'To respect Bangabandhu, we must instil his values in our lives'

Bangladesh hosted the World Peace Conference in Dhaka on December 4-5, 2021, inviting renowned peace and rights activists from across the world. The event, the first of its kind here, was organised as part of the celebration of Father of the Nation Bangabandhu Sheikh Mujibur Rahman's birth centenary as well as the Golden Jubilee of the country's independence. The theme of the conference was 'Advancing Peace through Social Inclusion.' **Archbishop Bejoy D'Cruze**, *the head of the Catholic Church in Bangladesh, who attended the event, shares his views on the conference and how to build peace in the country with* **Porimol Palma** *of* **The Daily Star**.

How was the peace conference?

It was a fantastic event. A number of peace activists from around the globe gathered and shared their thoughts on the ways of building a peaceful world. They discussed building an inclusive society, freedom of the press, reducing inequality, communal harmony, and so on. I liked an idea put forth by a Japanese participant, who said children should be made the agents of peace. They need to be inspired from their childhood and moulded that way. If that is done, they will exercise the same when they grow up. That is how we can build a peaceful world.

What do you think is the situation in Bangladesh as far as peace is concerned?

Peace is there when there is freedom of speech, religion—when there is no discrimination in society. We can say we have peace here, and that there is no major communal violence, but the freedom of the press is, to some extent, shrinking. This is a fundamental right of the people. Also, in terms of basic needs of the people, we see that there are still so many who are living in poverty, and that there is still discrimination on the basis of religion, ethnicity, wealth, education, and health.

In our country, society should be more inclusive. For this to happen, you need to uplift the marginal people—ethnic and religious minorities, people with disabilities. They should be provided with all the opportunities necessary to ensure their dignity and basic rights. We also need to have more interfaith dialogues. Of course, only the government alone cannot achieve it. There should be a social movement for this. All the discrimination needs to be eliminated.

Bangabandhu's philosophy on peace and social justice was discussed in the conference. What is your observation on this? How can his values be implemented?

Bangabandhu Sheikh Mujibur Rahman had a great vision. He always thought big, dreamt big. That is why the constitution that he gave us in 1972 carried the values of democracy, secularism and social justice. He said there was no place for communalism (in Bangladesh). But communalism keeps rearing its head. The government needs to be aware of this recurrence and act accordingly.

Bangladesh is not being run fully in line with Bangabandhu's values. We need to go back to the 1972 constitution. Despite all challenges, we need to put into practice his ideals in our lives and society. If we don't implement his ideals, we would not be

PHOTO: COLLECTED

Archbishop Bejoy D'Cruze

paying due respect to him.

It is sad to see that even after 50 years of our independence, there is so much corruption, bribery and mismanagement in all sectors across the country. Bangabandhu did not want this. We have to ensure his values are being practised in our day-to-day lives. Remembering Bangabandhu should not be limited to words, papers and celebrations. We cannot have the *Sonar Bangla* he dreamt of if we fail to instil his values in our lives.

On behalf of the Catholic Church in Bangladesh, we are celebrating the birth centenary of Bangabandhu as well as the Golden Jubilee of our independence. I think it should not be limited to one year of celebration, but be observed for at least a decade, to not only celebrate him, but also to spread his beliefs in secularism, democracy and freedom that he held so close to his heart.

How do you think we can end communal violence?

First, I think we have to reinstate the 1972 constitution. People will realise that we all have to follow it. For more communal harmony, we need more dialogues—interfaith dialogues. The state of Bangladesh was not created based on religion, but culture, language and traditions. This is our inspiration. All will practise their religions freely on this land, but our main identity is that we are humans, Bengalis, Bangladeshis.

How does the Catholic Church deal with the issue of communal harmony?

We are a very small community here. We have been conducting interfaith dialogues. We are thinking of taking up more activities through our schools, colleges and universities. I have held meetings with the teachers of the Catholic Church-run educational institutions on how to promote more interfaith dialogues. Now I am proposing to promote more values among the students. These values are already present among the students of our institutions. If we do it in a more organised way, they will be the instruments of dialogue and promote social and religious harmonies.

How would this goal be achieved?

Now, we occasionally hold dialogues. But we will do it more frequently, in a structured way, so that students have an idea of different religions, and they can freely mingle with all. We should create space for them to voice their questions. Then, we can share all the good things that are there in all the holy books: peace, harmony, union, and humanity. We should highlight the values of universality that are discussed in all religions. Also, we should engage students from all faith systems to work together—maybe in charitable activities, where teachers can guide them. This way, they will come close and make friendships; they will live life to the fullest.

A new powerful 'eye' in the sky

The James Webb Space Telescope will rewrite cosmic history

Quamrul Haider

TODAY, we are at the threshold of a great "astronomical revolution"—a revolution that will show the universe in a completely new light. At 18:20 Bangladesh standard time, Nasa is scheduled to launch into orbit the James Webb Space Telescope, the next-generation telescope to "serve as the premier deep space observatory for the next decade." The USD-10-billion, 6,200-kg telescope, referred to simply as Webb, will lift off from a launch site in French Guiana for its celestial home, the L2 Lagrange Point, about 1.5 million kilometres from Earth.

What is L2? It is a point in space—there are four more—determined by the 18th century Italian-French mathematician Joseph-Louis Lagrange at which a satellite, under the gravitational influence of the Earth and Sun, will remain approximately at rest relative to them. The point can, therefore, be used by Webb as a "parking spot" to maintain a stable position, with minimal fuel consumption as it goes around the Sun.

At L2, which is directly behind the Earth as viewed from the Sun, Webb will always be at the same location relative to Earth. As a result, astronomers can have continuous communications with Webb as the Earth rotates. Also, Webb will always see the Sun, Moon and Earth on one side of it, with a clear view of deep space on the opposite side, making it ideal for it to see much farther into the universe.

It will take about a month for Webb to reach its destination and unfurl its mirrors and a tennis-court-size sunshield. The shield will protect the telescope by blocking light and heat from the Sun, Earth and Moon. Scientists will need another five months to align the mirrors and cool down the instruments to their operating temperatures. Approximately six months after the launch, Webb will begin collecting and transmitting data.

Among the pantheon of space telescopes, the Hubble telescope, placed in orbit by Space Shuttle Discovery in 1990, is the most famous observatory in space. At an altitude of about 560km, Hubble orbits the Earth once every 97 minutes, or 15 orbits per day, with an orbital speed of 28,000km per hour. Far above rain clouds, free from light pollution and unencumbered by the distorting effects of the Earth's atmosphere, Hubble can operate round the clock with an unimpeded view of the universe.

Hubble's domain extends from the ultraviolet through the visible and into the near-infrared light. This range has allowed Hubble to deliver stunning images of stars, galaxies and other astronomical objects that have changed our understanding of the universe beyond measure. However, as great as Hubble is, it may have reached its limits, although its importance is not likely to fade any time soon.

Why do we need Webb?

Electromagnetic radiation, ranging from gamma rays to radio waves, is our measuring stick in space. It is the cosmic messenger that carries far more information than any other messenger does. Having said that, many of the objects we want to observe in space are too cold to radiate visible light, or other forms of short wavelength radiation. Instead, they radiate long wavelength infrared light. The reason is that the wavelength of light leaving the stars and galaxies of the primordial universe, initially shortwave and highly energetic, has been shifted to infrared by the Doppler Effect. It is stretching of the short wavelength of light towards larger values, because the sources of light are receding from the observer during the journey to Earth due to the ongoing expansion of the universe. In the jargon of astronomy, it is called "cosmological redshift."

In many ways, Hubble's infrared views are fundamentally limited by its very design. Specifically, the telescope's perch in low-Earth orbit—where it has to contend with not only radiation from the Sun, but with infrared light radiated and reflected from Earth itself—interferes with any attempt to observe infrared light from the cosmos. Hence, the Webb, designed to take us far beyond Hubble's limit. In particular, Webb will observe primarily in the infrared region, which will show us things never before seen by Hubble or any other telescope.

With a 6.5-metre diameter primary mirror shaped like a "golden sunflower" and cryogenic operating temperature—about 225 degrees Celsius below zero—Webb will be the largest and the most powerful space-based telescope—100 times more powerful

Arianespace's Ariane 5 rocket with Nasa's James Webb Space Telescope onboard is rolled out in the rain to the launch pad, on December 23, 2021, at the Guiana Space Centre in Kourou, French Guiana. PHOTO: NASA/BILL INGALLS

than Hubble—ever built with unprecedented sensitivity. The dimension of Webb's mirror will translate to a 6.5-time increase in the size of data-collecting area, as opposed to other telescopes.

But why does Webb have to be cooled to extremely low temperatures? As noted above, Webb is designed to detect the faint infrared signals of objects billions of light years away (1 light year = 9.46 trillion kilometres). In order to detect these signals, which can sometimes be felt as heat, the instruments inside Webb has to be kept at very cold temperatures. Otherwise, all Webb will detect is its own infrared radiation.

Webb's mission

The primary mission of Webb is to unlock the enduring mysteries of the universe. To that end, astronomers and cosmologists hope to use the telescope to look back in time over 13.5 billion years, which is closer to the beginning of time, and see some of the earliest galaxies to form in the universe. Hubble cannot see these galaxies because of redshift. Furthermore, Webb will be able to look inside dust clouds where stars are forming today. Besides, Webb will provide insights into the formation of planetary systems—including our own solar system—search for life-supporting exoplanets inside our galaxy—the Milky Way—and look for signs of alien life.

Webb's exceptional infrared imaging power will offer researchers new views of three active supermassive black holes known as quasars, their host galaxies and their neighbourhoods, located more than 13 billion light years away. Moreover, Webb will allow astronomers to observe gravitational distortions, a consequence of Einstein's General Relativity Theory, caused by smaller black holes with mass only 100,000 times the mass of the Sun. Webb will also shed light on how galaxies got supermassive black holes at their centres. Additionally, astronomers hope to use Webb to find the origin of violent bursts of bright flares from the colossal black hole Sagittarius A*, located at the centre of our galaxy.

Cosmic Dark Ages and the Webb

One of the unsolved problems in cosmology is the structure of the universe between the first few minutes and 300,000 years or so after it came into existence 13.7 billion years ago. This period was filled with darkness—both literal and metaphorical. That is why astronomers call this period the Cosmic Dark Ages. We know very little about this period because light could not escape its surroundings through the universe to hit detectors here on Earth. The emergence of the first sources of light, which are stars and galaxies that were formed by gravity, marked the end of the Dark Ages.

The design of Webb provides unique capability to address key questions about this era in cosmic evolution. Most importantly, Webb is expected to provide answers to the following questions: When and how did the Dark Ages end? What is the nature of the first galaxies? How and when did ionisation of the space between the galaxies occur? And what sources caused the ionisation? (Ionisation is the process in which an electrically neutral atom becomes negatively or positively charged by gaining or losing electrons.)

The lifetime of Webb will be dictated by the amount of fuel it will use. Unlike Hubble, which has been operating for nearly 32 years, Webb is expected to operate for at least five years—perhaps, with a bit of luck, up to 10. It is not designed to be refuelled, repaired, or upgraded in any way simply because it will be so far away from Earth. When Webb will run out of fuel, it will no longer be able to maintain its orbit and thus will not be able to point at its targets of interest with the requisite precision. And that will be the end of Webb's mission.

Nevertheless, in its short lifetime, Webb will explore every phase of cosmic history that will help us understand the origin of the universe. It will rewrite the history of the cosmos and reshape humanity's position within it by piercing through the hitherto "dark curtain" of the early universe.

Dr Quamrul Haider is a professor of physics at Fordham University in New York, US.

QUOTABLE *Quote*

MARIE CURIE
Polish-French physicist
(1867 - 1934)

Life is not easy for any of us. But what of that? We must have perseverance and above all confidence in ourselves. We must believe that we are gifted for something and that this thing must be attained.

CROSSWORD BY THOMAS JOSEPH

ACROSS
1 Store door sign
7 Cracked
11 Take out
12 Folded food
13 Emulate Lothario
14 Twice tetra-
15 Got smaller
17 Bar bills
20 Lofty
23 Ailing
24 Danger signal
26 Menu phrase
27 Flamenco cheer
28 Some amount of
29 Brings to mind
31 Beanie or beret
32 Tibia's end
33 Revue segment
34 Ignatius of Loyola follower
37 Surgery memento
39 Deep studies
43 Formal agreement
44 Bullfight star
45 Sacred chests
46 Eventually

DOWN
1 LP successors
2 Writer Harper
3 Unoriginal
4 Grinch's creator
5 Make printing plates
6 Glade grazer
7 Very much
8 "Jumanji" co-star
9 Drama division
10 Aussie hopper
16 Llama's land
17 Pageant topper
18 Patriot Ethan
19 Casino game
21 Veranda
22 Sphinx setting
24 Parts
25 Building wing
30 Tips off
33 Mall business
35 Plotting
36 Magnetic metal
37 Sauna site
38 Train unit
40 Flower plot
41 Epoch's kin
42 Tofu base

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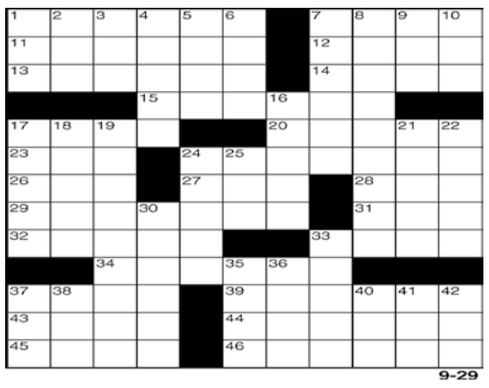

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YESTERDAY'S **ANSWERS**

T	A	C	O	S		P	A	R	T	S
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BEETLE BAILEY by Mort Walker

BABY BLUES by Kirkman & Scott