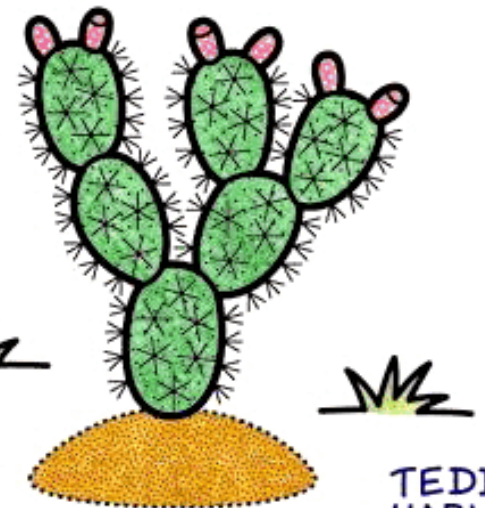




Prickly pear invaded Australia but, just like in War of the Worlds, were defeated by bugs.

We'd have won against those pesky moths if we'd had death rays like the Martians.



TEDDY
HARVIA

Early November 2016

Opuntia is published by Dale Speirs, Calgary, Alberta. It is posted on www.efanzines.com and www.fanac.org. My e-mail address is: opuntia57@hotmail.com When sending me an emailed letter of comment, please include your name and town in the message.

EDITORIAL REMARKS

by Dale Speirs

Teddy Harvia didn't know it when he sent in the cover for this issue, but he triggered fond memories for me. I was a student at the University of Alberta in Edmonton in the middle 1970s, reading for a BSc in Horticulture. One of my professors in pest control was a Visiting Scholar from Australia. He had been part of the team that imported *Cactoblastis cactorum* in 1925 into Australia, although he didn't join it until a couple of decades later when he was a young graduate student.

Pricklypears had been introduced Down Under and in many areas covered the land completely, wiping out countless hectares of arable land. The *Cactoblastis* moths did a tremendous job in eradicating pricklypears. The success of the moth was a textbook case of biological pest control, and we studied it as an example of how it could be done.

Sadly, I've forgotten the professor's name after all these years. He told me that in Queensland there were monuments erected in honour of *Cactoblastis* and at least one building named after it.

Alberta has the northernmost native species of pricklypears in the world. *Opuntia polyacantha* is the most common, found across the southern third of the province south of the Trans-Canada Highway, and an outlier population extending north of the highway along the Red Deer River badlands. *Opuntia fragilis* is rare but is found in dry habitats all the way up to the Peace River valley in northwestern Alberta. That makes it the northernmost native cactus in the world. Neither species is considered a serious weed.

Cactoblastis has spread in recent years from its origin in South America into southeastern USA, where it is killing off native *Opuntia* species that are not weeds. Now, rather ironically, there is research underway to control the moth.

LET MARS DIVIDE ETERNITY IN TWAIN: PART 7

by Dale Speirs

[Parts 1 to 6 appeared in OPUNTIA's #310, 321, 328, 332, 337, and 354. Reviews of the WAR OF THE WORLDS movies appeared in #289.]

Invasions: Nobody Believes You.

A favourite plot of SF invasions is about the hero who discovers an invasion is imminent but no one believes him. It's been done many times, not just with Martians but assorted other aliens and vegetable pods.

“Zero Hour” is an old-time radio (OTR) episode of MYSTERIOUS TRAVELER, written by Robert A. Arthur and David Kogan, and first aired on 1948-06-22. (This and other OTR episodes are available as free mp3s from www.archive.org) It begins with writer Keith Roberts being hired to write a biography of Prof Friedberg. During their conversations, the Professor tells Roberts that perhaps Mars has a civilization with spaceships that could travel to Earth. That ominous foreboding being established, it would be ridiculous for Martians to show up then and there, so the plot allows five months to pass by.

At that time, there is a report of an explosion in Montana, probably a meteorite. The Professor goes out to investigate, and Roberts tags along. At the crater, they find artifacts that prove the bolide was a spaceship. They then tangle with Martians who look exactly like humans. A Martian tells them he (it?) actually arrived seventeen years ago. The spaceship they found was not the first but the 411th. There are now 40,000 Martians infiltrated across Earth, preparing for a preventive war to stop Earthlings from going into space.

The Martian brags how Earth will be subdued, bwah ha! ha! The invasion begins on the evening of June 22; go back and look at the air date of this episode. Roberts escapes but the authorities won't believe him, the ones that aren't infiltrators. He is confined to a mental institution run by Martians, but is released just in time for the invasion. The plot is clichéd but the story moves briskly. The mp3 sound quality is good.

The idea that no one would believe a warning about an invasion is an obvious one for many writers, so it kept re-appearing. “The Embassy” is a 1955 episode of the OTR series X MINUS ONE, based on a story by Donald Wollheim. A private detective in New York City is hired by a client to find the Martian

embassy. This is nonsense but the client is willing to pay well. The first approach is to decide what such an embassy would do, such as subscribing to every scientific periodical and newspaper possible. From such deductions, the detective eventually succeeds in finding the place.

He foolishly accepts a cup of drugged tea from the dear old lady who is the front for the Martians. Briefly escaping, no one will believe him as anything more than a delusional drunk, and the Martians soon recapture him. They are preparing an invasion, and nothing can stop them now, not even bacteria.

The detective is just about to be murdered when he is freed by his client, who arrives and kills the Martians. The client then informs him that he is from Venus and was sent to forestall the Martian invasion so that Venusians can invade instead. He lets the detective go, secure in the knowledge that no one will believe him. And no one does. A well-told story.

Also from X MINUS ONE in 1955 was “The Parade”, written by George Lefferts. A stranger arrives at an advertising agency and initiates a multimillion dollar campaign for a mystery sci-fi movie. It will culminate on June 1st, named Martian Day, with a giant parade down Manhattan’s Fifth Avenue. The ad agency hires all kinds of performers to dress up as Martians, but the parade includes hundreds of real Martians, locked and loaded. As they march past the reviewing stand, they open fire on the mayor, state governor, and other dignitaries. And so the invasion begins.

Not a plausible story. While the denizens of New York City, and the radio show producers who live there, are used to thinking their city is the centre of the planet, a Martian invasion would hardly be effective that way. A few hundred storm troopers occupying Manhattan would be not bring the rest of the world to heel. An interesting idea for the Martians to publicize their invasion in advance, but the story could have been done better.

Invasions: They’re Here!

ALIEN CONTAMINATION is a 1980 European movie, written by Lewis Coates, that would be more enjoyable if it hadn’t been dubbed with harsh flat voices instead of using subtitles. A cargo ship drifts into New York City harbour, its crew dead from an unknown cause. The freighter is filled with cases of watermelon-sized green eggs, which explode when warmed and splatter acid all over its victims.

The quarantine officers find this out the hard way. One survivor assists a government agency which studies the eggs intensely and determines, at great length and expense, that the eggs explode and spray acid about, which the viewer already guessed.

The next step is to track the eggs back to their source. While that is going on, someone remembers a Marsnaut had discovered a cave full of green melon-sized eggs. He was discharged back on Earth as a loonie, and the other Marsnauts deny all knowledge. Flashbacks to Mars are inserted.

The discovery is made that the source and the Marsnauts are under the control of a big ugly slobbering monster with one eye and two mouths. It came back to Earth as a fertile seed that germinated and is now spreading the eggs it produces as part of a plan to take over the planet. It lectures the heroine about how it is unstoppable and soon Earth will be under Martian control. It doesn’t actually go “bwah ha! ha!” but that was probably a translation error when dubbing the film.

The monster is stymied when someone empties a machine gun into it. All is well, and the survivors congratulate each other on destroying the remaining eggs. In the last scene though, with an eye to a possible sequel, we see some of the eggs in a garbage can, ready to hatch. Someone in the biolab didn’t get the memo about the difference between destruction and just throwing them out in the trash.

“The Annoying Red Planet” is a 2008 episode, written by Paul Aitken, of MURDOCH MYSTERIES, a television series set in the 1890s. William Murdoch is a Toronto detective who uses Sherlockian methods and primitive forensic science to chase down criminals. There is a steampunkish feel to the series, with assorted gadgets and the occasional passing airship.

This episode opens with the body of Henri Gaston dangling from a tree. Was it suicide? Was it murder by Martians as Constable George Crabtree believes? Or was it a mundane murder, as Murdoch thinks? The deceased was an amateur astronomer when not at his trade of woodworking. Murdoch and Crabtree investigate his shop and find a powerful telescope and numerous documents relating to Mars.

Murdoch investigates Gaston’s shop, located in a valley where all the land had been bought out by a company which wanted to build an electricity generating

dam and flood the valley. Gaston was the last holdout, despite the company offering three times the value of his land. Crabtree, meanwhile, reads through Gaston's diary and other papers, and soon psychs himself into believing the Martians are coming.

The two officers find crop circles in a corn field, mysterious giant three-toed footprints unlike any Earthly creature, lights in the sky, and mutilated cattle. A second body shows up, that of a confidence man wanted by the North West Mounted Police.

It all ties together in the end. The land company is a front for a military conspiracy to develop a dirigible. The Martians are a diversion. Murdoch and the police are shut down by the Prime Minister's Office. The confidence man was a French spy, and Gaston was killed by mistake because the conspiracy thought he was the actual spy. Much to Crabtree's disappointment, the Martians are not coming.

THE WAR OF THE WORLDS by Manly Wade Wellman and his son Wade Wellman began as a series of short stories published between 1969 and 1972 in an SF magazine. They were then consolidated into a novel published in 1975 but which went out of print for decades. Titan Books has done a useful service and reprinted the novel. Because of its origin, the novel is episodic but it is still an enjoyable read.

The book is a mash-up of Sherlock Holmes and Professor Challenger, who deal with the invasion of Earth by Martians. The narrators change back and forth between Edward Malone, who was Challenger's Boswell in the same manner as Watson to Holmes, and Watson himself. Mrs Hudson is not the plump granny in the canon, but an attractive woman of a certain age who is Holmes's lover. They are discreet and Watson doesn't know.

The novel opens with the two men coming into possession of a crystal which transmits images from Mars. The crystal is evidently a communication device. The invasion soon begins, told as seen by Holmes and Challenger, with all the alarms and excursions one might expect.

The narrative shifts back and forth. Holmes patrols the abandoned city of London, watching the invaders from a distance and noting their vulnerabilities. It becomes evident that they can be taken out by a well-placed artillery shell, and later, they are picking up human diseases to which they have no resistance.

The story then shifts to Challenger, who has the crystal. He believes that the aliens are not actually Martians but just using that planet as a way station. After assorted alarms and excursions, he meets up with Holmes and Watson at Baker Street. They actually manage to capture a dying Martian, and pickle it in rum and any other booze they can find for preservative.

The end arrives for the invaders, as we knew it must. In the epilogue, Challenger uses the crystal to discover they have also tried to invade Venus, with even less success. Unfortunately the Wellmans got silly and finished off the novel with various mashups from Holmes stories and H.G. Wells himself, none of which added anything to the story. All told though, it is a good read.

Leaving The Cradle.

"Earth is the cradle of humanity, but we cannot stay in the cradle forever."
Konstantin Tsiolkovsky, 1911, the father of modern rocket science

RED PLANET (2000) was an \$80 million movie that bombed at the box office and deservedly so. It is a mixture of good SFX and bad science, much of the latter unnecessary as it could have been fixed in the script with no cost. The spacecraft SFX are good, with rotating wheels to provide gravity during the long trip. The script acknowledges the lag time for radio communications is about twenty minutes. Yet there are other blatant mistakes, detailed further on.

The movie begins with a portentous voiceover about how Earth was ruined by pollution, so Mars was therefore terraformed by seeding it with algae to produce an oxygen atmosphere and a new world for humans to live on. No one seemed to think about pollution control here on Earth, which was already happening in 2000, nevermind the year 2056 of the movie.

The oxygen level on Mars suddenly begins dropping, so a manned spaceship, Mars 1, is sent to investigate. Some slow stretches ensue en route as the crew emotes and reveal their cardboard characters. We see AMEE, an autonomous robot adapted from a military hunter/killer for Mars exploration duty. On arrival in Mars orbit, the tedium is relieved by a solar flare that fries Mars 1. Lots of electrical fires, as the use of circuit breakers has been forgotten by 2056.

One crew member stays on board for repairs while the others crash land on Mars along with AMEE. The body count then begins a steady pace, not helped by AMEE being damaged and reverting to military mode. The crew run out of

oxygen but on opening their helmets in despair to end it quickly, discover that there is breathable oxygen on Mars. Yet their sensors said there wasn't. Go figure.

The algae has disappeared, but they eventually find a patch. Native Martian critters, looking like aphids or cockroaches about the size of a thumb, have been eating the algae and giving off oxygen. This makes no sense because plants produce oxygen but animals produce carbon dioxide. The most glaring error is that the critters are obviously insectoid but the geneticist on the crew, of all people, refers to them as nematodes. Nematodes are microscopic white worms. This was something that could have easily been fixed in the script at no cost.

The last Marsnaut standing makes it to an old Russian lander that had failed to launch back up into orbit. He repairs it for use as an escape pod to reach Mars 1, but finds the battery for the ignition switch is dead. AMEE is still hunting him and shows up, ready to kill. After a fight to the death, it loses its life and its battery. The Marsnaut makes it back up to Mars 1. Cue the orchestra and closing credits.

This is a classic example of a movie that could have been improved immensely by more attention to accuracy and the fiddly little details. What is particularly grating is that most of the changes to improve it would have cost little or nothing.

“The Emperor Of Mars” (2010 June, ASIMOV’S) by Allen M. Steele is about life on one of the Martian colonies, narrated by the General Manager of one of them. An employee of his, Jeff Halbert, has received the worst possible news; his pregnant wife and his parents were killed in a car crash. He drifts into insanity from the shock.

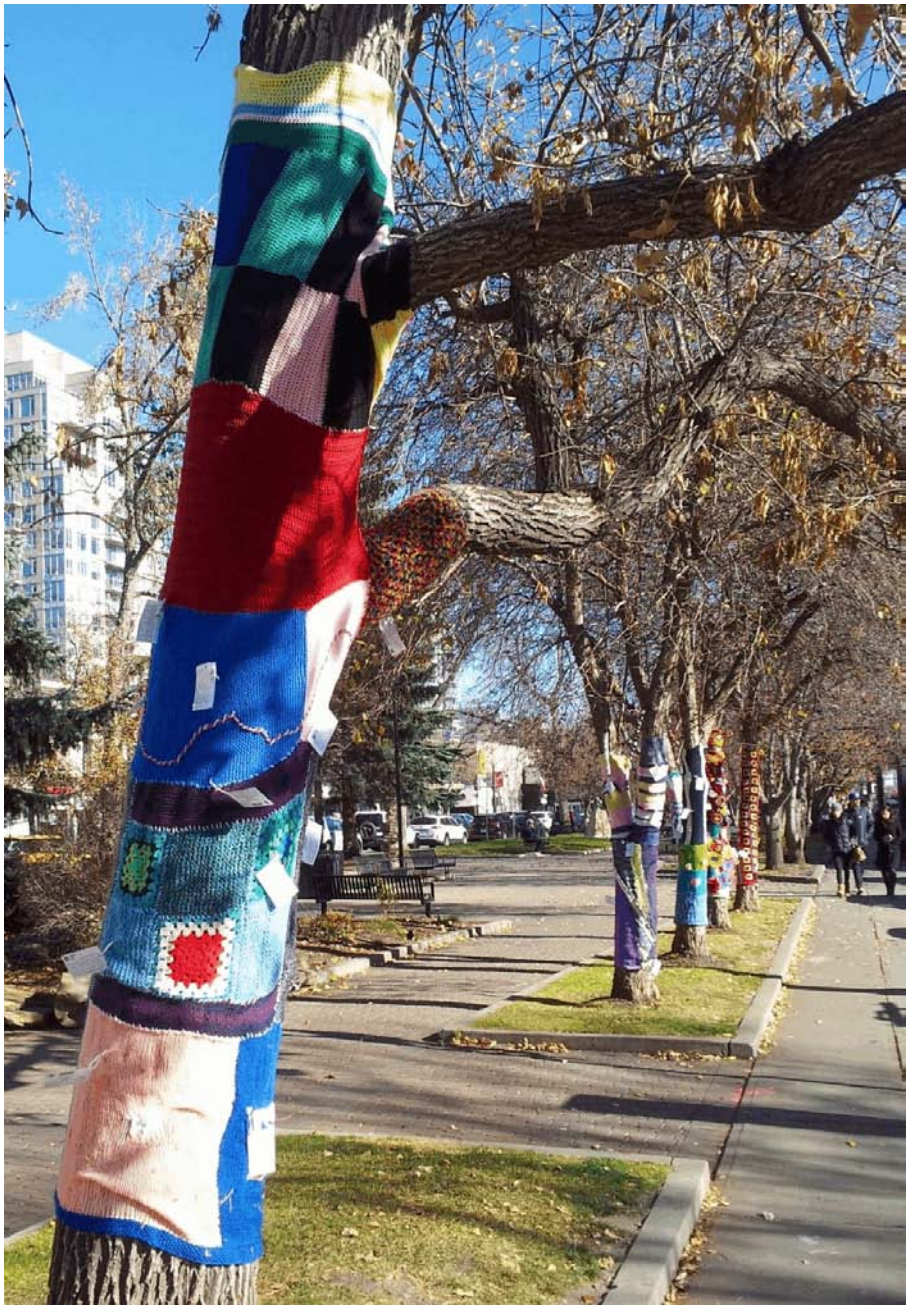
As a way of compensating, he begins reading every available SF story about pre-Mariner Mars. He begins to assume the identities of the characters he reads about, one by one in succession as he works his way through all the old-time SF about Martian civilizations and derring-do by Earthlings. Eventually he comes to believe he is the Emperor of Mars, and demands to be addressed accordingly, naming the General Manager as his Prime Minister.

Everyone else humours him because the next ship home is fourteen months away and they have no choice. His retreat into Martian fiction keeps him non-violent until he can go back to Earth for treatment.

INVASION OF THE GRANNIES

photos by Dale Speirs

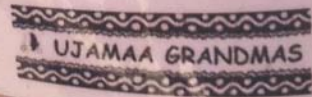
Yarnbombing seems to have become a popular sport in Calgary. In OPUNTIA #312, I showed a house completely covered in yarn. The photos below were taken at Tomkins Park, at 17 Avenue SW and 8 Street in the Beltline district.



These trees were Yarn Bombed by Ujamaa Grandmas.
We are a group who raises money & awareness for the
Grandmothers to Grandmothers Campaign of the Stephen
Lewis Foundation which helps support grandmothers &
children in sub-Saharan Africa suffering from the effects of
the HIV/AIDS pandemic. www.ujamaagrandmas.com

Fundraising Events:

Fabric & Yarn Sale - April
Bags, Babies & Beyond Sale - Oct.
Bake Sale - Nov. @JusticeFilmFestival



17 AVENUE SW BLUES
photos by Dale Speirs

In the central part of Calgary, the City tries to ensure that road closures blocking major arteries only take place on weekends. After taking the above yarnbombing photos on a Saturday, I then turned around 180° and took these photos. They are all within a stone's throw of Tomkins Park. Which is why I take the bus or walk as much as possible. No matter where you go in Calgary, the lane you are driving in is closed 100 metres ahead.



NO TRAFFIC JAMS FOR ENTANGLED PHOTONS IN COWTOWN

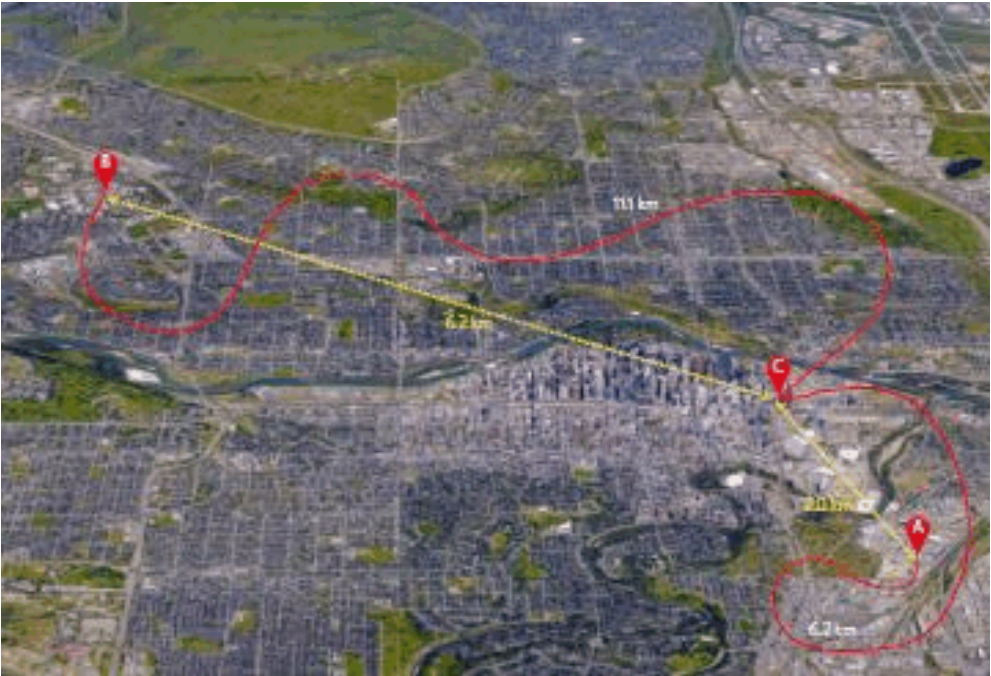
Calgary made international scientific news recently with the longest yet teleportation of entangled photon states. Under the leadership of Dr Wolfgang Tittel at the University of Calgary, the quantum state of a photon was teleported 6.2 km across Cowtown, using the City of Calgary’s fibre optic network. The trick was done during off-hours, when the City agreed to shut down its entire state-of-the-art network to allow only a single photon to be transmitted.

The abstract of the paper is: Valivarthi, R., et al (2016) Quantum teleportation across a metropolitan fibre network. NATURE PHOTONICS, DOI: 10.1038/NPHOTON.2016.180

“If a photon interacts with a member of an entangled photon pair via a Bell-state measurement (BSM), its state is teleported over principally arbitrary distances onto the pair’s second member. Since 1997, this puzzling prediction of quantum mechanics has been demonstrated many times. However, with two exceptions, only the photon that received the teleported state, if any, travelled far, while the photons partaking in the BSM were always measured close to where they were created. Here, using the Calgary fibre network, we report quantum teleportation from a telecom photon at 1,532 nm wavelength, interacting with another telecom photon after both have travelled several kilometres and over a combined beeline distance of 8.2 km, onto a photon at 795 nm wavelength. This improves the distance over which teleportation takes place to 6.2 km. Our demonstration establishes an important requirement for quantum repeater-based communications and constitutes a milestone towards a global quantum Internet.”

The aerial view is taken from the paper. B is the University of Calgary, C is City Hall at the east end of the downtown core, and A is the main City yard with its computer server systems and public works maintenance shops.

If I understand quantum teleportation properly, its immediate use is that if anyone intercepts a message on an entangled network, they would alter the state of the entangled photon, which would then instantly alert both sender and receiver. Einstein himself said that quantum teleportation was “spooky” (his word), so if he had trouble understanding it, who am I to figure it out.



A bit about the geography of the photo. The view is looking due north. My house didn’t make it into the picture, alas; it is outside the map far to the bottom left. The big green area at upper left is Nose Hill Park, the easternmost foothill of the Rocky Mountains. The river running horizontally across the picture is the Bow River. The meandering river coming up from the bottom of the photo is the Elbow River, so-called because of its many right-angle bends and loops. Fort Calgary was established on August 28, 1875, at the junction of the two rivers.

The light-grey area in the centre of the photo is the downtown core, on the bottomlands of the Bow River. Actually all the light areas are bottomlands. The darker grey areas are a plateau, the first steppe of the Canadian prairies. Calgary straddles the boundary line between the flatlands stretching east to Manitoba, and the mountains to the west.

The downtown core was the pioneer settlement. Notice its sharp southern boundary, which is the transcontinental railroad. Prior to its arrival in 1883, Calgary was a hamlet huddled around the fort. The post office opened on October 1, 1883. The postmaster dropped the Fort part of the name, and the actual fort itself soon disappeared.

MORE COWTOWN HISTORY

photo by Dale Speirs

When the North West Mounted Police built Fort Calgary, it was only ever intended to be a temporary post. If the transcontinental railroad had not come through in 1883, the settlement would at best be a hamlet today. The native tribes were pacified sooner than thought, and the fort was no longer necessary.

The NWMP built a large barracks on the east side of the fort, after which the fort was then used for stables. When the Mounties converted to automobiles, the fort decayed and was ripped out without any thought to posterity, since it had been built on the cheap as a quick fix to house the troops. The area is today Fort Calgary Park.

I took the photo below in the summer of 2016, looking northeast. The palisades mark the outline of where the fort once was. The white building in the background is the permanent barracks, restored and now a museum about the Mounties. The river junction is just behind the barracks.

The Bow and Elbow rivers are not visible from this angle. You will notice the rising ground. Paradoxically, during the great flood of 2013 that covered the downtown core for a week, this area remained dry because it was just high enough. (See OPUNTIA's #264 to 265 for the story of the worst flood ever to hit Alberta.)



TRANSIT FANNING IN CALGARY: PART 14

photos by Dale Speirs

[Parts 1 to 13 appeared in OPUNTIA's #256, 258, 260, 264, 269, 275, 283, 298, 302, 327, 333, 341, and 348.]

Calgary Transit's LRT system began in 1981 and has steadily expanded over the decades. It is fully integrated with buses. Tickets, transfers, and passes are good for both systems and riders can switch back and forth without paying an additional fare.

Many of the original trains are still in service, but have gradually been dwindling away as they reach the end of their life spans. In the early 2000s, a second-generation train came into use, and this autumn, third-generation trains began operating. The 1980s trains will become a distant memory sooner rather than later, so I have been photographing them.

I was prompted to do so by a story my mother once told me. All her life, photography was her hobby. As a teenaged girl in the rural village of Eckville in west-central Alberta, she photographed just about everything. Everything, that is, except steam locomotives, which were so common as to be part of the unnoticed background. Suddenly they disappeared in the early 1950s. Almost overnight, not just figuratively, the railways yanked them out of service and brought in diesels. My mother told me that it was one of her life's regrets that she never took a single photograph of a steam locomotive at the Eckville station.

That encouraged me to do a lot of photography around town, not just of special events or places, but mundane buildings and other things that might suddenly disappear overnight. Every town has stories and sights to see. I'm surprised that more zinesters don't run regular photos of their hometowns in the way that I have been doing with this zine. If you live in a big city like Calgary, there should always be something to photograph. Now that we have cellphone cameras, it is easier than ever.

Getting back to the new LRT trains, they are popularly known as Black Masks, from their default colour scheme. Over the next few pages, you'll see them and past styles of trains.

At right, a Black Mask train on October 25 in the downtown core.



Black Mask trains have way more glass than older trains, including the doors.



Top: the original 1980s style. At bottom: the early 2000s style.



The interiors have changed dramatically. The emphasis now is on cramming as many commuters as possible into trains for the peak hours. These three photos show the sequence of changes in interior styles, from old to new trains.



IN FLANDERS INTERCHANGE, THE POPPIES BLOW
photos by Dale Speirs

For the past couple of years, Crowchild Trail SW has been obstructed by construction on a new interchange at Flanders Avenue. It replaces an obsolete narrow two-lane bridge that dates back to when Crowchild Trail was a country road. The new interchange opened on October 31, and I attended the Grand Opening ceremony, it being only a ten-minute walk from my house.

Below is the architectural rendering, looking northwest across Crowchild Trail. The bridge has not one but three roundabouts, which should confuse any out-of-town drivers most efficiently. The buildings at lower right are an existing school and townhouses. On the left of the freeway, they are fantasies.

Both sides of the freeway were part of Canadian Forces Base Calgary before it was closed in 1997. The right side has been fully redeveloped, but the left side is still barracks and WW2 aircraft hangers.



The demolition of the old bridge on 2015-09-05.





There was a street festival on the new bridge that brought out Calgarians by the thousands. If there's one thing Cowtowners like, it's any excuse for a party.



The politicians were out in full force. Kent Hehr is the federal Minister of Veterans Affairs, but was there mainly because the bridge is in his riding. Don't complain about how hard your life is; he has been in a wheelchair since he was a teenager. He was a provincial legislator before entering federal politics.



Calgary Mayor Naheed Nenshi, first elected in 2010, is the only Muslim mayor of a large North American city. Behind him are the old military barracks.



The barracks have been converted to special-needs schools.



Looking south down Crowchild Trail.



At right: Part of the festivities on the bridge.



SEEN IN THE LITERATURE

Chisholm, R.H., et al (2016) **Controlled fire use in early humans might have triggered the evolutionary emergence of tuberculosis.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 113:9051-9056

Authors’ abstract: *“Tuberculosis (TB) is caused by the Mycobacterium tuberculosis complex (MTBC), a wildly successful group of organisms and the leading cause of death resulting from a single bacterial pathogen worldwide. It is generally accepted that MTBC established itself in human populations in Africa and that animal-infecting strains diverged from human strains. However, the precise causal factors of TB emergence remain unknown. Here, we propose that the advent of controlled fire use in early humans created the ideal conditions for the emergence of TB as a transmissible disease.”*

“One important change experienced by these early fire-makers that, we argue, influenced the sporadic transmission of and susceptibility to pulmonary mycobacterial infection, would have been the addition of new contexts for human social interactions. For instance, fire would have provided light to allow social and subsistence activities to occur beyond daylight hours and food being brought to a central site for cooking and preservation, and fire maintenance would all have increased interactions and physical contacts among individuals. Early humans in these new contexts would necessarily have had greatly increased inhalation of smoke from fires used for these purposes but also by fires used to repel insects and other pests and possibly even for communication.”

“Indeed, the presence of small microcharcoal fragments in 300,000- to 400,000-y-old dental calculus samples taken from human remains at Qesem Cave is suggestive of accidental smoke inhalation from hearth fires. Although fire must also have been used at open-air sites, most Pleistocene evidence for controlled fire use from the archaeological record derives from caves. The biased record of fire use results, in large part, from geological and taphonomic factors, with cave sediments being more conducive to the preservation of charcoal, ash, and burnt bone.”

“Temporary shelters were also built by hunter-gatherers across the globe and were undoubtedly one of the keys to the successful occupation of wide-ranging environments by modern humans. Sheltered spaces such as caves and built structures are inherently social spaces, and camp fires act as a natural focal

point for social gatherings. Therefore, early fire makers occupying poorly ventilated spaces were likely to have been especially vulnerable to inhalation of smoke from fires.”

Speirs: So you see, smoking is bad for you.

Kappelman, J., et al (2016) **Perimortem fractures in Lucy suggest mortality from fall out of tall tree.** NATURE 537:503-507

Authors’ abstract: *“The Pliocene fossil ‘Lucy’ (Australopithecus afarensis) was discovered in the Afar region of Ethiopia in 1974 and is among the oldest and most complete fossil hominin skeletons discovered. Here we propose, on the basis of close study of her skeleton, that her cause of death was a vertical deceleration event or impact following a fall from considerable height that produced compressive and hinge (greenstick) fractures in multiple skeletal elements. Impacts that are so severe as to cause concomitant fractures usually also damage internal organs; together, these injuries are hypothesized to have caused her death. Lucy has been at the centre of a vigorous debate about the role, if any, of arboreal locomotion in early human evolution. It is therefore ironic that her death can be attributed to injuries resulting from a fall, probably out of a tall tree, thus offering unusual evidence for the presence of arborealism in this species.”*

“Lucy fell out of a tall tree at or in proximity to the distributary crevasse splay channel where her remains were found. Given the severity of the fractures, it is likely that the impact occurred on a hard surface, perhaps the dry bed of the channel itself, which would represent a near-zero stopping distance, thereby maximizing the transfer of energy produced by the fall. The body appears to have experienced minimal transport and rapid burial after death in order to retain the relative positions of the small fractured bone fragments. The location and severity of the fractures suggest that impact progressed from the feet and legs to the hip, arms, thorax, and head. Concomitant fractures and organ damage are witnessed in the most severe clinical cases and together contribute to the death of the victim. Although the fractures in Lucy’s humeri provide evidence that she was conscious when she stretched out her arms in an attempt to break her fall, the severity of the numerous compressive fractures and presumed organ damage suggest that death followed swiftly.”