

Geology and the Environment

For a socio-economic change, a bridge needs to be established between geology and other applied and engineering sciences, writes Dr Aftab Alam Khan

SINCE the dawn of civilisation, people have been filled with curiosity about the earth on which they live. Why does a volcano erupt? What causes an earthquake? What is the source of water that bubbles up in a spring? Why do some streams have quick-sand on one bank and solid rock on the other? What controls the beautiful geometric forms of snowflakes and other crystals? Why does one well yield water in abundance, whereas another of the same depth is dry? As man's curiosity led him to seek answers to such questions, he often found that he was faced with new riddles. Man attempted to solve such riddles. But the first roots of man's knowledge of the earth are lost in antiquity. The early Greeks and peoples of other early civilisations made some progress in geologic study, but their ideas were based largely on untested speculation and little has survived. The modern science of geology is of comparatively recent origin. The word 'geology' itself is less than 200 years old. Despite its youth, however, geology has already done much to stimulate and unshackle the thinking of mankind. One would probably say that geology is a science, just because it is popularly so described, but could this statement be defended? What sort of activity is it that we call 'science'—so forbidding to other people, so fascinating to others? What do geologists do that makes them think of themselves as scientists? One can have the test of geologic reasoning sitting on a sea cliff and wonder about what is happening to it, what it had

looked like in the past, and what it might look like in the future. The goal of geologists in their work, is to apply similar reasoning to other parts of our natural environment, to explore its nature and history, to predict its future, and to consider ways in which man can use and abuse it. Although geology is a complex and varied subject, it is also a stimulating and interesting one. Many geological problems require supplementary investigations using techniques borrowed from other sciences. Geologists are constantly learning from chemistry, physics, mathematics and engineering, new methods, data, and theories that can be applied to earth problems. Because of the complexity of its problems, and the range of the phenomena with which it deals, geology has not advanced so rapidly as chemistry, physics or mathematics. The geologist cannot move a volcano into the laboratory to observe the growth of its cone, nor can he spread a bed of peat on the laboratory table watch its development into coal for millions of years. Yet these are among the simpler phenomena of geology. Factors of size and time make experimental study of many geologic processes difficult, and often, impossible. Faced with these apparently insurmountable difficulties, geologists have had to devise ingenious, indirect methods for getting the answers to many of their questions. A geologist collects rock specimens with

his hammer, he looks at them in the field with his lens and then he brings them back into the laboratory and subjects them to all manner of tests with a variety of sophisticated instruments. Even in the field he supplements hammer and lens with other gadgets like compass, maps, aerial photographs and instruments for measuring various properties of rocks, soil and water. The increasing use of instruments from other sciences blurs the definition of geology. If somebody spends most of his time in the laboratory analysing rocks by using the techniques of mass spectrometry, atomic absorption, and neutron activation, what exactly is he practising—geology, or chemistry or physics? This depends on the kind of question that such an analyst is trying to answer. The factors of complexity and diversity, together with the newness of the science, combine to make geology a vigorous, rapidly expanding field. In nature, a geologist acts as a scientist, he is forever trying to look behind the surface of things, to detect the processes that are working to change the appearance of rocks and landscapes. In the language of evolution, man is an animal well adapted to his environment. The 'environment' here means most of the land surface of the earth, for man has shown a remarkable capacity among animals for living in a variety of habitats—

from the bleak coasts of the Arctic Ocean to the rainforests of Brazil and Central Africa to the high plateaus of Tibet to the hot, arid deserts of Arabia. The extremes of adaptation are possible because of man's unique ability to use his environment, to find and modify the materials he needs for food and tools and protection. The materials he seeks have been fashioned for him by the geological and biological processes that have shaped the surface of the earth. From a strictly human standpoint, then, the most important of all geologic questions is the efficacy with which useful substances have been produced and concentrated over long periods of time by erosion, sedimentation, volcanism and tectonic activity. How effectively have useful materials been concentrated in nature? One can ask such a question on two levels: the obvious query about the local availability of needed materials to a community or a nation, and the broader problem of the sufficiency of earth materials to satisfy the long-time needs of the race as a whole. For most of human history the ultimate adequacy of resources seemed obvious. In modern times, with the explosive increases in population and the ever-growing need for raw materials in huge quantities to maintain an industrial civilisation, that a query about overall planetary resources has become pertinent. To change our sights from the

urgent problems of day-to-day living to a concern about the future of humanity is a big jump. Too often the jump is largely emotional. We see pictures of humanity juxtaposed with pictures of oil tankers or exhausted mines or eroded soil, and we read frightening statistics comparing population trends with rates of depletion of resources, and suddenly the prospect of our future existence on an exhausted and crowded planet seems very real. Radical solutions like 'halt industry', 'close down mines', 'recycle everything possible', 'go back to simpler ways of life' sound attractive. A more sober second thought suggests that such a solution would be monstrous, for just the simple maintenance of the world's population depends on the intricate network of production, fabrication, transportation, communication and luminous environment to which we are accustomed. The success of production and communication mostly depends on the sound environmental condition. Recurrent floods, droughts, frequent landslides, depletion of surface water and groundwater, toxic contamination of groundwater, deterioration of river morphology, probability of the occurrence of a devastating earthquake, a blue moon can obviously act as a triggering agent for the total misery of mankind and for the ever recovered distressed socio-economic conditions. As a conscious citizen — effective planner, balanced decision maker and a responsible administrator should we not extend our realisations for an effective, balanced and sustainable mitigation approach against all these environmental odds? What hinders the involvement of geologists to combat the environmental odds? Do we afford to allow a continuous deterioration of river morphology and the frequent occurrence of flood instead going for a river of training and reduce flood vulnerability? Should we go on sealing the tubewells yielding water contaminated with arsenic or other toxic elements and randomly install new wells for freshwater to aggravate the situation instead of looking for a solution to prevent further contamination? How can we avoid landslides and prevent hazardous routes in making communication network in hilly terrain? What mechanism we should look for preventing salt-water intrusions while tapping groundwater from aquifers in the coastal region? What models we should follow in preventing ground water mining and land subsidence? These are only few of the many environmental problems geology can answer for the solutions. It will not be unjust to say that if we want socio-economic emancipation, we must establish bridge between geology and other applied and engineering sciences.

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My Brother Jim

by Michael Novak



MY brother, James J. Novak, 57, an independent writer, a champion of South Asia, and a man of adventure, died September 30 at the New York University Medical Center after a fierce six-week struggle against multiple cancers. Born April 19, 1939, in Johnstown, Pennsylvania, Jim authored the critically acclaimed *Bangladesh: Reflections on the Water*, a lyrical, yet keenly analytical portrait of a people and a culture he loved. It has been praised as the best volume on Bangladesh ever published by a foreigner. Jim spent much of the last thirty years in South Asia, much of it in Bangladesh, where from 1982-1985 he directed the Asia Foundation and where during September 1994-May 1995 he was a Senior US Fulbright Research Fellow. As a founder of the Board of The Asia Mail, Jim was a columnist of that paper, as well as for *The Eastern Financial Times* and *Worldview*, the journal of the Carnegie Council on Ethics and International Affairs. He published many articles in other journals including *The Washington Post*, *The Atlantic Monthly*, *The Mainichi Daily News* of Tokyo, *The New York Times*, and *The Times of India*. Most appeared under the pen name Jeremias Novak. As an independent writer and international consultant, my brother cultivated an intellectual life and a life of adventure in the nineteenth-century British style. Indeed, among his papers is a brace of short stories on daily life in Asia, conceived as the observations of an American Somerset Maugham. In 1995, Jim accepted a dangerous assignment as consultant to the Koh-i-Noor Foundation for Afghanistan, which required extended travel in the regions controlled by feuding Afghan guerrilla armies. One of Afghanistan's provincial governors appointed him an "honorary colonel" in the Afghan resistance army guaranteeing his safe passage. Merrie Cave, Managing Editor of the British journal *The Salisbury Review*, recently published his reflections on Afghanistan and journeyed to his wake in State College. From his earliest days, my brother seemed destined for success. As valedictorian of his senior class at Johnstown Catholic High School, he was chosen Most Outstanding Boy by the faculty, led the debating team to a national championship and as right tackle on the football team recovered a fumble for the only touchdown in an upset victory over an important school rival. Jim received a BA from Boston College in 1961 where he worked part-time in a home for disturbed boys of all races. There he learned a down-to-earth manner that often served him in good stead. Once on a Boston street two young toughs

held him up at gun point. Raising his hands, he asked, "Who won the fight?" They replied excitedly, "Sugar Ray." "What round? How did it happen?" After they explained, he asked how much they wanted. Shrugging, one said, "Five dollars." "Here," Jim said, and kept his wallet. Jim graduated from the University of Notre Dame with a master's degree in economics in 1963. Joining ROTC in college, he had scorned the more glamorous forces and chose the Army, requesting Armoured; he wanted to command tanks. Thus, after Notre Dame, the Army sent him to Bamberg, Germany, with the 3rd Armored Division. Because of sudden transfers above his rank, he was thrown into the role of acting Company Commander even though he was only a Second Lieutenant. Drawing on his street smarts, Jim drove his newly formed unit relentlessly, and with humor, and to the surprise of all, they won the NATO gunnery competition beating the Germans, the British and all the others. He left the Army as a Captain and (beating out a West Point graduate, which pleased him greatly) Company Commander of Company A, 3rd Battalion, 35th Armour. In 1963, President Kennedy sent him in the first detachment of 500 support troops to Vietnam, where he was on assignment for several months. In 1965, Jim joined the Pfizer Corporation as a product manager to develop marketing programmes for new products such as Terramycin; in 1971 he was made Director of Pharmaceutical Development for Asia, supervising sales in 17 nations and in 11 factories. In 1974, he became Vice President for A H Robbins Co. in Manila, and in two years he lobbied the Philippines operation. Returning to the US, he moved to State College, Pennsylvania, began building a magnificent personal library, and continued writing and consulting. He travelled often to Asia, and was active in projects to help various governments such as Laos, Pakistan, Afghanistan, and above all, Bangladesh. Jim's stint with the Asia Foundation during the early 1980s, where he supervised a staff of 70, put him in direct contact with all levels of Bangladesh Society. He was, as one sympathetic observer said, "always engaged in the latest buzz of Dhaka politics." Leading figures in national politics would frequently be seen in his veranda, talking politics and exchanging gossip. Jim lectured regularly on Bangladesh for the Department of State's Foreign Service Institute, where US diplomats prepared for assignments in South Asia. In light of all these activities, my brother was widely regarded as South Asia's champion before the rest of the world. My brother left behind voluminous papers, copies of a vast correspondence with persons worldwide, notebooks, and published and unpublished writings. He was rich in long-lasting friendships on all continents. Jim is survived by his wife Naomi Novak; three grown children: Joshua, Joseph, and Pei Wen; and four granddaughters. Jim was preceded in death by our brother, Father Richard J. Novak, CSC, who until his untimely death at 27, taught at Notre Dame College in Dhaka, where he is buried. Jim's immediate family has established the James J. Novak Scholarship Fund for needy students at the Notre Dame College in Dhaka, and donations may be sent to 100 Hartswick Ave., State College, Pennsylvania 16801, USA.

FOLLOW-UP OF THE WORLD FOOD SUMMIT

Nutrition Security for Women and Children in Bangladesh

by Dr AFM Iqbal Kabir

A popular myth about nutrition is that 'overt hunger and starvation are the world's main nutrition problems'. It is also widely assumed that lack of food is the only reason for malnutrition. But if this were true, why is it that children become malnourished before their second birthday, when the child's food needs are relatively small, rather than from two onwards when food needs are significantly greater? While poverty is the underlying cause of food insecurity at the household level, malnutrition is also found among families in higher income groups in Bangladesh. A general sense of resignation has prevailed that until poverty is eradicated, malnutrition is bound to persist. Until recently, it was not recognised that investment in well-conceived nutrition programmes can have high returns and such recognition is still not universal. The fact that malnutrition is highest among children above the age of two indicates a particularly serious problem specific to children below that age. While the older children eat, the younger ones are fed, and thus the problem in their case is primarily one of feeding practices. Particularly in terms of breastfeeding, weaning and complementary feeding of children under two, these practices cost a negligible amount of total household income. Malnutrition is the outcome of many complex biological and social processes. Inadequate dietary intake and disease are the immediate causes, both interacting synergistically. Household food insecurity, inadequate caring practices and inadequate access to basic health services, together with an unhealthy environment are the underlying causes of inadequate dietary intake and disease resulting in malnutrition. A global cooperation between North-South for addressing

the prevailing widespread malnutrition is vital. Unlike the South, Northern nations are prosperous, have fewer people, low malnutrition. Although over-nutrition among children is emerging as a malnutrition issue there, and hold most of the world's wealth. Undeniable fact is that North and South divisions also exist within a country and a community. Within a nation or community there are a fortunate few (known as North) who possess most of the wealth. Further North-South exists within the households where a similar picture is seen. For example, control over resources, food intake, medicine, during need, preference for education, decision-making authority, etc., are all distributed favouring the adult male (known as North of the household). The World Food Summit (WFS) has global and national significance in mitigating malnutrition problems. Bangladesh Prime Minister Sheikh Hasina in her speech has rightly pointed out that 'Asia, the fastest growing region in the world, is paradoxically the home for more than 500 million undernourished men, women and children.' In fact out of about 167 million underweight children under-five in the world, half are found in just three South Asian countries — Bangladesh, India and Pakistan. Bangladesh's share is about 14 million. We should now face the fact that Bangladesh has among the worst nutritional level in the world, that the roots of malnutrition run deep into its social

soil, and that malnutrition has not changed significantly during the last two decades in spite of large investments in many food distribution programmes. Since 1980s, much of the money spent on food aid, food subsidies and food-for-work schemes have been inequitably targeted. Considerable resources are being spent on food subsidies for population groups which are not necessarily the most food-insecure. Even where food schemes are aimed at the disadvantaged, it is impossible to target these at the malnourished, because there is no institutionalised system of monitoring the growth of the nutritionally vulnerable. Targeting is therefore often based on estimates of income or landlessness, characteristics that do not fully cover nutritional vulnerability. Aside from inequities in targeting, other factors in the design of many food programmes have affected their effectiveness in improving the nutrition of vulnerable groups. For example, some programmes benefit primarily men rather than the women and young children who are nutritionally more vulnerable. About 65 per cent of children in Bangladesh suffer from growth retardation (stunting) due to chronic and gradual malnutrition. They lag further behind as time passes. Children with retarded growth become stunted, less productive adults and are more likely to suffer from chronic diseases. Stunting has several functional consequences, including high death rates and reduced learning potential, impaired immunity

and work productivity. Malnutrition kills silently; over half of child mortality in Bangladesh is attributed to malnutrition. Mildly malnourished children are more than twice as likely to die as well-nourished children. Iodine Deficiency Disorders pose a major risk for the physical and mental development of the people living in iodine deficient environments in Bangladesh. The entire population is at risk of iodine deficiency. The most obvious sign of this deficiency is goitre, but most are not visible. Iodine deficient pregnant women are prone to give birth to cretins, babies with severe, permanent developmental defects that include mental retardation, deafness, and physical handicaps. But less obvious mental retardation occurs in a broad spectrum of the population. Children with iodine deficiencies have IQs 13.5 points lower on average, than those of children in normal populations. Every one in Bangladesh is at risk of some degree of intellectual impairment. Anaemia is another common nutritional problem affecting about half of the population and two-thirds of pregnant women. It lowers work capacity of adults and educational achievement in children of all ages. Anaemia in pregnancy increases the risk of maternal deaths. Of the estimated women who die during or around the time of delivery each year in Bangladesh, about 25 per cent, some 5,000 deaths, are caused by anaemia. Even a small amount of blood loss during de-

livery can be fatal for an anaemic mother. Perhaps the most damaging effect for poor families is needlessly reduced work capacity. They work only a fraction of their normal capacity. Anaemia causes a 10-15 per cent reduction in work output in many different occupations. We have to keep several promises made to our children. In the World Summit for Children, heads of government and State, including Bangladesh, recognised reduced malnutrition as one of the priority basic needs of children. World leaders signed a 'Social Contract' with the world's children, in which they promised to give a first call for children. Through that act, good nutrition was not only recognised as basic need, but as a human right. The promise of leaders was transformed to an obligation of the state to respect, protect and fulfill the children's right to nutrition. The Prime Minister at the recent speech in the WFS posed a moral and ethical question that 'is reserved for two judges: our children, to whom we shall bequeath either a pillaged earth or a habitable world, and the hungry million whom we are pledged to serve — and have, so often, so short.' This has to be answered by each of the world's leaders to their children. This has made us pledge-bound to the children for removal of need-less hunger and malnutrition faced by the children and women today. In Bangladesh, towards meeting those promises, Integrated Nutrition Project is one important step for a compre-

hensive and coordinated programme to reduce malnutrition among its population. The government has recognised that investment in the nutrition of its people is an important contribution to the human capital of the country and is committed to making this investment adequate and appropriate and to optimise its returns. One of the unique features of the Integrated Nutrition Project is the targeting of children 0-24 months and women based on nutritional criteria instead of traditional socio-economic indicators. This is intended to tackle the causes of most serious malnutrition among those groups and produce the best results and long-term benefits. The most effective strategy to reduce malnutrition among the under-five and school children is to focus the interventions before they are born and are under-two, after that it is almost too late and too expensive. This will be achieved through education and mobilisation of communities to understand the causes and consequences of malnutrition and to enabling them to combat it. The project provides a comprehensive and long-term solution to the root causes of malnutrition through an inter-sectoral approach, as nutrition is the outcome of activities undertaken by several sectors. An inter-sectoral Nutrition Fund is available to support innovative nutrition projects of various sectors and NGOs. The implications of the Bangladesh Integrated Nutrition Project for other national priority programmes, for example, the Family Planning programme, are likely to be favourable. An effective nutrition programme would enhance child survival and women's social status, both of which are known to help fertility reduction. The writer is Programme Officer of World Bank at Dhaka.

The Daily Star Entertainment Guide

Thursday 12th December (All programmes are in local time. There may be changes in the programmes)

BTV 3:00 Opening Announcement Al-Quran, Programme Summary 3:10 News in Bangla 3:15 Patric song 3:20 Recitation from the Geeta 3:25 Re-telecast of selected programme from TV Archive 4:10 Sports programme 4:45 Tom And Jerry 5:00 News in Bangla 5:25 National Television School Debate 6:30 Roder Al Meghar, Chaiyale 6:50 Hello, and Life 7:00 The News 7:25 Sandha Malaya 8:00 News in Bangla 8:25 Arabian Nights 9:00 A Prehensile 9:05 Chaiya Chanda 10:00 The News 10:25 Switch 11:30 News in Bangla 11:35 Friday's programme summary 11:40 Close down

BBC 6:00am BBC World News 6:10 Newsworld 7:00 BBC News-report/Asia Today/24 Hours 10:00 BBC World Headlines 10:05 World Focus: Pole to Pole 11:00 BBC Newsday 2:00 BBC World Headlines 2:05 World Focus: Bell on Bosnia 3:00 BBC World News 3:30 Time Out: Earth Report 4:00 BBC Newsdesk 6:00pm BBC World Headlines 7:00 World Focus: Horizon 7:30 BBC World News 7:15 World Business Report 7:30 BBC Newshour Asia and Pacific 8:30 Time Out: Gear 9:00 BBC World Headlines 9:05 World Focus: Pole to Pole 10:00 BBC World News 10:30 Time Out: The Clothes Show 12:00 The World Today 2:00 BBC World Headlines 2:05 World Focus: Assignment 2:50 Earth

Report 3:00 BBC World News 3:30 Time Out: Tomorrow's World 4:00 BBC World Report 5:00 World Business Report/24 Hours 5:00 BBC Newsroom 6:00 World Business Report/Asia Today/24 Hours CHANNEL V 6:00am Frame By Frame 7:00 Rewind VJ Sophiya 8:00 Frame By Frame 9:00 Jump Start VJ Alessandra 10:30 Frame By Frame 11:30 The Vibe VJ Luke 12:00 Rewind VJ Sophiya 1:00 By Demand VJ Trey 2:00 Frame By Frame 2:30 First Day First Show 3:00 BPL Eye 4:00 Planet Ruby 4:30 Big Bang VJ Trey 6:00pm Rewind VJ Sophiya 7:00 By Demand VJ Trey 8:00 Planet Ruby 8:30 The Vibe 9:00 Videoclan Flashback 9:30 Top of the Pops 10:00 First Day First Show 10:30 Soul Curry 11:00 Classic Rock 12:00am Big Bang VJ Alessandra 1:00 Haysah 2:00 By Demand VJ Trey 3:00 Big Bang VJ Alessandra 4:30 BPL Eye 5:30 Jump Start VJ Alessandra

STAR PLUS 6:00am Home and Away 6:30 The Sullivan's 7:00 Aerobics Oz Style 7:30 Star News 8:00 Sky News 8:30 Star News 9:00 Sky News 9:30 Aerobics Oz Style 10:00 Today's Gourmet 10:30 BTS: The Long Kiss Goodnight 11:00 Kate & Allie 11:30 The Oprah Winfrey Show 12:30 21 Jump Street 1:30 Santa Barbara 2:00 The Bold & the Beautiful 3:00 Khandaan 3:30 Tehnikat 4:00 Home and Away 4:30 Lost in Space 5:30 Adventures of Black Beauty 6:00pm Kate & Allie 6:30 Today's Gourmet 7:00 Destinations 'Caribbean Island Hopping' 7:30 Star News (Hindi) 8:00 Small Wonder 8:30 The

STAR SPORTS 6:30am Thai Kickboxing H/Ls: 40 7:00 Asia Road Racing Champs Thailand 8:00 1996 Asian Cup Championships B/ Saudi Arabia's B2 Iran Venue Dubai 10:00 1996 Asian Cup Championships B3 Iraq vs B4 Thailand Venue Dubai 12:30am Live 1996 Omega Tour Omega PGA Championship Day 1 From Hong Kong 1:20 Dubai Rugby Sevens 3:00 Million Dollar Golf Day 3 Highlights From Sun City, South Africa 5:00 Pro Beach Kuala Lumpur

STAR MOVIES 7:30am Film Club Malice in Wonderland PG (Arabic Subtitles) 9:30 Western The Outlaw PG (Arabic Subtitles) 11:30 Comedy Based on An Untrue Story 15 (Hindi Subtitles) 1:30 Romance A Summer Story 15 (Hindi Subtitles) 3:30 Family Journey to the Christmas Star G (English Subtitles) 5:30 Action Code of Silence 15 (Hindi

ZEE TV 5:30 Suno Bhai Sadho: 6:00 News 6:30 Jagran 7:00 ZED 8:30 All Out 9:00 Gurmata Auro 9:30 Hindi Feature Film Show 12:00 Gaane Anaahe 12:30 Beer Ka PG 1:00 ZED 1:30 Asian Sky Shop 2:30 Tara 3:00 Raahat 3:30 Captain Cook Show 4:00 Haispoo 4:30 Mere Ghar Aa Zindagi 5:00 ZED 5:30 Teer Kaman 6:00 Hum Honge Kamyab 6:30 Low Cal Show With Kitu Gidwani 7:00 Gaane Anaahe 7:30 News 7:45 Raahaat (Serial) 8:15 Jhaak 8:30 Hai Zindagi Bye Zindagi 9:00 Yeh Kahan Aa Gaye Hum 9:30 Dastan 10:00 Glavera Ki Umeed 10:35 News 11:00 Pakeezah 'Ek Nazar 11:30 Hum Paanch 12:00 Tara 12:30 Pampara 1:00 Chahat Aur Nafhat 1:30 Raahaat 2:00 Galest 2:30 TMW 4:00 Zee Horror Show 4:30 Banegi Apni Baat 5:00 Jagran

EL TV 9:30 Hema Malini Special 01:30 Anshen 02:30 Man Nishe Man Hoon 03:00 Pyar Hi Pyar 9:30 Geet Bahar 10:30 Borupot Peal Countdown 11:00 Nukkad 11:30 Shatranj 12:00 Archies Top of the Tops 12:30 Banglader Bahant Bahant 1:00 Suhana Safar 1:30 Hit Hi Hit Hai 4:30 R D Burman Special 5:00 Vipul Ka Amar Prem 5:30

PTV 8:00am Takwat Aur Tarjuma Hamd Naal 8:20 Cartoon 8:30 Khatrian, Fide, Haseerai 8:30 Aahang & Roshni 9:45 Puro Chand 10:05 Sona Chand (Drama Serial) 10:30 Buttons & Rusty (Eng Film) 10:55 Milk Naghma 11:00 Khatrian: 11:10 Aabshaar (Music Programme) 11:55 Tele Play (Drama Serial) 12:45pm Qawaali 12:55 Quran-e-Hakeem & Bismillah 1:15 Muqaddar (Drama Serial) 2:00 Puthar (Drama Serial) 2:45 Perspective & Health Forum 3:40 Taleemi Maloomat 4:35 Aural Aur Qanoon 5:05 Home Economics 5:25 Humayry Saath 5:55 Varna (Drama Serial) 6:25 Adu Courses 7:05 Mujabbi Hai Aana 7:20 Anak Waagi Jiri 7:45 English News 8:05 Jwaan Sangeet 8:45 Eendhan (Drama Serial) 9:00 Break for Headline News 10:00 Khabarnama & Commercial News

DD 7 10:30 Janmadin 10:35 Classical Music 11:00 Dance 12:00 ETV Programme 12:30 Monorama Cabin 1:00 Janani (Serial) 2:30 Darpan (Serial) 3:00 Eto Tuku

ZEE CINEMA 3:45 Sharada 7:00 Raju Dada 9:30 Do Dishaen 12:30 Soulen 3:45 Mithi Aur Sona 6:30 Amavedya (Telegu) 10:00 Jaanwar 12:45 Anuragam (Tamil)

Garfield by Jim Davis. IAN FLEMING'S James Bond DRAWN BY JOHN MCLUSKY. I'M GOING TO GET THAT GIRL OVER THERE TO NOTICE ME. LET'S HOPE NO KGB SPOOK WAS HOLDING A GUN ON HIM WHILE WE TALKED. OH MY GOD, I DON'T BELIEVE THIS... IS SHE LOOKING FOR SOMETHING TO THROW?