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IIP

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NEWSLETTER

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

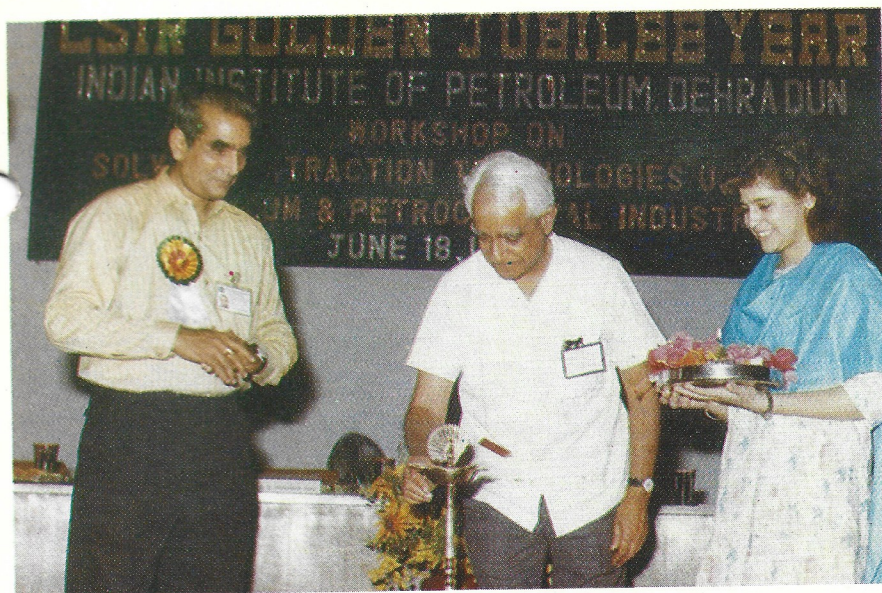
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## Workshop on Solvent Extraction Technologies used in Petroleum Refining and Petrochemical Industries

June 18-19, 1992



Mr L Kumar inaugurating the Workshop.  
On left is Dr T S R Prasada Rao.

On the occasion of the Golden Jubilee Year of the Council of Scientific and Industrial Research, the Indian Institute of Petroleum held a two-day Workshop on Solvent Extraction Technologies used in Petroleum Refining and Petrochemical Industries on June 18-19, 1992. For the first time, users of various technologies

developed by IIP as well as their prospective users in the industry had an opportunity for a direct interaction with each other.

Over 100 experts and technologists drawn from refineries, petrochemical companies, R&D institutes,



universities, IITs and industry participated in it. The Workshop gave an opportunity to R&D organisations for highlighting their capabilities and generating confidence in industry to exploit them.

The solvent extraction technologies developed and commercialised by IIP and Engineers India Limited are in operation in Indian refineries which are producing pure benzene, toluene and food grade hexane. The financial gain to the country in commercialising these technologies is estimated to be over Rs 200 crores in terms of product cost in forex.

**Mr Lovraj Kumar**, Chairman, Scientific Advisory Committee, Ministry of Petroleum and Natural Gas, inaugurating the Workshop stressed the need for accelerating research on solvent extraction technologies used in petroleum refining and petrochemical industries so that the foreign exchange saved by commercialising these technologies could be considerably increased. While underlining the need for advanced research in solvent extraction technologies, Mr Kumar said that the country has a vast scope for development in this area and a genuine effort was needed to explore them.

**Dr P K Mukhopadhyay**, Director, Indian Oil Corporation R&D Centre, delivering the keynote address, said that the technology development cannot be an activity of a particular group of people without participation of all those who are directly or indirectly benefited by it. He said that the solvent extraction was an area in which India has consolidated its position and now the need was to update these technologies.

**Dr T S R Prasada Rao**, Director, IIP, welcoming Mr Kumar, Dr Mukhopadhyay and the delegates said that the development of basic knowledge for extraction of aromatics by solvents for production of pure benzene and toluene was taken up in the Institute at a time when there were only two operating units in the country (Gujarat Refinery and NOCIL) with a limited production of about 45,000 TPA of benzene and a third unit at Baroda was under the planning stage. All these units were based on imported technologies. The first commercial unit with the indigenous technology called "IIP-EIL Aromatic Extraction Process" went on stream at BPCL, Bombay, in 1985. The second plant based on this technology was set up in Cochin. These two units have the capacity of producing 98,000 TPA of benzene and 20,000 TPA of toluene each. This technology, Dr Prasada Rao said, is the largest indigenous technology in India developed in the petroleum sector. Dr Prasada Rao further said that the Institute has also developed extraction technology with EIL for the production of food grade hexane used as a solvent in a wide range of industries which has been commercialised at BPCL, Bombay and MRL, Madras. Each of these units is producing about 25,000 TPA of hexane. He also informed that IIP has developed a process for the manufacture of sulpholane too and it is now being commercialised by a Gujarat based company. Dr Prasada Rao remarked that this step is considered by some leading process licensors from abroad as a big leap towards the opportunities of exports of these extraction technologies since India has the capability of not only process technology but also the capacity to supply the solvents.



*Dr T S R Prasada Rao welcoming Mr L Kumar. Seated from right to left are Dr P K Mukhopadhyay, Mr L Kumar and Dr B S Rawat.*

Dr B S Rawat, Organising Secretary of the Workshop and Head, Separation Process Division, proposing a vote of thanks, expressed gratitude to Professor M M Sharma, Director, Department of Chemical Technology, University of Bombay, Bombay, Mr Lovraj Kumar and Dr Mukhopadhyay for their valuable contributions in the indigenisation of extraction technologies. He also thanked BPCL and CRL managements for accepting the technology.

The Workshop was divided in four technical sessions in which representatives from various industries like Indian Petrochemicals Corporation Ltd., Cochin Refineries Ltd., Bharat Petroleum Corporation

Ltd., Bombay and New Delhi, and Indian Oil Corporation Ltd. took part.

In addition to the operating experiences of the user refineries, papers were also presented on newer technologies like production of ATF, food grade hexane using N-methyl pyrrolidone (NMP) and lube refining with NMP.

At the end of the sessions, panel discussion was held in which the operating problems faced by various refineries were discussed and their solutions were suggested. ■

## NINTH RESEARCH COUNCIL MEETING

The ninth meeting of the Research Council (RC) of the Institute was held on May 7, 1992. It was attended by Mr Lovraj Kumar, Chairman, RC, Mr K N Venkatasubramanian, Chairman, Indian Oil Corporation, Professor K Vasudeva, Indian Institute of Technology, New Delhi, Mr V Raghuraman, Deputy Director General, National Productivity Council and Professor D V Singh, Director, Central Road Research Institute. Mr S L Khosla, Chairman, Oil & Natural Gas Commission, Mr T

Krishnamurthy, Executive Director, Centre for High Technology, Dr D N Rihani, General Manager (R&D), Engineers India limited, Mrs Lalitha B Singh, Adviser (PC), Department of Chemicals & Petrochemicals and Mr M B Lal, Adviser (R), Ministry of Petroleum & Natural Gas could not attend. Dr P K Mukhopadhyay, Director, Indian Oil Corporation, R&D Centre, attended the meeting as an invitee.

Dr T S R Prasada Rao, Director, IIP gave a brief account of the highlights, achievements and some major events of the Institute during 1991-92. The members suggested that IIP should organise advanced level courses on selected topics of

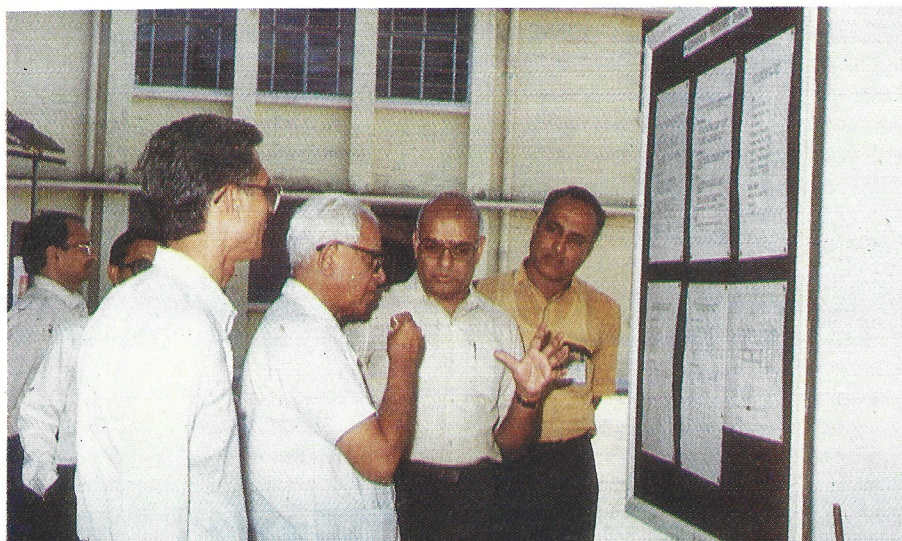
interest for the industry. The courses, with a duration of at least ten working days, should cover theory as well as case studies. Those who attend such courses may be required to come every 3-4 years for updating the information in that area. All refining companies should support this activity. CHT should also be associated.

Continuing his presentation, the Director explained that for systematic accountability among scientific staff, Research Projects - Annual Action Plan for the year 1992-93 has been prepared for the first time in IIP. The project profiles, with quarterly milestones, will be strictly followed. Any activity sponsored by the industry during the year will replace the in-house project profile in that area. The annual action plan was very much appreciated by all the members. They also gave some suggestions for its improvement.

Dr Prasada Rao also gave a brief account of the project proposals which have been submitted to various refineries, industries and other organisations for sponsorship. He also listed the proposals which have been sponsored in the last financial year. It was pointed out by the members that in view of the large number of proposals submitted to the industry for sponsorship, it has become necessary for IIP to have a marketing network for pursuing these projects.



Mr L Kumar, Chairman, RC, conducting the meeting.



*Mr L Kumar taking a round of poster presentations.*

thrust area, IIP should focus on studies on adsorptive separation also along with others.

Dr T S R Prasada Rao, Director, IIP readily agreed to the proposal and informed that the Institute has already submitted a project proposal on Pressure Swing Adsorption (PSA) in golden jubilee scheme of CSIR. Professor Sharma informed that refineries having reformer and hydrocracker units will be potential users for PSA technology for H<sub>2</sub> recovery from different streams.

The work of chemical sciences TAB was appreciated by Dr Josh DGCSIR for identifying the thrust areas and coordination between research laboratories and industry.

This was followed by oral presentations on modelling of catalytic reformer, hydrostabilisation of cracked distillates and use of compressed natural gas in transport

vehicles as well as poster presentations on some of the ongoing projects. The members highly appreciated the presentations and gave useful suggestions.

### USAGE OF CNG IN AUTOMOBILES

In its continued effort to solve the oil crisis, Indian Institute of Petroleum has started a massive programme to use the surplus natural gas, which is being flared at present, in the transport sector.

A pilot project on the use of compressed natural gas (CNG) automobiles in Cauvery Basin at Nagapattinam is underway under the technical management of IIP, Madras Refineries Limited and operation by Cholan Roadways Corporation (CRC). IIP provides help on selection of vehicles and engines, selection and evaluation of CNG conversion kit, design of engine dynamometer and vehicle/fleet trials, design of data collection and analysis formats for the same and conduct controlled trials for diesel replacement, driveability and smoke emissions etc. The trials consist of converting 10 buses of Cholan Roadways Corporation for dual-fuel operation with CNG.

A CNG-diesel bus, first in the

### TECHNOLOGY ADVISORY BOARD MEETING

TAB meeting of chemical sciences group of CSIR, on adsorptive separation processes was held at IIP on May 8, 1992. The meeting was chaired by Professor R Kumar, Chemical Engineering Department, Indian Institute of Science, Bangalore. Amongst other distinguished members Dr S K Joshi, Director General, Council of Scientific and Industrial Research, Mr Lovraj Kumar, Chairman, Scientific Advisory Committee, Ministry of Petroleum & Natural Gas, Professor M M Sharma, Director, Department of Chemical Technology, University of Bombay, Bombay and Dr P K Mukhopadhyay, Director, Indian Oil Corporation R&D Centre, also attended the meeting.

In his inaugural address, Pro-

fessor Kumar stressed the importance of adsorptive separations and their diversified applications in the industry. Dr Mukhopadhyay gave a detailed presentation on the various applications of adsorptive separations in the Indian context. Presentations on various on-going adsorption projects in different labs were made by concerned scientists of IIP; National Chemical Laboratory, Pune; Central Salt & Marine Chemicals Research Institute, Karaikudi; and Central Leather Research Institute, Madras.

Professor Sharma appreciated IIP's work for the production of petrochemical grade hexane from food grade hexane cut (containing about 1% benzene) using adsorptive separation and recommended that hexane containing 3-4% benzene should also be tried.

The chairman proposed that since development of separation processes at IIP has been a major



Members of the Project Team with the bus.

series of 10 buses of Cholan Roadways Corporation, converted for dual-fuel operation on CNG-diesel, arrived at the Institute from CRC, Kumbakonam for performance test on chassis dynamometer.

The tests carried out were

aimed at obtaining a comparative performance of the bus on diesel and gas-diesel modes of operation under full load (WOT) and road load (RL) conditions. These were carried out with the assistance and in the presence of MRL, CRC and TEL engineers and staff. ■

### TECHNOLOGY TRANSFER FOR SMALL-SCALE INDUSTRY

Agreements have been signed for the following:

- *Hurricane Lantern*
  - Amika Screen Works, Ujjain (April 23, 1992)
  - Pioneer Manufacturing (India) Pvt Ltd, Guwahati (May, 11, 1992)
- *Nutan Wick Stove (Large)*
  - Amika Screen Works, Ujjain (April 23, 1992) ■

### TECHNICAL SERVICES

- **Solvent Dewaxing Unit Test Runs at Haldia Refinery**

M/s U C Agarwal and G S Dang, April 22-27, 1992. ■

- **Regeneration of Naphtha Pretreater Unit Catalyst at IPCL**

M/s J R Rai and R K Agarwal, June 13-26, 1992. ■

### NEW FACILITY COMMISSIONED

To improve the communication system in the Institute, a latest available electronic digital and fully non-blocking EPABX was recently installed and commissioned.

The Director General of Council of Scientific and Industrial Research (CSIR), Dr S K Joshi, inaugurated this EPABX on May 8, 1992. The Director, IIP, Dr T S R Prasada Rao and other officials of IIP were also present on the occasion. ■

## USE OF ALCOHOLS IN TRANSPORT VEHICLES

Indian Institute of Petroleum, Dehradun, in its effort to solve the oil crisis, started in-depth programme on use of alternative fuels particularly alcohols, both methanol and ethanol, in the transport sector since 1980. IIP has concentrated its studies to diesel and two-stroke powered vehicles due to the unique Indian petroleum products consumption pattern, where diesel-to-gasoline ratio is 6 compared to 0.51 in USA and 1.44 even in China and two-wheelers consuming almost 65 percent of the gasoline in the country.

It is proposed to use alcohols in diesel buses as a supplementary fuel replacing diesel by 15-20 percent with the option to switch back to normal diesel operation. A retrofit kit for conversion to alcohol and on board alcohol storage tanks are the two main requirements for use of alcohols in transport vehicles.

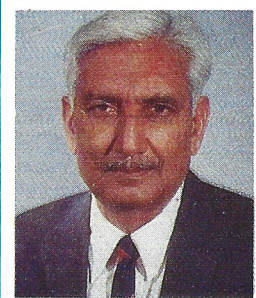
The commercialisation of the IIP technology by Gujarat Auto Projects and Services, Vadodara is a step towards the utilisation of alcohol in the country particularly by the State transport undertakings.

The Institute is also undertaking studies on use of alcohols as a blend with gasoline in cars, scooters, motorcycles, mopeds etc. with the option to switch back to normal gasoline operation till a large infrastructure for the distribution of alcohol-gasoline blends like gasoline through petrol pumps is created.

# Industrial Combustion Studies at Indian Institute of Petroleum

P N Bhambi

## ABOUT THE AUTHOR



**P N Bhambi**

BA, B Sc Engg (Mech), PG (Dip)

After working for two years at RDSO (Ministry of Railways) at Lucknow, he joined the Institute in 1962. At IIP he has served as Project Engineer, Combustion Engineer and Head of Petroleum Products Application Division. Presently, he is heading Industrial & Domestic Combustion Division and Engineering Services Division. In addition to 75 internal reports, he has 40 publications and 18 patents out of which 8 are commercialised. He is Chairman of BIS Sectional Committee on LPG Appliances & Kerosene Appliances and Convenor of BIS Furnace Oil Sub Committee. He is also fellow BIS. He, along with his team, received NRDC award for best invention for IIP Film Burner in 1985.

IIP was established in 1960 with petroleum refining, petroleum products application and project engineering as its major R&D activities. As the large population of India was using kerosene as domestic fuel, R&D in the area of Applied Combustion was started right in the beginning when the Institute was functioning in the temporary laboratories at Central Road Research Institute, New Delhi by taking up studies on the performance of existing designs of domestic appliances and development in their designs with higher level of performance. The product pattern at pre-independence refineries in India was favourable to gasoline/naphtha with the result that naphtha fraction was in surplus during Fifth Five Year Plan. The Ministry of Petroleum, Chemicals & Fertilizers suggested the use of naphtha as a fuel in the industrial furnaces and boilers in place of furnace oil till such time naphtha-based fertiliser and petrochemical plants came up. IIP anticipated certain problems connected with the replacement of furnace oil with naphtha in existing industrial furnaces and decided to create R&D facilities for Applied Industrial Combustion. By this time IIP labora-

tories had shifted from CRRI, New Delhi to its own buildings at Mohkampur, Dehradun, where a combustion chamber, rectangular in cross-section with necessary instrumentation facilities to take up studies on industrial fuels and burners (upto 50 kg/hr capacity), was set up in 1967. Studies on performance of low pressure air atomising (LAP) industrial burners with furnace oil and naphtha as fuels were conducted. Industrial combustion activity was expanded to have two more cylindrical combustion chambers suitable to conduct studies with burners upto 100 kg/hr capacity. Due to global petroleum crisis which has set in since 1971, responsibility of IIP in the field of efficient utilisation of petroleum fuels in furnaces has increased manifolds to cover all aspects of studies on combustion related properties of fuels, flame characteristics, development of improved industrial burners, and rendering technical advice. With the awareness about air pollution in the country due to coming up of huge chemical and petrochemical plants, some of the industries in Gujarat received notices from the State government for creation of envi-

ronmental pollution due to waste disposal. In view of this IIP set up facilities to develop combustion system based on bubble burning. A laboratory incinerator and another scaled up version of bubble incinerator of capacities 20 and 200 kg/hr burning rate, respectively, were fabricated and installed at IIP to carry out studies and develop burning system for industrial wastes of different properties. As the then location of combustion installations was posing fire hazards, a new combustion laboratory building was constructed at the cost of Rs 25 lakhs in 1984 and the R&D installations were shifted there. The Combustion Section was given divisional status in 1986 and designated as Industrial & Domestic Combustion Division.

### Expertise

During its existence for more than 30 years the combustion group of scientists and engineers are capable of solving all types of problems connected with the efficient utilisation of petroleum fuels in industrial and domestic sector. So far, IIP has developed improved designs of burners; helped the

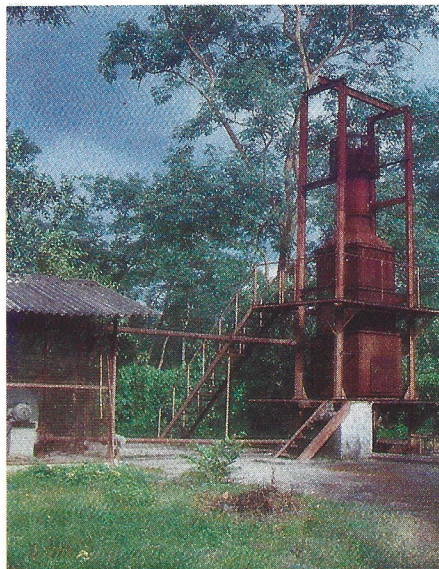
Bureau of Indian Standards in the formulation of standards; conducted studies on fuels, disposal of waste products by incineration; studies on performance of fuel oil additives; development of performance models of appliances and certain studies of basic nature. Scientists/engineers of this Division visit industries whenever called to suggest solutions to their problems. Broadly, the combustion activities can be categorised in five areas - Development of burners and incinerator systems, Fuel conservation, Pollution control, BIS activities and Technical advice.

### Technical Development and Commercialisation

In the area of burner development, fuel efficient industrial burner designs and submerged combustion burner have been developed. In case of submerged combustion it is possible to extract more than 90% of heat produced into the product. IIP film burner (LAP type) with burning capacities upto 100 & 200 kg/hr of fuel oil has been commercialised and more than 4000 burners are already working in Indian industries where fuel saving from 10-30% has been reported. Recently IIP film burners have been exported to Kenya and Nigeria against stiff competition from renowned burner manufacturers of advanced countries. Roll Mills, Kenya has reported fuel savings upto 24% after replacing their old burners with IIP film burners. IIP film burner has been patented in India and UK. After establishing its fuel saving potential and successful commercialisation, the inventors bagged NRDC award for the best invention in 1985.

### Licencees of IIP Film Burner

1. Encon Thermal Engineers (P) Ltd., New Delhi.
2. Petcon Thermal Engineers, Faridabad.
3. Kessel Engineering Works, Bombay.



Bubble Incinerator

4. Industries & Sales Agencies, Coimbatore.
5. Adi Energy Systems (P) Ltd., Calcutta.

Work on scaling-up of film burner upto 300 kg/hr capacity is in progress.

A portable burner which can be moved from one location to another for heating heavy castings in foundries has been developed and trials were conducted at BHEL Haridwar. The design is ready for commercial exploitation.

An incineration system based on bubble burning developed by IIP is free from usual defects like corrosion and blocking of burner passages. In the past a combustion system to burn off waste product from Tear Gas Unit of Border Security Force, Gwalior was developed and demonstrated to the representative of BSF. In this system no residue was left after combustion. A suitable design was given to Atic Industries at Valsad, Gujarat. At present, work is in progress on development of incineration system for disposal of acid sludge, produced during re-refining of used lubricating oil.

Three patents have so far been taken on bubble incinerators.

### Studies on Flames

Studies on flames produced by LAP burners while burning naphtha, kerosene, water/oil emulsions were conducted. The parameters covered were flame temperature, soot density, product of combustion at various points in the flame along the length and width. Burning velocity of LPG flames have been studied by Schlieren and shadow photography.

### Fuel Additives

Furnace oil additives with claims to improve the combustion, operational problems and fuel conservation have appeared in the market. No standard test method exists anywhere to verify them.

A few test facilities like performance of additives on water heater, improvement in thermal stability and filterability have been created and are being standardised. Two additives were evaluated in the past.

### Facilities & Equipment

All the necessary facilities to develop burners, conduct studies on burners, fuels, additives, incineration, and flames are available in the institute.

Exhaust gas analyser, radiation pyrometers, optical pyrometers upto 3500°C temperature, flow meter, combustion efficiency meter, soot density meter, Lux meter, micromanometer, twin beam radiation pyrometer etc. are also available. Three combustion chambers capable of accommodating combustion of 300 kg/hr fuel oil, two incinerators of capacity upto 200 kg/hr, a test boiler, and two auxiliary steam generators, and necessary fuel oil storage facilities are used for conducting R&D studies.

## TRAINING PROGRAMME ORGANISED

A ten-day training programme on Petroleum Refining and Petrochemicals Technology was organised for Reliance Industries Ltd (RIL), Patalganga, engineers from April 22 to May 1, 1992. Thirty-one freshly recruited engineers, along with two Course Coordinators, participated in the Programme. The faculty was drawn largely from the Institute and the rest from Oil & Natural Gas Commission, National Fertilizers Ltd, Indian Oil Corporation Ltd and Indian Petrochemicals Corporation Ltd.

Mr Ravi Chandra, Executive Director, Oil Industry Safety Directorate, Ministry of Petroleum & Natural Gas, inaugurated the Programme on April 22.

Mr S M Gupta, Training Manager of RIL was also present on the occasion.

Mr Kuldip Chandra, Director, Institute of Management Development, ONGC, delivered the valedictory address on May 1.

Mr K K Malhotra, Group President (Manufacturing & Projects) RIL, presided over the valedictory function.

Dr T S R Prasada Rao, Director, IIP, welcomed the participants on April 22.

Dr Himmat Singh, Head, Training Division convened the functions and proposed vote of thanks on both the occasions. ■

## IIP R&D ANNUAL REVIEW MEET

The first ever IIP R&D Annual Review Meet was organised by Projects Monitoring Group in the Institute on June 8-10, 1992. The

idea of holding such a Meet was mooted by Dr T S R Prasada Rao, Director. In his opening remarks, he said that the main objective of the Meet was to bring all the scientific and technical staff on one platform so that they could know and discuss the quantity and quality of the work being carried out in the Institute, review the 'delta progress' made during the year 1991-92 and plan for the future.

About 250 scientific and technical staff upto JSA/JTA participated in it and 60 projects were presented and discussed by concerned scientists in eight sessions.

In the concluding session, chaired by Dr Prasada Rao, delta progress relating to the supporting activities like Engineering Services, Fire and Safety Services, Public Relations, Administration, Stores and Purchase, Finance & Accounts and Library were presented and discussed and this session also became an "Open Session". Finally, Mr B R Chadha, Head PME Group, thanked the participants. ■

## IIP's PARTICIPATION IN SYMPOSIUM ON "RECENT TRENDS IN INSTRUMENTAL METHODS OF ANALYSIS"

March 24-26, 1992,  
Department of Chemistry,  
University of Roorkee, Roorkee

Dr T S R Prasada Rao, Director, IIP, inaugurating the Symposium, emphasised that the analytical chemists have the key role in every industry and are responsible for optimisation of process parameters and achieving high quality products. It was presided over by Dr P Mukhopdhyay, Pro-Vice-Chancellor of University of Roorkee, sponsored by CSIR/UGC and convened by Professor S K Srivastava.

Invited lectures were delivered by Dr G C Joshi, Deputy Director and Head, Organic Chemistry Division and Dr B S Rawat, Head, Separation Processes Division, IIP, and a paper was presented by Mr S C Vishnoi, Head, Crude & Products Evaluation Division, IIP. M/s O P Gupta, V B Kapoor and H S Mathur, Scientists, IIP, also attended the Symposium as delegates. ■

## COLLOQUIA

- Professor P G Menon, Chalmers University of Technology, Sweden. "Postmortem examination of industrial catalysts", April 2, 1992 and "Some subtle roles in hydrogen in industrial catalysts", April 3, 1992.



Professor P G Menon delivering the colloquia.

- Mr A S Narayanan, Rensselaer Polytechnic Institute, Troy, New York.

"Kinetic studies of the reactions of Nz, Cu & Cr atoms with O<sub>2</sub>, N<sub>2</sub>O and HCL over wide temperature ranges", April 28, 1992.

- Dr A J Smith, University of Sheffield, England.

"Crystal and molecular structure determination by x-ray diffraction", May 5, 1992.

- डॉ रमाशंकर व्यास, हिन्दी अधिकारी, राष्ट्रीय रासायनिक प्रयोगशाला, पुणे।

"राजभाषा नीति", जून 5, 1992 ■



## OUR EDITOR "ESCAPES" (EVEN) AFTER "SELLING THE INSTITUTE"



*Since Mr Sankaran is already such a colourful personality, a B&W photograph is deliberately given.*

Our editor Mr G A Sivasankaran has "escaped" or, in other words, "ditched" us, on June 18, 1992, by seeking voluntary retirement - six months before his date of superannuation. Reason - personal (best known to him!). And he has done so (even) after "selling the Institute" (Yes, this was the phrase he used to say while emphasising the importance and purpose of this Newsletter) for over one-and-a-half years. How well he has accomplished it, this is for the readers to decide.

Since we could not hold him back or can call him again, we can only wish him more fruitful and purposeful life. And we do so herewith most sincerely. Good luck to you, Mr Sankaran. We will miss you a lot!

Mr Sivasankaran, born on December 3, 1932, held a bachelor's degree (even though married, presumably happily) in Chemistry. He has only one child - a son - settled in so-called "land of plenty", the United States of America.

He started his illustrious career with Qatar Petroleum Co. Ltd. in "land of oil" - the Persian Gulf - where he served for nearly six years. Destiny (or patriotism?) brought him back to India in November 1960 and he joined the Research, Design & Standards Organisation, Ministry of Railways, Chittaranjan. He came to this Institute in September 1962 as Senior Scientific Assistant. And it took him almost twenty-six years to reach to the position of Scientist 'E-II' (preferably called as

Senior Assistant Director) in May 1988, and he retired on this post.

For most of these years he handled R&D projects related to application of fuels and lubricants in engines and evaluation and development of lubricant formulations, besides looking after Liaison and Advice activities in Petroleum Products Application Division (PPAD) of the Institute. His outstanding achievements being (i) improving the performance of vehicles at high altitudes, (ii) development of a test technique for the performance of hydraulic brake fluids, (iii) development of lubricant oil formulations (gear oil, two-stroke engine oil etc.), and (iv) development of antiwear additives. He was deputed to Japan (Oh, what a place to be deputed to!) from October 1979 to March 1980. For you know what? Training, of course! He has 23 publications to his credit, (5 in international journals/seminars and 18 in Indian journals/seminars), 6 patents and 37 reports.

Perhaps, even Mr Sankaran might not have known that his valuable experience of Liaison & Advice in PPAD and his expertise of technical writing and editing will become responsible for his being designated as Head of the newly created Director's Technical Secretariat in late 1990 and he will be required to look after International Collaborative Projects, Publicity & Public Relations. These activities he fulfilled not only to his best abilities but to ours also. As he was really a hard task master and a perfectionist, he never compromised with the quality of work despite numerous limitations and did not allow the typical *chalta hai* attitude. And, thus, he took out the best from all of us who had worked with him.

Once again, good luck to you, Mr Sankaran. The vacuum created by your absence may get filled in time to come but no body may be able to beat you as you have hardly left much "to be sold" in the Institute.

s k bansal

### DEPUTATIONS ABROAD

- Dr G C Joshi, Deputy Director, and Head, Organic Chemistry Division, visited USA from April 2-6, 1992 to participate in the International Symposium held to celebrate the eightieth birthday of Nobel

Laureate Professor Herbert C Brown, in Purdue University, Indiana. Dr Joshi also visited Chemistry Department of Purdue University and had extensive discussions on topics of mutual interests with research group of Professor Brown and Professor Negishi.

- Dr T S R Prasada Rao, Director,

and Mr R P Mehrotra, Senior Scientist, visited France to attend Indo-French Seminar on Catalysts from May 10-23, 1992. Dr Prasada Rao also visited Institut Francais du Petrole (IFP) from May 24-28, 1992 to discuss collaborative agreement between IIP and IFP.

## भा पे सं स्थापना दिवस

वर्तमान वर्ष, वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद् के स्वर्ण जयन्ती वर्ष के रूप में मनाया जा रहा है। इसी उपलक्ष्य में इस बार भा पे सं स्थापना-दिवस विशाल रूप से आयोजित किया गया। सम्पूर्ण आयोजन के पीछे यह मूल भावना थी कि प्रत्येक कर्मचारी एवं उसके परिवार के सदस्य इन कार्यक्रमों में सक्रिय सहभागिता प्रदान करें। इस भावना को मूर्त रूप देने के लिए आयोजन-समिति ने विभिन्न कार्यक्रमों का आयोजन किया। इन कार्यक्रमों में :

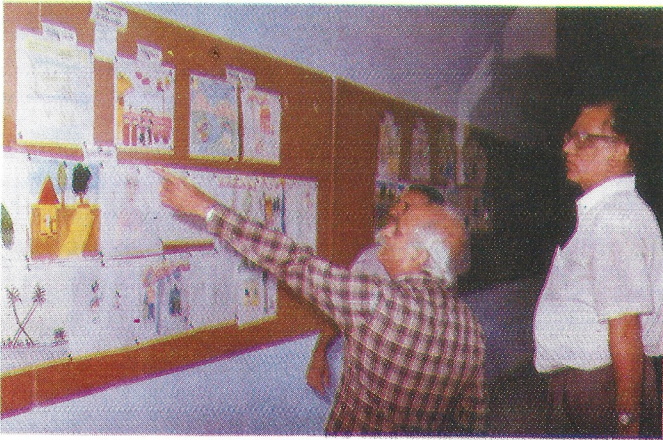
- (अ) चित्रकला प्रतियोगिता (जूनियर स्कूल के बच्चों के लिए);
- (ब) कम्प्यूटर प्रशिक्षण पाठ्यक्रम (कक्षा 9 से 12 के बच्चों के लिए); और महिलाओं के लिए
- (स) फल संरक्षण प्रशिक्षण कार्यक्रम सम्मिलित हैं।

स्थापना-दिवस पर मुख्य समारोह 29 अप्रैल 1992 को एक सांस्कृतिक संध्या के रूप में सम्पन्न हुआ, जिसके पश्चात् संस्थान के कर्मचारियों एवं उनके परिवार के सदस्यों के लिए एक सामुदायिक रात्रि-भोज का आयोजन किया गया। इन कार्यक्रमों का संक्षिप्त विवरण निम्न प्रकार है:

### (अ) चित्रकला प्रतियोगिता

इस प्रतियोगिता का आयोजन गत 25 अप्रैल को संस्थान में किया गया था। संस्थान के कर्मचारियों के बच्चों को दो वर्गों में विभक्त करने के पश्चात् प्रथम वर्ग में कक्षा 3 से 5 तक के बच्चों तथा द्वितीय वर्ग में कक्षा 6 से 8 तक के बच्चों ने इस प्रतियोगिता में भाग लिया। प्रतियोगिता के परिणाम निम्नवत् हैं -

प्रथम वर्ग :	श्री आकार सक्सेना	- प्रथम
	श्री विरल शर्मा	- द्वितीय
	श्री आशुतोष सक्सेना	- तृतीय
द्वितीय वर्ग :	सुश्री मीनल मदान	- प्रथम
	सुश्री देवमल्लिका कपूर	- द्वितीय
	सुश्री शालिनी पाल	- तृतीय



चित्रकला प्रतियोगिता में पुरस्कृत चित्रों की प्रदर्शनी, दायें हैं श्री प्रेम विजय डोगरा।

### (ब) कम्प्यूटर प्रशिक्षण पाठ्यक्रम

इस पाठ्यक्रम में संस्थान के कर्मचारियों के माध्यमिक स्तर के 45 बच्चों ने भाग लिया। इस पाठ्यक्रम हेतु एक-एक सप्ताह के दो कार्यक्रम (दिनांक 25 मई - 29 मई तथा 26 जून-30 जून 92) संस्थान के कम्प्यूटर अनुभाग ने आयोजित किये। पाठ्यक्रम अत्यन्त सरल एवं मूल सिद्धांतों पर आधारित था जिसके कारण बच्चों ने इस कार्यक्रम में अत्यन्त गहन रुचि में भाग लिया। कार्यक्रम का मुख्य उद्देश्य बच्चों को कम्प्यूटर के विषय में सामान्य जानकारी एवं उसके उपयोग-सम्बंधी विषयों पर ज्ञान प्रदान करना था।

### (स) फल-संरक्षण प्रशिक्षण पाठ्यक्रम

यह पाठ्यक्रम 11 मई से 24 मई तक संस्थान की कालोनी में आयोजित किया गया। इसमें संस्थान की कालोनी की 40 गृहिणियों ने भाग लिया। कार्यक्रम का आयोजन उ प्र फल संरक्षण संस्थान, देहरादून के सहयोग से किया गया। इस संस्थान के वरिष्ठ प्रशिक्षकों की देख-रेख में महिलाओं ने विभिन्न प्रकार के फलों के संरक्षण की विधि का ज्ञान प्राप्त किया।

### मुख्य समारोह - सांस्कृतिक संध्या एवं रात्रि-भोज

यह कार्यक्रम 29 अप्रैल 1992 को संस्थान के प्रेक्षागृह में सम्पन्न हुआ। कार्यक्रम का संचालन डॉ महेन्द्र पाल ने किया। इसमें कर्मचारियों, सभी आयु वर्ग के बच्चों, महिलाओं एवं युवतियों ने भाग लिया। कार्यक्रम अत्यन्त सराहनीय था। कार्यक्रम का उद्घाटन सुश्री एस वी प्रसाद राव ने दीप-प्रज्वलन के साथ किया। इस अवसर पर बोलते हुए निदेशक डॉ टी एस आर प्रसाद राव ने सभी कर्मचारियों एवं उनके परिवार के सदस्यों को शुभकामनाएं एवं बधाइयां दीं और उनसे अपेक्षा की कि आने वाले वर्षों में वे अधिक से अधिक संख्या में उपस्थित होकर स्थापना-दिवस मनाएँ।



सुश्री प्रसाद राव सांस्कृतिक संध्या का उद्घाटन करते हुये, दायें हैं डॉ महेन्द्र पाल।

बच्चों ने "अनेकता में एकता" विषय पर सांस्कृतिक कार्यक्रम प्रस्तुत किए, जिनमें कश्मीर से लेकर कन्याकुमारी एवं अरुणाचल से लेकर गोआ तक की संस्कृति का समावेश था। कार्यक्रम का मुख्य आकर्षण डॉ महेन्द्र पाल द्वारा प्रस्तुत "फ्लॉप शो" था। इस कार्यक्रम को समस्त दर्शकवृन्द ने सराहा।

सांस्कृतिक कार्यक्रम के उपरान्त संस्थान के कर्मचारियों, उनके परिवार के सदस्यों तथा आमंत्रित अतिथियों ने सामुदायिक रात्रि भोज का आनन्द लिया।



सांस्कृतिक कार्यक्रम की एक झलक।



सुश्री प्रसाद राव पुरस्कृत बच्चों के साथ।

कार्यक्रम का समापन समस्त विजयी प्रतियोगियों एवं सहभागियों को "आई आई पी स्थापना दिवस - 92" अंकित पुरस्कार प्रदान कर किया गया। सुश्री प्रसाद राव के कर-कमलों से इन पुरस्कारों का वितरण हुआ।

समस्त कार्यक्रम के आयोजन में डॉ वेंकट राव सिस्टा, डॉ महेन्द्र पाल, डॉ दयाशंकर शुक्ल, डॉ आलोक कुमार सक्सेना, श्री वीरेन्द्र सिंह सैनी एवं श्री हरबंस सिंह ने मुख्य भूमिका निभाई। कार्यक्रमों की सफलता के लिए अन्य अनगिनत कर्मचारियों ने सहायता प्रदान की।

### भा पे सं मेला

संस्थान के स्थापना दिवस (अप्रैल 14) के उपलक्ष्य में आयोजित कार्यक्रमों के अन्तर्गत भा पे सं स्टाफ क्लब द्वारा मई 8, 1992 को एक मेले का आयोजन किया गया, जिसका उद्घाटन डॉ श्री कृष्ण जोशी, महानिदेशक, वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद् के कर कमलों द्वारा हुआ। इसमें अनेक खेलों एवं खाद्य-पदार्थों के स्टालों के साथ-साथ अलंकृत वेष, शिशु प्रदर्शनी, रंगोली आदि प्रतियोगिताएँ भी आयोजित की गयीं। मेले में पुलिस बैंड की उपस्थिति ने सभी को आकर्षित किया।



डॉ श्री कृष्ण जोशी, महानिदेशक, वै औ अ प, मेले का उद्घाटन करते हुए।

मेले के अन्त में सुश्री हेमा जोशी, पत्नी डॉ श्री कृष्ण जोशी के कर कमलों द्वारा विभिन्न प्रतियोगियों को पुरस्कार वितरित किए गए। इससे पूर्व सुश्री एस वी राव ने सुश्री हेमा जोशी को संस्थान की ओर से स्मृति-चिह्न भेंट किया।

यह मेला डॉ टी एस आर प्रसाद राव, निदेशक के कुशल निर्देशन में आयोजित किया गया। इसके अध्यक्ष डॉ गिरीश चन्द्र जोशी तथा संयोजक श्री विपिन चन्द्र कंडवाल, सचिव, भा पे सं स्टाफ क्लब थे।

### कार्मिक समाचार

स्वागत है

- श्री प्रेमपाल, वैज्ञानिक "बी", अप्रैल 16, 1992
- श्री राजेश कुमार, वैज्ञानिक "बी", मई 5, 1992
- श्री प्रताप सिंह चौहान, कनिष्ठ आशुलिपिक (हिन्दी), मई 11, 1992
- डॉ जी मुरलीधर, वैज्ञानिक "ई-1", जून 11, 1992
- श्री मुकेश कुमार शर्मा, कनिष्ठ अभियंता, ग्रेड V (ए) (1), जून 19, 1992
- श्री ए के राजदान, अनुभाग अधिकारी, जून 22, 1992

पदोन्नति पर बधाई

ग्रेड / (2)

सर्वश्री निमर (जून 7, 1988 से); हरीश चन्द्र, जगदीश सिंह कन्हैयालाल (सभी जुलाई 28, 1988 से); कमान सिंह (सितम्बर 9, 1988 से)

ग्रेड / (3)

सर्वश्री रामू राम (अप्रैल 1, 1988 से); राम लाल (अप्रैल 10, 1988 से); भगवती प्रसाद, चेत राम, देवी सिंह, दिनेश प्रकाश, खिलाड़ी, प्यारे लाल,

राधे, राम बहादुर, राम बरन, राम दास, राम पाल, सलीम खान, शीतल दीन, सोहन लाल रोड, श्री राम, सुन्दर लाल, विजय सिंह (सभी फरवरी 1, 1989 से)

#### ग्रेड I (4)

सर्वश्री ए पी भट्ट, बी सी शर्मा, एच एस यादव, कौशल पाल, मैकू लाल, मोहन सिंह बिष्ट, सुरत सिंह, ठाकुर प्रसाद (सभी फरवरी 1, 1989 से); ज्योतिप्रसाद (अगस्त 26, 1989 से)

#### ग्रेड II (2)

सर्वश्री मातबर सिंह (जून 7, 1988 से); राजा राम (अगस्त 20, 1988 से); मोहकम सिंह (दिसम्बर 26, 1988 से); एन के तिवारी (फरवरी 1, 1989 से); बीर सिंह (फरवरी 28, 1989 से)

#### ग्रेड II (3)

श्री पूरन सिंह (जून 12, 1988 से); सुश्री कमलेश गुप्ता (जुलाई 14, 1988 से); सर्वश्री वी आर एस पंवार (सितम्बर 24, 1988 से); बलराम भारद्वाज, देवी लाल, जोगा सिंह, किशन लाल, मंगल सिंह, ओ पी शर्मा, संत राम, एस के भारद्वाज, एस के मल्होत्रा, विनीत सक्सेना (सभी फरवरी 1, 1989 से); अब्दुल रशीद, के एल यादव (दोनों अप्रैल 1, 1989 से); आर एस राणा (नवम्बर 14, 1989 से); बी एस थापा (फरवरी 1, 1990 से)

#### ग्रेड II (4)

सर्वश्री सी एस रावत, दिलबाग सिंह, डी एस रावत, जसदेव सिंह, जे एन श्रीवास्तव, के कुमार, मोहिन्दर कुमार, सुश्री एन के गुप्ता, सर्वश्री प्रेम सिंह रावत, पुरुषोत्तम सिंह, आर एन मेहता, आर पी सेठ, सुश्री सुमित्रा शर्मा, सर्वश्री वीरेन्द्र दत्त, वी के कोसिस (सभी फरवरी 1, 1989 से); शादीलाल (अप्रैल 1, 1989 से); ओ डी शर्मा (जनवरी 3, 1990 से)

#### वरिष्ठ तकनीकी सहायक

श्री के डी शर्मा (फरवरी 1, 1986 से)

#### वरिष्ठ प्रलेख सहायक

श्री सत्य व्रत संतोषी (फरवरी 1, 1988 से)

#### ग्रेड III (1)

श्री मन मोहन कुमार (अगस्त 19, 1986 से)

### HONOURS, AWARDS AND RECOGNITION

- IIP has been recognised as a research centre for doing research leading to Ph D degree in Chemistry by Osmania University, Hyderabad.

#### ग्रेड III (2)

सर्वश्री डी सी पांडे, आर के चौहान (दोनों जून 2, 1988 से); कर्ण सिंह रावत (जून 8, 1988 से); धनी राम (जून 16, 1988 से); सिया राम (जून 22, 1988 से); आनंद सिंह, डी पी बंगवाल (दोनों जुलाई 18, 1988 से); योगि राज (जुलाई 19, 1988 से); जसविन्दर सिंह (अगस्त 8, 1988 से); सुश्री पुष्पा गुप्ता (अगस्त 22, 1988 से); सर्वश्री एम सूर्य नारायण (अगस्त 26, 1988 से); गिरेन्द्र सिंह (सितम्बर 19, 1988 से); एस सुरेश (अक्टूबर 24, 1988 से); मोहन लाल शर्मा (नवम्बर 1, 1988 से); राजेश कुमार (नवम्बर 11, 1988 से); हाकिम सिंह (जनवरी 20, 1989 से); बदरी प्रसाद (फरवरी 1, 1989 से); के के सिंह, सुरेन्द्र उपाध्याय (दोनों अप्रैल 1, 1989 से); जी एम बहुगुणा, आर सी सक्सेना (दोनों मई 14, 1989 से); अजय कुमार गुप्त, सर्वजीत सिंह (दोनों मई 18, 1989 से); मनोज कुमार (मई 21, 1989 से); जे एस करिर (जून 6, 1989 से); जसपाल सिंह (जून 13, 1989 से); एस पी नौटियाल (अगस्त 2, 1989 से); वी एस कुकरेती (अगस्त 6, 1989 से); लक्ष्मी नाराय (अगस्त 28, 1989 से); बी आर नौटियाल (नवम्बर 30, 1989 से)

#### ग्रेड III (3)

सर्वश्री ए के सक्सेना, ए के सिंह, बी एस गोयल, मूल चन्द्र, आर सी घिल्डियाल, एस के अग्रवाल, यू डी सेमवाल, विजय कुमार (सभी फरवरी 1, 1989 से)

#### सहायक

सुश्री बृज मोहिनी सहगल (जून 5, 1992 से)

#### भंडार एवं क्रय सहायक, ग्रेड III

सर्वश्री सी एल उनियाल और धर्मपाल, (जून 5, 1992 से)

#### स्थानान्तरण पर शुभकामनाएं

- श्री बाबू राम, अवर श्रेणी लिपिक, केन्द्रीय भवन अनुसंधान संस्थान, रुड़की, अप्रैल 6, 1992
- श्री बी के पुरी वरिष्ठ आशुलिपिक, उप भंडार एवम् क्रय अधिकारी, केन्द्रीय औषध अनुसंधान संस्थान, लखनऊ, अप्रैल 22, 1992

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- श्री जी ए शिवशंकर, तकनीकी अधिकारी "ई-II", जून 18, 1992
- श्री गुरचरण सिंह, तकनीकी अधिकारी "सी", जून 30, 1992

#### असामयिक निधन पर हार्दिक शोक

श्री पी पी शर्मा, वरिष्ठ विद्युत सहायक, अप्रैल 14, 1992