

# INTERNATIONAL YEAR OF LIGHT 2015

# Ways to mitigate darkness

MOHAMMED MUNIRUZZAMAN

IN its 68th Session, the United Nations General Assembly declared 2015 as International Year of Light and Light Related Techniques (IYL 2015). IYL 2015 is the culmination of years of negotiation by various stakeholders like the scientific community, educational institutes, non-profit organisations and of course Unesco. IYL 2015 will be administered by an international steering committee in collaboration with the International Basic Science Program of Unesco and the Abdus Salam International Center for Theoretical Physics, Trieste, Italy. The aim of IYL 2015 is to create awareness of Light Sciences and their Application, and to bring into attention light based techniques so essential to meet the global challenges of energy, education, agricultural, health and medicine as well as communication.

Many scientists believe the 21<sup>st</sup> century will depend on photonics as much as the 20th century depended on electronics. So what is photonics? Simply put, photonics is the science of generating, detecting and manipulating photons or light particles. Photon technology supports smart phones, laptops and internet. No departmental store can do without it now. CDs require very precise light known as Laser. Light is a key ingredient in many large facilities, including the Synchrotron and Free Electron Lasers (FEL). It is indispensable for both pure and applied research.

Photon technologies provide tools for doctors and surgeons in optometry and other vision related sciences. They are also used in varied medical diagnostic purposes in ways that were unthinkable a few years back. The interplay of light in nature manifests most beautifully in sunrise, sunset, rainbow, the blue of ocean and sky, and in plants and animals. Satellites and telescopes high in orbit have brought us incredible pictures of the cosmos from the nearest planets to the most distant galaxies, and all of these because of light technology. Light is of course at the origin of life -- through photosynthesis.

Growth in the photonics industry has been phenomenal over the past decade. With current global market of more than \$300 billion it is expected to grow to \$600 billion by 2020. A single significant use of sunlight is its conversion to solar electricity. Like geothermal, wind and tidal energy sources the solar power plant is an environment friendly, non-pollutant, clean energy source. Solar energy is also not prone to international fuel price fluctuations and is practically inexhaustible. With decreasing cost to generate solar electricity it is increasingly becoming competitive with other forms of electricity generation.

Driving through the Mojave Desert (Nevada-California) on the way to Las Vegas on July 6, 2014, we were struck by the barren, sun scorched, hilly and rugged terrain of the desert. This area receives almost twice the solar radiation than any other state in the USA -- a fact that has been fully exploited by the US Department of Energy. There are nine solar power plants in the Mojave Desert with a combined capacity of 354 megawatts (MW). However, the most impressive and by far the largest solar thermal power facility is the newly built 392 MW Ivanpah Solar Power Facility located 64 km southwest of Las Vegas. It became operational in February 2014 and deploys 347,000 heliostat (sun tracking) mirrors focusing solar energy on boiler located on centralised solar power towers. The Ivanpah Solar Power Facility is just off interstate highway 15 on the Nevada-California border in the Mojave Desert.

According to Asian Development Bank Report 2013, more than half of Bangladesh's population has no access to electricity. To provide clean energy to more people the government of Bangladesh signed a deal with the World Bank to help install 480,000 solar home systems. The International Renewable Energy Agency (IRENA), in its 2014 report, shows that Bangladesh is currently installing 70,000 solar panels a month. The quantum jump from 25,000 to 2.8 million installed solar systems in ten years is a great success story in itself.

The year 2015 also marks the 1,000<sup>th</sup> anniversary of the publication of the seven volume treatise on optics by the Arab scientist Ibn Al-Haytam. Born in present day Iraq, Al-Hasan Ibn Al-Haytam was a brilliant scientist who made important contributions in the field of vision and light. To acknowledge the contributions made by Muslim scholars, Unesco plans on holding exhibitions and seminars entitled "The Islamic Golden Age of Science for the Knowledge Based Society" on September 14, 2015.

Planned anniversaries to be highlighted also include: (i) 1015: Work on Optics by Al-Haytam (ii) 1815: The notion of light as a wave propounded by Fresnel (iii) 1865: The electromagnetic theory of light propagation proposed by Maxwell (iv) 1915: Einstein's Theory of Photo Electric Effect in 1905 and the General Theory of Relativity that shows how light was



at the centre of the structure of space and time (v) 1965: Discovery of the Cosmic Microwave Background by Penzias and Wilson that paved the path of the origin of the universe, and Charles Kao's successful transmission of light through fibers for optical communication.

To celebrate IYL 2015, countries around the world have arranged seminars, discussions, photo exhibitions etc. Some of these are: Discovering Light, in Portugal; Light and Shadows, in Germany; Hikari -- the World of Light, in Japan; Photo Selfie, in USA; Light and Architecture, in China; Light Beyond the Bulb, in UK; Nano Days, in Egypt; Shoooh Art Competition -- 2015, Theme Light, in India; Light on Art Work, in Canada; Visual Art Work, in Mexico, etc.

In announcing IYL 2015 the United Nations has recognised the importance of Light Sciences and its Application. For over 1.5 billion people around the globe night time is either complete or partial darkness; the IYL will also promote ways to mitigate such sufferings.

The writer is Professor of Physics, Jahangirnagar University, Fellow of the Royal Astronomical Society (UK) and Fellow of the Bangladesh Physical Society.

## "Do I dare?"

### SHIFTING IMAGES



MILIA ALI

THE other day I had a rather unsettling encounter with two young women at a local café, which is popular for its outdoor ambience. On a crisp and cool afternoon a few of us old friends decided to meet at the café for lunch. The general idea was to reminisce about the "good old days," while enjoying the warmth of

the mellow February sun and the lake view. Since it turned out to be a freak hot day we were on the look-out for a shady area... a table under the sole Pagoda in the garden. As soon as it got vacant my friends and I ambled towards the table but two young girls made a virtual dash for it. Rushing past us, they triumphantly occupied the space. One of them put on a Cheshire cat smile and mumbled a feeble "Sorry." Although shocked by the discourteous behaviour, we retreated to our original place without protesting.

Fortunately, the unsavoury incident did not detract us from relishing our "friendship lunch," but it certainly set my mind thinking about the changing social mores. One thing was clear from the young women's behaviour: age no longer confers respect and veneration. On a deeper level, I wondered whether the values I was taught in school and at home have left me utterly unequipped to deal with the aggressive, selfish, and competitive world we operate in today. I specifically refer to the virtues of modesty, kindness, respect for elders and maintaining public decorum, which are all central to life. It appears that most young people today have a callous disregard for these values. They are inclined to push their way ahead and grab opportunities whether they have earned the right to those privileges or not. More seriously, pushing and grabbing are often done without any unease about violating others' rights.

I realise that it's unfair to paint an entire generation with a broad brush. But isn't it true that the operating principles in today's world are: "might is right" and "survival of the fittest" (please read the last as survival of those with influence and/or loads of money)? Thus people who choose to travel the arduous route to success are viewed as weak and vulnerable. Further, the bar of honesty and integrity has been lowered to the extent that people do not hesitate to use all kinds of devious means to achieve their goals. And those who consider these actions to be intrinsically wrong sit back silently because they are too scared to voice their protests. They believe that maintaining a dignified silence will save them the indignity of public backlash or loss of popularity.

I wonder ... is being kind/ good/ conscientious just a social construct to maintain a facade? Do we adhere to these principles only to project an image or are they crucial for maintaining equilibrium in our communities and societies? Unfortunately, most of us have come to tolerate errant behaviour, even though protesting against it may lead to the greater good of the community. In the process, we have allowed offensive conduct to be accepted as the "social norm." For example, I chose to ignore the impoliteness of the young women in the restaurant because I didn't wish to get involved in an incident that might escalate into a public brawl. But, as an older person, should I not have told the young ladies that courtesy demanded that they give preference to a group of seniors? And that it's wrong to unfairly force one's way to get ahead -- no matter how big or small the reward may be.

The answer is, yes I should have. But then I was a victim of my vulnerability as a sensitive person. I preferred to wear my mask of civility because that's what I have been taught to do. The importance of childhood conditioning and education -- from mathematics to morality -- cannot be overstated. It matters little whether one is black or white or male or female or young or old. We are all scared to break the code of conduct we have been taught to obey.

Perhaps it's time I asked myself some hard questions. Should I continue to live my life camouflaging my real self behind a façade of passivity because I am afraid of criticism, ridicule or losing public acceptance? Or should I speak out and fight the daily battles that I believe will challenge social injustices even in small ways? I may not be able to control other people's behaviour but society expects each one of us to stand up for what is right. If we don't we are creating, even if obliquely, serious negative consequences, sometimes affecting generations.

I believe that the greatest tragedy of life is not the appalling actions of bad people, but the indifferent silence of good people!

The writer is a renowned Rabindra Sangeet exponent and a former employee of the World Bank.  
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## Emajuddin's letter to

# BAN KI-MOON

## Not for UN to mediate

Prof. Abdul Mannan

Prof. Emajuddin Ahmed, in a letter, has requested Mr. Ban Ki-moon to take an initiative to resolve the political standoff prevailing in the country. I presume it is a personal letter to the secretary general. Such letters do not carry much importance as important personalities like the secretary general receive innumerable letters from different people around the world regularly.

In addition, personally, I do not see any political standoff in Bangladesh. What is going on is inhuman and barbaric terrorism in the name of political movement.

Prof. Ahmed has requested the UN secretary-general to mediate and initiate talks between the two parties. Such mediation took place in 2013 but yielded no result because of the stubbornness of Khaleda Zia. I do not see anything different happening this time as the sole objective of the current nationwide mayhem is to unseat the present government by any means just for personal gains. All the talks of 'saving democracy' are just eyewash. Prof. Ahmed will do a good job if he can go to Khaleda Zia and request her to stop the violence before writing letters. No one is against dialogue amongst political parties but before any meaningful dialogue can happen, all types of terrorism and violence must stop. If Mr. Ban Ki-moon agrees to what Prof. Ahmed is asking for, then the secretary-general can first initiate talks with the Middle Eastern terrorist groups like ISIS or al-Qaeda or the Boko-Haram of Nigeria. Terrorism and dialogue taking place simultaneously may not bring any result.

The commentator is former Vice-chancellor, University of Chittagong.

## Political parties should resolve the stand-off

Zonayed Saki

First of all, this is an election-centred political crisis, the root of which lies in the undemocratic or autocratic power structure of the country. Sadly, our constitution could not ensure a democratic power structure. In order to establish a stable democratic system, we need a democratic constitution first.

Secondly, the law enforcing authorities should take measures lawfully to contain the ongoing violence. But that will not solve the present political crisis; this should be solved through a political process and we demand a national initiative for a long term solution. Otherwise, violence will prolong and may take a turn for the worse. More extremist groups may emerge resulting in a rise in militant activities. We want violence to stop and for the political crisis to be resolved.

What we have observed so far is the government's denial that there is any political crisis in the country. On the other hand, the opposition party has resorted to violence to press home its political demands. Since it is the government which is in charge of the country, it must be the one to take the initiative to end the crisis.

Foreign intervention in our internal politics is unwarranted, and we think it is disgraceful for our country. In the present political context, it is the responsibility of the political parties to resolve the political standoff. Foreign involvement will only prove that the warring political parties have failed to play their due role.

The commentator is Chief Coordinator, Ganosamhati Andolon (People's Solidarity Movement).

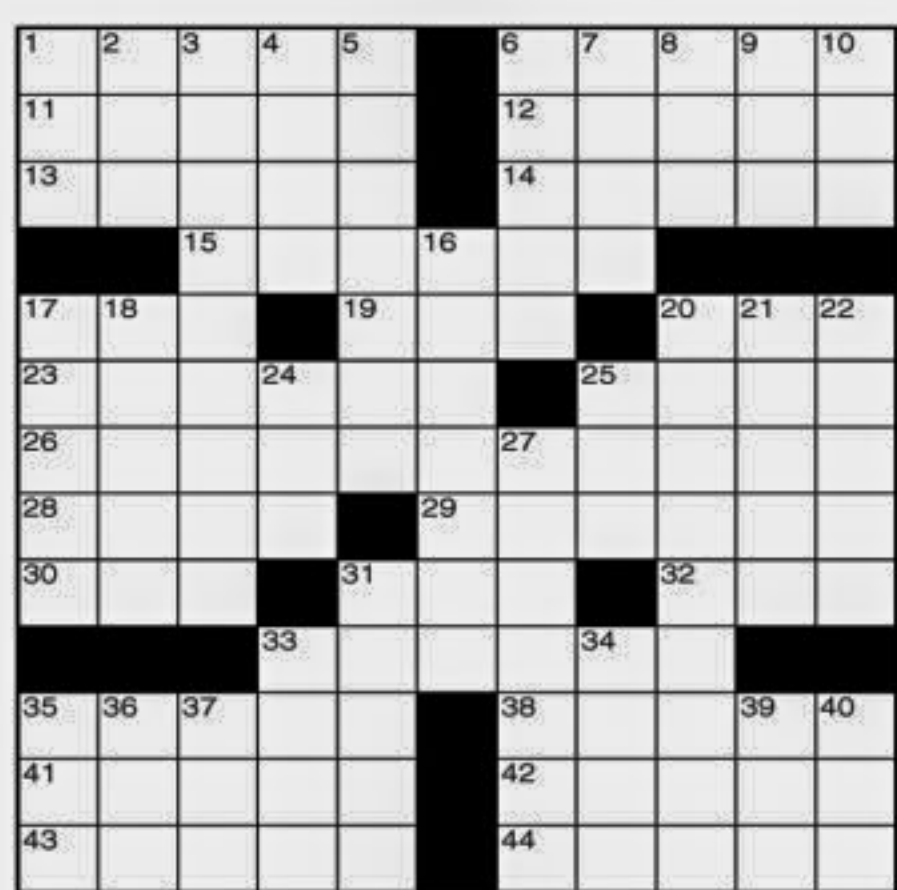
## CROSSWORD by Thomas Joseph

- ACROSS  
1 Ship of 1492  
6 "Aladdin" villain  
11 Homer work  
12 Writer Bronte  
13 Spanish hero  
14 Spine feature  
15 Chooses  
17 -- Diego  
19 Parched  
20 Unite  
23 Magic word  
25 Ring of light  
26 Coward  
28 Single  
29 Pasta shape  
30 Veto vote  
31 Chestnut  
32 Writer Kesey  
33 Easter event  
35 Office desk fixture  
38 Backpack material  
41 Car choice  
42 F. Scott's wife  
43 Borders  
44 To this point
- DOWN  
1 Slapstick weapon  
2 Suffering  
3 Prudish person  
4 Kite feature  
5 Augmented  
6 Landing pier  
7 Writer Martin  
8 Suitable  
9 Maximum amount  
10 Reuben base  
16 Prying aid  
17 Watch secretly  
18 Concert spot  
20 Pogo's creator  
21 "Dallas" mom  
22 Senior member  
24 Crafty  
25 Chop down  
27 Series set on the Ponderosa  
31 Government funders  
33 Vatican VIP  
34 Salon jobs  
35 Sink stuff  
36 Silent okay  
37 Pester  
39 Pindar poem  
40 D.C baseballer



Let us not pray to be sheltered from dangers but to be fearless when facing them.

-- Rabindranath Tagore



### Yesterday's answer

S L I P S B A U M  
W I L L A B A N T U  
I N L E T E L V I S  
F E E D A D D I C T  
T U G E L F L A Y  
S P A M M E R S  
S L A P A U N T  
S L A M M E R S  
L A B O D E V I C  
A L L E Y S J A D E  
S T A G E L A D E N  
S A R G E I N A N E  
O R E S T E N T S

## BEETLE BAILEY

by Mort Walker



### CRYPTOQUOTE

12-25

LKPWJVROJ, RF LKWSU, WJ SXQA WH OLVWXH, AQAPF VWRA GA SXQA, AQAPF VWRA GA MQWA, WV'J LKPWJVROJ.

-- UOSA AQOHJ PXMAPJ

### Yesterday's CRYPTOQUOTE:

HAVE A HAPPY CHRISTMAS AND ENJOY THIS HOLIDAY SEASON. ... YOUR PUZZLE PEOPLE

### A XYDLBAXR IS LONGFELLOW

One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each day the code letters are different.