IN THIS ISSUE

May Day 2017
May Day review from Monday May 1st.

The Un-Carrie Valley
Is it okay to bring actors back from the dead?

The Zookeeper’s Wife
Movie review.

A Home for Bees at Portland State
Portland State University launches apiary with honey bees and mason bees.

Profile of Housing Resources in the City of Roses
Interview with Kurt Briggs-Ungerer, Program Director at Portland Homeless Family Solutions.

Chenchya Under Scrutiny
Overview of the crisis in Chenchya.

Nintendo Switch
Nintendos switch on modern game consoles.

Exploring the Future of Portland’s Oldest Urban Forest
The Park Blocks, according to the Oregon History Project, constitute Portland’s first ever green space.

DAMN.
Album Review.

Portland State Earth Day Festival
April 21nd Portland State’s park blocks celebrated Earth Day.

CubeStats into the Future
Tiny satellites that operate individually, stacked together, or in unison.

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WHO WE ARE

The Pacific Sentinel magazine offers an inclusive forum incorporating in-depth content from the PSU community. We advocate on behalf of the marginalized, explore the merits of cultural artifacts, and initiate interdisciplinary communication.

Cover photo taken by Jessica Pollard
Illustrations by McKenzie Lee
Monday May 1, May Day—or International Workers’ Day—kicked off in the South Park blocks this year.

Many of the city’s participants gathered in Shemanski Park, and others attended the “Day Without Immigrants” rally outside of Smith Memorial Student Union. The crowd included students and community members, as well as union members from various unions within PSU and the community.

**PSU Community brings it back to education**

“I've been involved in community organizing for years at PSU, and it’s really hard to bring people together even around pretty basic issues, like keeping tuition affordable,” said rally organizer, PSU student and International Socialist Organization member D. Mazuz. Often, students can get too caught up with racial and ethnic differences to join together, according to Mazuz.

Organizers signed community members up for a new Emergency Response Network, intended to mobilize people in the case that Immigration and Customs Enforcement attempt to detain students or workers on or around campus.

“Over the last few years at PSU, I think there’s been a bit of a divide between a minority of student activists and the larger PSU community. While we’ve seen grassroots politics grow dramatically in this country since Trump got elected, we haven’t seen quite the same level of growth on campus,” Mazuz said.

The rally was endorsed by local groups such as 15 Now PSU, the Muslim Students Association, the ISO, and the Socialist Alternative as well as unions like the PSU Faculty Association (PSUFA) and PSU American Association of University Professors (PSU AAUP).

“Specifically, our union at PSU organizes for dignified and fair economic compensation of our highly skilled work, and to protect the academic freedom
to teach, and do research, free from those with political and economic power who are at times tempted to use that power to place limits on the pursuit of knowledge at the university,” said president of the PSU AAUP Jose Padin, a professor of sociology at PSU.

“I think unions are important for any working person because they [can] provide some non-economic benefits. Just connections to other human beings, which humanizes a workplace. Otherwise the workplaces be drudgery and be alienating so we humanize it that way. But also because as individuals none of us really has much power to change our working conditions. But collectively we do,” Padin said.

In 2014, Oregon Public Broadcasting reported that union membership was at 15.9 percent, compared to 38.9 percent in 1964. Across the US, union membership has declined.

“Unions have fundamentally a hard time conveying to workers what their value proposition is, how they’re really going to make workers’ lives better,” Glenn Spencer of the US Chamber of Commerce told the New York Times in 2013.

An article in The Atlantic from 2015 stated that workers in unions were 28 percent more likely to have employer-provided insurance and 54 percent more likely to have a pension. While overall union membership is declining, Latinx and African-American membership is on the rise.
May Day in Shemanski

“A Day Without Immigrants” soon joined the official May Day gathering at Shemanski park, where booths from different community organizations lined the square as Portland Aztec Dancers put on an almost hour-long educational dance performance for a small crowd.

The performance was followed by speakers who emphasized immigrant rights and workers’ rights.

“I feel like it would be wonderful if we could have a daylong fair rather than it have to just be a march, but a fair to celebrate and to have booths for our community organizations,” Padin said.

Later in the afternoon, the crowd left Shemanski Park for a permitted protest which was forcibly dispersed by police with the use of flash grenades.

According to OPB, police reported that projectiles had been thrown at them by protesters sporting “black bloc” attire, including unopened cans of Pepsi. Several store windows were broken, and a police vehicle vandalized.

Twenty five protesters were arrested and the permit was revoked, after the Portland Police Bureau declared the event a riot.

“While I don’t agree with how this small group of protesters acted, I think it’s important to be clear that the police instigated this situation. They tried to revoke the permit for a peaceful march that was in the middle of its route downtown, and clear over a thousand people off the street onto the sidewalks,” Mazuz stated.

“The actions of the Black Bloc aren’t intended to win over larger numbers of people to the struggle. In truth, those who participate in the Black Bloc seem to view the majority of people with disdain. But it’s going to take more of us, not fewer, in the streets and organizing in our communities and workplaces to fight against Trump’s attacks.” The Socialist Worker said in a statement on its website several days later.

The statement also voiced concern over the amount of children and undocumented immigrants in the crowd that were put at risk by the property destruction committed by black bloc protestors.

The first May Day occurred in 1896, when 350,000 workers went on strike to advocate for an eight hour work week. In Haymarket Square, in Chicago IL, someone at a demonstration threw a bomb that resulted in the death of several police officers and protesters.

Eight anarchists were arrested for the violence, and four of them were later put to death for the crimes. According to International Workers of the World, three were present at the Haymarket Square affair.

Today, May Day is considered an official holiday in 66 countries, but the US is not one of them. Rather, every first monday of September Americans celebrate Labor Day. Labor Day was made an official holiday by President Grover Cleveland and commonly commemorates the final days of summer.

In 1958, President Dwight Eisenhower declared May 1 in the US to be Law Day, as proposed by the American Bar Association (ABA). The ABA describes the day as “A national day set aside to celebrate the rule of law. Law Day underscores how law and the legal process have contributed to the freedoms that all Americans share.”

“We have labor day but it doesn’t have the same meaning,” Padin said, “I wish we could make kind of a holiday, a national holiday for the dignity of work more central and more salient to our identity...Our national identity in the US lies elsewhere, it’s not in recognizing the dignity of work.”

American Bar Association (ABA). The ABA describes the day as “A national day set aside to celebrate the rule of law. Law Day underscores how law and the legal process have contributed to the freedoms that all Americans share.”
The Un-Carrie Valley: 
Is it okay to bring actors back from the dead?

by Matt Berger

This past December, “Rogue One: A Star Wars Story” premiered in cinemas around the world. I, like many others, prepared myself for aliens, starships, Stormtroopers, and the anticipated return of Darth Vader to the big screen. What I was not prepared for, however, were two very familiar and unexpected faces which made comebacks in this new installment. Through the magic of motion capture technology, both Carrie Fisher and Peter Cushing’s likenesses were recreated to reprise their respective characters (Fisher as the brave Princess Leia and Cushing as the cold Grand Moff Tarkin).

This technology is only the most recent example of a phenomenon sweeping entertainment. Actors being resurrected or de-aged for films is slowly becoming a common occurrence in mega Hollywood blockbusters. Paul Walker’s likeness was resurrected shortly after his death to complete the story of his character Brian O’Conner in 2015’s “Furious 7.” In the Marvel Cinematic Universe, both Robert Downey Jr and Michael Douglas have been de-aged, as Marvel Studios turned back the clock on both actors for the films “Ant-Man” and “Captain America: Civil War.” Looking beyond film, dead celebrities have also been brought back as corporate tools in commercials since the late 1990s. The likeness of Fred Astaire was infamously used to sell vacuum cleaners back in 1997, and in a recent chocolate commercial, a young Audrey Hepburn makes an appearance. This tool is becoming a norm in media and film and is obviously here to stay.
But none of these experiments in visual trickery have ever held a deeper impact as the inclusion of Cushing in “Rogue One.” Most of these digital effects have involved a still living actor. Cushing, a fan-favorite of the Star Wars franchise and an icon of the Hammer Horror studio during the 1960’s, has been deceased for over twenty years. The monumental task of recreating the actor was only possible thanks to a life mask molded of the actor in 1984. This, along with his filmography, were the sole reference points for the wizards at Industrial Light and Magic (ILM) in San Francisco. Apart from the performance of Guy Henry, who portrayed Tarkin under the motion capture CG, ILM was basically working from scratch. The result is a shockingly realistic rendering, which is without a doubt the most believable recreation of an actor ever done.

When I saw this performance back in December I was blown away. As many know, Star Wars is known for its contribution to special effects. But the inclusion of Cushing in “Rogue One” is a whole new level which has arguably never seen before. As mentioned, these digital performances have been around for a couple of decades, but a majority have been very small scenes and not an entire performance. From beginning to end, Tarkin is an established character in this narrative. I believe that this motion capture performance will stand as a hallmark of special effects in film. Though this is a huge development in technology, many have taken issue with the moral consequences surrounding it. In his piece “Rogue One: the CGI resurrection of Peter Cushing is thrilling – but is it right?” Joseph Waltz points out issues brought up by actors, particularly by the beloved late comedian Robin Williams. Waltz states, “Williams had passed on rights to his name, signature, photograph and likeness to a trust protecting the use of his image until 2039. Williams... clearly saw Hollywood's direction.” There seems to be a fear among many actors in Hollywood that this new technology will make their faces a commodity. Does a studio begin to own the rights of people’s faces to sell vacuum cleaners and chocolates? And who gets the acting credits for the motion capture performances? If, for example, Peter Cushing was nominated for a posthumous Academy Award for “Rogue One” would he or Guy Henry really deserve the honor?

The entertainment industry now finds itself in quite the predicament. Waltz acknowledges that it seems to be a labor of love, honoring a great late actor with a performance that many believe he would be proud of. But the problem with that line of logic is that we as viewers and filmmakers don’t always know whether an actor would formally allow for their posthumous likenesses to be used. Not all of them can formally state their opinions as Williams had, leaving room for studios and filmmakers to take advantage of the deceased. If an actor does not explicitly state their opinions where does this leave filmmakers wanting to use this tool?

Instead of muddying the waters on the subject, the use of a CGI Tarkin in “Rogue One” actually provides guidance to future filmmakers. “Rogue One’s” focused on the Death Star, the gigantic planet-destroying battle station from “A New Hope” Tarkin is defined as a character by his relationship with the death star. Having a film about said battle station and not including the Grand Moff makes no narrative sense. The inclusion of this character in “Rogue One” stands as a love letter to a beloved late actor— one who stuck in the hearts and minds of fans for generations. The CGI makeup was a necessity for the success of the film. Using the face of a dead actor in a film must be essential to the plot, otherwise its use will come across as pandering to the needs of an audience. If used correctly and as a necessity, these digital performances will amaze viewers and honor the work of beloved late—actors.
The first thing the viewer sees in “The Zookeeper’s Wife” is the back of Antonina Żabiński’s (Jessica Chastain) head. The camera remains fixed on her, moving behind her, supporting her, as she briefly plays with the lion cubs sleeping next to her son (Timothy Radford) and makes her way to the balcony of her bedroom, looking out over the zoo— and the life— that she and her husband have built for themselves. The following shots show the opening of the zoo for the day, and Antonina’s routine. The first scene establishes the zoo for the audience, likely so that they may better understand the devastation that comes just three scenes later, as German Forces bomb Warsaw, destroying much of the city, zoo included.

The second scene, however, is where the audience truly gets an idea of the kind of woman Żabiński is. Her son, Ryszard, interrupts a dinner party to inform his mother that there’s something wrong with the elephants. She leaves immediately to find a newborn calf, unable to breathe due to a blockage in its trunk. Without a second though, she climbs into the cage and carefully begins to help the calf, reassuring its mother all the while that she poses no threat.

The message is clear: Żabiński is a woman who will put herself on the line and get her hands dirty without a second thought if it means helping those who cannot help themselves. A sweet thought and a testament to the real-life story that inspired the movie, but perhaps a little heavy handed, and in this way indicative of much of the rest of the film.

“The Zookeeper’s Wife,” while touching, is altogether not much more than an upsetting reframing of the suffering and pain of the Holocaust as an opportunity for gentiles to tap into their most compassionate selves, as opposed to an opportunity to highlight the Jewish point of view surrounding these events. The film toes (and too often comes close to crossing) the line between using Żabiński’s history as a compassionate and loving zookeeper to inform her decision to shelter refugees, and comparing those refugees to the animals that she sheltered in easier times. The first time Jews appear onscreen, weighed down with coats and suitcases, shuffling through the streets, Ryszard remarks to his mother, “They look like mules.”

By Alexandria Louis
THE PACIFIC SENTINEL
Much of the film’s establishing of the plight of Jews in Warsaw is framed through Ryszard’s eyes; a clumsy, if heartstring-tugging, attempt to drive home the horrors of the time, as though they weren’t clear enough. The first time Jan Żabiński (Johan Heldenbergh), Antonina’s husband, drives through the ghetto to pick up the initial few refugees to be sheltered with them, the camera focuses alternately between Ryszard’s face peering through the truck window and gratuitous slow motion scenes of the suffering outside. A girl, later to be taken in by the Żabińskis, is accosted by two German soldiers, and countless other refugees are shown being harassed or clearly in pain. As Ryszard gazes on, the audience sees him process what these people are going through and why his parents have made the decision to shelter them. The audience, however, doesn’t need this clarification, and it almost comes off as condescending.

Similar to the filtering of Jewish suffering through a Christian child’s eyes in earlier scenes, the scene during which the Warsaw Ghetto is burned to the ground is spliced with a scene of a passover Seder in the the Żabińskis’ kitchen. The roar of the flames and the sharp commands of German officers play under singing from one of the Żabińskis’ younger guests—the girl who had been accosted and later raped during Jan and Ryszard’s first visit to the ghetto. Her voice floats, clear and perfect, over the sounds of destruction, as the camera cuts from her face, gently lit by flickering candlelight, to buildings engulfed in giant flames, an illustration of the state of Europe at the time. It may be one of the longest scenes featuring the Jewish refugees who stay with the Żabińskis.

“The Zookeeper’s Wife” has a few things going for it: excellent performances by the majority of the cast—Chastain in particular—the fact that it was written and directed by women (a rarity in Hollywood) and that it does bring to light a truly incredible story. That said, the lack of agency that the Jewish characters are awarded in a movie about what is fundamentally a Jewish story is troubling and indicative of the issues that plague the genre of Holocaust movies as a whole. The film simultaneously shies away from the realities of the time while still mishandling the suffering that it does show. The Żabiński’s story is one that deserves to be told, but both the story and the refugees whom it’s really about deserve a better telling.

“The Zookeeper’s Wife” was released on March 31, 2017. It was directed by Niki Caro, written by Angela Workman, and stars: Jessica Chastain, Johan Heldenbergh, Daniel Brühl, and Timothy Radford. “The Zookeeper’s Wife” is rated PG-13.
As temperatures finally start to rise and the flowers fully bloom, bees are coming out of hibernation and carrying out their duties in the ecosystem. Bees are one of the hardest working insects in the animal kingdom, they are responsible for pollinating about one-sixth of the world’s flowering plants and one-third of the food crops we grow. Through a partnership with Bridgetown Bees and The Institute for Sustainable Solutions Living Lab Program, The Student Sustainability Center at Portland State University (PSU) launched an apiary with honey bees and mason bees in June of 2016. Two beehives and one nest box of mason bees are located in the residents community orchard on 12th and Montgomery. The goal of the Campus Apiary is to create a pollinator-friendly campus with insects that will improve our urban ecosystem and create educational opportunity for the community. PSU Senior and biology major, Stefanie Steele, was at the forefront in the development of this project last year.

“Bees provide an excellent opportunity for students to learn about how the actions we take affect the environment,” Steele said, “By highlighting the value of pollinators and encouraging students to engage with these beautiful and highly organized insects, we can learn about the interconnected nature of our ecosystem.”

The bee population has been rapidly declining over recent years. One of the many reasons for this pressing decline is the use of harmful pesticides on plants. PSU has been commended by Bee City USA for its commitment to minimizing the use of chemical pesticides and raising awareness of die-offs and colony collapses. According to the organization, PSU is recognized as the tenth best “Bee Campus” in the nation.

“Imperiled pollinators are responsible for three-fourths of the world’s plant and tree species. PSU is a stellar example of the influence educational institutions can have on students and larger communities,” said Phyllis Styles, a Bee City USA director.

The Student Sustainability Center has developed an organized, efficient, and effective program that is beneficial for the campus community. In the Student Sustainability Center’s five-year plan they outline each potential risk and a responsive solution. Potential risks include personal injury due to stings and allergies, bee swarm, and theft/vandalism/trespassing/etc. In anticipation of incidents such as these, the Bee Task Force has partnered with several campus departments including Student Health and Counseling, Facilities and Property Management, Campus Public Safety Office, and the Dean of Student Life to ensure that they are equipped with the resources and connections to keep the community safe.

Tim Wessels of Bridgetown Bees played a large role in the educational aspect of the campus apiary. He lectures volunteers on the central educational themes necessary to have a comprehensive understanding of bees and why...
they are at risk. Themes include the role of pollination in the food system, the relationship between humans, animals, and plants, organic methods of beekeeping, the value in maintaining native plant species, and the biology of the honey bees and mason bees. The founding members of the program were pleasantly surprised at the turnout to Wessels' discourse. “It’s something that is so important to know about. There are things we can all do to actually change what is going on,” said Naomi Sheff, a student volunteer from Lewis & Clark College.

There are simple ways to help bees, for example eating and buying local honey. Most local bee harvesters do not use chemical pesticides and take action to protect bees from various harmful pests. Another way to help the cause is simply planting plants, providing bees the forage necessary to make honey.

The Student Sustainability Program at PSU has excelled in turning thought into action, establishing attainable goals and developing a logical format for which to pursue those goals. Several departments and partnerships contributed to the development of this program came together to achieve two common goals—education and sustainability—and neither would have been achievable without the efforts of each group. The campus apiary has demonstrated the positive impact that is possible when like-minded people work together towards the same goal, and inspires the PSU community to do the same.
Profile of Housing Resources in the City of Roses

Portland has a homeless crisis, especially downtown, due to the limited number of resources available to homeless people. The shelters around town are at maximum capacity. Many people on the streets don’t have easy access to the internet, but one of the first organizations that appears from a Google search of “Housing Resources Portland” is Portland Homeless Family Solutions (PHFS).

Kurt Briggs-Ungerer, the Program Director at Portland Homeless Family Solutions, sat down to answer a few questions about his organization and how they help the homeless of Portland. The following interview has been edited for clarity.

What is Portland Homeless Family Solutions?
“PHFS is a non-profit organization, which works on the housing-first philosophy and has two main programs: a shelter program and a housing-first program. We mainly help families. A family is defined as an adult and a child under the age of 18 or a pregnant mother. Our shelter houses between 25 to 30 people and is located in the Goose Hollow neighborhood and offers food, laundry, classes, showers, etc. Our housing first program has housing specialists who go out, find individuals, and figure out financial assistance to get them into a home. For that, we offer a large conglomerate of resources as a retention program to help those individuals better themselves. We can only help those individuals for a year, because permanent housing is just far too expensive. The main issue we have is finding financial support to expand our programs.”

What is the housing-first philosophy and how does it address chronic homelessness?
“Housing being a human right—not as an end goal but a step in the right direction. This helps remove the stresses and anxieties of finding a place to sleep every day.”

What are your thoughts on the homeless camps developing around Portland?
“I think self-governed camps like the tiny villages are a good concept, however not a solution, but a band aid. They certainly cost less than running a shelter. Homelessness just puts poverty in the public eye.”

Your program addresses homeless families and there are programs to help homeless woman, but are there any programs to assist homeless men?
“Unfortunately, there are only two programs that help homeless men, TPI (Transition Projects Incorporated) and CCC (Central City Concern). Most programs tend to address keeping family and woman off the streets.”

Does your program have a required urine analysis?
“No, we do not. This ends up being a major downfall for most homeless individuals our shelters are, of course, drug and alcohol free facilities, but Housing First is completely self-reported, meaning each person has to self-monitor.”
Another program like PHFS is City Repair. It had a booth attending the PSU Earth Day festival and their Program Director Kirk Rea sat down to answer a few questions.

*The following interview has been edited for clarity.

**What is City Repair and how do you address homelessness in Portland?**

“City repair is a non-profit organization dedicated to community building in aspects of placemaking, public art, natural building, and permaculture gardening. We are best known for our intersection painting all around Portland.”

**What kind of resources does your program offer?**

“Our main goal is to support marginalized communities such as the homeless. Recently we were involved in the Kenton’s women’s project in conjunction with members of the architecture department of PSU. This was a program in which the city provided funding for 14 pod homes in the Kenton neighborhood for homeless women. We were also involved with Dignity Village, R2D2 (Right 2 Dream Too), and Hazelnut Grove. We mainly help out with design and layout. The main issue we encounter is financing for supplies and construction costs.”

At the end of this interview, Kirk suggested sitting through a meeting of the Portland Village Coalition, which is the group overlooking all the Homeless village projects in conjunction with the City of Portland. Vahid Brown is the main chairman of the Portland Village Coalition. This was an open meeting, which meets alternate weeks for the coordination of different village projects around Portland. The first subject brought up was funding that was approved for a village project in Clackamas county (Clackamas county has set aside $300,000 and 10 acres for a village to be built). Then the subject of redesigning mini-pod homes to address any potential design flaws, and to increase insulation was brought forward. Next, Overlook neighborhood’s current conflict with Hazelnut Grove, which is the homeless village located near Interstate and Greeley, was addressed. The goal was to get a group of volunteers out into the Overlook neighborhood and get statistics about how the homeless village is perceived. It was also announced that the Portland Villages Coalition website had finally been set-up and can be reached at PDXvillagecoalition.org. The last thing on their agenda was several fundraising events scheduled to be held within the next month, the times and dates will be announced next meeting and will be available on their website soon. The fundraisers are being held to try and generate more financial support for the homeless village programs, and to help with supplies for building the villages and acquiring land.

The tiny village projects are a new approach to handling the homeless situation in Portland. Its impact on the improvement is still yet to be determined, largely because the projects are not receiving enough funding to grow more than they already are.
Young Chechen men sat in shock after the Novaya Gazeta, a prominent newspaper in the region, released a story about the Chechen government jailing homosexual men. The building they’re hidden in is a safehouse for LGBTQ people in Chechnya to hide from the police and public. It’s a clean building with unadorned, multicolor walls. Fearing recognition, they requested to hide their identities, and pull hoodies over their eyes. One of the men detained in late 2016 says, “I got really scared because I knew what would happen next. I knew what they were going to do. They dragged me out of the car and started to beat me, humiliate me. They called me a faggot, a gay person, and that such people shouldn’t exist in Chechnya.”

The world’s magnifying glass over Chechnya has grown larger and larger since stories of LGBTQ harassment and imprisonment broke on April 1, 2016. A reported 100 men have been detained and tortured. They have been allocated into surreptitious camps which have been likened to the concentration camps used by Nazi Germany during World War II. Allegedly, the penitentiaries have been found in two cities: Argun and Tsotsin-Yurt.
After Novaya Gazeta released the article in early April, it immediately came under fire of Chechen government officials and local Muslim preachers, followed by death threats to the reporters. Spokesperson for the President of Chechnya, Alvi Karimov, told the press that the reports were an “April Fools Joke,” aligned with how the government is handling the issue. Despite reports of cruel and inhumane aspects, the Chechen government describes the happening as “preventative clean-up,” while claiming that, “you cannot arrest or repress [sic] people who just don’t exist in the republic.”

Chechnya is a state that is 95 percent Sunni Muslim. Historically, most Muslim states have acknowledged and tolerated same sex relationships, but levels of tolerance vary. Some countries, such as Syria, Iran, and Afghanistan, are more understanding while other countries, like Iran and Saudi Arabia, prosecute acts of sodomy and homosexuality. Very few prosecutions occur, however, due to the cultural view that homosexuality is a Western development and doesn’t affect Muslim societies.

The word ‘genocide’ was coined by Raphael Lemkin in 1944 and defined in 1951 by the Convention on the Prevention and Punishment of the Crime of Genocide as “any of the following acts committed with intent to destroy, in whole or in part, a national, ethnic, racial or religious group, as such: Killing members of the group; Causing serious bodily or mental harm to members of the group; Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part; Imposing measures intended to prevent births within the group; (i.e.) Forcibly transferring children of the group to another group.” Though the definition lacks representation for gender or sexual orientation, the Chechen Camps still fit three out of the four definitions: there have been four reports of death in the camps, numerous claims of abuse, and the direct targeting of LGBTQ people. This spurs a continuation of corruption allegations against Kadyrov, harkening back to the death of oppositional Russian leader Boris Nemtsov and journalist Anna Politkovskaya, who both spoke out against the autocratic Russian regime.

The acts have been internationally condemned. The House of Lords of the United Kingdom congregated and Sir Alan Duncan stated that these camps are “barbaric...beyond contempt and not acceptable.” Canadian officials say that “persecution of LGBTQ+ people in Chechnya [is] reprehensible.” Similarly, over half of the French presidential candidates have denounced the camps. In the United States, The State Department has conveyed concern; President Trump has not yet commented. On April 13, the United Nations publicly condemned Chechnya and called upon them to put an end to the camps.

When questioned about the camps on April 14, Russian representatives said that there was not substantive proof and showed no desire to act on the news. Russia adopted anti-LGBTQ propaganda laws in 2013. Lethargic government action has incited the Russian LGBTQ community to help, with assistance from Canada’s own non-profit gay rights program, Rainbow Railroad. Mass solidarity for the LGBTQ community in Chechnya has flooded social media but the global continuation of violent homophobic behavior still runs rampant.
Nintendo is a company that anyone with even a passing awareness of video games is familiar with. They’re the wizards who saved video games from the market crash in the early 1980s. Nintendo’s history stretches back well before video games were even in existence, but it has been this interactive medium that has made them the household name they are today.

The past decade has been a strange one for Nintendo fans. The Nintendo Wii launched a little over ten years ago, beginning a new era for the big N. In every console generation before the Wii, Nintendo had attempted to compete on hardware specs in a technological arms race with its closest competitors, notably Sega, Sony, and Microsoft. The Gamecube failed in its battle against the Sony Playstation 2 and Microsoft’s newcomer Xbox. In response to this, Nintendo made a decision to bow out of the spec wars and focus on differentiating the experiences they offered to widen their net of potential consumers. This effort led to the little white box known as the Wii, and its TV remote emulating motion controller.

Most tech and video game journalists scoffed at the Wii’s reveal. While Sony and Microsoft were chasing ever more realistic graphics, artificial intelligence, and physics, Nintendo was telling folks to waggle a small remote at the television and pretend to play sports. After the success of the DS, a handheld device with two screens placed vertically, with the bottom screen allowing for touch input, Nintendo felt confident that consumers wanted approachable and intuitive gameplay experiences. They were not wrong.

The Wii landed in North America on Nov. 19th, 2006, with "Wii Sports" as a pack-in game included with every console. Alongside the Wii, a brand new and long awaited title in the Legend of Zelda series, "Twilight Princess," hit store shelves and quickly received high marks from consumers and most major reviewers. The one-two punch of "Wii Sports" and "Twilight Princess" helped galvanize sales of the console, which was almost impossible to find in stores after the launch and well into 2007. The Wii went on to sell over 100 million units in its lifetime, eclipsing the sales of Sony’s Playstation 3 (which launched at over twice the price of the Wii the same weekend) and Microsoft’s Xbox 360.

What did Nintendo do after riding high on the success of both its home console and handheld divisions? It fell victim to a series of miscalculated decisions lending to a massive drop in its video game market share and mindset. First,
they launched the 3DS, a successor to the DS portable, with a low resolution glasses-free stereoscopic screen. It allowed users to see games in true stereoscopic 3D without the need for cumbersome glasses, but only if they stayed within a very narrow sweet spot. It launched with almost no highly rated titles, at a price of $250 dollars, which would be quickly cut to $170 within less than a year. It took over a year for high quality first party games like “Mario Kart” and “Pokemon” to come to the handheld device, and it took even longer for it to pull itself out of a territory of disappointment and get anywhere close to the sales of its forebearers.

After this, Nintendo launched a successor to the Wii, titled simply “Wii U”. The Wii U’s defining feature was a tablet-like controller that allowed users to see either a duplicate image of the gameplay from the TV, or additional screen elements separate from the main display with which they could interact in a manner similar to the DS and 3DS. The controller streamed video over short range wireless protocols which meant that in order for it to work, the player needed to be within range of the console unit. Many people who saw the Wii U Gamepad thought they could take it with them outside like a portable console, and were disappointed to find that they were tethered to their home, sometimes just a single room or two. Most folks who bought the original Wii were confused about what the Wii U was. Many assumed it was a controller accessory for the original Wii, not realizing it was a different device entirely. This was partly due to the marketing of the device by Nintendo, and the choice to add a U to the end of the name instead of a clearer “2” or even an old school “Super” signifier like the Super Nintendo. Like the 3DS, it took about a year for true high quality games to come to the console. Like the Wii, it was technologically nearly a generation behind the new competitors that released a year after its launch, Sony’s PS4, and Microsoft’s Xbox One. Unlike the Wii, it failed to dominate the console market.

The Wii U would end up selling only 13 million units in its short lifespan (late 2012 to early 2017). In response to its low sales, Nintendo put effort into creating some of the greatest games in its best franchises to try and increase demand. Games like “Mario Kart 8,” “Super Mario 3D World,” and “Super Smash Brothers Wii U,” were knockout high water marks for their respective series, but the console just never caught on with buyers. The Wii U seemed confused about what it was, what its purpose should be, and Nintendo themselves seemed to feel the same. Despite serving as essentially the last bastion for “couch co-op” and other local multiplayer games in a generation that mostly chose higher graphical fidelity and online play over old-school, in person experiences, it lost badly.

In the fall of 2016, Nintendo officially announced the name of their successor to the Wii U with the release of a video on Youtube, which now has over 30 million views, titled “First Look at Nintendo Switch.” This video shows a person playing the newest Zelda title, “Breath of the Wild,” a game that had been highly anticipated for years and originally announced for the Wii U (later launching on both systems). The video showed a player get up off their couch and perform a quick controller transformation, taking off the main portion of the controller, splitting it in two and then sliding the separate pieces onto the console unit next to their TV. They lift up, and voila, the trick of the Switch is revealed. The device slides out of a dock, revealing a large, gorgeous widescreen panel. The Switch, as its name suggests, is both a home console that you can use with a TV, and handheld device that
you can take with you on the go. It alludes to both the classic Nintendo home consoles of the past, and the old single screen Game Boy line that preceded the DS family. Nintendo had returned with a focus, all they had to do was reveal a price and some games.

On Jan. 12 2017, Nintendo held a live online broadcast to reveal the whole story of the Switch. It was to be released on March 3rd less than two months after the broadcast (a relatively short time between announcement and release for a game console). It was priced at $300, $100 less than the launch price of the PS4 and $200 less than the launch price of the Xbox One (both of which were then available for $300 or less). Most importantly, it was going to launch alongside “The Legend of Zelda: Breath of the Wild.” The reveal also showed off motion gaming capabilities which drew parallels to the Wii, and a steady stream of upcoming games for the console. Included in the lineup for 2017 was a new 3D Super Mario game, “Super Mario Odyssey,” which looks to be a true successor to “Super Mario 64,” one of the platforming genres all-time greats. “Odyssey” is the first Super Mario game to feature 3D open sandbox worlds since “64” that doesn’t either strap a water-powered jetpack to Mario’s back or send him into space to hop across planets.

Critics were mixed on the reveal of the Switch. Many saw it as a good step from the Wii U, some saying it was what the Wii U should have been all along. Others were concerned that it was less powerful than the PS4 and Xbox One, and that it may be relying too much on a gimmick. Most did not believe that it would meet Nintendo’s hope of surpassing the sales of the original Wii.

By the time the Switch was available (briefly) in stores on March 3rd, it was clear that although it didn’t have many games at launch, its marquee title was a new classic. The new “Zelda” title received a 10 out of 10 rating from over 40 different gaming publications. The hybrid nature of the device proved to make playing the game, which one could spend over 80 hours in and see only 20 percent of what it had to offer, an even better experience than it was on Wii U. The hype was real, and in a repeat of the Wii launch, it became exceedingly difficult to find a Switch after that first day (you still can’t walk into a store and get one at the time of this writing). At the time of this writing, Nintendo’s latest sales reports show that the Switch sold 2.74 million units worldwide in March—18 percent of the lifetime sales of the Wii U.

I’ve had a Switch since launch and it has dramatically changed the way I play games as well as how I think about them. A lot of this is because of Zelda, but I’ve also focused on a handful of indie games as well and spent more money than I should have. The fact that I can carry the device with me throughout the day, playing between classes and work, and then drop it back in the dock at home to finish up a boss fight on my TV, makes every other game system I own (most of which are way more powerful, specs-wise) seem less cool in comparison. Anytime a game is available on the Switch and other platforms, I choose the Switch version because I can take it with me. The screen is lower
resolution than most phones, the graphics it puts out don't match what my laptop or PS4 can do, but the combination of portability and console-quality games is immensely convenient. It sips battery in sleep mode, and picks up right where you left off, which is especially impressive in the giant open world of "Breath of the Wild." There are a lot of exciting games coming throughout the year, from both Nintendo and third party developers. Indie games especially thrive in the handheld mode, where it feels like you're playing the obvious evolution of a Gameboy Advance. The future feels bright for this device.

I don't know if the Switch will sell like the Wii did. The world has changed a lot since 2006. The first iPhone didn't come out until 2007, and the App Store wasn't up until 2008. As good as Zelda is, the Switch doesn't have a Wii Sports style pack-in to drive non-gamers to buy the system. I also find that having a PC or PS4 along with the Switch is nice because I have access to triple-A games that might not come to the Nintendo system. An innovative Nintendo coming off a disappointing console generation with teams developing games as good as "Breath of the Wild" shouldn't be underestimated. Specs are cool, 4K gaming is already here and is getting better, but taking a console-quality game with you wherever you go or taking off a side controller that's always with you and handing it to your friend to play some quick split screen Mario Kart is only possible on the Switch. Everybody likes an underdog, and it's nice to see that a company with the legacy of Nintendo is still able to surprise and innovate in the field. I don't know if I would recommend the Switch to someone who could only choose one console today. There are not as many games yet on the hybrid console as there are on the Playstation 4 or a gaming PC. That being said, the games that have already launched include some of the highest rated Nintendo games that have ever been released. If it continues to sell well it will likely draw in more third party publishers which will help boost the size of its library. With all of that said, I can't imagine anyone being disappointed with the Switch and "Breath of the Wild" if they can find one, and I'm very excited to see what the future holds for Nintendo.
Exploring
The Future
of Portland’s
Oldest Urban
Forest
by Jessica Pollard
Filled with lush grass and empty beer cans, loud religious men wearing sandwich boards and murders of crows, the South Park Blocks is an integral part of any Portland State student’s experience.

The Park Blocks, according to the Oregon History Project, constitute Portland’s first ever green space. They were established in the 1870s and later purchased by the city before the turn of the 20th century. Punctuating the 12 blocks that comprise the Park’s southern portion are 3.4 million dollars worth of trees, according to a study that came out of PSU in 2005.

Perhaps most notable of the varieties that can be seen while strolling through are the elms. Back in the 1870s, the Park Blocks were planted in Lombardy Poplars, which quickly grew too large for the space according to David Hedberg of Portland’s Urban Forestry department. By the 1890s, elms trees were standing in place of the poplars.

Elms are wind-pollinated deciduous trees that originated from Central Asia twenty million years ago. They thrive on the East Coast in the US.

“Elm trees can live for quite a while. When they planted them, they planted all of the same trees at the same time. Today we wouldn’t do that...When you have a monoculture, you have a vector for [Dutch Elm Disease].” Hedberg said.

Dutch Elm Disease (DED) can spread through tree roots, human interference, or on the backs of native and European elm bark beetles. Dutch Elm Disease comes from a fungus and can be characterized by sudden wilting leaves, also known as “flagging,” as well as brown and grey discoloration on the wood of an elm tree.

“It wreaked havoc on urban forests in the east coast, and it got to Portland in the 1970s,” Hedberg said. In 2016, 55 elm trees in Portland were diagnosed with DED and removed—most of them by Urban Forestry.

Every three years, inoculation—akin to a vaccine—can help prevent elms from getting DED. Urban Forestry inoculates 450 elm trees in Portland on a three year rotation. “A big tree gives big benefits.” We don’t want to take everything out, because then we’re starting over. There’s kind of an evaluation on that. If a tree is infected with Dutch Elm Disease, then it’s very serious and it needs to be removed quickly and disposed of to stop the spread of disease,” Hedberg said.

Portland Parks and Recreation’s 2017-2018 Proposed Budget—set to be approved with the rest of City of Portland’s budget in June—recommends reallocating $230,000 away from inoculation costs to help maintain the city’s Heritage trees instead. It is illegal for an elm with DED to remain standing in Portland, according to Portland Parks and Recreation.

Today, according to data released by the Portland Urban Forestry Department, there are nearly 5,000 elm trees in Portland.

Some are in the Park Blocks, and many call Laurelhurst, Ladd’s Edition, Mount Tabor, East Moreland, and Richmond home. There, various groups such as Save the Elms work to fundraise and care for trees, many of which reside on private property.

Six trees in the South Park Blocks were damaged by either winter storms or disease this year and will need to be removed this spring, according to Friends of South Park Blocks—a volunteer group that advocates for the green space.

When a tree dies in the South Park Blocks, Urban Forestry removes it. “What we’re trying to do now is diversify our distribution of species, because we had that monoculture...We’re also trying to stagger plantings, so we don’t have everything planted at the same time, so we’re building a more resilient forest,” Hedberg said.
A cage rose around a seated Kendrick Lamar as a fog machine started whirring again. It was the final performance to a scathingly hot weekend at Coachella. The listless crowd, hampered by days of dehydration and hangovers, jumped alive immediately when King Kendrick announced his presence. Forgoing backtracks made his masterful performance stand out, a move reserved only for the highest tier of hip-hop performers. Kendrick Lamar’s album “DAMN” had dropped only two days earlier while rumors of another album being released swam in the air. Technicolor lights refracted off Kung-Fu Kenny’s stark white kung-fu uniform as smoke filled the stage and even though the album just dropped, everybody chanted along as if “DAMN” was released years ago—a testament to the cultish popularity of K-Dot.

Kendrick Lamar isn’t who you’d expect a multi-millionaire rapper to be. He’s been with his highschool sweetheart for 10 years, doesn’t gangbang, smoke, or drink, and still lives in a modest condo in Compton. He’s humble enough to anonymously donate millions to the local public school system, only to be outed by his family years after. The community loves him because he always comes back. Lamar spits in “ELEMENT,” “I don’t do it for the ‘Gram, I do it for Compton.” Compton is his home and he isn’t running away. “DAMN” rises to the occasion as Kendrick Lamar continues to produce music that is universally praised while encapsulating the Black-American experience with conscious rap. After his last three albums reached critical acclaim, it’s not surprising that Kendrick continues to dominate the hip-hop world. According to Billboard, “DAMN” sold 475,000 units within the first week of sales—the number one album of this year so far. The most commercially popular song, “HUMBLE,” reached number two in HOT 100 SONGS, the most successful rap song since Eminem and Rihanna’s “Love the Way You Lie” in 2010.

Compared to his last album, “DAMN” is a far more tempered examination of Kendrick’s personal life. Tracks like “DUCKWORTH” are a narrative retelling of Anthony “Top Dawg” Tiffith (Kendrick’s record label is Top Dawg Entertainment) and Kendrick’s father Kenneth “Ducky” Duckworth. Articulating a story about how Duckworth insured safety for himself and his family by giving out free food to gangbangers like Top Dawg while he worked at the local KFC. Kendrick raps, “Because if Anthony killed Ducky/ Top Dawg could be servin’ life/ While I grew up without a father and die in a gunfight.”

The erratic, discomforting beats of his 2015 album “To Pimp a Butterfly” metamorphosize into “DAMN’s” lo-fi hip-hop trap with flares of 90’s west coast beats, reflecting preceding Compton MCs such as NWA and Tupac. It’s crowned with titillating industrial production to enliven ears using backwards looped verses, metallic grinding, and ringing police sirens. These display Kendrick’s inner...
chaos through tracks laden with juxtaposing beats and swaying rhythm, all the while maintaining clean tracks. Some tracks may show influences of Andre 3000 or Drake (OG Drake, not Jamaican culture vulture Drake), but Kendrick sounds as good—if not better—and unmistakably retains his witty prose and turbulent flow.

It wouldn’t be Lamar without enthralling, crisp storytelling. Reaching deep into himself, this is, arguably, his most personal album so far. Each song’s title is frank with minimalists labels such as “LOVE,” “GOD,” and “DNA.” Flowing in and out of the perspectives of his mother (he’s been sampling his mom since his 2012 album “Good Kid MAAD City”), other rappers, his fans, and different caricatures of himself, Lamar creates a panoramic view of the absurdity in his life while he screams “don’t judge me” to God.

The combination of his masterful storytelling, clear production, and prodigious lyricism have launched Kendrick Lamar onto front stage once again. Critics point at how the album isn’t universal enough or political enough to compete with his last album, but they avoid the layers of subtext interwoven through his bars. In “FEAR,” Lamar says “I’ll prolly die ‘cause that’s what you do when you’re 17/All worries in a hurry, I wish I controlled things,” agonizing over institutional racism and the lack of opportunity in poor socio-political climates. His fearlessness to open more and more of himself in every album is a part of why Kendrick Lamar is a voice of Compton and his generation. Kung Fu Kenny tells other rappers to “sit down,” because he has “royalty, got loyalty inside [his] DNA,” and he’s DAMN right.
On a sunny Friday, April 21, many tents and tables lined Portland State’s park blocks to celebrate Earth Day. Globally, Earth Day is celebrated annually on April 22. It is a day to spread awareness and educate people about what it means to protect the environment, and to showcase how small changes in one’s own life can affect changes on the big scale. Earth Day is recognized around the world as a time to honor the Earth for supporting our lives and to celebrate and cultivate the concept of peace. Among the Earth Day festival at Portland State were many student groups, organizations, and artists related to sustainability, healthcare, ecology, and the relations between the environment and the actions we take.

Organizations offering education or volunteer work such as The City Repair Project, The Native Plant Society of Oregon, NW Veg, Portland Parks & Rec, Mt. Hood Bark, PSU’s Student Sustainability Center, and more attended the event. There was also a sustainable used clothing swap stand, a table offering education about the sustainability of veganism, and a chance to receive free pizza—with vegan options available. Some tents were selling sustainable art and Native art as well, such as prints, woodcuts, beaded jewelry, weaved cloth bags, and more.

Some of the other organizations that were at PSU’s festival included Nike Biketown, Planned Parenthood, Health in Harmony, Peace Corps, Pacific Fishery Management, Wild Food Adventures, The Green Living Journal, 5th Ave Cinema, The PSU Bikehub, Protect Wild Utah, Farm Animal Rights Movement, and PGE. This year’s Earth Day festival at PSU drew large crowds of students and community members. Awareness was spread and passion was ignited about environmentalism, humanitarianism, and animal rights alike.
The City Repair Project is a local, community-driven social services organization that collaborates with diverse communities, other organizations, and local government to bring about their vision of "a thriving urban culture that values community, diversity, and ecology." Their mission is to "foster thriving, inclusive, and sustainable communities through the creative reclamation of public space." Some of the group’s activities include gardening, public art, music acts, organic community meals, sustainable earthen building, neighborhood beautification, educational presentations, and more. To learn more, The City Repair Project’s website is www.CityRepair.org.

The Native Plant Society of Oregon (NPSO) is a local organization that is “dedicated to the enjoyment, conservation, and study of Oregon’s native plants and habitats.” Founded in 1961, NPSO is a group that visits wild places in Oregon to enjoy, study, and conserve native vegetation. NPSO offers monthly presentations, workshops, and field trips. In the 80’s, NPSO helped to create the Endangered Species Act of Oregon. Their website is www.NPSOregon.org.

The NW Veg Project is a local organization that spreads awareness and encourages plant-based choices in eating and lifestyle to create a healthy, sustainable, and compassionate world. NW Veg offers educational programs and classes about vegan cooking, vegan nutrition, health, and environmental and animal welfare. They also sponsor many social activities in the community, such as monthly plant based potlucks and holiday celebrations. NW Veg’s website is www.NWVeg.org.

Portland Parks & Recreation had a table at the event where they discussed their Volunteer Stewardship Program. Their mission is to “work with volunteers of all ages to restore Portland’s parks, natural areas, plant and animal habitats, and water quality.” Portland Parks & Recreation manages over 90 green spaces throughout the city. Volunteers with Portland Parks & Recreation get to learn about and create habitats for local plant and animal life, connect with and improve the community, remove invasive plants and plant native vegetation, maintain trails, collect litter, and more. Their website for volunteering is www.portlandoregon.gov/parks/stewardship.

Mt. Hood Bark is a local organization that defends and restores the natural plant and animal life of Mt. Hood and surrounding natural areas. Mt. Hood Bark works to educate, unite, and empower Portlanders to help protect and repair Mt. Hood National Forest. All their events and hikes are free and open to all ages. Their website is www.bark-out.org.

PSU’s Student Sustainability Center is an organization right here on campus that students can get involved with that works to promote environmentalism and sustainability. PSU’s Sustainability Volunteer Program offers opportunities to work with bees, cultural sustainability, campus gardens, marketing and social media, and waste reduction. Leadership opportunities are also available. The Sustainability Center also organizes field trips, events, and offers a space to develop professional skills. A seed library can be found at the Sustainability Center, offering free seeds to plant and grow. The Sustainability Center is located in Suite M104 of SMSU. To learn more about PSU’s Sustainability Center, their website is www.go.pdx.edu/ssc.
CubeSats—tiny satellites that operate individually, stacked together, or in unison—advance our knowledge and capabilities in space with their increasingly complex components and functions. The first specifications were developed in 1999 by California Polytechnic State University and Stanford University. In 2003, the first CubeSat was deployed into space, and in 2015 more than 120 were deployed. Today space concerns that are public such as National Aeronautics Space Administration (NASA), and that are private such as SpaceEx, all around Earth are launching CubeSats in large numbers. On February 14, 2017 India broke a record by launching 104 from one rocket.

“As we thought about building satellites we realized we could do it in a way that was a standard satellite form factor,” said Andrew Greenberg, Portland State Aerospace Society (PSAS) co-founder and associate professor in the electrical and computer engineer department at PSU’s Maseeh College of Engineering and Computer Science. The technical standard is 10x10x10 centimeters, which is one meter of volume. Currently, PSAS is building OreSat 1, which is two cubes stacked together.

“Portland Aerospace Society is the most interdisciplinary group in the school of engineering at PSU,” said PSU business major Risto Rushford. Everyone is welcome at PSAS.

“Everything we do, our software, our mechanical designs and our electrical designs are all on the Internet. We’re very collaborative. Other groups have used our designs,” Greenberg said.

“We have a primary spacecraft ‘backplane,’ which contains the solar cells and their power modules that control the power coming off the solar cells, there are the battery modules, and there’s the C3 board, or the C3 controller, and that is the command control and communications board,” said Glenn LeBrasseur, communications lead for OreSat and PSAS, and industry advisor for OreSat and PSAS. “They have the ability to provide power to tell the health of the spacecraft, to direct it to do something like turn on or off a system or a science mission, or go into battery mode. That’s the housekeeping part.”

Based on its three missions OreSat has gained acceptance by NASA’s CubeSat Launch Initiative for deployment in June 2019 from the International Space Station into low Earth orbit.

“OreSat’s mission is to not catch fire in space,” Greenberg
laughed, and then more seriously said, “Once we get into space the idea is to beam live video of space down to Oregon schools. High school students are going to build their own antennae and they’re going to use Smartphones and laptops and the antennae to receive a signal of the satellite as it goes overhead. It’s like a 400 kilometer selfie.”

OreSat is an educational outreach program to the state of Oregon. To high school students “it teaches communications, tracking, satellites, pointing antennas, the complexities of imaging, because when you have a fairly high resolution camera imaging a specific item that’s moving at 27,000 miles per hour it might be blurred,” said LeBrasseur. The satellite will have a very small footprint over a point of the Earth while in low Earth orbit. “Think of a flashlight shining on the wall, there’s going to be a region lit up. That disk or that footprint is going to pass by in about 15 minutes or less; we’ll get one or two of those then we won’t see it again for 18 hours, then we’ll see it again for one or two passes.”

PSAS will collaborate with other ground stations on Earth who will be in the path of OreSat’s ground track. LeBrasseur named a few: University of Colorado, University of Illinois and Georgia Institute of Technology.

The secondary mission of OreSat is to carry climate science experiments, including a set of cameras from University of Oregon that are designed to look at the topside of cirrus clouds.

The third mission purpose is product evaluations and to give a product flight heritage. Specifically, OreSat will test the usefulness of the solar cells it’s using, which were donated by Alta Devices.

“The spacecraft itself is a unique design that we have built to allow cards to be plugged into it so the whole spacecraft doesn’t have to be taken apart each time a change is made or we want to test a particular part,” LeBrasseur said. “What’s unique about it is that we’re designing it for the purpose of the module itself, but it has to still fit the CubeSat design specification.”

The advantage of the design specification is that when a builder goes to certify its CubeSat, or get it integrated into a launch mission, it fits into a standard box or slot. That means when there’s a little bit of room on a space station or a rocket then a CubeSat can easily be tucked in.

“Our satellite will be in one of the little cargo hold cases,” LeBrasseur said. “They’ll load it on ISS like cargo on a jet airline.” When the time comes, “they’ll open that case, take it out, stick it in the little launcher thing, press the button, and PSSH, it’ll launched out the back.”

After six to nine months in low Earth orbit, OreSat will re-enter Earth’s gravity and disintegrate.

Subsequent OreSats have other destinations. “We’re always looking for science missions that are useful,” LeBrasseur said. “We’d like to go into geosynchronous [Earth-centric] orbit, where we will need to have some kind of propulsion to maneuver, so that it can scoot out of the way of something or position in a certain way. After that we will maybe go between geosynchronous and the moon. There are lots of fun things out there. There are asteroids, vibrations points or L-Points that are basically gravitational wells where things tend to accumulate. If we went to an L-point and hung out there for a while and simply put a camera out to see what kind of junk is accumulating, that might be fascinating. Everyone is going to Jupiter. We might go to Mars first. Who knows?”

L-Points, or Lagrangian Points, are points between the sun and orbiting planets where there are quirks in the

THE PACIFIC SENTINEL 29
centripetal force, which create pockets of balanced gravitational pull, Rushford and Kenny McElory of PSAS explained. There are five L-Points. L4 and L5 are the most stable, and have accumulations of Trojan Asteroids.

In May 2018, NASA plans to deploy two highly developed CubeSats called MARCO with the Mars mission large spacecraft Insight. MARCO stands for Mars Cube One, and they will each be about the size of a cereal box. Andrew Klesh, chief engineer for Interplanetary Small Spacecraft at the NASA Jet Propulsion Laboratory, explained in a NASA JPL live public talk that ninety minutes after Insight launches the MARCOs will deploy, fly independently for the six-and-a-half month journey then, without entering Mars’s orbit, monitor and report back to Earth Insight’s landing on Mars. To date, no Earth deployed spacecraft has successfully landed on Mars. Information supplied by the MARCOs will improve the success of subsequent missions to Mars and beyond.

Relative to spacecraft such as Insight, or Juno—which in 2011 cost $1.1 billion, CubeSats are inexpensive. For that reason, they can be deployed into high-risk situations. Where Juno could do only one fly by of Pluto, multiple CubeSats can do multiple fly-bys.

CubeSats may be built for exploratory, educational, military and commercial purposes. They collect a lot of information, but on a focused subject. A range of possible components for any one CubeSat includes sun sensors, solar panels, solar rays, telescopes, laser range finders, horizon sensors, star trackers, pointing sensors, multiple cameras and antennae for transmitting information back to Earth. Also, CubeSats intended to operate beyond low-Earth orbit need self-propulsion, which may include cold gas systems, solar sails, iodine systems, electric ion burners and more possibilities not yet past the let’s-see-if-this-will-work stage.

As technology advances, CubeSats will last longer and go faster and farther. Their in-space performances and demonstrations are expected by NASA to actively advance the capabilities needed to take humans farther into space than ever before.
WORKING...

HMMMM... LOOKS BORING.

HEY! WHAT ARE YOU DOING?

I SAW YOU TALKING ON THE CAMERA AND WANTED TO MAKE SURE YOU WERE DOING YOUR JOB AND NOT GETTING DISTRACTED.

YUP.

GREAT! KEEP UP THE GOOD WORK AND LET ME KNOW IF YOU NEED ANYTHING.

DUDE...

WHAT A DINOSAUR...

comic by Steven Christian