

THEME: "TECHNOLOGY TRANSFER"

1983



**10th
Annual
National
Convention**

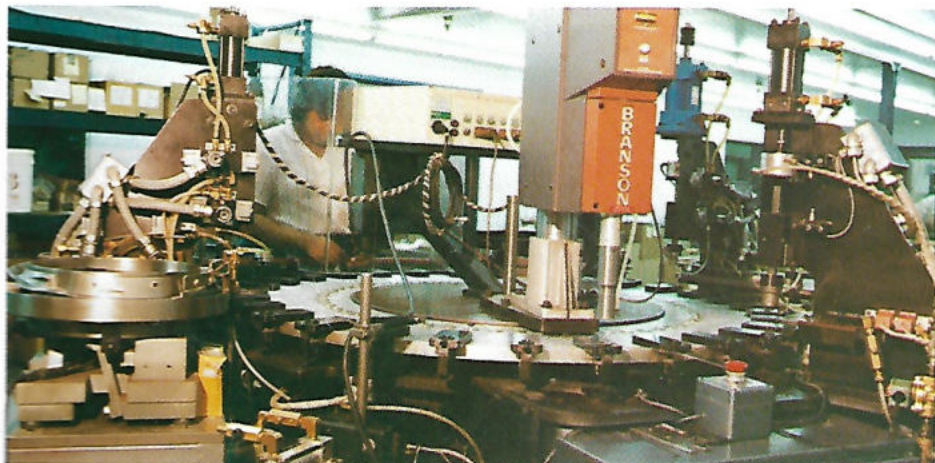
**September 5, 1993
Huntsville, Alabama**

1993

asei  **american society
of engineers
from india**



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American Society of Engineers from India

VISION

ASEI to be:

- A nationwide network of engineers of Indian origin +
- A forum to assist members in advancing their careers
- A facilitator of Technology Transfer between U.S.A. and India
- A national professional organization with the goal of "service to its members"

ACTIVITIES

CAREER ENHANCEMENTS

- Provide Career Guidance and Counseling
- Facilitate Networking
- Assist in Skill Development through Continuing Education Courses and Technical Seminars
- Encourage PE registrations

STUDENT AFFAIRS

- Providing guidance to Students
- Establish Merit Scholarships
- Assist in Practical Training and job placement

ORGANIZATIONAL MATTERS

- Establish a National Office
- Establish an Editorial Board and Publish Quality Newsletter
- Increase Membership
- Publish Directory of Members
- Increase awareness of ASEI
- Facilitate local chapter meetings

TECHNOLOGY TRANSFER

- Conduct Workshops on How To Transfer Technology to India
- Assist in Development of Rural India
- Provide Communications Channels for Retired Engineers
- Disseminate Opportunities in India for NRIs.

LIASON WITH INDIA

- Establish working relationship with government and private organizations in India

CONVENTIONS & AFFILIATIONS

- Conduct Conventions throughout U.S.A.
- Cooperate with Other Professional Societies with Similar Goals.

LOCAL CHAPTER ACTIVITES

- Conduct bimonthly meetings to promote discussion/participation on current events
- Communicate with ASEI National Office and other Local Chapters



**american society
of engineers
from india**

membership benefits guide

Networking

ASEI offers a unique opportunity to you to make contacts and network with fellow professionals who share your interests. Networking leads to mutually beneficial opportunities and relationships.

Conventions

Each year ASEI holds a nationwide annual convention. Conventions and workshops are also held locally by each chapter. Recognition is provided to outstanding people through awards.

Local chapter meetings

Local chapters provide members the opportunity to meet each other, network, communicate/generate new ideas, attend career development seminars, build beneficial relationships and learn from each other. Chapter meetings are geared towards the needs of the members. Periodically, plant tours, mini-conventions and development workshops are conducted. Monthly programs emphasize business/consulting topics, career development topics or immigration/interviewing/resume topics, depending on the chapter membership interests.

Committees

Committees are charged with the responsibility to accomplish specific ASEI goals which are common to all chapters. Committees can also be looked upon as the R & D arm of the chapters. Committees develop programs or workshops that can be used at the chapter level or at annual conventions. Members are encouraged to actively serve on committees.

Career enhancement

ASEI assists each member by career planning and enhancement assistance. Two key programs are customized workshops (at local chapter meetings and at the annual convention) and mentoring programs to personally discuss career issues.

Member directory

The ASEI directory can help you find fellow members. Information is also available on company affiliations and expertise. The directory is updated annually. ASEI sends a free directory to all members.

Employment directory

Referral assistance is provided to members looking for work. Employers are encouraged to recruit ASEI members through job fairs and to meet their minority hiring goals.

Publications

ASEI plans to make available publications on relevant subjects such as career development, tech transfer and immigration to its members. Publications will be developed by ASEI committees.

Corporate membership

Corporate membership is open to companies actively engaged in engineering, architecture and related arts and sciences. Benefits include up to \$500 credit toward your first display ad in the monthly newsletter, exclusive access to a no-fee professional employment placement service, a \$250 credit toward your first display ad in the annual convention brochure, 50% discounted rates for exhibit space at annual and local conventions, and Corporate Member listing in the membership directory.

Technology transfer

ASEI assists Indian and U.S. companies by bringing together technology experts in the desired industry. Lists of experts, businesses and technology articles are maintained. Technology liaison is maintained with Indian organizations and with other associations in the U.S.

Trade Assistance

ASEI plans to acquire and catalog trade laws and policies. Facility assistance is provided to trade delegations from Indian or to U.S. companies.

Business and consulting

This committee assists business and consulting firms in areas of mutual interest.

Student affairs

ASEI assists students by providing scholarships, opportunities for internships with businesses (job search), in immigration matters (workshops), and other beneficial services such as resume writing, career planning and guidance and mentoring.

Newsletters

The newsletter is sent to all members and is intended to be informative and educational. It communicates key events and news.

Scholarships and awards

Student scholarships are awarded based on merit and need. ASEI recognizes outstanding individuals for their professional and entrepreneurial contributions.

American Society of Engineers from India 1993 Organization

Board of Directors

Vinod Goel	703/318-0774
Suresh Gulati	607/733-4758
Sudhir Jain	313/769-2383
Prakash Krishnaswamy	313/851-9648
Arun Tuteja	313/347-0839
Naresh Gupta	301/330-9017
Bhushan Kulkarni	313/971-2956
Chand Kymal	313/665-6488
Mukul Mehta	216/779-5057
Raj Wattikutti	313/644-2939
Biliver Bhatt	205/882-1382
Chandrika Prasad	301/464-5042
Nippani Rao	313/553-8323
Anind Singhal	614/592-3430
Lakshmi Vora	313/642-7983

Executive Committee

Ram Reddy Nomula	Chairperson
Dr. Chandrika Prasad	Treasurer

Chairperson's Committees

Convention	Vinod Goel
Newsletter	Dr. Chandrika Prasad
Vision/LRP/Constitution	Nirdosh Reddy
Membership	Mukul Mehta
Technology Transfer	Naresh Gupta
Awards	Asha Reddy
Fund Raising	Shailesh Vora
Business Consulting	Ram Nomula

American Society of Engineers from India 1993 10th National Convention Committee



Ram Reddy Nomula
Chairperson



Beth A. Adcock
Communication Coordinator
and Treasurer



Dr. Ramesh Iyer
Daytime Program
Coordinator



Chandrashekhar
Dahagam
Ticket Sales



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Publicity



Vidya S. Reddy
Host



Anjali Reddy
Food and Catering



Sumithra Reddy Sunki
Food and Catering



Dr. Sajjan G. Shiva
Entertainment



Rajesh M. Bharwani
Huntsville Chapter President
and Venue



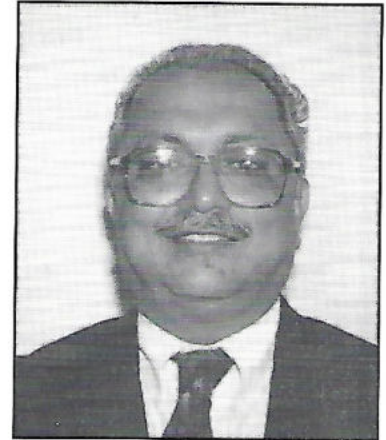
Niranjana S.
Registration



American Society of Engineers from India

1993 Chairperson's Message

It is my great pleasure to welcome you to the 10th National Convention of the American Society of engineers from India, the first one in Huntsville, Alabama and the second one to be held outside the Michigan premises. The Huntsville, Alabama Chapter is proud to host this national convention to celebrate the 10th anniversary of our association.



Ram Reddy Nomula
ASEI 1993 Chairperson

As Shailesh Vora, our immediate past Chairperson said last year, we continue to make things happen and put into practice all the good ideas accumulated from the past years and some new ones. We have come a long way in opening the channel of communication between the chapters and the National Chapter but a lot more needs to be desired and practiced. We need to strengthen our network. Over the last two years there has been an upsurge in awareness about ASEI and people seem to be interested about joining ASEI and/or starting a chapter. We should utilize this opportunity to the fullest extent. We opened an ASEI chapter in Albany, New York last year and just recently two more chapters were added; one in Atlanta, Georgia and the other in Augusta, Georgia. Birmingham (Alabama), Nashville (Tennessee), Los Angeles (California), Memphis (Tennessee), and Pittsburgh (Pennsylvania) seem to be good prospects in the near future. Let us keep our network growing.

We have re-energized the newsletter "LINK" and added several new features, but we need more and more participation from the chapters. We urge all the chapters to make full use of this media of communication between the chapters and other prospective members. Please contribute generously to the newsletter.

With the liberalization of economic policy of India and trend towards globalization, privatization and evolution of free market in the world, the Indian engineers and professionals have an excellent chance to expand their stature and that of their motherland. We have the capacity to excel and help India and ourselves.

So get involved in your society. ASEI is your society dedicated to serve you. Its success depends on your continued participation.

With best wishes and good luck.

Ram Reddy Nomula,
Chairperson

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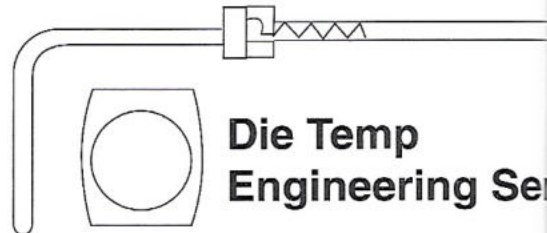
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STATE OF ALABAMA

GOVERNORS OFFICE

MONTGOMERY 36130

August 27, 1993

Mr. Ram Reddy Nomula
Chairman
American Society of Engineers from India
1250 Deborah Drive
Huntsville, Alabama 35801

Dear Mr. Nomula:

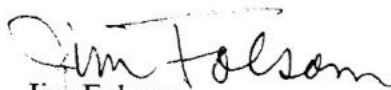
Thank you for the invitation to attend the 10th Annual Convention of the American Society of Engineers from India (ASEI) to be held on September 5 in Huntsville. I regret that due to a previous commitment I will be unable to join you at the convention.

We are honored to have in Alabama one of the six ASEI chapters in the United States. Please accept the enclosed proclamation proclaiming September 5, 1993, as American Society of Engineers from India Day in Alabama as a token of this state's appreciation for the Huntsville chapter and for the contributions your ASEI chapter makes to Alabama.

I wish you a successful and worthwhile convention featuring the topic of "Technology Transfer." Your convention should help to foster the exchange of technology between India and the United States for the benefit of both countries.

With warmest personal regards, I remain

Sincerely,


Jim Folsom
Governor



STATE OF ALABAMA

PROCLAMATION

BY THE GOVERNOR

WHEREAS, Alabama is a state blessed with citizens who are well respected for their achievements and commitment to excellence as dedicated professionals in the engineering field, and included in these distinguished ranks are the proud members of the American Society of Engineers from India (ASEI); and

WHEREAS, with a membership of more than 1,200 members in six chapters across the country, the American Society of Engineers from India provides a variety of valuable services for its members - including networking, career guidance, practical training, technology transfer, and the promotion of the image of the Republic of India and professionals of Indian origin; and

WHEREAS, the Tenth Annual convention of the American Society of Engineers from India is being held in Huntsville, Alabama, and is being hosted by ASEI's Huntsville Chapter; and

WHEREAS, featuring the special theme, "Technology Transfer," the convention brings together engineers, scientists, businessmen and students who will participate in several technical seminars; and

WHEREAS, Alabama is pleased to join in welcoming those who are attending this Annual Convention with open and appreciative arms, as we applaud their noteworthy contributions and wish them the best of success as they share in camaraderie and discussion:

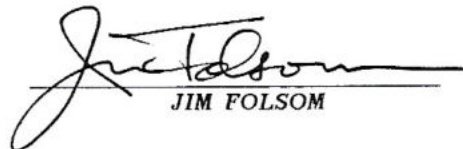
NOW, THEREFORE, I, Jim Folsom, Governor of the State of Alabama, do hereby proclaim September 5, 1993, as

American Society of Engineers from India Day

in Alabama.



GIVEN UNDER MY HAND, and the Great Seal of the Governor's Office at the State Capitol in the City of Montgomery on this the 17th day of August, 1993.


JIM FOLSOM

August 5, 1993

MESSAGE

I am happy to learn that the American Society of Engineers from India are holding their 10th Annual National Convention at Huntsville, Alabama on September 5, 1993. Indian American Engineers in the USA have made valuable contribution to their adopted country. They can also make equally valuable contribution to India, their country of origin. At a time when India has embarked upon the path of economic liberalisation, it needs all the support it can get from Indian Americans in the USA, who have done so well for themselves. I am particularly happy to note that the organisers have chosen a very appropriate theme for the Convention i.e. "Technology Transfer". India has made great progress in technology but still has a long way to go in coming abreast with other countries. The American Society of Engineers from India can play a very important role in helping India to bridge the gap. My greetings to members of the ASEI and their families and to the Indian American community in the Huntsville area and my best wishes for a successful National Convention.



(Siddhartha Shankar Ray)

HOWELL HEFLIN
ALABAMA

United States Senate

WASHINGTON, DC 20510-0101

July 28, 1993

Mr. Ram Reddy Nomula
Chairman
American Society of Engineers From India
1250 Deborah Drive
Huntsville, Alabama 35801

Dear Mr. Nomula:

I am writing in further reference to your invitation to the American Society of Engineers from India's Annual Convention in Huntsville.

Unfortunately, I am not going to be able to be there. I appreciate your including me, and I wish you all great success with this year's convention.

With kindest regards, I am

Sincerely yours,


Howell Heflin

HH/ch

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MORGAN COUNTY COURTHOUSE
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DECATUR, AL 35602

Congress of the United States
House of Representatives
Washington, DC 20515-0105

August 26, 1993

Mr. Ram Reddy Nomula
Chairman
American Society of Engineers
from India (ASEI)
12250 Deborah Drive, S.E.
Huntsville, -Alabama 35801

Dear Mr. Nomula:

As the U.S. Congressman from the fifth district, it is my pleasure to welcome the American Society of Engineers from India to beautiful North Alabama. We are pleased to have all of you here with us for your convention, and we are happy that you have chosen Huntsville to celebrate your tenth year.

Huntsville has enjoyed a reputation both nationally and internationally for technological leadership for decades. We pride ourselves on being on the forefront of computer, space, and defense technology advances that will lead the world into the twenty-first century. I am confident that you will find your time here informative as well as enjoyable.

Again, welcome to North Alabama. I regret that my schedule prevents my being with you in person, but please accept my heartfelt good wishes for a successful convention. I look forward to hearing great things from ASEI in the years to come!

With warm regards, I am

Sincerely,



Bud Cramer
Member of Congress

BC:svo

CONGRATULATIONS

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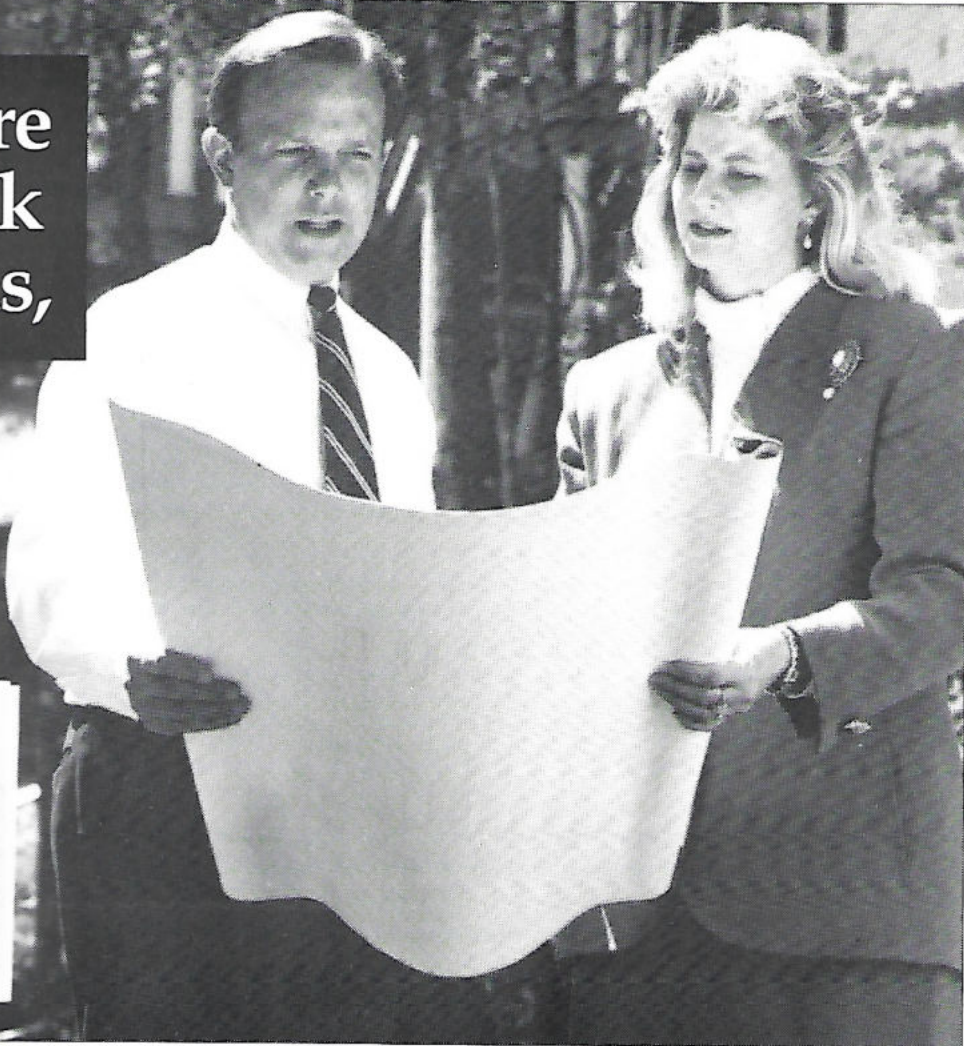
**ASEI's 10th Annual
National Convention**

"Technology Transfer"

in Huntsville, Alabama

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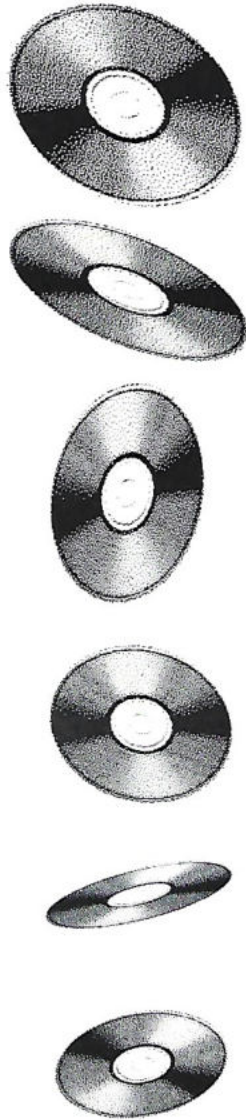
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THEME: "TECHNOLOGY TRANSFER"

CONVENTION AGENDA

11:30 A.M.

DMI PLANT TOUR – Transportation provided.
State-of-the-Art high technology manufacturing facility and one of the largest **Compact Disc** manufacturing facilities in the United States.
(Last tour to start at 9:30 a.m.)

1:00 P.M.

REGISTRATION

1:30 P.M.

Opening Ceremony

Welcome Speech - Mr. Ram Reddy Nomula, President-Mfg., Disc Manufacturing, Inc. & ASEI National Chairman

Convention Inauguration - Mayor Steve Hettinger, City of Huntsville & Mr. Kanwal Sibal, Deputy Chief of Mission, Embassy of India, Washington D.C.

3:00 P.M.

CONSECUTIVE SESSIONS:

SESSION I – Panel Discussion on Technology Transfer

Moderator: Dr. Ramesh Iyer, Asst. Professor, International Marketing, University of Alabama in Huntsville

The Indian Government Perspective - Mr. Narayan Valluri, Minister of Economic Affairs, Embassy of India, Washington D.C.

The U.S. Government Perspective - Mr. Paul F. Keller, Director, Technology Commercialization Division, DynCorp Meridian, Alexandria, VA

The Private Sector Perspective - Mr. J. Nirdosh Reddy, President, ANAAR Company, Bloomfield Hills, MI

Visions of NRI's & Their Fulfillment - Mr. Samar Choudhuri, President, TECHTRANS International Inc., Alta Loma, CA

3:15 P.M.

BREAK

4:45 P.M.

SESSION II - Experiences of Indian Entrepreneurs (from India & U.S.)

Moderator: Dr. Laj Utreja, Director Environment, Tec Masters Inc.

Technology Transfer from US to India & HBL Group Experiences - Dr. A. J. Prasad, President, HBL Group, Hyderabad, India

Technology Transfer from India to U.S. - Mr. Vinay L. Deshpande, Vice-Chairman, Ncore Technology Pvt. Ltd.

Setting Up A Small Business in U.S. - Dr. Ashok Singhal, President, CFD Research Corporation., Huntsville, AL

6:00 P.M.

BREAK

7:00 P.M.

Social Hour (Cash Bar)

Guest of Honor - Honorable Ambassador S.S. Ray, Indian Ambassador to the USA

Keynote Speaker - Dr. V. S. Arunachalam, Scientific Advisor to the Defense Minister of India (on Sabatical)

General Body Meeting, Awards, and Dinner

11:30 P.M.

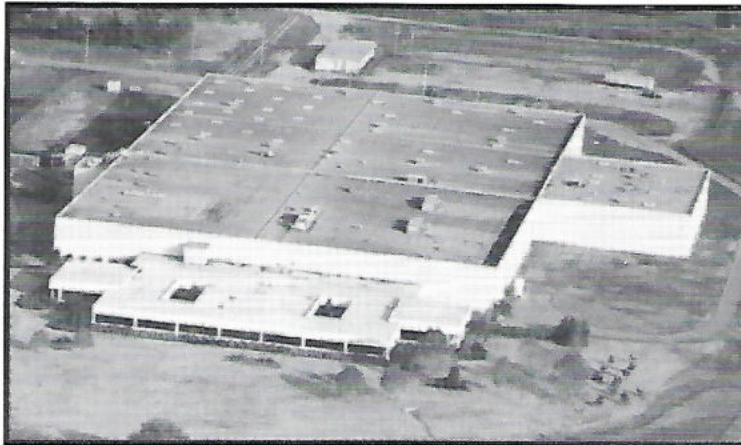
ENTERTAINMENT

PARTICIPANTS CAN VISIT THE NEARBY U.S. SPACE AND ROCKET CENTER AND SPACE DOME ANYTIME DURING THE DAY. ASEI WILL PROVIDE FREE TICKETS TO THE CONVENTION REGISTRANTS!

DMI Plant Tour

DISC MANUFACTURING, INC.

A QUIXOTE COMPANY



**Disc Manufacturing, Inc.,
Plant located at 4905 Moores Mill Road, Huntsville, Alabama**

Disc Manufacturing, Inc., A Quixote Company, is the largest independent manufacturer of CDs and CD-ROMs in the United States. With consumers continuing to switch from other music formats, CDs now comprise over 50% of the music market and are expected to increase to 70% by the mid-1990's. The music industry is forecasted to sell 500 million CDs in 1993.

To meet this surging demand, DMI has recently tripled manufacturing capacity and eliminated its Videodisc business to concentrate on music CDs. DMI now has capacity at its Huntsville, Alabama and Anaheim, California facilities to manufacture, label and pack 100 million CDs annually. During the year 1992, DMI installed the first offset printing machine for printing on CDs in the United States, continuing their role as an innovator in the industry.

DMI also continues to expand its capabilities in the manufacture of CD-ROM products including CD-Interactive (CD-I) discs, which combine video and data on the same disc. CD-ROM is gaining increased acceptance as a medium for storage and retrieval of information with each optical disc having the capacity to store approximately 150,000 pages of typewritten text or the equivalent of one thousand 5 1/4 floppy discs (650 megabytes).

Opening Ceremony

Convention Inauguration by Mayor Steve Hettinger

Mayor Steve Hettinger has combined engineering, management and politics into a career in industry and public service. Arriving in Huntsville in 1967 with the nation's Space Program, he completed engineering studies on the Saturn, Apollo and Skylab programs. He then worked as a urban management consultant addressing the economic and community development needs of city, county and state governments. Refusing to leave Huntsville after being elected City Manager's position, he became a part of the campaign team which successfully elected Congressman Ronnie G. Flippo. He joined the Congressman's staff as District Representative. Mr. Hettinger left the Congressional Staff to return to engineering management performing budget analyses, plans and schedule analyses and management services with John M. Cockerham and Associates. In 1988 he was elected Mayor of the City of Huntsville and was reelected to a second term in 1992.

Mayor Steve Hettinger has served on many civic boards and clubs including:

Former President, Huntsville-Madison County Mental Health Board; * Huntsville Kiwanis Club; Former Chairman of the International Relations Committee; * Board of Directors, Huntsville Chamber of Commerce; * Board of Directors, UAH Alumni Association; * Former Chairman, Madison County March of Dimes Fund; * Member, National Estimating Society; * Member, Historic Huntsville Foundation and Old Town District Association; * Member, Blossomwood Civic Association; * Board of Directors, American Cancer Society; * Chairman, Metropolitan

Planning Organization for the Huntsville Area Transportation Study; * Member, Huntsville Land Trust; * Member, Board of Directors, Huntsville Chapter of the National Association for a Drug-Free Community, Inc.

Mayor Steve Hettinger has been presented the Distinguished Service Award and the Lurleen B. Wallace Award for leadership in the Mental Health field in Alabama; the Governor's Environmental Quality Award; a Silver Award by the Leukemia Society of America; a Certificate of Merit by the Alabama Governor; and is listed in Outstanding Young Men of America. In 1978 he was selected Outstanding Young Man of Huntsville and was recognized as one of the Four Outstanding Young Men of Alabama. He has been recognized by the Alabama League of Municipalities for Distinguished Service. In 1989 he was selected by the local chapters of the National Management Association as Huntsville-Madison County Manager of The Year. Also in 1989 he was selected as Outstanding Alumnus of the Year at the University of Alabama in Huntsville and in 1991 as Huntsville Chapter Alumni of the Year, Mississippi State University.

Mayor Steve Hettinger was elected to the State Legislature and was reelected in 1985 without opposition. His state legislative duties include:

Chairman, Local Government Committee; * Member of Banking and Judiciary Committee; * Legislative Council; * Sunset Committee; * Chairman, Joint Interim Committee on Municipal Government; * Judicial Study Commission

Other appointments included:

Former Chairman, Assembly on the Legislature of the National Conference of State Legislators (NCSL); * Former Chairman, Science, Technology, and Research Planning Committee of the NCSL; * Southern Technology Council (one of two elected officials); * Advisory Committee of the Center for the Study of the States The Nelson A. Rockefeller Institute of Government

Mayor Steve Hettinger serves on various committees to include:

National League of Cities' International Task Force; * Community Development, Housing and Economic Development Committee of the National League of Cities; * Executive Committee Alabama League of Municipalities; * Finance, Administration, and Governmental Relations Steering Committee, National League of Cities (Vice Chair); * National Network Committee of the National Advocacy Center; * Transportation Chairman, North Alabama Mayors Association



Mayor Stephen R. Hettinger
City of Huntsville, Alabama

Opening Ceremony

Convention Inauguration by Mr. Kanwal Sibal

Mr. Kanwal Sibal, Deputy Chief of Mission, Embassy of India, Washington DC

Bio-data:

Born on 18 November 1943 at Sialkot (Now in Pakistan).

Educated in Punjab. Did MA (English) & LLB. Sabbatical at Oxford University (1975-76).

Joined INDIAN FOREIGN SERVICE in July 1966. After training in India, served in Indian Missions in Paris (Secretary: August 1968 to August 1973); Dar-es-Salaam (Deputy High Commissioner: August 1976 to October 1978); New Delhi (Counsellor: January 1980 to June 1982); Kathmandu (Minister/Deputy Chief of Mission (June 1982 to September 1985); New Delhi (Ambassador: April 1989 to July 1992).

Also did two stints in the Ministry of External Affairs, New Delhi (Officer on Special Duty: August 1973 to July 1975; October 1985 to April 1989).

Speaks French and Portuguese.

Interested in Art, Music and Poetry.

Married Elisabeth and have two children (One son and a daughter).

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GENERAL MANAGER**

1619 HIGHWAY 72 EAST
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(205)859-4050(PHONE)
(205)859-0944(FAX)

Session I Featured Speaker

The U.S. Government Perspective on Technology Transfer By Mr. Paul F. Keller

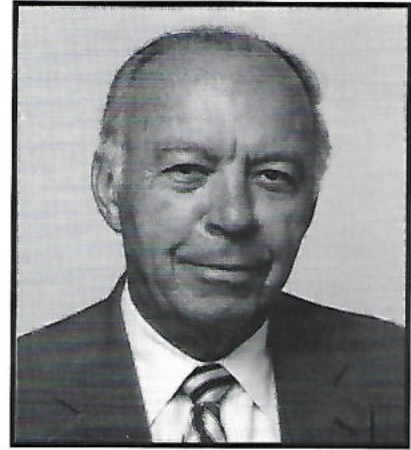
Mr. Keller has more than 30 years experience in dealing with and managing the development, transfer, and commercialization of technology. Educationally he received a B.S. in engineering from Purdue University and an MBA in Industrial Management from the University of Southern California.

Mr. Keller's broad background includes significant assignments in engineering management, program management, and business management. He has carried out the technical management of large projects, laboratories, and engineering organizations. He has been involved in conceptual studies, system design and integration, engineering assessments, testing of both large and small systems. Mr. Keller has delivered invited papers at both national and international fora. He also served as a consultant for facility design, construction, and test operations of major aerodynamic facilities in the Netherlands and

Mr. Keller has been employed by a wide variety of organizations, both large and small. He has worked with the California Institute of Technology, Rockwell International, Bolt Beranek Newman, Aerojet-General Corporation, Operations Research, Inc., and The Analytic Services Corporation (TASC).

Currently, Mr. Keller is Director of the Technology Commercialization Division at Meridian Systems in Alexandria, Virginia. This division manages technology transfer and commercialization programs for ARPA, DOE, and AID.

Mr. Keller has been active in several technical societies throughout his career. A few years ago he served as Chairman of the National Section of the American Institute of Aeronautics and Astronautics - a section comprising 2400 aerospace engineering members.



Paul F. Keller
Director, Technology
Commercialization Division,
DynCorp Meridian,
Alexandria, VA

Outline of Presentation:

1. Brief description of AID-sponsored technology based assistance programs with India (Pacer, PACT, TEST, and ACE)
2. PACT concept, origins, and methodology
3. Current status of PACT program
 - Number and type of projects
 - Types of companies
 - Funding status
4. Current economic impact survey
5. Survey relating to follow-on considerations

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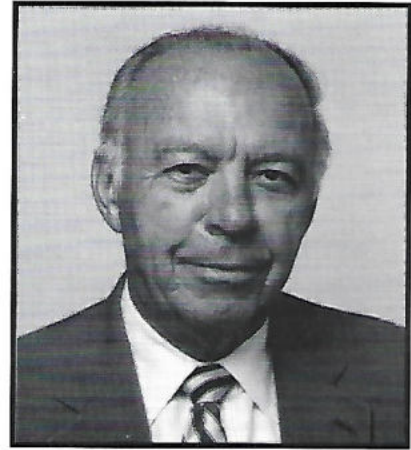
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Paul F. Keller
Director, Technology
Commercialization Division,
DynCorp Meridian,
Alexandria, VA

Session I Featured Speaker

The Private Sector Perspective Technology Transfer: My Consulting Experiences in India

Abstract

India is changing rapidly. Receptivity to new ideas and new approaches is higher now than it has ever been. Quality consciousness is increasing rapidly. The process of transformation is underway. Global competitiveness is within the reach of Indian organizations. Opportunities abound for the entrepreneurs. Minor irritants still exist, as they do just about everywhere; they are not insurmountable.

Indian industrial climate today is not what it was when most of us set sail to come to the United States. Several factors are influencing the changes. Transformation of the organizations is underway. A summary of my experiences in interfacing with our Indian colleagues follows.

Liberalized Policy

The changes adopted by the government over the past two years have made it easier to do business with and in India. Restrictions on 100% ownership by NRIs and foreign nationals have essentially been removed. The so-called "licensing" by government giving you "permission" to do your business is now limited to very few business sectors.

Organizational Climate

The nature of inquiry by senior and middle management has changed considerably from "why" do we need to (traditional status-quo style) to "how" do we compete in the international markets. There is increasing awareness that quality is essential for survival in this new era of open borders. The entry of multinational corporations needs to become goals not only for exporting but for the very survival in India itself.

Some Success Stories

In our interactions with several organizations and individuals, we found the receptivity to the Deming philosophy of continuous improvement to be extremely favorable.

The myth that "Indians cannot work together in teams" is being shattered. We find that people enjoy working in teams. Good management allows and empowers them to breakdown the bureaucratic roadblocks. They take pride in improving what is done.

The Indian workforce is well educated, by and large well taken care of in terms of their physiological needs. They are ready to engage in activities to satisfy their higher order needs of self-esteem and self-worth.

By involving the employees in continuous improvement activities, organizations are tapping more of their potential. This leads to an increase in productivity, of work life and improving the organization's bottom line.

Interaction Sensitivity

For those engaged in any interactions with our colleagues in this business of technology transfer, may I suggest that you be sensitive to your equals. It appears that some NRIs have done a lot of damage to the rest of NRIs by their high-handedness and insensitive behavior. Let's remember that win/win strategy brings out the best in everybody involved. Don't go to India with pride and sacrifice and the like. If your heart is not in it, if you don't see how you as a person come out ahead (of where you are) do not bother getting involved.

Bio-data

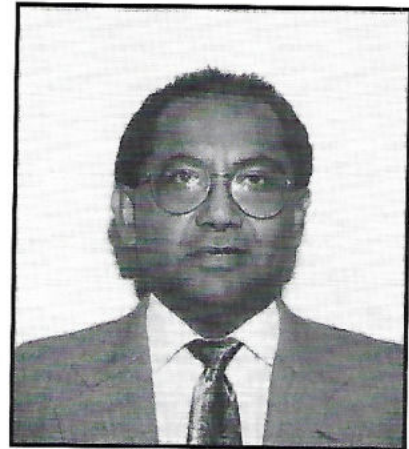
J. NIRDOSH REDDY is the founder of ANAAR, an international consulting firm dedicated to improving the performance of organizations. ANAAR builds on the Deming philosophy and facilitates integration of the philosophy into the organization's specially developed roadmap. This roadmap helps formulate, cascade and implement business plans through the organization. ANAAR's clientele include: Ford Motor Company, Disc Manufacturing, Inc., Walbro Engine Management Corporation, Air-Dro Cylinders in the United States; Ford Motor Company in Taiwan; Kirloskar Electric Company in India; Kirloskar Manufacturing, Boruka Group of Companies, Thermax Ltd, Indian Aluminum Company and Vysya Bank in India. J. Nirdosh Reddy has a MSEE and MBA; has worked at Bendix Corporation and Ford Motor Company and holds 20 US patents.



J. Nirdosh Reddy

Session I Featured Speaker

Visions of NRI's & Their Fulfillment By Mr. Samar Choudhuri



**Mr. Samar Choudhuri,
President, TECHTRANS
International Inc.,
Alta Loma, CA**

Mr. Choudhuri is an experienced International Technical/Marketing Executive with North America and has international business experience at blue-chip multinational corporations in project strategy & line operation issues. In addition, he is widely experienced in project feasibility studies, plant design development, marketing planning and sales promotion of both retail and industrial products. Mr. Choudhuri has specialized knowledge and experience in franchising/licensing, government liaison, joint ventures and technology transfer.

Mr. Choudhuri's work experience is as follows:

Techtrans International Inc., California: January 1993 to date. President, with responsibility for overall consultancy practice in food processing, energy and natural resources, exploitation of technology. Marketing consultancy practice (all sectors). Since 1985, Techtrans has completed numerous assignments in 32 countries for major multinational companies, international government banks and governmental bodies. Since 1987, as Sr. Vice President completed numerous projects (including machinery supply) in the areas of fruit processing, value-added products manufacture, development of international marketing plans for fruit products, value-added products manufacture, spice oleo-resin value-adding, food colors manufacture and development of dietary foods. Techtrans also handled other technology transfer projects including food processing, flavor/aroma development and specialty chemicals. Since January 1993, he is also serving as Vice President for Techtrans' sister company, Spottiswoode Lake International based in Toronto, Canada. SLI handles worldwide sales of industrial products from numerous overseas food processing companies set up by Techtrans on a turnkey basis.

Sunkist Growers Inc., California: 1981-1987

Senior Marketing & New Ventures, Products Division for \$300MM worldwide business primarily commodity and value-added citrus products. In 1985, established Sunkist Essential Oils as stand-alone value-added operation. In 1987, started Sunkist Technical Consulting Services for building citrus & non-citrus processing plants worldwide. Selected by World Bank to undertake countrywide feasibility studies in P.R.C. Joined Sunkist in 1981 as Senior Manager, Business Development to set up (from scratch) world-wide sales and marketing managements for Sunkist consumer packaged goods; today a \$1 billion operation.

McGraw-Hill: 1979-1981

Senior Planning & Business Development Manager with additional responsibility for corporate market research and information systems.

Ivory Liquid Company: 1977 - 1979

Senior Marketing Manager, Ivory Liquid, Safeguard, Duz detergent. Previously promoted, in record time to Brand Manager.

JWT Thompson International: 1970-1977

Senior Account Executive, JWT Toronto, Canada: 1976-1977

Senior Account Supervisor, HTA Calcutta, Delhi, Bombay: 1971-1975

Education: MBA (Marketing, O.R., Finance) B.E. (Electrical Engineering)

Area of Presentation:

Topic: Dreams of Professional NRIs
& Their Fulfillment

Duration: 20 minutes

Synopsis: Different Dreams of Different Professional NRIs
How India, the Motherland, features in them.
Execution: The Critical Step
A Status Report on Fulfillment of Different Dreams
Some Suggestions for Maximization
Who Can Actively Help Make NRI Dreams Come True

Session II Featured Speaker

Technology Transfer from US to India and HBL Group Experiences By Dr. A. J. Prasad

Occupation:

Chairman, HBL Ltd.
Managing Director, SAB NIFE Power Systems Ltd.

Education:

Columbia University, New York, Ph.D (International Business)
May 1976 - Thesis: "Export of Technology from India"

Massachusetts Institute of Technology - Sloan School of Management, Master of Science
degree in Management, 1968.

Indian Institute of Technology, Kharagpur, India. B.Tech (Hons). Mechanical Engineering,
1966.

Osmania University, Hyderabad, India. B.Sc. (MPC), 1963.

Research:

Project Coordinator (India), Research on impact and regulation of Transnational
Corporations. (United Nations, ESCAP, Kuala Lumpur), 1976.

Special Service Agreement with Transfer of Technology Division, United Nations Conference on Trade and Development
Study on Electronics Industry, 1977.

Research Assistant, Sloan School of Management, Massachusetts Institute of Technology. Spin-off of Technology
Government Laboratories, 1967.

Teaching:

New York University: Visiting Associate/Assistant Professor, (International Business) Graduate School of Business
1979, 1980, & 1981 - Summer Terms.

Columbia University: Visiting Assistant Professor, (International Business), Graduate School of Business

Administrative Staff College of India, Hyderabad: Member of Faculty, in the areas of Marketing, Finance & Technology
1968-79.

Publications:

"Research, Development & Technology Transfer", Section in Handbook of International Business, John Wiley

Technology Transfer & Economic Development (with Robert Hawkins as Co-editor), JAI Press, Research Series
Business and Finance, Vol-II, 1981.

Technology Policy for Industry, Allied Publishers, New Delhi, 1979.

Export of Technology from India, ASCI Journal of Management, September, 1976.



Dr. A.J. Prasad
President, HBL Group
Hyderabad

Session II Featured Speaker

Dr. A. J. Prasad, cont'd

Technology Transfer: The HBL Experience

People who ignore, or look down on, business as commercial activity, tend to glamorise technology. Perhaps they associate technology with winning wars, intellectual achievements in the physical sciences and the ascent of mankind. Until recently economists viewed technology as an exogenous factor of production: it simply happened to be there. But now they know better and recognise technology as consciously developed by profit seeking businesses.

When interested in technology transfer we must go deeper, because technology is very intimately intertwined with business. It has become clear that we can help make money.

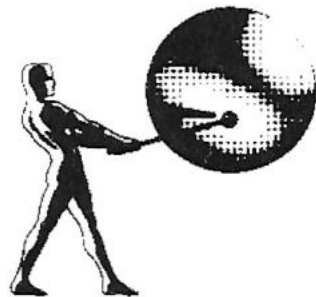
It was conceived in 1975 as a tiny business to manufacture Nickel Cadmium batteries in India for the domestic market. The global market is very small, around \$200m, and four companies (two in US, one each in Germany and France) control the market. Three companies refused to license technology to India and the fourth offered a high cost package: knowhow at \$1.5 million and equipment for \$10 million with an output capacity of \$10 million) and export restrictions. Clearly the offer was not viable for the Indian market of about \$1 billion.

Our common experience: large investments used for high volume production. This barrier (economies of scale) limits the number of companies when the total market itself is not large, as in many specialised products. But there is a business opportunity if innovative solutions can be found. These solutions must recognise that relative costs of capital and manpower are critical, and try to create new solutions in the production function. To do this, the most important factor is an understanding of technology and how it can be transferred, developed and improved.

We developed such solutions many times in the Indian environment over the last 18 years. The company has experienced a roller coaster (and made many blunders) but has grown into a \$10 million business, with a foundation that can survive the economic fluctuations of India and enables steady growth. The talk will cover this story and may interest those who have been wondering how to use technical knowledge to establish a business in India.

Best Wishes from

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Phillip A. Clement, President & CEO

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Session II Featured Speakers

Technology Transfer from India to U.S.

By Mr. Vinay L. Deshpande

Education: MSEE (Digital Systems), Stanford University, USA, 1970. BE (Electronics & Communications), Osmania University, 1969.

Employment: 1970-71: Design Engineer, Memorex Corp., Santa Clara, California, USA. 1971-72: Development Engineer, Storage Division, Santa Clara, California, USA. 1972-73: Senior Engineer, Control Data Corporation, Minneapolis, USA. 1973-74: Data Gmbh, Frankfurt, West Germany. 1973-74: With Processor Systems (India) Pvt. Ltd., Bangalore, India as Co-Founder. 1976-90: With PSI Data Systems Ltd., Bangalore, India, as Co-Founder and Managing Director (Technical). 1990- Co-founded Ncore Ltd., Bangalore, India. Currently, Chairman.

Professional Experience: Starting with logic design (at Memorex) of a high performance disc controller subsystem for the ABX (at Telex) was responsible for microcoding of a similar disc controller. Subsequently, at CDC in Minneapolis and Munich (on contract) one of three microcode specialists in development of yet another high-performance disc controller subsystem for the IBM-370. Also included transfer of knowhow to Siemens staff. In addition to development of similar disc controller subsystem for the Siemens subsequently retained for a year as Consultant to CDC Gmbh, West Germany, to assist in the transfer of knowhow to Siemens.

Since December 1973, have been at PSI where initial responsibilities included system architecture, logic design, and assembly of custom designed micro-processor based systems for dedicated applications. As PSI grew, assumed charge of directing all operations and became Chairman in 1990.

In 1990, co-founded Ncore Technology Pvt. Ltd., an independent electronics design and development house with clients in Japan and Indian Defence Laboratories. Ncore currently has three distinct but sybiotic development groups for hardware, Systems Software, and Signal Processing. Some of the current products under development include Palmtop Computers, High Speed Modems, Speech Recognition Systems, etc.

Over the last 20 years in India, I have had overall responsibility for the total development (from customer specifications) of over 100 hardware and software products at PSI and Ncore, including PCs, minicomputers, laptops, RISC based systems, I/O controllers, data acquisition and process control systems, networking products (Ethernet, Token Ring, and FDDI), modems, BIOS, etc.

PROFESSIONAL DISTINCTION: Senior Member, IEEE.

OTHER INTERESTS: High-Fidelity Audio, Music Synthesis.

Setting Up A Small Business in U.S.

By Dr. Ashok Singhal

Dr. Singhal is President and Technical Director of CFD Research Corporation (CFDRC), a high-tech company located in Huntsville, Alabama. Since its inception (January 1987) the company has grown steadily with highly-qualified professionals (over 25 Ph.D's out of a total staff of 50). At present, CFDRC provides R&D services and advanced analysis software for the aerospace, nuclear, chemical, automotive, electronics, and materials industry (NASA, DOD, EPRI, Caterpillar, Chrysler, etc.)

Dr. Singhal has over twenty years experience in the field of Computational Fluid Dynamics (CFD), Heat Transfer, Turbulence, Multi-Phase Flow, and Combustion. Recently (October 1991), he visited Japan as a member of U.S./NSF delegation for discussions on "Computers in Heat Transfer Science - Outlook for the Role of Computers in the 21st Century."

He obtained his B.Sc. and M. Tech in Mechanical Engineering from BHU Banaras, and IIT, Kanpur, India, respectively. He then worked for four years (1970-74) at Tata Consulting Engineers and concurrently obtained a diploma in Systems Management from the Bombay University. Following that, he pursued full-time studies for his Ph.D in Mechanical Engineering from Imperial College, London. In 1977-1986, Dr. Singhal worked for CHAM of North America and progressed from the position of project engineer to President and Technical Director. He is a recipient of NASA's award for "Significant Achievements in Flow Process Modeling and contributions to the SSME Developmental Engine Program."

Dr. Singhal has over sixty publications in international journals and workshops and has contributed invited articles to Numerical Heat Transfer; Handbook of Thermal Design; and Progress in Nuclear Energy. He has also given invited lectures at technical organizations in England, Belgium, and U.S.A. and at professional societies such as ASEI and IEEE.



Dr. Ashok Singhal

CFD Research Corporation
Huntsville, Alabama

Keynote Speaker

Dr. V. S. Arunachalam, Scientific Advisor to the Defense Minister of India (on Sabatical)



**Dr. V. S. Arunachalam,
Scientific Advisor to the
Defense Minister of India
(on Sabatical)**

Dr. Arunachalam was educated in the universities of Mysore and Saugor in India, and received Ph.D. in Wales, Great Britain.

He is a scientist in the Bhabha Atomic Research Center and National Aeronautical Laboratory at Bangalore before his appointment as the Director of Defense Metallurgical Laboratory at Hyderabad in 1975. He occupied this position until he was appointed as Scientific Advisor to the Defense Minister and to the Prime Minister in special capacity in 1982. He occupied this position for more than ten years, serving five prime ministers including Indira Gandhi, Rajiv Gandhi and the present incumbent, Mr. Narasimha Rao.

Dr. Arunachalam's contributions cover both scientific and applied areas. He has made significant contributions in Powder metallurgy, physical metallurgy of titanium alloys, and other structures. His applied work includes the initiation and sustenance of defense research programs such as main battle tanks, guided missiles and India's indigenous combat aircraft. These programs are now sustaining India in her goal to be self-reliant in her defense imports. Dr. Arunachalam's latest interests are in problems connected with development of technology, concurrent engineering and technology transfer. In this regard, he worked closely with Mr. Rajiv Gandhi for formulating plans on technology and societal development in India. He was also invited by Mr. Gorbachev to present non-military options for the Soviet Union in 1988, well before military conversion became a major issue.

Dr. Arunachalam is the Past President of the Indian National Academy of Engineering, and the Indian Institute of Metals and the Indian Society of India. He is also a Fellow of the Indian National Science Academy and the Indian Academy of Sciences. Until recently, he was the only Fellow from India in the Royal Academy of Engineering, Great Britain.

Among Dr. Arunachalam's numerous awards and honors are Padma Vibhushan, the highest civilian honor given by the Government of India in 1990, Shanti Swarup Bhatnagar Prize for Engineering Sciences and the Platinum Medal of the Indian Institute of Technology. He has also been conferred honorary doctorates by many Indian universities.

Dr. Arunachalam is a visiting professor in the Departments of Materials Science and Engineering and Engineering and Public Policy at Carnegie Mellon University. Dr. Arunachalam is working in a program funded by the United Nations.

From Temples to Turbines

The lost wax casting technology goes by the name of Lost-Wax Process or Investment Casting. Today this technology is used for manufacturing high technology jet engine or rocket engine motor blades and other components. This technology is critical in determining the performance that many companies and even countries guard the technology jealously.

For Indians at least should not be new: it was in vogue even during the Mohanjadaro period as can be seen from some bronze artifacts excavated from that site. Along with many other pieces of knowledge, this also suffered from the vicissitudes of time and came really to its own during the Pallava, Chola, Sera and Nayaka rule in the South. This talk presents some of the details of the technology (known in Sanskrit as *madhuuchishtavidhana*) in casting the exquisite idols seen in many of the South Indian museums around the world. Citing some examples, this talk discusses the technological and aesthetics of the castings that were used for idols (*vignets*), and also about the recent renaissance of this technology in Indian metallurgical and high technology.

ASEI's Role in Technology Transfer

By Prakash "Krish" Drishnaswamy
1991 Chairperson, Tech. Transfer Committee

(Mr. Krishnaswamy is a graduate of IIT, Bombay and University of Missouri, Rolla. He is the President of Engineering Analysis)

I. DEFINITION:

TECHNOLOGY TRANSFER IS THE DELIVERY OF KNOWLEDGE WHICH CULMINATES IN A USEFUL, PRACTICAL PRODUCT OR SERVICE. It frequently is also described as commercialization of technology.

By this definition, it is evident that mailing a technical book or paper to India is not technology transfer. Not even if it is read! Technology transfer occurs only if its ultimate usefulness is assured.

Strictly, technology transfer goes beyond knowledge transfer. Transfer of knowledge is the function of educational institutions.

Furthermore, technology transfer goes beyond marketing functions. The matching of parties between India and the USA is only one component in the process of technology transfer.

However, a somewhat flexible definition of "technology transfer" may better suit the charter of an organization like ASEI.

II. TECHNOLOGY DEVELOPMENT

An understanding of the process of technology development is helpful in better appreciating the process of technology transfer. Technology development starts with an idea or concept which is progressively developed into an end product or service. The typical stages are:

- * CONCEPTUALIZATION
- * RESEARCH & DEVELOPMENT
- * MANUFACTURING
- * MARKETING / DISTRIBUTION
- * SALE - EDUCATION AND TRAINING
- * USE

Many different skills are required in the process of technology development. Engineering, management, marketing, finance, law, international trade, etc.

The process of developing the technology requires investment/capitalization. Therefore, there is a profit motive or incentive for the development to occur.

There are risks (considerations of Return On Investment, ROI) associated with development. Less than 1% of patentable technologies enjoy ultimate commercialization.

III. TECHNOLOGY TRANSFER

Technology transfer is the shift of responsibility from any point in the above life cycle. The earlier the transfer, the greater the capitalization and risk. 90% of technology transfer occur between R & D and manufacturing stages.

It is not an instantaneous process of transferring from one party to another. Several skill sets and resources are required.

* Technology at concept stage has very little technology transfer potential at this point. Only at this point.

* Research establishes the validity of the scientific proof of concept. Technology transfer command higher prices.

* Economic viability is established in the through pilot plant, prototype, etc. There is a of the technology's market performance, fun

IV. MODES OF TECHNOLOGY TRANSFER

There are two basic modes of technology transfer

Active - is characterized by active assistance in the technology. Active transfers occur through commercial interests and entrepreneurs. Another mode of transfer would be the establishment of an automobile manufacturing facility, adding technologies to Indian industry. Specialized training, product and process technology are on an international technology license basis. This occurs through joint ventures between Indian

Passive - strictly knowledge transfer. Example: US agencies who are required to transfer on non-exclusive basis because of public funding

V. TECHNOLOGY TRANSFER IN THE USA

Sources

Defense and space industries: NASA in part technology transfer charter.

Government agencies and research organizations: DOC, Oak Ridge, etc.

Research laboratories in industry and universities: MIT

Special interest organizations: Battelle, General Electric, Zinc Institute, etc.

Recipients

Public and private agencies, industry

Agents

Technology transfer agents

(continued on next page)

ASEI's Role in Technology Transfer

continued from previous page

WHAT CAN WE DO?

ASEI should develop a plan with a clear strategy and corresponding tactics. We need to arrive at a realistic assessment of our potential for contribution, as an organization, in the area of technology transfer.

ASEI is not positioned to take on an active role, even though its members have expertise in technology.

ASEI plays a critical but limited role in the area of technology transfer.

ASEI integrates such member technology fragments

ASEI provides marketing and financial support for technology

ASEI's commitment requirements preclude any substantial

ASEI can play a dual role in the technology transfer

ASEI is passive in the active transfer of technology.

ASEI's biggest asset is its ability to leverage networking among members and tap into their collective strengths. Harnessing the breadth of knowledge and contact resources rather than depth may be more effective and realistic in the transfer of technology.

ASEI should be able to:

TECHNOLOGY TRANSFER SUPPORT

STRUCTURE: Help commercialize interests by guiding, organizing and systematizing the technology transfer process as well as identifying available resources. Develop a guide for the technology transfer process, consolidating information required for the transfer such as Government regulations relating to licensing, patents, patent protection, intellectual property, etc.

LINK NETWORK: Networking among ASEI's US members should be developed specifically with technology transfer motivations. There should be for interested members to readily identify technology transfer compatible motivations.

TECHNOLOGY NEEDS: Understand the technology requirements of Indian private and public sectors by extending the reach of ASEI's network to India - perhaps a difficult but necessary task. Research the technology areas that are most critical for India. In the US for example, certain government agencies identify technology areas that are most critical to the strategic need of the country. Funding for research and development programs is carefully controlled to assure that the technologies are appropriately supported. The National Science Foundation, National Academy of Science, National Institute of Engineering, etc. are such agencies.

IDENTIFY TECHNOLOGY TRANSFER RESOURCES:

Consolidate list of technology resources and organizations. In the USA for example, the National Technical Information Service (NTIS) is the principal source for identifying federal technologies, although the Technology Transfer Act of 1986 shifted the responsibilities to Federal laboratories. The Smithsonian Science Information Exchange is another source.

ROLE B: Be active in the passive transfer of technology:

Limited direct role, enabling motivated members to help transfer technology on a non-profit basis. In general, there probably would be more general all around support, enthusiasm and appeal for ASEI activities that promise broad and readily apparent benefit to society.

UNIVERSITIES: Identify opportunities for technology transfer from US universities that have funded projects with a societal theme:

- ** Low cost transportation
- ** Highways / roads, etc.
- * Low cost housing
- * Solar energy applications
 - ** more suited for ASEI

ASEI can explore the possibility of linking research organizations and universities in India and the USA. Israel and Brazil have done this quite successfully. This kind of linking possibly already exists on a casual basis. ASEI could facilitate a more systematic scheme.

ASEI can identify the funding agencies for these US universities.

AUTOMOTIVE: Based in Detroit, ASEI's contribution could be most valuable and effective in automotive related areas. For example, there is a strong need for energy efficient vehicles. India has been brought to its knees in this regard after the recent events in the middle east. Surely, there must be interest in alternate fuels. CNG (compressed natural gas) is cheaper and clean burning. Italy and Thailand have moved rapidly in the use of CNG for vehicles. The utilization of CNG is influenced by several factors, many non-technical such as the required distribution infrastructure, but the basic technology is certainly proven. In Thailand, for example, the only engine modification made is the addition of a supplementary carburetor.

SOFTWARE: Provide support to software activities in India:

- Explore NASA's COSMIC software library. Legalities, if any, need to be explored.
- Consolidate free public domain software (freeware) for dissemination in India. Legalities, if any, need to be explored.

The above outline is only a beginning; ASEI should establish a task force whose first responsibility would be to develop a plan of action. Such a plan should dovetail into the overall networking plan at ASEI. The plan can generate sharply defined tasks which will be assigned to volunteers interested in technology transfer. In general, programs whose scope is sharply focused have a better chance of sustaining the interest of the team members than very broad objectives.

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Chapter Activities

ASEI Michigan Chapter

of thanks to close the business portion of the program. Everybody enjoyed gourmet dinner followed by lively music program presented by Cine Rythem of Chicago.

In May 1993, Career Enhancement Seminar was organized by the Chapter. This seminar offered practical answers to questions such as: is technical competence and advanced degree enough to get the job you want? What does it take to break through the stagnancy? What does it take to acquire managerial potential? The first speaker was Mr. Thomas Moore, General Manager, Liberty and Technical Affairs, Vehicle Engineering, Chrysler Corporation. Mr. Moore's message was that assuming you have the knowledge, skill and productivity, develop a core expertise to aid your career. Mold your personality to fit the corporate world, till it becomes your second nature. Be a "tor" - communicator, facilitator, mediator, initiator, educator. Be aware of opportunitites and opportunities will find you. Second speaker was Mr. G.S. bedi, Director, Quality Office, Vehicle Operations, Ford Motor Comapny. He advised to have noble objectives and seize the high ground. Help your boss succeed and support your peers. He emphasized that being an Indian does not matter if you have good verbal and written communications skills, dress like an executive and develop good interpersonal skills.

Several members of the Confederation of Indian Industries (CII) delegation attended Career Enhancement Seminar. Mr. Rao, Head of the CII Delegation presented his views on India's future in global economy. He categorized India's comparative advantages in different sectors - Presently High (two wheelers, leather, games/jewelry/ software, light engineering products), Potentially High (food processing, agriculture commodities, automotive parts, engineering services, hosiery/ethnic textiles, tourism), Presently Poor (banking/finance, consumer products, petrochemicals, high-tech products, industrial machinery). He emphasized that India's strengths are high caliber technical and managerial manpower, low labor costs, capacity to learn fast and adapt, expertise in software, widespread use of English language and great resilience. He mentioned that India's weaknesses include lack of self discipline, poor drive for excellence, readiness to compromise on quality, and being highly individualistic at the cost of team spirit.

The Chapter is continuing monthly seminar series on the topics such as Business Enhancement, Career Enhancement, Technology Transfer and student related areas.

Chapter Activities

ASEI New York State Capital Chapter

New York State Capital Chapter On the Move

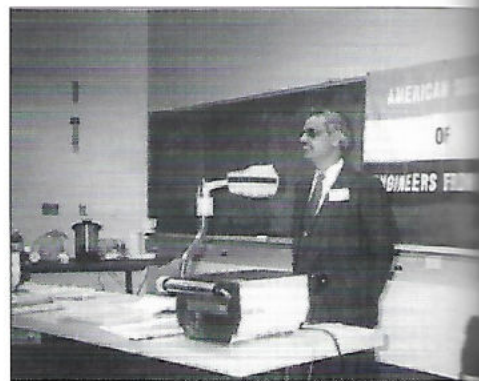
Albany is one of the cities in Tri-city area consisting of Albany, Schenectady & Troy and is the capital of New York state. The three cities provide distinct opportunities for employment and education. Albany provides employment in state public service and has a fine state university campus; Schenectady has big General Electric setup providing employment to thousands, and Troy is better known for having a nationally known engineering college "Rensselaer Polytechnic Institute". In the tricity area, there are 500 families of Indian origin. There are about 100 engineers in various disciplines in the area employed by General Electric, State and the Rensselaer Polytechnic Institute.

On November 1, 1992, 25 professional members of the faculty and students interested in starting a chapter of ASEI in Albany, New York held a meeting. Three members of the National Capital Chapter, Mr. Hari Bindal, Dr. Chandrika Prasad and Dr. Naresh Gupta also attended the meeting. A motion to form an ASEI chapter was presented and passed unanimously to form "American Society of Engineers from India - New York State Capital Chapter (ASEI-NYSCC)". Adhoc executive committee headed by Mr. Ramesh Mehta was formed.

First general body meeting was held to elect the members in the Board of Directors and a Committee. Various committees were formed to achieve the objectives of the Organization. In this meeting a resolution was made by Mr. Arun Shirole, Director of Engineering in the New York State Department of Transportation, "Engineering Professional in USA". His presentation was well received by a large number of engineers at the meeting.

The second general body meeting was held in which Mr. N.G. Kaul, Division Director of Environmental Conservation Department of Environmental Conservation, was the speaker. Mr. Kaul spoke on "Environmental Conservation" a subject widely discussed by all at this meeting.

Regular newsletters are being mailed to members who are in the field of Engineering and Science. Efforts are being made to expand membership of 22 at present. This chapter has held a meeting of ASEI members and a picnic in the State Capital building an annual convention in November 1993.



Chapter Activities

ASEI National Capital Chapter

The National Chapter of the American Society of Engineers from India (ASEI-NCC) was started in 1990. Hari Bindal, the founder of ASEI (see the "Birth of ASEI" in this souvenir). About 10 members from the Washington metropolitan area joined Mr. Bindal to start a chapter. An organizing committee was formed to plan a meeting and discuss the formation of the Chapter. Being located in the nation's capital, it was appropriately named the American Society of Engineers from India National Capital Chapter.

The organization consists of a Board of Directors and various committees. The Board consists of nine Directors. Three directors are elected each year to maintain continuity. Elections are held during the general body meeting which is held in October or November of each year. The board then elects an Executive Committee consisting of President, Vice President, Secretary and Treasurer. The Chapter has adapted its structure consistent with the ASEI Constitution.

Since its inception in 1990, it has achieved a lot in a short period of three years. It regularly holds seminar, workshop or panel discussion every two months (in the odd month of the year). The Board of Directors meet at least every two months (even months of the year) to plan the next event. Other meetings of the Board and Committees are held as needed. The seminars covered a wide variety of subjects;



Some of the 1993 Directors of the ASEI-NCC Board. Standing R to L: Raj Shah, Madhusudan Joshi, Ranjana Shah, Chandrika Prarod, Ved Aggarwal, Naresh Gupta, Hari Bindal, Narender Gupta. Seated: 1992 President Chandra Pathak.



Attendees of the seminar on "How to Start a Business", January 27,

technology transfer, total quality management, how to start a business, minority business development, import-export opportunities, investment strategies in 90's, etc. It also had workshops on topics such as personal communication skills, resume writing, career guidance and immigration issues. The chapter also compiled a manual on export-import which is available on computer disks or as hard copy. All events are well organized, well attended and well liked.

Just after a few months after inception, the Chapter started a newsletter. The newsletter was named "LINK" to symbolize networking. The first issue was published in March 1991. Since then it has been uninterruptably published every quarter. The Chapter has added several new items to its newsletter; such as business opportunities in India, position wanted, position open, engineers in the news, etc. The name "LINK" has been adapted as the name of the newsletter from the ASEI Headquarters.

Chapter Activities

ASEI National Capital Chapter cont'd

Currently, the HQ newsletter is published every two months from the National Capital Chapter. It also includes articles and highlights of chapter activities. Currently, three members of the ASEI board including the Treasurer are from the NCC.

ASEI-NCC's first convention was held in May 1991. The HQ was very much impressed by the chapter convention and requested the Chapter to host the National Convention next year. Consequently, the Ninth National convention of ASEI was organized in Washington, DC by the National Capital Chapter. The third annual convention of the Chapter was held on July 25, 1993 and was picture perfect.

The ASEI-NCC has been very active in communication with

other ASEI chapters, other Indian ASEI leaders, and the Indian government. ASEI politicians from all levels: city, county, state, and federal. ASEI-NCC was instrumental in starting the Chapter in New York. ASEI-NCC is very active in propagating professionalism in the Indian community through radio, and television.

The Executive Committee for 1993 are:

President	Dr. Chandrika Prasad
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ASEI Chapter Activities

Athens, Ohio Chapter

By C. Prasad

The Athens Chapter started in 1991. Since then it is growing and becoming more powerful. It has always been a very active member of ASEI and planning to come out with many more interesting programs every year.

The Athens Chapter played a very active role in the last convention held in Washington, D.C. It sent a 15-member student delegation to participate in the convention. The delegates not only participated in the technical sessions but also performed in the cultural program. The other activities during 1992-93 were:

October 1992 - Introductory Session for New Students: The session was exclusively designed for new students at the beginning of the fall quarter. This was conducted by the senior students from all the major departments in engineering. The idea was to furnish the new students with all necessary academic and technical information related to engineering.

November 1992 - Seminar on Presentation Skills for Job Interview: This was presented by Arvind Singhal and was held in the School of Interpersonal Communications at Ohio University, Athens, Ohio.

November 1992 - Seminar on Thesis Writing: Professor Mary K. [Name] of the English Department of the Ohio University made [Name].

November 1992 - Workshops on Resume Writing and Job Search: These workshops were conducted by the students of the [Name] to help each other in writing resumes, cover letters and exchanging articles related to job search and [Name].

April 1993 - Workshop on Unix and Shell Programming: A three week workshop was conducted by Ram Bhaskar, a graduate student in the department of mechanical engineering at the Ohio University.

April 1993 - Talk cum Demo on X-Windows Programming: This was presented by Krish Sivkumar, a graduate student in the department of mechanical engineering at the Ohio University.

The activities during the last fall included a general body meeting and a friendly cricket match between student and faculties.

The ASEI Ohio University Student Chapter organized a two-day convention on May 15-16, 1993. The convention covered a wide range of issues ranging from the changing engineering landscape in the U.S. to immigration laws for students settling in this country. On first day Dr. Arvind Singhal of Ohio University spoke on "What Keeps People from Accepting New Ideas" and presented a video film on "Beyond the Future: The Business of Paradigms". On second day Dr. Sulekh Jain of the General Electric Aircraft Engines, Cincinnati, Ohio presented a discussion of the Changing Engineering Landscape and expressed his concern over shrinking opportunities for engineers in the United States. He advised the students to seek expertise in the "right" technology and strive for "value" performance. Other topics discussed during this program were "The Challenges and Opportunities in the Innovative Aerospace System Design" by Dr. K. S. Nagaraja of Wright Patterson Air Force Base, Dayton, Ohio, and "Guidelines for Students Regarding Settling in U.S.A." by Dr. D. S. Sastri, a senior attorney with



Dr. Arvind Singhal, President of Athens Chapter, delivering the opening address at the 2nd Annual Mini-Convention.



Dr. Arvind Singhal with his video presentation in the evening banquet preceding the convention. Dr. Singhal is a Professor at the School of Inter-Personal Communication at Ohio University, Athens, Ohio.

ASEI Chapter Activities

Athens, Ohio Chapter cont'd

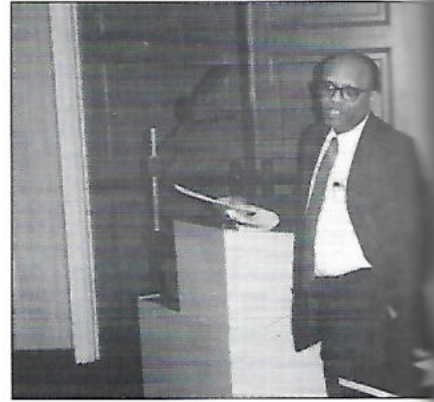
the Law Offices in Maryland. The convention also included a panel discussion between five Ohio University alumni members. The discussion centered around present jobs and future opportunities for engineering students.

The being mostly a student chapter has its calendar consistent with school year i.e., from fall to summer. In 1992-93 it had only three office bearers; Prakash Rayi - President; Avnish Chopra

- Vice President and Shравan Shirum number of office bearers has been a secretary. It had its annual election bearers for 1993-94 are: 614-594-7652; Pramod Chakr 614-594-5821; Mahesh Ma 614-594-7562; Maesh Dalvi, T



Dr. K.S. Nagaraja at the 2nd Annual Mini-Convention. Dr. Nagaraja is Project Manager and Aerospace Engineer at WPAFB, Dayton, Ohio.



Dr. Sulekh Jain at the 2nd Annual Mini-Convention. Dr. Jain is Senior Staff Engineer of General Electric Engines, Cincinnati, Ohio.

Northwestern Indiana Chapter

By Aravind Muzumdar, P.E., President

The Northwestern Indiana Chapter of ASEI was organized in 1991 through the suggestion of Mr. Ravi Chopra, who first learned of the organization while on a visit to friends in Detroit, Michigan. He brought the idea to Indiana, and a group of eleven engineers met and started the chapter. Today we are happy to report that there are 35 members.

We schedule four activities during the year which include:

--A Spring Seminar was held in April 1993 with guest speaker, Dr. Mahavir Jain. Dr. Jain's topic was "Winning Strategies in Financial Investments" with an attendance of 25 members.

--A Summer Family Picnic is scheduled for 1993 at the Indiana Dunes State Park. To participate is our local Indian Association.

--A Fall Dinner Meeting with a feature speaker is planned, and

--the year will be closed with a December Meeting and election of officers.

ASEI Chapter Activities

Huntsville, Alabama Chapter

By Rajesh M. Bharwani, President

The Huntsville Chapter of ASEI was formed in 1989, with the first meeting on November 19, 1989. During the time since that meeting, the local chapter has grown and been very active. Under the guidance of our presidents, Vidya Reddy (1989-1990), Anwar Shafiq (1991), Prince Kalia (1992), and Rajesh Bharwani (1993), the Huntsville Chapter has had an average of one meeting per year and numerous other meetings. Meeting topics have included **Career Enhancement** (Bill Vidall, May 1991; James Spray, Feb. 1991; John Hartin, June 1991; Ravi Kumar, April 1992; Susan Fillippela, May 1992), **Membership** (Ashok Singhal, May 1991; Jeff Thompson, June 1991), **Financial Matters** (Larry Gilley, Nov. 1991; Ms. Anwar Shafiq, Jan. 1992; Mr. Bowander, May 1992; Rick Bowander, 1992; Brandon Copeland, April 1992), **Immigration** (Ravi Kumar, July 1990; Chandler Sharma, Feb. 1991; Anwar Shafiq, 1993), **Health Issues** (Randall Burns, Mar 1993; Anwar Shafiq, Aug. 1993), and a **Plant Tour** (Chrysler, July 1991). There have also been several informal meetings held including Open Forums, and Future Planning meetings.

We are very proud and excited to host the 10th ASEI Convention. It is a landmark occasion for the Society and we are honored that we were entrusted with this responsibility. We hope that everyone will leave the Convention with a sense of accomplishment that they did not have before and that everyone will have a memorable time. The local chapter is also continuing to hold regular meetings. We have had five meetings already

and are planning two more meetings after the convention.

The Huntsville chapter is looking eagerly to the future. Although the chapter has come a long way in the four years of our existence, we realize that there is still more to be done. There are several areas that the chapter can grow in. The first area is membership growth and involvement. Huntsville is a high-tech city, with a large community of Indian engineers and scientists. The chapter can recruit more of these potential members and encourage them to be active in our society. Another area that the local chapter can grow in is student affairs. With two universities in Huntsville, there is a good size student population that needs our assistance with job hunting skills, job placement, host families, etc. A third area that the Huntsville chapter can improve is Member Assistance. This would include things such as a career development, entrepreneurship assistance, and other areas that interest our members.

In conclusion, the Huntsville chapter has been proud to be a part of ASEI and we hope that ASEI has been proud of the Huntsville chapter. ASEI has been an excellent source of information for many of the members of this chapter and we look forward to learning more from ASEI. We are also ready to help ASEI grow and look to a bright and growing future for the society.



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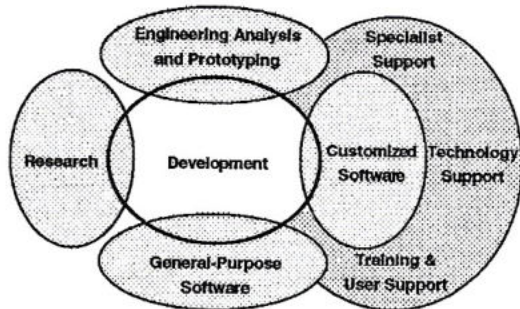
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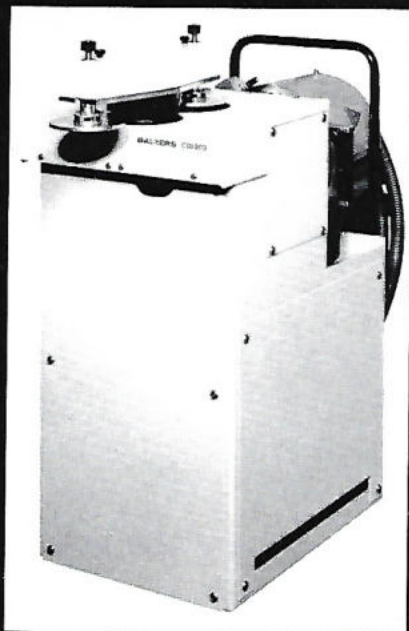
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1993 ASEI Feature Articles

The Birth of ASEI

It's not easy now. But one can imagine how difficult it would have been. We had an Indian dinner in 1982 at my friend, Dr. Jagdish Agrawal's place in Detroit, Michigan. My friend mentioned that the Indian physicians have started an organization, why don't you guys start an organization for engineers. My mind was set right then and there to form the organization. At my work, I talked to my Indian friends, started calling some other prominent engineers in the Detroit metropolitan area. Everybody gave their consent. This was not enough. I set up a signature booth at Asha Bhonsle's musical concert. I got about 150 signatures. I called a meeting in May 1983. Some 30 engineers showed up. Resolution passed to form the organization. Name was given in the same meeting, by selecting out of the names suggested from the floor. An adhoc committee was formed. Mr. Jay Shah was elected president. Key people were Mr. Navin Pandey, Mr. Ramesh Sharma, Mr. K. K. Ghosh, Mr. Umesh Rhotagi, Mr. Noor Kapadia, Mr. Manu Bhai, Mr. Rajaram Khatri and Mr. . . .

The date for the kick-off meeting was set. Seventy-five people signed for the membership. September 12, 1983, was the inauguration day. Mr. Bagula, Economic Minister from the Indian government was the guest speaker and Mr. Ghosh was the keynote speaker. The inauguration included an Indian dinner and an entertainment program. It was a grand success. The hall capacity was 250. After 300, we had to refuse admission to many. ASEI is now 10 years old, gone through adolescent struggles and is moving steadily ahead.



Hari Bindal
Founder of ASEI
and ASEI-NCC

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Effective Pollution Abatement Approaches For Textile Dyeing Industries in India

Venkat Rao, Deepak Bhinge, and Manisha Shahane
3091 Savoy Drive, Fairfax, Virginia 22031

ABSTRACT

Effluents from the textile industries are a major source of water pollution in India. Transfer of relevant effective wastewater treatment technologies is a key aspect of pollution control measures for the textile and bleaching industries. Total dissolved solids (TDS), including toxic heavy metals and synthetic dyes, is a major component of the wastewater that is not treated in the existing treatment approaches. Large quantities of wastewater with very high TDS levels may cause environmental and public health problems. This study examined several modern and cost-effective wastewater treatment technologies, more specifically for reducing TDS levels. The intent of this study is to generate interest among the engineers and researchers in the U.S. to promote applicable treatment technologies to India.

INTRODUCTION

Dyeing is one of the key textile finishing processes. This process negatively impacts the environment as it uses large amounts of water and releases harmful effluents. Soluble dyes, dye auxiliaries, and pigments are the principal contaminants in the effluents from dyeing and bleaching industries. An estimate of the total water requirement for textile production is used during the dyeing process.¹ A typical plant may use 74,000 m³ of water per day which is equivalent to the daily drinking water supply requirement for a town with more than 600,000 people.²

Dyeing industries in India have commonly adopted aerated lagoon and activated sludge system as the treatment methods.¹ The current practice of releasing treated effluents to infiltrate into the underground is hazardous for the human health and ecosystem. An alternative for pollution abatement may involve the process design to minimize wastewater releases, or to implement cost-effective wastewater treatment technologies specifically designed to reduce soluble and suspended solids from the process effluents.

The aim of this study is (a) to examine the wastewater characteristics and treatment practices in the textile industry in India, and (b) to identify cost-effective technologies or modifications in the dyeing process to reduce TDS releases from the dyeing plants, and consequently reduce contamination of groundwater by the water soluble contaminants from the effluents.

WASTEWATER CHARACTERISTICS OF DYEING INDUSTRIES

Figure 1 shows a flow chart for a typical dyeing process in the textile industries in India. The parameters of concern are biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), total alkalinity, and TDS. A comparison of these five parameters in the effluents from various dyeing plants indicated that the TDS levels were the highest (Figure 2). The TDS concentrations ranged from 10,000 to 16,000 mg/L. A review of wastewater characteristics in the textile industries in the U.S. revealed that BOD, TDS, TSS, and pH (alkalinity) are the critical parameters.³ Other contaminants include color, heavy metals, dyes (color), phenols, and mercaptans/sulfides.

COST-EFFECTIVE TECHNOLOGIES/MODIFICATIONS FOR TDS REDUCTION

The current technologies, aerated lagoons and activated sludge systems, used for textile wastewater treatment in India are capable of reducing the BOD, COD, TSS, and alkalinity to acceptable levels. However, these technologies actually resulted in an increase in the TDS levels.¹ This study also includes a review of technologies used in the textile industries in U.S. to identify potentially applicable technologies for TDS reduction.

1993 ASEI Feature Articles

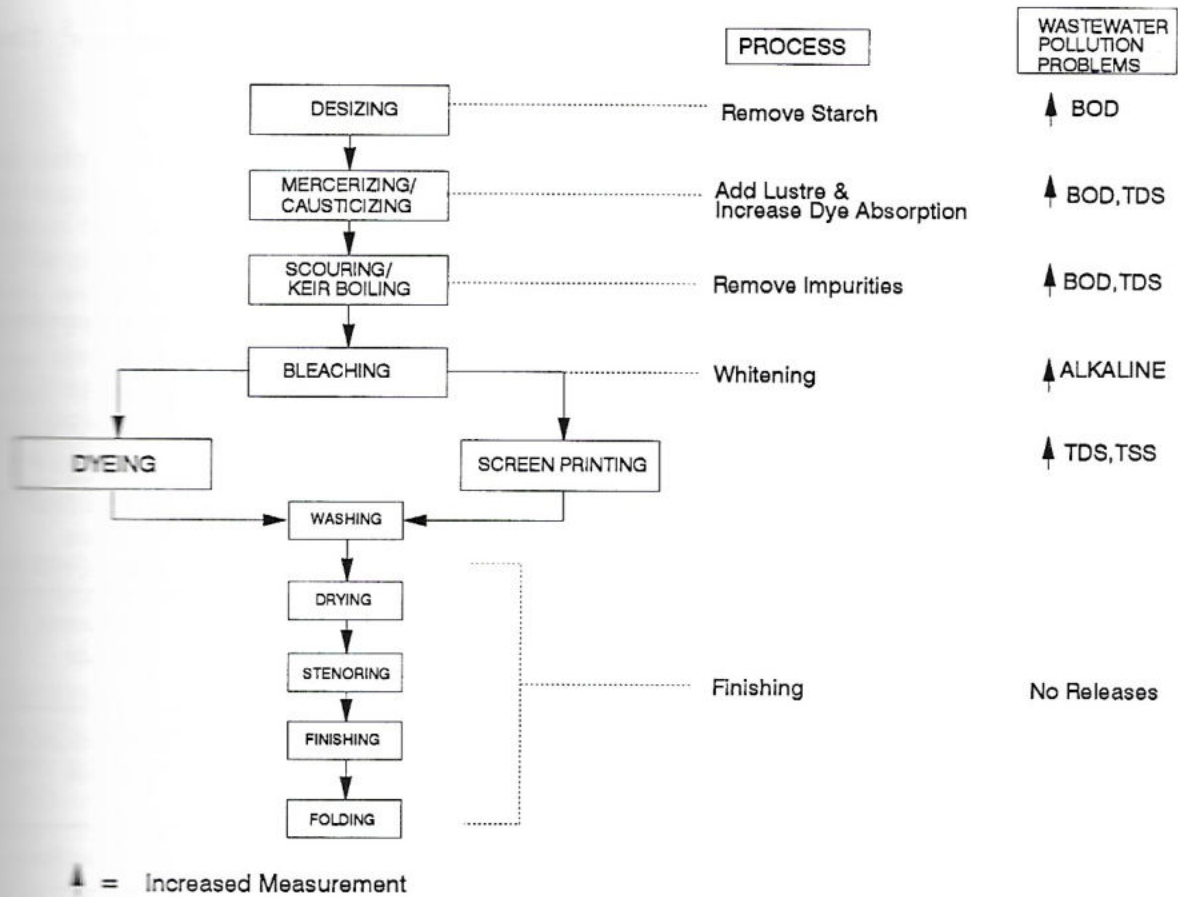


Figure 1 FLOW-CHART FOR DYEING PROCESS AND WASTEWATER POLLUTION PROBLEMS IN TEXTILE INDUSTRIES IN INDIA

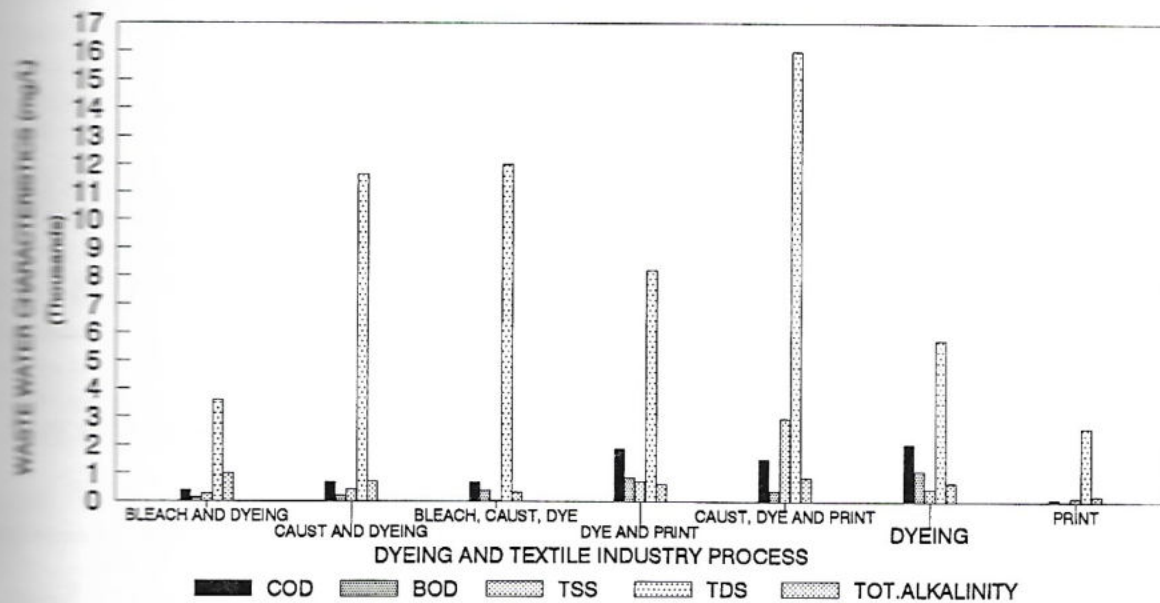


Figure 2 EFFLUENT CHARACTERISTICS OF VARIOUS DYEING PROCESSES EVALUATED FOR A SAMPLE SET OF DYEING INDUSTRIES IN INDIA *

*Data adopted from Ray and Ribeiro (1992).

1993 ASEI Feature Articles

conditions. This survey included technology demonstration documents^{3,4,5} and technology database technologies and one process modification have been identified and are evaluated in Table 1.

Table 1

EVALUATION OF TECHNOLOGIES FOR TDS REMOVAL IN WASTEWATER FROM DYEING PROCESS

Treatment Technology	Treatment Mechanism	Treatment Evaluation		Reference (Design Evaluation)
		Parameter	Performance	
Electrochemical Treatment	Electrochemical Precipitation	<ul style="list-style-type: none"> ● Metals ● Color ● BOD/COD ● TSS 	<ul style="list-style-type: none"> ● > 86-100% ● > 91-96% ● > 30-70% - NA - 	American Environmental Process Association
Air Flotation	Air Flotation and Alum Coagulation	<ul style="list-style-type: none"> ● Metals ● Color ● TSS 	<ul style="list-style-type: none"> - NA - - NA - - NA - 	Environmental Canada
Biological Treatment	Biological Treatment with HRT ^a of 18 hrs and SRT ^b for 30 days	<ul style="list-style-type: none"> ● Solids ● COD ● VSS^c 	<ul style="list-style-type: none"> ● < 20 mg/L ● > 80% - NA - 	Environmental Canada
Dye Bath and Bleach Bath Recycling	Dye Bath Reconstitution	<ul style="list-style-type: none"> ● Color ● BOD/COD ● Solids 	<ul style="list-style-type: none"> --^d -- -- 	North Carolina Department of Natural Resources

^a HRT = Hydraulic retention time; ^b SRT = Solid retention time; ^c VSS = Volatile suspended solids

^d Evaluation criteria not applicable since dye bath reconstitution is a pollution prevention method.

CONCLUSIONS AND RECOMMENDATIONS

TDS is of primary concern during treatment of textile wastewaters in India. Wastewater characteristics of textile effluents in the U.S. are similar to those in India. Innovative technologies used in the U.S. are applicable to Indian conditions. Electrochemical precipitation, air flotation, biological treatment, and dye bath reconstitution have been identified as potential candidates for technology transfer. Further evaluation of these technologies and discussions with the vendors is recommended.

REFERENCES

- ¹ Ray, Dr. Donald, and Sharmila Ribero. Feasibility Report on Assessment of Pollution Control Technology for Small Scale Industries. July 1992.
- ² Watson, Jackie. Textiles and the Environment. Special Report No. 2150. April 1991.
- ³ Corbitt, Robert A. Standard Handbook of Environmental Engineering. 1990.
- ⁴ Water Pollution Control Directorate (WPCD). Survey of Textile Wet Processing and Pollution Abatement Technology. November 1992.
- ⁵ North Carolina Department of Natural Resources and Community Development. Pollution Prevention Tips for Textiles. 1993.
- ⁶ Alternative Treatment Technology Information Center (ATTIC). June 1993.

Mr. Bhinge is a member of the American Society of Engineers from India (ASEI) National Capital Chapter (NCC). We thank Dr. Chandrika Prasad for his support and encouragement.

Heart Attacks -- How to Prevent Them

By G. S. Rao, M.D., F.A.C.P.

The immigrant Indian Population in U.S.A., is aging, we are faced with increasing prevalence of coronary artery disease. This disease in Indians is often premature, more extensive, and follows a malignant course. The heart is supplied by three coronary arteries. The complete blockage of one or more of these arteries causes myocardial infarction or heart attack. The process that leads to a heart attack starts several years if not decades before it occurs. It is never too soon to start taking steps to prevent coronary artery disease.

The following discussion involves the risk factors for the development of coronary artery disease and steps to prevent them.

CHOLESTEROL: The total cholesterol should be below 200 mg. This has two major subgroups. The low density lipoprotein (LDL), is the undesirable or bad cholesterol and this should be ideally less than 130 mg. Levels between 130-160 mg are considered borderline high, between 160-190 mg, high, and above 190 mg very high. Reducing saturated fats like butter, sour cream, margarine, red meats, etc., egg yolks, organ meats such as liver, etc., should be avoided. The other cholesterol is high density lipoprotein (HDL) and this is desirable cholesterol. This should be a minimum of 35 mg and the higher the better. This has protective effect and prevents development of coronary heart disease. This is determined by our genes and regular aerobic exercise (which raises it as well as lowering the LDL.) The LDL/HDL ratio should be 5.0 or below, the lower the better.

TRIGLYCERIDES: This also is a blood lipid (fat) and should be less than 200 mg. Indians with high triglyceride levels seem to be prone to develop the coronary artery disease. Weight control, low fat diet, avoidance of alcohol and exercise reduces these levels.

CIGARETTE SMOKING: This is a major risk factor and should be avoided.

HYPERTENSION: High blood pressure is also a major risk factor and since this is mostly asymptomatic, one

should have periodic checks and if it is high should be controlled under the supervision of your physician.

5. OBESITY: You need to maintain ideal body weight for your height and build. Even if your weight is within the ideal range, if you have truncal obesity (fat around the waist), this is considered a risk factor. (The pinch test -- grab your skin at the side of your waist and measure the fold. If it is more than an inch, you have extra fat to lose).

6. DIABETES: The blood sugar levels should be checked periodically and if high should be controlled under the supervision of your physician.

7. SEDENTARY LIFESTYLE: Regular aerobic exercise like walking, jogging, bicycling, swimming, etc., for a minimum of 30 minutes a day three times a week is advisable.

8. STRESS AND PERSONALITY TYPE: Another common problem, this is a very important but very difficult problem to handle. Meditation, Yoga, biofeedback, relaxation methods help to reduce the anger, anxiety and hostility. Philosophy and spirituality helps in this regard.

9. FAMILY HISTORY: If you have a family member that had a heart attack below the age of 50 years, that puts you at a high risk.

10. GENDER AND AGE: Indian males are considered high risk and males usually start having problems with coronary artery disease after 45 years. Women tend to start having problems a decade later, that is after 55 years of age (after menopause).

Indians do not seem to have much problem with high blood pressure and high total cholesterol. Our risk factors are low HDL cholesterol, high triglycerides, diabetes, truncal obesity, sedentary lifestyles and stress.

To summarize, get periodic health check ups (including treadmill test if you above 40) , control your cholesterol and blood sugar, eat right, avoid alcohol and cigarettes, learn to control your stress and exercise regularly.

Overseas Travel

By N. Rao Thorakura, M.D.

INTRODUCTION: For those of us planning to travel to India, anticipation of enjoyment is usually tempered by anxieties about possible health risks. Travel related illnesses can be reduced by preventive measures including pretravel immunizations, health maintenance measures, certain do's and don'ts, precautions with food and water, avoiding mosquitoes, etc.

ILLNESSES: Of the many illnesses to consider, malaria and hepatitis-A pose the greatest threat while traveler's diarrhea, the most frequent. Some other illnesses to be considered are typhoid, cholera, measles, whooping cough, poliomyelitis. One can get information and counselling from various sources. Your doctor will be able to advise on the preventive measures you need to take. Health information for international travel can also be obtained from the Center for Disease Control (C.D.C) at 202-783-3238 and for malaria information at 404-639-1610. You may obtain shots at the local health department.

PRETRAVEL IMMUNIZATIONS:

- * Update vaccines received before as a child and or as an adult
- * Vaccines are available to prevent certain diseases related to international travel like typhoid, cholera. Now typhoid vaccines are available in oral form for adults.
- * Depending on areas traveled and the length of stay special vaccines might be necessary like yellow fever to travel to Africa, South America, meningitis vaccine if going to epidemic areas.
- * Gamma-globulin injection for temporary protection against HEPATITIS-A.

HEALTH MAINTENANCE: You might schedule a pretravel office visit to discuss on MALARIA prevention, DIARRHEA prevention or about pretravel shots. One should take medicine to prevent Malaria, starting 1 week prior to travel. You need to continue to take once weekly until 4 weeks after your return back to U.S. While we still use chloroquine

syrup for small children, adults use MEFLOQUIN to cover Falciparum

DOs & DON'Ts:

- * Drink bottled water, carbonated beverages, juices or hot beverages
- * Avoid unpasteurized dairy products
- * Avoid green salads or vegetable
- * Avoid undercooked meat, fish or
- * Avoid food served buffet style
- * Eat fresh fruit only if you wash
- * Eat foods that are thoroughly

FOOD & WATER: The most common cause of traveler's diarrhea is food and water. When eating during food preparation or when food is stored to possible contamination because it is more likely to get food born illnesses like Salmonella or Amebae. Also use bottled water to brush teeth or wash hands

Traveler's Diarrhea generally gets better with intake of clear liquids and reduction of solid foods for 2-3 days. One should consult a local doctor if it doesn't get better. Anti-diarrheals like Kaopectate are usually used for older children and adults.

MEDICAL KIT: Band-aids, dressing, pain and fever medicine like Tylenol, antihistamine medication and mosquito repellent. A first aid kit containing 30% Deet might come handy. If you have a medical kit for diseases like diabetes, heart disease, arthritis, etc., should have a medical kit, if you are currently taking medication. An information card with allergies listed, syringes and needles if you take injections. If you do fall sick shortly after return, it may be related to your travel.

ASEI As An Organization For Members

By Ram Reddy Nomula, ASEI Chairperson 1993

Membership is an investment in your career future. ASEI offers both technical and non-technical professional development. By participating in technical activities, you can keep current on emerging technology and work with other engineers from other companies who share your field of interest.

Members start attending ASEI meetings after losing their ability to make connections. I would advise members to use their experience to get involved in ASEI activities while their skills are secure. It is best to make acquaintances on an ongoing basis and develop a list of ongoing contacts. There may not be a guarantee, but broader contacts put you in touch with other engineers in your time of need.

The engineering job market has been a major concern for the industry for the past year. ASEI national chapter is

planning to arrange meetings to discuss employment issues in effort to assist members and the industry to cope with the situation. Our ultimate aim is to provide a forum to develop a process to assist members in getting a good jobs in the future.

If you participate aggressively in local ASEI activities, you will have opportunities to organize community events and participate in Section management. This is the best way to gain management experience. It can eventually provide job advancement opportunities, especially for young engineers who lack managerial responsibilities at work.

So, if you have not taken advantage of what ASEI can offer, nurture your profession by getting involved in ASEI. You will feel a sense of accomplishment while offering your service to the community and society.

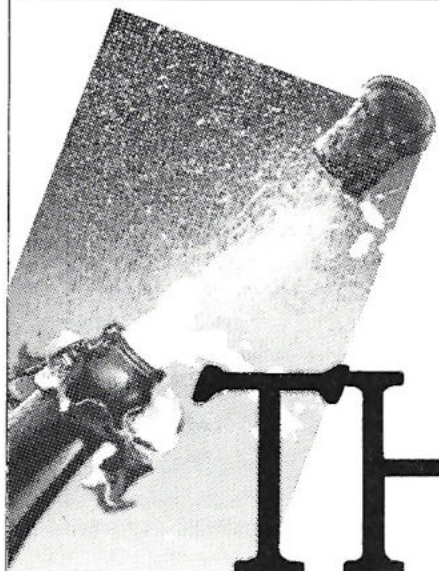
Part of the article came from ASME newsletter, dated May '93, written by Sang H. Lee.

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American Society of Engineers from India

PAST CONVENTIONS

American Society of Engineers from India (ASEI) has organized nine annual conventions since its formation in 1983. ASEI conventions, now a tradition, have been quite beneficial, attractive and worthy for the members. All conventions included technical sessions, concurrent for business owners, students, scientists and engineers followed by an evening award program. The evening program included Keynote and Guest speeches, elegant Indian dinner, awards ceremony and a class presentation. Each convention had a specific theme.

Increasingly to note that ASEI convention themes, over the years, indicate successive progress of the organization and their success. The first convention theme "Succeeding in Corporate America" included topics such as Dress for Success, Resumes and Diction, Resumes, and Reporting and Briefing. The last convention theme, "Customer Focussed Management" dealt with the latest state-of-the-art of how to succeed in corporate America now. Other Annual Convention themes were as

First	Aug. 4, 1984	Succeeding in Corporate America
Second	Aug. 17, 1985	US/India Business opportunity
Third	Aug. 23, 1986	Achieving Your Potential
Fourth	Oct. 3, 1987	Career Planning and Enhancement
Fifth	Sep. 10, 1988	Career Planning and Enhancement
Sixth	Sep. 16, 1989	Path to (Personal) Progress
Seventh	Sep. 15, 1990	Quality - Key to Success in 90's
Eighth	Sep. 14, 1991	Customer Focused Management
Ninth	Sep. 6, 1992	Technology and Indian Economic Reforms

Due to the largest concentration of ASEI members in the state of Michigan, all eight conventions were held around Michigan. With the formation of the second largest "National Chapter of ASEI" in Washington, D.C. area, the ninth convention was held in Washington, D.C. on September 6, 1992.

ASEI-MCC had its own first annual convention in May 1991 which was quite a success and was close to the quality of the national conventions. ASEI annual conventions are held in Five Star hotels, serve Indian dinners and have class entertainment. Keynote speakers have been a top notch Indian professional in the USA. ASEI is proud to present such highly qualified speakers to its members.

First	Mr. Paul Gill, Manager, Ford Motor Company
Second	Mr. P.S. Sahai, Minister of Commerce, Indian Embassy
Third	Dr. Raj Reddy, Director of Robotics, Carnegie-Mellon
Fourth	Dr. Mohan Rao, Senior VP, Texas Instruments
Fifth	Dr. Ranganath Nayak, VP, Arthur D. Little Co.
Sixth	Dr. C. Kumar Patel, Exec. Dir., AT&T Bell Lab
Seventh	Mr. Suresh Chugh, Mngn. Dir., Morgan Guaranty Trust Co. of NY
Eighth	Dr. C.K. Prahalad, Prof. of Int. Business, U of MI
Ninth	Dr. C. Kumar Patel, Exec. Dir., AT&T Bell Lab

At the convention the following awards: Excellence in Entrepreneurial, Excellence in Engineering, Excellence in Engineering and Community Service. The 1991 award winners in the first three categories were Mr. Shankar, President of AMI; Dr. Darsh Wasan, VP of R&D, University of IL and Mr. Subramaniam Rammurthi, ASEI gives a \$2,000 scholarship towards engineering studies. In 1991 this scholarship went to Mr. Arun Netravali, Md. The Ninth Annual Convention of ASEI, held in Washington, DC followed the same high standards. In 1991 ASEI presented four awards; ASEI Entrepreneur of the Year award to Pravin Sheladia of Sheladia, Md. ASEI Engineer of the year to Arun Netravali of AT&T Bell Lab and ASEI Student of the year to Pravin Sheladia of University of Maryland. A \$1,000 scholarship was awarded to Guarav Rohtagi, a student at MIT.

ASEI First National Convention - 1984

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FIRST NATIONAL CONVENTION
 AMERICAN
 SOCIETY of ENGINEERS
 from
 INDIA

SATURDAY AUGUST 4, 1984

NORTHFIELD HILTON, 3800 CROOKS ROAD, TROY



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American Society of Engineers from India
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ASEI Second National Convention - 1985

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SECOND NATIONAL CONVENTION
AMERICAN SOCIETY of ENGINEERS
 from
INDIA

SATURDAY AUGUST 17, 1985
 NORTHFIELD HILTON, 5500 CROOKS ROAD, TROY



THEME: US/INDIA BUSINESS OPPORTUNITIES

American Society of Engineers from India
 22450 Kendall Avenue • Detroit, Michigan 48223

P6: Economic Benefits
 Shah, Kundan
P7: Employment Exchange
 Ghosh, Amar
P8: Business Development Awareness
 Pandya, Navin
P9: Investment Awareness
 Patel, Ramesh
P10: Publicity
 Gupta, Kuldeep
P11: Engineering Excellence
 Singh, Harkrishan
P12: Technical Exchange with India
 Rohatgi, Umesh
P13: Legal Affairs
 Akhtar, Jamil
P14: Technical Activities
 Gangopadhyay, Chitta
P15: Membership
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ASEI Third National Convention - 1986

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Membership (USA)
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Rao, Veni

Employment
Rao, Veni

Engineering
Rao, Veni

Single
Rao, Veni

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Rao, Veni

ASEI Fifth National Convention - 1987-88

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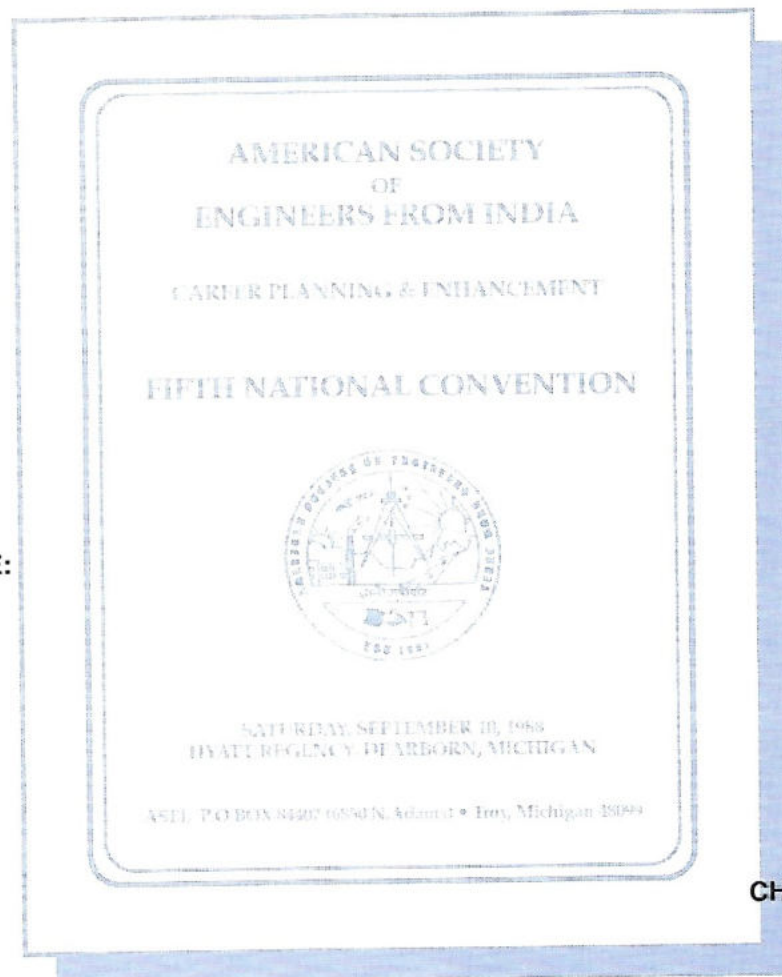
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CHAIRMAN

Mishra

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ASEI Sixth National Convention - 1989

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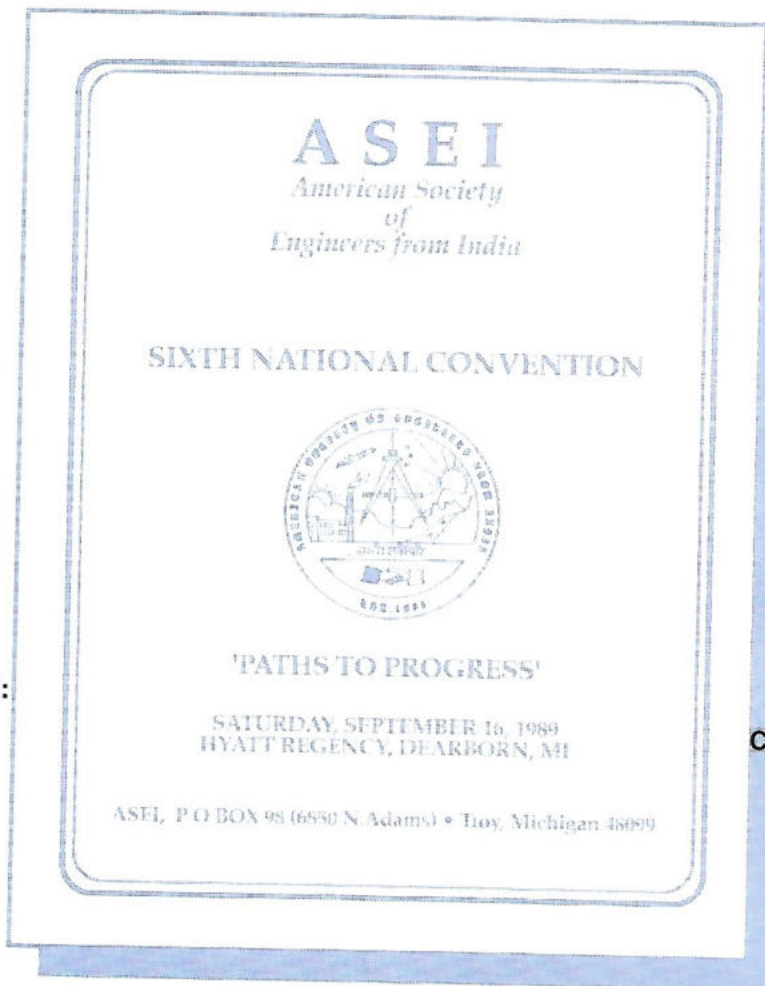
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ASEI Seventh National Convention - 1990

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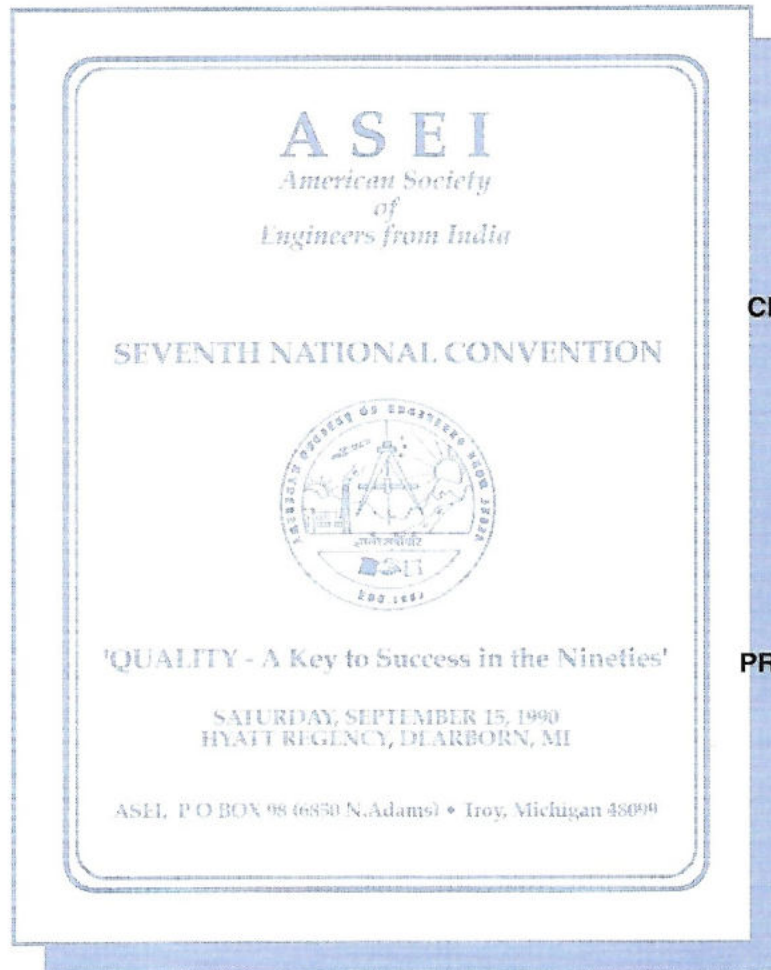
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ASEI Eighth National Convention - 1991

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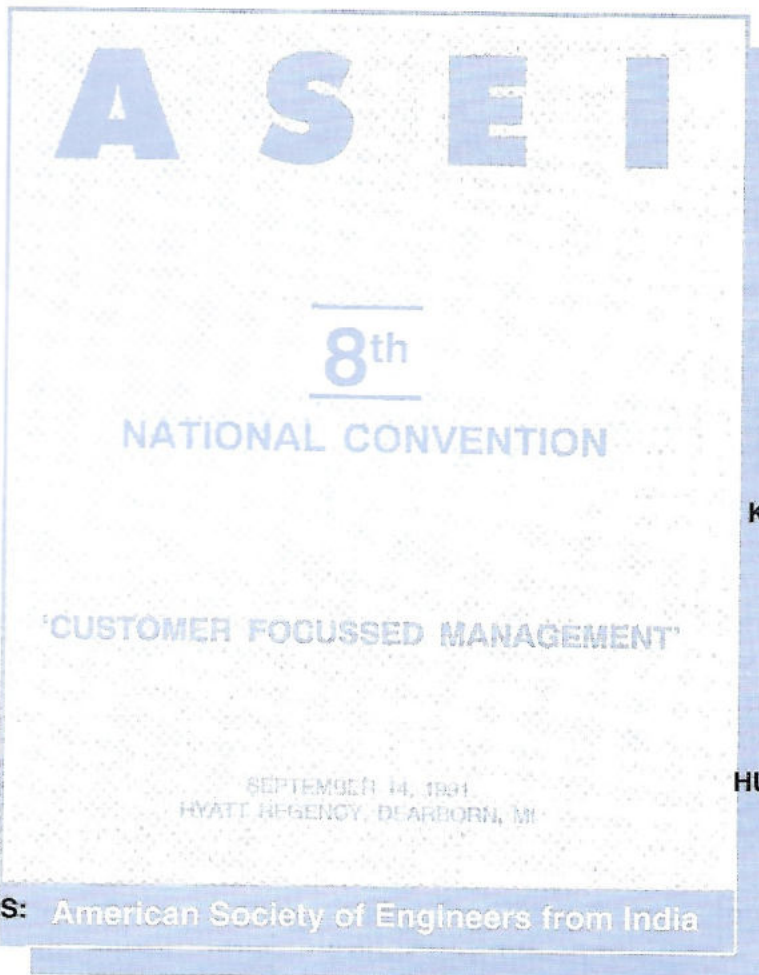
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ASEI Ninth National Convention - 1992

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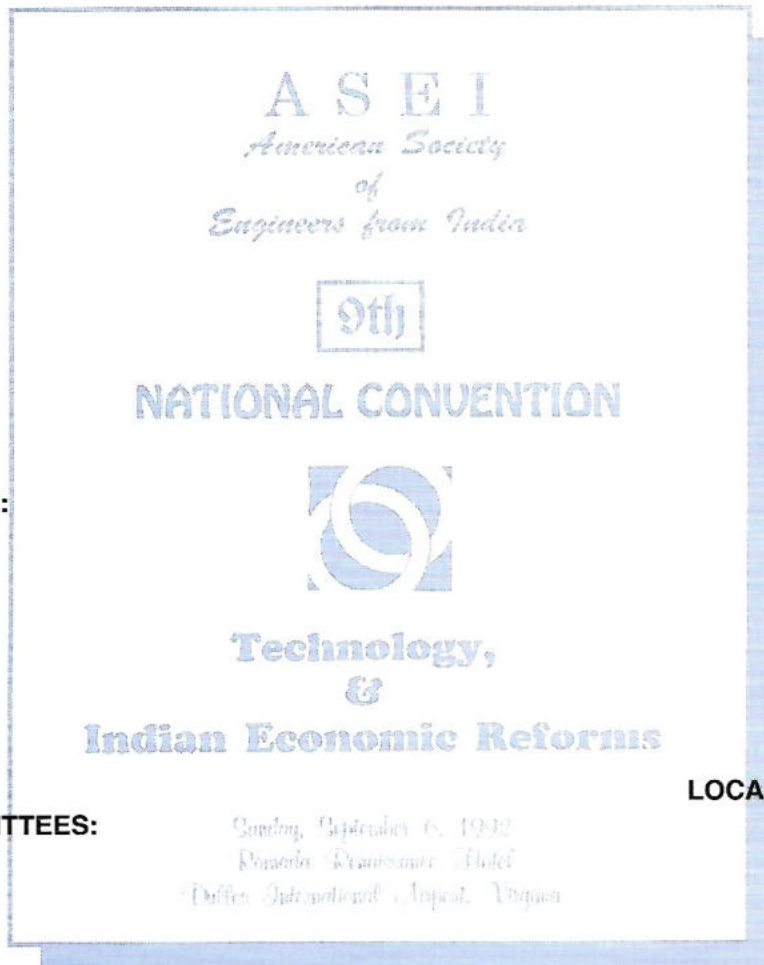
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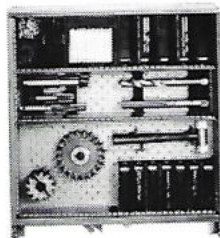
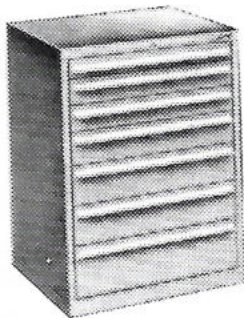
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(Top view of Drawer)

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Load capacity of drawer: 100kg/200 kg UDL.

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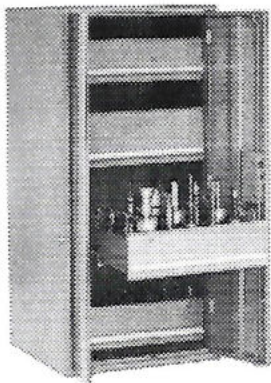
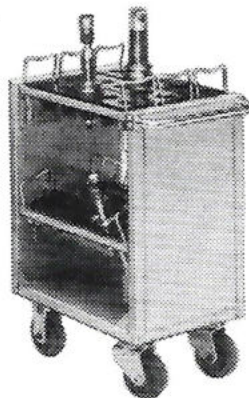
1000mm H x 715mm W x 705mm D with a wide choice of drawer combinations.

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Of rigid welded construction and slotted side walls for locating tool-cradles. Slots provide flexibility for placing tool cradles with varying tool heights conforming to ISO 40, ISO 45, ISO 50 Taper.

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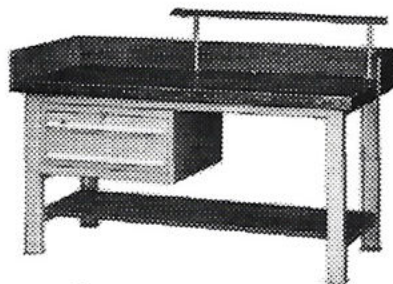
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A Look Past: 1992 Feature Article

Networking

(Reprinted from ASEI's June Newsletter, Credit Sudhir K. Jain, President, ASEI)

Company functions, conventions and business meetings are great places to network and make contacts. But the opportunity can be wasted if you lack the skill needed to make contact.

People like to do business with people they like and feel comfortable with. Often, annual functions are the only time that people with like business objectives get a chance to meet and greet one another for an occasion unrelated to deadline and sales objectives. Attending a function with your co-workers, fellow managers, or clients can be a great way to know people and find out their interests in a relaxed setting. Such occasions can also help you to discover and to cultivate excellent career or business opportunities.

Business functions are a chance for companies to build morale and create bonding among employees. However, you can also use these occasions as a tool to gain knowledge about the company. Talk with people in other departments and get to know what they do.

However, heavy-duty business dealings should not be done at these social gatherings. Such discussions should be saved for the office. If you stumble across a potential business deal or potential client during a conversation, take the person's card and or number and contact them later. Here are some other techniques, do's and don'ts:

In advance of a gathering, get a hold of a list of attendees. Draw up a list of people you want to meet and a few points you want to make to them. Practice describing your company in a sentence or two, and take along plenty of business cards.

Meet as many people as you can. Be the first to break the ice - introduce yourself, as well as others. Don't be shy. Starting conversations is easier when just a few people are in the room. Arrive early.

Make an effort to find out interests of others, but don't pry. Don't be too pushy. Networking must be subtle; keep it casual-but don't try to meet everyone in the room if you will make you appear pushy.

Listening pays off as much as talking does. When you meet someone, ask What do you do? Who do you do business with? What do you need? This information tells you what you might offer that person.

To make your way uninvited into a conversation, ask permission. You could say, Excuse me. I'm interested in what you've been saying. May I introduce myself?

To remember the names of those you meet, repeat first and last names as you shake hands. Address people by their first name during the conversation and say the name again as you part.

Make some sort of promise to people with whom you want to stay in touch. For example, say you'll send them a relevant article or names of contacts they'd like to make. By keeping commitments, you prove your reliability and establish a relationship.

Your conversation should encourage others to open up and talk about themselves without threatening their sense of privacy. The best way to do this is to show genuine interest in them and their views and to not dominate the conversation by constantly talking about yourself. There should be some give and take, however. If you don't talk about yourself and your interests, why should they feel comfortable doing so? Also important is what not to talk about. Politics, personal finances, and religion are still taboo in most settings. And while it may not be a bad idea to listen don't contribute to the rumor mill.

Don't overstuff your plate or worse, get drunk.

Relax, have fun and work the room like crazy. Get to know the people with whom you have or can have business relationships. But don't forget to have a good time.

Finally, be realistic. Don't try to make a sale at every event you attend. The contacts you meet are the start of a process, not the end.

A Look Past: 1998 Feature Article

Mentoring

By [Name]

The model of career development considers four stages of career growth. This model is useful because it is based on specific considerations of organizational titles and content, and considers the essence of career development. The four stages of growth and the work content in each are as follows:

Career Stage	Work Content
Apprentice	Learning, following directions, executing detailed work
Independent Specialist	Independent work, visible technical contribution, technical credibility, manage own work
Mentor	Teach, develop breadth, develop people, outside contacts
Sponsor	Organizational direction, sponsor key people, strategic outside contacts

Below is the framework of this model to describe how the worker (an engineer, in this instance) progresses from stage to stage. I will discuss the organizational and personal barriers to growth at each stage.

The focus of the discussion will center around 'Mentorship'. The discussion will be both from the point of view of the mentor and the mentee's view of the person seeking a mentor.

The questions to consider for an individual in the beginning stages of career development are:

- What are the barriers to growth that are generally faced in this situation?
- What are the barriers to growth, both personal and professional, faced specifically by member of an immigrant community seeking to develop his/her career?
- How can a mentor help overcome these barriers?
- How can a person go about selecting a mentor?

A Look Past: 1998 Feature Article

The Engineers Participation in the Global Economy

By [Name]

Today's Engineer is faced with a rapidly changing business climate. Global awareness is mandatory to be successful. Companies are finding that to be successful, they must be aware of, and participate in the evolving Global Economy. Competition will be fierce and product quality will continue to improve at an ever increasing pace. The company and the individual who cannot think globally will not be successful in participating in this move to the Communication Age.

Today's Engineer is blessed with significant opportunities. Technology and Innovation will drive the world economy. Technology will be at the core of solving the world's economic problems. The Engineer must think broadly, instead of concentrating on components. He must think about the whole infrastructure of applications, not just the environment. Individual components will then be developed for every application.

The successful engineer will understand and apply certain key concepts. They will always be people centered. Management does not become managers, but ignore the basic

Management philosophy is centered on people. Encourage people, motivating attention to productivity and recognizing that people are not alike are fundamental. The successful manager listens to people and avoids isolation. "Management by walking around" is vital. The excellent manager sets high standards, tells people what is expected of them and never compromises quality.

The decade of the 90's presents huge opportunities to the world. The effort to understand the globalization of the economy. Engineers will be at the center of this move to the Communication Age and provide the key ingredient technology.

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A Look Past: 1987 Feature Article

Keeping Up With Changing Technology

By Dr. Edward Lumsdaine

Over the 300 years spanning from the invention of the steam engine to the achievement of sustained nuclear reactions, technology mainly dealt with the mechanical processes involved in energy conversion. Today, technology advances are centered around processing information and dealing with events often microscopic in size - that occur inside a structure (such as a computer) or inside a biological unit (such as a gene). Sudden disasters like Chernobyl or the "Challenger" explosion have us keenly aware that our customary ways of handling technology have become inadequate. But we must be even more alert to the effect of less obvious, but more pronounced changes and developments, such as the spread of personal computers and the growth of global economic competition. Such comparatively rapid changes can leave us with a feeling of pessimism, of inadequacy to be able to react properly. So what can we do to keep up with (or even get ahead of) changing technology?

We have a number of responses that we can make to meet and manage change well. My talk will discuss some of the things we can do to prepare for and cope with changing technology.

We Need a Change in Attitude: We have to work on our attitudes about change. We have to look at change (and especially a pronounced change) as an opportunity for improvement and progress. We must realize that change means life; an organism or organization that is not changing is probably dead or nearly so. Therefore, we must expect changes; and these changes will not only be changes in technology, we also will need to make changes in our attitude about how we work. We are known as a nation of individualists. This attitude may no longer be best for coping with change. Cooperation and teamwork (organization, perhaps on a global scale) may provide more appropriate responses.

We Need to Study Trends: We must broaden our perspective, we must consider what is going on out there in the world. We need to observe trends. How will these trends affect us? As we become aware of trends in

society, in the market place, and in technological development, we can watch for new opportunities and prepare new products to meet different needs or to solve new problems. This also means doing some reading in areas outside our own field, learning different languages, spending some time observing things outside our own department at work, or getting involved in cultural concerns and activities, demographics, politics, and the arts.

3. We Need to Practice Higher Levels of Thinking and Creativity: Throughout our education, we have mostly been taught the lowest level of thinking: the acquisition of data and information which is nothing more than the mere accumulation of knowledge. We must increase our skills in comprehension, in analysis, and in synthesis of this knowledge, and finally we need to exercise judgment - which includes an examination of the underlying assumptions, values, and interconnections. We must practice how to think creatively. The habit of imagination will last and be of benefit long after specific knowledge is forgotten or out of date.

4. We Need to Innovate: Creativity is most useful when it leads to innovation. Innovation is achieved only when a creative idea is developed into an invention which is then implemented. We must understand the role of innovation in maintaining the well-being of our industries, the wealth in this country, and our lifestyle. Successful innovation exploits change; the skill can be learned.

5. We Need Continuing Education: Engineering knowledge doubles every fifteen years or so, thus lifelong education is mandatory for engineers who want to keep up with changing technology. We cannot afford to be too specialized. Through continuing education, we can maintain our knowledge of basic mathematical and engineering principles, and we can acquire interdisciplinary knowledge. This can mean self-study; it can mean enrolling in advanced degree programs like those we are developing at the University of Michigan - Dearborn. Public and private organizations are offering a multitude of useful seminars and short courses. We must

A Look Past: 1987 Feature Article

Keeping Up With Changing Technology, cont'd

By Dr. Edward Lumsdaine

make use of these opportunities. We also need to develop our communications skills; these are among the skills most valued by industry.

6. **We Need to Solve Real Problems:** We need to look for areas where technology can be applied to solve serious, international problems. As scientist, we have the reputation of being conformists to some degree - we are not generally used to thinking about the consequences of the work that we are doing. How is the product or

process we are working on affecting our biosphere? population growth, food, health care, other resources? Will it contribute to the growing mountain of waste? Will the materials be recyclable? Will our product or process help to minimize or cure air, water or noise pollution? Does what we do have social value - will it help to reduce crime or unemployment? Who are we really working for? What are the needs that we can meet? How can we add value to what we are doing? We must develop a mindset that looks to the future as well as the past.

A Look Past: 1991 Feature Article

Technology Exchange Through Expatriate Networks

By Dr. Arvind Singhal

In recent decades, United States, Japan, and most Western European nations have become information societies, countries in which information workers are more numerous than such occupational categories as farmers, industrial workers, or service workers. Information workers are individuals whose main job responsibilities are to gather, process, or distribute information; or to produce information technologies like computers or telecommunications that are used by other information workers. Typical information workers are employed as computer programmers, newspaper reporters, teachers, secretaries, and managers. In the US today, approximately 60 percent of the workforce are information workers. The US became an information society in about 1955, when the number of information workers exceeded the number of industrial workers, and far surpasses the number of agricultural workers.

India is still far from being an information society. Only about 10 percent of the workforce are white-collar workers, approximately 60 percent are farmers. An estimated 65 percent of the Indian population are illiterate, and their lack of education prevents them from widely sharing in the benefits of the information sector in Indian society. Yet within this huge nation of 800 millions citizens are several million urban, educated individuals, whose lifestyles are similar to those of information workers in Silicon Valley, Tokyo, or Cambridge.

Information workers in India, while still a small percentage of the total population, are growing in numbers and in importance. Further, these elites are creating new communication technologies and their applications that are beginning to cause about certain noticeable changes in Indian society. These changes may become revolutionary in their social impact.

The purpose of this presentation is to analyze the role of expatriate based Indian expatriates in exchanging state-of-the-art technology with their Indian counterparts. We focus on the two-way process of technology exchange, that is from the United States to India and from India to the United States. Various mechanisms of technology exchange are presented. Facilitators and barriers to technology exchange are identified. Several cases of successful and unsuccessful technology exchanges are analyzed in order to derive lessons about the important role of expatriates as an interface. The importance of personal and professional networks between expatriates, their U.S. employers, and their Indian counterparts is highlighted. While most of this presentation focuses on high-tech microelectronics technology and its applications in telecommunications, computers, and software, the lessons derived are of a more general nature.

A Look Past: 1987 Feature Article

Trends in Industry - A Global View

By Dr. Tirupathi Chandrupatla

PRODUCTION

The main objective of an industrial unit is to make profit. This must be achieved by turning out a quality product at the lowest price. The age old industrial monopoly does not exist any more. The game of the game is "competition". The present situation can be summed up as "compete or perish". With the improvements that have taken place in the areas of transportation and communication in the recent past, the world has become a small place to live in. Competition today is global in nature. This global war is further fueled by every varying exchange rates and highly unpredictable forces.

TREND

The world industry is responding to the above by enforcing some of the following steps:

- Reducing waste
- Computer integrated manufacturing
- Efficient production processes
- and techniques
- Improved quality
- Increased flexibility
- Long range planning
- Continuous improvement
- Technology transfer
- Training

One way, in which the industry in a nation responds to this competition, depends on the national tradition. We now take a closer look at the industrial trends in various parts of the world.

UNITED STATES

The oil crunch of the early eighties has been an eye opener for the United States. The Japanese flooded the market with small cars of good fit and finish, for which the demand grew suddenly. The consumer started demanding quality and started comparing the American product with that made in Japan. This Japanese competition, in my view, has been a blessing in disguise, since the industry responded with increased stress on quality.

McClenahan (1) quotes the following analysis of the Boston University's School of Management, giving the competitive advantages assigned by the world's major manufacturers.

Western Europe	Japan	Criteria
2	6	1. After sales service
5	7	2. Consistent quality
3	2	3. Dependable deliveries
4	3	4. Fast deliveries
6	8	5. High performance products
7	5	6. Low prices
1	4	7. Rapid design changes
8	1	8. Rapid volume changes

As seen above, there is more stress on quality in the U.S. I still

observe lack of long-range planning in some areas. Typically an old machine may be equipped with modern feeding and monitoring devices, leading to questionable improvement in quality.

WESTERN EUROPE

A visit to a German factory will show what a well ordered work place means. The German worker takes pride in his work and creates an atmosphere in which things are done "just right" - Grundlichkeit (2). German products have a reputation for quality around the world. Another characteristic of the German industry is the employment of large numbers of technical personnel, ranging between 30 to 50 percent of the work force. Management is generally in the hands of those who rose through the ranks holding advanced engineering degrees. U.K. is revamping its industry with export to the U.S. as its main objective. Jacobson (3) compares the UK industry with industry in other nations. Sweden is exporting automation technology to the U.S.

JAPAN

Japan is a country with few natural resources. They rely on the import of raw materials and hence must export the finished goods to balance the trade. The awareness of this has led to turning out quality products meeting customer demands. In achieving this, they have turned toward employing the simple steps stated earlier. Ideas of constant improvement, expanding skills, process improvement, just-in-time (JIT) techniques, orderliness, quality consciousness, zero defects, the team approach, lifetime employment and training (2-6) are some of the elementary concepts that we are relearning from the Japanese. By their meticulous approach, the Japanese have achieved high productivity per man per annum and a low power consumption per unit produced (3).

OTHER COUNTRIES IN ASIA

India, Korea and Taiwan have a tremendous labor cost advantage. Favorable government regulations in Korea and Taiwan have led to large number of foreign companies shifting their production to these countries. In India, the capital goods are manufactured by public sector undertakings and are virtually protected monopolies.

In Korea and Taiwan, the capital goods are in the private sector (7). The tendency of alliances and collaborations that we see in the U.S. (8) is more prevalent in these Asian countries.

CONCLUSION

In short, there is "back to basics" atmosphere in the industry world wide. We are trying to relearn and implement the very principles which have been the basis of industrial success. Long range planning is essential for overcoming global competition.

REFERENCES

1. John S. McClenahan, Learning from Foreign Strategies, *Industry Week*, July 27, 1987.
2. Robert H. Hayes and Steven C. Wheelwright, *Restoring Our Competitive Edge*, John Wiley, 1984.
3. M.A. Jacobson, A Comparison of US, West European, UK and Japanese Performance 1977-80, *Automotive Manufacturing Update '81*, I Mech E, 1981.
4. Merja H. Lehtinen, How to Beat Japan, Inc., *Managing Automation*, July, 1986.
5. Kiyoshi Suzuki, *The New Manufacturing Challenge*, The Free Press, 1987.
6. Japanese Management Association, *The Canon Production System*, Productivity Press, 1987.
7. Martin Fransman, Editor, *Machinery and Economic Development*, St. Martin Press, New York, 1986.
8. John S. McClenahan, Alliances for Competitive Advantage, *Industry Week*, August 24, 1987.

Increasing R & D Effectiveness

By Stephen M. Bakonyi

Many technology development organizations face a conflict between short and long term objectives. Short term objectives support the organization's bottom line by providing product development and process improvement. Long term objective, on the other hand, support long term survival by research, technology development and building staff competence. Management's challenge is to achieve the proper balance between the two.

In many organizations, long and short term work are separated by a combination of organizational boundaries, independent funding, or physical distance. Unfortunately, these barriers may result in too little communication, leading to poorly directed long term programs and poor technology transfer.

To improve the effectiveness of a R&D organization, it is necessary to increase the number of technologies which are successfully implemented by the operating organizations. Unfortunately, there are many barriers to this successful transfer of technology. For this reason, management must take a pro-active role to stimulate the flow of technology from R&D:

- * Examine and understand the resistances at the critical transfer points.
- * Institute an effective technology planning activity to target R&D toward company goals.
- * Implement an appropriate reward system to foster motivational environment.
- * Plan and manage the implementation of R&D results.

Some of the resistances to technology transfer are: the lack of information about the technology. This may be due to the isolation of the R&D organization from the operating groups, the lack of market knowledge by R&D personnel, physical decentralization of the company, and the lack of special skills and knowledge in the operating organizations to cope with the new technologies. Additional serious resistances to technology transfer are short term management focus, lack of urgency in R&D, and fear of risk taking in operating groups.

Long range technology planning contributes to increasing effectiveness by determining the particular technical areas the company will use to achieve its business objectives. Planning also defines the specific mission of each research and operating group, and finally ranks and balances projects to best meet the company's competitive business opportunities.

Technological progress is encouraged through management and policies, such as the increased involvement of management in technical programs, increased interchange among technical and operating groups, and the establishment of a reward system for change, and achievement of long term organizational goals.

To successfully implement technology, the important barriers to technology transfer process has to be emphasized and overcome. Specific bridging mechanisms have to be established, falling into human, procedural, organizational, physical and financial categories.

A Look Past: 1986 Feature Articles

CAREER ENHANCEMENT: HOW TO GO ABOUT IT Motivate Yourself / Set Goals / Acquire Tools

By Lloyd Livingston

POTENTIAL: Possible but not actual. Having capacity for
existence, but not yet existing.

In reference to personal accomplishments a two sided view
must be considered. **First**, the actions we have taken in the
past, such as: education, experience and personal background
have produced an "As Is Potential". Every person has an "As Is
Potential". Any self-improvement action will add to the capacity
of this potential. However, it is important to recognize that even
without further acts of self-improvement, most people can
maximize their use of the "As Is Potential".

Second, to capitalize on the "As Is Potential", a person must
translate it into motion specific factors that will guarantee that the
potential will be the result of the total release and use of the "As Is
Potential".

The first important factor is **purpose** or **end-result**. This goal
must be specific. Without this purpose it will be virtually

impossible to maximize and utilize your complete potential.
When a person **knows**, what he wants more than anything
else, attainment of that goal is then possible.

* Another factor is **confidence** and **belief in one's self** that
success is possible. A specific purpose coupled with
confidence will generate a positive attitude and enthusiasm for
life. **Life will be exciting!**

* Finally, it is essential for everyone who desires 100%
fulfillment of his potential to structure his time with care and
discipline. All non-essentials must be eliminated and only the
important pre-planned activities that lead to the target: **THE
FINAL RESULT** should be exercised.

* Purpose + Confidence + Enthusiasm + Time Structuring =
Actualized Potential

* **Today is the first day of the rest of your life - Get going
and make the most of it.**

CAREER ENHANCEMENT: HOW TO GO ABOUT IT Corporate World

By T.E. DeGrazia

Enhancement of your career in the Corporate World needs your total understanding of the following four distinct areas:

- I. Challenge Facing Multinational Corporations
 - A. Knowledge of total business
 - B. Entrepreneurial mindset
 - C. Customer-driven orientation
 - D. Teamwork is critical/Product quality is mandatory
- II. Personnel Planning - A Shared Process
 - A. Identify career paths
 - B. Develop a profile of a successful employee
 - C. Co-determine individual career development
 - D. Skill development is an ongoing process
- III. How to Begin the Process
 - A. Determine mores in your organization
 - B. Evaluate relationship with your immediate supervisor
 - C. Design a win-win plan
 - D. Establish a long range objective
 - E. Outstanding job performance is first step
 - F. Leadership - make a difference
 - G. Approach each work day as a job interview
- IV. Develop a Network with Successful Employees

CAREER ENHANCEMENT: HOW TO GO ABOUT IT Entrepreneurship: Myths and Methods

By Richard H. Shackleton

Entrepreneurship - for many years a significant economic force in both India and the United States - has recently become a fad. This popularization has created both opportunity and risk for the would-be entrepreneur, and it has had a noticeable impact on policies and behaviors of Corporate America.

The employed engineer or other professional who is attracted to entrepreneurial ventures has several options:

He or she can remain in the Corporate world and enjoy many of the fruits of entrepreneurship by working for one of

the many large companies that have established small, autonomous units to compete with entrepreneurs in niche markets. Alternatively, he or she can leave the corporation by capitalizing on special early retirement plans or by organizing a leveraged buyout of one of his/her own company's business units.

Highly publicized hi-tech entrepreneurial successes are misleading. A person considering an entrepreneurial venture is advised to look beyond the mythology, develop a thorough understanding of the options, and plan carefully for success.

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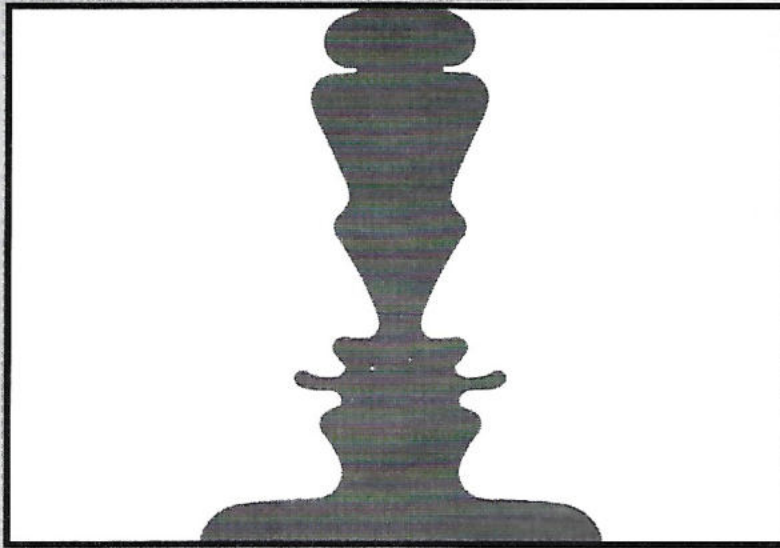
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- ◆ Technical Support and Product Analysis Services
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Multitronics welcomes the **American Society of Engineers from India** to Huntsville for their Tenth Annual Convention and wishes all members a safe, happy visit to our hometown.

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Harendra Kumar
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Jayprakash B. Shah

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Nuruddin H. Kapadia
P. R. Perumalswami
Prakash Shrivastava
Radha Krishnan
Raj Raja
Raj Vijayendran
Rajaram Khatri
Ramarao Cherukuri
Ramesh C. Sharma
Ramesh M. Patel
Ramesh Mangrulkar
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35801

Membership form

1. Name: Mr/Mrs/Ms _____
 Last First Middle Initial

2. Type of Membership: A. Regular \$25/year B. Life \$2500 C. Student \$10/year D. Corporate \$250/year

3. Spouse: Mr./Mrs. _____
 Last First Middle Initial

4. Home Address: _____
 Street _____
 City State Zip/Code

Phone: _____
 Office Residence

5. Self employed: Yes No

6. Employer: _____

7. Office Address: _____
 Street _____
 City State Zip/Code

Phone: _____

8. Years of Experience: A. 0-5 B. 6-10 C. 11-15 D. 16-20 E. 20+

9. Highest Educational Qualification (choose only one)
 A. Bachelor B. Master C. Doctorate D. Post Doctorate

13. Which year did you become an ASEI member? _____

14. Amount enclosed: \$ _____

15. Alma mater in India _____ Class of 19 _____

10. Educational Background: (choose all that apply)

- A. Aerospace
- B. Architecture
- C. Business
- D. Chemical
- E. Civil
- F. Computer Science
- G. Electrical/Electronics
- H. Industrial
- I. Mechanical
- J. Sciences
- Z. Other (specify) _____

11. Which of the following best describes your position?

- A. Consultant
- B. Engineer/Scientist
- C. Manager/Director
- D. President/VP
- E. Professor/Associate Assistant
- F. Programmer/Analyst
- Z. Other (specify) _____

12. Which of the following best describes your function?

- A. Accounting/Finance
- B. Administration/Management
- C. Consulting
- D. Drafting/Design
- E. Education/Training
- F. Engineering
- G. Manufacturing
- H. MIS/DP
- I. Purchasing
- J. Quality/Process
- K. R & D
- L. Sales/Marketing
- M. Telecommunications
- Z. Other (specify) _____



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of engineers
from india**

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- Exclusive access to a no-fee professional employment placement service.
- A \$100 credit for your first display advertisement in ASEI's annual convention brochure.
- Corporate Member discounted rates for exhibit space at annual and local conventions.
- Listing in Member Directory as Corporate Member.

Conditions of corporate membership

Membership is open to companies actively engaged in engineering, architecture and related arts and sciences. Annual dues are \$250. Dues are deductible as an ordinary and necessary business expense for income tax purposes, but are not deductible as a charitable contribution.

Membership agreement

Accept this invitation to become a Corporate Member of ASEI, American Society of Engineers from India, on behalf of:

Company Name _____ Division _____

Representative's Name _____ Title _____

Company Address _____ City _____ State _____

Signature _____ Bus. Phone _____ Zip _____

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1993 ASEI Awards

Awards Committee

Asha Reddy, Chairperson
Noor Kapadia
Lakshmi Vora
Billiyar Bhat

The following awards are given at the
National Convention every year:

- *1. ASEI Entrepreneur of the Year
2. ASEI Student of the Year
3. ASEI Engineer of the Year
- *4. ASEI Merit Scholarship
- *5. ASEI Service to the Community

** Only these awards are given this year
because of the poor response from the members.*

*Congratulations And
Continued Success To The*

ASEI



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1993 ASEI Entrepreneur of the Year

Satyendra P. Shrivastava

In a ceremony in Washington, D.C. on May 11, Satyendra P. Shrivastava, President and Chief Executive Officer of ANSTEC, Inc., received the Minority Entrepreneur Award for 1993. The Small Business Administration selected Mr. Shrivastava in recognition of his outstanding leadership and commitment to excellence. The next day, President Clinton held a reception at the White House in the Rose Garden for all the award recipients.

Mr. Satyendra (Shri) Shrivastava founded ANSTEC, Inc. (formerly Advanced Computer Systems, Inc.) in June 1982 and started active operations of the Company in September 1983 to address the burgeoning demand by the federal government for information and data processing engineering services and contract technical professional services. The name of the Company was changed to ANSTEC, Inc. in December of last year. The name is based on the initials of the names of his three children.

ANSTEC was approved for participation in the Small Business Administration's 8(a) Program in 1987 and will graduate in 1996. ANSTEC was ranked by *Inc. Magazine* as #136 of the 500 fastest growing privately held companies in the United States, and by *Washington Technology* magazine as #7 of the 50 fastest growing companies in the Washington Metropolitan area. ANSTEC also offers systems integration of software and hardware including network and data communications, image processing and management.

Specific accomplishments include the competitive award of a \$60 million Section 8(a) contract with NASA at the Goddard Space Flight Center to provide information and data center management; and, a \$20 million Section 8(a) contract with the Federal Highway Administration for systems integration and software development. In addition, ANSTEC has expanded its market penetration by winning contracts with other government agencies such as the Department of Defense, U.S. Army, U.S. Marine Corps, Department of Education, Department of Energy, Resolution Trust Corporation, and other federal agencies.

Prior to founding ANSTEC, Mr. Shrivastava served as the Director of Computer Applications Division of GTE Telenet from August 1981 to 1983. Before this, he was Manager of Engineering Computer Systems Department with Potomac Electric Power Company, where he worked for eight years, starting as a Lead Programmer Analyst in 1973.

Mr. Shrivastava completed his undergraduate degree in Electrical Engineering from Patna University, India in 1963 achieving the first rank in the University. After a year of teaching at Bihar College of Engineering, he joined the Government of India, Ministry of Irrigation and Power, as Assistant Director. Shrivastava came to the United States in 1970 to engage in graduate studies in Computer Science at the University of North Carolina at Chapel Hill, North Carolina. After receiving his MS Degree, he taught for a year at the University of North Carolina at Elizabeth City. In 1982 he received his MBA in Finance from Marymount University.

Mr. Shrivastava is extensively involved with both community and professional organizations. He is a founder of the Rajadhani Mandir of Northern Virginia, and was its Chairman of the Board of Trustees for the last eight years.

Mr. Shrivastava was born in Darbhanga, Bihar, India.

Detailed of ANSTEC's Products/Services:

Under Mr. Shrivastava's direction, ANSTEC provides a broad range of professional services related to information systems integration, systems engineering and technical management support for customers in both the government and commercial sectors. The range of professional services includes total facility management of data centers, systems development and support; and, management of technical and administrative functions for federal agencies. ANSTEC also offers systems integration of software and hardware including network and data communications, image processing and management. Experienced in a multitude of computer platforms and proficient in more than fifteen data bases, the professional staff includes computer professionals, engineers, analysts, economists, program administrators, data and network specialists and technical writers.



Satyendra P. Shrivastava
President and Chief Executive Officer,
ANSTEC, Inc.

1993 ASEI Entrepreneur of the Year

Shrivastava, cont'd

Honors and recognitions have been awarded to Mr. Shrivastava and ANSTEC, as follows.

Year	Granting Organization	Name of Honor/Award
1993	U.S. Small Business Administration	Minority Entrepreneur of the Year
1993	Association of Indians in America	AIA Entrepreneur Award
1993	Ernst & Young/Inc. Magazine Merrill Lynch/Washington Business Journal	Finalist -- 1993 Entrepreneur of the Year Award - Minority Owned Category
1993	Greater Washington Region High Tech Awards	Finalist -- KPMG Peat Marwick High Tech Entrepreneur Award
1992	NASA	Minority Contractor of the Year Nomination
1992	<i>Inc. Magazine</i>	<i>Inc. 500 Award - Ranked #136</i>
1992	<i>Washington Technology</i>	Fast 50 Award - Ranked #7
1990	National Security Agency	Contractor Excellence Award
1991	NASA Goddard Space Flight Center	TQM Certificate of Appreciation
1991	<i>Inc. Magazine</i>	<i>Inc. 500 Award - Ranked #250</i>
1991	<i>Washington Technology</i>	Fast 50 Award - Ranked #12

1993 ASEI Service to the Community Award

Dr. Lajpat R. Utreja

Dr. Utreja received a Bachelor of Technology Degree in Aeronautical Engineering from the Indian Institute of Technology, Kanpur (India) in 1966, and a Master of Science in Aerospace Engineering from the University of Minnesota in 1970. He earned a Doctor of Philosophy Degree from the University of Alabama in 1982.

Dr. Utreja is a highly motivated individual who has contributed in a number of technical disciplines, in the general areas of aeronautics and astronautics. His interests and contributions cover such diverse areas as Hypersonic Flows, Spark Gap Physics, Infrared Systems, Hypervelocity Impact, Space Debris, Computational Fluid Dynamics, Conduction, Convection and Radiation Heat Transfer, Aerodynamic Interactions and Aerodynamic Deceleration.

He is currently a Director, Environmental Engineering for Tec Masters, Inc. In this capacity, he is responsible for technology transfer from the DOD and NASA into environmental arena, technology exploitation and integration. In the past he has held senior management and technical positions with Dynacs Engineering, BDM International, Boeing, and Lockheed. He is also an Adjunct Professor at the University of Alabama in Huntsville.



Dr. Lajpat R. Utreja

He actively participates in several national and international technical committees. His affiliations include: Advisory Board, Laboratory for Extra Terrestrial Structures Research, Rutgers University, Space Operations and Support Technical Committee of the AIAA, Committee on Safety and Rescue of the International Academy of Astronautics, Committee on Quality of the International Academy of Astronautics, Lunar Structures Technical Committee of the ASCE.

He is an Associate Fellow of the AIAA, and a member of the ASME. He is Immediate Past President of the Huntsville Association of Technical Societies, an influential organization in Huntsville for the promotion of science and engineering in the Tennessee Valley. His NASA awards include a Group Achievement Award in 1979, and several letters of commendation. He is also recipient of the US Navy Sustained Superior Performance Award in 1974. Dr. Utreja is a member of Toastmasters International. He is an excellent speaker and has won several club, area and BDM championship of public speaking awards.

Dr. Utreja holds two patents: "Aircraft Hollow Nose Cone" to provide a passive means to reduce supersonic missile nose heat flux, and "Convertible Canopy-to-Wing Shaped Parachute" to provide gliding capability to the standard personnel parachute. He has recently proposed a concept to NASA to protect Freedom Station against possible space debris encounters during its mission life. The solution is to develop a satellite positioned ahead of the station and capture particles that are too large for the station protective shields and too small to be detected by the ground based radars.

COMMUNITY SERVICE: Have been immensely involved in all aspects of community life to fulfill appropriate needs in the cultural, social, religious and technical arena.

Cultural:

- Initiated Sunday School Activity for Huntsville Indian children to make them aware of Indian customs and values. 1978
- Directed and presented scenes from Mahabharat. 1992
- Organized and exhibited "Our Heritage" stall displaying Indian history, religions and philosophies, symbols, festivals, and arts and crafts at the festival of India, 1993.
- Hosted marriage customs of different states of India at the festival of India. 1993
- Vice President, Huntsville India Association, 1993.

1993 ASEI Service to the Community Award

Dr. Lajpat R. Utreja, continued

- Social:
- Have been a telephone counsellor for the Huntsville Helpline to provide crisis intervention and non-judgemental counselling to the needy since 1988.
 - Have been invited to several schools and churches in the community to talk about India and Hinduism. Since 1968.
 - As a Director of International Reception Center at the University of Minnesota, provided services to make the transition of Indian and other foreign scholars in this country smoother. 1969-71
 - As a member of the educational, scientific, and technology steering council of the Huntsville Chamber of Commerce, have talked about Indian educational system and participated in the Education Summit 1992 for Huntsville.
 - Have volunteered for several activities of the Huntsville India Association.

- Religious:
- Devout Hindu with equal accomodation and appreciation for other faiths.
 - Have performed "Yagas" and prayer ceremonies for the special needs of the Indian community on birthdays, moving into a new house, death service, etc. in Huntsville and Memphis

- Technical:
- Presented Status of Indian Space Program at Major International Space Summits in Huntsville. 1991, 1993
 - President of Huntsville Association of Technical Societies. 1990, 1991
 - Have organized and chaired several space related symposia in Huntsville. 1987, 1989, 1990, 1991, 1992
 - Presented talks at the ASEI meetings

IMPACT ON SOCIETY

- A unifying force among people from different states through religious and cultural association.
- As a good communicator with good oratorical skills have promoted goodwill for India in the local communities everywhere. As a toastmaster, have given numerous speeches on India and Hinduism. Balanced and factual reports have help alleviate stereotype image of India and Indians.

RECOGNITION AND SERVICE AWARDS

- Service Award from Hats, 1992.
- Letters of Commendation from the Mayor of Huntsville, and the Director MSFC for participating in the Education Summit 1992.
- Have won several speech contests through Toastmasters International.

LINK WITH INDIA

- Maintained a very close link with the civil aviation department, New Delhi. 1971-74, to apprise them of the state of the art of recovery systems in the USA.
- Maintained a very close link with the scientific attache of the Embassy of India regarding the developments in India's space program, 91 - cont'd.

1993 ASEI Merit Scholarship Recipient

Sanjiv A. Patel

EDUCATION:

University of Michigan, Fall '92 to present
Rackham School of Graduate Studies, Ann Arbor, MI
M.S. (Manufacturing Systems Engineering)

The M.S. University of Baroda, India
Faculty of Technology and Engineering
B.S. (Textile Engineering)
G.P.A. of Junior and Senior Years 4.0/4.0 (A+ = 4.0)
Aggregate G.P.A. 3.8/4.0 (equivalent to latter grade A)

THESIS:

Although thesis was not required as a part of my undergraduate degree curriculum, I worked on the project of "Applications of Machine Vision in Textile Industry". The project dealt with all the kinds of applications of machine vision during all the phases, from manufacturing to inspection. The project was undertaken under practical conditions at one of the largest textile industry of India.

PAPERS:

1. Presented a paper titled "Applications of Machine Vision in Textile Industry" at a seminar, hosted by the M.S. University of Baroda, India.
2. Presented a paper at a seminar sponsored Textile and Allied Industries research Organization (TAIRO) on technical difficulties that has to be overcome before increasing the rotor speed beyond 1,15,000 rpm in open-end spinning machine.
3. Presented a paper at ITME on improving the performance of Padmatex Drawing Machinery at Bombay on 2nd December, 1992 as part of my one year training as a graduate engineer with Padmatex Engineering Limited, one of the largest textile machinery manufacturing company in India having collaborations with Schlafhorst, Zinser, Reifenhauser, all from W. Germany.

MERITS:

• Was honored as the best student of the university by conferring two GOLD MEDALS • Topped in my class, in the department as a whole, with a record breaking 79% in the final examination. • Recipient of National Merit Scholarship from 1985 to 1991. • Among the first 500 students from all over India to pass NTSE conducted by the National Council on Education, Research, & Training (NCERT). • Have won several debates on variety of topics. • Recipient of number of awards, merit certificates, and monetary rewards. • Was offered Direct admission to Ph.D. at the Indian Institute of technology, New Delhi and The University of Leeds, Leeds, U.K.

COURSES:

- Production of Mechanical Products
- Engineering Manufacturing Processes
- Industrial Engineering and Quality Control
- Computational techniques and Programming Languages
- Information on CIM
- Process Control & Instrumentation
- Engineering Materials
- Mill Management Lay-out and Costing
- Yarn Preparation (I, II)
- Textile Chemistry
- Yarn Manufacturing (I, II, III)
- Weaving (I, II, III)
- Textile fibers

EXPERIENCE:

University of Michigan - Student Assistant - Library, Current:

• Assisting students at the circulation Desk. • Keeping daily inventory of audio/visual equipments of the university. • Working as a cameraman in the studio owned by the library.

Padmatex Eng. Limited - Field Service Engineer, Jan. '91 to Jan. '92:

• Erection, commissioning, and trouble-shooting of Draw Frames Zinser-720. • Implementation of MIS (Management Information System) in the marketing department. • Working in close affiliation with the product development department for improving the problems with the "Super-long creel", "Autoleveller", and "CAN-O-MAT".

COMPUTER EXPERTISE:

• Hardware: IBM PC XT/AT and compatibles, Minicomputers based on Intel 8086, 80286 and 80386, SUN/HP workstations, Zenith and Apple Workstations. • O/S: UNIX, MS-DOS, SUN OS, Apple OS. • Languages: FORTRAN, Pascal and C.

BACKGROUND:

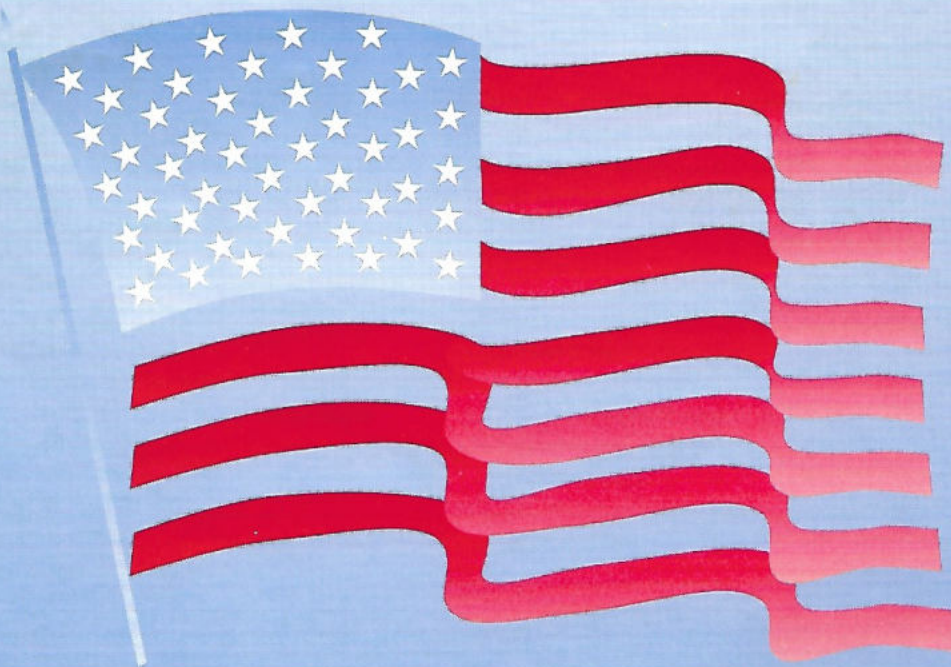
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- Up to six colors with constant velocity squeegee and increased UV curing capacity.
- Ample room for on the printer visual inspection and independent unload to reject spindle.
- Full automation for off the printer read side inspection and reject accumulation.
- Full automation for printing two different three color jobs simultaneously at 120 CDs per minute.
- Improved print head stability and screen positioning simplifies registration and optimizes picture disc printing.
- User friendly print head guard system with solvent resistant tempered glass doors.



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