NEWS & VIEWS

Landslides in Garhwal Himalaya

"Tourists should look for tilted trees to know landslide prone locations on the hill roads"

Himalaya is very young mountain range. Rocks are weak, highly fractured and folded. There are cloud-bursts here resulting in intense rainfall of 400 to 600 mm per day during each monsoon season. Landslides occur in deforested rock and pockets of deforestation in forest area. Thus rain water seeps into soil cover and it collects on the impervious rock slope. Then soil and boulders lose strength rapidly and move down. Landslides also take place along gullies or nallas in the mountain. Its soil and boulders are mixed with rain water and the same flows down along the main gully until debris flow is dumped in a hill river. The debris or boulders may block the river and the river blockage is called *landslide dam*. This is precisely what happened in Pithoragarh district. Further, deep seated landslide occurred along the steep gorge of river and nearly a 50 m high landslide dam was formed on a tributary of Mandakini river. It formed about 1 km long lake along the tributary. Attempts were made to chanellize the river flow from the lower side of the blockade. Underwater blasting of this blockade could generate a serious flash flood upto Rishikesh. So blasting was not done. In Rudraprayag villages, landslides occurred along the roads. The rail line in Haridwar was affected by soil erosion underneath and so traffic movement was affected.

Let us so go back to 1991 when earthquake of 6.3 M occurred in Uttarkashi. Many cracks were formed on the hill slopes and its rock masses were loosened. Unfortunately most severe cloud-burst and sunusually long rainfall occurred in 1998 monsoon. So, the fractured rock masses were charged with rain water and pushed down in a chain reaction. Thus we have seen unprecedented landslides and rock falls in 1998. Unfortunately more than 300 persons lost their lives in Rudraprayag and Pithoragarh landslides. These landslides have shaken the confidence of the people in Garhwal, U.P.

The international experts of landslides appeal that we should learn to live with the danger. Normally maintenance of drainage system along roads is very effective. Tourists and villagers should be informed about probable landslide prone areas and probable dates of their occurrences. Tourists

should postpone their plan of journey after a clound-burst or after 4 days of continuous rains along their paths of journey. Extensive observations suggest that tilted trees, young bent trees, cracks and subsidence of roads indicate unstable hill slopes in that location.

In fact, there are cycles of temporary instability and temporary stability in the nature. Landslides may lead to temporary stability at a place until a big earthquake causes instability in that area.

Department of Science and Technology (DST) is funding intensively research programmes of about 5 million rupees per year on landslides. University of Roorkee alongwith sister organisations CBRI and NIH are deeply involved in research and consultancy services on landslides. Bureau of Indian Standards has published recently two I.S. codes for zonation of landslides which need to be followed in preparation of reliable Landslide Hazard Zonation Maps. These maps will indicate safe location of hill villages, camps on religious routes and infrastructures. Thus, loss of hundreds of millions of rupees can be reduced. The religious organisations will get lot of publicity if they sponsor stabilisation of major landslides on religious and tourist routes in Himalaya.

In hilly towns and cities, the movements of steel pegs all over the hill should be monitored and rate of movement map prepared for accurate zonation of unstable slopes and prediction of dates of landslides approximately. It is a very economical and reliable method.

The Ministry of Human Resources has sponsored a Centre for Appropriate Technology for Development of Hilly Regions in Civil Engineering Department, University of Roorkee, Roorkee U.P. This centre conducts organised research, training and consultancy of landslides and interacts with local NGOs. Its software packages are used in over 15 countries. This centre has trained more than 70 experts in landslides with assistance from DST, IGS, ISRMTT, ISET and ICIMOD, Nepal. It is advocated that tea gardens should be developed in high hazard zones where soil and climate conditions permit. The network of its roots will stabilize thin soil cover which is most vulnerable to landslide during rains than very thick soil cover.

The self-reliance of the hill people should be developed through TV education by eminent NGOs to enable them to solve their own ecological and poverty problems. Villagers should look for cracks on hill slopes for early warning. Landslides generally give warning before 2 or 3 years in the form of one or many cracks at their top.

As such prime need of the time is that a high level advisory committee of eminent experts of natural disasters be formed with Prime Minister as its Chairman to formulate national strategy and policies on disaster mitigation. The relief operations should be organised by existing committees in a more organised way.

- Faculty Members
University of Roorkee

Constructing India's First Undersea TBM Tunnel

Environmental protection is of growing concern in India. For example Mumbai, or Bombay, no longer wishes to discharge effluent directly into the creeks flowing through the city. In order to achieve this, Mumbai has been divided into seven new drainage areas. Waste products from two of these areas will be screened and degritted before being drained through long outfall sewers for dispersal out at sea. This is India's first outfall sewer tunnel project. It will also be the first time that a TBM has been used to drive an undersea tunnel in India.

The length of the outfalls is shorter than would be required to meet current European standards. It is in the nature of a compromise so that expenditure can be directed towards substantial improvements in all areas rather than to achieving the highest standards in a few. Even so, local conditions will be considerably improved.

The scheme includes provision for extensions, which could be by tunnel or by pipes laid on the seabed. Alternatively, more extensive treatment could be provided before discharge.

-Excerpts from an article by Editor Mike Page,
Tunnels & Tunnelling, January 1997

The Cave Dwellers

Bai ping is a small village in northern Shanxi in the heart of a huge loess plateau. All that can be seen from the road below is a bushy hillside that appears devoid of human life. But one's gaze is suddenly drawn to the caves - or *yao dongs* - that appear along the hillside in their dozens.

To reach them, one must ascend a series of stony clefts dug into the slopes. "Everyone around here lives in *yao dongs*", says the village chief. "Even the school is in a grotto". He points to the right towards a small opening from which children's voices can be clearly heard.

The village does not have any discernible configuration. It is part of the hillside whose grottos occupy every tiny recess, with sheep grazing on the roofs of the houses. In the yards, the villagers work the heavy stone mills that crush the corn and wheat with which they make their bread.

Remnants of the caves have been discovered dating back 6,000 years, and it is estimated that 40 million Chinese still make their homes underground. Most are situated around the Loess Plateau, a mountainous area half the size of France and crossed by a branch of the Yangtse River. In some parts of the arid heights, almost 90 percent of the population lives in caves.

Dug out horizontally in the rock faces of gullies or vertically like wells in the plains, *yao dongs* are a practical architectural solution in an environment that is devoid of almost everything. As stones and wood are too rare a commodity to be used as building materials, loess is the only thing that abounds in quantity.

Carried on the winds from the Gobi Desert for millions of years, the tiny particles of loess now cover everything, forming solid layers that in some places are 200 metres deep.

Zhang Sheng Hua, 75, is always consulted when a new cave is to be built. Unable to read or write, he learned the art of building *yao dongs* from his elders. "Loess stone is soft and fragile," he says, crumbling a piece of earth in his hands. "It is easy to work with. Four or five of us get together with a few spades and, within a few days, a *yao dong* has been built."

The caves are spacious, measuring at least four by five metres and up to nine metres deep. They usually face south to get as much sun as possible.

"A *yao dong* must accept the forces of nature," says Zhang. "Instead of changing the landscape, it must melt into it".

The men start by removing a huge piece of loess to clear a space for the dwelling's yard before starting on the cave itself. Once the hole is

dug, earthen walls are built inside to reinforce the sides, and a stone archway - the only part of a *yao dong* that is not made of earth - is placed on top to prevent the cave from collapsing.

The opening is filled in and a window and door are then cut. "If a *yao dong* is built following the guidelines, it will last at least 100 years," says Zhang.

The caves are normally dug in the upper parts of hills and gullies to leave as much precious farming land as possible available.

The tender crust of loess stone undergoes such intensive erosion that much arable land is lost every year.

Bu Xa's house nestles on a cliffside 100 metres up. It consists of three grottos: one is the living area, while the other two form the stable and granary. The yard is bordered by an adobe wall, and just inside the entrance is another wall only a metre long.

"This is the shadow wall," says Xa. "It stops evil spirits from entering the house. As they only move in straight lines, they cannot go any further".

Although the heat outside is almost suffocating, the temperature inside the caves remains pleasantly cool.

A micro-climate of incredible stability develops so that the temperature is always 10 degrees above or below that outside.

The central focus of all *yao dongs* is the *kang*, a big bed raised on bricks that is heated from below during winter. The men lie or sit on it whenever they have the chance to drink tea, eat or chat.

When they leave to work in the fields, the women take their place on the *kang* and, with their babies on their laps start to work the spinning wheel whose humming soon fills the grotto.

The walls and ceilings of *yao dongs* are often covered in newspaper, yellowed by smoke from the cooking stoves, that slow down the erosion of the loess stone.

During the 1930s, the area witnessed a dramatic population explosion, with the number of inhabitants growing from 300 to 250,000. Thirty thousnd caves were built between 1937 and 1947 that served as offices

as well as houses, and hundreds more were built in the following years.

Several hundred kilometres to the east lies the Pinglu region in southern Shanxi, where the villages are dug into the ground like square wells six metres deep and four to five metres wide.

Children chase each other on the village streets, which are formed by the roofs of the caves. Families live in those that face south, while animals, cereals and tools are stored in the others.

In recent years, a number of improvements have been made to the design of the *yao dongs*, including wide openings to allow more light, the creation of airwells and drainage at the bottom of the caves and the use of bricks to strengthen the facades.

Professor Xia Yun, head of research in the architectural department of Xi'An University says: "Underground dwellings remain one of the most promising ways of coming to grips with a lack of land and energy resources.

"The *yao dong* is the perfect zero-zero building : no form of energy is needed and no arable land is lost".

Indeed, many Western architects and urbanists believe *yao dongs* to be superb creations, with excellent solar and landscape qualities.

With a growing trend towards green or "alternative" architecture, there may be many lessons to be learned from the unique homes that have served the people of Shanxi so well for so many years.

Life Style,
South China Morning Post
November 11, 1997

Inaugural Roorkee University Lecture

Er. E. Sridharan spoke on Konkan Railway project - *dream realised* - on 2.3.1998 - at the University of Roorkee. Konkan Railway Line is 760 km long broad gauge single track in the west coast of India. It has 93 tunnels of total length of 83.6 km. The longest tunnel is 6.5 km. There are 9 tunnels of total length of 36 km. The planning was such that gradient is less than 1 in 150 everywhere. The angle of curvature of rail line is less than 2.5 degree everywhere. Thus the train may move at potential speed of

160 km per hour without reducing this speed in future. The 2 lane system is very costly and not cost effective. About 70 % length of the tunnels passed through hard rocks. The Jumbo trailer was used to drill holes of 40 mm diameter and 5 m length for blasting in just 2.5 hours. The maximum overburden is 600 m. The most difficult part of the project was the tunnels through soil-hills. There was profuse seepage of water through soil which flowd like tooth paste. Freezing of saturated soil was not feasible as it was too costly and its technology was not available. So seepage water was drained in advance of tunnelling through 20 m long drill holes. Heading and benching method of tunnel excavation was adopted in soils. The thickness of concrete lining was 60 cm in soils. The concrete lining has drainage holes for dissipating seepage pressure on the lining. The tunnels longer than 2 km have artificial ventillation system consisting of fans within big pipes at the roof level. There are control stations monitoring carbon monooxide, carbon dioxide etc. in every tunnel. As soon as gases are more than permissible limits, exhaust fans are started.

To reduce noise and vibrations in the tunnels, ballastless track was invented. It consisted of prestressed concrete sleepers mounted on rubber at the bottom and sides. Rubber has a life of about 25 years. The ballastless track has been tested at R.D.S.O. So, in future, rubber will be replaced. Further, rail lines have been welded by gas pressure welding which was 67% cheaper than the conventional welding. The tunnels are lighted day and night. There are special trains waiting at nearby stations for fire fighting in case of fire in the trains inside the tunnels or elsewhere.

The highest embankment is 25 m high. The deepest cut in rock is 28 m deep. There are likely to be landslips in rains. The embankment is likely to erode in rains. So the side drains are likely to be choked. Maintenance will take care of these problems. After about 3 years, landslips are likely to reduce drastically.

There are 179 major bridges with 21 km of waterway. There are 8020 minor bridges with 5 km of waterway. The longest bridge is of 2.1 km span in Karnataka. The tallest pier is of 65 m height. The piers on rocks have manholes for inspection of piers from within.

The entire project was completed in record time of 5 years. This challenging task has been possible by dynamic management system.

There are 7 zones headed by independent chief engineers. The cost of the establishment was only 3.5 % of the project cost. There was incentive for land acquisition in 40, 000 cases. The management was paperless and

connected through computers, fax machines and telephones at all levels. It was a transparent management system. A tender of Rs. 48 crores was accepted in just 2 days only. All the engineers were trained in management periodically. The top excecutives were setting examples for younger engineers in punctuality, cooperation and transparency. There was time clock at every site indicating days left for completion of that project. This kept everyone on toe.

There was dispute on better alignment of the rail line in Goa. Minds of the environmentalists agitated on effect of this rail line on the beautiful environment in Goa. A retired judge of Supreme Court was appointed to give its judgment on this dispute. After hearing from both the sides for about 8 months, the honourable judge gave the judgment that their alignment of the rail line is the best alignment. However, the damage was done to the Corporation in form of delay, cost over-run and demoralisation of the spirits of engineers and contractors.

The cost of the entire project was Rs. 2550 crores. It was executed on BOT (build, operate and transfer) system. It was not possible for the Government of India to fund this costly project. So the Konkan Railway Corporation was created. The loans taken from Government of India and States of Maharashtra, Karnataka and Kerala etc. and foreign market will be paid back in about 10 years as it is a profitable project. The greatest challenge of this project was to raise capital in unstable capital market in 1990.

Er. E. Sridharan was the Chairman of Konkan Railway Corporation since 1990. He is appointed now as Chairman of the Delhi-Metro Corporation. He convinced blissfully the audience by his ability of leadership.

Lecture by Prof. E. Hoek at Tehri Hydro Development Corporation Ltd., Rishikesh (India)

Prof. E. Hoek delivered a very interesting lecture on Case Histories on 4th April 1998 at Tehri Hydro Development Corporation Ltd. (THDC), Rishikesh. Through case histories of major landslides in dam reservoirs and open-cast mine, he inspired us to learn the following lessons:

1. Major landslides in the vicinity of dams should be studied carefully by extensive monitoring for several decades. Huge landslide may create a high wave in the reservoir which may flow over the dam such as in Vajont concrete dam in Italy in 1960. So we should take extreme care in case of landslides just by side of a dam.

2. The landslide may be stabilised effectively for long time by providing underneath the drainage tunnels with properly inclined and sufficiently long drill holes to tap the water-charged areas. The water table should be monitored during rains to ensure that drastic reduction in seepage pressures have actually taken place along the failure surfaces. Good drainage system should arrest the rate of displacement to a few mm per year such as in the case of dam reservoir of Columbia river in U.S.A. Although it may be difficult to increase the factor of safety by more than six percent in this way but may be sufficient in such area. Mountains move more than 5 mm/year due to the tectonic activity.

   The surface drainage fails due to landslide displacement. Drill holes get clogged with time whereas the tunnel drains have long life.

3. The unlined water tunnels should be realigned to avoid deep seated landslide with high rate of displacement. Monitoring should be done with the borehole extensometers for confirmation of the stable ground along realigned tunnel.

4. A contour map of rates of displacements in a hilly area or open - cast mine is very good in locating root causes of damages due to the landslide. The rate of displacement map (during heavy rain-falls) is better than total displacement map. The rate of displacement versus time curve may be extrapolated judiciously (considering probable rainfall) to predict the date of major landslide approximately. Thus, in the open - cast mines, we should learn to live with the major landslides by diverting traffic, labour and machines in advance of landslides such as in the case of a 1200 m deep open-cast coal mine in Chile.

   Citing case history of a small tunnel for coal mining in the same project, he suggested that steel ribs with sliding-bolted-joints may be used in supporting tunnels in the case of highly squeezing ground also.

5. The safety of the dams should be reviewed every 5 years as it is done in U.S.A.

6. Thus the future research direction should be towards field research at the major projects.

Prof. E. Hoek is an international consultant of Rock Mechanics for a large number of major projects in many countries.

'Trenchless' technology for laying cables

A new time-saving technology that makes it possible to lay underground cables and pipes without actually digging roads promises speedier completion of projects without disruption of normal life and inconvenience to public.

The *'trenchless'* technology can be variously used for laying telephone or power cables, water and gas pipes under roads, river beds and rail crossings from 15 metres to 4 km with pipes as small as 5-cm to 3 metres wide.

Recently, in Mumbai a sewerage line, 500 meters in length was laid at the cost of Rs. 1.7 crore in a short span of just two months, instead of the 10 months it could have taken by the conventional method, according to A.K. Sarkar, chairman, National Building and Construction Corporation (NBCC).

"Roads being the most frequent means of communication, by digging them we cause inconvenience to thousands. Idle fuel during traffic jams also leads to pollution. It is to overcome these bottlenecks that we thought of developing this technology, says E.W. Flaxman, chairman, International society for trenchless technology.

For the trenchless technology, it is necessary to do underground mapping of the area in which the cable has to be laid. This enables engineers to carve out a separate path for the new ones without damaging the cables and pipes previously laid.

While in the developed world, the technology has found ready acceptance, the initial cost and import of heavy equipments are proving to be major deterrents for its use in India. Proponents of the technology, however, point towards the long-term gains in working out its cost effectiveness.

- Excerpts from the News,
The Times of India, March -11, 1998

UNESCO Experts to Survey Konark Temple

UNESCO has sanctioned Rs. 1.4 million for the preliminary survey of the 13th century Konark temple, 70 km from Bhubaneswar, Orrisa (India).

The grant follows an international seminar at Puri in July where experts from within and outside the country discussed the temple's dilapidated condition and various options to save it for posterity.

The temple, famous for its exquisite stone carvings, is believed to have been built in 1259 A.D. by king Narasingha Deva of the Ganga dynasty. The temple's sanctum sanctorum and some other adjoining structures have since collapsed. Neither is there any trace of a deity. However, the 120 feet-high main entrance, Jagmohan, still exists and is a major tourist attraction.

Experts feel that the existing structure might not last long unless restoration work is taken up. Besides, constant seepage of rain and ground water and the saline breeze from the Bay of Bengal are also believed to be spoiling the fine stone carvings.

- Excerpts from the News,
The Times of India,
Nov. 18, 1997.

Lothal `a major city of Harappan era'

Recent excavations at Lothal, about 87 km south-west of Ahmedabad in Gujarat, have revealed that the area was one of the important cities of the Indus Valley Civilisation-5000 years ago.

"Lothal remains show a settlement of the pre-Aryan Harappan era, dating back to 2200 BC and adds a new chapter to the history of India by extending the geo-graphical limits of the contemporary. Egyptian and Sumerian societies, as far south as the Gulf of Cambay." A book titled "Indian Monuments Through the Ages", published by the Indian Society of Engineering Geology (ISEG), says.

The excavation of Lothal, the book reveals with sketches, unearthed a well-planned port city with elaborate system of drainage, wells and houses with arrangements for baths and fireplaces.

The book, released on the occasion of a national symposium by the society on "Modern practices in geo-techniques" here, says Lothal had a large mud brick wall enclosing the citadel or acropolis and the lower town of Lothal in order to protect the city from frequent floods.

The houses were made up of sun-dried bricks which ranged in size from 28x12.8x6.3 cm to 35.6x18x8.9 cm. In drains and baths lime mortar was used as binding material. The floor was lime plastered and the gradient of drains was generally 1:100 but in some cases it was upto 1:40, the book says.

One important building of Lothal was the warehouse measuring 40x50 m built on a four-metre high podium of bricks. Cargo was stocked and examined here under a wooden canopy. A bread factory was also located near the citadel. A drain at the northern extremity of the city provided ample water for cooling molten metal. The cemetery was situated far away from the habitation and the city was provided with underground and surface sewers.

The book reveals that the Lothal dock of 211x35 m size was the largest burnt brick structure of the ancient world. The Lothal dock could accommodate about 30 ships of 60-75 tonnes of laden weight at a time.

"The Lothal dock had handled a large quantity of cargo from various parts of the world as is evident from numerous seals found during the excavations, "the book says, adding that" the dock is the earliest example of tidal phenomenon being put to highly practical use.

-The Hindustan Times
November 24, 1996.

Angels are here to help us

Polls in the United States recently pointed out that over half the nation now believes in angels. Practically everyone wears a guardian angel pin or pendant. New books about these celestial beings appear weekly. Talk show hostess Oprah Winfrey devoted an entire show to discussing the advent of these divine strangers into our lives. Night classes are being offered in practical angeology.

In 1927, aviator Charles Lindbergh related how he fell asleep from fatigue over the Atlantic and then an 'extraordinary mind' flew the plane. He sensed the fuselage behind him, crowded with spirit presences, appearing and disappearing at will.

In 1985, a defecting scientist from Russia had this amazing account to tell. On their 155th day aboard the orbiting Soyuz 7 space station, cosmonauts Vladimir Solevev, Oleg Atkor and Leonid Kizim were conducting experiments. Suddenly they were all dazzled by a brilliant orange glow. Squintin into it they were able to make out seven giant figures with human form wings and misty halos. Smiling, they followed the Soyuz for some time before disappearing. Twelve days later, the seven angels returned. There were three other witnesses on the Soyuz who saw them this time. Cosmonaut Svetlana Savistskaya was one of them. Later she related,

"There was a great orange light and through it we could see the figures of seven angels. They were smiling as if they shared a glorious secret."

-Excerpts from the News,
The Hindustan Times,
August 1, 1998

Four Laws of Ecology

In order to survive on the earth, human beings require the stable, continuing existence of an appropriate environment, which encompasses a thin skin of air, water, and soil. Barry Commoner has enunciated four laws of ecology that highlight the scope of this science of planetary housekeeping.

Law I: Everything is connected to everything else.

The ecosystem consists of multiple interconnected parts, which interact with each other. The feed-back characteristics of ecosystems result in amplification and intensification of several processes.

Law II: Everything must go somewhere.

In nature, there is no such thing as `waste'. In every natural system, what is excreted by one organism as waste is taken up as food by another. Nothing can be expected to `go away'.

Law III: Nature knows best

Modern technology aims to improve on nature'. This law holds, however, that any major man-made change in a natural system is likely to be detrimental to that system.

Law IV: There is no such thing as a free lunch

In ecology, as in economics, this law is intended to warn that every gain is won at some cost. In a way, this law embodies the previous three laws. Because the global system is a connected whole, anything extracted from it by human effort must be paid for; payment of the price cannot be avoided, it can only be delayed.

-Source : Barry Commoner (1974)
The Closing Circle,
A Bantam Book, New York.

Param 10000

The Centre for Development of Advanced Computing (C-DAC) as Pune recently unveiled a new version of its Param Super computer. Param 10000, which is now Asia's second largest super computer.

The 100 gigaflops super computer, which can perform 100 billion calculations per second, was delivered by C-DAC last month, six months ahead of the schedule.

The machine has been so designed that there is scope of scaling it to tetraflops (10000 billion calculations per second) level, technology which currently exists only with Japan and the U.S.A.

The new super computer would be used in weather forecasting, seismic data processing for discovering oil and gas reserves, remote sensing, hospital information systems, telemedicine surgery and other business applications.

-Source: Technorama,
The Institution of Engineers(India)
1998.

Research Planners & Decision Makers

Geoscientists are poor communicators and non-geoscientists are deaf to advice provided by the geoscience community. This is because the two groups speak different languages. Communication can only be realised if a common language can be found. The universal and non verbal language is called "money". Planners and decision makers will listen and take geo-advice into account if geoscientists are able to express the assets and hazards provided by the Earth in financial terms. They can also surprise land-use managers by demonstrating that the behaviour of the subsurface where there is planned development is indeed predictable and that any cost-benefit analysis or impact-assessment is unreliable without the input of such geoinformation. (Scientists should be good business men also in the future).

-EF J de Mulder
NITG, TNO, PO Box 157
2000 AD Haavlem, Netherlands
Source : Geoscience 98, Keele University, April 1998.

Revisioning a professional Institution for sustainability

We live in an age in which change is constant. We must embrace change to be viable. To be able to implement change in an effective manner, we must know where we are headed and what our goals are. The key, therefore, is a clear articulation of a vision for the organization.

Vision, for an organization, is often defined in the following manner:

Vision = Mission + Strategy + Culture

The Charter of 1935 lays down for us the mission of the Institute. Strategy represents the plan of action that we adopt to achieve the goals set forth for us. Culture refers to the ritual ingredients encompassing what we stand for, the values we hold dear as well as norms, procedural or otherwise, within the organization. Both strategy and culture are dynamic. Both can and must change.

-Excerpts from Presidential address by Prof. Ajoy K. Ghose
Source : The Institution of Engineers
U.P. Centre News Letter
Feb., 1998

An Inscription in cave 26, Ajanta, India

If a man wants his memory to remain green in the world, why should he not make a monument in mountains, to last as long as the sun and moon continue.

- Walter M. Spink
Art Historian
University of Michigan, U.S.A.

TEARS- The Hydraulic force by which masculine will power is defeated by feminine water power.

- East Dubuque,
Illinois Register

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Jai Jawan,
Jai Kisan,
Jai Vigyan
(we salute soldiers,
we salute farmers,
we salute scientists)

- His Excellency A.B. Vajpayee
Prime Minister of India
May 22, 1998

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A Soldier's Prayer

The following verse was written on the back of a cigarette box by an American soldier killed on the field of battle in World War II, and found by a stretcher-bearer. It is as follows :

"Look God I have never spoken to you,
But now I want to say "How do you do?"
You see God, they told me You didn't exist,
And like a fool, I believed all this.
Last night from a shell-hole. I saw Your sky,
I figured right then they told me a lie.
Had I taken the time to see things You made,
I'd have known they weren't calling a spade a spade.

I wonder God if You'd shake my hand.
Somehow I feel You would understand.
Funny I had to come to this hellish place,
Before I had time to see Your face.
Well I guess there isn't very much more to say,
But I'm glad, God I met you today.
I guess the 'Zero Hour' will soon be here.
But I'm not afraid since I know You are near.
The signal: Well, God, I'll have to go;
I like You a lots; and I want You to know.
Look, now, this will be a horrible fight;
Who knows? I may come to your home tonight;
Though I wasn't friendly to You before,
I wonder, God if You'll wait at your door.
I wish I had known you all these years.
Well, I have to go now, God; Goodbye;
Strange - since I met You,
I'm not afraid to die.....

-Source : The Divine Life Society,
Rishikesh, India