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IIP

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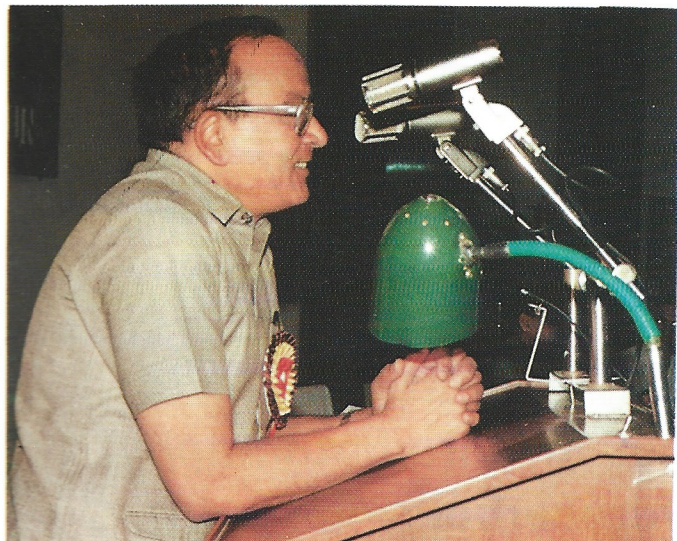
No. 1&2

Seminar on Recent Advances in Chromatography of Petroleum Hydrocarbons



Lighting of the traditional lamp by Dr K R Sarma, Director, CSIO, Dr A K Bhatnagar, ED, IOC R&D, and Dr T S R Prasada Rao, Director, IIP, during the inauguration of the Seminar.

A national symposium on 'Recent Advances in Chromatography of Petroleum Hydrocarbons' was held at the Indian Institute of Petroleum (IIP), Dehradun, on 22-24 May, 1996 to take stock of the level of sophistication that has been attained in the field of chromatography in India. About 80 delegates from the petroleum industry, academic institutions and various research and development organisations



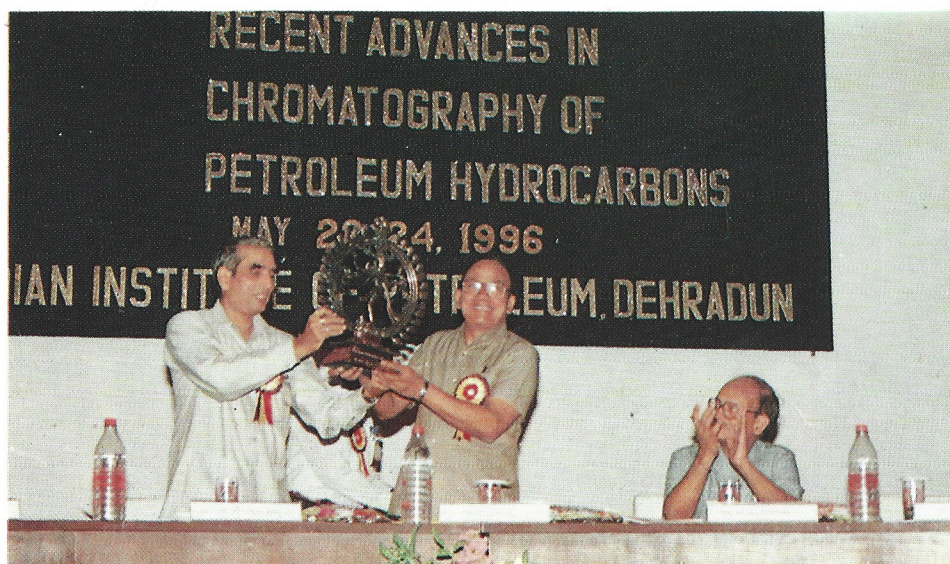
Dr K R Sarma delivering the Inaugural Address.

attended the symposium which was organised by IIP in collaboration with Bharat Petroleum Corporation Ltd, Oil & Natural Gas Commission, Department of Science and Technology and Indian Oil Corporation Ltd.

In his inaugural address, **Dr K R Sarma**, Director, Central Scientific Instruments Organisation (CSIO), Chandigarh, gave an overview of the rapid strides made by instrumentation industry in the country. The instrumentation scenario is undergoing a revolution with the acquisition of great sophistication. With the coming of computers, the drudgery of manual operation has been done away with, "Chromatography is one of the many analytical techniques which need sophisticated instrumentation to assist the basic and applied scientific research," he added.

In his welcome address, the IIP Director **Dr T S R Prasada Rao** underlined the challenges faced by the petroleum industry during the globalization. The quality requirements have become stringent and chromatography can go a long way determining and ensuring quality. IIP has taken up the 'mission' of making the Indian petroleum industry progressive and globally competitive. This symposium was a part of the IIP's efforts to provide a forum to scientific topics related to the petroleum industry, he added.

Speaking on the occasion, **Dr S D Bhagat**, Chairman of the Technical Committee of the symposium said, "Modern chromatography, by virtue of its high resolution and separation capabilities, has emerged as an important technique for process and product monitoring, as it can separate components in a mixture, identify them and quantify them. In the field of environment, chromatographic techniques can play a significant role by monitoring the levels of hazardous pollutants."



Dr T S R Prasada Rao, Director, IIP, presenting a memento to Dr K R Sarma.

The symposium featured lectures by eminent scientists in the field and about 30 technical presentations. An impressive exhibition of analytical instruments put up by instruments' manufacturers was an added attraction feature of the symposium.

Gas Chromatography (GC) featured significantly in the technical sessions since this technique enables complete component identification and evaluation of the distillation range of petroleum. Analytical scientists attending the symposium stressed the need for formation of a National Chromatography Society, which would act as a forum for interaction among the chromatographers of the country, and help chromatographers solve their day to day problems, especially in analyzing hydrocarbons. **Dr S K Jain** of Indian Oil Corporation said that a constant co-operation between laboratories and industry was necessary to root out duplication in research.

During the panel discussion at the conclusion of the symposium, **Dr G C Joshi**, Emeritus Scientist at IIP, emphasised the need for formation of a core-group which could provide the industry with solution to their problems. "It has emerged during these three

days that we have tremendous expertise in all areas of analytical science. The expertise must be made easily available for use of industry." He also called upon analytical chemists to rise to the occasion and help the hydrocarbon industry in facing future challenges.

Dr Sajjid Hussain of Indian Institute of Chemical Technology, Hyderabad, felt that universities should attach greater importance to analytical chemistry, and suggested that a chapter of the National Analytical Society should be set up at Dehra Dun.

Dr R N Nigam of Lab India, then said that IIP is a proper place where a chromatography discussion group could be instituted. **Dr S D Bhagat** stressed the need for developing indigenous instruments for chromatography techniques. The convener of the symposium **Shri S C Vishnoi** said viable analytical methods must be standardised and a common agency set up to make available reference samples to researchers. In his valedictory address, **Dr Prasada Rao** said that IIP had done a considerable amount of pioneering work in chromatography and was ready to host more meetings related to the subject. □

IIP CELEBRATES FOUNDATION DAY

The Indian Institute of Petroleum, Dehra Dun, celebrated its Foundation Day on 17 April 1996. The institute, founded in 1960 in Delhi, was shifted to Dehra Dun in April 1963.

Prof R Kumar, Chairman, CSIR Technical Advisory Board for Chemical Sciences, was the Chief Guest at the function and delivered the Foundation Day lecture, on the status of the industry-R&D-academia interaction in the changing scenario.

Prof Kumar said that globalization of the Indian economy had led to an increased interaction between R&D institutions and

industry, as it was no longer possible for them to exist without each other under the changed circumstances. "Industry can no longer produce goods of indifferent

quality and sell these at any price. International quality is now a must," he asserted.

Recalling how industry and



Prof R Kumar lighting the lamp.

academia had followed paralleled paths in the country, with poor interaction and perception of each other, Prof Kumar said that universities had limited themselves to merely supplying the manpower.



Prof R Kumar delivering the Foundation Day lecture.

They were unable to provide technology or even generate interest about a technology among industry. Scientists considered it infra-dig to duplicate the technology that existed elsewhere in the name of self-reliance and preferred instead to publish papers in international journals. Industry was content with straightforward purchase of technology from abroad and only wanted skilled personnel to operate the imported plants. Even government incentives

for interaction received a poor response as most of the so called R&D units in industry were actually quality control laboratories!

In that situation, it was CSIR alone that struggled to sell its technology, but there was little response as the technology was untried and had low engineering impost. Even though it was successful in generating Rs 1350 million from external resources, only Rs 25 million of this were from industry. In comparison, earnings of academia amounted to 'nothing'.

In his speech, peppered with anecdotes and quips, Prof Kumar also pointed out that the stricter regime on intellectual property rights would soon begin to affect Indian industry. In an environment where it would be necessary to stay ahead to be competitive, it would no longer be possible to steal or duplicate technology. The CSIR's role thus becomes a crucial one, he emphasised.

Describing how industry had changed its approach over the years to R&D internationally, Prof Kumar said that from a 'strategy of hope' in the fifties, to 'project mode' in the sixties, it had now come to 'integration of corporate strategies with R&D'. With the corporate sector financing basic research in universities, the time had arrived when good scientists could prove to be good technologists – all it required was 'a twist' in their thinking.

In India, Prof Kumar said, industry either bought technology on a continuous basis to stay competitive, or bought the latest available, improvised it (like the Japanese), generated new products, went in for import substitution or indulged in 'horizontal proliferation of technology'. But in the present

scenario, when the latest technology would be available from abroad, it is only the collaboration between industry, R&D institutions and academia, that could lead to the generation of a competitive technology which is efficient in terms of energy and raw materials consumption, eco-friendly and cost-effective.

Prof Kumar exhorted the scientists to take out patents before publishing papers, as it would lead to original, useful and innovative thinking. He also called upon scientists to develop expertise in 'niche' and target specific industries whilst planning research. Focusing on the need for technology forecasting, he said that this would assist industry in selection of technologies.

For a better industrial/economic growth of the country, Prof Kumar suggested that (i) tax rebate of R&D expenditure be raised to 300% from the present 100%, (ii) consultancy fee be made tax free, (iii) soft loans be made available for renovation of plants, and (iv) research institutes be given grants matching to their external earnings.

Earlier, speaking on the occasion, the IIP Director **Dr T S Prasada Rao** disclosed that IIP had earned 70% of its budget from external sources during the last financial year, and during the current year the ECF was expected to be 100% of the budget. He added that IIP has won the CSIR Technology Awards four times since their institution in 1990. At present, the institute had Rs 140 million worth of sponsored projects from industry.

On this occasion, awards were presented to the IIP staff for their notable contributions. □

**3rd MEET OF THE HEADS
OF CSIR LIBRARIES/
INFORMATION CENTRES
30 MAY - 1 JUNE, 1996**

The 3rd meet of the Heads of CSIR Libraries/Information Centres was inaugurated by **Dr R A Mashelkar**, Director General, CSIR, on 30 May, 1996 at Indian Institute of Petroleum, Dehradun. The theme of the meet was "The role of CSIR Libraries/Information Centres in the context of CSIR Vision 2001".

Mr S M Dhawan, Deputy Director, NPL, New Delhi who conducted the proceedings of the inaugural function, told the audience that the present meet had been organised with the challenges of survival and achieving excellence in science and technology in view, and to discuss new ways for attaining the goals of 'CSIR Vision 2001' through the means of training and support, and changing the system as the libraries had so far been only intra-laboratory in scale.



Dr R A Mashelkar, Director General, CSIR, inaugurating the Meet.

Dr T S R Prasada Rao, Director, IIP while welcoming Dr R A Mashelkar, DG, CSIR the Chief Guest and **Prof T Vishwanathan** and the delegates from CSIR Libraries and Information Centres said that Dr R A Mashelkar was keen on the science of information and its importance for research. Dr Prasada Rao said that IIP had an admirable collection of about 15,000 books on petroleum industry, besides 13,000 bound

volumes, 121 current periodicals with facilities for patent search, standard reprints and microfilms etc. as well. He pointed to the need of establishing a 'Petroleum (Industry) Information System' at IIP just as the IPCL, Vadodara has its own "Petrochemicals Data Service".

Prof T Vishwanathan, Director, INSDOC, New Delhi, introduced the meet retracing the history of the previous two meets, the first in Bangalore in 1993 and the second in Goa in 1995 respectively. He called the 'CSIR Vision' a 'route-map' and expressed high hopes of establishing a Consortium of Libraries & Information Centres of CSIR. He outlined the issues for discussion at the meet. These were management, information policy for the nation. On importance of marketing information, he said that there is a potential market of about Rs 600 crores in information science and thus CSIR could become an 'information giant'. He also announced the finalisation of the Library Automation Package (the 'Granthalaya Package') and the Computer-Aided Processing Volume which he said will be demonstrated



Dr R A Mashelkar addressing the delegates.

at the meet. He quoted Dr Mashelkar's words that 'partnership with nature' of the environmental concern will also be in the purview of the meet. He emphasised that the information industry will play a major role in the coming decades. He also supported the idea of decentralisation and said that libraries/information centres must go on without central co-ordination and the information network should function as individual autonomous units.

Dr R A Mashelkar appreciated the response of the CSIR family towards the 'CSIR Vision 2001', of which he said not only he, but the whole CSIR family was the architect. Dr Mashelkar expressed his belief that CSIR's potential was high and we should not only reach, but go beyond it.

He talked about the meeting of the Heads of CSIR Patent Units/Intellectual Property Units and expressed happiness over this exchange of ideas and said that CSIR will prepare its scientists in reading pattern, writing pattern and in safeguarding the intellectual property. He said that library and information science was of extraordinary importance to the CSIR since information is power and can be a revolution. 300 years ago we had the industrial revolution and now information is power and can be converted into knowledge. He said that about 2000 years ago it was cultural revolution, 300 years ago we had the industrial revolution and now we have the information revolution. He said that geographical, cultural and social boundaries are now meeting, information is exploding and the future is extremely challenging. We have to make an introspection in view of these changes and ask ourselves what we were doing in CSIR. He underlined the importance



Dr R A Mashelkar, Director General, CSIR, addressing the staff of IIP.

of becoming 'information entrepreneur' ourselves and said that library science people should not merely remain as passive service providers. He was happy that since the two earlier meets of the Information and Library Science people there was a visible growth in the ideas and it was a good sign. He suggested the setting up of targets for this area. He wanted the CSIR Consortium to become a reality and suggested that 'strategic information' and 'business information' services could be initiated at CSIR. He announced his full support to the proposed consortium. The INSDOC (Indian National Scientific Documentation Centre) could take the lead in the matter he said. He suggested that 'bankability' of products should also be kept in mind. We should search for possible markets – both national and international ones. He said that Library and Information Science people could become catalysts in raising the level of research by challenging scientific information through comparison in the literature. He said that science and

research were being analysed in order to set better goals, that should lead not only within CSIR but also outside and part ways with the accepted or practised norms.

The conductor of the proceedings, **Shri S M Dhawan**, proposed a Vote of Thanks to the Chief Guest, Prof Vishwanathan and Dr Prasada Rao and also to the delegates and all involved.

Later in the afternoon, Dr R A Mashelkar, talked to the staff of the Indian Institute of Petroleum, Dehradun, about his dreams and plans for CSIR on the White Paper "CSIR 2001 – Strategies and Vision". He said that by calling CSIR as "CSIR Incorporated", he had wanted to bring these 40 laboratories together making them one single force, to set targets for them and introduce a corporate culture in order to achieve better goals in a challenging world. He defined the role of CSIR as different from the universities because CSIR is an organisation doing research for the industry and to ensure that the research work of CSIR should make economic and social sense, it was necessary to introduce a modified structure. He ensured strong political support for CSIR, better funds, better communication with the planners and customers the industry coming together as one force, declaring our intentions, i.e. setting up of goals in quantitative terms, etc. were the ways to achieve this. He emphasised transparency as the hallmark of CSIR and the growth of Laboratory Reserve Fund which gives autonomy. He also touched on the human factor and the need to improve working conditions of the people and said that he wanted the CSIR Headquarters to function as the facilitator and not as the controller. He also stressed the need for a code of conduct and a

sense of responsibility to move ahead, focusing of energies, ambitions, entrepreneurship, sense of pride in the CSIR-were necessary to fulfil our goals and expectations, he said. He further added that the 21st century will see Asia as the leader, with India becoming the "Intellectual Capital of the World".

Earlier, Dr Prasada Rao welcomed Dr Mashelkar, as a distinguished scientist and manager, highlighted his achievements in the last 10 months since his becoming the DG, CSIR which are enormous and speak of the dynamic leadership being provided by him.

2nd LOVRAJ KUMAR MEMORIAL LECTURE AT IIP

The '2nd Lovraj Kumar Memorial Lecture' was organised in the auditorium of the Indian Institute of Petroleum, Dehradun on 29 February, 96 to mark the 2nd death anniversary of the then

Chairman of the Research Council of IIP, late **Shri Lovraj Kumar**. The speaker on this occasion was **Dr S Vardarajan**, President, Indian National Science Academy, New Delhi. Welcoming the Chief Guest, **Dr T S R Prasada Rao**, Director IIP remembered late Shri Lovraj Kumar's concern about the welfare of the staff, dedication to world class technology and believed in the improvement of infrastructure. He said that these lectures are being delivered by close associates of late Shri Lovraj Kumar and last year the first lecture of this series was delivered by **Prof M M Sharma**, UDCT, Bombay. The purpose of these lectures is to remember Shri Lovraj Kumar and to rededicate ourselves to his ideas, said Dr Prasada Rao.

In his lecture on "Environment perspective in Petroleum Refining and Petrochemicals," Dr Vardarajan said initially the Indian chemicals industry was based on plants, animals and insects, and there was no petroleum based industry in the country before 1933. He said that production of petroleum will go upto 80 million tonnes, cotton production from todays 130 to 150



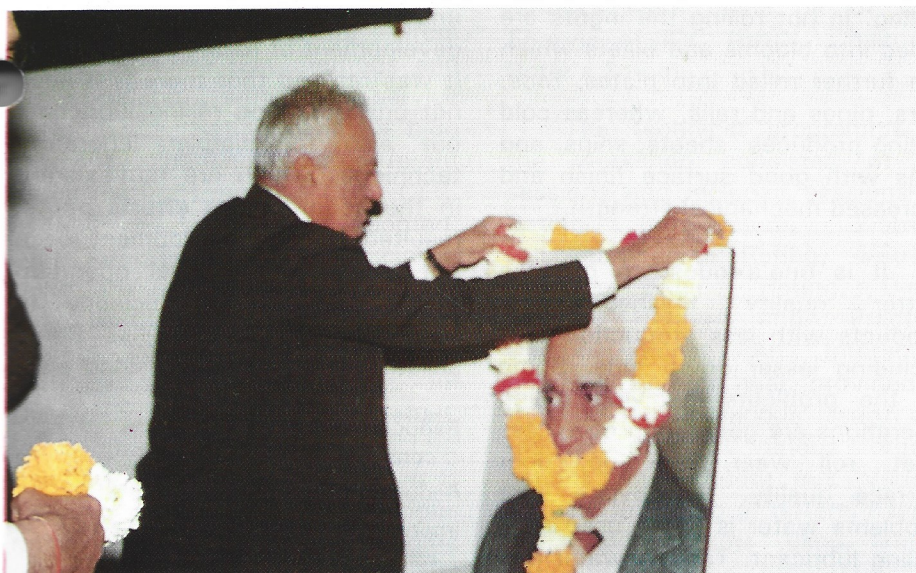
Dr S Vardarajan delivering the Lovraj Kumar Memorial Lecture.

million tonnes, fuel chemicals from todays 30 to 50 millions tonnes and that of coal from todays 290 to 400 million tonnes by the year 2000.

He suggested that the IIP should include in its training courses subjects like technology and professionalism.

He said that it would be necessary for the Indian chemicals industry to recognise the obsolescence of products and processes on account of energy usage, safety, unwanted by-products, economy of sale and distribution. He also suggested low distillation or no distillation or 'short distillation' for petroleum industry.

Dr Varadarajan also projected the possible situation in the year AD 2025 when we would face very low sulphur and nitrogen in petroleum products, zero lead, rejection of heavy fuel oils, gasoline



Dr S Vardarajan offering floral tribute to Shri Lovraj Kumar.

and diesel as the main products and discontinuation of kerosene, compressed natural gas in place of LPG as the domestic fuel and a 'carbon dioxide tax' for causing global warming.

He also stressed on the need to reduce and replace the chloro-fluorocarbons (used in refrigeration) by hydrocarbons, use of foam and carbon dioxide in the fire extinguishers instead of carbon tetrachloride, abolition of A-20 dyes in the synthetic dyes and reduction of dosage and toxicity in drugs.



WORKSHOP ON ROLLING OIL FOR STEEL

The Indian Institute of Petroleum, Dehradun organised a workshop on Rolling Oil for Steel on 24 and 25 April 1996 at IIP in which over 50 participants from user steel industry, oil companies, R&D institutions and academic organisations participated and interacted on a common platform.

The aim of the workshop was to disseminate the existing know-how to the user industry while simultaneously understanding the newer/future requirement of the steel industry vis-a-vis quality of rolling oils required. The workshop provided a forum for all interest groups to have a mutually beneficial thorough interaction. This interaction was provided by a number of invited papers.

With the liberalised policy of the Government the need for good quality steel at competitive price is imperative and so the workshop



Dr T S R Prasada Rao, Director, IIP, inaugurating the Workshop.

assumed greater significance as massive and bolder investments in steel sector are expected in the near future.

Country's industrial development and soundness of its economy is dependent on its steel output. Rolling is the main working operation for finished steel production, which involves plastically deforming metal by passing it between rolls. It is classified into hot rolling and cold rolling. In hot rolling the ingots are rolled into blooms and billets which are further rolled into plates, rods, bars, pipes and rails, whereas cold rolling produces sheets, ships, and foils with good surface finish and increased mechanical strength.

It is one's quest to produce better quality finished steel products with less production cost including lesser down time. Some of the problems involving rolling operations are generation of excess heat, roll wear, pick up, poor surface quality. To obviate heat problems water is being used as a rolling lubricant. Though water is a good coolant, it is a poor lubricant;

it can not prevent pick up and roll forces rise with increasing speed. To put in direct terms, there is a lot of need and scope for conservation of material and energy.

Realising this, efforts are being made all over the world for developing lubricants for rolling operation which can benefit the steel industry and thereby mankind. In our country, the work in this area was started in late 80s. The Indian Institute of Petroleum has undertaken in a major way the development of rolling oils for steel. It was realised that there is a need not only for good rolling lubricants but also for simpler laboratory techniques which are non-existent in the country. The efforts put in resulted in the development of a hot rolling oil for steel operation which proved its efficiency in actual steel rolling mills. Some salient improvements obtained are:

Reduction in energy consumption	8-14%
Reduction in roll wear	20-35%
Improvement in roll/pass life	upto 120%
Surface quality	free from cracks

Today we have technologies for rolling lubricants available in the country. However, the steel industry is still utilising water as lubricant. This is because of the lack of awareness of the existing technologies amongst the medium sized steel industry. □

NATIONAL WORKSHOP ON DEPOSIT RATING OF ENGINE COMPONENTS

The national workshop on Deposit Rating of Engine Components was held on April 23-24, 1996 at Indian Institute of Petroleum, Dehradun.

Rating is an important aspect in performance evaluation of engines, lubricating oils and fuels. Rating is defined as the quantitative and qualitative measure of different types of deposits on critical engine components by visual assessment and with the aid of rating manuals and tools. Rating is generally represented in terms of a numerical number called 'Merit Rating', on a scale of 0 to 10 which is helpful in comparing test results from different engine test methods and for correlation with field service performance. Rating needs a high skill and experience and, different rating methods such as CRC, CEC, IP and JPI are widely adopted. Although utilizing similar principles, there are some basic differences between these methods. In India a 'Raters Forum,' in which four participating laboratories, viz. IIP Dehradun, IOC (R&D) Faridabad, LIL Bombay, and Castrol India Ltd. Bombay, are actively involved. It is engaged in developing indigenous rating methods for different engine tests and to assist various organisations in such tasks.

The objective of this workshop was to bring together technical personnel from different sectors, viz. oil industry, OEMs, R&D institutions, and, other related organisations, to share their knowledge and discuss different practical aspects of rating of engine components.

This workshop was attended by 40 delegates from 20 different organisations. The organisations included

OEMs: Eicher, Swaraj Mazda, Maruti Udyog, Hero Honda, Bajaj Auto, Kinetic Engg., Birla Yamaha

Oil Industry: HPCL, BPCL, IOC (R&D), Castrol India Ltd., Total India, Esso Asia Pacific, Exxon Chemicals and Lubrizol India

Govt. Organizations: RDSO, BIS

R&D Institutions: PCRA, IIP

The workshop started with a welcome by **Shri R L Mendiratta**, Convenor and an opening address by **Shri Sudhir Singhal**, Area Coordinator, Petroleum Products Application Division, IIP. It was inaugurated by **Dr T S R Prasada Rao**, Director IIP, introductory remarks were made by **Dr G K Sharma** of IOC (R&D), Chairman, Rater's Forum.

The technical programme of the workshop consisted of six sessions and included sessions on Rating Introduction, 2-stroke Gasoline Engine Rating, 4-stroke Gasoline Engine Rating, Diesel Engine Rating and Practical Demonstrations. An interactive technical session was provided in the end where various issues and requirements of various organisations was brought out. Various aspects for rating of different types of specific terms used, rating deposits and aids, preparations of rating components, rating environ-

ment and aids, preparations of rating components, and rating techniques, were presented by experts and were discussed in details. During practical session, a demonstration of rating enclosure, colour charts, and rating manuals, specific rating tools and engine rating components were displayed and their important aspects were explained. Practical rating of pistons of a Caterpillar 1Hz engine, Bajaj 2-stroke engine and CLR engine were demonstrated and rating of other components such as nozzles, valves etc. were explained.

In the concluding session, views were invited from the participants of the workshop. They appreciated the design of this National Workshop and expressed satisfaction about its technical contents. They gave their suggestions for future activities to be pursued in this area. Based on their view, some recommendations were finalised, these are:

1. IIP should organise a number of short-term practical rating workshops for raters from OEMs, oil industry and other relevant organisations for specific class of engines, such as 2-stroke engines, 4-stroke gasoline engine, diesel engines, etc.
2. IIP should try to prepare and bring out a video film on 'Rating of Engine Components' which could be an aid in training workshops.
3. Raters Forum should finalise rating procedures and publish an indigenous rating manual for which BIS should be approached for formal approval.
4. Raters Forum should also consider and prepare specific rating procedures relevant to

specific engine and new areas of developments such as 4-stroke air-cooled gasoline engine for 2-wheeler application, kerosene fuel operated

2-stroke genset engine, gasoline injection systems etc. OEMs (Maruti Udyog Ltd, Birla Yamaha, Bajaj Auto Ltd etc) extended willingness to

cooperate and assured their active participation in Raters Forum to finalise rating procedure in these specific areas. □

IIP CELEBRATES SCIENCE DAY

The Indian Institute of Petroleum celebrated the National Science Day to commemorate the discovery of 'Raman Effect' by Nobel Laureate **Sir C V Raman**.

This year, IIP arranged the visit of science students from various local schools. Around 200 students participated in the Student Scientists Meet. The scientists briefed the students about various activities of the Institute and specific reference to the work in the area of industrial and domestic combustion and the Institute's achievements in this area like industrial and domestic appliances and various types of burners, boilers and experimental incinerator were demonstrated to the students.



Dr T S R Prasada Rao, Director, IIP, talking to the school children.

Dr T S R Prasada Rao, Director IIP, while welcoming the students, stressed the importance of pursuing science as a career. He urged that

more students should opt for science then only the country will produce more scientists for its well being and progress. □

DISTINGUISHED FOREIGN VISITORS

• **Prof Hans J Bart** of Germany visited India during 8-17 March, 1996. He delivered colloquia talks at IIP and also in the Chemical Engineering Department of Roorkee University. He had fruitful discussions with IIP scientists particularly belonging to Separation Processes

Area. At the end of his visit, following areas were identified for mutual collaboration between our Institute and University of Kaiserslautern, Germany:

- i) Removal of volatile organics from Air/Vapour mixtures by adsorptive separation
- ii) Use of structured packings for solvent extraction
- iii) Modelling of reactive distillation columns.

• World Bank team led by **Dr Melvin Goldman** visited IIP on April 5, 1996.

• Ukrainian Scientists **Prof S Kalatchev** and **Prof G Byokuv** visited IIP during May 17 - June 13, 1996. □

VISIT OF PROF M M SHARMA

Prof M M Sharma, FNA, FRS, Director, University Department of Chemical Technology, Bombay visited IIP on March 13 & 14, 1996. He had discussions with DIIP and a large number of scientists of IIP on the ongoing research projects being carried out by them. He gave

his valuable suggestions and guidance for speedy progress of the projects.

Prof M M Sharma inaugurated the new Library Annexe at IIP during his visit.

He expressed his happiness at the progress and growth of IIP during the past few years under the dynamic leadership of Dr T S R Prasada Rao.

HONOURS AND AWARDS

- **Citizens Honour for Dr T S R Prasada Rao**

Dr T S R Prasada Rao, Director IIP, Dehradun, was awarded the **Shri Khurshid Lal Science and Technology Award 1995** instituted



by the Doon Citizens Council. Popularly referred to as the 'Doon Ratna,' the Doon Citizens Council has instituted these awards to honour and recognise endeavours which enhance the tradition of excellence that Dehradun fosters and is synonymous with. The Doon Citizens Council considered Dr Prasada Rao's scientific contributions, his leadership under which IIP has achieved success, and most importantly, Dr Prasada Rao's efforts towards the socio-cultural fabric of Dehradun praiseworthy.

Dr Prasada Rao took over IIP on 20 September, 1990. An eminent scientist of international repute, Dr Prasada Rao specialises in catalysis. Since 1990 Dr Prasada Rao has not only led IIP successfully but has also made significant contribution for Dehradun. Notable among these are Dr Rao's special interest and efforts



Prof M M Sharma inaugurating the new Library Annexe.



Prof M M Sharma giving an auspicious touch to the function.

towards Dehradun's literacy mission and effective utilisation of IIP's scientific expertise to improve the quality of science education in Dehradun which is known for its educational institutions. The joint efforts of late Shri Lovraj Kumar, former Petroleum Secretary, and IIP RC Chairman and Dr Prasada Rao shall soon witness the establishment of a modern science teachers training project at the Doon School. It is solely due to Dr Prasada Rao's hectic efforts that Dehradun got its fifth Kendriya Vidyalaya, situated in the IIP campus.

The Doon Ratna for Dr Prasada Rao is a matter of immense pride for IIP.

• IIP Scientist awarded Ph D

Shri Y K Sharma, Scientist, IIP Dehradun, has been provisionally awarded Ph D degree by Dr Bhim Rao Ambedkar University, Agra for his thesis titled "*Studies on the stability of middle distillate diesel fuels; Effect of composition and additives*". He carried out these studies under the guidance of **Dr K M Agrawal**, Scientist E II of IIP and **Dr G C Saxena**, R B S College, Agra.

TECHNOLOGIES TRANSFERRED

1. IIP-IPF Process on Gasoil Hydrodesulphurization – ESSAR Oil Ltd., Madras.
2. Improved LPG Stove – 2 firms.

MAJOR AGREEMENTS/ MoUs SIGNED BETWEEN 1.1.96 TO 30.6.96

	(Rs. in lakh)
1. Catalyst & Technology Development for Hydro-treatment of Diesel & VGO-CHT, New Delhi	182.050
2. Studies on the effect of Soaker Geometries & Internals of visbreaking process-CHT, New Delhi	17.056
3. Etherification of C ₅ Olefins and Light FCC Gasoline (IBP-110 °C)-CHT, New Delhi	60.00
4. Development of test methods for the assessment of anti-scoring characteristics of Autogear Oils on Amsler Machine - IOC (R&D), Faridabad	5.40
5. Development of test method for performance evaluation of Metal Cutting Oil - IOC (R&D), Faridabad	7.0

ACTIVITY COMMITTEE MEET ON CATALYTIC REFORMING

The 18th Activity Committee Meeting on Catalytic Reforming was held at IIP, Dehradun on May 8-9, 1996. The Committee consisted of senior representatives from BPCL, BRPL, CHT, CRL, EIL, IOC(AOD), IOCL (Barauni, Gujarat, Haldia, Mathura, Panipat, R&D HQ, R&D centre), IPCL, MRL and IIP.

Shri V K Kapoor of IIP welcomed the participants and

thanked them for attending the meet. **Dr T S R Prasada Rao**, Director IIP, in his inaugural address expressed pleasure in hosting the meet at IIP. He commended the efforts of CHT in the coordination of the various activity committees and CHT's role in providing guidance to the refineries in various spheres. Dr Prasada Rao referred to the latest developments in the area of reforming and successful commercialisation of IIP-IPCL bimetallic catalyst in two reformers. He emphasised refiners to consider the application of this catalyst in their refineries and also to opt for IIP-EIL's simulation and optimization model which shall cause a reduction in reactor pressure so as to get maximum techno-economic benefits of the bimetallic catalyst operation. **Dr K S Jauhri** delivered a talk on the achievements and various scientific and technical activities of IIP.

The meeting provided useful interaction among refineries and R&D centres in the area of catalytic reforming. Presentations were made by participants on operations, regeneration, troubleshooting, analytical methods and future plans with very good exchange of ideas and discussion. Plans for reduction in benzene and gasoline to make them more environmentally favourable were discussed. It is expected that deliberations discussed in the meeting will further help the refineries and petrochemical industries in improving operational and efficiency of the catalytic reforming plants.

CONDOLENCE

Heartfelt condolence on the sudden and untimely death of **Shri Jai Singh**.

33 KV INDOOR SUBSTATION INAUGURATED AT IIP

The Director General CSIR, **Dr R A Mashelkar**, inaugurated the newly installed 33 KV Indoor Type, Sub-Station at the Indian Institute of Petroleum on 30 May 1996. The Director **Dr T S R Prasada Rao** and staff members of IIP were also present on the occasion.

Earlier, the power supply of the Institute was connected to an 11 KV mixed Rural Feeder having very frequent power cuts and power failures which disrupted research work to a great extent. To solve this power problem and as advised by the Chief Engineer UPSEB, an independent 33 KV HT feeder line was provided by UPSEB. A new 33/0.415 KV Indoor Sub-



Dr R A Mashelkar, DG SIR, inaugurating the 33 KV sub-station at IIP during his visit.

Station having capacity of 2 MVA has been installed at IIP's level. This is the first 33 KV type Sub-Station equipped with 33 KV, VCB switchgear panels in Dehradun.

The cost of this project for installing the new 33/0.415 KV Sub-Station including the construction of the new 33 KV HT independent feeder is about Rs 1 crore. □

COLLOQUIA

- **Dr Pradeep Rao**, Consultant, USA

"The movement towards Green Products and Technologies", January 4, 1996.

- **Dr G C Mishra**, IIP

"Conventional Processes of making Greases – Work done at IIP", January 30, 1996.

- **Dr H J Bart**, Director, University of Kaiserslautern, Germany

"Homogeneous and Heterogeneous Reactive Distillation", March 13, 1996.

- **Dr P Rangunathan**, Professor & Head, Department of NMR, AIIMS, New Delhi

"NMR : Instrumental Requirements for Solid State Work and Applications particularly Imaging and Carbon Editing", April 19, 1996.

- **Prof R S Ganapathy**, Academy of Management Excellence, Madras
- "Restructuring R&D for Competitiveness"*, May 7, 1996.

- **Mr N R Subbaram**, Adviser & Head, IPM, CSIR, New Delhi

"Intellectual Property Rights – Challenges and Opportunities", May 5, 1996.

- **Dr Eric Lowenthal**, NSF/CSIR, Post Doctoral Fellow NCL, Pune

"Bimetallic and Metal Support Interactions in Rh-Mo/Al₂O₃ and their Influence on Oxygenate Synthesis", May 24, 1996.

- **Dr A K Bakshi**, Professor,

Department of Chemistry, P.U. Chandigarh

"Molecular Designing of Conducting Polymers", May 20, 1996.

- **Dr A Dutta**, Ranbaxy Lilly Co., New Delhi

"Characterisation and Catalytic Activity of Nobel Compounds containing Metal Ions incorporated into Layered Vanadium Phosphate", May 21, 1996.

- **Dr G D Yadav**, Reader, UDCT, Bombay

"Friedel Crafts Chemistry from Chemical Engineering Viewpoint", June 5, 1996.

"Selectivity Engineering in Synthesis of Fine and Bulk Chemicals", June 6, 1996.

TRAINING PROGRAMMES ORGANISED

The following training programmes were organised from January to June 1996.

- A 2-week training programme on "Petroleum Refining & Petrochemical Technology" was organised for Graduate Engineer Trainees (GETs) of RIL, Patalganga and RPL, Bombay from 12-23 February 96. 18 chemical engineers participated in this programme along with one senior group course coordinator. The programme was in the form of class room presentations, besides visits to pilot plants.

There were 33 presentations besides an introduction to the IIP in the following areas:

- Crude Oil and Petroleum Products
- Refining Process Technology and Physical Separation
- Conversion and Treating Processes
- Petrochemicals
- General
 - Production Planning in Refineries
 - Petroleum Refining & Petrochemicals Industry in India

The programme was inaugurated by **Dr Rajendra Kumar**, former Director, RRL Bhopal and NML Jamshedpur and **Shri V Charandas**, former Director (Services), Gujarat State Fertiliser Corporation, was the Chief Guest at the valedictory function. He awarded the certificates to the participants.

- A 4-day advance programme was organised for senior executives of oil industries on "Advances in Petroleum Refining: Technology and Related Aspects". This was the fourth in the series and was organised from 5-8 February, 1996.

List of Participants:

HPCL, Bombay

- Mr V D Mahajan, General Manager - Project
- Mr A K Anchan, Dy General Manager - Maintenance

TATA KLOCKNER, New Delhi

- Mr Kumar Padmanabhan, Manager - Business Development

BPCL, Bombay

- Mr B Mandal, Dy General Manager - Process

NUMALIGARH REFINERY Ltd., Numaligarh

- Mr R C Choudhary, General Manager - Projects

IOCL (R&P Division), New Delhi

- Mr K K Acharya, DGM - Tech, Gujarat Refinery
- Mr Satish Makhija, Chief Research Manager, Research Centre
- Mr Raja Gopal, SPNM, Barauni Refinery

MRL, Madras

- Mr N K Sinha, General Manager - Projects

UOD, Dhaka, Bangladesh

- Dr Manoranjan Saha

IIP, Delhi & Dehradun office

- Mr S K Jain
- Mr D C Dhull
- Mr Y Kumar
- Dr A K Saxena
- Mr G S Dang

Special invitees from UOP Asia Ltd.

- Mr Mike Whysall
- Mr Y Ganju
- Mr K P McCormick

There were 13 technical presentations, each of 90 minutes duration, on various topics which included the following:

- "Challenges in Refining Industry" by **Dr T S R Prasada Rao**, Director, IIP.
- "Recent trends in refining process technologies - some basic facts" by **Dr P K Mukhopadhyay**, Consultant, IIP.
- "Future fuel quality and its impact on emissions and pollution standards in different countries" by **Dr B P Pundir**, IIP.

WELCOME

To the following new appointees:

- Ms Meena Kumari, LDC
- Mr Ramesh Kumar, LDC
- Mr Rajeev Sharma, Tech

To Shri S P Jaiswal on joining.



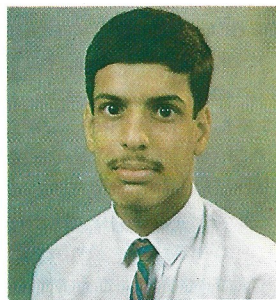
Mr K P McCormick being offered a bouquet by Mrs Nirmal Dhingra of IIP.

CONGRATULATIONS

• *Congratulations to the following on promotion:*

1. Dr Mathew Abraham promoted to Scientist E II w.e.f. 30.8.92
2. Dr Mukesh Saxena promoted to Scientist E II w.e.f. 29.6.92
3. Dr S N Sharma promoted to Scientist E II w.e.f. 14.5.96
4. Shri H K Madan promoted to Scientist E II w.e.f. 6.4.92
5. Shri P G Khanwalker promoted to Scientist E II w.e.f. 29.8.92
6. Shri J R Rai promoted to Scientist E II w.e.f. 5.5.92
7. Shri G S Dang promoted to Scientist E II w.e.f. 10.4.92
8. Shri D S Rawat promoted to Scientist E II w.e.f. 7.9.92
9. Shri G S Chaudhary promoted to Scientist E II w.e.f. 19.4.92
10. Shri R L Mendiratta promoted to Scientist E II w.e.f. 29.4.92
11. Dr A K Chatterji promoted to Scientist E I w.e.f. 12.12.92
12. Dr R P S Bhisht promoted to Scientist E I w.e.f. 1.2.93
13. Shri K D Neemle promoted to Scientist E I w.e.f. 1.2.93
14. Dr Asha Masohan promoted to Scientist E I w.e.f. 25.11.92
15. Shri P K Sharma promoted to Scientist E I w.e.f. 1.2.93
16. Shri J P S Sharma promoted to Scientist E I w.e.f. 1.2.93
17. Shri U C Gupta promoted to Scientist E I w.e.f. 1.2.93

• **Anudeep Nagalia**, son of Shri. M M Kumar (Scientist) for his selection in "National Talent Search Examination - 96".



He is a student of class XI in St. Joseph's Academy. It is a great honour to him and his school as the selection in NTSE is rare from Dehradun. He will get scholarship throughout his further education from NCERT.

DEPUTATIONS ABROAD

• **Mr O N Anand** visited Germany, Belgium, France and U.K. w.e.f. January 9-12, 1996 to attend 10th Int'l Colloquium on 'Tribology' at Stuttgart and to visit and hold discussions with officials of various institutes/companies having connection with lubricants and additives.

• **Dr K S Jauhri** visited China w.e.f. February 28, 1996 to March 7, 1996, where he visited some institutes in Beijing. The trip was for promoting business development and for assisting Chongqing Municipal S&T Commission for setting up of Technology Evaluation Centre.

• **Dr S K Singhal** visited USA w.e.f. 6.5.96 to 10.5.96 to attend SAE INTL spring fuels and lubricants meeting at Michigan and hold discussions with Dr A K Singhal of CF DRC, AL BAMA.

• **Dr H B Goyal** visited USA w.e.f. May 1, 1996 to July 31, 1996 for studying the conversion of heavy oils to Gasoline types under Raman Research Fellowship.

• **Mr Ajay Kumar Gupta** is in Germany under DAAD (German Academic Exchange Service Programme) for studies on the structure and composition in

relation to physical and functional properties of petroleum waxes under Sandwich Model scheme.

• **Ms Rita Sharma** is in Germany w.e.f. June 1, 1996 under DAAD (General) Research Fellowship.

• **Mr S M Nanoti** visited Germany for three months w.e.f. June 17, 1996 under CSIR-DAAD Bilateral Exchange Programme.

• **Dr T S R Prasada Rao, Dr Himmat Singh and Dr Alok Saxena** visited Egypt during June 22-26, 1996 as a part of Indian delegation to participate in a joint workshop/meeting on petroleum research being held at Cairo under INDO-EGYPT S&T agreement.

FAREWELL

• *Farewell to following colleagues on their retirements:*

1. Shri Keradin Singh, Tech
2. Shri Bholu Dutt, Jr Sec Guard
3. Shri G C Mishra, Sc
4. Shri B P Mourya, Helper
5. Shri J R Negi, Tech Officer
6. Shri Devi Lal, Driver
7. Mrs Sarla Manchanda, UDC
8. Shri R P Mehrotra, Sc
9. Dr P S N Murthy, Sc
10. Shri D S Rawat, Elec Asst
11. Dr S D Bhagat, Sc
12. Shri P K Sharma, Sc
13. Shri B P Pundir, Sc

• *Farewell to following colleagues on their transfers:*

1. Shri S Gnanaprakasan, Dy SPO
2. Shri D P Lama, SO
3. Shri M Upadhaya, Sc

• Farewell to Dr A S Narayanan, Sc on his resignation.

Performance Evaluation of Engine Lubricating Oils – Latest Trends and their Effect on Indian Scenario

R K Sharma

ABOUT THE AUTHOR



R K Sharma

He joined the Institute in 1963 and is presently working in the Engines Laboratory as Engineer E II. He has about thirty years of R&D experience in the area of efficient utilisation of petroleum products on IC Engines. He is responsible for the development of three indigenous engine test techniques and one bench scale test method for the evaluation of typical properties of engine lubricating oils and has about 56 publications including internal reports to his credit.

With the improvement in engine designs towards fuel economy, emission control and low engine oil consumption, the quality levels of engine oils are changing fast internationally. Consequently, the engine test techniques which are used for the performance evaluation of these oils are also changing quite rapidly in the developed countries. These changing trends may have their due impacts on Indian scenario also, because about eighteen oil companies of international repute are entering Indian market. The tie-ups of some major Indian and multinational oil companies are depicted in box 1.

In developed countries the latest trends for the development of new engine oil formulation are based on following criteria:

- Engine design and operating conditions
- Fuel and lube economy
- Exhaust emissions
- Toxicological considerations.

As work for the development of new engine oils formulations is of multifarious nature, it involves number of activities, viz., selection of engine oil performance category suiting to engine design and service conditions, selection of suitable base-stocks and additives (see box 2) and selection of suitable performance engine tests etc. As such, these activities require long duration R&D efforts and enormous amount of money.

One of the main activities for the development of engine lubricating oils is evaluation of oils on standard engine test techniques and development of suitable and reliable engine test methods for the evaluation of typical characteristic/ characteristics of the oil (box 3).

ENGINE OIL FORMULATION COMPONENTS

BASE OIL : MINERAL OR SYNTHETIC
 ADDITIVES : DETERGENTS
 DISPERSANTS
 ANTI-OXIDANTS
 ANTI-WEAR
 ANTI-RUST
 ANTI-FOAM
 POUR-POINT
 DEPRESSANTS
 FRICTION MODIFIERS

BOX-2

These activities, not only require lot of properly trained and well qualified manpower but also long duration continuous R&D efforts and huge amount of money. It may be mentioned that the testing of even one sample of engine oil formulation according to one performance category may require tens of lacks of rupees. Further, the establishment of engine test facilities as per Indian Specification on Engine Crank-case Oils (IS:13656-1993) may require crores of rupees in foreign exchange. In affluent countries, therefore, the work for the development of engine

TIE-UPS OF SOME INDIAN LUBE COMPANIES WITH REPUTED MULTINATIONALS

INDIAN Co.	MULTINATIONALS
IOC	MOBIL
BPCL	SHELL
HPCL	EXXUN
IBP	CALTEX
TIDE-WATER	MITSUBISHI-JAPAN

BOX-1

test techniques for the evaluation of engine lubricating oils is taken care by a specially constituted forum. For example in Europe, different nations i.e., Britain, Germany, France, Italy,

Belgium, Dutch etc. have formed their national organisations which in turn have co-ordinated their efforts in the form of Co-ordinating European Council (CEC).

The CEC looks after these activities with full participation of organisation like ACEA (Association des Constructeurs Europeens d'Automobiles), ATIEL (Association Technique de l'Industrie Europeens des Lubricants), ATC (Additives Technical Committee) (see box 4). The performance categories are, however, issued by ACEA. Latest European Engine Oil performance categories are depicted in box 5.

SOME ENGINE TESTS SPECIFIED IN INDIAN, EUROPEAN AND US OIL SPECIFICATIONS

ENGINE TESTS FOR INDIAN OIL CATEGORIES

1. CLR-L-38; Petter W-1
2. Olds-mobile Seq. II D
3. Olds-mobile Seq. III D (Now Obsolete)
4. Ford Seq. VE
5. CAT IG-2, IH-2, MW MB
6. M-B OM 364 A
7. M-B OM 616
8. Mack T-7

MAIN EVALUATION CHARACTERISTICS

- Bearing corrosion; Oil oxidation
- Rust and corrosion
- High temperature oil thickening; Valve train wear
- Sludge, varnish, wear
- Piston cleanliness; Lands and Groove deposits
- Bore polishing; Piston deposits, varnish, sludge, wear; Oil consumption
- Piston deposits; Cam wear; Cylinder wear
- Oil thickening

ENGINE TESTS FOR US & ILSAC OIL CATEGORIES

1. CLR-L-38
2. Seq. II D
3. Seq. III E/F
4. Seq. V E/F
5. Seq. VI/VI A
6. Mack T-7, T-8, T-9
7. Commins NTC 400
8. Ca. 1K
9. Cat. 1M-PC
10. Cat. 1N/1P
11. Mack T-6
12. DDC 6V 92 TA
13. GM 6.2L
14. Cimring L-10

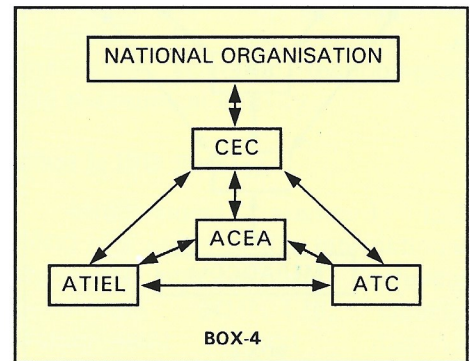
- Bearing corrosion; Piston skirt deposits (10-h Stripped viscosity, shear stability)
- Rust and corrosion
- Sludge, varnish, wear, viscosity increase
- Sludge, varnish, wear
- Fuel economy
- Mentioned above
- Piston deposits, wear, oil consumption
- Piston deposits, oil consumption
- Piston deposits, wear
- do-
- Piston deposits, wear, oil consumption
- Liner scuffing and ring distress
- Lifter-pin wear
- Corrosion

ENGINE TESTS FOR EUROPEAN OIL CATEGORIES

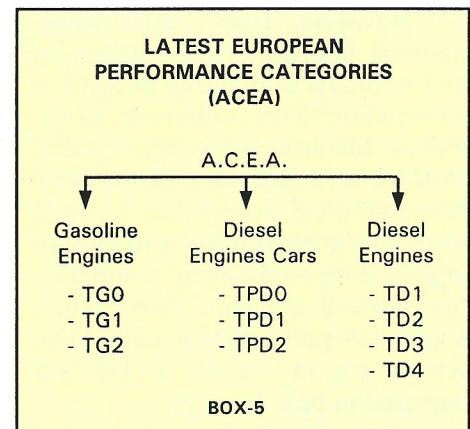
1. Petter W-1
2. Peugeot TU3M (wear test)
3. Peugeot TU3M (high temp. test)
4. VW 1302
5. M-B OM 364 A
6. M-B OM 616
7. M-B M 102 E
8. M-B OM 602 A
9. VW 1.6 L
10. XUD 11 ATE
11. M-B M 111
12. M-B M 111
13. Seq. III E, V E, Mack T-7, T-8

- Mentioned above
- Camshaft wear; Follower scuffing
- Piston deposits
- Viscosity increase
- As mentioned above
- do-
- Piston deposits, sludge, wear, cam and follower wear
- Bore polishing, piston deposits, sludge, cam wear
- Ring sticking, piston cleanliness
- Piston cleanliness, sludge, viscosity increase
- Black sludge, deposits, wear
- Fuel economy
- As mentioned above

BOX-3



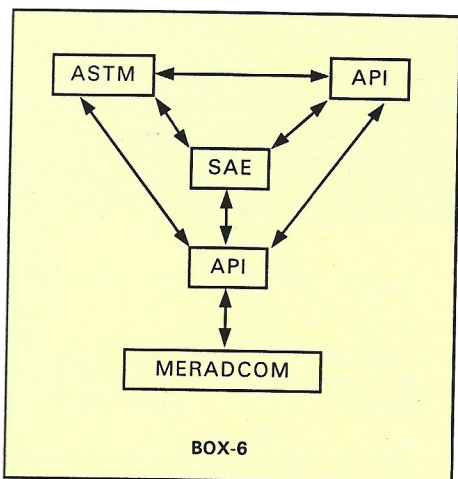
BOX-4



BOX-5

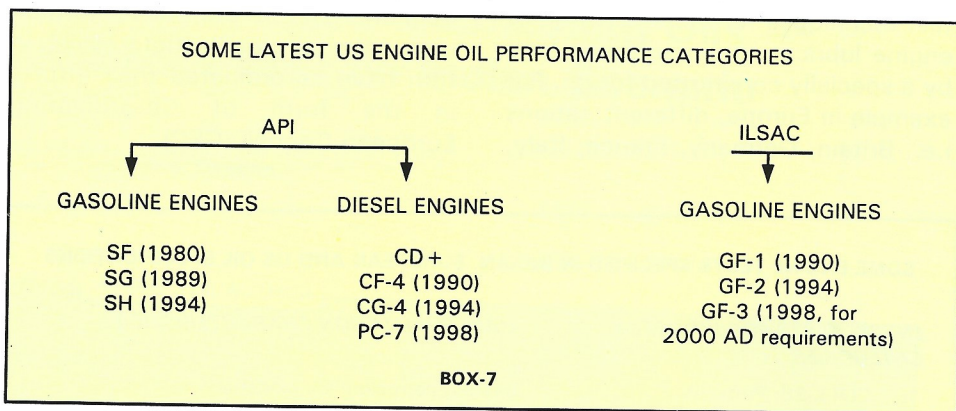
In USA which is pioneer of this area, American Petroleum Institute (API), Society of Automobile Engineers (SAE) and American Society of Testing Material (ASTM), normally referred as 'Tripartite' call upon Co-ordinating Research (CRC) to provide technical background and support

for the development of engine tests (see box 6). The engine oil performance categories which are most commonly used in US and world over are issued by API and MERAD COM (Mobility Equipment Research and Development Command) a US Military authority as API and MIL categories respectively.



BOX-6

However, from 1990, International Lubricant Standardisation and Approval Committee (ILSAC) in association with American Automobile Manufacturing Association (AAMA) and Japanese Automobile Manufacturing Association (JAMA) have also started issuing their own engine oil performance categories for gasoline engines. Some latest engine oil performance categories which are in vogue in US are depicted in box 7.



In India, presently, there are three organisations namely Indian Institute of Petroleum, Dehradun (IIP); IOC (R&D) Centre, Faridabad and Lubrizol India Ltd., Bombay which have established part of the engine oil testing facilities according to current Indian specification on engine oils (IS:13656-1993). These organisations are also putting sincere R&D efforts for the development of indigenous engine test techniques for the last many years. However, none of the methods developed so far by these laboratories has been approved by the Bureau of Indian Standards and as such Indian specification on engine lubricating oils is specifying engine tests of foreign origin (see box 3). Therefore, establishing of full facilities of engine tests according to Indian specification which is recommending engine tests of foreign origin for its different quality levels would require enormous amount in foreign exchange. Further, our country will

always remain dependent on foreign countries for the continuous maintenance and updating of test benches according to test methods. As such, there is an urgent need to streamline the area of development of indigenous test techniques in lines similar to European or US system. However, this can be possible provided Indian Engine Manufacturers, Indian Oil and Additive Companies put forth their efforts, in their own interest, in similar manner as their counterparts have been putting in the effluent countries. At the outset, in author's opinion, a national level working group may be formed which may emphasise the relevant industries, the necessities and importance of these activities and make them agreeable for their necessary inputs and funding and coordinate the required activities in right direction to make the country self reliant in this area by March 2002, i.e., end of 9th Five Year Plan.

***Let clean environment
be everybody's concern.***

ISO 9000 Quality Management System : An Introduction

D C Madhwal

(Our Institute has decided to achieve ISO 9000 registration. This necessarily requires that each of us becomes aware of what ISO 9000 is all about. This article is being published with a view to introduce the subject and answer some of the questions which the mention of ISO 9000 evokes.)

In the early fifties the war devastated economy of Japan was struggling to get a foothold. Japanese products were inferior in quality to those of western countries. Posed with the problems of quality, they invited Professor Edward Deming the father of modern philosophy of quality management in 1954 and later Professor Juran for consultation. The Japanese experimented with Deming and Juran concepts, the results were outstanding. In a few years the quality of Japan's products not only matched but surpassed in many areas to those of western countries. The 'Kaizen' concept of Japan is a further improvement of the earlier Deming and Juran concept. It is apparent that quality of product or service is single most important factor which leads to good economic performance by an organisation. To ensure quality one has to ensure the quality. To ensure quality one has to make systematic control at every stage. For making systematic controls co-operation of every employee is needed. For this management support is required and management has to make a firm commitment on quality. Every employee's involvement is of utmost importance. The gap between manager and the managed should narrow down in understating the problems, finding solutions and implementing them. When all these actions are implemented and followed in the

right earnest an organisation can assure the quality of product or service and can guarantee its performance with full confidence.

A number of quality control methods have been carried out by industry for several years but there were wide variations in quality results. The search for genuine keys to success by improving overall efficiency of the organisation has been a matter of deep concern to various companies of the world. Based upon the experience of quality experts of several organisations world over, a quality management system was evolved at international organisation for standardisation (ISO) which was finally accepted as international standard ISO 9000 in the year 1987. Now every quality conscious organisation who wants to survive and grow, has adopted this standard or is in process of doing so.

What is ISO

International Organisation for Standardisation is a world wide federation of national standards bodies, having its head quarters at Geneva in Switzerland. India is one of the founding members of ISO and participating through Bureau of India Standards (BIS) as an active member in various technical and management committees of ISO. The objective of ISO is to promote the development of standardisation and related activities in the world

with a view to facilitating international exchange of goods and services and to develop co-operation in the sphere of intellectual, scientific, technological and economical activity.

What is ISO 9000

International standard ISO 9000 is a series of five international standards prepared by Technical Committee ISO/TC176, Quality Management and Quality Assurance. These standards are generic in nature, not specific to any particular product and can be adopted by manufacturing and service industries alike.

ISO 9000 standard tells producers and suppliers, the requirement of a quality oriented system. It defines the basic disciplines and specifies the procedures and criteria to ensure that the output (product and service) of the organisation consistently meets the customer's requirements.

ISO 9000 is internationally accepted standard and is simply common sense set down on paper in an organised way, based on the experiences of several organisations and quality experts of various countries.

What is involved in establishing quality system.

In a quality system the activities of organisation are standardised and documented laying

down how the activity is to be performed; Who is to perform it and the system according to which the operator and his supervisor will check the results of this activity. It puts into practice the cost effective concepts of 'getting it right first time' and every time and that 'prevention is better than cure'. ISO 9000 system requires that every man is involved in maintaining the quality of the activities that he performs apart from the centralised activity checks. It utilises the intellect of the operator. If there is a suggestion from any person irrespective of his level, it should be examined and accepted if found useful for the organisation. Continuous improvement is yet another aspect of the quality system which the Japanese call 'Kaizen'. It is ensured that if any weakness is noticed it is rectified at the earliest and the system improved upon.

Affects of ISO Quality Management System

Clarity of customer (user) requirements

When we design the quality system we go through the entire existing processes as a first step and see how do these fit in and meet the requirements of the selected quality model standard ISO 9001, 9002 or 9003. Wherever gaps exist new system procedures and work instructions have to be implemented to make the entire system operational. A critical review of marketing activity will indicate the most suitable methodology for identifying customer requirement in clear terms. Only then the product or service can be designed to provide customer satisfaction.

Clarity of roles and responsibility

While examining the work process in the organisation the roles and responsibilities of every

individual are delineated clearly so that no gaps exist in working process. An organisational chart has to be drawn up and responsibilities of management are listed on.

Clear objectives and targets

While working out the quality policy of the organisation, objective and targets are identified. These are made to be understood by every person in the organisation.

Control over quality of operations

The quality function is to be decentralised and every individual is responsible to maintain and check the quality of work himself. In addition, control of quality management will be in force as a double check. This will provide complete control over all quality operation of the organisation.

Continued education and training of personnel

Training need of every individual is identified to ensure that every man remains confident of his capability to provide results expected from him. Accordingly, training programmes have to be planned and executed and a record maintained to ensure that all personnel who needed training have been given opportunity.

Efficient and effective working methods

Maximum number of people are involved to write procedure and work instructions which can be implemented without any difficulty. These are then implemented on the ground and the system is reviewed periodically to ensure that working methods become efficient and effective on a continuing basis.

Independent audit of all operations

Systematic planned independent audit ensures that Quality System covers all aspects required by ISO 9001, 9002 or 9003 and

Quality System is being implemented in desired manner. In addition, management gets the feedback that quality of product or service is being provided as planned.

Increased efficiency and productivity

This is achieved by clarity of roles and responsibilities, clear-cut objectives and targets, control of all operational processes and motivated work force with the back up of a review of internal audit system. The increased profitability and efficiency gives pride to the employees and instils in them the confidence for greater efficiency and the confidence in management.

Is quality system in ISO 9000 series based on new concept

The elements of ISO 9000 quality system are not new. Some or the other elements are always under practice in every organisation. The important features of ISO 9000 are the integration of all activities which have a direct or indirect effect on the quality of a product or service and demonstrability of all such efforts towards maintaining the desired quality.

Would the whole system of quality started from scratch

No. Every organisation has some system of quality control already operating in each department some elements of ISO 9000 may be missing or operating under different name. What is needed is to organise all the activities systematically, updating them periodically, filling up the missing elements and making open for verification.

Benefits of ISO 9000 QMS

Competitive advantage

It increases the credibility of the organisation and improves

image and reputation as a company capable of providing quality goods or services.

Customer orientation

ISO 9000 meets user requirements by providing quality products or service.

Higher productivity and profitability

Improved efficiency in the organisation result in its productivity and profitability.

Higher potential for growth

Higher productivity results in increased potential for the growth of organisation. Increased customer satisfaction and delight spreads message of organisation and adds to its goodwill.

Human resource development

Adoption of ISO 9000 envisages for regular training and development of manpower which helps in overall cultural improvement of the organisation.

Innovation and improvement

It provides for continuous improvement in quality and improvement of new products to meet the dynamically changing needs of users.

Key aspects of ISO 9000 QMS

Basically there are three key elements in ISO 9000 QMS – the management commitment, personnel involvement and operational processes.

Management commitment

Management has to decide that it wants to improve the quality and implement ISO 9000 quality system. It has to provide all resources like men and material, work out a quality policy, objective and guidelines to ensure that quality system is designed adequately and implemented fully. It has to design

and implement an effective review system and to ensure the quality of all operations and systems.

Personnel involvement

ISO 9000 requires involvement of all personnel in the organisation. They must understand quality concept, how the quality system has been designed and how it is implemented. Every individual must know his role in the quality plan in the organisation and must be proud of the contribution he makes. Intragroup and intergroup communication is essential to ensure that there are no gaps.

Operational processes

While laying down the quality system we have to think of the control of product or service quality at every stage in the product or process development or service processes. The quality of all resources required for the processes be maintained at the highest e.g. men, materials, machines and methods. Identifying training needs of manpower has already been mentioned. Largely, a management review is to be introduced to monitor, control and verify the output at the lowest cost at every stage of operation.

How to implement ISO 9000

The implementation process begins with determination of top management, to apply ISO 9000 in the organisation. The first step is to select an appropriate model to suit the activities and output of the organisation. Each model has certain elements (requirements) which have to be established in the organisation. The number of elements varies from 20 to 12 in different models.

What is to be done to establish a model, is explained in international standards. The organisa-

tion should prepare them to meet the requirements of selected model. Next step is to put it into practice in all functional areas of the organisation. The quality system be kept in operation to make sure quality management has become an essential and regular function of the management.

The organisation which has established and is operating quality system as per ISO 9000 standards can be verified and certified by a third party certification body. The ISO 9000 quality system certificate attests the capability of the organisation to provide quality products or services to customers. In India, Bureau of Indian Standards is the accredited and competent certification body for quality system.

There are a few other international quality system certification agencies also operating in India. The certification agency conducts an audit of the organisation's quality system to verify whether the organisation is maintaining its quality system as per the applicable standard. If found in compliance to the requirement of ISO 9000 standards, the organisation is granted a 'ISO 9000 quality system certification licence'.

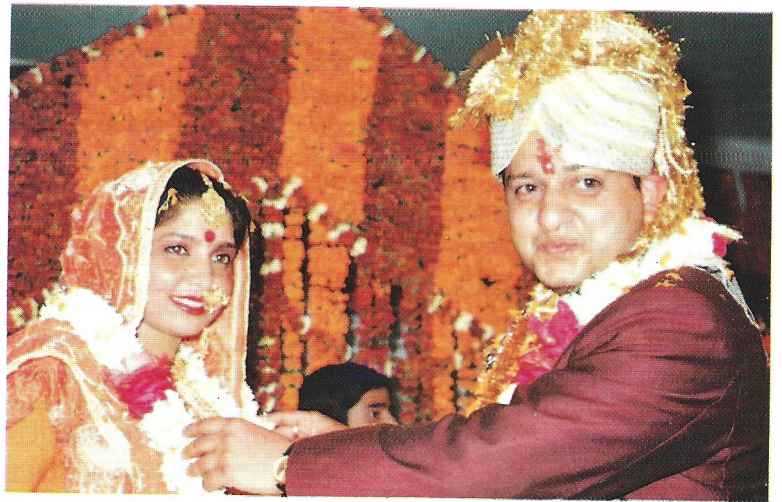
**Conserve
Petrol**
*Let this
be our
endeavour*

Wedding Bells

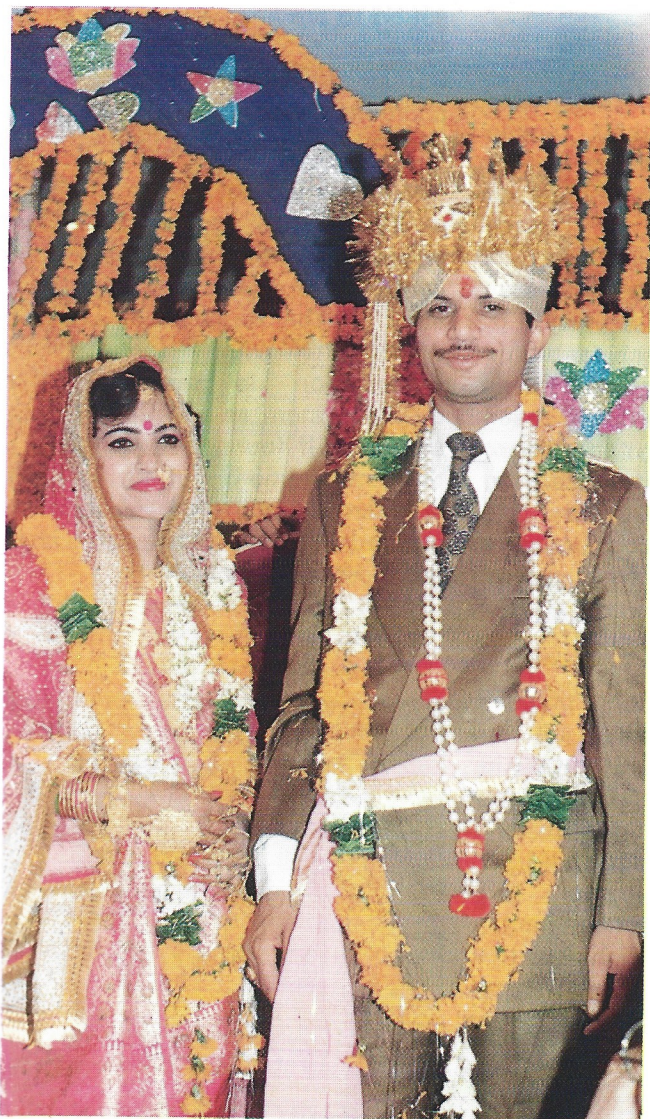


Congratulations

to



Shri Anjum Sharma on his wedding to Abha on 30 January 1996.



Shri H R S Sharma, Executive Engineer, on the occasion of marriage of his son Sushil with Sadhana on 2 June 1996.



Shri T D Tewari on the occasion of marriage of his son Girish Chander Tewari to Kala on 30 May 1996.



Shri M R Bhagat on the occasion of marriage of his son Mandeep Bhagat with Surjeet on 10 May 1996.

प्रशासनिक/तकनीकी शब्दावली कार्यशाला का आयोजन

संस्थान की राजभाषा यूनिट द्वारा वैज्ञानिक तथा तकनीकी शब्दावली आयोग, भारत सरकार, नई दिल्ली के सौजन्य से दिनांक 25-27 जून, 1996 तक एक तीन दिवसीय प्रशासनिक/तकनीकी शब्दावली कार्यशाला का आयोजन किया गया। इसमें संस्थान के 200 से अधिक अधिकारियों/कर्मचारियों ने भाग लिया। इस अवसर पर आयोग के अध्यक्ष प्रो प्रेम स्वरूप सकलानी, सचिव डॉ हरीश कुमार, सहायक निदेशक वीर सिंह आर्य, आयोग के पूर्व सचिव देवेन्द्र दत्त नौटियाल, प्रेमानंद चन्दोला के अतिरिक्त प्रमुख भारतीय विद्वान डॉ गंगा प्रसाद विमल, निदेशक, केन्द्रीय हिन्दी निदेशालय, प्रो केदार नाथ सिंह, प्रोफेसर (हिन्दी) जवाहर लाल नेहरू विश्वविद्यालय, प्रमुख हिन्दी व बर्मी साहित्यकार चन्द्र प्रकाश प्रभाकर, हिन्दी अकादमी के पूर्व सचिव डॉ नारायण दत्त पालीवाल, प्रमुख साहित्यकार एवं व्यंगकार डॉ शेर जंग गर्ग तथा डॉ राय जैसे अन्य कई गणमान्य विद्वान, शब्दावली विशेषज्ञ वक्ता के रूप में उपस्थित थे।

कार्यशाला का उद्घाटन संस्थान के कार्यकारी निदेशक डॉ वेंकट राव शिष्ट तथा आयोग के अध्यक्ष प्रो पी एस सकलानी ने दीप प्रज्वलित कर किया। आधार व्याख्यान देते हुए अध्यक्ष प्रो सकलानी ने कहा कि किसी भी विषय का मौलिक चिंतन मातृभाषा में ही संभव है।



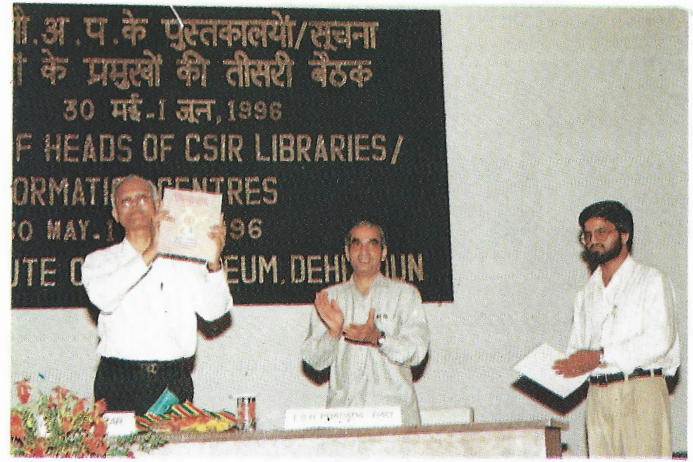
अध्यक्षीय भाषण प्रो पी एस सकलानी।

अन्य प्रमुख वक्ता प्रो केदार नाथ सिंह ने कहा कि हिन्दी भाषी व हिन्दी प्रेमियों को नए शब्दों का निर्माण कर अपने ज्ञान की सीमा में वृद्धि करनी चाहिए।

प्रमुख हिन्दी बर्मी साहित्यकार चन्द्र प्रकाश प्रभाकर ने कहा कि अपनी मातृभाषा के प्रति प्रत्येक व्यक्ति को लगाव रखना चाहिए। अन्य भाषा सीखने से पूर्व अपनी भाषा पर अधिकार होना चाहिए। यह सीख विद्यार्थी जीवन में उन्हें नेताजी सुभाष चन्द्र बोस ने बर्मा में दी थी।

डॉ गंगा प्रसाद विमल ने कहा कि देश में एक तरफ जहाँ हिन्दी की उपेक्षा हो रही है वहीं बहुराष्ट्रीय कंपनियाँ भारत में अपने पांव पसारने के लिए हिन्दी का सहारा ले रही हैं। वे ऐसे लोगों को नियुक्ति दे रही हैं जो हिन्दी जानते हैं। यह वक्त हिन्दी समेत देश की सभी भाषाओं को प्रोत्साहित करने का है जिससे देश विखंडित न हो।

कार्यशाला के संयोजक एवं युवा साहित्यकार डॉ दिनेश चमोला ने कहा कि भारतीय पेट्रोलियम संस्थान को भारत के लब्ध प्रतिष्ठित विद्वानों को आमंत्रित करने तथा निकटता से उनका सान्निध्य प्राप्त करने का गौरव प्राप्त है। इसी क्रम में 'विकल्प' इस बात का प्रमाण है कि एक वैज्ञानिक संस्थान ने किस प्रकार से देश के प्रख्यात रचनाकारों के साथ जुड़कर संस्थान एवं राजभाषा की गरिमा को बनाए रखा है। उन्होंने कहा कि यदि मन में कुछ कर गुजरने की ललक हो तो क्या कुछ संभव नहीं है।



'विकल्प' के राजभाषा विशेषांक का विमोचन करते महानिदेशक डॉ आर ए मशेलकर। साथ में निदेशक डॉ प्रसाद राव व संपादक डॉ चमोला।

प्रसिद्ध व्यंगकार डॉ शेर जंग गर्ग ने कहा कि ऐसा कोई नहीं है कि जो हिन्दी नहीं जानता। हमें छोटी-छोटी बातों से ही हिन्दी के प्रयोग व व्यवहार को आगे बढ़ाना है।

हिन्दी अकादमी के पूर्व सचिव हिन्दी के विशेषज्ञ डॉ नारायण दत्त पालीवाल ने पत्र व्यवहार, टिप्पणी एवं आलेखन तथा तकनीकी शब्दों के प्रयोग व अन्य कार्यालयीन व्यवहार पर भी प्रकाश डाला।

आयोग के सचिव डॉ हरीश कुमार ने आयोग के गठन के इतिहास और शब्दावली निर्माण तथा सौंपे गए कार्यों का उल्लेख किया। उन्होंने बताया कि पहला कार्य बहुत हद तक पूरा हो चुका है किन्तु शब्द निर्माण निरंतर चलने वाली प्रक्रिया है और विषयवार शब्दावलियों का प्रकाशन जारी है।

आयोग के पूर्व सचिव देवेन्द्र दत्त नौटियाल ने अपने वक्तव्य में शब्दावली बनाने की आवश्यकता और उसकी प्रक्रिया की सूक्ष्मताओं का विवेचन किया। संस्थान के प्रशासन नियंत्रक श्री खुर्शीद अहमद कुरैशी ने प्रशासन में हिन्दी के प्रयोग को बढ़ावा देने के अपने प्रयास के उदाहरण दिए तथा धन्यवाद प्रस्ताव भी ज्ञापित किया। □

कार्मिक समाचार

आइ आइ पी स्टाफ क्लब ने अपने 6 महीने (जनवरी-जून 1996) के कार्यकाल में निम्न कार्यक्रम आयोजित किए।

○ होली मिलन

आइ आइ पी स्टाफ क्लब ने हर वर्ष की भाँति इस वर्ष भी होली मिलन का कार्यक्रम सामुदायिक केन्द्र में बड़ी धूम-धाम से मनाया। इस वर्ष आइ आइ पी में पहली बार सारे कर्मचारियों में होली का रंग वितरित किया गया।



श्रीमती एवं डॉ प्रसाद राव बच्चों के संग होली का आनन्द लेते हुए।

○ डॉ एम जी कृष्णा स्मृति बृज प्रतियोगिता

इस प्रतियोगिता में जिले व बाहर की 22 टीमों ने भाग लिया जो कि अपने आप में एक रिकार्ड है। इस प्रतियोगिता का उद्घाटन संस्थान के निदेशक डॉ टी एस आर प्रसाद राव द्वारा किया गया। यह प्रतियोगिता प्रदेश स्तर पर हुई। करोल बाग दिल्ली की टीम इसमें प्रथम स्थान पर रही।

○ आइ आइ पी मेला

हर वर्ष की भाँति इस वर्ष भी मेले का आयोजन किया गया। इस आइ आइ पी मेले का उद्घाटन सी एस आइ आर के महानिदेशक डॉ आर ए मशेलकर के कर-कमलों द्वारा किया गया। इस मेले में खाने-पीने व खेल के करीब 24 स्टाल लगाये गये। इस में पहली बार टेलीस्कोप भी लगाया गया जो कि मुख्य आकर्षण रहा। मेले के



डॉ मशेलकर मेले का उद्घाटन करते हुए।

बीच-बीच में आतिशबाजी का सुन्दर प्रदर्शन किया गया। मुख्य अतिथि ने इस प्रदर्शन को काफी सराहा तथा कहा कि ऐसा सुन्दर मेला उन्होंने सी एस आइ आर की किसी भी लैब में नहीं देखा। मुख्य अतिथि ने मेले में दो सर्वश्रेष्ठ स्टालों का भी चुनाव किया। खाने-पीने के स्टाल में चाट-टिक्की व गेम्स में पपलू डाउन को प्रथम पुरस्कार दिया गया।

- महिला खेल-कूद प्रतियोगिता का आयोजन क्लब द्वारा किया गया। इसमें संस्थान की महिला सदस्यों ने खूब बढ़-चढ़ कर हिस्सा लिया।
- वैदिक समिति द्वारा आयोजित पर्व (जनवरी-जून 1996)
 - बसन्त पंचमी "माँ सरस्वती पूजन" (दिनांक : 24.1.96)
 - भगवान कार्तिक की मूर्ति की प्राण प्रतिष्ठा आइ आइ पी मन्दिर में दिनांक 24.2.96 को हुई।
 - "वार्षिक भण्डारा" मन्दिर स्थापना दिवस के पर्व पर माँ दुर्गा की पूजा, अर्चना एवं हवन (दिनांक : 25.2.96)
 - "शिवरात्रि" पूजन, भजन दिनांक 26.2.96 को हुआ।
 - "नवमी पूजन" माँ दुर्गा की पूजा, अर्चना, हवन एवं प्रसादा रामायण के सुन्दर काण्ड का पाठ दिनांक 28.3.96 को सम्पन्न हुआ।
 - होली दहन एवं मिलन दिनांक 4.3.96 और 5.3.96 को आयोजित हुआ।