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JASDF F-35A Crash Due to “Spatial Disorganization”

Recent Crash Raises Concerns about Training and Safety



A F-35 in flight

Source- The Mainichi



KAI HUANG
2B COMPUTER

On 9 April 2019, a Japan Air Self-Defense Force F-35A crashed into the northern Pacific Ocean during a night training exercise. While debris from the crash was found quickly after the military became aware of the incident, it did not answer any questions about the cause. How could an experienced pilot with over 3000 flight hours crash one of the most sophisticated modern aircraft? In the wake of the crash, all 12 of the other F-35's in service with Japan's armed forces were grounded, and the future of Japan's F-35 program put into question.

The crash has a profound impact on not just the Japanese Armed Forces but also the entire F-35 program as a whole. Under the new

Japanese defense plan unveiled at the end of last year, Japan is on track to purchase 105 F-35A models for the Air Self-Defense Force, as well as 42 F-35B models for the Maritime Self-Defense Force. The total order makes Japan the largest foreign operator of the F-35. Should the crash be attributed to an engineering fault or a mechanical failure, it is likely that the order would be faced with much scrutiny and possible pushback.

On 10 June 2019, the Japanese Ministry of Defense released information provided by the flight data recorder. The pilot, Maj. Akinori Hosomi, had been communicating with ground controllers about 15 seconds prior to the crash. None of the transmissions up to the crash had any sense of urgency and indicated that Hosomi had no knowledge whatsoever of his upcoming fate. The flight data showed during the final messages that the plane was descending at a rate of over 1000 feet per second, at an

altitude of no more than 16000 feet. The conclusion from the Ministry of Defense is that Hosomi encountered spatial disorientation.

Spatial disorientation is defined as “a situation where the pilot cannot sense correctly the position, attitude, altitude, or the motion of an airplane”. The JASDF is not new to such incidents, and was the focus of a 2009 study, which concluded that 12% of all Japanese military air accidents were a result of the phenomenon. While the F-35 has a plethora of sensors and displays that are intended to alleviate such issues, the presentation of the information is much different than that of previous Japanese fighters. While previous-generation jets tended to have most of their information on dashboard displays, the F-35's highly advanced helmet provides the pilot with a heads-up display. As this technology is new to the JASDF, it is not unlikely that the pilot may not have been familiar

enough with this system to notice his fatal descent.

Defense Minister Takeshi Iwaya stated that the training program for Japanese F-35 pilots will now include extended training on how to deal with spatial disorientation. As for the grounded JASDF F-35 fleet, their electrical and mechanical systems will undergo thorough inspections and returned to service after consent has been given by local communities. Nothing will change pertaining to the future F-35 orders.

Letter From the Editor

A Short History of the Russian Revolution(s)

JANNY WANG
EDITOR-IN-CHIEF

In the latest edition of historical story time for engineers, I am proud to present a recounting of the various waves of fratricidal socialist infighting in the Russian Revolution.

The generic picture of a revolution is an angry mob festooned with red, against a backdrop of billowing smoke and ruined palaces, with a Trotsky or a Desmoulins at their head. This picture holds well enough for the initial bout of uprising, but after the first burst of leftist solidarity wears itself out, most revolutionaries tend to spend a rather disproportionate amount of killing their comrades rather than the old regime.

The Russian Revolution exemplifies this. Tear away the mask of Hollywood history, with its familiar depictions of a tragic Tsar and a platoon of leather clad commissars, and it reveals itself as a byzantine train wreck of infighting, assassination, and repression. It consists of two separate revolutions, plus two failed revolutions. Of these, only the February Revolution represented a glorious overthrow of the decadent old order, while the other three all took place against regimes which were at least nominally socialist.

The February Revolution of 1917 was a spontaneous occurrence. Russia was a poor and stagnant nation, only a generation removed from serfdom, which had recently topped off a centuries old tradition of repression and cruelty with three years of disastrous war. The people of St. Petersburg were without bread for the umpteenth time. Female workers seized upon the occasion of International Woman's Day to demonstrate their general dissatisfaction with the state of affairs, by staging a protest which rapidly became a riot. The disorder spread, the soldiers defected, and in short order Tsar Nicholas the Second was obliged to abdicate in a train car in Pskov.

To this original revolution, neither Lenin nor Trotsky nor Stalin contributed one iota. Lenin was languishing in Switzerland, Trotsky was in New York working as a newspaper editor, and Stalin was enjoying a romantic Siberian exile with his extremely underage mistress.

They were also not the primary beneficiaries of this revolution. Power went to the Russian Parliament, the Duma- or at least the portion of the Duma which had not bugged off to the countryside at the first sign of trouble- and to an impromptu worker's council, called the Petrograd Soviet. The primary leaders at this stage were Kerensky and Martov.

Kerensky was a moderate socialist, who had gained a reputation as a labour activist in the days of the Tsarist regime. After the February Revolution, he was both a member of the Duma and chairman of the Soviet. By some odd turn of fate, he had grown up in the same town as Lenin and their families had been friends.

Martov's association with Lenin was even closer. He and Lenin had originally been pals in their early revolutionary days, when both had been members of the Russian Social Democratic Labour Party. The two of them had a rather bad breakup when the RSDLP fractured over doctrinaire issues, with Lenin leading the Bolshevik faction and Martov the Menshevik faction, although Lenin

continued to reminisce fondly of Martov even unto his deathbed.

Martov's plan was to transition Russia to a modern, democratic nation and from thence to socialism. In this vision, the Soviet was to be the principled opposition to the Duma, the worker's watchdog which would ensure that there would be no backsliding or counter revolutionary floundering. This was a fabulous plan, which absolutely did not stand contact with reality.

Another important faction at this stage were the Social Revolutionaries, perpetually abbreviated to SRs. Unlike the Mensheviks and Bolsheviks, who primarily concerned themselves with urban affairs, the SRs were agrarian socialists, with a strong support base in the countryside. Their pet cause was the redistribution of land and their modus operandi was assassination and terrorism- think Assassin's Creed, with more socialism and less competence.

Elections were called and arrangements were made for a Russian Constituent Assembly to meet in October. Meanwhile, the country continued in freefall.

Kerensky rapidly wore out the initial sheen of popularity when he decided to continue fighting in World War One, and it transpired that getting rid of the Tsar did not make bread appear in the shops. At this point, Lenin, who had by now been smuggled into Russia by the Germans on the famous "sealed train", began agitating for a second revolution, with the infinitely catchy motto, "Land, Bread, and Peace".

The Bolsheviks wanted to skip the transitional stage of Martov's plan and skip to full socialism. Their rallying cry at this stage was "All Power to the Soviets", notwithstanding the fact that the Soviet generally supported Martov's plan and was not at all keen to take power. The whole thing culminated in the July Days, a semi spontaneous insurrection which broke out when a planned demonstration of far left workers spiraled out of control. The July Days had all the same hallmarks as the February Revolution- a general uprising triggered by the lack of food and the rapidly deteriorating military situation. This time, however, the soldiers did not side with the insurrectionaries and remained loyal to the Provisional Government.

It is still debated what role the Bolsheviks played in this whole affair. They helped organize the original demonstration, backtracked, unbacktracked, and then spent most of the day having a collective epileptic seizure at their newspapers headquarters. Nevertheless, they were blamed for the whole affair, not entirely unjustly, and most of their leadership was obliged to go into hiding.

Fortunately for them, this meant that they were not involved in the rapidly devolving snafu of Russian state affairs. In the aftermath of the July Days, Kerensky appointed an old school officer called Kornilov commander of the Russian forces. Kornilov promptly about-faced his army and marched on Petersburg with the stated aim of restoring peace. This put Kerensky in the unenviable position of having to arm his enemies on the left to combat his enemies on the right. At any rate, Kornilov's advanced was rebuffed, but Kerensky's position was now practically untenable. He was too far left to count upon the support of the old order, too far right for an urban proletariat radicalized by Bolshevik promises, and too incompetent for just

about anybody.

Nevertheless, the so called "October Revolution" was less revolution and more coup. There was no popular uprising, no general cry for regime change. The Bolsheviks simply gathered together a crack militia, took the Winter Palace without a fight, and sent Kerensky ignominiously slinking away in woman's garb. Martov was allowed to wallow in obscurity for a bit, before being given permission to leave Russia in 1920.

The Bolsheviks formed a government with the far left segment of the SRs, hitherto to be referred to as the Left SRs. Unusually for the time, the Left SR faction was led by a woman, Maria Spiridovna, who had briefly been a cause celebre in the Tsarist regime when she was sent to Siberia for assassinating a corrupt official.

Meanwhile, the Russian Constituent Assembly met in St. Petersburg. It was primarily dominated by the right leaning faction of SRs, who opposed the October Revolution, and consequently was allowed to sit for a whole two days before the Bolsheviks unceremoniously dissolved proceedings. Thus ended the high watermark of Russian democracy.

Lenin, having secured power, was now in the unenviable position of having to fulfill his electoral promise of "Bread, Land, and Peace". Trotsky hoped that German workers and peasants would rise up, repudiate the war, and join the Bolsheviks in building a glorious new utopia, but when this was not forthcoming, they were obliged to settle for the Treaty of Brest Litovsk. Russia gave up vast tracts of territory, including Ukraine, Poland, and Finland, amounting in all to a loss of 34% of its population, 80% of its coalmines, and 50% of all other industries. In his memoirs, Trotsky managed to blame the Tsarist regime and Kerensky for this treaty, which he personally negotiated.

The Treaty of Brest Litovsk put the Bolsheviks at odds the Left SRs, who were very for peace in theory, but thought the terms of the treaty unacceptable. The Bolsheviks discovered the drawbacks of forming a political coalition with assassins, and still more of putting them in charge of the Secret Police, when, on July 8 1918, Left SR Cheka agents shot and killed the German ambassador with the intent of restarting the war.

This had the effect of doing absolutely nothing, whereupon the Left SRs attempted to stage a July Revolution to complement February and October, and managed to successfully re-enact the July Days of 1917. Their delegates were arrested, their headquarters bombarded, and the whole debacle petered out with such remarkable speed that it was actually a Bolshevik plot.

At any rate, the upshot of it all was that, by July 1918, the government was controlled solely by the Bolsheviks- just in time for Russia to spiral into civil war.

In an odd twist of fate, the Left SR who killed the German ambassador would later become Trotsky's secretary and confidante, and the author of a short lived Iranian Communist Republic.

If you think that my ramblings on the subject are entirely too concise, I encourage you to tune in every Monday for Mike Duncan's Revolutions podcast, where he has just embarked on a new series on the Russian Revolution. As always, contact me at iwarrior@uwaterloo.ca.

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Crisis in Sudan



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On April 11, 2019, following months of civil unrest, the Sudanese military removed President Omar al-Bashir from office. This marked the

climax in a saga of protests that have plagued the African nation for years.

Sudan has struggled recently to stay financially sound. It has been hit with inflation at around 25% and a corresponding shortage of cash. Conditions have gotten so bad that a black market for US Dollars as developed, where Sudanese pounds are exchanged at much less than the

official exchange rate.

In order to combat these problems, the government has been trying to follow recommendations made by the International Monetary Fund. Part of these recommendations include removing government subsidies on fuel and household goods. In December, when bread subsidies were eliminated, citizens saw the

price of bread double or triple, making it unaffordable for many. Citizens took to the streets to protest these changes and to demand a new civilian government. For months, these protests were peaceful. Then, in early June, reports emerged that the Sudanese military – who have been running the country since they arrested the President – had killed, raped, or injured dozens of protesters. Following this news, on June 3 the military cut off all internet services in the country in an effort to stymie communication between protesters and international groups.

Over the last few weeks, internet has slowly been brought back and is not running at 10% (as of the publishing of this article). The most recent news from Sudan suggests that the military has agreed to hold negotiations with protestors to decide how the transition to a new president should occur. However, there are questions about how much power the military would be willing to give up in any government transition. One this is for certain though: this problem isn't likely to resolve itself any time soon.



Pro democracy protestors in Sudan

Source- Euronews

Canada to Ban Single Use Plastics

STONE HE
2B MECHANICAL

Earlier this month, the Trudeau government announced that a ban of harmful single-use plastics will be implemented in 2021, in order to reduce the amount of waste and pollution created from plastic products and packaging.

The ban would cover commonly in use plastics such as grocery bags, plastic cutlery, straws, plastic wrap and polystyrene (Styrofoam™) products. However, this ban would be grounded in scientific research and backing, as there are applications where single use plastics are benefi-

cial for sanitary reasons (i.e. medical syringes and other equipment), unlike certain opinion articles have stated.

The ban is mainly implemented due to the negative effects it has to the environment. Most plastics used in grocery bags, straws, and plastic cutlery can take 1000s of years to break down with polystyrene taking up to a million years to break down taking into considerations of the conditions. However, these plastics would usually break down under sunlight, causing it to form tiny particles, and end up in water systems, affecting the aquatic life in lakes and rivers.

The plastic ban is not without any criticisms, as Andrew Sheer, the leader of the Progressive Conservative Party, said that there is a lack of detail on how the ban would affect the

economy. In addition, plastic manufacturing can take a hit and lead to job losses due to the reduced amount of plastics produced after the ban.

Another criticism about the plastic ban is that Canada would have little affect in the larger scale of things since Canada produces less amounts of plastic waste compared to countries in South-East Asia.

This is not the first time Canada has banned the use of certain plastics. In 2018, microplastics in cosmetic and washing products were banned and removed from consumer products in Canada. This was due to microplastics seeping into rivers and lakes as they are sometimes too small to be filtered out in water-treatment systems

The plastic ban may be implemented due to the Canadian recycling industry

taking in even fewer types of items. Only a small percentage of plastics were recycled or converted to energy while a large portion of it ends up in landfills. In some cases, recycling can become a financial burden to some municipalities and most recyclable products could just end up in a landfill. Due to the costs of running a recycling program, it could be beneficial to just stop using single use plastics to avoid it from contaminating the environment

Even before the ban, many companies had a goal to phase out single use plastics in their services. For example, some fast-food companies, such as A&W, replaced plastic straws with paper straws, which sometimes did not resonate that well with the customers, since the paper straws get soggy when placed in the drink for too long. In addition, some cities and municipalities, such as Montreal, Tofino, and Deep Cove within Canada had taken the steps to end the use of single use plastic products such as bags, straws and bottles. Even without a complete ban, one can also reduce the use of single use plastics by bringing reusable shopping bags when shopping, bringing a mug to coffee/tea places, and use reusable cutlery.

Hopefully, this ban would end the humiliation of shipping our garbage to Malaysia and the Philippines in shipping containers (Well most of the world did ship its garbage to China until it got banned). At least this may be the right direction Canada is heading towards and hopefully other countries can follow suit.

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Highlights of E3 2019



KAI HUANG
2B COMPUTER

The Electronic Entertainment Expo (E3) is one of the most significant events each year for the video gaming industry. The three-day trade show features presentations galore, giving the world a sneak peak into upcoming releases. The event has just wrapped up for 2019, with significant reveals from many companies about their future projects.

Nintendo took to the stage with one of the most unexpected reveals: a sequel to *The Legend of Zelda: Breath of the Wild*, one of the best-selling and most highly acclaimed titles, for the Switch. It will be taking place in the same Hyrule, running under the same engine. Producer Eiji Aonuma explained that the idea was originally born from the team having far too many ideas for a new DLC. The remake of *Link's Awakening* for Switch is a burst of nostalgia for fans familiar with the 1993 original for the Game Boy. Gameplay footage and details were revealed for the first time at E3, with a confirmed release date set for September of this year. As a surprise announcement, Nintendo also revealed that CD Projekt Red's bestselling RPG *The Witcher 3* will be released on the Switch, including all the currently released DLC.

On the topic of CD Projekt Red, a new trailer and a confirmed

release date for the highly awaited *Cyberpunk 2077* was unveiled. Taking the stage by storm was Keanu Reeves, who was revealed to have an in-game character modelled after him. Reeves enthusiastically praised the game and brought joy to the audience. The different editions and pricing were finally presented, and the game is now up for preorder, with a release date set for April 2020.

Open-world RPGs were definitely a highlight of this year's E3, with Ubisoft following suit with their new *Watch Dogs* game: *Legion*. Set in a post-Brexit London, the game has the unique concept of allowing the player to play as any character present in the game world through quest chains and in-game activities. Fans laughed as they watched a gameplay demo featuring a grandmother fighting her way around. Ubisoft also revealed a new *Ghost Recon* game, as well as a new *Just Dance* title, which will be released for the dated Nintendo Wii, likely the last game on the platform.

Microsoft showed up strong to this E3, firing the first shots of the new console war with the reveal of their Project Scarlett console. Powered by AMD's Zen 3 and Navi hardware and equipped with a new SSD, Microsoft promises the biggest generational leap in Xbox console history. Performance numbers given so far indicate 8K resolution support, up to 120fps, and hardware-accelerated ray tracing. The launch title for this console, which is releasing in late

2020, is *Halo: Infinite*, which will also be released for PC. Another notable announcement by Microsoft is the new *Microsoft Flight Simulator*, launched 13 years after the dated, but still immensely popular *Flight Simulator X*.

In the Playstation world, Sony has been comparatively tight-lipped. The given specs at the moment look comparatively in-line with Microsoft's offering, also utilizing a Zen 3 processor, Navi GPU, and SSD, with 4K 120fps support, and up to 8K resolution. It's been also stated that the PS5 will support 3D Audio. More importantly for the Playstation is the details for 2 upcoming games: *Death Stranding* and the *Final Fantasy VII* remake. *Death Stranding* is Hideo Kojima's first game under his own studio, and each trailer only presents fans with more questions. The release date has been confirmed for November of this year and Kojima has stated that the game will be an action game set in an open world, with some multiplayer elements. The remake of *Final Fantasy VII* was teased for years by Square Enix, starting from a tech demo even prior to the PS4. A full trailer was finally unveiled this E3 and a release date confirmed for March 2020.

Finally, both of the legendary long-running FPS franchises revealed their future plans. *Call of Duty: Modern Warfare* was announced, with a short cinematic trailer leaving fans wanting more. *Infinity Ward* mentioned that the game will be more

grown-up and mature, and act as a soft reboot of the *Modern Warfare* sub-series. For the first time in series history, it will support cross-platform multiplayer, and a release date has been confirmed for October of this year. *Battlefield V* still being fairly recent, but DICE confirmed the addition of more content, including the highly awaited *Iwo Jima* campaign, taking the game into the Pacific Theatre.

Of course, with such a large event, there's much that we could not cover here. While the highlights may be the ones mentioned above, the industry is so vast that anyone with specific interests may find other reveals that are more significant for them. Certainly there would be something that will invoke excitement for anyone interested in video gaming, and the countdown now starts for next year.



Source- Los Angeles Times

Keanu Reeves appeared at E3 to advertise Cyberpunk 2077



Source- Venture Beat

Poster at E3

No War with Iran

HASSAN ALI
2B NANOTECHNOLOGY

The repeated abuses of the Iranian people over the past century are among the most egregious examples of American and British violence. The recent escalation of tension between the United States and Iran represent a grave threat to the Iranian people, the entirety of the Middle East region, and humanity as a whole. It is imperative that people living in North America oppose this war and push for peace in the region and the world at large.

The media always seeks to decontextualize situations and demonize enemies of the US. In the official narrative, the US is always the saviour and the governments opposed to them always demons who must be eradicated.

This is why examining the record regarding Western relations with Iran is critical. Since the discovery of oil in the early twentieth century, Iran has been subject to brutal British domination and exploitation. The British made a deal with the corrupt Qajar dynasty through bribes and fraud to enjoy the majority of the revenues from the Anglo-Iranian Oil Company (AIOC) while Iran would receive only a pittance. However, for the British a pittance was still too much to offer a Third World people, and they never honoured their side of the agreement. When the Iranian people asked to examine the British accounts, the British responded with brutal repression through their Iranian puppets. Subsequently, when the Iranian

people elected Mosaddegh, a secular nationalist, who nationalized the AIOC, the British retaliated with a boycott and embargo designed to devastate Iran's economy. Not content with destroying the economy, the British, alongside the CIA, overthrew the democratically elected government and imposed the brutal Shah dictatorship. Stephen Kinzer's All the Shah's Men documents this history and the Western role.

The Shah dictatorship was one of the most horrendous in the world. Their secret intelligence service, SAVAK, trained by the CIA, was widely known and despised for its remarkable savagery. According to Time Magazine, SAVAK "tortured and murdered thousands of the Shah's opponents." While the North American press often represents the Iranian revolution as a revolt by Islamists against secularism and modernity, Professor Rejali of Reed College (leading writer on torture) writes, "the Iranian revolution of 1978-1979 was a revolution against torture." The more popular narrative of religious fundamentalists overthrowing the Shah regime to impose theocratic rule holds up to little scrutiny when one examines the fact that Iranians are much less religious than most Muslims (only 1.4% of Iranians regularly attend Friday Prayers, much lower than most other Muslim countries). This framing of the revolution allows the Western powers to absolve themselves of the blame for the 1953 coup as it completely disregards the crimes of the Shah regime. It often juxtaposes women under the Shah regime wearing miniskirts and bikinis with Iranian women today tragically forced to wear veils. Women and girls living in torture

chambers during that time are not frequently depicted in the press.

After the Iranian people overthrew the Shah regime in 1979, the United States was determined to show that there would be severe consequences for resisting American hegemony in the Middle East. Iraq, under Saddam Hussein, with the backing of the United States, waged a devastating war against Iran following its revolution. The CIA supported Saddam Hussein in the production and use of chemical weapons against Iranians. To further humiliate the Iranian people, the US downed Iran Air Flight 655 in July 1988, murdering 290 civilians and subsequently refusing to apologize for the attack, despite a cash settlement for the victims' families in 1996. George H.W. Bush infamously stated shortly afterwards, "I will never apologize for America, I don't care what the facts are."

Despite the attacks and the degradations that Iran has suffered from the US and Europe, Iran has been one of the most valuable players in regional peace and stability. Iran fought against the Taliban in the early 2000's and later against ISIS alongside the Kurds of Iraq and Syria. As former Greek finance minister Yanis Varoufakis told Democracy Now in 2018, "without Iran, we would not have defeated ISIS." As compensation, the US has decided to pull out of the Joint Comprehensive Plan of Action (JCPOA), more commonly known as the Iran Nuclear Deal. The JCPOA involved Iran making more concessions than any other nation has ever made regarding its nuclear program and agreeing to full transparency. The International Atomic Energy Agency verified that

Iran complied with the agreement. The US violated the agreement and further imposed crippling sanctions on Iran to degrade and humiliate the nation.

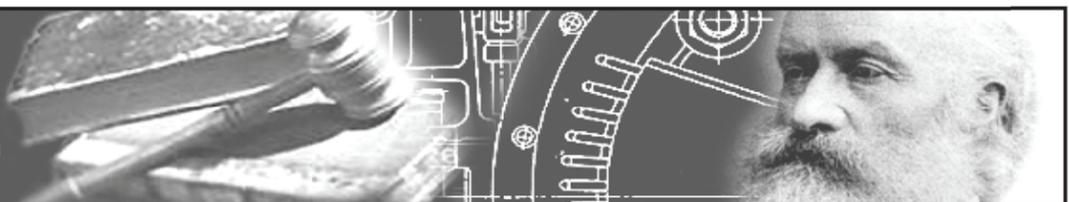
According to Fairness and Accuracy in Reporting, the US press continues to depict American aggression as a response to "Iranian threats". The US has continued to blame Iran for attacks on Saudi, Japanese, and Norwegian oil tankers with little to no evidence, perfectly mirroring American lies regarding the Gulf of Tonkin incident which served as a pretext for the US invasion of Vietnam. Despite media depictions of Iranians as terrorists, there has not been a single Iranian suicide bomber since 1988. All criticisms of Iran regarding fundamentalism, women's rights, and civil liberties sound completely hollow when juxtaposed with US support for Saudi Arabia, which is far more repressive of civil liberties and women's rights, and whose brand of religious fascism is the inspiration for ISIS and Al-Qaeda. As MIT Professor Noam Chomsky says, "by comparison to Saudi Arabia, Iran looks like Norway."

Anyone who wants peace in the Middle East should work with Iran for regional stability and should sanction the barbaric Saudi regime for its massive internal human rights violations as well as its genocidal war in Yemen, which has been internationally condemned as "the worst humanitarian crisis in the world". Everyone must say: no sanctions, no war, peace with Iran.



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Income Sharing Agreements

A New Way to Pay for University?

JANNY WANG
2B NANOTECHNOLOGY

Presently, the trendiest source of heart wrenching despair for Millennials is student loans, with good reason. The debt hangs like a Damocles' sword over the heads of millennials, who stave off destruction only by wrenching the sacrificial dagger into the heart of mainstay industries, from brunch to supermarkets, and presenting the fallen corpses to their debtors as a blood offering.

The prescribed cures are manifold; forgive debt, smoke out the fat of university administration, or encourage students to become plumbers. In Ontario, Ford's tuition cuts caused relatively little excitement, while his OSAP cuts prompted much wailing and gnashing of teeth. Down south, Sanders' plan to forgive nearly \$1.6 trillion in student debt has been met with a mix of elation and skepticism.

Into this arena steps the income sharing agreement or ISA. Thus far the domain of backalley coding camps

and private colleges, it is slowly inching its way into the American mainstream.

The premise behind ISAs is simple; the university gets a slice of however much money you are destined to make after graduation. If you bum out and retreat to the recesses of your parent's basement, then the university goes home empty handed. If, on the other hand, Fortune graces you with sunny California beaches and mountains of green, then the university is allowed to help itself to an ample slice of the pie.

ISAs functionally provides a safety net for students who are uncertain about their prospects after graduation, neatly sidestepping the nightmare scenario of trying to pay off several thousand dollars in debt on a barista's salary while returning cap in hand to your parents every night.

ISAs could also assuage another popular cause for hair tearing hysterics- the mythical underwater basket degree, which allegedly proliferates among the dissipated youth of our degenerate times. So much ink has been spilled over the relative employability of various degrees that a few peculiarly blessed ones have now ascended to memetic

status.

ISAs soothe this anxiety by incentivising universities to focus on programs which are liable to land the students a job after graduation. Under an ISA model, there is no incentive for universities to innovate newer and nichier degrees with abysmal job prospects, since they stand to hemorrhage money from such a scenario.

Presently, social media is presently replete with high schoolers lamenting their educational prospects after Doug Ford's recent innovations. ISAs resolve this problem neatly enough, since they require no cash-on-hand; everybody liable to improve from a postsecondary education would be able to get one.

As with most innovations, ISAs are subject to abjectly skimpy regulation, which is particularly alarming given their target audience; fresh faced frosh mostly incapable of adding two and two, and consequently peculiarly prone to mucking their way into situations which have been compared to "indentured servitude". In particular, a student could end up paying far more with an ISA than they would with traditional student loans, especially if they

enter immediately into a high paying job after graduation. For students in high demand fields, ISAs could be "paying for a safety net they don't need".

Graduate school and continuing education also represent a gray area for ISAs. If a student continues their education after receiving a bachelors, then it becomes very difficult to quantify how much of their salary upon graduation is owing to what- and still more if a student dawdles about the educational system, jumping from major to major and college to college, as some are wont to do.

Nonetheless, ISAs could be a valuable tool in making education more accessible and improving quality of education. Now that universities and colleges in Ontario are tragically bereft of a fresh supply of cash for the new year, it will be interesting to see what measures they take to fuel the six figure salaries of their administration.

Canada to Remove Legal Tender Status from Old Bank Notes

Note: This is an info article sent by the Bank of Canada to the Iron Warrior, as part of an initiative to help Canadians understand what these new changes will mean for them.

Removing legal tender status from bank notes: What it means for you

You may have heard the term "legal tender" in the news recently.

That's because the Government of Canada has announced that as of January 1, 2021, it will remove legal tender status from some bank notes, namely the \$1, \$2, \$25, \$500 and \$1,000 bills.

This step comes after legal changes following the 2018 federal budget gave the government power over the legal tender status of bank notes.

Wondering what this means for you?

Short answer: this will not affect

most Canadians.

What "legal tender" means

First, let's define the term "legal tender."

Bank notes issued by the Bank of Canada, along with the coins issued by the Royal Canadian Mint, are what is known as "legal tender." It's a technical term, meaning our government has deemed them to be the official money we use in our country.

In legal terms, it means "the money approved in a country for paying debts."

By removing legal tender status from the \$1, \$2, \$25, \$500 and \$1,000 bills, the government is essentially saying that you shouldn't use them in cash transactions or to pay debts.

But rest assured, this does not mean these bank notes will lose their value. The Bank of Canada will honour their face value even

after legal tender status is removed.

Have some of these notes? Here's what to do

If you own any of these older bank notes, you have a few options.

You can redeem them. The simplest way to do this is by going to your financial institution, where they will exchange them for new bills or deposit the amount into your account.

You can also send them to the Bank of Canada, which will continue to honour these bank notes at their face value. For details on how to redeem your notes at the Bank of Canada, you can go to <https://www.bankofcanada.ca/banknotes/bank-note-redemption-service/>.

Finally, you can decide to simply keep your notes.

Check the value of your bills before you go to the bank

Some bank notes, such as the \$25

and \$500, may be worth significantly more than their face value. To find out if your bank notes have a different value to collectors, you can refer to a collector's catalogue, or obtain an evaluation from two or three money dealers who cater to collectors.

Why remove legal tender status?

The bank notes targeted in this announcement haven't been produced in decades. Some people might not recognize them anymore, which means they probably wouldn't be accepted in transactions.

By removing legal tender status from the \$1, \$2, \$25, \$500 and \$1,000, the government is helping ensure that the Canadian bank notes in circulation are current and easy to use.

The Bank of Canada, which issues Canada's bank notes, supports this initiative. Keeping notes current means they work more effectively for everyone because they have better security features that make them hard to counterfeit.

With all this, you may wonder whether the government intends to remove legal tender status from any other bank notes. There are no plans to remove legal tender status from any other notes at this time. If it does happen in the future, Canadians will be informed with plenty of time.

If you'd like to learn more about legal tender or Canada's bank notes, visit our website: bankofcanada.ca/banknotes and follow us on Twitter: @bankofcanada. You can also follow the Bank of Canada Museum on Facebook: @BoCMuseum.



Canadian Banknotes

Source- The Canada Guide

Financial Worries BEFORE University: How Ontario Can Improve Its Education

THOMAS DEDINSKY
VP ACADEMIC

Hey readers! I wanted to take the opportunity for the third exec article of the term, with the recent worries of OSAP and how to manage finances at the post-secondary level, to take a step back to the secondary and elementary level of education. What expectation are they setting with current youth through their personal finance education? Are they preparing them for future financial situations like the one they've placed many of Ontario's young adults into?

Ontario recently launched a pilot to teach financial literacy to these students, and I personally think it's flawed. Ironically, Ontario already teaches sound personal finance as a mandatory part of students' education, but only for some pathways. I believe that Ontario should

have personal finance education, but how it has been implemented in past and present pilots is not ideal, with content that was either unhelpful or indigestible. It can be better implemented by taking Ontario's existing personal finance education, designed for secondary students seeking non-post-secondary pathways, and tailoring it for all to ensure financial knowledge equity.

Personal finance education is valuable for students to know and schools to teach. For both the functionalist and individual development theories of education, personal finance education provides students with the tools to function in society and remove barriers for reaching their own potential. Additionally, with many schools tailored to teach students to be personally responsible citizens, wanting someone who works and pays taxes, is challenging when that someone doesn't know how to properly document proof of tax liabilities.

The current financial literacy plan does

not teach meaningful personal finance to Academic/University-stream students. The 2011 Ontario curriculum update aimed to teach students from Grades 4-12 "to make informed choices and effective decisions about the use and management of money". It tried, and failed, to seamlessly integrate financial literacy information into all aspects of the curriculum. They tried to sprinkle little bits of investigation and knowledge into different subjects, which left it extremely diluted. A University-bound student's most meaningful exposure to personal finance is calculating compound interest.

Furthermore, the current Ontario pilot is an adjustment to the Grade 10 Careers course. This course is already crammed as a half course, taught after Grade 10 Civics, and is often seen by students as an easy course and a waste of time, which was highlighted in a CBC News investigation back in 2012. This new pilot does not do much to alleviate these concerns. The content includes budgeting, banking, and credit and debt management in approximately 20 hours. Teaching this for under a month, or 3 days in the popular summer school offering, is far too little time for this subject.

However, College-stream and Workplace-stream students have already been receiving a quality education in personal finance in Grades 11-12. In a Grade 12 Mathematics for Work and Everyday Life course, students learn a lot of useful skills through great in-class exercises. Skills like how to budget a paycheck into living expenses and how to compare multi-variable purchases like a phone plan are used as realistic examples, with teachers adapting realistic items like an in-circulation mobile phone plan flyer. This type of relatable and applicable content should be

taught to all students.

There is a concern that this math course will be treated as a bird course. However, by replacing Functions as a mandatory Grade 11 math course, it is well positioned to be taken more seriously. Mathematics and English are the only mandatory Grade 11 courses, this would be a full course instead of a half-course, and students are ideally a year more mature. This combination aims to make students view this course as meaningful mandatory content that they can also devote more time and interest into.

That's why I think personal finance education is important, and Ontario needs to get it right. It improves both students and schools, and while Ontario's past and present pilot attempts are not satisfactory, the current personal finance courses taught to some students should be mandatory for students seeking post-secondary education. This ensures financial knowledge equity for all Ontario Secondary School Diploma recipients.

Hope you enjoyed a bit more of an Op-Ed. Originally I was going to advertise a charity fundraiser we're planning, but that wasn't out by Friday morning, so this will suffice.



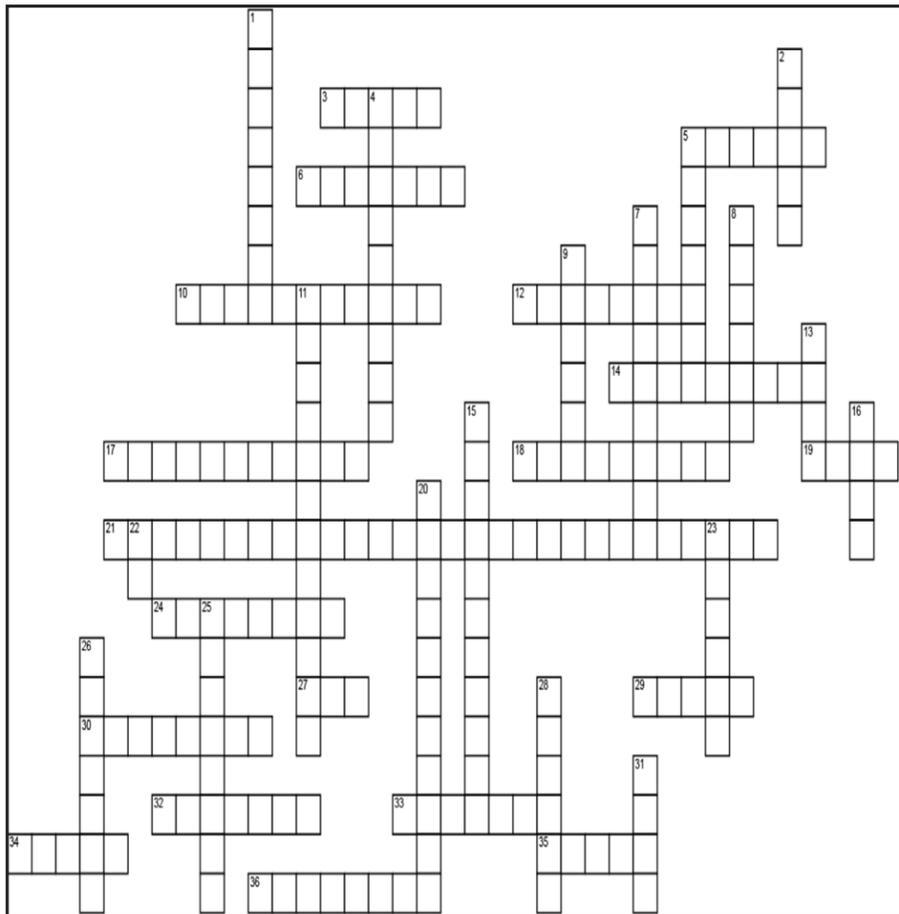
Upcoming Events Calendar

Wednesday June 26	Thursday June 27	Friday June 28	Saturday June 29	Sunday June 30	Monday July 1	Tuesday July 2	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca/event-calendar/
Canada Day Tie Dye 4-6 PM POETS Council Meeting 5:30-7:30 PM E7 3353	Free Food 11:45-1 PM E7 Foyer Maker Space Build Night 5-10 PM Ideas Clinic	Teatime Chill 4:30-6:30 PM Poets				Blood Runs 5-8 PM 94 Bridgeport Road East	
Wednesday July 3	Thursday July 4	Friday July 5	Saturday July 6	Sunday July 7	Monday July 8	Tuesday July 9	
Ramen Eating Contest 11:30 AM-1 PM CPH Courtyard	Maker Space 5-7 PM Ideas Clinic Genius Bowl 7-9 PM POETS						

The Iron Crossword

Special Units

JANNY WANG
2B NANOTECHNOLOGY



ACROSS

- 3. Mexican artist who was Leon Trotsky's mistress
- 5. Somebody who has graduated
- 6. The Queen's family name
- 10. Capital of Mongolia
- 12. Name of Henry VIII's advisor and of the man who sacked Drogheda (two separate people)
- 14. The Hero of Two Worlds, sometimes referred to as George Washington's adopted son
- 17. An emulsion of oil and vinegar
- 18. Mormon fantasy author
- 19. What Asians do when they drink

21. An open square

- 24. Duelist from War and Peace
- 27. The number of cabrons in ascorbic acid
- 29. The second Robin's first name
- 30. Anarchist of who assassinated a US President (hint: Born in the middle of Michigan)
- 32. Symbol of gay rights
- 33. Wonder Woman's creator
- 34. Austrian scientist with a cat (first name)
- 35. Spice in the parsley family, native to India and Middle East
- 36. A composite material used in buildings

DOWN

- 1. Ukrainian nationalist during the Russian Civil War
- 2. Artist of "We were young"
- 4. Musical about Eurydice and Orpheus in the Great Depression
- 5. Community where Green Gables was located
- 8. The original Russians, no spaces
- 9. Last name of Henry VIII's second wife
- 11. Treaty that ended World War One for the Russians (no spaces)
- 13. Successor of Mao Ze Dong
- 15. A republican rebellion in early nineteenth century Russia (think of a month)
- 16. Political party Orwell fought with in the Spanish Civil War (initials)
- 20. Hooped petticoat, 16th century
- 22. Bond where the lobes of the two orbitals overlap laterally

23. Where King Arthur sleeps

- 25. Province Shenyang is in
- 26. French revolutionaries (also the name of a modern day socialist magazine)
- 28. Symbol of waterloo engineering
- 31. Ten to the power of negative nine

Sudoku

#2019-06

JANNY WANG
2B NANOTECHNOLOGY

Easy

8	6							
			6		8	5		4
		5	9					
5				9	4	8		1
	4		8	5	2		6	
2		3	7	1				9
					5	1		
1		8	4		7			
							3	7

Medium

1						5		
8			2			9		
		4		7	6			8
	4	9		5		8		1
	6			9			5	
3		5		4		2	9	
6			9	8		4		
		8			7			3
		7						9

Hard

		9						4	3
		7	5	1				2	6
					9	6			
					7	3			1
	1	3				2	7		
6		7	4						
			5	3					
9	3				8	7	1		
5	8							3	

Solutions for previous crosswords can be found on *The Iron Warrior's* website at iwarrior.uwaterloo.ca/distractions.

THE IRON INQUISITION
Stone He, 2B Mechanical

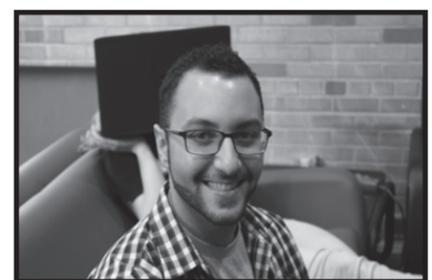
"When you wake up and slept through your midterm..."



"Cry and go back to sleep."
Anna Wei, 1T Mechanical



"I would use this as motivation to grind it out in the final."
Rachel Du, 1T Mechatronics



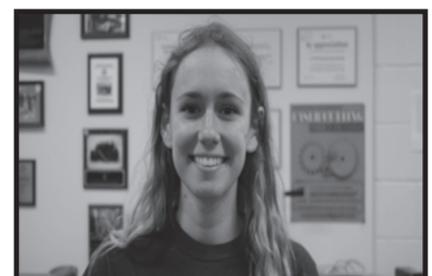
"AHHHH- oh wait, I graduated."
Abdullah Barakat, 4F Mechanical



"What midterm? What, what? We had midterms?"
Nicholas Pfeiffle, 1T Nanotechnology



"I got to contact my prof to figure this out."
Gurveer Lali, 4A Computer



"[Expletive Deleted], cry a lot!"
Anika Roller, 3A Environmental