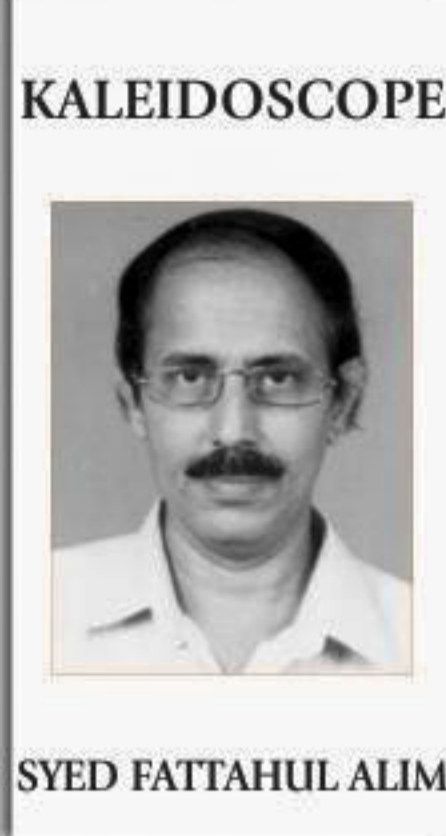


Are they listening?



SYED FATTAHUL ALAM

OVER the last few days Prime Minister Sheikh Hasina, from different public gatherings, has been seeking people's mandate to rule the country for another term. From a party rally at Suhrawardy Uddyan last Friday to the women's gathering in Ashulia on Sunday, at every meeting that she addressed, she was soliciting votes for boat, the election symbol of Awami League.

She was, however, using all the privileges of her position as PM while canvassing for her party. But other political parties, including the opposition, were not getting the same government-provided facilities and logistics to conduct their own electoral campaigns. Had the PM made such facilities available also to other parties in the race that would have been in the true spirit of democracy. It would create a level playing field for other participants in the election.

Under normal circumstances, vote begging by the PM from public meetings and party rallies would not have aroused much of a controversy or question since the 10th Jatiya Sangsad (parliament) election is only five months away. But things don't seem as normal as the PM would like us to believe. For in yet another meeting of AL's student wing, BCL, on Saturday, she reiterated her position on the 15th Amendment to the constitution through which the provision of caretaker (CTG) system of election-time government was abolished. But she chose to restate her unwavering stance on the issue of election-time government knowing fully well that the opposition BNP's condition for participation in the election was restoration of CTG.

The opposition leader and BNP's chairperson, Khaleda Zia, on the other hand, has urged her party workers and leaders and the people at large to prepare for mass movement to reinstall the caretaker system of government. Obviously, the opposition leader was not in any election mood.

What message is the electorate getting from these mutually conflicting stances of the two major political stakeholders? The ruling Awami League will hold election under the present government come what may, while the opposition BNP will go for a movement to realise its demand to reinstate CTG.

How can the government then hope to hold a free and fair election leaving the main opposition out in the cold? If it is serious about the election, does it then want to hold it without the opposition? But did not the then-BNP as a ruling party try to hold such an opposition-less general election in February 1996? Why does the ruling AL now think that the result will be different this time?

There is a perception in the ruling party circles that, unlike Awami League, the BNP is weak at launching a tough movement,

even though it often threatens the government with one. There is some element of truth in it, given the BNP's less regimented organisational structure than the AL's. Even so, the fact remains that neither of these parties did actually give in, in the face of opposition's movement during the last 23 years. It was after the end of each party's term in power that things changed for the better or for the worse. It was either a moral defeat or entry of a third party in the fray that determined the final course of events.

In 1996, the then-ruling BNP faced a moral defeat after holding February election. In 2007, the bloody skirmishes on the street drew the military-backed caretaker government into the scene. In fact, neither the ruling party's stiffness towards opposition's demands, nor the opposition's strength, or the lack of it, to launch an effective movement, did actually matter in the long run. In fact, it has always been a lose-lose situation for either party.

And there is also no overriding reason to believe that things will be different this time.

So, it's now déjà vu all over again. We are as though witnessing a rerun of the chain of events that marked the ending of the first elected government after the fall of military dictatorship in 1990. The only difference is that the roles have reversed. At that time,

Are we going to witness a re-enactment of what happened in 1996 or 2006? Or may be something even worse? Prognostications of civil society members, foreign diplomats and political observers are disquieting.

the ruling BNP was refusing to accommodate opposition AL's demand for holding election under a CTG on the excuse of constitutional bindings. Now, the ruling AL is producing the same argument of constitutional limitations to dismiss the opposition's demand. The fact remains that the new crisis has been created after removal of the CTG provision from the constitution by a High Court verdict. And it has come to the government's advantage, or so it seems.

Recently, there has been a flurry of activities in the diplomatic community. Even the UN secretary general has shown his keenness about the goings-on surrounding the next general elections in Bangladesh and is learnt to have stressed the need for a dialogue between the ruling party and the opposition for a credible election.

Are the government and the opposition listening? Or are we going to witness a re-enactment of what happened in 1996 or 2006? Or may be something even worse? Prognostications of civil society members, foreign diplomats and political observers are disquieting.

The writer is Editor, Science & Life, The Daily Star. E-mail: sfalim@gmail.com

Predicting total solar eclipses

QUAMRUL HAIDER

A total solar eclipse is a dramatic event. It occurs when the New Moon passes directly in front of the Sun. As totality approaches, the sky becomes dark, mid-day turns into dusk, and stars appear in the sky. In the words of Homer, "and the Sun has perished out of heaven, and an evil mist hovers over all."

The Moon's orbital plane is tilted by about 5 degrees to the Earth's ecliptic (orbital plane). The points where it crosses the ecliptic are known as the nodes. The Moon crosses the ecliptic twice in a lunar month (29.53 days). It spends half the lunar month above the ecliptic and the other half below. In addition to the tilt, Moon's orbital plane also wobbles, causing the line connecting the nodes to slowly precess. It takes 346.6 days for the line of nodes to go from one alignment to the next identical alignment. This time period is called the eclipse year.

Although the Moon crosses the nodes twice each month, episodes of total solar eclipses are rare. They occur only when the New Moon is at a node on the line of nodes between the Earth and the Sun. Furthermore, the Moon must be in the part of its elliptical orbit where it is closer to the Earth. If these conditions are not met, the long, narrow shadows of the Earth and Moon will miss their marks and no eclipses will occur.

How can the Moon which is about 400 times smaller than the Sun completely block out the Sun from our view? It is a happy coincidence that the angular diameters of the Sun and Moon, or the angle subtended by them at the point of observation have the same value of half a degree. Thus when their orbital planes intersect and the distances align favorably, the New Moon can completely block the Sun.

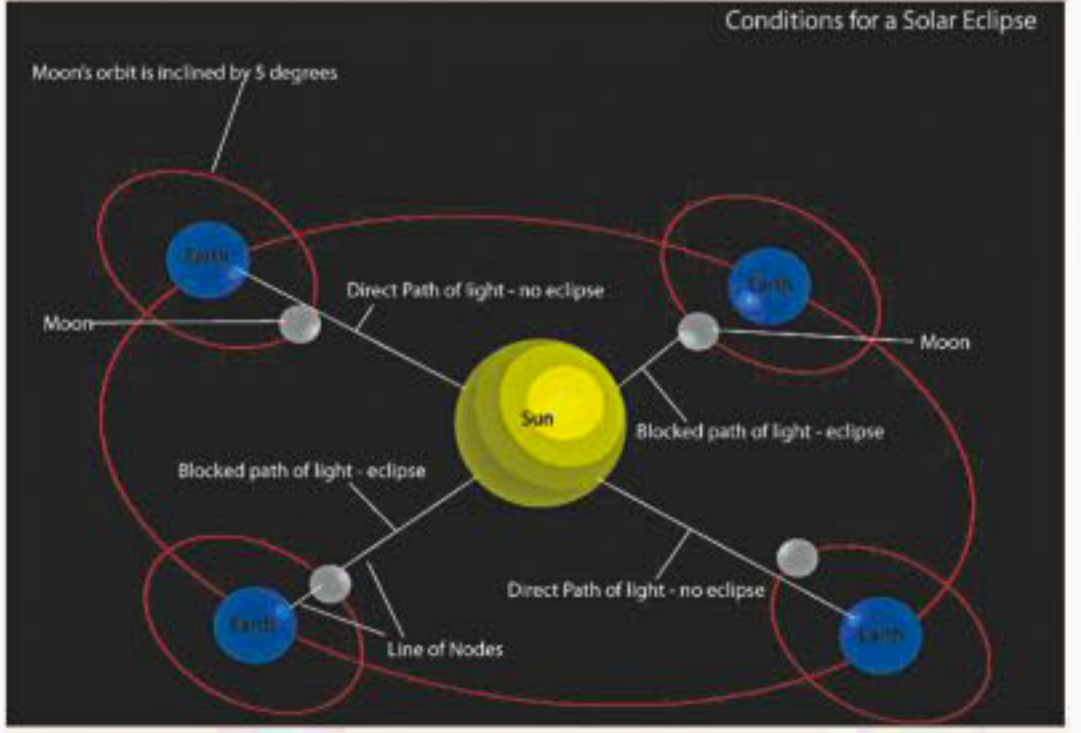
Predicting the occurrence of a solar eclipse is quite simple. If there is an eclipse today, then to predict when the next one will occur, we need to know how many whole lunar months equal whole number of eclipse years. We can then calculate the time it will take for the next identical alignment of the Sun, Moon, and the line of nodes. By trial and error, it is found that 223 lunar months is equal to 19 eclipse years, because $223 \times 29.53 = 19 \times 346.6 = 6585$ days (18 years, 11 days). A more accurate calculation yields the value 18 years, 11 1/3 days. This interval of time is called the Saros, Greek for

"repetition".

An eclipse will repeat with surprising accuracy after one Saros cycle. However, because of the extra one-third day in the Saros cycle, it will not be visible from the same place as the previous one. After one Saros the Earth will rotate an additional one-third of a turn farther east, shifting the region of visibility west, causing the eclipse to occur 8 hours later in the day.

Eclipses separated by the Saros interval forms the eclipse series. How does one know when the series starts and when it ends? First, one has to find the very first eclipse of the series and the exact moment that eclipse occurred by back-tracking along the trail of eclipses within a given Saros series. Once the occurrence of the first eclipse is found, the rest in the series is a foregone conclusion.

There will be 71 to 73 solar eclipses in a series spread over a period of approximately 1300 years.



Every Saros series begins with a number of partial eclipses near one of the poles and ends with a group of partial eclipses near the opposite pole. We are now going through a number of series' beginning at 11.7. For this series, the first eclipse occurred on June 24, 0792 and the last one will be on August 3, 2054. The latest one was on July 1, 2000; the next one will be on July 13, 2018, and so on. Note they are all separated by the Saros cycle.

A Saros series returns to almost the same geographic region every three Saros periods (54 years and 34 days) of its earlier location. This triple Saros cycle is known as the Exeligmos, Greek for "turn of the wheel." Thanks to the Babylonians (Chaldeans), the Saros cycle is a clever and powerful tool for predicting solar eclipses.

The writer is a Professor of Physics at Fordham University, New York.

A slap, a shove, and the end of fine art

MAHFUZUR RAHMAN

IT is mid-morning. The small shopping centre is still quite, but a hectic day lies ahead. Eid is coming and by early afternoon the place, crammed with tiny shops, which in turn are bursting with wares, will be abuzz with shoppers. The long open space between the two rows of shops will fill up.

For now, the young shop assistant Abdur Rashid has a vacant look. He leans on the long glass and wood showcase. Behind him hang layers of punjabis, pajama trousers, shalwars, and kameez, laced, embroidered, or just plain, in a collage of shapes, sizes and colours. They will dazzle in the evening as the lights come on. They look surprisingly dull now to Abdur Rashid who was on his feet last night till closing time, which was close to mid-night. He is a little tired but happy. Sale last night was good. He hopes today will be a good day too. So does Akbar Ali, the owner, who is settling down to look through the accounts at the wall-end of the show case, under the hanging arm of a cream coloured punjabi waiting to be sold.

Abdur Rashid is new to the job. The nineteen year old has been here only a month. He has been in the city not much longer. He still misses his home in a Chapai Nababganj village: misses the mango trees, misses climbing them at this season of ripe mangoes. And what mangoes they are! He has not touched a mango here in Dhaka for fear of formalin. He sighs.

Someone has crept up to the show case while he was gazing at the crawling traffic on New Elephant Road and thinking about home and mangoes. The girl is perhaps his age, or a trifle older. And she is beautiful. The purple kameez she is wearing can easily match any in quality in Abdur Rashid's shop. Her slim shalwar, is a perfect fit for her slim body, the hem stopping an inch short of the fair ankles. Abdur Rashid feels she has been there for quite some time. Did she want something? He wondered. She does not seem particularly keen to buy anything. Perhaps she was waiting for someone and just killing time gazing at the shops wares. Better to ask.

Did you want something? Do you want me

to show you a kameez suit? No answer. Abdur Rashid falls silent. But he cannot help looking at the girl. It is her turn to speak. What are you staring at? She asks. Nothing, just looking at you, the boy intones.

The girl's right arm flies into the air, away from her shoulder, the palm expands to its full width and comes crashing down on the boy's left cheek. His manhood under assault, he shoves the girl. Perhaps she was not prepared for this. Perhaps she was still reeling from the swing of her own arm. She falls.

A panicked Akbar Ali rushes in. A few other shopkeepers too come running. Someone helps the girl to her feet. Ali apologises for his shop assistant. He tells him to apologise to the girl (maaf cha haramzada!) which he does. Reluctantly. After all it was she who hit her first. And for what? For saying he was looking at her,

What happened? He was beaten up, mangled. But how can artists be so cruel? They are supposed to be delicate creatures creating delicate things. Like flowers. Or gently flowing rivers. Or beautiful women.

which was in response to her silly question, and after she had been staring at nothing in particular in front of the shop, and just hanging around? Still, he apologises. The girl storms out, towards the premier school of fine art in the city, a couple of blocks away. In the melee she had let it be known that is where she was a student, a budding artist.

The turn of events perplexes Abdur Rashid. Such humiliation. He did not ogle the girl. He was not following her. In fact she was not even on the move. He did not whistle at her, as he was told city bokhates sometimes do to passing girls. It was an innocent phrase of his, and that too..... And how come she was an artist and she resents an admiring look? Back home he had said to his neighbour's daughter, young Amina, and said it to her face, that she was beautiful, and that

resulted only in a heavenly smile from her. And here?

A dozen students from the arts school burst in, led by the aggrieved artist. A stretched finger, straining with rage, picks out Abdur Rashid. A dozen fists descend on him in a hail storm of blows. Someone pulls at his hair and they start to drag him out of the shop, while Ali and other shop keepers try in vain to stop the assault. The group is now on the foot-path, its victim between the feet of the angry students of fine art. In a moment the horizontal Abdur Rashid's head hits the concrete road with a thud as he is dragged from the high foot path. Some more students from the art school join in. They drag Abdur Rashid by the legs, his head now sweeping the potholed road, while kicks and lathi blows land all over him, all the way to the school.

On ardent appeal, and offer of remuneration, from Ali Akbar the police rescue him. He is barely alive. Every bone in his body seems to have been broken. A swollen, mutilated Abdur Rashid is taken to his lodgings. The kindly Ali Akbar does not sack him and promises to take him back, if he survives.

The young shop assistant groans in his bed. He tries to think. Now he has time to think. What happened? He was beaten up, mangled, for just saying But how can artists be so cruel? They are supposed to be delicate creatures creating delicate things. Like flowers. Or gently flowing rivers. Or beautiful women.

And how come the students returned the next day and demanded money from the shopkeepers of the market. Or they would burn the place down, they warned. How much money? Five lakh. Three lakh. It was the Eid shopping season. The shopkeepers would not like to miss it for anything. They could not afford to see the busiest shopping season of the year ruined. So, three lakh, shall we say? Three lakh then. And this is going into good hands. Delicate hands of budding artists.

Abdur Rashid groans.

The writer is an erstwhile UN economist in retirement in New York.



GRANDDAD

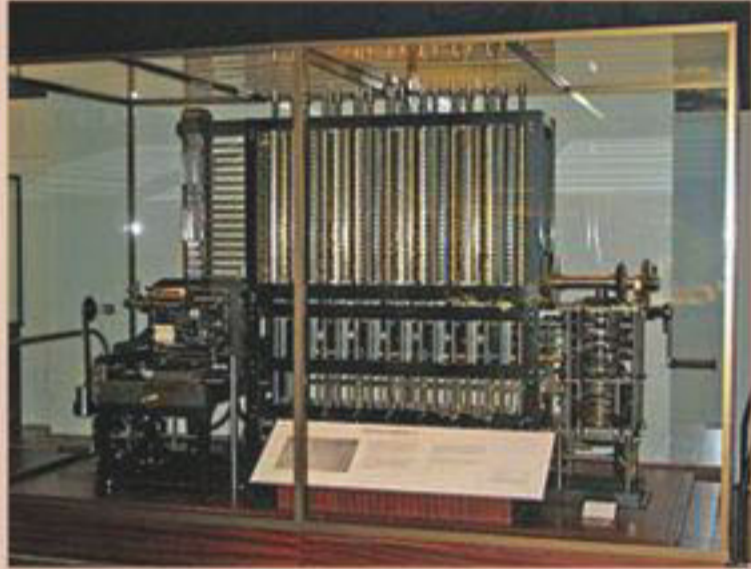
The Difference Engine

LONY AZADI

COMPUTERS have come a long way since British mathematician Charles Babbage (1791-1871) invented his Difference Engine No. 2. His early computer could make complicated calculation and print the results. However, it had over 4,000 parts, measured 3.4m wide and 2.1m high, weighed 2.6 tonnes and was operated by cranking a handle hundreds of times.

By comparison, some of the latest personal computers measure less than 3cm thick and weigh as little as 2.54kg, with processing speeds of up to 2.16GHz.

The writer is an occasional contributor.



Difference Engine as designed by Charles Babbage



LONG-HIDDEN

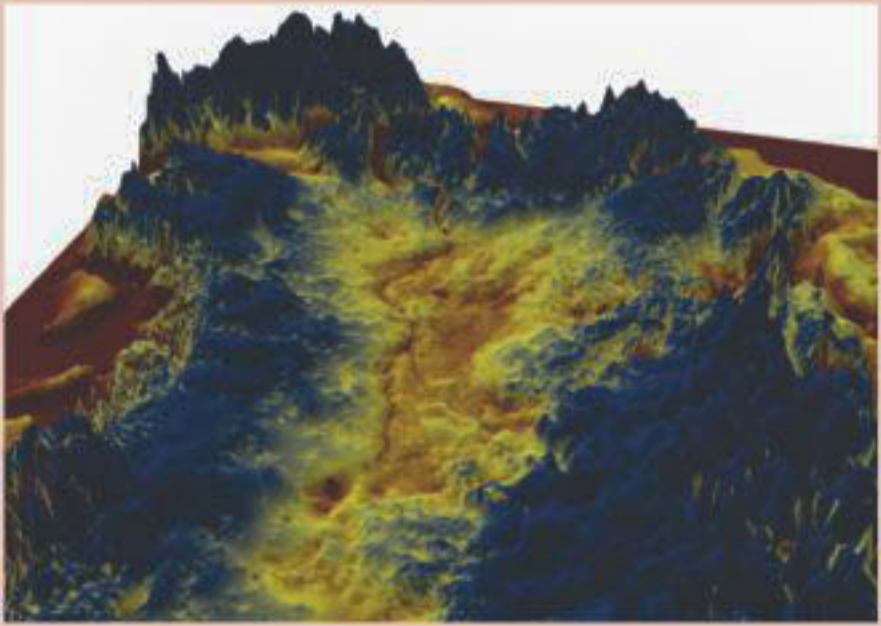
Canyon under Greenland's ice

GREENLAND has its very own Grand Canyon, but tourists won't see it anytime soon. The recently discovered 750-kilometer-long chasm is buried beneath the island's thick ice.

Glaciologist Jonathan Bamber of the University of Bristol in England and colleagues uncovered the canyon while mapping Greenland's subglacial terrain with ice-penetrating radar. The gorge — up to 800 meters deep, or about half as deep as the Grand Canyon — stretches from central Greenland to the island's northeast coast. A river probably carved the channel before ice spread across Greenland about 3.5 million years ago, the team proposes in the Aug. 30 Science.

The researchers suspect that today, meltwater flows through the canyon to the sea. The canyon may be one reason why meltwater at the base of Greenland's ice sheet doesn't form subglacial lakes.

Source: Since News



A 750-kilometer-long canyon lies hidden beneath Greenland's ice sheet.

CROSSWORD puzzle grid with clues for Across and Down sections.

Cryptoquip puzzle with a grid and the clue: Yesterday's Cryptoquip: AWFUL MONSTER VARIETY THAT TYPICALLY MAKES MEALS OUT OF AMUSEMENT SHOW WORKERS: A CARNIE-VORE. Today's Cryptoquip Clue: X equals W

BEETLE BAILY comic strip featuring Beetle Baily and a character in a military uniform.

HENRY comic strip featuring Henry and a character in a military uniform.

Comic strip featuring a character in a military uniform and a character in a hat.

QUOTABLE Quotes section featuring a quote by C.S. Lewis: "Atheism turns out to be too simple. If the whole universe has no meaning, we should never have found out that it has no meaning..."