

THE IB TIMES

OCTOBER

//2020//



FROM STUDENTS,
FOR STUDENTS

IB WORLD SCHOOL NO. 6159

CONTENT

1. Introduction
2. Musick by AMS
3. A Movie for the Month & the Month for a Movie by m.a.
4. Guide to Astrology: Part 1 by Alex
5. Earworms by Łucja Śladowska
6. Breakthrough in Energy Harvesting y Mateusz Turycz
7. Are We at the Limit of What is Humanly possible? by Julia Kotowicz
8. Mythbusting by Gabrysia Przybyłowska
9. How Theia Skewered the Earth by Rafał Ostrowski
1. Artistic Corner by Joanna and g.p.

Introduction

Witajcie!

Pomimo trudnego okresu, w którym przyszło nam uczyć się oraz pracować, chcemy kontynuować tradycję każdej klasy IB II Liceum Ogólnokształcącego w Białymstoku – regularną publikację magazynu The IB Times. Zamierzamy prowadzić różne sekcje tematyczne. Autorami artykułów będą głównie nasi koledzy z klasy II F2. Zapraszamy również do współpracy uczniów z innych klas naszego LO. Każdy, kto ma ciekawe pomysły lub zainteresowania i chciałby się nimi podzielić na łamach IB Times, będzie mile widziany w naszym zespole. Mamy nadzieję, że stworzony przez nas tegoroczny The IB Times spełni pokładane w nim nadzieje, dostarczy ciekawych informacji, być może czasem będzie źródłem rozrywki, a także pomoże rozbudzić Wasze zainteresowania.



Welcome!

Despite the difficult times we are currently experiencing, we too would like to pursue the proud tradition of publishing a school magazine by every IB class in 2 LO in Białystok. We plan to release each new issue in a semi-regular fashion. Our articles consist mainly of works written by our classmates from class II F2 but also talented and open-minded pupils from other classes. In addition, we would like to invite every student from our school to share one their ideas and passions with us. If You, our Dear Readers, have any original ideas or noteworthy hobbies to share You are hereby invited to become a part of The Ib Times! We hope that our magazine won't let You down and will provide You with both useful and interesting information. Our aim is to entertain Your evenings as well as awaken Your interests! Enjoy!

P.s.

If You wish to contribute, You need to know that:

- It is absolutely ok to write only once. You are not obliged to appear in every issue of the magazine.
- Any topic is allowed as long as it's not too controversial.
- Text can be written in BOTH Polish and English
- For ib students: You can treat writing as a CAS experience. (Creativity)
- Your text should cover at least one column.

Nasi opiekunowie – p. prof. Małgorzata Dubrawska, p. prof. Marek Sawicki
Redaktor naczelna – Aurelia Adamczak
Zastępca redaktor naczelnej – Julia Wiktoria Chwatko
Oprawa graficzna – Szymon Łukaszewicz, Jędrzej Wójtowicz
Marketing i media społecznościowe – Michalina Anikiej

We welcome everyone with open arms 😊

~ The Ib Times Crew

Managing Editor's note:

There is a curse.

They say:

May you live in interesting times.

That's how Terry Pratchett opened one of his Discworld books. I'm not sure if the late, great author had a global pandemic in mind when writing that but here we are. And thus it came to pass, to quote another famous fantasy writer, that the brave and talented students of the 2. LO in Białystok had the aforementioned curse placed upon them. These are the most unusual of times and yet this group decided they will fight the global stupor by putting their interests and ideas in written form and share them with all of us.

In a way, this issue (the first in school year 2020/2021) is the perfect display of the wide variety of subjects and forms that is the IB Programme: poems, prose, scientific articles, astrology, urban legends, music reviews and film essays - The IB Times has it all.

At the very moment I'm writing this the IB students can't attend their classes because of the pandemic's huge second wave. 2020 has been a disastrous year in many ways but life goes on and it is our duty to try and understand the world around us, be it by studying or writing a school zine. Living in interesting times may very well be a burden but it doesn't have to be a curse.

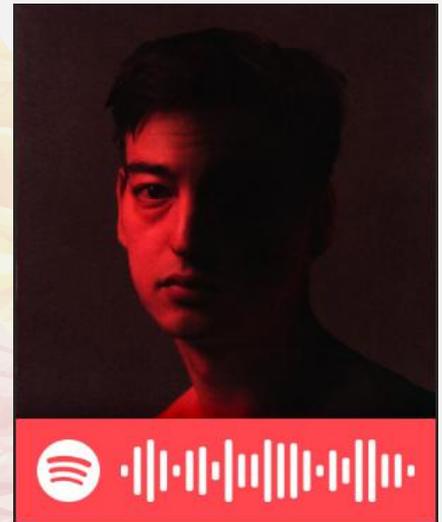
-Marek Sawicki

MUSICK - A MUSIC FEVER JUST FOR YOU

IT'S NOT OUTRAGEOUS TO DECLARE THAT THE YEAR 2020 HAS BEEN TREATING US ALL A BIT HARSHLY. WHETHER YOU LIKE IT OR NOT, WE HAVE TO SOMEHOW TOLERATE THE FACT THAT OUR LIVES WILL JUST CONTINUE GOING FURTHER DOWN THE HECTIC PATH THEY'VE BEEN FOLLOWING SINCE MARCH; AND WHAT'S A MORE EXCELLENT WAY TO COPE WITH IT ALL THAN WITH SOME BRAND NEW MUSIC? HERE'S MY SELECTION OF A FEW REFRESHING TUNES I HOPE YOU'LL FIND SOME COMFORT, REASSURANCE, OR POSSIBLY A STRANGE SENSATION OF CATHARSIS IN.

JOJI - NECTAR

GEORGE MILLER (MORE WIDELY KNOWN AS JOJI), A FORMER YOUTUBE PERSONALITY WHOSE CURRENT MUSIC CAREER EMERGED FROM HIS NOTABLY SARCASTIC SKITS AND SONGS WHICH UNDOUBTEDLY STIRRED UP SOME CONTROVERSY, BLENDS THEMES, EMOTIONS AND LOFI INSTRUMENTALS IN HIS SECOND STUDIO ALBUM, WHOSE TITLE, ACCORDING TO THE SINGER-SONGWRITER HIMSELF, ORIGINATED FROM THE DEAD ANTS HE FOUND INSIDE HIS FREEZER. IN COMPARISON TO HIS DEBUT ALBUM, BALLADS 1, JOJI RETREATS FROM HIS PREVAILING MELANCHOLIC INSTRUMENTALS AND LURES HIS AUDIENCE IN BY UTILIZING A VARIETY OF SOUNDS DISTINCTLY DIFFERENT FROM HIS PREVIOUS WORK; FOR INSTANCE THE UPBEAT SECTION OF GIMME LOVE, ONE OF THE SINGLES FROM THE ALBUM, CONSPICUOUSLY CLASHES WITH THE GLOOM OF SLOW DANCING IN THE DARK RELEASED BY MILLER IN 2018. NONETHELESS, THE MAIN MOTIF OF JOJI'S WORK REMAINS LOVE AND HEARTBREAK, ALMOST PALPABLE IN THE LYRICS OF HIS SONGS, YET THIS THEME COMES INTO CONFLICT WITH THE OFTEN SANGUINE AND CHEERFUL INSTRUMENTALS WHICH CONTRIBUTE TO THE ALBUM'S OVERALL SOMEWHAT HOPELESS ROMANTIC IMPRESSION. THE 18 TRACKS, MULTIPLE OF WHICH ARE UPGRADED BY FEATURES OF ARTISTS SUCH AS YVES TUMOR AND OMAR APOLLO, ALL DISPLAY A RATHER STARK PROGRESS OF GEORGE'S MUSICAL PATH; STILL, THE SONIC DEVIATION FROM HIS SORROWFUL HITS OF BALLADS WILL INEVITABLY BE A DETERRENT FOR SOME OF JOJI'S FANS. DESPITE NOT BEING A GREAT ENTHUSIAST OF MILLER'S WORK, I FOUND MYSELF BLASTING NECTAR ON REPEAT WHENEVER I COULD - AND THIS SUMS UP THE ALBUM QUITE PRECISELY AS FAR AS I'M CONCERNED; AN EASY-TO-LISTEN ASSORTMENT OF MOSTLY LOVE-ORIENTED SONGS WHICH CAN EASILY TUG ON OUR HEARTSTRINGS, PROVIDED, OF COURSE, THAT WE'VE EVER FELT THAT EMOTION.



IDLES - ULTRA MONO

IDLES, THE BRISTOL BAND CONSISTENTLY REFUSING TO ACCEPT THE PUNK LABEL IT KEEPS GETTING STUCK ON, GIVES US NO BREAK FROM THE RHYTHMIC, FIERCE RAGE-FILLED RIFFS AND LYRICS THAT FEATURE SOCIO-ECONOMIC COMMENTARY THAT THEY INTRODUCED ON BOTH OF THEIR 2016 AND 2018 ALBUMS, BRUTALISM AND JOY AS AN ACT OF RESISTANCE. THE CENTRAL THEME RECURRING THROUGHOUT ULTRA MONO IS QUITE ACCURATELY CONVEYED BY ITS COVER ART. THE 'KILL THEM WITH KINDNESS' (WHICH IS ALSO THE 5TH TRACK'S TITLE) PHILOSOPHY OF THE BAND APPLAUDS A LIFE APPROACH BASED ON LOVE AND ACCEPTANCE FOR ALL, INCLUDING ONE'S COMPETITORS/OPPONENTS (CHOOSE ONE AS THEY'RE PRETTY MUCH INTERCHANGEABLE) WHO TRY TO BRING THEM DOWN. SOME OF THE POLITICAL COMMENTARY IN ULTRA MONO INCLUDE: A SUBSTANTIAL AND EXTREMELY DIRECT MESSAGE ABOUT CONSENT IN THE UNAMBIGUOUS VERSE 'CONSENT!' SHOUTED OUT REPEATEDLY BY THE LEAD VOCALIST, JOE TALBOT, IN NE TOUCHE PAS MOI (WHICH IS A HILARIOUSLY BOTCHED TRANSLATION OF THE FRENCH PHRASE 'DON'T TOUCH ME'), AS WELL AS THE PHENOMENON OF EMERGING NATIONALISM EXPLORED IN MODEL VILLAGE AND LASTLY, THE THEME OF ECONOMIC OPPRESSION EXAMINED THROUGHOUT ANXIETY. IDLES ALSO REFERENCES CRITICISM THEY MET WITH, SUCH AS THE OCCASIONAL ACCUSATIONS OF THE BAND'S LYRICS BEING TOO STRAIGHTFORWARD AND HACKNEYED ALLUDED TO IN THE LINE (APPEARING ON THE 3RD TRACK, MR. MOTIVATOR) THAT SAYS: "HOW D'YOU LIKE THEM CLICHÉS?". OCCASIONAL CORNINESS ASIDE, ULTRA MONO RECEIVED NO SHORTAGE OF PRAISE FROM CRITICS AND IT VERY MUCH SUCCEEDS IN TACKLING THE ONGOING WORLDLY AFFAIRS IN A VEHEMENT FASHION, PROVOKES TAKING ACTION TO IMPLEMENT CHANGE FOR THE BETTER.



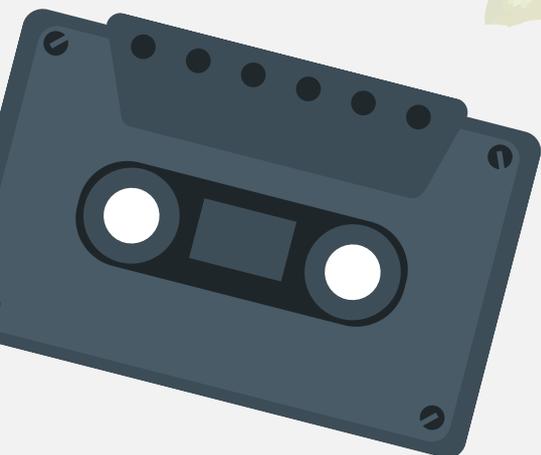
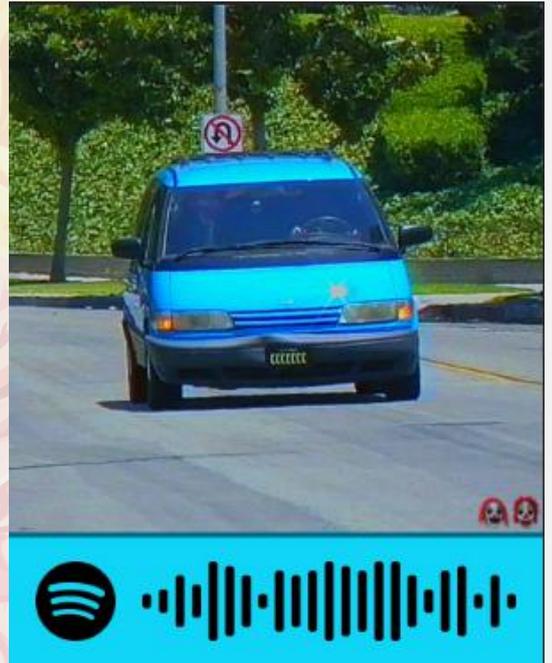
CLOWN CORE - VAN

VAN, QUITE FRANKLY THE LEAST SERIOUS OF THE ALBUMS IN THIS HUMBLE SELECTION, IS NOT FOR THE FAINT OF HEART. THE INTRIGUING CLOWN DUO (WHOSE IDENTITIES REMAIN FAIRLY UNCERTAIN) ONCE AGAIN CAME THROUGH WITH AN ARRANGEMENT OF SONGS WHICH CAN BE DEPICTED AS ENIGMATIC AT BEST THE SPARSE LYRICS MIGHT BE RATHER CONCISE, AS HEARD ON THE TITULAR VAN:

I WANT TO DIE IN A SUBMARINE ACCIDENT
I WANT TO DIE IN A SUBMARINE ACCIDENT
I WANT TO DIE IN A SUBMARINE ACCIDENT
I WANT TO DIE IN A SUBMARINE ACCIDENT

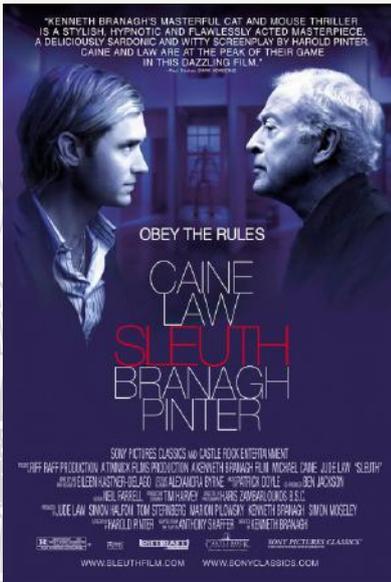
(YES, THAT'S THE ENTIRETY OF THE SONG.)

WHAT'S MORE NOTABLE IN CLOWN CORE'S NEW ALBUM ARE THE SONIC LAYERS. IT MAY BE CHALLENGING TO RECEIVE THE AMALGAM OF SMOOTH JAZZ, GRINDCORE AND ELECTRO CLASH WITH A STRAIGHT FACE; ON THE OTHER HAND, THESE 12 MINUTES CERTAINLY PROVIDES AN EXAMPLE OF JUST HOW EXPERIMENTAL ONE (OR A DUO, IN THIS CASE) CAN GET WITH MUSIC NOWADAYS. OR, AS SOME WILL WITHOUT A DOUBT CALL IT, 12 MINUTES OF TINNITUS-INDUCING MELODIC HELL; IT'S ALL UP TO YOU TO DECIDE. MY SUBJECTIVE SELECTION OF THE MUSIC NEWS MIGHT NOT BE AWFULLY EXTENSIVE, BUT I DO HOPE YOU WILL FIND EXPLORING THE ABOVE-MENTIONED NOVELTIES PLEASANT, OR AT LEAST AN AMUSING SHIFT FROM YOUR USUAL PICKS. SEE YOU NEXT TIME! AMS



A movie for the month & a month for the movie

October:
Sleuth (2007)



To all readers of the current and future editions of the IB Times:

welcome to our movie column, created to encourage You, the Reader, to watch more & more each month. Warning: the articles may (or most likely will) include spoilers.

Enjoy!

Sleuth, apart from its US premiere date having taken place in October 2007, might have no particular connections to the month itself. Based on a 1970 play by Anthony Shaffer, the piece was directed by Kenneth Branagh. You may know him from the movie Dunkirk or the role of Gilderoy Lockhart in Harry Potter and the Chamber of Secrets - the very unskilful wizard, who eventually loses his memory - or as the director of numerous adaptations of Shakespeare's plays (some of which he even starred in himself). This is the second time Michael Caine plays a role in a movie adaptation of the play, but this time he appears as the opponent of his previous character.

Let's summarise the plot. It revolves around two men: Andrew Wyke (Michael Caine) and his wife's lover, Milo Tindle (Jude Law), who Andrew refers to as her 'friend'. The movie takes place in an old mansion. The interior is very modern, one might say even psychotic. Andrew is an affluent and very intelligent crime novelist, who is very much aware of the ongoing affair. Milo, invited by the writer, takes part in a faux-burglary, planned by the host. A fight breaks out between the two men during which the elder shoots the opponent, wounding him. Milo returns some time later, dressed as a sleuth, and accuses Andrew of murder. He says he wants to take him to the police station and after exiting the elevator, reveals his true identity. This time Milo is holding a gun and therefore has the upper hand. The last part of their game is pure manipulation and, this time, without physical violence.



Milo Tindle: Maggie never told me you were -- such a manipulator. She told me you were no good in bed, but she never told me you were such a manipulator.

Andrew Wyke: She told you I was no good in bed?

Milo Tindle: Oh, yes.

Andrew Wyke: She was joking. I'm wonderful in bed.

Milo Tindle: I must tell her.

To understand the beauty of this piece, one must enjoy the specific nature of the dialogue contained therein. The versatile and unexpected exchange of lines makes you focus on the game those two are playing and encourages you to try and guess the characters' true intentions. The mind games, filled with verbal extravagance and paradoxes, seem surrealistic. As peculiar as the sequence of events may sound, it is its unpredictability that makes it so predictable - everything and anything can (and will) happen. Further into the film, we realise, it would be rather foolish of us to expect rational behaviour from the characters. One must not deny their intelligence and wit, nonetheless logic is nowhere to be found between the two of them. Andrew and Milo keep challenging each other and dramatically chew the theatre-like scenery. The flow of the conversation changes from very rapid to annoyingly slow. They both seem to enjoy the hidden insults, they use similar techniques to humiliate each other. Andrew and Milo mention their common objective very often and try to point out their advantage, while reassuring each other of their mutual respect.

Towards the end of the movie a very strange relationship forms between the two and for a moment one might believe they are both going to abandon Maggie (Andrew's wife). We don't get to see her interact with neither her husband nor her lover. Throughout the movie she reportedly changes her mind on the divorce multiple times. On the other hand, we do not hear that from the wife herself, so the news may as well be another manipulative trick performed by the men. At the beginning, she is the main focus of the characters but they seem to gradually lose interest as they become more and more invested in the game itself. They are equally caught up in their sick performance - as both of them have found a worthy opponent.

Sleuth can in no way be called relatable, nor comforting. At first it may cause confusion, as the plot is absolutely incoherent and brings no relief for the viewer's uncertainty. The characters pretend to forget their identities and history mid-conversation, completely ignore common sense and lack reason. All the same, Branagh somehow managed to make the piece enjoyable and captivating. I would even risk saying the movie carries an odd type of safety within, right beneath the surface of what we get to experience.

Andrew Wyke: The shortest way to a man's heart, as I'm sure you know, is humiliation. It binds you together.



There are some traits Andrew and Milo share. They have similar desires and, obviously, similar taste in women. The connection between them appears to be stronger than their jealousy and fear of defeat. They seem to enjoy the time spent together despite being strongly convinced they should hate each other.



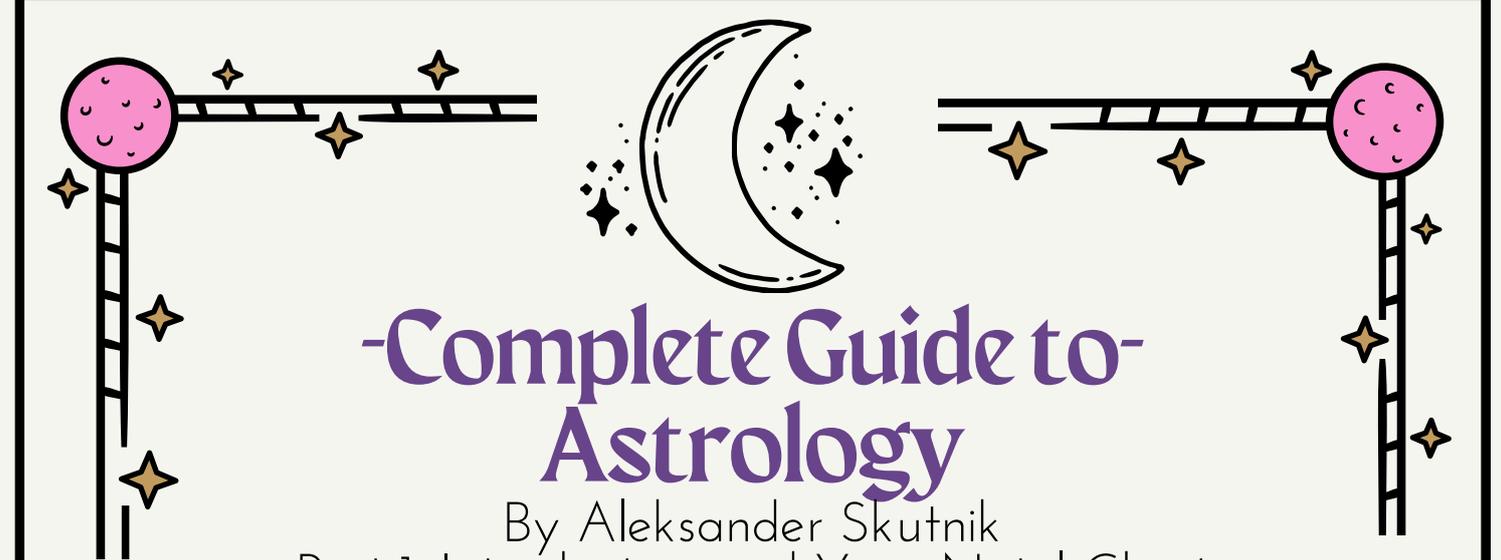
The relationship ends pretty drastically for Milo, who gets murdered by Andrew. Was their relation purely a façade? I refuse to believe that. Andrew doesn't really appear content while looking at Milo's dead body. Maybe his death wasn't exactly what he wanted to achieve.

Or maybe, deep down, he knew he's just lost the only person who could truly face him on an intellectual level. What Andrew and Milo had, was not friendly, nor romantic, or sexual. Their bond drew on an abnormal, mutual understanding of the art of manipulation. Their minds worked alike. The scheme they created made them excited, thrilled, possibly even high on how one could fully comprehend the other and still surprise him. Andrew's last words, 'Goodbye, darling', may be interpreted in a number of ways, but they sound awfully nostalgic for Milo's sworn enemy.

To say that Sleuth is a perfect movie for a rainy October evening would be a terrible lie - and we would never deceive our readers. What Sleuth certainly is however, is a stimulating picture, 90 minutes requiring patience and caution. Highly recommended, but to be watched with a tongue firmly in cheek and absolutely no expectations. It carries an unidentified message, probably accessible to only a few - a message I couldn't quite read. Try it and see for yourself. Is it a distinctive, innovative performance or just an absurd idea portrayed in a weird scenery? - m.a.

Milo Tindle: I'm so glad you like my mind. Not many people like my mind. Quite a few people like my body - but I can't think of anyone who likes my mind.



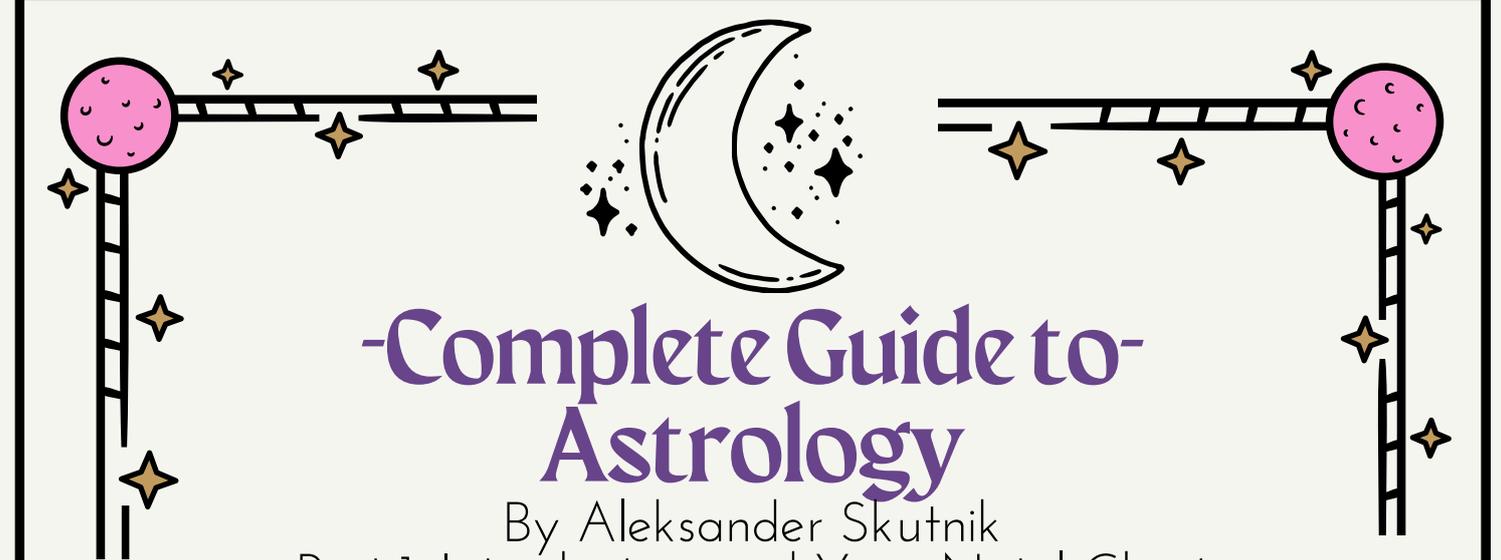


-Complete Guide to- Astrology

By Aleksander Skutnik

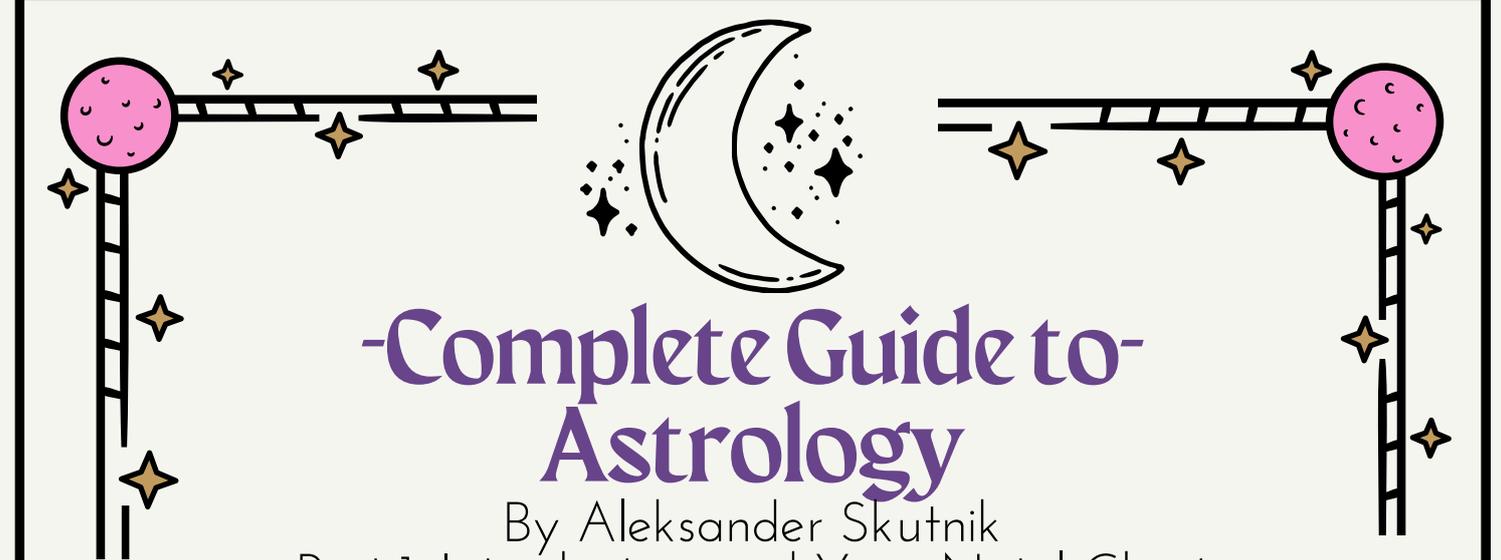
Part 1: Introduction and Your Natal Chart

Have you ever been stargazing and thought “Wow, this is beautiful”? Well, the stars and other celestial objects may have more influence on your life than just being a spectacular view to admire. I’m Alex and I will do my best to share my interest in and passion for astrology with you. Each next IB Times edition will include a new chapter about different aspects of astrology. Today, I will introduce you to astrology as a discipline and tell you how to create your personal natal chart.



Astrology has been cultivated and practiced by people all around the world for several millennia - you could even say that it is an ancient precursor to modern psychology. Astrology is all about connecting the spiritual and astrological observations, in order to help you make good decisions and shape your course of action correctly. What astrology is certainly NOT about is newspapers’ horoscopes telling you that you’ll receive a surprising cash influx or that you should not travel until the end of the Mercury retrograde. This is an entirely commercially-influenced field of pseudo astrology that has been developed over the years to scam people. With real astrology, you won’t need to pay a mystic to analyse your natal chart, or to perform a cleansing ritual on you.

The future is in your hands.



Your Natal Chart

You should start off your journey with astrology by obtaining your natal chart. A natal chart is essential and is a staple element of your spiritual self. It is an illustration of the sky, an energetic sketch of the cosmos at the precise moment you were born. It presents all of the zodiac placements of different planets, as well as its placidus and aspects. In order to get your very own natal chart, go to <https://astro.cafeastrology.com/natal.php> and fill in your details: name, date of birth (including the hour of birth) and place of birth. You should get something like this:

Zodiac : Tropical				Placidus Orb : 0				
	Sun		Capricorn	10°35'	Ascendant		Aries	11°29'
	Moon		Scorpio	15°49'	II		Taurus	20°36'
	Mercury		Capricorn	2°14'	III		Gemini	15°17'
	Venus		Sagittarius	1°50'	IV		Cancer	5°42'
	Mars		Aquarius	28°08'	V		Cancer	27°07'
	Jupiter		Aries	25°16'	VI		Leo	25°27'
	Saturn		Taurus	10°23' R	VII		Libra	11°29'
	Uranus		Aquarius	14°50'	VIII		Scorpio	20°36'
	Neptune		Aquarius	3°14'	IX		Sagittarius	15°17'
	Pluto		Sagittarius	11°23'	Midheaven		Capricorn	5°42'
	Lilith		Sagittarius	23°23'	XI		Capricorn	27°07'
	Asc node		Leo	3°54'	XII		Aquarius	25°27'

This is just a fragment of an illustrative natal chart- yours will present a different set of data and consist of a few more elements. From that you'll get to know all about your strengths, limitations and predestinations. It will most probably look confusing to you at the first glance, but don't worry - in the next issue of our magazine, you'll get to know the depths of astrology and the true meaning behind the signs. I hope that I encouraged you to stay with us for a little bit longer and broaden your knowledge of astrology. Be sure to come back for more with the November edition of IB Times! :)

Earworms



Why do we remember certain melodies?

What is 'an earworm'?

This one song that keeps playing in your head all the time. It haunts you wherever you're going, whatever you're doing. I am sure you have experienced this multiple times in your life. This phenomenon is called by psychologists 'stuck music syndrome' or, simply, 'an earworm'. Experiments conducted by psychologists have shown that as much as 99% of people have experienced it, but have you ever wondered what is it in that particular piece of music that makes it so catchy?

Music that gets stuck

The most frequently named earworms include 'Bad Romance' by Lady Gaga, 'Can't Get You Out Of My Head' by Kylie Minogue or 'Somebody That I Used To Know' by Gotye. Why these songs? Experts in this area (yes, there are earworm scientists!) say that what characterizes catchy pieces is its fast tempo and easy-to-remember melody. Earworms also contain some unusual intervals and repetitions. For example, at the beginning of the chorus of 'Bad Romance' we can hear the sixth interval. It is quite a big jump so we tend to take it in.

How susceptible to earworms are we?

After numerous experiments scientists have concluded that we are not equally prone to the phenomenon of earworm. It turned out that if a person is continually exposed to music, they are more likely to get a song stuck in their head. Moreover, another investigation from 2015 showed that the shape and size of a person's brain also determines whether they are more prone to the 'stuck music syndrome'.

Get rid of it!

Although only 33% of people who experience earworms describe it as unpleasant, sometimes you just want to get rid of that one annoying song in your head. There are ways to do so! Experts say that the most effective ways are, for example, chewing gum or doing sudoku. Another antidote is singing the British national anthem. I haven't tried it yet, so why don't you try it out yourself? Let us know about the results! :)

Łucja Śladowska

Sources:

[cbsnews](#)

[apa.org](#)

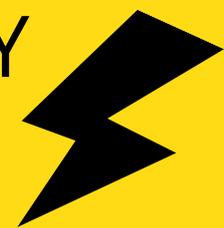
[udiscovermusic](#)

[qz.com](#)

[wikipedia](#)



BREAKTHROUGH IN ENERGY HARVESTING



Physicists from the University of Arkansas have successfully created a circuit that can transform graphene's thermal vibrations into electrical alternating current, which is then converted into DC. The discovery proves the concept developed by them three years ago, theorizing that freestanding graphene vibrates in a way that allows for harvesting energy. Lead researcher, the UoA professor of physics Paul Thibado claims that the graphene based device incorporated into a chip could provide low-voltage limitless power for small electronic devices.

The concept of harvesting energy from graphene is controversial as it directly contradicts Richard Feynman's renowned assertion that the thermal motion of atoms, also known as Brownian motion, cannot work. Surprisingly, Thibado's team found out that at room temperature the vibrations of graphene caused by the thermal energy create an electric current flow, which before was considered to be impossible.

The team achieved that by applying the effects of Leon Brillouin's research to the newest graphene technology. In the paper published by Brillouin in 1950 he contradicts the idea of adding a diode which enables the harvesting of electrical energy from atom's motion previously described by Robert Brown. Knowing this, the group at Arkansas university invented a circuit with two diodes, at the same time transforming alternating current into direct current which then performs work on load.

They also had to use the achievements of a new field of physics, stochastic thermodynamics, and extend the theory of Nyquist, which is less than a century old.

Currently the team is trying to determine if the current can be stored in capacitors for later use. This discovery might revolutionize the industry of small electronics, where the energy source has always been the biggest problem.

Equipping devices with lithium-ion batteries greatly increases their mass and weight. Possibility to place a small generator directly onto the circuit board allows the creation of self-sufficient systems, such as microbot swarms and super small smart body implants. The team has patented their invention and we can hopefully look forward to seeing it applied commercially all over the world.

Mateusz Turycz



Are We At The Limit Of What Is Humanly Possible?



If you've ever watched the winter Olympics, you might've paid (special? extra?) attention to the figure skaters. Despite all its grace, figure skating is a brutal sport that requires plenty of strength and skill, but most importantly – the mastery of physics to make it all possible.

A crucial part of every skaters' routine (called a program) is their jumps. Six types, with different entries of varying difficulty. Generally, a skater enters the jump backwards, rotates and lands. Seems simple enough, doesn't it? Well... not really.

To understand why, and answer the question, we need to start with a bit of history. When figure skating was born, over 150 years ago, the jumps were executed with only one rotation. The second rotation was added shortly afterwards and then the third rotation (the so-called 'doubles' and 'triples'). At the time, triple jumps were the most difficult to execute – until 1988, that is, when Kurt Browning landed the first quadruple jump, a quad toe loop, during an official competition.

That started the 'quad race' in the men's solo division, and as of today without at least one perfectly landed quad in their routine, male skaters may so much as daydream about ever stepping on the podium. The ladies quad revolution has only begun, now with girls as young as 12 including them in their programs.

With a point scoring system that rewards risk and technique over artistry, skaters are racing each other to the new impossible. What used to be the revolutionary quad jump or triple axel is now the new normal. So what comes next? Can there even be a next? A quintuple jump? We weren't sure – until recently.



To understand the revolutionary feat of quad jumps, you need to understand its mechanics. A skater will enter the jump, jump about half a meter high, rotate four times at the speed of around 400 rpm (rotations per minute) and land with 5 to 8 times their body weight, all while not even in the duration of 0,7 of a second!

The incredible velocity at which a skater rotates comes from the conservation of angular momentum. It depends on the position of the skater's body relative to the axis of rotation and the speed at which the skater enters said rotation. In simpler terms, skaters start with their arms outstretched, and when they pull in their arms and legs into a tight position, the rotation gains momentum.

The highest rotation speed ever recorded was about 430-440 rpm, but rotating a quintuple jump would require a peak of up to 500rpm.

Until 2019, it was believed that a quintuple could never be landed. Even though theoretically a quint would be physically possible, the speed and strength required and the force exerted on the skater's body was thought to be simply too much for anyone to handle. The quad was considered to be the edge of what's humanly possible. But science often likes to be proven wrong.

Silently, the quintuple race has begun. There have been a handful successful quint attempts recorded by few Russian skaters, and rumors of Yuzuru Hanyu, a renowned Japanese skater, landing a quintuple salchow. But such attempts are rare and risky, and one has yet to be landed in an official competition.

The injury as a result of falling during an attempt could end a skater's whole career, and that is a risk few are willing to take. It is highly unlikely that a quintuple jump will ever become a staple part of skaters' routines, not to mention the ludicrous possibility of jumps with six rotations.

It seems that no matter the passion and great efforts, we are simply always at the edge of what is humanly possible, with little to no more room for any further advancements to be made. But who knows? Maybe the world is in for a surprise?

Julia Kotowicz



MYTHBUSTING

Myths, misconceptions, fake facts: all of these exist in everyday perception of our surroundings. Some are just stereotypes that over time became so deeply rooted in our culture that we've engraved them in the stories that are then passed on to our grandchildren, and just accepted as facts, or even insert them in our conversations. In reality, they are just conjectures, 'facts' that are based on false information we received once and cannot let go of. In the series you're about to read, which will be published sporadically (or regularly, we will see) you'll learn about some of the most common misconceptions that I have encountered during my everyday observations. This month we will explain the phenomena of the infamous wooden teeth of George Washington, the real range of colours that dogs are actually able to see, and the legitimacy of intelligence measurements shown on IQ tests.

George Washington's wooden teeth

Undeniably, the most widespread myth about the first American president is the one about his wooden teeth. While he suffered from many dental problems, his teeth were undoubtedly replaced with materials that in no way resemble wood. They were, in fact, made from ivory, gold, lead, or even ripped out of the human mouth (usually, a slave). To understand where the whole myth originated from, we must take into consideration that the teeth might have become stained overtime, which might have given a perception of a wooden material. Interesting, how a tiny little detail can cause a tale that is later passed on and on.

Dogs' perception of colours

It's been believed for many decades (and even centuries) that dogs have absolutely no perception of colour. We may see it in portrayal of dogs in some of the cartoons we used to watch when we were younger, or (in some cases) still. It is a common misconception that had been disproved in 1937 by Will Judy who concluded that dogs see a palette of greyish colours. We can see the dog's vision spectrum in comparison to the human vision spectrum on the next page:



Human's view



Dog's view



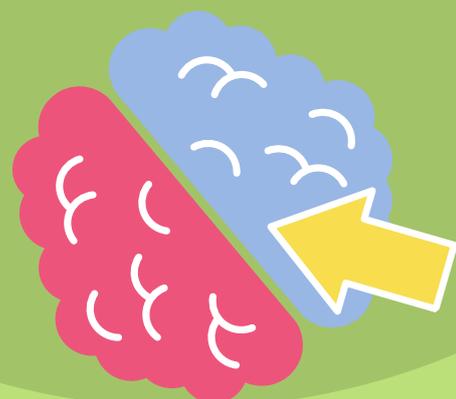
From it, we can deduce that even though dogs do not see the whole spectrum of colours humans do, they certainly do not see only in black and white. Give your pup a snack, they deserve it just for being there and being amazing.

IQ Tests

You may have come across some of the IQ tests over the internet or even solved one yourself. Have you ever stopped to wonder what they're actually about? They usually measure how well you are able to remember some information, deduce the answer and how much effort you're willing to put into a standardized test. So the answer to the question if they can measure every individual being's intelligence is quite simple: no. They measure the general knowledge and abilities of the test taker. They are also usually biased: economically, socially and culturally. Minorities such as latinos, low income people or black people will have significantly lower chances of scoring high due to the differences in their upbringing. If the IQ tests weren't biased (and mostly focused on European, middle-class, white people), we would not have such different scores between various ethnic groups and classes. The conclusion is simple, don't rely on some stupid standardized tests to tell you how intelligent you are. You are intelligent in your own, unique way.

I hope that I have cleared up some of the common myths that unfortunately still persist. Stay tuned for more of the myth busting in the next edition of IB Times ;)

Gabriela Przybyłowska



How Theia skewered the Earth

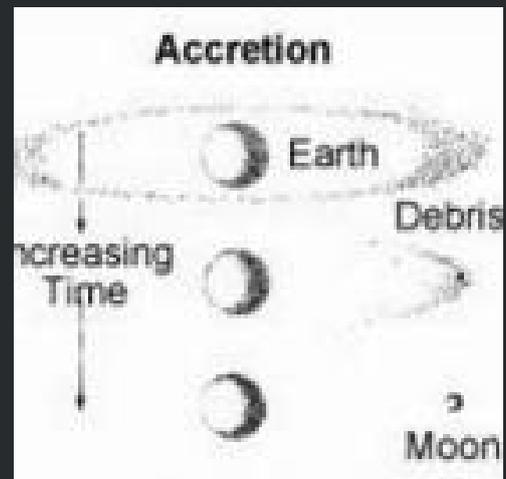
We all know the Moon, right? We recognize it as our planet's closest companion (if we want to imply that approximately 385,000 km on average is, in fact, close ;). It can be seen so often, that it seems one of the things that are certain in our lives. However, like Earth, it has to have its beginning, doesn't it? Theories about its origin are actually really interesting, and like many other issues connected to space as a whole, there is not enough information to be fully certain, so scientists create many theories on this topic. It's worth diving into some of them. Some of them seem more probable, some of them less. For now, they are rather hypotheses than certain statements.

The first concept I'd like to describe is the capture theory. It states that once upon a time the Moon was just another celestial body wandering around space, just like an asteroid, and that it was formed somewhere in the Solar System. At a certain point, according to this particular theory, it was caught by the Earth's gravity field, as it was passing nearby. This exact thing happened with moons surrounding other planets, such as Mars' Phobos and Deimos, so it wouldn't be an extraordinary event. However, there are some objections to this. First of all, the Moon is spherical, and this contradicts the fact that moons like the ones mentioned before are not in such shape. Rather than a sphere, they resemble a potato. The greater issue is that our Moon orbits with Earth, and it doesn't apply to objects like for example Triton, a moon of Neptune. Scientists also don't seem to believe in the coincidence of the Moon being caught into a gravitational field and slowed down just by the right amount, at the perfect time. If this was actually true, it would become an explanation of the existing differences in chemical compositions compared to the planet we live on, at least easier than similarities. If our only satellite had been created elsewhere and was captured by the Earth's gravity, we would expect its composition to be supposedly more different from the Earth's.

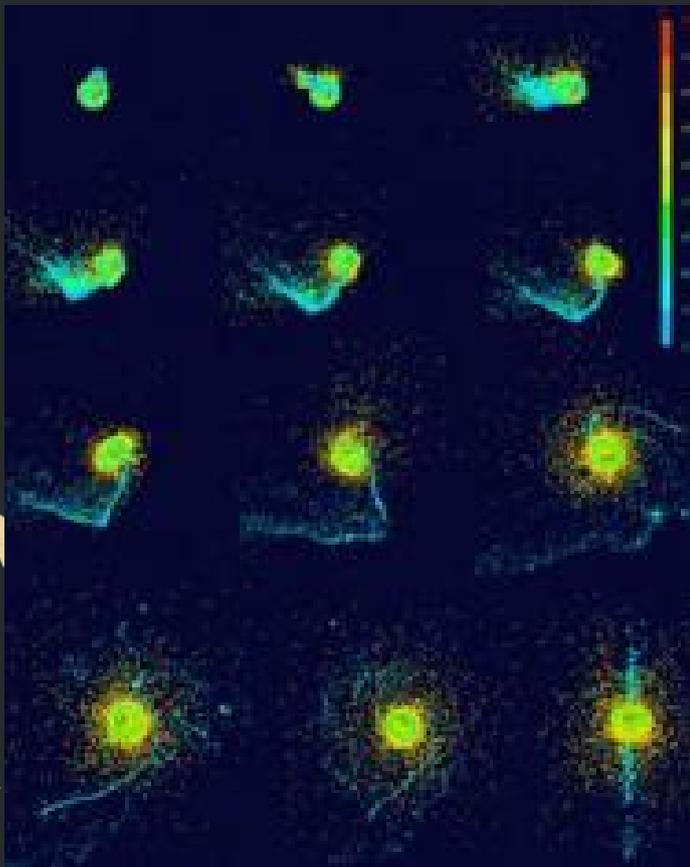
A theory standing in contrast to the previous one is called the accretion theory. Unlike the capturing concept, it instead suggests that both objects were created at the same time, however independently, but from the same 'circum-terrestrial disc' revolving around the Earth. More specifically, it says that the gravity combined two clouds of matter in the early Solar System at a separate distance at the same time. This might explain the similarities in the composition and the Moon's present location.

The theory also speculates that two or three "proto-Moons" may have existed before creating the one we know today. As the Earth at its earliest stages was developing, smaller bodies, called planetesimals, came into its gravity. Because they moved in different directions, collisions were inevitable. When these happened, some debris was left.

According to people advocating for this hypothesis, the amount of the debris and the instability within the disc caused the formation of proto-Moons, which would, later on, consume more material and finally coalesce into a one, bigger object. It also seems to explain the similarities in chemical construction, especially in the mantle (the layer between what we can see with our own eyes and the inner core). As a smaller body, it was able to collect less material than Earth. Lunar rocks have the same isotope ratios of oxygen as the ones on Earth and this information allows us to make an assumption that they were created within 1 Astronomical Unit (distance from Earth to Sun). On the other hand, it doesn't even attempt to explain the angular movement and momentum of the Moon (Earth's spin and the Moon's orbital motion). It also doesn't account for the Moon's inferior density, especially when we consider the fact that both of the bodies probably started out with the same heavy elements at their core.



Another point of view worth mentioning is the fission theory. Its main assumption is the Earth was spinning much faster and was more unstable than today (with a rotational period of 2.1 hours) - so fast, that material broke away from it and formed the Moon, which then began to orbit the planet. As a result, Earth became lighter, more stable, and began to spin at the rate closer to the one today. Yet it was faster than one of the new objects, and as a result, tidal forces would increase the distance separating the two. This approach was proposed by the son of Charles Darwin, George

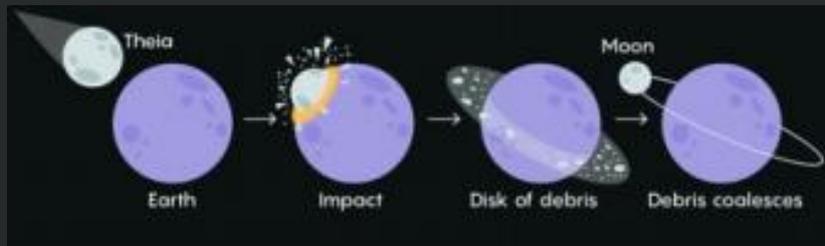


More recent simulations in the 1980s however have shown that the likelihood of a rapidly rotating Earth fissioning an entire Moon-sized body is almost zero. What is more likely is that a rapidly rotating early-Earth would throw off lots of material that would form a disc-like structure around the Earth. The debris from it would then create the Moon. Such an object was supposed to have a really high surface temperature, causing elements with low evaporating temperature to disappear from it

and form a thin atmosphere around the Moon. Common isotope ratios of oxygen and trace element abundances in the Earth's and Moon's mantles show that they were formed from similar materials unless some great coincidence occurred.



This theory has few counter arguments which are hard to debunk. For example, it doesn't explain the rapid angular movement of Earth and how it actually slowed down. Another issue is that it doesn't tell us why it took 97% of Earth's core to be completed until its movement became unstable. This concept can be explained because of 97% core differentiation in iron content, which had to be completed before the moon fissioned from our planet, which would be just at the end of its core's segregation.

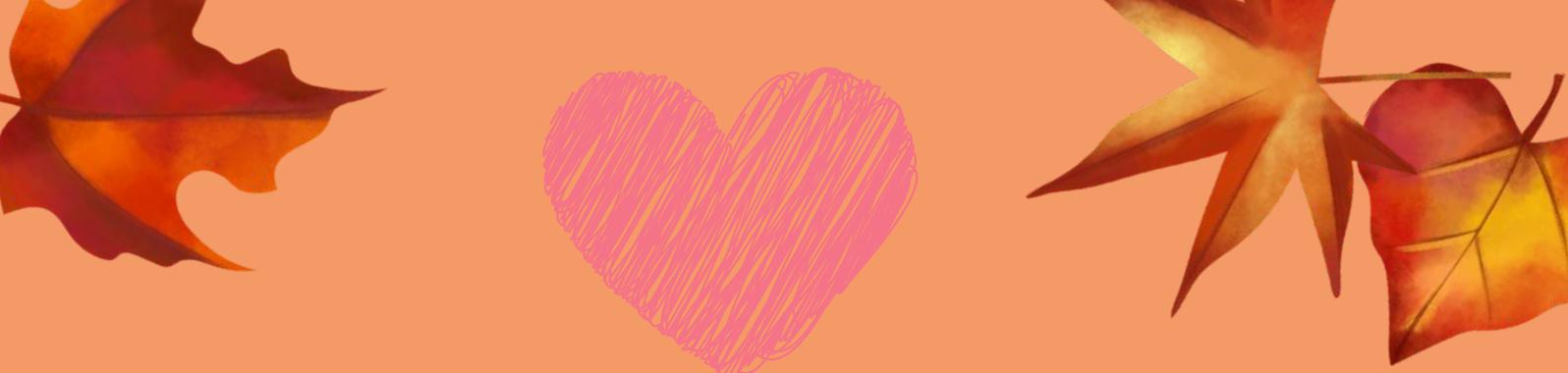


Last, but not least, I want to bring up the concept called the impact theory. As of now, it is said that this idea is the most relevant (prevalent?), however, not anywhere close to certainty. Generally speaking, it says that the Earth and Moon are a result of an impact between an early proto-planet and an astronomical body called Theia (from the Greek goddess of sight and heavenly light), which was comparable to Mars in size, and with half the diameter of Earth. It orbited around the Sun, almost along the orbit of proto-Earth before the hit. It was rather a head-on collision, probably at a 45-degree angle. This event might have happened about 100 million years after the Earth was born (so about 4,5 bln years ago). As a result of this impact, most of the planet and Theia are said to have melted together as one body, with the Moon as a piece of the debris left and accumulated as a result of gravity. It would also mean that Theia's remains can be found in both Earth and the Moon. It also suggests that the colossal impact established an angular momentum so fast that we started out with a 5-hour day! Over time, the Moon kept reducing its rotational velocity. It seems that scientists have figured this out in the last years by looking at the moon's current orbit and working out how rapidly the angular momentum of this system has been transferred by the tidal forces interacting between the two interlocked bodies



This scenario was actually successfully simulated on computers. Models with the biggest probability suggest that the moon should be more similar in composition to Theia, not our planet. And yet, it's the other way around. Scientists try to explain it in two ways. One of them is an assumption that proto-Earth and Theia were very similar to begin with. It doesn't seem to be realistic though, because all other objects in our Solar System are really differentiated. Another explanation is connected with the impact itself. It states that the collision was so thorough that it left "less Theia" in the Moon since it was the smaller object. However, most people think that the collision was not big enough to be so destructive. Looking at it from another perspective, it gives a quite realistic explanation for the current location of the satellite and similarities in the construction of lunar rocks to our planet's. With that being said, all theories agree that the Moon's craters were formed around 3-4 billion years ago when it was struck by masses of asteroids, an event is known as the Late Heavy Bombardment. Scientists agree at least on that matter. Our only natural satellite is a fascinating object, and like many things out there in space, it leaves us with many questions not fully answered, letting us craft various assumptions and theories. The ones I wrote about are the most widespread ones. They have some common features but explain the beginnings of our Moon quite differently. All of them have one, common denominator: none of them is fully confirmed and not one does offer us a full, clear perspective of the events that happened so long ago (at least from our point of view). Will they ever do so? I can't answer this question, and I'd say this is what makes the topic so interesting.

By Rafał Ostrowski



My Love of Autumn

I love Autumn.

It has always reminded me of warmness.

The taste of hot tea, when I'm sitting under a warm blanket and eating chocolate cookies...

The feeling of rain droplets streaming down my face when I'm waiting for my bus to come...

The crunching sound of fallen leaves when I'm taking my dog for a walk to the nearby park...

I love it all.

I always feel especially melancholic during this period. Everything makes me reflect about my life. I often find myself staring out of the windows and getting lost in my thoughts. I look at the trees. It almost feels like the colors of leaves are changing with every second, from green to yellow and red. One day, during an incredibly boring university lecture I focused on the massive maple tree outside my classroom. It was tall and really old. It loomed over the building like an old woman whose duty was to look after the students. Thanks to it I felt safe. When I looked at it this time, I saw that all of its leaves were already golden. However upon a closer look I noticed that one of them was still dark green. I don't know why, but it saddened me. Otherwise the tree would look magnificent, covered in gold, but this one leaf really bugged me. Some time later, after the lecture when I was going back home I looked once again at the tree. The green leaf was gone. When I walked past the bark of the tree I lightly patted it. 'Now you look beautiful' I said quietly. The tree seemed... content?



Another peculiar occurrence that I experience during Autumn is that no matter when I put myself to bed, I can never fall asleep until 01:14. Even if I am really tired from a long day or I am really energetic and don't feel like sleeping at all. 01:14 is the time that I will inevitably close my eyes and drift off. There is nothing that could change that, as far as I'm concerned. I tried many ways to fall asleep sooner or stay awake past this hour, but to no avail. And when I finally do sleep, I never remember anything. Sometimes I can barely recall an image of two golden eyes, but that's it. Every morning after waking up, I feel like something was taken away from me. A mystery I was really close to figuring out, but now it's gone. I feel frustrated and also kind of resigned. Then, without much more thought, I get up from my bed and start my day. The mysterious eyes linger in my mind for the remainder of the day.

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As the Autumn continues I'm starting to experience various flashbacks and déjà vus. It's unsettling. For example, whenever I walk past the homeless woman sitting near my block, I feel like I know her from somewhere, despite being sure I see her for the very first time in my neighbourhood. She is wrapped tightly in dirty, old blankets. Her face is expressionless, but her eyes are golden. Another trigger for me is walking past the old bakery near my university. Usually I really enjoy going there for a warm coffee with cakes, but recently, every time I walk past the building I spot a strange figure of a woman. Her hair is fiercely red, just like mine. She stands there for a second, and then she disappears. For the next few days my head is being flooded with memories of someone laughing, smiling and talking to me, but I have no idea who that may be. One day when I am walking through the park, a single red leaf falls beneath my feet. Its form resembles a heart shockingly well. I don't know why, but I take it and bring it home to put it between pages of my favourite book.





Later that day I was studying for a very long time. I was so focused that I didn't realise it was already past midnight. When I went to the kitchen to make myself some tea, I found the window wide open. On the counter stood cinnamon flavoured tea, freshly made. Next to it was resting another heart-shaped leaf. This time a hazel one. For some strange reason I didn't feel the need to question this occurrence. I simply said 'thank you' quietly and returned to my studies.

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Finally, there comes a day when I finally remember. I wake up with an indescribable feeling. It's exhilarating to finally recover these forgotten parts of my memories. Although I don't remember everything, I know that in the evening I absolutely must go to the old bakery. I know I have to. If I do that, for sure I will at last uncover the source of all the weird things happening to me. The entire day, at school I was waiting impatiently. Finally I was free to go, so I rushed to the bus stop to get to the bakery. When I got off the bus I realised that it was raining. But that didn't matter to me. I was hurrying through the rain. My hair got wet, and rain droplets were streaming down my face. I quickened my pace. I found myself running across the new square. I remember that there used to be a park here, with strong trees standing tall. Now it's just hard cement and rocks. Thick, grey smoke from the nearby factory enwrapped me. I cannot see anything around me. I huff impatiently. I can't wait anymore! The sky starts to darken as I rush through the city. Suddenly, I trip on something invisible and fall on the ground. Perfectly in the centre of a big rain puddle. It takes a few moments before I compose myself but eventually I stand up and start running again.



I can't waste any more time! All of a sudden I notice the homeless woman whom I saw that one time in front of my block. She is still wearing a big pile of old blankets and cloth, but this time her expression is not completely blank. She is... smiling. And looking directly at me. For a moment I don't know how to react. I decide to smile back. Then I continue to run. All around me the water is falling and streaming down the alley and dripping from the buildings. Finally, I arrive at the old bakery. I come inside. My memories are starting to unravel even more quickly. My instinct tells me to talk to the receptionist. At the sight of me he smiles and nods. 'The usual table?' He asks. I slowly smile and nod. I go deeper into the building. The place is completely empty, which is weird because it's usually very crowded. I arrive at my table and see her. Her hair is burning red, her eyes are golden. She is wearing a warm color dress, which is gently fluttering even though there is no wind here. She notices me and slowly turns to look at me. Her lips form a happy smile. Surprised, I also find myself grinning. 'Hello, my dear.' Her voice sounds like wind and rain at the same time. It fills me with warmth. 'Hi, mom.' I answer

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I remember every last thing. We talk and laugh together. I tell her all about what had happened in my life since the time we last saw each other. She doesn't tell me anything, but she listens to my every word with an amused expression. We spend time together until very late hour. Suddenly she looks at the clock hanging on the nearby wall and sighs heavily. I follow her gaze. It's 01:14.

'It's time for our separation, my dear.' Her lips slightly tremble. 'Oh, how ironic that the same time the World has brought you to me is also the time when we must always separate. I will have to look forward to the next year.' Her eyes are sad. 'But can't we be together for just a little while longer?' I plead. She shakes her head. 'It is how it must be, my dear.' 'But, can I at least keep my memories? I don't want to forget you again!' I exclaim. Instead of answering, she just smiles and kisses me on the forehead. 'Goodbye. Till the next year, my dear.' The moment she finishes her sentence, the whole world becomes black and I fall into unconsciousness.





I wake up in my bed. I feel a little light-headed, but I have no idea why. I stand up, and I notice that behind my window, everything became white with snow. The winter has come and the Autumn has ended. For some unknown reason I feel a slight twinge of sadness and melancholy. I look around my room. Then I spot a little yellow leaf laying on my pillow. I didn't notice it earlier. I pick it up, and look closely at it. Slowly, the sad feelings are beginning to be replaced with joy caused by a sense of inevitableness. Winter has finally come, yes, but the Autumn will without any doubt come again next year. I smile merrily and add the leaf to my collection of Autumn mementos. As I begin to dress myself for the cold day, I think:

'I truly love Autumn.'

Written by Joanna Godun





mouth kept agape
the words that are scary
all the scattered thoughts
consequences they carry
for what were we made
the lines still so blurry
for burning hills
the houses so merry
so it is

like the authors after they die
we achieved what we never could do alive
and even though
even though we tried
we're now a piece of artwork
buried six feet under a lie
g.p.