherwax, Nanny Ogg, and the young Magrat Garlick. Lancre's king has been foully murdered and his infant

son is entrusted to the witches. They can't be raising a boy when the usurper to the throne is hunting for him, and therefore adopt him out to a traveling troupe of actors. In the intervening span of time, the usurper king consolidates his hold on the tiny kingdom, terrorizing the peasants even as he obsessively tries to scrub off the blood on his hands that keeps coming back no matter how often he washes them. He is smart enough to start a whispering campaign against the witches to keep them diverted by a semi-hostile population.



The parts of the play are rearranged somewhat from the Shakespearean text, but recognizable nonetheless. The reader will have no problem identifying the correspondences between the one text and the other, although some of the lesser parts are necessarily different in order to fit the Discworld story arc. Eventually the troupe return to Lancre wherein the play's the thing that will catch the

conscience of the King and send him into the next world after divers alarums. The novel reads well but Pratchett was basically coasting.

*WITCHES ABROAD* (1991) has the three witches obliged to journey to the land of Genua. The fairy godmother of Princess Emberella died and forgot to name a successor, leaving a messy intestate situation for others to clear up. Pratchett continues the witches series as another parody, this time adapting *Cinderella* as seen by all the other participants in the story. Emberella has two fairy godmothers, and Lilith, the surviving one, is determined to give her a happy ending by marrying a prince. This was a thing to be opposed, although not immediately stated why. Magrat ends up being the new fairy godmother, assisted and hampered by Granny and Nanny.

The witches set off on their journey. The novel is mostly a road trip story, with comic cultural clashes and misunderstandings, and the occasional alarum. There are ongoing gags, such as the trouble Granny has in starting her broomstick. It won't start flying immediately she hops onto it but has to be push-started by running with it along the ground until it finally kicks in.

Various fairy tales are acted out as seen from the viewpoints of supporting characters, and it becomes obvious that Lilith's insistence on happy endings is creating more misery than joy. There are the usual kerfluffles and hoorahs, a twist when it is revealed that Lilith and Granny are sisters, and the happy endings of Lilith are replaced by the happy ending of the three witches. The final 10% of the novel drags a bit and I started skipping a few pages to reach the denouement.

LORDS AND LADIES (1992) picks up immediately upon the witches' return to Lancre. Magrat is engaged to the young King Verence II, and the kingdom is abuzz with the planning of the nuptials. It being a Royal occasion, dignitaries from across Discworld will be in attendance, including wizards from the Unseen University plus their Librarian. But a different plot is afoot as well, for a magic circle of standing stones that has incarcerated the fairy folk of Lancre is failing, thanks to some wanna-be witches who botched up some spells. Fairies and elves are not nice people, some godmothers excluded. Granny and Nanny struggle to stop the elvish folk from crossing back into Lancre from inside the circle of stones.

The plot takes a while to get going, with premonitions that can't possibly live up to their advance billing. The elves break out of the standing stones just as the Royal Wedding moves into gear. One of the wizards is Ridcully, whose gets dewy-eyed with nostalgia over the kingdom he once knew before moving to the big city of Ankh-Morpork and the Unseen University, and dewy-eyed even more so over the woman he left behind. There is a battle with the elves and their queen, with no surprise as to who wins.

MASKERADE (1995) starts off with Granny and Nanny at loose ends because Magrat has gone off to be Queen of Lancre. Witches are supposed to pal around in groups of three, and who will take Magrat's place? While that question is being pondered in Lancre, the Ankh-Morpork Opera House is preparing its next opus, and is auditioning new singers. From Lancre comes Agnes Nitt, stage name Perdita X, who can sing wonderfully but weighs more than any two tenors standing about on the stage. The other performer is Christine, a Dumb Dora who is very sexy but can't sing. On the other hand, her father is the major contributor to the Opera House finances, so the director has no choice in the matter. There is also a man lurking in the shadows, almost like a phantom, so there's that plot taken care of then.

The two witches decide to make the long trip from Lancre to Ankh-Morpork to track down Agnes, whom they feel should know her place in Lancre instead of trying to better herself in the big city. The Ghost of the Opera House, meanwhile, is killing off stagehands and other important people, and insists that Christine be given the lead role in the opera. If you know who Gaston Leroux was, you can see the plot coming several chapters ahead of time. The main interest in this novel is a look at the practicalities of running an opera house, from the manager who wonders where the money is going to the concertmeister who must deal with inflated egos of prima donas and tenors. Agnes is in terror not of the Ghost but of the two witches, for she knows their good intentions will probably ruin her life and destroy her freedom.

The big night comes, revealing both the original Ghost who was a nice boy and didn't mean any harm, and a copycat Ghost, who decided to take advantage of the first one and let the blame fall on him. The Opera House is destroyed in all the ruckus, and Agnes has no choice but to come back to Lancre and take over Magrat's vacant position. The novel is a zero-reset story, which is unusual for Pratchett.

CARPE JUGULUM (1998) starts off a number of subplots. Agnes is settling down into a witch's life but is slowing becoming schizophrenic, with Perdita X pushing against Agnes inside her brain. Magrat had a daughter, and a ceremony is being held to celebrate. The priest who was to do the christening fell off a cliff, so Mightily Oats, a substitute from the Omnian religion has been called in. Granny has gone off in a huff about something, while Nanny is oblivious to events around her. The Nac Mac Feegle make an appearance, ankle-high picties with blue skin and red hair, bad Scottish accents, and ready to fight at the drop of a hat.

A family of vampires, Mom, Pop, Daughter, and Son, arrive in Lancre from Uberwald to see if they can't grab themselves a nice castle from which to terrorize the countryside. Since King Verence invited them to the christening, they can't be rid of. Count Magpyr is a modernizer, who has gradually conditioned himself and his family to eat garlic, not recoil at religious symbols, and defy all the other old-fashioned traditions that saddle parochial vampires who refuse to recognize that the Century of the Fruitbat is almost over and it's time to adapt to modern ways. Consequently, Magpyr and his family are having no difficulty taking over Lancre. They still feed on blood. Agnes is still a wishy-washy boneless wonder afraid to do anything, but her alter-ego Perdita is gradually taking over and asserting herself.

The Magpyr clan seem unstoppable. They have telepathy, hypnotic powers, and the count can see through the eyes of every magpie bird in the kingdom. The vampires wage war against the witches. The Nac Mac Feegle and assorted other mythical creatures have lost against them in Uberwald and now seem to be on the same losing track in Lancre. But after many pages of trouble and setbacks, the kingdom of Lancre is finally zero-reset and the vampires vanquished.

The novel is a bit tedious in the last third but Pratchett does have some good ideas that make up for the plots that can be seen coming from a distance. As he does in other Discworld novels, he introduces characters who try to change things and drag their fellow denizens into the Century of the Anchovy. Whether or not they succeed, Discworld isn't trapped in a permanent medieval state, unlike so many other fantasy series where the culture and technology never change, just the quests and those fighting for the throne.

“The Sea And Little Fishes” (1998) is a Granny Weatherwax short story which appeared in the fantasy anthology LEGENDS (Volume 3) edited by Robert Silverberg. Granny regularly wins the Witches Trials competition each year in the Ramtops, and a self-appointed committee of witches decides that it is unfair. They approach her about gracefully stepping aside, which of course gets her back up. She steps aside with ill grace and from a distance sabotages the committee's efforts to put on a good Trials. I'm not sure what Pratchett's point was in writing this story. It appears he is against committees staging local fairs but the story instead illustrates Granny Weatherwax in the worst light possible.

[to be continued]

## **SIDEWALK ART**

photo by Dale Speirs

While I was walking down the Stephen Avenue pedestrian mall to the Grey Cup party, I spotted this scrap-iron sculpture of a busy businessman on his cellphone.



## WHAT AILS US?

by Dale Speirs

*BOWLING ALONE* (2000, hardcover) by Robert D. Putnam looks at trends in civic engagement, why the decline in non-profit organizations, what the effects are, and what is to be done.

### **We Are Not Alone.**

Professor Putnam starts off by pointing out that the decline of clubs and social groups is not specific to one or a few activities, be they stamp collecting, science fiction fandom, or aquarium keeping. He illustrates this with examples from the Glenn Valley, Pennsylvania Bridge Club (died in the 1990s after 50 years), the Roanoke, Virginia, NAACP chapter (down from 2,500 members to 57), and many others. The rate of youth participation in sports relative to population is stagnant or declining since the 1960s.

Some statistics can be misleading. The number of non-profit organizations has doubled since 1968, but very few are mass-membership organizations. Average membership size for a group is now one-tenth of what it was. Many are actually advocacy groups, not social groups. Most only require a cheque to pay the annual dues, and are basically mailing lists such as Greenpeace, rather than genuine social groups such as Rotary. The members of advocacy groups never meet each other and have no long-term commitment to the group. As Putnam writes, "*Probing further reveals that mail-order 'membership' turns out to be a poor measure of civic engagement.*". Not only the quantity but also the quality of the membership has been affected: " ... *the more demanding the form of involvement, actual attendance as compared to formal membership, for example, the greater the decline.*".

Chapter-based national organizations which use face-to-face relationships to recruit memberships have low but steady memberships. Organizations using high-pressure direct mail recruiting, where members write a cheque and never meet others, have a turnover of as much as 85% (Greenpeace, 1990 to 1998) despite higher totals. The renewal rate of the National Rifle Association is 25%. Says Putnam of passive mass-membership groups: "*Citizenship by proxy is an oxymoron.*".

It should be noted that while a number of non-profits are apparently increasing their membership, their relative ratio as a percentage of population is declining.

Passive activities, such as spectatorship at professional sports games, visiting museums, and attending concerts have increased, but playing in a local league, going to a club meeting, or learning a musical instrument have declined.

### **Social Capital.**

Putnam bases his thesis on the concept of social capital, the idea that social networks have value. He writes: "*A society of many virtuous but isolated individuals is not necessarily rich in social capital.*". Social capital benefits the individual in job hunting, companionship, or a helping hand, but it also benefits the community at large with the spillover effect to non-participants.

There are two types of social change. Intra-cohort changes are basically fads within a particular generation, such as Pokemon among children or SUVs among yuppies. This type of change comes and goes quickly. Inter-cohort changes occur gradually as the tastes of one generation are swamped by the next. Rock-and-roll, for example, drowning out jazz and swing.

Volunteering is more common in small towns than big cities. It peaks in the age bracket of late 30s to early 40s, a reflection of the fact that most people only volunteer for youth activities while their children are young. Volunteering for charitable activities is most likely in people with active social networks such as local clubs (not just paying dues but actual attendance at meetings). Putnam writes: "*When volunteers are asked how they happened to get involved in their particular activity, the most common answer is, 'Someone asked me.'*".

### **The Consequences.**

One result of the decline of social capital is a trend to paid help in supposedly volunteer organizations. Instead of a local party worker contacting a voter during an election campaign, it is now a call-centre operator from the other side of the continent. "*Financial capital, the wherewithal for mass marketing, has steadily replaced social capital, that is, grassroots citizen networks, as the coin of the realm.*", writes Putnam.

This decline sets off a chain reaction and affects even those who still want to volunteer. There has been a more rapid decline in collective activities such as public meetings, rather than individual activities such as writing letters to the editor. Those who want to take collective action can't find enough people to work with, and give up in despair.

Less-involved people pay less attention to the news, whether newspapers or television. This is generational. 60% to 70% of people born before World War Two follow the daily news on television or newspapers. Only 40% of the Baby Boomers (born between 1945 and 1965) do, and about 30% of Generation X (born late 1970s to 1980s).

### **Arresting The Usual Suspects.**

Putnam devotes a section of his book to possible reasons for the decline in civic engagement. He uses hard data to demolish some of these reasons. Time and lack of money are often offered as an excuse for not volunteering. Contrary to popular belief, the average person has about the same amount of free time as 25 years ago. What appears to have changed is that instead of blocks of leisure time that everybody had in common (evenings and weekends), we now work different shifts and have free time chopped up inconveniently. This is not the villain of the story though, as studies show people busy at work also do more volunteer work, illustrating the truth of the saying that if you want something done, give it to a busy man. Further, the decline in social activity is just as steep for those who feel least harried for time as those who feel most harried.

Neither is the decline in social capital related to the ongoing decrease in real incomes (after inflation) which started in 1973. The decline began before the decrease, and is just as bad for financially secure people as those worrying about being laid off.

Women who work outside the home are less socially active, but this only mirrors the trend for other groups. Divorce rates and working moms cannot be blamed, since the decline began before those two increased. Again, neither can the heavy hand of government or big business (WalMart wipes out the small businessmen who belonged to social clubs) be blamed.

Our mobile society cannot be condemned either. People who move house frequently tend to have less involvement in their community. Mobility rates have actually gone down from 20% of the population in 1950 to 16% today. Two-thirds of the people today are now homeowners.

While urbanites are less likely to become involved than small town dwellers, the majority of urbanization in North America was completed by the 1960s. What did change over the past few decades since was that more commuters now travel from suburb to suburb rather than suburb to city core. Putnam remarks that: “

... *each additional ten minutes in daily commuting time cuts involvement in community affairs by 10%*”. People with long commutes don't want to go out of the house on evenings and weekends. Their friends and co-workers are scattered over a wide area, not in a well-defined closely-knit neighbourhood of easy access.

Since the decline of social capital began in the 1960s, the Internet cannot be used as a scapegoat. Internet users, when sorted by social class and education, are indistinguishable from non-users for civic engagement. In other words, nerds are nerds, whether on-line or off-line.

### **Smoking Guns.**

Previous civic activity was boosted periodically by wars, of which World War Two was the greatest in impact. People of that generation (80% of men born in the 1920s served in the military) got civic mindedness because everyone was in it together.

Television for entertainment has increased with each new generation, and is now 4 hours per day for the average viewer. It pulls people into their houses and away from social activities. It is one of the ringleaders in the decline of social capital. Putnam notes that: “*The more fully that any given generation was exposed to television in its formative years, the lower its civic engagement during adulthood.*”. Stamp collectors, for example, fondly hope that kids started on the hobby will come back as adults in later years, but that will not happen as it did with the pre-WW2 generation. If those kids do come back, it will be as lone wolf collectors, not club members.

### **Blame It On The Boomers.**

The Baby Boomers are not as active as their parents in social groups. As the population ages, the older volunteer workers are dying out while there are fewer younger ones. There has been a 40% decline in social group membership since 1973, regardless of race, gender, education level, or geography.

Putnam remarks that: “ ... *virtually all of this decline is attributable to generational replacement: members of any given generation are investing as much time in organizational activity as they ever were, but each successive generation is investing less.*”

The problem is lack of younger members, which seems to have begun in the late 1960s. Normally the bulk of volunteers are middle-aged, as they have the time, experience, and money for civic involvement. This led people to expect a surge of volunteerism in the 1980s from the Baby Boomers. The surge never happened.

Baby Boomers do not volunteer as much as the 1910 to 1940 generation does, and this carries on regardless of what age the Boomers are. That is, a Boomer is not likely to volunteer after retirement if he didn't in his 40s. [For the record, I am a Boomer born in 1955.]

If age determined volunteerism, then social clubs should have begun an increase in the 1980s as the Boomers reached their 40s and 50s. Instead, as Putnam writes: “ ... *each generation that has reached adulthood since the 1950s has been less engaged in community affairs than its immediate predecessor. ... This generational math (coupled with the civic differences among the successive generations) is the single most important explanation for the collapse of civic engagement over the last several decades. ... Thus a generational analysis leads almost inevitably to the conclusion that the national slump in civic engagement is likely to continue.*”

An appendix of 40 different organizations from a variety of hobbies and causes displays the trends of the past century. The graphs confirm the burst of social capital after World War Two and its decline in the late 1960s and 1970s.

### **What Is To Be Done?**

Putnam considers that methods of restoring social capital must be different than before: “*Our challenge now is to re-invent the twenty-first century equivalent of the Boy Scouts ... What we create may well look nothing like the institutions Progressives invented a century ago ... we should be wary of straining our civic inventiveness through conventional filters.*”

The old methods will not work on the younger generations, no matter how successful in the past. Putnam does not provide specific methods to overcome the problem. He can't, he says, because the new world being born will have to invent things we can't conceive of, we who are of previous generations.

### **In Which I Interject My Opinion.**

I have until now not been too worried about the future of the organizations I belong to. I always relied on the idea that as Boomers reached retirement age, they would begin to volunteer. But the masses of hard data and graphs, sorted by generation, have shaken my confidence that my generation of Boomers and the subsequent Generation X will reverse the trend. Putnam has presented convincing evidence that doing things the way they have been done is a recipe for continued decline.

Stamp collectors say that kids will come back to the hobby as adults. While some do, their numbers are too few to sustain stamp clubs. Aquarium keepers fondly believe that their kids will carry on the hobby, but I wonder why in my twenty years in this hobby I have only seen one or two return out of dozens.

That the next generation will do things differently is shown by one blind spot that Putnam unwittingly illustrates himself. He discusses how the decline in voters in elections might be reversed. This decline is confined to post-WW2 voters, for the war generation still vote as much as they ever did. The younger generation, however, do not believe that voting or petitions or writing letters to elected politicians will make a difference. The politicians are bought off by multinationals and slick lobbyists in three-piece suits.

The younger people are just as involved politically as their elders, but they do not register in the statistics because they have shifted to direct action. And direct action works. The World Trade Organization never paid any attention to traditional lobbyists from environmental or social movements, but the Battle In Seattle stopped them cold and forced them to put those concerns on the agenda. Like it or not, and rant against anarchists if you wish, but that is how politics of the future will be done by a generation that has no faith in elected representatives.

What of stamp clubs and aquarium keeping and science fiction fandom? Many organizations are learning now that their new recruits are coming from their Web sites, not the shopping mall displays or annual shows. The idea of regular monthly meetings may have to change if everyone is working shift and can't come out on first Wednesdays of the month.

Anecdotal evidence that your club is booming must give way to the general statistics. Before you write in that your club has increased and is doing well,

ask yourself the following questions.

- 1) Is the increase due to the activity and enthusiasm of one or a few members? If so, what happens when they burn out a few years from now or get transferred out of town?
- 2) Is the increase absolute or relative? If your town has grown by 10% in population but your club has only grown 5%, that is a warning.
- 3) What is the distribution of generations in your club? Divide your membership into the WW2 generation, the Boomers, and Generation X. Which generation is doing most of the actual work needed to run a club?

I don't have answers as to how to reverse the declines, anymore than Putnam does. I agree with him that new methods of recruiting must be experimented with, and the old ways rigorously examined. Anecdotes about how it was when you were young fail to note that your memories are ancient history to the Boomers and Generation X, for whom the Boer War and the Vietnam War are almost contemporary chapters in a boring history book they had to read in class. What is important is not how things were when you were young, but how they are to your children and grandchildren.

### **The Internet.**

Since Putnam wrote his book, the World Wide Web has become pervasive throughout our lives. "Social media" is a term no one heard ten years ago but is now taken for granted with Facebook, Twitter, and the rest of them. The problem is that the Internet generation now growing up confuses retweeting a snappy remark with direct action. People like a Facebook page against some evil and then sit back thinking they have done their part.

In science fiction fandom, the Comic Cons and their ilk are now considered the standard by the next generation. They do not volunteer for small conventions but are happy to spend hundreds of dollars and stand in line for hours to see actors from a television series that was cancelled years ago. Stamp collecting is still a viable hobby but the younger generation of philatelists now buy from eBay and get their information from Wikipedia instead of going to club meetings. The Internet does not encourage socializing in the truest form, just tweets and blog trolling. In the real world, vicious comments are controlled by a punch in the face, whereas bloggers can drive a female gamer out of her house from fear. Politically-correct outsiders can destroy a fan-run convention with one emailed complaint. Welcome to the next world, Prof. Putnam.

### **THIS JUST IN FROM YOU TUBE**

by Dale Speirs

Someone who knew I'm a farm boy mentioned to me that there were several You Tube videos showing cowboys attracting herds of cattle by playing the trombone or some other bass wind instrument. This made me envious that we didn't have such things back on the ranch and had to round up our cattle the hard way.

My father Cecil was a livestock veterinarian who grew up on a south Saskatchewan homestead. When I was eight, he bought a quarter-section of land just north of Red Deer in west-central Alberta. Since he was busy with his practice, the herd were rangeland cattle, the least intensive type of farming there is. There were about 200 cows, who were bred in late August or September so they would calve the following spring. This would mean 400 head on the pasture, which was unsupportable on a single quarter-section.

All the farmers surrounding us were the same age as Dad, so he couldn't rent or buy their land. Each year he rented rangeland in various places, and every spring we drove the herd out to summer pastures and brought them back again in October. They would then be culled, the best ones fed hay or grain over the winter, and the rest sent to the auction mart. See OPUNTIA #60.5 for a detailed report and photos of one of our cattle drives.

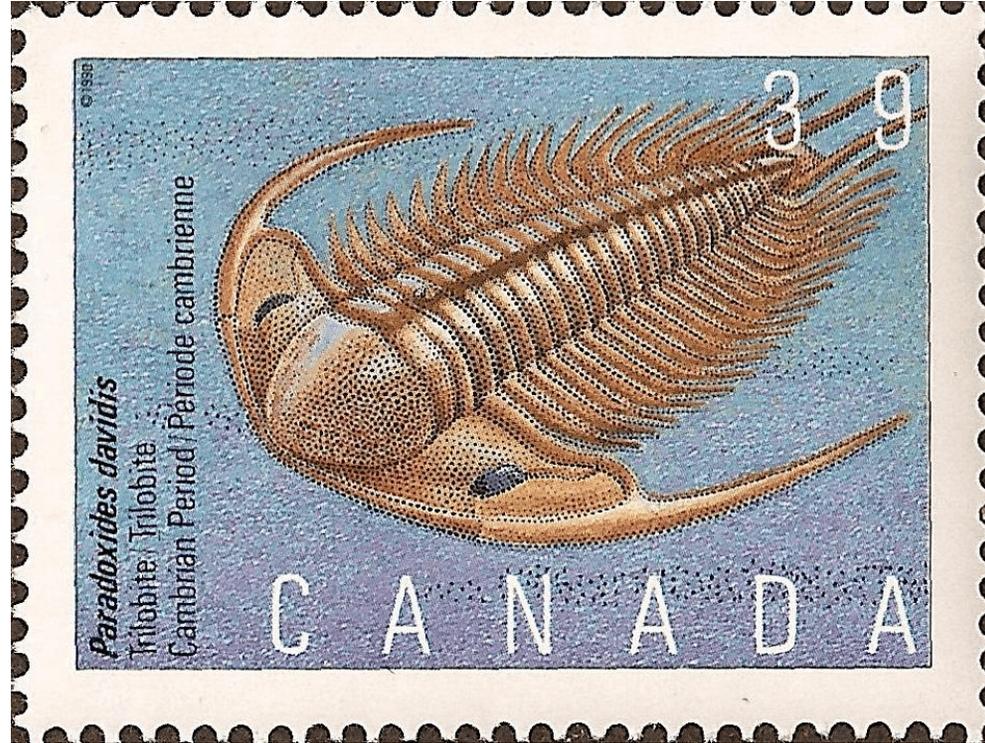
Starting about a week before each cattle drive, we would haul grain out to the place where we wanted the cattle to assemble for the drive. At first they would wander by during the day and discover the patches of grain. Then they figured out the grain was dumped there every morning after sunrise, so by the day of the drive, they would be waiting for the grain. Except of course, on Der Tag, there was no grain, just the cowboys and drovers.

There were always one or two suspicious cows who didn't want to go, and hid back in the bush. As a drover working on foot, one of my unpleasant jobs was to locate such cows and chase them to the herd. It wasn't so bad in the poplar bluffs, but every pasture seemed to have one patch of impenetrable scrub willow covering muskeg. I had to leap from one tussock of grass to another, and if I slipped, I'd get a boot full of muck to squish in for the rest of the day.

If only I had known! If only I had taken up an instrument like the tuba or trombone! It would have been so much quicker. Cowboys today have it easy.

## SEEN IN THE LITERATURE

Fatka, O., and P. Budil (2014) **Sheltered gregarious behavior of Middle Ordovician harpetid trilobites.** PALAIOS 29:495-500

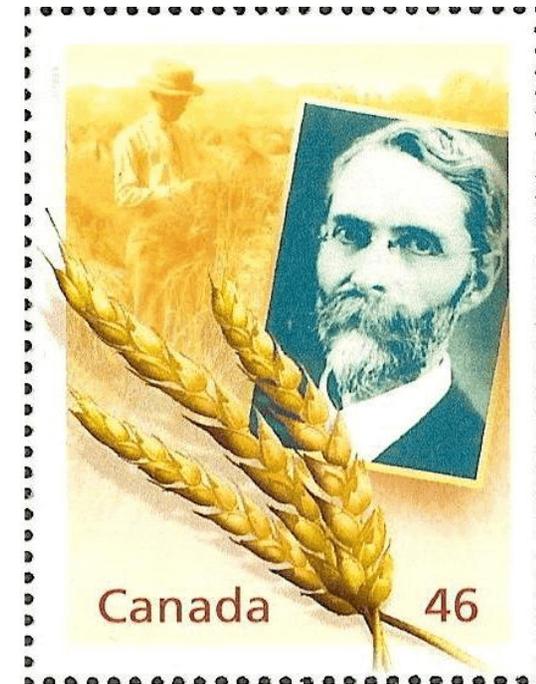


Authors' abstract: "The presence of six articulated exoskeletons of late holaspid specimens of the rare harpetid *Eoharpes benignensis* entombed under a pygidial shield of the large asaphid trilobite *Nobiliasaphus repulsus* from the Middle Ordovician Dobrotivá Formation of the Prague Basin, Czech Republic is interpreted as a unimodal monotaxic trilobite cluster. The sheltered preservation of the trilobites may be explained as; (1) hiding behavior associated with predation pressure; (2) storm disturbance; or (3) molting associated with feeding. It is herein suggested that these Middle Ordovician holaspid trilobites deliberately entered the restricted space under a large isolated asaphid trilobite pygidial shield to find a refuge and shared the space within restricted shelters with conspecifics. The completeness of all specimens of the rare taxon *Eoharpes*, combined with the presence of more than one individual in this restricted space, excludes the possibility of transportation by bottom currents. This exceptional find represents an example of "frozen

behavior" and provides a new insight in the life strategy of Middle Ordovician benthic trilobites. Attack abatement, e.g., avoidance and dilution effects, is for the first time proposed as a possible explanation for this example of sheltered gregarious behavior in trilobites."

Chemla, K., and B. Ma (2014) **How do the earliest known mathematical writings highlight the state's management of grains in early imperial China?** ARCHIVES OF HISTORY OF EXACT SCIENCES DOI 10.1007/s00407-014-0139-3

Authors' abstract: "The earliest extant mathematical books from China contain a lot of problems and data about grains. They also betray a close relationship with imperial bureaucracy in this respect. Indeed, these texts quote administrative regulations about grains. For instance, the *BOOK ON MATHEMATICAL PROCEDURES*, found in a tomb sealed ca. 186 BCE, has a section in common with the "regulations on granaries" from the *Qin statutes* in eighteen domains, known thanks to slips excavated at Shuihudi. Mathematical writings also deal with official vessels used to measure grains. They cast light on statements from, and practices evidenced by, official histories and administrative documents."



Speirs: Civilization and bureaucracies began at the same time. You cannot have one without the other because someone must regulate the laws. The most important laws were taxation, and thus the early bureaucrats were the ones who developed mathematics and writing.