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# न्यू ज लै ट र NEWSLETTER

An in-house bulletin of INDIAN INSTITUTE OF PETROLEUM, DEHRADUN

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No. 4

## FICCI Award to Dr T S R Prasada Rao



Dr T S R Prasada Rao, Director, was given the coveted FICCI Award for the year 1992-93 for his contributions in the discipline of Physical Sciences including Mathematics along with Professor J Gopalakrishnan of the Indian Institute of Science, Bangalore, by Hon'ble Prime Minister Mr P V Narsimha Rao on September 28, 1993 at New Delhi, with a cash award of Rs 50,000 (shared jointly), a plaque and a citation.

Dr Prasada Rao has been accorded this distinction for his notable contributions to the area of catalysis. His major contributions are the development of catalysts and processes for naphtha reforming and xylene isomerisation. These processes are in commercial operation all over the country.



# CSIR Foundation Day Celebrations

SEPTEMBER 26, 1993

The CSIR Foundation Day was observed at the Institute on September 26, 1993 by holding various essay and inter-school competitions and presenting mementoes to employees completing thirty years' service in CSIR and also to those who retired during the last year.

The chief guest was Mr S K Manglik, Chairman, Oil & Natural Gas Commission, Dehradun, who in his presidential address, informed the audience about importance



Mr S K Manglik inaugurating the CSIR Foundation Day Celebrations. Dr T S R Prasada Rao is on the left and Dr K S Jauhri on the right.



Mr S K Manglik delivering the inaugural address.

of oil, its present declining trend and the future scenario. He added that the ONGC has taken steps to increase oil production by 4-5 million tonnes per annum in a short period.

Earlier, Dr T S R Prasada Rao, Director, welcomed Mr Manglik, and, introducing him to the guests and staff of the Institute, he gave a brief resume of illustrious and distinguished career of the chief guest.

Mr Ram Lal, Senior Mechanical Assistant, oldest employee of the Institute, retiring in October 1993, presented a bouquet to Mr Manglik and extended felicitations on behalf of the Institute.

To mark the occasion, essay competitions in Hindi and English were conducted for children of IIP Staff on September 12, 1993, by the IIP Staff Club. The topics were - CSIR's role in the Industrial Development of the Country, and India's New Industrial Policy. Twenty two children had participated in this contest and the winners were:

#### Category I: upto Class X

Hindi: Mr Ashish Sarowha (Ist)  
Ms Kalpana Sarowha (IIInd)

English: Ms Tanu Srivastava (Ist)  
Ms Prakriti Bandooni (IIInd)

#### Category II: Class XI and above

Hindi: Ms Ruma Wadhwa (Ist)  
Ms Sonal Jauhri (IIInd)

English: Ms Rajni Dham (Ist)  
Ms Manju Dham (IIInd)

An Inter-school quiz competition was also conducted by Dr Mathew Abraham, in two rounds, the first on September 23, in which fifteen schools had taken part, and the final in the forenoon of September 26, in which six schools had participated. The winners were:

Ist St. Joseph's Academy  
IIInd Welham Girls' High School

Mr Manglik gave away prizes to the above winners. He also presented mementoes (wrist watches) to twenty one persons of the Institute who had completed thirty years' service in CSIR and wall clocks to twelve employees who retired during the year. Their names are:

#### Employees completing 30 years' service in CSIR

Messrs T N Singh, Engineer EII; P N Kapoor, Technical





Mr C M Khanna, Photographic Officer, Public Relations Group, receiving the memento from Mr S K Manglik. (Guess who would have taken this photograph? None else than Dr T S R Prasada Rao himself!)

Officer A; Govind Ballabh, Documentation Officer B; C M Khanna, Photographic Officer C; S P Kothari, Section Officer; Mohd Usman, Technician Grade VIII; Som Nath, Scientist EI; V K Kapoor, Scientist EII; S K Bhaskar, Technical Officer A; R Moolchandra (Dr), Scientist EI; R K Bahl, Technical Officer A; A L Arora, Technical Officer B;

S A Qurieshi, Scientist B; S V Santoshi, Senior Documentation Assistant; Abdul Rashid, Technician Grade VIII; S S L Garg, Scientist EI; T C Joshi, Technical Officer EI; R K Sharma, Engineer EII; R S Gaharwar, Scientist EII; Ram Aasrey, Technician Grade VIII; Babu Ram, Technician Grade VII

#### Employees retired during the year

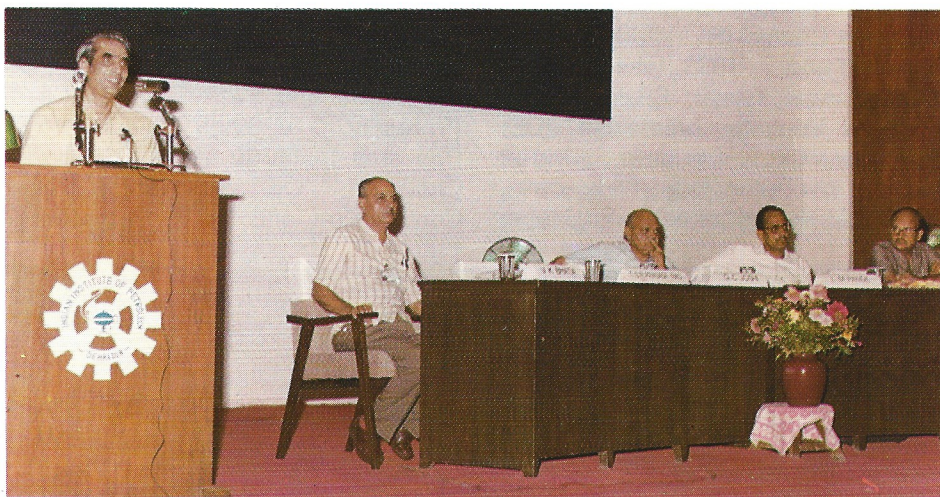
Messrs Sat Pal Gurung, Security Guard; J D Ahluwalia, Technical Officer C; Jangu, Helper B; P N Bhambi, Scientist F; K B Mathur, Assistant; G N Kaul, Assistant; Abdul Rashid, Technician Grade VIII; Ram Kishan, Technician Grade VIII; G C Joshi (Dr), Scientist F; T C Joshi, Technical Officer EI; Ram Aasrey, Technician Grade VII

Concluding the programme, Dr Prasada Rao gave an account of the achievements of the Institute during the year and expressed his happiness for an all-round progress. He presented to Mr Manglik the CSIR Golden Jubilee Memento – the metallic part used was made by NML, Jamshedpur; optical glass by CGCRI, Calcutta; Medallion by NIO, Goa and carbon fibre as well as fabrication by NAL, Bangalore.

The programme was conducted by the Chairman of the Local Organising Committee Dr V R Sista and the Vote of Thanks was proposed by Dr K S Jauhri, Area Leader, Industrial Liaison. □

### SEMINAR ON SOME FRONTIERS OF CHEMISTRY JULY 29, 1993

This one-day seminar was held at IIP on July 29, 1993 to felicitate Dr G C Joshi, who attained super-annuation on July 31, 1993 as Scientist F and Area Coordinator, Chemical Sciences Division, after a very successful and distinguished career at IIP. He received his Ph D degree from the University of Western Ontario, London, Canada. Prior to joining the Institute, he had served two other prestigious R&D organisations, namely, Defence Research & Development Organisation, Kanpur and Indian Space Research Organisation, Trivandrum. He had the rare distinc-



Dr T S R Prasada Rao delivering the inaugural address. Sitting (from left) are Dr V K Bhatia, Dr G C Joshi, Dr L M Pande and Dr A K Bhatnagar.

tion of working with the Nobel laureate – Professor H C Brown, University of Purdue, USA and winning his appreciation. Dr Joshi has

been responsible for development of several processes for chemicals and petrochemicals, many of which have been commercialised. He has over



100 publications in leading journals and 10 patents to his credit.

The Seminar, attended by a large gathering of distinguished scientists and guests from organisations other than IIP as well, started with a welcome address by **Dr T S R Prasada Rao**, Director, IIP. He welcomed the distinguished speakers **Dr L M Pande**, Director, Department of Scientific & Industrial Research, New Delhi and **Dr A K Bhatnagar**, GM, Indian Oil Corporation, Research & Development Centre, Faridabad, who had been specifically invited to deliver lectures. Highlighting the contributions made by Dr Joshi in the area of organic chemistry, in general, and hydrocarbon chemistry, in particular, Dr Prasada Rao lauded his sound knowledge of organic chemistry in areas related to petroleum crudes and refining processes.

Dr L M Pande in his lecture, took the audience for a "Random Walk in the Field of Organometallics" and discussed at length the applications of organometallic compounds starting from the use of tetraethyl lead in gasoline during pre-1950 period to its modern applications in sophisticated organic synthesis.

Dr A K Bhatnagar presented a brief review of "Additive Chemistry for Lubricants and Fuels", in which only seven companies in the world have their monopoly. He also presented interesting data to show how the application of right additives could result in enormous saving by way of conservation and improvement in their performance. Dr Bhatnagar stressed the need to strengthen research particularly in the area of additives for fuels, and called upon IIP to join hands with IOC in

their collaborative programme with Centre for High Technology, National Chemical Laboratory and Lubrizol India Limited in this area.

Dr Joshi presented an interesting and thought provoking talk on "Synthetic Excursions in Functional Chemicals". He shared his experiences in wax crystal morphological studies followed by design of a specific polymeric additive for improving diesel cold flow properties. He also gave a brief account of his work on metathesis and hydroboration reactions which have been published in international journals of high repute.

The seminar was coordinated by **Dr V K Bhatia**, Area Leader, Renewable Resources, while vote of thanks was proposed by **Mr G N Kulsreshtha**, Area Leader, Bulk Intermediates (Process Development). □

## ELEVENTH RESEARCH COUNCIL MEETING

The eleventh meeting of the Research Council (RC) of IIP, held on August 6 and 7, 1993, was attended by **Mr Lovraj Kumar**, Chairman RC, **Mr K N Venkatasubramanian**, IOC, **Professor K Vasudeva**, Indian Institute of Technology, New Delhi, **Dr R S Venkataraman**, Engineers

India Ltd., **Mr V Raghuraman**, Associated Chambers of Commerce and Industry of India, **Mr T S Krishnamurthy**, Centre for High Technology, **Mr M B Lal**, Ministry of Petroleum and Natural Gas, **Mrs Lalitha B Singh**, Department of Chemicals and Petrochemicals, and **Professor D V Singh**, Central Road Research Institute. **Mr S K Manglik**, Chairman, Oil & Natural Gas Commission and **Dr P Ratnasamy**,

Deputy Director, National Chemical Laboratory, could not attend.

**Dr T S R Prasada Rao**, Director, welcomed the members and gave a brief account of the activities of the Institute since its last meeting. The minutes of the meeting held on December 4, 1992 were approved after thoroughly discussing the actions taken on the suggestions

*contd. on p. 6*



*The RC Meeting in session.*



## DR T S R PRASADA RAO COMPLETES THREE YEARS IN IIP

*Excerpts from his address to the staff on September 20, 1993*

Colleagues,

Having completed half of my tenure as Director of this Institute, it is only appropriate to first look back – to see how well we have done during the last three years and, then, to have a glance at the future – to judge our preparedness to face the challenges ahead.

In order to share with you the achievements of the Institute, I will like you to have a look at the following table:

Years	Budget (Rs Lakhs)	EBR (Rs Lakhs)
1990-91	488.90	106.80 (22%)
1991-92	585.00	140.00 (24%)
1992-93	604.30	181.60 (30%)
1993-94	560.00	275.80 (49%)

You will observe that the Extra Budgetary Resources (EBR) is increasing every year, from 22% in 1990-91 to 49% (expected) during this year, with the result that we are in a happy situation to manage with a reduced budget this year. I have a dream to achieve 100% EBR – when we may not ask for any funds from CSIR. Also, it is very encouraging that we have Rs 1121.59 lakhs worth project proposals in hand. Major ones being future fuel quality (Rs 51.25 lakhs) and Development of low metal/skewed catalyst (Rs 78 lakhs) both for CHT, MEOR (Rs 25.18 lakhs) for DBT, Evaluation of CNG retrofit kit (Rs 20 lakhs), Development of two-stroke engine for CNG (Rs 20 lakhs) and Utilisation of M3 gasoline blend (Rs 20 lakhs) all three for GAIL, etc. Twelve technologies were transferred to users during the period October 1990 to September 1993.

It is also very heartening that the Institute has received the approval of an unprecedented grant worth Rs 9.18 crores from OADB to modernise



its Crude Evaluation, Analysis and Analytical Spectrometry and Catalysis & Catalytic Processes Development Laboratories.

On the Awards front, the performance of the Institute has been exemplary. The **CSIR Technology Shield** is being awarded to the Institute this year for development of technology for food grade hexane, while CSIR Technology Awards were also bagged by IIP earlier in 1990 and 1992; **CSIR Young Scientist Award** to Mr A K Gondal, **VASVIK Award** for the year 1989 to Messrs P N Bhambi, H K Madan and K N Dobhal and **FICCI's Award** to me. All this has been possible due to dedicated team work and credit for these goes to each one of you who has, directly or indirectly, contributed in some way or the other.

On the HRD front, right from the time of my coming over here, it has been my endeavour to expose maximum number of scientists of the Institute to the developments taking place not only in the country but abroad also. I have, therefore, deputed large number of scientists

(as many as 212 during the last three years) to participate in national and international conferences. In keeping with this objective, many national and some international conferences were also organised by the Institute during the last year, namely, Workshop on Solvent Extraction Technologies used in Petroleum Refining and Petrochemical Industries (June 1992), XII National Conference on I.C. Engines and Combustion (September 1992) and X National Conference on Industrial Tribology (March 1993). The last two gave us the honour of having amongst us **Mr S Krishna Kumar**, the then Minister of State of Defence, Petroleum and Natural Gas and **Mr P R Kumaramangalam**, Minister of State for Science and Technology, Electronics, Ocean Development, Parliamentary Affairs, and Vice President, CSIR.

I am also happy that a number of employees have received their long-delayed promotions during the year – which they richly deserved.

I have also been making efforts to develop personalities of scientists by holding suitable programmes (such as Stress Management – Managing Insult Situations) at the Institute.

But, friends, petroleum scenario is fast changing not only in the country but in the whole world. If our Institute is to keep pace with these changes, we will have to develop latest technologies to enable the country to march in the twenty first century with confidence in this vital sector. Lot of responsibilities, therefore, lie upon you to face these challenges. I have confidence that you will rise to the occasion.

Thank you.



contd. from p. 4

made by the members in connection with on-going projects of the Institute.

The RC was apprised about the first meeting of the Advisory Committee on Training Programmes at IIP, constituted on its recommendations of the meeting held on December 4, 1992, which took place on August 5, 1993.

As desired earlier, the R&D Perspective Plan of IIP for 1993-98 was presented, which covered the present status and future scenario of petroleum refining industry, the technology scene and identification of thrust areas, and identification of projects in different areas as well as the additional resources required. The document was very much appreciated by the members.

The RC suggested that in view of the increasing demand of petroleum products and the high quality of fuels as well as emission standards, the Institute should concentrate on the new refining technology, conversion of bottoms, new catalytic systems, new reactor designs and conservation.

The RC set up a small group for suggesting thrust areas.

Poster presentations on some of the on-going projects by the concerned scientists were appreciated by the members. □

### ADVISORY COMMITTEE ON TRAINING PROGRAMMES AT IIP

Realising the training requirements of the petroleum industry and the vital role played by the Institute in this area, the Research Council of IIP, in its meeting held on December 4, 1992, felt the need of an Advisory Committee on Training Programmes at IIP. In view of the above, this

Committee has been constituted as following:

**Professor K Vasudeva** *Chairman*  
Department of Chem. Engg.,  
IIT, New Delhi - 110 016

**Mr Lovraj Kumar** *Special Invitee*  
Chairman RC

#### *Members – External*

#### *Petroleum Refining & Petrochemical Discipline*

1. **Mr H J Dave**  
Executive Director  
IOC R&P Division  
New Delhi - 110 003
2. **Dr I M Misra**  
Professor & Head  
Department of Chemical  
Engineering  
University of Roorkee  
Roorkee - 247 667
3. **Dr Madhavan**  
Professor  
Computer Aided Design Centre  
Indian Institute of Technology  
Powai, Bombay - 400 076
4. **Mr V Ramachandran**  
Deputy General Manager  
Reliance Industries Ltd.  
Patalganga, Distt. Raigarh
5. **Dr M S M Rawat**  
Professor & Head  
Department of Chemistry  
H N B Garhwal University  
Srinagar (Garhwal) - 246 174

#### *Utilisation of Petroleum Products Discipline*

6. **Prof V Ganesan**  
Department of Mechanical  
Engineering  
Indian Institute of Technology  
Madras - 600 035
7. **Mr R P Sharma**  
Chief Manager (Engines)  
Ashok Leyland Ltd.  
Bangalore - 560 070
8. **Mr N V Iyer**  
Deputy General Manager  
Bajaj Auto Ltd.  
Akurdi, Pune - 411 035

9. **Prof H B Mathur**  
Department of Mechanical  
Engineering  
Indian Institute of Technology  
New Delhi - 110 016

#### *Members – Internal*

1. **Dr T S R Prasada Rao**  
Director, IIP
2. **Mr Sudhir Singhal**  
Head PPAD
3. **Dr G C Joshi**  
Head CSD
4. **Mr R P Mehrotra**  
Area Leader (CP&CD)
5. **Dr B S Rawat**  
Area Leader (SP)
6. **Dr A K Gupta**  
Area Leader
7. **Dr B P Pundir**  
Area Leader

#### *Secretary & Convener*

**Dr Himmat Singh**  
Area Leader  
Refining Technology and  
Training Divisions

#### *Invitees*

1. **Dr K S Jauhri**  
Area Leader  
Industrial Liaison
2. **Dr V R Sista**  
Area Coordinator  
Biotechnology and Engineering  
Services Divisions
3. **Dr V K Bhatia**  
Secretary RC
4. **Dr S N Sharma**  
Group Leader  
International Scientific  
Collaboration
5. **Mr V P Sharma**  
Training Division

The first meeting of this Committee was held on August 5, 1993 at the Institute, attended by Professor K Vasudeva, Mr Lovraj Kumar, Mr V Ramachandran, Dr T S



R Prasada Rao, Mr Sudhir Singhal, Dr G C Joshi, Dr B S Rawat, Mr R P Mehrotra, Dr B P Pundir, Dr A K Gupta, Dr Himmat Singh, Dr V K Bhatia, Dr K S Jauhri, Dr S N Sharma and Mr V P Sharma.

Professor Vasudeva, in his opening remarks, stated that normally training programmes are organised by academic institutions, but it is a matter of great pleasure that IIP has taken a lead in this area which has to be strengthened further.

Mr Lovraj Kumar indicated that the existing IIP training programmes have proved to be very effective and there is now need to move on to the **Advance Programmes** so as to cope with the fast technological developments. He emphasised that the faculty for these programmes must be the real authorities in the field in the country and, if need be, some of them may even be from abroad. These programmes should be of international standard, he added.

Mr Ramachandran remarked that experts from operating units should also be invited as faculty members for these programmes.

Dr Prasada Rao expressed his gratitude to Professor Vasudeva for accepting the chairmanship of this Committee. He also thanked Messrs Lovraj Kumar and Ramachandran for making it convenient to attend the meeting.

Dr Himmat Singh, giving a brief of the training activities in the institute, mentioned that a total of about 65 training programmes covering 1625 participants have been conducted so far.

The Committee has recommended that the Institute should organise the following three types of programmes:

(i) For fresh engineers with one-to-three years of experience;

(ii) For middle-level experienced persons with eight-to-ten years of experience, and

(iii) For senior executives/policy makers in the fields of Refining and Petrochemicals Technology, and Utilisation of Fuels & Lubricants in Automotive and Industrial Machines – Advance level.

It was also recommended that IIP should gradually shift over to Advance Programmes of very high

levels on specific topics, faculty for which should be of international repute. An attempt should be made to conduct a one-week international training programme in a middle-east country next year.

The Committee felt the need of having a member from Engineers India Ltd. also, in view of their significant contributions to the training programmes of the Institute. □

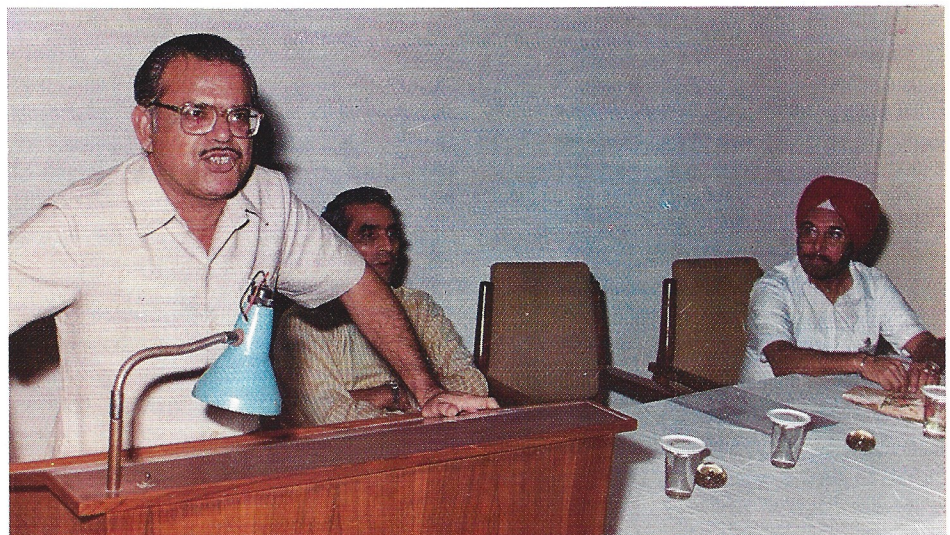
### TRAINING PROGRAMME ON "PETROLEUM REFINING TECHNOLOGY"

This three-week training programme was organised at the Institute from July 19 to August 6, 1993 for eleven chemical engineers – five sponsored by **Bharat Petroleum Corporation Ltd.** and three each by **Bongaigaon Refinery & Petrochemicals Ltd.** and **Cochin Refineries Ltd.**, having 2-7 years of working experience. It consisted of 55 lectures, each of one-and-half hours duration. The faculty was mostly drawn from the Institute – only eleven lectures being delivered by

senior officers of outside organisations – six from **Indian Oil Corporation Ltd.** and five from **Engineers India Ltd.**

The programme was formally inaugurated by **Dr T S R Prasada Rao**, Director, on July 19, with a brief introduction by **Dr Himmat Singh**, Area Leader, Training Division. Dr Prasada Rao emphasised the importance of conducting such training programmes at the Institute as these gave an opportunity to the participants to be away from their work places enabling them to learn the latest technological developments in a conducive environment. **Mr Rajeev Gopalakrishnan**, Manager (Management & Development Services), Cochin Refineries

*contd. on p. 10*



*Professor K Vasudeva delivering the valedictory address.*



# Lubricating Oils Base Stocks

Dr Himmat Singh

## ABOUT THE AUTHOR



**Dr Himmat Singh**  
M Sc, Dip D' Ing, Ph D

Dr Himmat Singh holds M Sc degree in Chemistry from Agra University, Diploma D' Ingenieur in Petroleum Refining & Petrochemicals from ENSPM of Institut Francais du Petrol, France and Ph D degree in Chemistry (lubricants) from Meerut University. He is presently an Area Leader heading the Group on Lube Base Stocks processing, Bitumen and Carbon Materials (Pitches) beside coordinating entire training activities of the Institute. He has long R&D experience in the field of petroleum refining.

He has visited many international petroleum research institutes in Rumania, France, Mexico and Hungary and has been a recipient of French Government fellowship and UNESCO study grant. He was also a member of two Government of India delegations to France and Mexico. He is member of various committees of BIS and other Government departments. Dr Singh has over 70 publications in international and national journals and over 130 technical reports on technological studies completed to his credit.

Lubricants are manufactured by blending oils and additives. The quality of finished lubricants is influenced by the quality of both the starting materials. Base oils used in formulation of lubricants represent a complex mixture of paraffinic, aromatic and naphthenic hydrocarbon molecules ranging in carbon number from 20 to 40+. In addition heteroatoms containing species such as alkyl sulphide, benzo-thiophenes and certain nitrogenous hydrocarbons can also be present in relatively low concentration. A new concept of base oil quality based on understanding of basic chemistry has emerged in the recent past. Lube base stocks manufacturing schemes are therefore being continuously updated/modified to make improved quality base oils.

The manufacture of lubricating oil base stocks (LOBS) consists of the five basic steps namely: (1&2) distillation and deasphalting to prepare feed stocks, (3) solvent extraction or hydrotreating or both to improve Viscosity Index (VI) and remove/convert undesirable constituents, (4) solvent or catalytic dewaxing to remove wax and improve the low temperature properties and (5) clay or hydrogen finishing to improve colour, stability

520,000 metric tonnes. The lube plants at MRL and HPCL are being expanded by 50,000 tonnes/annum each, for the production of bright stock. Both the plants, expected to be operational in 1994, include indigenously developed propane deasphalting technology to begin with followed by N-methyl pyrrolidone (NMP) based solvent technologies of TEXECO and EXXON origin. Subsequent processing steps include solvent dewaxing and hydrofinishing. In addition to the above plants, at least two more lube refineries – one in central India as a part of BPCL refineries and the other on Gujarat coast as a part of Reliance Petroleum – are in advanced stage of planning. Both the new lube refineries are expected to be based on "state-of-the-art" technologies, currently operational in the developed countries.

As the total indigenous LOBS production capacity is inadequate to meet demand, substantial quantities of LOBS (around 0.5 million tonnes) are imported into the country, reportedly from Australia, Singapore, Spain, France, UK, USA, Holland etc. With and quality of base oils.

Crude oils are the primary source

of feed stocks used to manufacture base oils, selection of which is based on factors like yield of the base oil, after the application of different refining steps and their properties, both physical and chemical. Crude oils originating from Middle East, North Sea, USA, Canada, North Africa, Russia and China are processed in various regions of the world to produce base oils of different types and quality.

## Current Scenario

In India LOBS are produced mostly from the imported Middle East crudes at Bombay, Madras and Haldia refineries of HPCL, MRL and IOC. At present, solvent extraction, solvent dewaxing and hydrofinishing operations are used at these refineries. At HPCL refineries Bombay, solvent dewaxing and hydrofinishing sequence has been reversed. The total annual production of base oils in the country at present is around the introduction of liberal economic policies in the country, certain international majors, like, CALTEX, SHELL, ELF, GULF and MOBIL have re-entered the lubricant business in the country, mostly as joint ventures with the Indian companies.



## IIP's Contribution

IIP has made significant contributions in the development of lube refining industry in our country. Starting with the creation of research facilities, replica of industrial sequence, to evaluate crudes for their capability to yield LOBS, the Institute has gone up to process development and specialty lubricants. In fact IIP was deeply involved in the development of design basis of Haldia lube complex by participating in the experimental work carried out in Romania and process design of MRL lube plants by AMOCO in USA.

Over the years, IIP has screened and evaluated nearly 40 crudes both indigenous and imported, for their lube base stock potential and processing behaviour. Large number of such studies have provided technological backup to the operating lube units. One significant example to illustrate the contributions is development of new plant performance guarantees based on Basrah crude oil, instead of light Iranian crude (original crude) which was not available at the time of commissioning of Haldia lube units and eventual take over of units from the process licensors. Other significant achievements in the past have been the establishment of technical feasibility to make turbine oil base stocks, stream cylinder oils, rubber extender oils etc., which have all become commercial realities.

IIP has also carried out extensive studies on the characterisation of base oils of various viscosity and VI levels with changes in degree and type of refining using adsorption chromatography, IR, NMR and Mass Spectroscopy. The data generated have been used in property correlations and establishing inter-relationships between structural parameters and response of additives: VI, pour point depressants and oxidation inhibitors in different series of base oils, some of which have been published in international journals.

Notable recent success achieved is the development of NMP base lube extraction process in collaboration with the R&D centres of Engineers India Ltd. and that of Madras Refineries Ltd. Extensive process development efforts have been translated into the near commercial reality with the acceptance of this process for the change over of phenol extraction unit at Barauni Refinery with the newly developed NMP base process, preparation of process package for which is in the final completion stage.

IIP also looked into the possible application of Hybrid technology combining the use of solvent extraction and mild hydrotreating by way of studies for an operating refinery. Experimental studies have confirmed the techno-economic gains by way of base oil yield and quality benefits. More sponsored studies to further look into this technology are expected to begin in early 1994.

The long experience of the R&D group comprising of highly experienced scientists engaged in these studies at IIP has resulted in 55 technological studies completed and technical reports issued, 35 papers published in Indian and International journals, filing of three patents and award of two Ph D degrees.

### Current and Future R&D Programmes

The current R&D programmes in the field includes process development studies with NMP as solvent,

characterisation of a series of lube base stocks, evaluation of light oil distillate (380 - 460° C) from a Middle East crude for its upgradation into HVI base oil and studies relating to development of additional sources of high BMCI value carbon black feed stock. These programmes are mostly funded by the industry, but at times these are in-house and collaborative with the industry as well.

Future programmes include work on the following new projects:

1. Production of lube base stocks using hybrid process scheme.
2. Feasibility studies for the commercial production of turbine oil base stocks (light and heavy grades).
3. Studies relating to optimisation of furfural extraction unit at an operating refinery.
4. Studies on lube base stocks characterisation and additive response.
5. Development of additional sources of CBFS of higher BMCI value and improvement in the quality of existing feed stocks and,
6. Upgradation of FCC recycle oils through solvent extraction.

An international symposium on "Production and Application of Lube Base Stocks" is also being organised at the Institute in November 1994. □

**SAVE OIL TODAY -  
TOMORROW IT MAY BE TOO LATE**



contd. from p. 7

Ltd. was also present on this occasion.

The valedictory address was given by **Professor K Vasudeva**, Department of Chemical Engineering, Indian Institute of Technology, Delhi, on August 6, who also gave away certificates to the participants. Speaking on this occasion, Professor Vasudeva told that it will be befitting to term such training programmes as 'Upgradation of Skills' to describe these more appropriately. He added that petroleum is a key component in the national economy and every drop of it should be utilised most carefully.

The programme was coordinated by **Mr V P Sharma** with the assistance of Public Relations Group of the Institute. Mr Sharma also proposed vote of thanks on the above two occasions. □

### DISTINGUISHED VISITORS

- **Mr Tilo Feldbaum**, Sales Manager, Inorganic Materials, Condea Chemie, Germany visited IIP on July 2, 1993 to discuss the various applications of alumina precursor hydrate, produced by them for catalyst use, particularly for CCR Reforming Catalyst. □

### COLLOQUIA

- **Dr S Ganapathy**, NCL Pune, CP-MAS-NMR Applications in Zeolite Research, August 10, 1993. □

### HONOURS, AWARDS AND RECOGNITION

- **CSIR Young Scientist Award**

**Mr A K Gondal** received this Award for the year 1993 on September 26, 1993, by the hands of Hon'ble Vice President of CSIR **Mr P R Kumaramangalam**, in the field of Engineering Sciences, for under-



*Mr P R Kumaramangalam giving away the Award to Mr A K Gondal.*

standing of engine component wear and the effects of methanol admixture on the tribological behaviour of IC engines. It carries a cash prize of Rs 10,000, a memento and citation and also a research grant of Rs 2 lakhs per year for five years to work on a project proposed by him.

- **CSIR Shield for Process Technology**

IIP has been nominated for this Award for the year 1993 for development of technology for Food Grade Hexane. The Award comprises a plaque, a citation and a grant for a specific project/equipment in the range of Rs 20-30 lakhs.

- **VASVIK Research Award**

**Messrs P N Bhambi**, H K Madan and **K N Dobhal** have been nominated for this prestigious Award for Mechanical Sciences & Technology for the year 1989, in recognition of their contributions in the development of industrial dual-fuel burners. It carries a cash prize of Rs 25,000, gold medal and citation.

- **Dr V K Bhatia** has been selected member of Executive Committee of Bio-Energy Society of India for two years.

- **Dr T S R Prasada Rao**, Director, has been nominated as member of the Standing Committee for Reclassification/Redesignation of posts in CSIR. **Dr G P Phondke**, Director, PID, New Delhi, is the Chairman of this Committee and other members are **Dr D V Singh**, Director, CRRI, New Delhi and **Dr B K Sarkar**, Director, CGCRI, Calcutta, while **Mr S K Verma**, Sr Dy Secy (PPS), CSIR, is the Convener.

- **Dr Himmat Singh** has been nominated as member of the National Organising Committee of National Conference on Carbon, being organised by the India Carbon Society on February 17-18, 1994 at Bhopal. □

### DEPUTATION ABROAD

- **Dr B S Rawat**, International Symposium on Separation Technology, Belgium, August 22-27, 1993 and presented a paper on Removal of Benzene from Hexane cut by Liquid Phase Adsorption on Activated Carbon.

- **Mr B M Shukla**, 6th International Congress on Tribology - Eurotrib '93, Budapest, Hungary, August 26-September 3, 1993 and presented a paper on Wear Study Under Plasti-



cally Deformed Lubricated Contact Using Scanning Electron Microscope.

- **Mr K K Gandhi**, Seminar-cum-study tour on Use of CNG Technologies and Social Commission for Asia and Pacific (ESCAP), and Federal Republic of Germany, August 30-September 11, 1993.

- **Mr S M Nanoti**, International Solvent Extraction Conference, York, U.K., September 9-15, 1993 and presented a paper on Liquid-liquid Equilibria of Cetane and Sulpholane with C<sub>4</sub> - C<sub>6</sub> and C<sub>8</sub> - Alkylated Naphthalene Isomers, co-authored by A Masohan, K G Sharma, S N Puri, P Gupta and B S Rawat. □

### LECTURES DELIVERED

- **Dr A K Gupta, Mr G N Kulsrestha and Mr K G Mittal**, Alpha Olefins from Coker Distillates, and Hydrostabilisation of Coker Distillates, Bongaigaon Refineries & Petrochemicals Ltd., Bongaigaon, July 6-8, 1993.

- **Dr T S R Prasada Rao**, ICMA Workshop on Technology Plan for the

Chemical Industry in the Era of Liberalisation, Bangalore, July 10, 1993. □

### SEMINARS/CONFERENCES ATTENDED

- **Dr K S Jauhri**, Seminar on Oil Policy, Institute of Sciences, University of Pune, Pune, August 26-27, 1993 and presented a paper on Petroleum Refining Industry and Indigenous R&D.

- **Mr H K Madan**, Seminar on Energy Efficiency Improvement, Punjab Agricultural University, Ludhiana, organised by PHD Chamber of Commerce and Industry, August 27, 1993, and presented his work on Development of Film Burner Utilising Fuel Oil and NG/Dual Fuel Operation.

- **Dr T S R Prasada Rao, Mr R P Mehrotra, Dr B S Rawat and Dr Himmat Singh**, Workshop on FCCU, sponsored by Grace Company Ltd., Cochin Refineries Ltd., Cochin, September 2-3, 1993. □

### TRAINING PROGRAMMES ATTENDED

- **Dr K S Jauhri and Dr S N Sharma**, Personality Plus entitled Enhancing the Executive Image, The Taj Man Singh, New Delhi, conducted by Ms Renu Mattoo, Corporate Arms, Jamshedpur. June 30 - July 1, 1993.

- **Messrs K S Rawat and J S Karir**, Catalytic Reformer, Madras Refineries Ltd., Madras. August 22, 1993 (two weeks).

- **Mr Hanumant Lal**, COA, Management Development, Indian Institute of Public Administration, New Delhi. September 6 - 25, 1993.

- **Mr K A Qurieshi**, SSPO, Legal Dimensions of Administrative Decisions, Indian Institute of Public Administration, New Delhi. September 13 - 25, 1993.

- **Dr V K Bhatia**, Management of R&D Systems, Administrative Staff College of India, Hyderabad. September 13 - 18, 1993. □

## IIP - INDUSTRY MEET AT MADRAS

APRIL 19, 1994

In the present context of liberalised economic policies of Government of India and to meet the challenges faced by the industry, an urgent need for an effective R&D - Industry interaction is felt. IIP had, therefore, proposed to organise IIP - Industry Meets in Metropolises and other important industrial centres in the country. The first Meet organised at Bombay in November 1992 was very successful.

The Second One-day Meet is being organised at Hotel Chola Sheraton at Madras on April 19, 1994 to expose Institute's capabilities and achievements to the user-industry.

For further information, contact: **Dr K S Jauhri**, Area Leader, Industrial Liaison, IIP, Dehradun - 248 005



## हिन्दी सप्ताह समारोह

हिन्दी को राजभाषा बनाए जाने की 44वीं वर्षगांठ पर संस्थान में सितम्बर 14 से 17, 1993 की अवधि में अनेक कार्यक्रमों का आयोजन किया गया जिनका संक्षिप्त विवरण आगे दिया जा रहा है। श्री सुधीर सिंघल, उप-निदेशक, ने इस समारोह का उद्घाटन सितम्बर 14 को अपराह्न 2:30 बजे किया, जिसमें उन्होंने हिन्दी का सरल उपयोग करने पर बल दिया ताकि आम व्यक्ति को इसे समझने में कठिनाई न हो।



श्री सुधीर सिंघल, उप-निदेशक (वैज्ञानिक 'जी'), हिन्दी-दिवस समारोह का उद्घाटन करते हुए। बायें हैं डॉ कृष्ण स्वरूप जोहरी और दायें डॉ गिरीश चन्द्र मिश्र।

मुख्य आकर्षण था - केन्द्रीय हिन्दी निदेशालय, नई दिल्ली, के निदेशक, डॉ गंगा प्रसाद विमल का सितम्बर 16 को एक सारगर्भित व अति रोचक भाषण, जिसमें उन्होंने संस्थान के कर्मचारियों को हिन्दी में कार्यक्रम करने के लिए प्रोत्साहित करते हुए कहा कि यदि किसी भी भाषा को देवनागरी लिपि में लिखा जाए तो वह हिन्दी ही कहलाएगी। अपने देश-विदेश भ्रमण के अन्तर्गत हुए अनुभवों के आधार पर उन्होंने उदाहरण देकर बताया कि किस प्रकार अनेक भारतीय व विदेशों की भाषाओं के शब्द हिन्दी में प्रयोग होते हैं।



डॉ गंगा प्रसाद विमल भाषण देते हुए।

### ■ निबंध लेखन प्रतियोगिता (सितम्बर 8)

संयोजक: डॉ हिम्मत सिंह

निर्णायक: श्री देवी प्रसाद ममगाई, केन्द्रीय विद्यालय, हिन्दी विभाग (आयुध निर्माणी) और डॉ (सुश्री) त्रिपाठी, हिन्दी विभागाध्यक्ष, एम के पी (पी जी) कॉलेज

विजेता: हिन्दी भाषी वर्ग श्री मनमोहन कुमार (प्रथम) श्री योगेन्द्र कुमार शर्मा (द्वितीय) अहिन्दी भाषी वर्ग श्री अनिल केशव आयगल (प्रथम) डॉ दिलीप कुमार अधिकारी (द्वितीय)

### ■ प्रश्न मंच प्रतियोगिता (सितम्बर 14)

संयोजक: श्री रंजीत कुमार बनर्जी, डॉ आशा मसोहन, श्री नरेन्द्र नारायण कुलश्रेष्ठ और श्री दिनेश कुमार

विजेता: सर्वश्री वीरेन्द्र सिंह सैनी, गजेन्द्र मोहन बहुगुणा और कैलाश चन्द्र पालीवाल (प्रथम) डॉ श्रीनाथ शर्मा, सर्वश्री जसविंदर सिंह और ओम प्रकाश धाम (द्वितीय)

### ■ वाद-विवाद प्रतियोगिता (सितम्बर 15)

विषय: "पर्यावरण विकास का पर्याय है"

संचालक: डॉ श्रीनाथ शर्मा

निर्णायक: डॉ श्रीराम वर्मा व डॉ चन्द्र शेखर जोशी, डी बी एस कॉलेज

विजेता: श्री गजेन्द्र मोहन बहुगुणा (प्रथम) श्री दिनेश कुमार (द्वितीय)

### ■ स्व-रचित कविता पाठ (सितम्बर 16)

संचालक: डॉ श्रीनाथ शर्मा

विजेता: श्री वीरेन्द्र सिंह सैनी (प्रथम) श्री त्रिलोक नारायण सिंह (द्वितीय)

महिला वर्ग: सुश्री गीता क्षेत्री

### ■ नाटक: "जिस लाहौर नई देख्या ओ जन्मया नई" (सितम्बर 16)

लेखक: श्री असगर वज़ाहत

निर्देशक: श्री गजेन्द्र वर्मा

संचालक: श्री सहदेव सिंह नेगी

### ■ समापन समारोह व पुरस्कार वितरण (सितम्बर 17)

विशेष व्याख्यान: श्री इन्द्र राज शर्मा, राष्ट्रपति द्वारा सम्मानित स्थानीय लेखक

पुरस्कार वितरण: श्रीमती प्रसाद राव

धन्यवाद प्रस्ताव: डॉ गिरीश चन्द्र मिश्र



उक्त सभी कार्यक्रमों का संचालन डॉ टी एस आर प्रसाद राव के सहयोग व मार्ग-दर्शन द्वारा डॉ कृष्ण स्वरूप जौहरी के नेतृत्व में अत्यधिक सफलतापूर्वक किया गया।

### स्वतंत्रता-दिवस समारोह

देश का सैतालीसवां स्वतंत्रता दिवस, हर वर्ष की भांति इस बार भी संस्थान ने बड़ी सौम्यता व सुरुचि से मनाया। परम्परा के अनुसार डॉ टी एस आर प्रसाद राव, निदेशक, ने झण्डारोहण किया, भा पे सं कॉलोनी स्कूल के बच्चों ने राष्ट्र-गीत गाया और कई सांस्कृतिक कार्यक्रम प्रस्तुत किए, सुरक्षा कर्मियों ने मार्च पास्ट किया और सेना के बैंड ने मनोहारी प्रदर्शन दिया।

इस अवसर पर बोलते हुए, डॉ प्रसाद राव ने उप-राष्ट्रपति श्री के आर नारायणन और प्रधान मंत्री श्री पी वी नरसिम्हा राव के संदेशों — क्रमशः "देश की एकता, अखण्डता और आजादी की रक्षा के काम को हमें सर्वोच्च प्राथमिकता देनी चाहिए। छोटी-छोटी बातों में उलझकर अगर हमने इस काम की उपेक्षा कर दी, तो यह बहुत ही दुर्भाग्यपूर्ण होगा" और "देश की प्रगति के लिए हमें बलिदान और आत्मानुशासन के उसी स्तर पर पहुँचना होगा जिससे हमने आजादी हासिल की थी" — की ओर ध्यान दिलाया और जोर दिया कि हम सबको इनका पालन करना चाहिए।

"आज के दिन हमारे वैज्ञानिकों के लिए विशेष रूप से एक बहुत ही महत्वपूर्ण समाचार यह है कि आज से ही हमारे देश का "इन्सैट-2बी" उपग्रह काम करना शुरू कर रहा है। यह हमारे अंतरिक्ष वैज्ञानिकों की बहुत बड़ी उपलब्धि है। इसी प्रकार की उपलब्धियाँ हमारे स्वतंत्रता दिवस को सार्थक बनाती हैं। वरना, ऐसे मील के पत्थरों के बिना जनता-जनार्दन के लिए स्वतंत्रता दिवस को मनाना एक कोरी औपचारिकता भर है। ऐसे ही उदाहरणों से जनता हमारे प्रयत्नों के प्रति विश्वास रख सकेगी। आइए, हम अंतरिक्ष के क्षेत्र में लगे अपने साथी वैज्ञानिकों को इस उपलब्धि के लिए बधाई दें", उन्होंने कहा।



भा पे सं स्कूल के बच्चे और अध्यापिकाएँ जिन्होंने कई रोचक कार्यक्रम प्रस्तुत किए।

इस अवसर पर निदेशक महोदय ने संस्थान की पिछले वर्ष की गतिविधियों और उपलब्धियों के बारे में भी विस्तार से बताया।

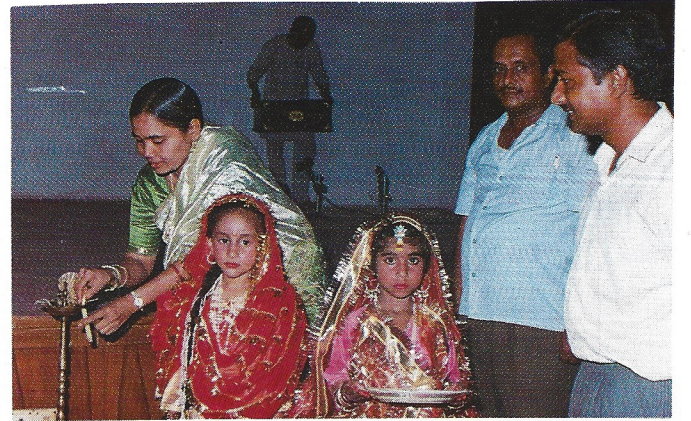
### सांस्कृतिक/सामाजिक/खेलकूद गतिविधियाँ

■ अगस्त 12, 1993 को भा पे सं स्टाफ क्लब की वार्षिक आम सभा हुई, जिसकी अध्यक्षता संस्थान के निदेशक, डॉ टी एस आर प्रसाद राव, ने की, और मुख्य अतिथि श्रीमती प्रसाद राव थीं।

क्लब के सचिव, श्री बिलोचन सिंह रावत ने वार्षिक प्रतिवेदन एवं आय-व्यय का ब्यौरा आम सभा के सम्मुख प्रस्तुत किया, जिसमें सांस्कृतिक कार्यक्रमों के साथ खेलों का विवरण तथा क्लब द्वारा आयोजित सैर-सपाटों की जानकारी दी गई।

निदेशक महोदय ने क्लब को संस्थान के निर्माण और उसकी उन्नति के लिए आवश्यक बताते हुए क्लब की कार्यकारिणी द्वारा किए गए कार्यों की प्रशंसा की और नवनिर्वाचित समिति से आशा व्यक्त की कि वह संस्थान के सदस्यों को मनोरंजक कार्यक्रम देती रहेगी।

■ अगस्त 13, 1993 को भा पे सं स्टाफ क्लब की नई कार्यकारिणी के सदस्यों अर्थात् सर्वश्री जनार्दन शर्मा, उपप्रधान, ओम प्रकाश धाम, सचिव, रवीन्द्र कुमार बन्सल, कोषाध्यक्ष, आर एन शर्मा, सांस्कृतिक कार्यक्रम-सचिव एवं राजकुमार द्वारा एक रंगारंग कार्यक्रम का आयोजन किया गया जिसका उद्घाटन मुख्य अतिथि श्रीमती प्रसाद राव द्वारा दीप प्रज्वलित कर किया गया। इस कार्यक्रम में संस्थान के बच्चों — हरप्रीत कौर, कंवलजीत कौर, मोनिका, रजनी धाम, रागिनी, राजन व अन्य — ने गड़वाली, पंजाबी, हिन्दी, कथकली, बंगला नृत्यों एवं गीतों को प्रस्तुत किया।



श्रीमती प्रसाद राव द्वारा कार्यक्रम का उद्घाटन। दायें से हैं श्री रवीन्द्र कुमार बन्सल और श्री जनार्दन शर्मा।

संस्थान के निदेशक, डॉ टी एस आर प्रसाद राव ने, अति व्यस्त होते हुए भी कार्यक्रम को देखा एवं सराहा। मंच संचालन श्री चंद्रराज श्रीवास्तव ने किया।



■ 26वां शान्ति स्वरूप भटनागर मेमोरियल टूर्नामेंट (इनडोर), नई दिल्ली के केन्द्रीय सड़क अनुसंधान संस्थान में सितम्बर 24-26, 1993 के मध्य आयोजित किया गया। इस टूर्नामेंट में सी एस आई आर के 11 संस्थानों ने भाग लिया जिसमें ब्रिज, शतरंज, बैडमिंटन व कैरम की प्रतियोगिताएँ हुईं। संस्थान के 15 प्रतियोगियों ने इसमें भाग लिया। बैडमिंटन (महिला एकल) में डॉ (सुश्री) आशा मसोहन तथा बैडमिंटन (पुरुष युगल) में सर्वश्री स्टैन्ली पोर्शन और चन्द्र राज श्रीवास्तव फाइनल में पहुँचे। फाइनल प्रतियोगिताएं नवंबर 1993 में लखनऊ में आयोजित की जाएंगी।

श्रीमती प्रसाद राव ने पारितोषिक वितरण किया। सर्वप्रथम कुमारी प्रतीका पंवार तथा श्री महेन्द्र सिंह नेगी, जो कि कक्षा 5 व 8 में प्रथम आए थे, को पारितोषिक दिया गया। तदुपरान्त भा पे सं स्थापना दिवस के अवसर पर आयोजित सांस्कृतिक कार्यक्रमों के 45 बाल कलाकारों को, डिजीवनल टूर्नामेंट के 202 प्रतियोगियों, 22 सहयोगियों और 10 संयोजकों को तथा क्लब के सदस्यों को स्मृति-चिह्न देकर समारोह का समापन हुआ।

### भा पे सं में विश्वकर्मा पूजा

"भुवनो नाम आप्त्य पुत्र इति। एवं च भुवन पुत्रत्वेन  
विश्वकर्मणः अंगिरवंशजत्व ऋषि गोत्र त्वंच।"

देवी देवताओं के लिए अनेक नगरों व भवनों, विवाह मंडपों, विभिन्न मंदिरों की रचना करने वाले, सहस्रों प्रकार के आयुधों एवं वाद्ययंत्रों की रचना करने वाले, अद्भुत आद्य शिल्पी, महान् वैज्ञानिक, शिल्प-विज्ञान के विशाल साहित्य-कोष के रचयिता, आदि शिल्पाचार्य, ब्रह्मर्षि अंगिरा की वंश-परंपरा के भुवन-पुत्र विश्वकर्मा की निर्वाण-तिथि विश्वकर्मा-जंयती के रूप में मनाने की परंपरा में भारतीय पेट्रोलियम



डॉ टी एस आर प्रसाद राव व डॉ वेंकट राव सिस्टा विश्वकर्मा-पूजा करते हुए।

संस्थान, देहरादून में भी विश्वकर्मा-पूजा सितम्बर 17, 1993, को मंत्र-घोष और हवन के साथ हुई जिसमें निदेशक डॉ टी एस आर प्रसाद राव एवं डॉ वेंकट राव सिस्टा, क्षेत्र-समन्वयक, इंजीनियरी सेवा क्षेत्र के सहित सभी कर्मचारी उपस्थित थे।

### सम्पूर्ण साक्षरता अभियान

देहरादून में संपूर्ण साक्षरता अभियान में लगे मूल संसाधन व्यक्तियों की एक द्वि-दिवसीय पुनरभिव्यन्धास कार्यशाला का आयोजन भारत ज्ञान-विज्ञान समिति द्वारा भा पे सं के सहयोग से 17 व 18 अगस्त, 1993 को भा पे सं में किया गया था।

इस कार्यशाला का उद्घाटन डॉ टी एस आर प्रसाद राव, निदेशक, भा पे सं, द्वारा किया गया। मुख्य अतिथि श्रीमती वीणा मांगलिक (संरक्षक, तेल एवं प्राकृतिक गैस आयोग महिला सामाजिक व कल्याणकारी परिषद्) एवं श्री शिशिर प्रियदर्शी, जिलाधिकारी एवं अध्यक्ष, भा ज्ञा वि स और श्री पी आर चवाक, कार्यकारी अध्यक्ष, भा ज्ञा वि स, ने इस अवसर पर प्रतिभागियों को संबोधित किया था।



श्रीमती वीणा मांगलिक संबोधित करते हुए। दाएं से बैठे हैं श्री पी आर चवाक, श्री शिशिर प्रियदर्शी, डॉ टी एस आर प्रसाद राव और श्री निर्माल्य राव।

श्रीमती प्रसाद राव के नेतृत्व में दिनांक सितम्बर 6, 1993 को भारतीय पेट्रोलियम संस्थान समाज कल्याण समिति की ओर से सम्पूर्ण साक्षरता अभियान का शुभारम्भ किया गया। कार्यक्रम का उद्घाटन कु. ललित प्रभा जोशी, जिला प्रौढ़ शिक्षा अधिकारी ने किया। कार्यक्रम की संयोजिका श्रीमती मंजु श्रीवास्तव के संयोजन में एक सांस्कृतिक कार्यक्रम का संचालन भी किया गया। बच्चों द्वारा ये गीत — "हमको मन की शक्ति देना माँ" तथा "यह वक्त न ठहरा है" — प्रस्तुत किए गए। निरक्षरों को प्रेरित करने के लिए एक लघु नाटक का मंचन भी किया गया। इस नाटक में बताया गया कि अनपढ़ों को कैसे ठगा जाता है। अनपढ़ होने की वजह से एक पात्र गलत दवा पी लेता है, पत्र पढ़वाने के लिए दर-दर





कु. ललित प्रभा जोशी द्वारा अभियान का उद्घाटन। उनके पीछे हैं श्रीमती प्रसाद राव। डॉ. टी. एस. आर. प्रसाद राव दायें हैं।

भटकना पड़ता है। निरक्षर व्यक्ति के साक्षर हो जाने पर उसकी जिन्दगी का अँधेरा छूट जाता है। सांस्कृतिक कार्यक्रम कु. तनु श्रीवास्तव, कु. ज्योत्सना जयरामन, कु. ऋतु सैनी, कु. प्रियंका डोगरा व मास्टर दिलीप मैथ्यू द्वारा प्रस्तुत किया गया।

इस अवसर पर कु. जोशी ने अपने उद्गार व्यक्त करते हुए कहा कि पढ़ी-लिखी जनता को आगे आना चाहिए। उन्होंने बताया कि योजनाओं की विफलता का कारण निरक्षर होना है। योजनाओं का उनको पता नहीं होता, लाभ उन तक नहीं पहुँच पाते। उनकी सहभागिता भी शून्य रहती है। साक्षर महिलाएँ शोषण के विरुद्ध एकजुट हो सकती हैं। उन्होंने निरक्षरों को पढ़ाने की नई पद्धति के बारे में बताया। इस कार्यक्रम के पश्चात् संस्थान में निरक्षरों की संस्था का प्रारम्भ हो गया है। संस्थान की जागरूक महिलाओं ने इस अभियान में संचालन का उत्तरदायित्व संभाला है।

अति व्यस्तता के बावजूद डॉ. टी. एस. आर. प्रसाद राव, निदेशक, ने इस अवसर पर उपस्थित होकर आयोजकों का मनोबल बढ़ाया। भारत ज्ञान-विज्ञान समिति के सचिव श्री निर्माल्य राय (भा. पे. सं.), श्री गजेन्द्र वर्मा व श्री के. एस. बिष्ट भी मौजूद थे।

## कार्मिक समाचार

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सुश्री शकुन्तला देवी, हैल्पर "ए", अगस्त 20, 1993  
श्री संजीव जौहरी, वैज्ञानिक "सी", सितम्बर 20, 1993

### ○ पदोन्नति पर बधाई

ग्रुप IV ग्रेड 3 से ग्रुप IV ग्रेड 4

श्री एस. के. जैन, दिसंबर 22, 1988

डॉ. इन्द्र देव सिंह, फरवरी 1, 1989

ग्रुप IV ग्रेड 2 से ग्रुप IV ग्रेड 3

श्री दीवान चन्द्र ढल, दिसंबर 4, 1988

ग्रुप IV ग्रेड 1 से ग्रुप IV ग्रेड 2

श्री दीपक टंडन, फरवरी 1, 1989

### ○ सेवा-निवृत्ति पर भावभीनी विदाई

डॉ. गिरीश चन्द्र जोशी: एम. एस. सी, पी. एच. डी (कार्बनिक रसायन), यूनिवर्सिटी ऑफ वेस्टर्न ओण्टारियो, कनाडा; वैज्ञानिक "एफ"

क्षेत्र समन्वयक, रासायनिक विज्ञान प्रभाग, के पद से जुलाई 31, 1993 को सेवानिवृत्त हुए। आपने मार्च 1975 में वैज्ञानिक "ई-1" के पद पर संस्थान के पेट्रोरसायन प्रभाग में कार्यभार ग्रहण किया था। एवम् अप्रैल 1981 में वैज्ञानिक "ई-2" और फरवरी 1985 में वैज्ञानिक "एफ" के पद पर पदोन्नत हुए। आपका विशिष्ट एवम् सूक्ष्म रसायनों के संश्लेषण, रसायनों के स्वरूप एवं गुणों से संबंधित अध्ययनों में विशेष योगदान रहा। संप्रति: अगस्त 2, 1993 से विशिष्ट वैज्ञानिक के पद पर कार्यरत। शोध विषय: समभाव उत्प्रेरकों का हाइड्रोकार्बन रुपान्तरण में प्रयोग। (कृपया पृष्ठ 3 भी देखें)



डॉ. टी. एस. आर. प्रसाद राव से डॉ. गिरीश चन्द्र जोशी स्मृति-चिन्ह प्राप्त करते हुए।

श्री त्रिभुवन चन्द्र जोशी, तकनीकी अधिकारी "ई-1", जुलाई 31, 1993

सुश्री निर्मल कुमारी गुप्ता, वरिष्ठ प्रलेख सहायक, जुलाई 31, 1993

श्री राम किशन, तकनीशियन ग्रेड III, जुलाई 31, 1993

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श्री राम आसरे, तकनीशियन, अगस्त 31, 1993

### ○ स्थानान्तरण पर शुभकामनाएं

श्री मोहम्मद अली, हैल्पर ग्रेड I, क्षेत्रीय अनुसंधान प्रयोगशाला, श्रीनगर शाखा, जून 14, 1993

## असामयिक निधन पर हार्दिक शोक

श्री ठाकुर प्रसाद, तकनीशियन ग्रेड-III, अगस्त 9, 1993



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