In a recent newspaper report the shocking news appeared that, "American scientists have managed for the first time to stop the biological clock in humans, with carefully programmed doses of light." Ironically, this report first appeared in the British Scientific Journal "NATURE", dated March 7, 1991. This discovery of the precise point at which the body rhythm between sleep and awakening can be stopped is supposed to help people reschedule and control the timing of working night shifts.

This report however does not talk about the potential biological hazards of such intrusion in human body. It does not talk about any side-effects of such intrusion of replacing natural body clock with the mechanical clock. This discovery is a classic example of political use of science and research.

On one hand, worldwide workers' movement is concerned about night shifts and wants to get rid of this evil of modern industrial development. But on the other hand, our scientific community was busy discovering this solution of stopping the biological clock which was causing the unrest among the workers' community. Scientific community found the answer the magic solution to all the problems faced by the workers uptill now. Our body clock can be adjusted to the requirements of modern industrial development. Today the body clock has been stopped, tomorrow there may be such injections which if administered may stop our capacity to react to hazardous chemicals, or the manifestation of symptoms may not take place. But these hazardous chemicals and dust will keep harming our bodies. The question this discovery raises for us is: "Whether industries are created for human development or human beings are created for industrial development?" What is the nucleus of our Scientific Research-Welfare of the human race or that of the Industries?

SOCIETY FOR PARTICIPATORY RESEARCH IN ASIA
Spotlight

Agate: Craft Or Witchcraft?
A Study of Gujarat

Agate-making is an Indian craft which dates back to 4500 years, according to a recent revelation by the Department of Archaeology, during a recent survey at Lothal - a coastal Gujarat Village.

The ancient town of Kambat - a hub of the current Agate industry - was a busy port on the sea shores of the Arab Sea in the past. It was Kambat where the first shipment of textile machinery (bound for Ahmedabad) arrived from England. These machines were transported to Ahmedabad through bullock-carts. But the old glory of Kambat was washed away with the meteoric rise of Bombay and even the sea had folded itself back into the ocean.

All that remains now of the glorious past are the huge and beautiful houses of the yester years, full of antiques and that typical mood of the port people hanging thickly in the air. Sambhirth was the name of this town then, when it was famous for being an important Jain Centre.

Kambat, now, is buzzing with Agate activities and so are villages like Shkapur, Metpur, Varna, Nagra, Talaz, Shapur, Vadva, etc. The tragedy of this industry is that the number of people linked to this profession may be anywhere between 5,000 to 60,000. No one knows the true number due to the lack of any proper survey in this regard. An enormous amount of dust is generated when the (Agate) stone is rubbed against an emery, with 60 to 90% of silica floating in the air. The ill-fated worker contracts a deadly occupational disease called Silicosis on inhaling this dust for long periods.

Around 250 merchants have a complete control over this entire Agate market, out of which 80% products are earmarked for export - especially to Arab and African countries. A bit more of quality control could open up new vistas for finding a niche in the European as well as American markets.

Raw materials like various types of stones come from Zadadia (Gujarat), Aurangabad, Jalna (Maharashtra), Mandaur (Madhya Pradesh), etc. Some of these stones require further processing to acquire a fine finish whereas the others are simply sun-dried to remove moisture and acquire a somewhat different hue or colour. After the heat-treatment, “skin” of the stone is removed by “Fodias”, who break the stones into smaller pieces of specific sizes as per the respective requirement.

These finer pieces of gems, often called “Rakam”, are sent to the “Ghana” or the shaper, who is either an employee or self-employed. Firstly, these stone pieces are softened in a wooden ball mill (locally known as “Drum”) and then given to Charias to shape them in a particular fashion. “Mani”, “Dholi”, “Gol”, “Cutting” etc. are some of the popular terms used for the different shapes.

It is this shaping-up process which generates a tremendous amount of dust and in the process, puts the worker out of shape as it is a terrible occupational hazard.

Then, these stones are given to “Vindhara”, who makes holes into them. Of late, modern machines have greatly reduced the drudgery of the traditional system of piercing holes, which was pure torture - thanks to the extremely odd physical posture. This step is followed by polishing the ugly stones into attractive gems - excellent creations of master craftsmanship. They are converted into beautiful ornaments to adorn the dazzling show-rooms of big cities. But all that glitters is not gold, as the real creator or worker is paid a mere pittance of a piece-rate labour.

There is blood on these gems. The late Shababai of Shkapur had six sons, five of whom died while making these bloody gems, due to silicosis. His only living brother, Bhaiabhai, has lost his wife in this business. The list of the victims is just beginning.

Gangaba is an 80 year old lady who has not only lost 3 sons but also sacrificed her 3 grandsons on the altar of this “noble” profession. But the list does not end here.

Narsingh Rajput, an employer, has lost his son and daughter both because of silicosis and further admits to have lost 50 of his employees due to the same dreaded disease. The death-list goes on.

About 50 workers died during the last 5 years in Vankar Vas area of Shkapur. The 30-35 muslin families inhabiting the Shapur area of Shkapur have lost almost all their housewives, courtesy silicosis. The list continues.

There lived a Muslim couple who were engaged in this deadly business. They knew their end was near. Their worry was not the death but, their burial. So they approached a merchant who could loan them the burial money. They were pretty sure about this agate business being just a one-way street - a dead-end alley, where death was the only release. “About
100 workers, who learnt this art from me, have died with their boots on", recalls a sad Babubhai Desai - a trainer. It, certainly, is a very long list.

Several of such ill-fated orphans reside with relatives, where there is absolutely no ray of hope and a bleak future ahead. R. Rathod and R. Jadav have prepared a list of 265 such orphans.

They further report that the paucity of time, information pertaining to Haiej, Katakur, Kolodara, Kansal, and areas like Akbarpur, Bhobani and Kajna of Kambal town could not be gathered. Moreover, if information was collected from Dahegam and Karol Jambusar, a lot more could come to the light.

Silicosis is not merely an occupational disease. It has created a large number of other social problems like those of the old people who have lost their young ones; of male widowers without kids; of female widows; or those who can not get married simply because of being engaged in Agate business at some point of time or another; and of those couples who have stopped working in Agate business since either of the two has developed silicosis.

Has this death-dealing business been taking the human toll since last 4000 years? Perhaps not. In the last 40-45 years came the electricity and along with it came the technological changes. Earlier, Agate was shaped by manual grinding on an emery stone. With the advent of electricity, electrically-run emery wheels are now in vogue. Though these electrical emery wheels have increased the production rate, they churn out more respirable dust which is more lethal, culminating into more and more deaths.

It would be interesting to study the technological evolution of the Agate industry like when did the 'drums' come? Who made these tools and with what? What happened to the tool-makers? How were the different sections of society affected by the technological advances in this field? Who really suffered? Who gained? What needs or necessities propelled towards such changes?

As far as historians are concerned, there are many more stones which are yet to be unearthed. Agate business, for example, has been shifting its venue in a continuous manner. In Akbarpur, this industry took roots only after 1976. By that time, Vasna was showing a downward trend in Agate. Now, there is no one who could provide us more of authentic information. But, such a study must be carried out by either social scientists or historians.

What really is Silicosis? Actually, the silica dust causes irreversible changes in lungs and decreases their vital capacity. If the exposure still continues, it may give rise to fibrosis. In a nutshell, there is yet no available cure for silicosis in the field of allopathy.

Symptoms of silicosis appear a bit too late like breathlessness, weight-reduction and cough (without or without sputum). These symptoms could be easily mistaken for T.B. Sometimes, a patient contracts T.B. also and this combined illness is termed as Silico Tuberculosis - which is comparable to Silicosis.

Where does one go with all this dreadful data on silicosis? Should we demand an end to this death-game by bringing the entire Agate industry to a halt? No, we don't. Why do people join this business, in the first place? Don't they know the inherent hazards? They certainly do know as according to Amina Bibi, "Yeh to maut ka chakkar hai (or this is the spinning-wheel of death)". But they are helpless. They have no other choice as they are landless. Some of them have migrated from Barach district to this town with just two alternatives - either to die of hunger at home or die working at Khabtal of silicosis. The choice is not between life and death but just between two types of death. So, rather die working.

Solutions to this problem were attempted at different levels by various individuals, inspired by their limitations. Some designed fans to remove the deadly dust out of their breathing zones, but in vain. It created more problems due to the open blades and hence, was not practically feasible. A few bought certain protective equipment like the respirator, but the workers did not approve of it. An attempt to install small fan blades on the emery wheel itself was tried but failed. Workers do tie a piece of cloth and also keep wet gunny bags next to the grinder. But the fact remains that none of these preventive measures is successful in trapping or containing the entire dust floating all over the place. Hence, workers continue to die even in this 20th century.

Is there really no solution? Yes, there is. The Gujarat High Court Commission tried out a local exhaust system. And, it worked excellently. It threw out about 94% of respirable dust.

This discovery of getting rid of the silica dust has a distinct history. It dates back to the childhood days of Dr. S.H. Clerk, the then Deputy Director of the Industrial Toxicology Research Centre (I.T.R.C.). In fact, Dr. Clerk spent some of his childhood years at Khabtal. This catalysed him to carry-out a survey in 1978 to conduct a study of respiratory morbidity among Agate Workers. He was shocked to discover silicosis even among a 11 year old kid, who never worked in this industry but nonetheless was heavily exposed to the silica environs.

(See Box for details of the study on the next page)
SOME DATA ON AGATE WORKERS

Four hundred ninety one workers were examined in which 342 were agate workers and 149 control. Among the 342, 228 were grinders, 72 chippers and 12 drillers. Among 342, 49% were in the age group of 21 to 31, 25.6% in 31-40 and 20.7% in 41-50.

14.4% were found to have Pneumoconiosis.
15.5% were found to have T.B.
2.6% were found to have Chronic Bronchitis.
7.5% were found to have Asthma.
19.2% were found to have other lung Diseases.

Persons suffering from Pneumoconiosis had exposure of dust to duration as follows:
- 60% less than 6 years
- 22.2% exposure 6-10 years
- 37.5% exposure more than 10 years.

Among 19.4% (63) workers with silicosis:
- 32.1% were grinders
- 6.3% were chippers
- No one among drillers

Among 16.4% (62 nos):
- 42.2% were non-smokers
- 28.6% were smokers

Among 342, 105 were below 20 years age.
In the 15 were children among which 5 (14.3%) were having silicosis.

Mean dust concentration was 205.3 mg/m3 in which respirable dust was 186.4 mg/m3. Silica content in respirable dust of agate was found to be 62.4%.

This study by I.T.R.C. enthused Girish Patel, an eminent lawyer, to file a writ petition in the Gujarat High Court. High Court set up a commission of 3 persons including the Deputy Chief Inspector of Factories - Mr. O.P. Patel, Dr. H.N. Saryed of National Institute of Occupational Health (NIOH) and Advocate Jami, as its members. It was decided to carry out a survey combining medical and environmental impacts of silicosis on the workers by Dr. H.N. Saryed and the NIOH team. In all, 468 workers engaged in grinding, chipping and drilling were X-rayed. The survey revealed that 135 workers had radiological evidences of silicosis, whereas 30.5% of men were below thirty years. In 60% of the cases, individuals working as grinders became the victims of silicosis within a span of just 10 years. The silica content in the dust-laden atmosphere was found to be 60%.

Silicosis is not the only occupational health problem faced by Agate workers. They suffer from noise pollution, postural problems, skin burns and a hoard of other ailments.

The High Court Commission recommended the use of local exhaust systems to prevent dust inhalation, monitoring of environment, pre-employment and periodic medical check-ups, apart from carrying out the work of grinding at an isolated place.

A TRYST WITH SILICOSIS

I.T.R.C. carried out a survey. High Court commission gave its report. DECUA made a documentary film “Living Stones.” A number of articles were published in the newspaper. I was under the impression that a lot of work is being done for the workers. I went there to see what was going on. Actually, I met some people in Shakerpur. I talked to some of them. Not a single organisation was working on Agate among them. Workers were unorganised. Despite the wide publicity, nothing was done either by the employers or the government.

I met Buddhaal as a stranger. He was looking for some one who could help him in getting a good exhaust. He could not find anyone. So he and his friends tried to make some device, but it failed. We then arranged his visit to NIOH. There he and other friends witnessed the appropriate exhaust. Then he asked a local fabricator to make a similar exhaust system for him. Another friend of his also ordered the same. This is how the first exhaust system came into being. Workers were then interviewed and were found to be very happy. They felt that they could work there for a long period of time.

Mandal has taken up a treatment-research project. Homeopaths believe to have a remedy for Silicosis. We decided to try it out. In the first phase, 30 workers took their pulmonary function tests which were done by Dr. R.S. Durvasula. Lions Club of Khamnus helped in getting free x-rays. Dr. Patil came and would shortly start giving the homeopathic medicine. Pulmonary function tests would be carried out every six months.

Mandal, alongside Niyon Sarjana and Janpath (NGOs), organised a workshop on March 6, 1990 and a small committee was formed as its result, which would be responsible for collecting information about the various aspects of silicosis. This committee would be meeting every 15 days to review the progress.

J.B. PATEL
This is the form which need to be filled and deposited with Employees State Insurance Corporation for "Claiming Compensation" for Compensable Diseases under Employee's State Insurance Scheme.

EMPLOYEE'S STATE INSURANCE CORPORATION

Form 16-A

Report from Employer in respect of
Occupational Disease (Reg. 68).

1. Name of the Employer : .................................................................

2. Code No. : ....................................................................................

3. Nature of industry or business : ....................................................

4. (a) Name of insured person (b) Insurance No. : 
   ......................................................................................................

5. Address of the insured person : .....................................................

6. (a) Sex : (b) Age (last birthday) (c) Occupation of insured person (d) Local office to which attached : 
   ......................................................................................................

7. Name of occupational disease or its nature : 
   ......................................................................................................

8. Date of Commencement of the occ. disease : 
   ......................................................................................................

9. Date of Employment of insured person in factory : 
   ......................................................................................................

10. Specific employment in which employed & its nature : 
    ......................................................................................................
12. The exact period of continuous employment as at col. no. 10 above before the commencement of spell of occupational disease

13. Date of issue of medical certificate in respect of occupational disease

14. Name of the disease given on medical certificate

15. (i) Whether the insured person has abstained from work, if from what date

(ii) Has he returned to work? If so from what date?

16. (a) Physician/Dispensary/Dentist from whom or where the insured person received or is receiving the treatment

(b) Name of the dispensary/Dental doctor elected by the insured person

17. (a) Has the insured person died?

(b) If so, date of death

I certify that to the best of my knowledge and belief the above particulars are correct in every respect.

Date of despatch of report

Signature of Occupier
SLAVES IN THE 21ST CENTURY?

(On 4th February 1991, three activists from Kerala visited the Lari Kuan Crusher site at Delhi. These activists wanted to make a slide and tape programme on the hazardous working conditions which workers are facing in the stone crusher industry. This is a report of their visit to the area and the problems faced by them.)

The moment we stepped inside the area of Lari Kuan, where hundreds of stone crusher units were installed, we felt shocked to witness the amount of dust in the air. It was very difficult to breathe properly in that dusty environment and the visibility was also low. Also, the noise level was so high that we were finding it difficult even to talk to each other.

To understand what workers thought about these situations and the kind of problems they faced due to such unhealthy working conditions, we switched on our tape recorder and started taking photographs of the work environment. But within 15-20 minutes, we were summoned by the owner of the plant in his air-conditioned office. Apparently, somebody informed him about us. This room was crowded with people who started shouting at the top of their voices and threatening us. They snatched away our cameras and tape recorder and abused us of trespassing and provoking the workers against the management.

After a long verbal duel of about 4 hours the management finally returned our equipments, that too after pulling the films out of our cameras and taking away the recorded cassettes. We were thrown out of the cabin with a warning of deadly consequences in case we ever ventured to enter that area.

Shocked and flustered, we shot out of the den and were, once again, surprised to find that there was not even a speck of dust in the air, as if nothing ever happened before. This simply meant that the cunning management used such preventive measures (like watering the dust) whenever an emergency (like us) occurred.

Inspite of our mis-adventure, we were successful in penning down some of our conversation with the site-workers, which confirmed the following facts:

- There were more than 10,000 workers working at the crushers. But, there was no labour union.
- Most of the Labourers were from Uttar Pradesh and Bihar. No worker of nearby region was working at the plant.
- The labourers had to work 18 and more hours a day for which they were paid only Rs.25 to Rs.35.
- According to one labourer, ‘more than 90 percent of the total labourers were affected by dust and many of them were T.B. patients’.
- There was no provision of paying the compensation to labourers suffering or died due to workplace hazards.
- The labourers had no place to live, so they were living around the plant.
- Management had all the measures to stop the dust at source but were not using it because they did not want to bear the burden of expenditure on prevention of work hazards.

While coming back, one question kept haunting us continuously: ‘If an outsider is harassed and threatened like this then what must be the fate of those workers who never dared to ask any uncomfortable question to these Crusher Owners?’.

Are we really living in a civilized society or is slavery still the norm?
FEAR AT WORK
(JOB BLACKMAIL, LABOUR AND THE ENVIRONMENT)

Nationally or internationally, the public is offered only two options: to give corporations what they want or face higher unemployment. “This is what Job Blackmail is all about.” This eye-opening document emphasizes on one particularly insidious form of job blackmail: Environmental Job Blackmail. This book intends to change the perception that environmentalism and unionism do not mix. It argues that jobs and environmental quality are the basic pre-requisites of a just society and both should be recognised as the basic rights of all citizens.


DIGGING OUR OWN GRAVE
(COAL MINERS AND THE STRUGGLE OVER BLACK LUNG DISEASE)

This book is the first comprehensive analysis of the controversies over the Black Lung Disease. It traces the puzzling shifts in medical perception of the disease, and links them to larger historical changes in the structure of class relations and medical practice. It analyses the compensatory confrontation over the meaning of disability and the definition of the disease and also raises questions about the limitation of scientific medicine, the nature of disease, and the possibilities for genuine occupational health. Written by Barbara Ellen Smith.


WE OFFER OURSELVES AS EVIDENCE
(TOWARD WORKERS CONTROL OF OCCUPATIONAL HEALTH)

This book is about the struggle of coal miners, textile workers and the supporters to convince the industry, the government, the other professions, the people and the public about the existence of occupational diseases, the need to compensate those already afflicted and the importance of protecting workers in the future. Written by Bennett M. Judkins.
Available from: Greenwood Press, Inc. 88 Post Road West, Westport Connecticut 06881, U.S.A.

BETRAYAL OF TRUST
(STORIES OF WORKING NORTH CAROLINIANS)

This book has the compilation of stories of the workers about their job insecurity and of those who have no meaningful protection against the whims of their bosses. The stories are selected to give a sampling by industry, geographic location and problem of what is occurring at workplaces throughout North Carolina with a hope that collective weight of compilation will make that a case. Edited by John Bookser - Feister and Leah Wise.

DISEASES AT WORK - III

You would be glad to know that PRIA plans to bring out the third booklet in the "Diseases At Work" Series.

The concept of ‘Diseases At Work - III’ has basically emerged as a response to the continuous queries of workers regarding Occupational Health & Safety provisions in Workman Compensation Act and Employees’ State Insurance Act, apart from information regarding the utilisation of these provisions.

We earnestly request you to send us as many questions as you desire to be answered through this new booklet.
FACTORY'S CLOSURE ORDERED OVER GAS LEAKAGE

The Rajasthan Government has ordered closure of a chemical factory here after leakage of chlorine gas from its plant affected some people living in adjoining areas, due to inadequate safety measures.

Pahurat (New Delhi) 16 February 1997.

MECHANIC DIED IN TANKER EXPLOSION

On February 26, one mechanic died and two others got injured when an oil tanker exploded in the Mongalson factory area in Bhiwadi. The incident occurred when the diesel tank was being refilled. Proprietor of the factory explained that heat generated by the welding work filled the tanker with gas which led to the explosion.

Tune of Picar (New Delhi) 27th February 1997.

BHOPAL VICTIMS PRONE TO CANCER

Victims of the world's worst industrial disaster at Bhopal in 1984 face a higher-than-average risk of developing cancer and chronic obstructive pulmonary disease. A report by the I.C.M.R.'s Bhopal Gas Research Centre says that the victims also face a higher-than-average risk of giving birth to still-born babies.

For details contact: I.C.M.R.'s Bhopal Gas Research Centre, Bhopal (M.P.)

GAS LEAK AFFECTED 24 STUDENTS

On March 8, 24 students from nearby school were affected by the leakage of gas in the battery recycling factory at Beyander, Bombay. The incident was the second such in the locality.


50 HURT IN MEXICO BLAST

On March 12, an explosion and fire tore through a petrochemical complex in South Eastern Mexico, injuring at least 50 people.

Puebla News (Mexico) 13 March 1997.

GAS KILLED WORKER

On March 12, an industrial worker died and two other hospitalised after all the three inhaled a poisonous gas at a unit of the Capriin Company, Boiler MIDC in Thane. Police said the victims were at work on a kettle at the bulk drug plant when the kettle's lid opened and the gas, mixed with chemicals, escaped into the air.

Daily (Bombay) 13 March 1997.

BLEST AT 'SAFEST' WCC PLANT

On March 14, a Union Carbide plant in Texas, touted as one of the safest, had to be shut down after an explosion this week in which 19 people were hospitalised and one other was killed.

ARCO Pays For Workplace Violations

The ARCO Chemical Co. of U.S.A. has agreed to a major revamping of workplace safety programs at its facilities nationwide and to pay a record-setting $3.48 million for alleged workplace violations at its Channelview, Texas facility, the U.S. Labor Department has announced.

Acting Secretary of Labor Rodrick DeArmont's announcement followed the issuance of citations for violations of federal workplace safety rules by the department's Occupational Safety and Health Administration (OSHA) at ARCO's Channelview plant (where 17 workers died in an explosion and fire last July 5) and signing shortly thereafter an agreement by ARCO and OSHA officials in Washington, D.C.

"In addition to ARCO's willingness to pay the full $3.481,300 in penalties proposed by OSHA," said DeArmont, "the company has agreed to institute corporate-wide corrective action which certainly indicates determination by the company to do its utmost to prevent any similar disaster."

Assistant Secretary of Labor Gerard F. Scannell, OSHA administrator, said the willful penalties were $10,000 each for 347 violations.

Summary of Alleged Violations

Willful Violations

347 alleged willful violations for failure to protect 347 employees against hazards posed by an explosive atmosphere, uncontrolled ignition sources in the presence of flammable vapors, and the use of improper electrical devices in a hazardous location.

Total willful penalties proposed: $3,470,000

Few Serious Violations

- Inadequate hazardous waste training for employees.
- Failure to provide annual refresher training for workers exposed to hazardous waste.
- Failure to address personnel roles, lines of authority and communication in emergency response plan.

Summary of OSHA Investigation

The ARCO explosion occurred at 11:21 p.m. on July 5, 1990 as employees were reinstalling a vent compressor on the side of a 40-foot tall tank containing caustic wastewater including hydrocarbons. It destroyed an area about the size of a city block as the 48,000 pound top blew off the 62-foot diameter tank and landed in a parking lot 200 yards away. The blast also propelled a 15,000-gallon tank into a pipe rack 200 feet away.

OSHA began its inspection July 6, focusing on the utilities wastewater area where the explosion occurred. Based on an extensive investigation, OSHA believes that a nearby ignition source sparked the blast. The fuel may have been hydrocarbon vapors enriched by oxygen which was vented from the vessel or an adjacent one or similarly enriched hydrocarbons leaked from a vacuum pump truck operating nearby.