Tuning Into Any Wave Length

by Raffat Binte Rashid

Only in Amateur Radio can you.

.....talk to kings as you would to your next door neighbours.

..... talk to astronauts and cosmonauts as they travel through space

.....help bring relief to a country in the midst of a disaster

.....have nearly a million instant friends

..... help bring the dream of world peace closer.

And all this without leaving home!

Actually Amateur Radio other wise knowing HAM Radio, is a different sort of passion or rather a hobby. Learning about electronics and communications technology at home, in one's spare time is the basic opportunity that Amateur Radio offers. It is a way of experimenting exciting new ways where every minute of the hour, throughout the year, radio amateurs all over the world, communicate with each other — a unique way of making new friends.

"Amateur service is defined as, 'A radio communication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs. These are persons interested in radio techniques solely with a personal aim and without pecuniary interest. It is like every other hobby done just for the love of it," said Saif Shahid President Bangladesh Amateur Radio League (BARL).

It is no doubt, a very sophisticated hobby. Sensitive too because radio amateurs can tune into any frequencies, high or ultra. This might prove to be an interference with national security measures. Moreover, so many amateurs talking at a time might create chaos and confusion. Radio amateurs respect certain norms, and have their own code of ethics. Infact, amateurs are the ambassadors of their country. They can win international friendship by being polite and courteous and of course, following amateur codes. They have to be disciplined since the entire world is listening to them, when they are on air.

This activity is also controlled internationally. The controlling body is the International Telecommunications Union (ITU) based in Geneva. It is an agency of the United Nations Organisation. This body allocates strictly defined bands of frequencies on which amateurs operate. It is done in the same way that allocates frequencies for radio-TV broad casting stations aircraft communications, and scores of other users of this heavily loaded radio spectrum. Radio amateurs use VHF hand held sets, mobile radio sets, SSB HF Radio sets and satellite communication sets.

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FIRST LICENSED AMATEUR OPERATOR
S21A
SAIF D. SHAHID
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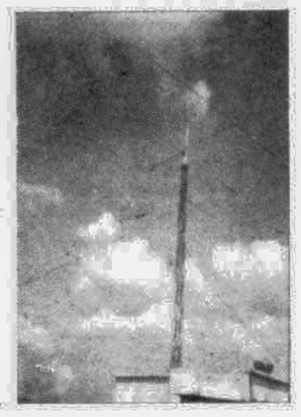
TO STATION	CONFIRMING QSO						
	DAY	MONTH	YEAR	UTC	MHz	2-WAY	RST
						SSB CW - RTTY	

PRESIDENT - BANGLADESH AMATEUR RADIO LEAGUE

In a world where everything is advanced technology, where communication is the pass word to any place, becoming involved in Amateur Radio is the only hobby for this age. Infact most of the electronic equipment and systems in use today are the products of radio amateurs. Ardent and dedicated amateur experimenters have contributed to the electronics technology today. Their experiments during off-working hours, exchanging ideas with their fellow amateurs benefit their employers., their government and ultimately, the public itself.

But this highly technical hobby was legalized in our country only recently. "After Bangladesh come into being in 1971, there were no Amateur Radio activities in the country; the BARL was formed on May 20, 1979, but it was registered as a society for promoting and protecting the cause of Amateur Radio in Bangladesh with the Government Registar on December 19, 1979, informed



Saif. It was later elected in the International Amateur Radio Union (IARU) in 1982. But during all these years Amateur Radio activities remained suspended in Bangladesh. When the country suffered one of the worst natural calamities of recent history, in which more than 125,000 people were washed away normal telecommunication links between Bangladesh and the rest of the world were cut off for several weeks. Even the communications between the cyclone-hit area and the capital of Dhaka were also severed. It was then that the BARL members immediately approached the authorities to lift the suspension on Amateur Radio and to let them set up emergency communication links. "The proposed was accepted, but before the file got through all the bureaucratic hurdles, the need for emergency communication was gone," explained Saif.

Nevertheless, the importance of Amateur Radio was eventually understood and a positive step was taken. As a result, Bangladesh has issued an Amateur Radio licence, and the first two were issued to BARL President Saif Shahid and Secretary Nizam Chowdury. At present, there are about five people holding this licence. To operate a transmitter also called tranceiver, at a residence without the licence is a serious offence.

The pleasure of Radio Amateur is unlimited. It is like a game with awards and rewards exactly like in competitions. BARL members do not discuss religion, politics, women or business, they talk about personal things sending friendly messages helping a friend in distress, or discussing technical things "Take for example the earthquake in Madha Pradesh in India" says Saif, "if a son in Delhi wants to know about this parents in Madha Pradesh,radio amateur could help him out".

Most international broadcast stations like to hear from their listeners. Foreign broadcasting stations send confirmation of reception in the form of post-cards called 'QSL'. Members with confirmed 100 QSL cards in any one year of monitoring shall be given an award. QSL is considered as a final courtesy of the contact.

"Out of 2 million Amateur Radio stations, I have contacted over 8000 in about a years time," said Saif. Over the years he has encouraged many young people who are frustrated and without jobs to take up Amateur Radio what could be more exciting than talking to friends all over the globe in an instant while setting at home" says Saif.

Amateurs include in its ranks, kings, lords, senators, school girls and boys, people from all backgrounds. King Hussein of Jordan, Rajiv Gandhi including all his family members, King Bhumibol of Thailand, Prince Philip have all been radio amateurs. Japan has the highest number of amateurs followed by USA.

Recently in Bangladesh, every Friday at 6pm at a particular frequency Saif gets together with friends on other wave lengths.

Another important leap that BARL members have taken is the 21st annual Southeast Asia Network Convention (SEANET) '93 to be held in Dhaka in November. This will, no doubt give to people whether young or young at heart, something new to get interested in.

Bright: "Sparks" Require Less Electricity

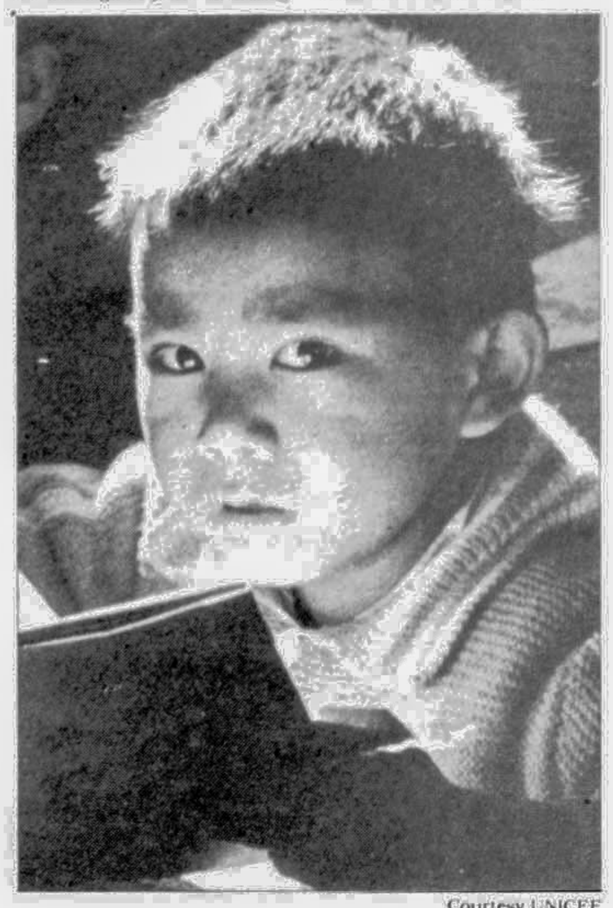
by Rolf Degen

AT first sight it is quite plausible to assume that intelligent brains also consume larger quantities of "fuel", contends Volker Weiss, director of the Leipzig-based German Central Office for Genealogy in the medical periodical "Arztliche Praxis" (58/1991). The central nervous system (CNS) of the human body consumers 20% of the total energy, exclusively in the form of glucose. Weiss argues that the process of reasoned thought is analogous to the transfer of information units (bits). People with an intelligence quotient (IQ) of 130, for example, can retain almost twice as many bits in their short-term memory than those with an IQ of 94. Information technology tells us that a precisely defined quantity of energy is required to measure one bit. "It would contradict all the laws of physics and thermodynamics were intelligent people able to think without requiring more energy," comments Weiss.

In recent years, scientists have been able to monitor the energy consumption in the central nervous system by using Positron Emission Tomography, PET. This image-generating process can monitor traces of a harmless solution of radioactively labelled glucose in the brain and provides cross-sectional colour images of regional brain activity. Professor Weiss stressed that the initial PET studies, which were conducted a few years ago, had indicated that greater intelligence did in fact lead to higher energy consumption. The brains of "intellectual high-flyers" were found to consume lower quantities of glucose when dormant. However, Weiss also points out that the initial group of test patients also included sufferers of Alzheimer's disease, which causes senile dementia, whose low glucose consumption (and IQ) was based on a biological brain defect. In the mid-IQ range between 85 — 105 points, little correlation between performance and energy consumption could be established. Challenging these results in the magazine Intelligence (Vol 14), the American brain researcher Richard J. Haier wrote : "Theoretically, one could contend that clever people possess more effective and rational thought strategies and are thus better equipped to master intellectual problems."

This theory is also borne out by the present PET studies, which indicate the existence of a new "Ohm's Law", defining intelligence as intellectual performance with minimal energy input. In Haier's own experiment the participators were asked to solve tasks which required the application of abstract thought capacity. Monitored as they worked, the subjects recorded higher energy consumption in the PET, concentrated particularly in the left posterior cerebral cortex. Located between the parietal and the occipital lobes, this zone plays an essential role in abstract though. Uniformly lowest among subjects achieving the best test results, these increases suggest that the grey matter of those people unable to solve the tasks still consumed high quantities of energy. Haier surmises that "the less bright" are less well endowed with efficient "circuits" in their brains, causing their nerve cells to require more "energy", similar to the effect of faulty components in an electronic device. Alternatively, they may just mobilise nerve centres unsuited to accomplishing the task at hand.

Undistorted by subjects suffering from brain diseases, the results of this new study are more revealing than the previous one, which measured the activity of the brain in a dormant state, rather than its intellectual performance.



Courtesy UNICEF

The Earth's Third Belt

by Professor Dr Hans Jorg Fahr

FOR the first time, scientists from the East and the West are in agreement that the phenomena they have been explanation: the earth is surrounded by an additional belt of peculiar, highly-energetic particles. These particles do not come from the earth, or even from the sun — they have their origins in the deepest depths of the cosmos. This conjures up a completely new perspective of the earth as the bearer of galactic history.

It has long been known that the equatorial region of the earth is surrounded by two ring-shaped belts, in which strikingly large fluxes of highly-energetic particles are encountered. Direct exposure to such particles poses a serious threat to human life and indeed to any biological substance. The particles concerned are electrons and protons (hydrogen nuclei) having energies of several thousand electron-volts (keV). Because of their electric charge, these particles accumulate and are trapped inside these belt-like regions located on the field lines of the earth's magnetic flux. These radiation belts were first discovered in the early sixties by the American scientist James Van Allen.

According to the latest findings of American, Russian and German scientists, there is evidently a third region between these two radiation belts containing highly-energetic particles, which have energies of the order of ten million electron-volts per nucleon — the boundaries of which flow deceivingly and change in time. The highly-energetic, electrically-charged particles appearing here are evidently from "Out of this world". They come from the edges of the solar system and have already accumulated a long and complicated history before they reach the earth. Unlike the two Van Allen belts, where only electrons and protons are found, these particles include heavier charged nuclei such as those of helium, oxygen and nitrogen in particular. In contrast, carbon nuclei, which according to the cosmic frequency of occurrence scale should be present to the same extent as oxygen nuclei, are not to be found — as is also the case for sulphur nuclei. Thus, the composition of this radiation deviates totally from anything previously encountered.

Further out in space beyond the protective magnetic field of the earth, two forms of highly-energetic particle radiation are known. One type originates in the depths of the Milky Way and is known as galactic cosmic radiation, and the other is produced in the eruptive zones — the so-called flare regions — on the sun's surface and is called solar cosmic radiation. Up to the present time, both types of radiation have been investigated in detail using suitable detectors on interplanetary space probes; however, the characteristics obtained are very different from those produced by the radiation in the earth's third belt.

Although this radiation discovered in the earth's belt has a higher energy than the solar cosmic radiation, it is less intense than galactic radiation. In addition, whereas the extra-terrestrial radiation contains highly charged ions, the ions in the radiation from the earth's third belt are only singularly, or at most, doubly charged, i. e. they have only lost one or two orbital electrons. How can the existence of this radiation be explained? Or, has anything similar ever been observed?

Agreement now exists within scientific circles that this is, in actual fact, the case. Finally, this breakthrough was simultaneously announced publicly as the common discovery of the Russian, American and German scientists — including researchers from the Max Planck Institute for Extra-Terrestrial Physics in Garching near Munich — in Moscow, Washington, DC, and Munich. This discovery was made possible thanks to a skeleton framework agreed upon between the then Soviet Union and the USA in April 1987. One of the resolutions passed concerned the forming of a joint working team supported by the Institute for Nuclear Physics (IKI) of the Moscow State University and the American National Aeronautics and Space Administration (NASA) to explore solar-terrestrial relationships.

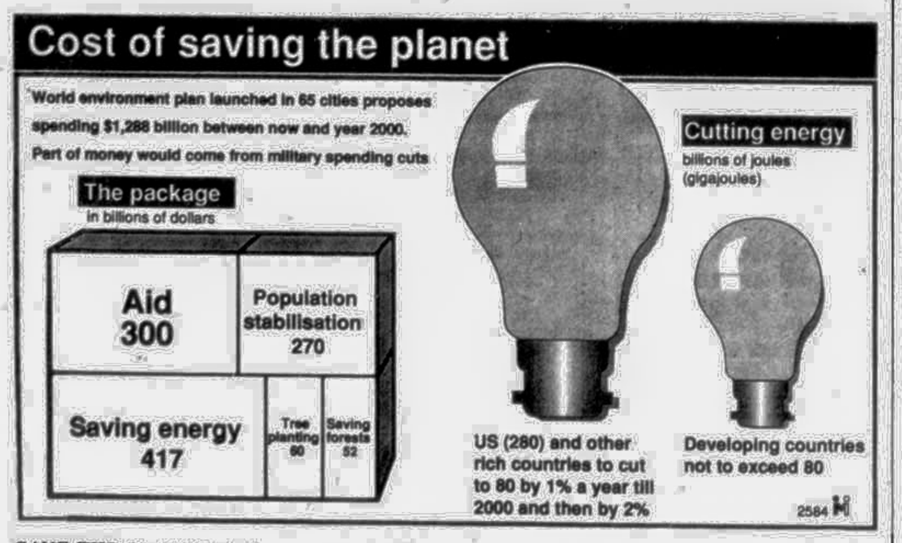
Through rigorous comparisons of measurements made in the earth's magnetoshpere by the Soviet KOSMOS satellites and beyond it by the American IMP satellites, it was possible to draw the incontestable conclusion that the radiation from the earth's third belt had striking similarities with another known type of radiation, which can also be detected beyond the earth's magnetic field and is known to experts as anomalous cosmic radiation. It is only in the last few years that the exciting story of the discovery of this radiation has appeared to draw to a definite conclusion. Indispensable elements contributing to the completion of the puzzle included measurements taken in the earth's vicinity and on the way to the boundaries of the solar system by the NASA probes PIONEER and VOYAGER.

Current theory postulates that a complicated build-up process is responsible for the formation of the highly-energetic particle radiation — the anomalous cosmic radiation.

This process begins when electrically neutral gas components from deepest space advance across the edge of the solar system towards the sun and become ionised — electrically charged — through the loss of an orbital election. In this manner, the now positively charged constituents are accelerated outwards again by the magnetic fields of the solar wind until a region is reached where the solar wind, travelling at supersonic speeds, builds up a shock wave on contact with interstellar matter.

In the field turbulences produced here, the particles become highly energized to the extent that they can even overcome the solar wind and travel inwards again.

Thus, the particles can appear as messengers from another world in the vicinity of the earth, and can partially diffuse into the lower magnetic field of the earth when disturbance conditions are suitable. The particles, which were originally singly charged, are here further ionised through collisions with atmospheric gas components and become doubly charged, in which state they remain trapped inside the earth's third belt. Thus, the amazing conclusion to be drawn from the long history of the particles' discovery is that the planet earth is surrounded by an extra-terrestrial belt of matter.



SAVE THE PLANET: A slogan, every single person, aware of the acute problems our globe is running into, is saying. The plan launched should be implemented without failure.

Solid Minerals of Bangladesh

by Lutfor Rahman

SIX international oil & gas exploration companies have signed the memorandum of understanding with the Bangladesh government for exploration and utilisation of hydrocarbons of Bangladesh. This was informed by the honorable Energy & Mineral Resources Minister after coming back from a round table meeting in Houston, USA.

Besides oil & gas, huge quantity of solid minerals are also present in the coastal areas of Bangladesh. The solid minerals found in the Cox's Bazar sea beach and the nearest islands are undoubtedly highly valuable and it is accepted by our government. But according to the Europa World Year Book 1993, natural gas is listed as the only mineral resources in Bangladesh.

Can't we now put the names of Zircon, Ilmenite, Rutile, Magnetite, Monazite, Kyanite, Coal, Limestones in the list of our national mineral resources? From the same book it is found that Gypsum, Coal, Limestone and dolomite are the national minerals of Bhutan. Exporters of Zircon are South Africa, Australia, Malaysia and Sri Lanka, exporters of Ilimenite are Malaysia, Sri Lanka and the USSR, exporters of Rutile are Sierraleon, South Africa, Sri Lanka, USSR and so on.

These minerals of Bangladesh were discovered about 25 years ago but our eminent scientists and the authority concerned ignored these minerals because according to their opinions the minerals were not commercially viable. So they did not feel any need for informing the countrymen of the importance of the minerals. But the costly ornaments made of Zirconium are imported at the huge cost of foreign currencies and are now available in the jewellery shops in our country.

Recently a high level meeting was held in presence of the high govt. officials and the senior scientists of the country for discussion on those minerals. In that meeting one of our eminent scientists agreed and gave an statement that the prices of those minerals had recently gone hundred times up in the world market. All the scientists and experts accepted his statement without any hesitation.

Architecture of Bangladesh

Growth of Old Dhaka : Legal Intervention

by Architect Mohibul Arefeen Khan

RAJDHANI Unnayan Katripakkha (RAJUK), or the city development authority is responsible for taking care of the planned, organised and regularised physical development of Dhaka City. It is the sole legal body that deals with the problems and policies regarding urban growth. Like many ancient and old cities Dhaka has distinctly two parts: the old one which developed nearly 300 years ago and the new one which came into being only recently.

The old Dhaka developed more or less organically along the north bank of the river Buriganga. It's situation as a favourable growth-point was determined by the nature of its topography and strategical importance. Since its inception, not a single comprehensive urban development scheme was taken up. Although the Mughals — the father of the city brought the city under an infrastructural system but it did little for the town development. The condition general physical growth remained neglected. Even in the British colonial rule when a systematic and rational approach was sought in every sector, Dhaka was left ignored. The emergence of "Dacca Municipality" in 1864 as the first legal body to deal with the civic problems. It tried to purpose the conditions, both physical and infrastructural, but failed to a large extend because of the bureaucratic conspiracy in the organisation. Even the comprehensive master plan in 1977 by Patrick Goddess never saw the day.

On the other hand the physical growth to cater to the day to day need went on in full pace in a somewhat informal way. Lack of formal guideline, regulated control and legal intervention gave way to haphazard,unhealthy growth injurious to the urban development process.

The political environment of this region was always in turnoff. The constant instability did real harm to overall growth. Eventually, when Dhaka became the capital of the independent state of Bangladesh, the socio-economic importance of the city enhanced. The profit-hungry people took the chance and started exploiting the unregulated situation of old Dhaka to their interest resulting in a vigorous rebuilding boom.

The unique organic setting of old Dhaka with its irregular plots sites, winding circulation networks, high density built areas and enormous mix-use activities has nothing to do with those prescribed rules and regulations. To make them apply in this part will create problems and ultimately make way to corruption, system loss and ugly growth. In recent years, the nature of the developments and tempo hardly have any conformity with the rules that had been set.

The Dhaka Metropolitan Development project under RAJUK initiative has recently been taken. This project will prepare development programme for the greater Dhaka urban area. As usual, the team comprises of some foreign experts and the project is being aided by foreign donors. What needs to be expressed is that the time for experimentation has long gone. Keeping aside the Utopia, we should look for pragmatic and contextual solutions to our problems.

Old Dhaka still is vibrant with life and activities. It boasts of a major shame in city economics as well as in the country's money market. Whatever action plans are taken, they should be incorporating old Dhaka, improving its liability and workability and retaining its historicity. The old part should be kept up-dated in the coming days of urban advancement.

Lack of proper appropriate initiatives in formation level as well as action level has made considerable damages by debasing old city's ethnic communities. They are considered the living representatives of the long cultural and traditional history of the city. Physical structures, on the other hand, indifferent time layers, exhibit different platforms of human aspirations. The buildings in old Dhaka are scattered but they are architecturally rich structures. Most of them are on the verge of extinction, deformation and transformation because of the laisses faire attitude of the authorities.

Old Dhaka is virtually a museum containing experiences of over 300 years among its cope and structures and constantly earning new experiences provided by the time. The mechanism of all time monitoring, evaluation and intervention has become must to be developed for the purpose. Otherwise there will be no future for the old city.

This article is contributed by the **Post Graduate Centre** Department of Architecture, Bangladesh University of Engineering and Technology, Dhaka.