Kanpur Indo-American Program
STEPERING COMMITTEE

Stephen S. Attwood
Dean of the College of Engineering
The University of Michigan

David P. Billington
Associate Professor of Civil Engineering
Princeton University

Harold A. Bolz
Dean of Engineering
The Ohio State University

Paul F. Chenea, Chairman
Vice President for Academic Affairs
Purdue University

Derek A. Davenport
Associate Professor of Chemistry
Purdue University

Donald E. Hudson
Professor of Mechanical Engineering
California Institute of Technology

Gilbert Oakley, Jr.
Vice President
Educational Services Incorporated

Robert H. Scanlan
Professor of Engineering Mechanics
Case Institute of Technology

Alexander C. Scordelis
Professor of Civil Engineering
University of California

Louis D. Smullin
Professor of Electrical Engineering
Massachusetts Institute of Technology

* Acting for Professor David C. Hazen, 1964-65.

B. Richard Teare, Jr.
Dean of College of Engineering and Science
Carnegie Institute of Technology

Former members of the Steering Committee for the Kanpur Indo-American Program are shown in the list that follows:

Arthur H. Benade
(1961-64)
Associate Professor of Physics
Case Institute of Technology
(Staff Member at Kanpur, 1964-65)

Norman C. Dahl
(Chairman, 1961-62)
(Special Advisor, 1964-65)
Professor of Mechanical Engineering
Massachusetts Institute of Technology
(Program Leader at Kanpur, March, 1962 to May, 1964)

Robert S. Drake, Jr.
(1961-63)
Professor and Chairman of the Department of Mechanical Engineering
Princeton University
(Visited IIT/Kanpur, 1961)
(Now Consultant
Arthur D. Little, Inc.)

Robert S. Green
(1961-64)
(Vice Chairman, 1962 to June, 1964)
Associate Dean of the College of Engineering
Executive Director of the Engineering Experiment Station
The Ohio State University

Program Leader
David C. Hazen
(1963-64)
Professor of Aeronautical Engineering
Princeton University
(Staff Member at Kanpur, 1964-65)

Erman A. Pearson
(1961-62)
Professor of Sanitary Engineering
University of California (Berkeley)
(Visited IIT/Kanpur, 1961)

Edward R. Schatz
(1961-63)
Vice President for Academic Affairs
Carnegie Institute of Technology

William E. Stirton
(1961-63)
Vice President and Director of the Dearborn Center
The University of Michigan
(Director, American Society for Engineering Education Mission to India, 1958)

Program Leader
Dean Robert S. Green
Kanpur Indo-American Program
Indian Institute of Technology/Kanpur
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Program Administrator
Shepherd Brooks
Educational Services Incorporated
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The Kanpur Indo-American Program is a group effort in which a Consortium of U. S. educational institutions is assisting in the development of the Indian Institute of Technology in Kanpur, India. The members of the Consortium are: California Institute of Technology, Carnegie Institute of Technology, Case Institute of Technology, Educational Services Incorporated (ESI), Massachusetts Institute of Technology, The Ohio State University, Princeton University, Purdue University, University of California, and The University of Michigan.

The United States supports the Program through the Agency for International Development (AID) by means of a contract with ESI and supplementary agreements with the other members of the Consortium.

ESI administers the Program under the policy direction of a Steering Committee to which the president of each institution has appointed a representative.

The Program consists of three major components: (1) Consortium staff (faculty) working at Kanpur, (2) Kanpur faculty receiving on-the-job experience in Consortium institutions, and (3) planning and procuring equipment and materials (including books) which are not available in India. Each institution participates in all three components.

Kanpur is a growing industrial city with a population of more than a million, located about 300 miles from New Delhi on the South Bank of the River Ganges.
The Indian Institute of Technology there (IIT/Kanpur) is being developed by the Government of India into a major center for the education of engineers and scientists, both undergraduate and graduate, and for research in engineering and science. It is intended that the IIT/Kanpur will be patterned on the lines along which American technological institutions are evolving — with strong science, humanities, and social science activities interacting with parallel engineering programs.

As of the summer of 1964 there were about 200 on the academic staff of the IIT/Kanpur, including nearly 100 faculty in the professorial and lecturer grades. Almost 800 undergraduates were in residence, 300 in the first year, 200 in the second year, and 100 each in the third, fourth, and fifth years of the five-year undergraduate programs. At present there are undergraduate degree programs in aeronautical, chemical, civil, electrical, mechanical, and metallurgical engineering. Research and graduate study has been started in these engineering fields as well as in chemistry, mathematics, physics, the social sciences, and the humanities.

The job to be done at Kanpur is so broad that each Consortium staff member working there has several avenues through which he may be effective in collaborating with Kanpur faculty. Among these are the development of curricula and of individual areas of instruction, the development of teaching methods and materials appropriate
to the environment, the planning of teaching and research laboratories and the purchase and installation of equipment to make the laboratories operative, the planning and development of library facilities, and the establishment of research programs with particular emphasis on finding significant problems related to Indian conditions and needs. Each Consortium staff member continues to receive his regular pay and fringe benefits from his own university as well as certain increments that are intended to make it possible for him to serve at Kanpur with no financial loss. All staff members have housing facilities provided in Kanpur or on the campus and receive allowances for transportation of their families and education of their children.

The number of American staff required in Kanpur at any one time is not large; about twenty-five is the maximum. Staff members are selected on the basis of high professional competence and personal qualifications likely to enable them to be effective in this particular situation. The Consortium has within it an adequate pool of these specially qualified faculty and, in addition, has the advantage that it brings to Kanpur a broader spectrum of ideas and resources than would be available from a single institution.

Each Steering Committee member is responsible for all Program activities at his institution. Further information may be obtained from these representatives.
Four years ago, a tract of land in the village of Kalyanpur about six miles from Kanpur was half-cultivated and half-barren. Since then this 1,200-acre tract has been transformed into the beautiful campus of the Indian Institute of Technology. The age-old humdrum routine of village life has given place to the hectic activity of young students engaged in the exciting pursuit of knowledge.

Established in 1960, the Indian Institute of Technology/Kanpur is one of the five institutes set up in four States of India. The Institute at present has training facilities for undergraduate studies in five branches of engineering and for graduate courses leading to the Ph.D. in physics, chemistry, and mathematics as well as in engineering.

The multi-faceted knowledge available comprises nine departments — chemical, civil, electrical, mechanical, and metallurgical engineering; chemistry, mathematics, physics, and humanities. There is also a computer center which serves all departments.

Among the salient features of education at IIT are tutorials, surprise and quiz tests, student counseling, and a plan of earning while learning. IIT's atmosphere is conducive to self-development; besides studies, students participate in sports, dramatics, debates, and other extra-curricular activities and practice individual hobbies.

The curriculum of the Institute is being developed with the assistance of nine American institutions noted for their technological training programs. All nine schools
are cooperating in the Kanpur Indo-American Program to provide IIT with a rounded, complete program of technical training for Indian students. A principal objective is to develop research standards of international quality.

"Interdisciplinary" is a word often heard around the corridors of IIT. A "discipline" is academese for a branch of knowledge or instruction, and the accent is on interdisciplinary activity because knowledge is a whole whose various parts or branches are interdependent and highly relevant to one another. This approach is emphasized from the very beginning of study at IIT. In the undergraduate program, lasting five years, all students take common courses for the first three years. Only after that do their paths diverge as specialization begins.

The humanities and social sciences are sometimes considered as areas of study out of place in an institute of technology. Their inclusion in IIT's curriculum is justified by Professor Norman C. Dahl, first leader of the Kanpur Indo-American Program, who says: "India's problems are not only technological but also sociological. We have found in America that to stress these studies makes very good sense, and it makes even better sense in India."

The Institute has its campus some six miles out of Kanpur, at Kalyanpur, a suburb of the city. As IIT buildings are completed, the rural look is steadily disappearing.
although it is still apparent along the edges of the campus. "Come back again in two or three years," visitors are told. "Then there'll really be something to see."

There is plenty to see even now. A magnificent library building, a stadium, an open-air theatre are in the planning stage, but there already are workshops, classrooms, laboratories, housing for faculty, and a large hostel block. There will be five similar hostels ultimately.

As great importance is attached to the stimulation of a spirit of free and searching enquiry, students are bound not merely to academic disciplines, but are encouraged in their extra-curricular activities as well. This, however, applies both to staff and students alike. As Dr. M. S. Muthana, deputy director of IIT, puts it: "We want the environment to be free and unfettered for self-expression and self-development."

A visit to the hostel is exhilarating. The rooms are fair-sized, bright, and comfortable. Discipline is admirable, and maintained by the boys themselves without strict professional supervision. The Students' Gymkhana has organized hobby shops for radio-making, leathercraft, gardening, and aeromodelling, and has literary, musical, film, and drama sections. The student basketball team is unbeaten in the region.

Even more deserving of attention is the students' "earn while you learn" plan. With few scholarships available, students help pay their tuition by doing paid volun-
A party of distinguished visitors at IIT/K: left to right, C. Tyler Wood, Former Director of the U.S. AID Mission to India; C. B. Gupta, Chairman of the Board of Governors of IIT/K; the Honorable Chester Bowles, U.S. Ambassador to India; and Sir Padmapat Singhania, Indian industrialist and a member of the Board of Governors of IIT/K; with Dr. P. K. Kelkar, Director of IIT/K.

tary off-hours work, waiting on table in the hostel mess and helping in the IIT library.

This library, which has already a collection of twenty to twenty-five thousand books, is housed in temporary quarters but is an impressive and integral part of IIT. Special emphasis has been placed on the development of library resources. Purdue University’s library has taken responsibility for establishing the library; each time Purdue buys a book in a field of engineering or science, it buys a duplicate copy, catalogues it, and sends it to IIT/Kanpur, together with the catalogue cards.

Amidst the tall bookstacks, shelf upon shelf of them, a visitor will find tables always occupied by students, reading and taking notes. The library is also a meeting ground for faculty members and students.

Indeed, the whole staff-student relationship is informal — one of the most impressive aspects of life at IIT/Kanpur. To a large extent, this easy and constant contact between students and staff is due to IIT’s being completely residential. There is also the fact that the staff is young, fresh, and eager; none of the professors is over forty. Students are free to approach professors with their difficulties, and the professors are ready to explain, help, and guide.

This helpfulness extends beyond academic life. A student counselling program is in operation, though still in a formative stage, and each professor is assigned as coun-
sellor to some twelve to fifteen students. Student counselling, highly developed in the United States, is still new in India. There are, naturally, other ways in which IIT/Kanpur has benefited from American experience. The pattern at IIT/Kanpur, Professor Dahl has said, is "strongly reflective of American experience, but it is not the same. It is tailored to India's needs today — and tomorrow."

The effort here is not to teach a few techniques, but to teach and develop the basic ways of thinking, the fundamental ideas.

For such an objective, academic flexibility is essential. "We want the various departments to have their own identity," says Dr. P. K. Kelkar, director of IIT, "but we don't want them to grow rigidly within themselves." IIT is completely autonomous and has its own regulations for the award of degrees and the conduct of examinations. The same flexibility applies also to the structure of the professorial hierarchy of the Institute. IIT's faculty, as Professor M. C. Chaturvedi of the Civil Engineering Department points out, is a "column structure" rather than a pyramidal one — that is, there are no fixed numbers of posts in the various grades; there may be as many, or almost as many, on the higher rungs as on the lower; and ascent is determined by merit rather than seniority.

The faculty has distinguished Indian and American professors working together. Two major aspects of the Kanpur Indo-American Program's collaboration with IIT are
the work of U.S. Consortium teachers and experts at the Kanpur Institute, and the procurement of equipment, materials, and books not available in India. One of many items already supplied under the Program is IIT's new radio-frequency counter, which registers frequencies to a ten-millionth of a cycle.

The majority of the members of the faculty are Indian. Since 1962 the American advisory staff has grown from nine to twenty-five.

Knowledge cannot be confined within any national or geographical barriers. These Americans and their Indian colleagues have assembled at IIT to fulfil one of India's long-felt needs: to provide a vital and comprehensive program of technical education for India's young technologists.

This description is adapted from an article by Austen Nazareth which first appeared in the June, 1964, issue of "Span" published in New Delhi, by the United States Information Service.
The following list shows appointments made from April, 1962, through October, 1964:

Forman S. Acton*
Associate Professor of Electrical Engineering
Princeton University

Robert R. Archer‡
Associate Professor of Engineering
Case Institute of Technology

Holt Ashley
Professor of Aeronautics and Astronautics
Massachusetts Institute of Technology

Glenn J. Battaglia
(Administrative Officer)
Educational Services Incorporated

Arthur Henry Benade
Associate Professor of Physics
Case Institute of Technology

Vollmar E. Bergdolt*
Associate Professor of Mechanical and Nuclear Engineering
Purdue University

Arthur R. Bergen*
Associate Professor of Electrical Engineering
University of California (Berkeley)

Leonard Z. Breen
Professor of Sociology
Purdue University

G. Wayne Brown
Professor of Mechanical Engineering
University of California (Berkeley)

Arthur W. Burks†
Professor of Philosophy
The University of Michigan

Richard LaLanne Carrouche
Instrument Specialist and Technician in the Department of Electrical Engineering
California Institute of Technology

O. L. Chavarria-Aguilar‡
Professor of Linguistics and English
The University of Michigan

Norman C. Dahl*
Professor of Mechanical Engineering
Massachusetts Institute of Technology

Derek A. Davenport*
Associate Professor of Chemistry
Purdue University

Gerhard J. Derge‡
Professor of Metallurgical Engineering
Carnegie Institute of Technology

Charles E. Dryden
Professor of Chemical Engineering
The Ohio State University

Oliver C. Dunn‡
Associate Director of the Purdue University Libraries

Charles E. Elliott, III
Instructor in Linguistics and English
The University of Michigan

Alve J. Erickson
Assistant Professor of Mechanical Engineering

Massachusetts Institute of Technology

Peter W. Fay
Associate Professor of History
California Institute of Technology

William E. Fontaine‡
Professor of Mechanical Engineering
Purdue University

Richard L. Funkhouser
Engineering Librarian
Purdue University Libraries

Arthur Gill‡
Associate Professor of Electrical Engineering
University of California (Berkeley)

Donald Graham
Research Assistant in Electrical Engineering
Massachusetts Institute of Technology

Robert S. Green
Associate Dean of the College of Engineering
Executive Director of the Engineering Experiment Station
The Ohio State University

Robert L. Halfman*†
Professor of Aeronautics and Astronautics
Massachusetts Institute of Technology

David C. Hazen
Professor of Aeronautical Engineering
Princeton University
Gene E. Hayner
Technical Assistant
The Ohio State University

Harry D. Huskey*
Professor of Mathematics and
Electrical Engineering
University of California (Berkeley)

Robert A. Huttenback*
Assistant Professor of History
California Institute of Technology

Movses J. Kaldjian*
Assistant Professor of Engineering Mechanics
The University of Michigan

John L. Kelley
Professor of Mathematics
University of California (Berkeley)

Truman P. Kohman*
Professor of Chemistry
Carnegie Institute of Technology

Ernest B. Leach*
Associate Professor of Mathematics
Case Institute of Technology

Peter V. Mason
Assistant Professor of Electrical Engineering
California Institute of Technology

Jon Mathews
Associate Professor of Physics
California Institute of Technology

Percy H. McGauhey*
Professor of Sanitary Engineering and Public Health, and Director of the Sanitary Engineering Research Laboratory
University of California (Berkeley)

George R. Meluch*
Head of Circulation Department
Purdue University Libraries

David Montenegro
Electronics Technician
Educational Services Incorporated

Burton J. Moyer*
Professor of Physics
University of California (Berkeley)

John W. Olcott*
Research Technician in Aeronautical Engineering
Educational Services Incorporated

Joseph D. Pigott*
Director of Physical Planning and Associate Director of Institute Planning
Case Institute of Technology

Irving N. Rabinowitz*
Associate Director of the Computer Center
Princeton University

William F. Schneer*
Associate Professor of Engineering Graphics
Case Institute of Technology

William F. Schreiber
Associate Professor of Electrical Engineering
Massachusetts Institute of Technology

Norton C. Seeber
Assistant Professor of Economics and Industrial Administration
Carnegie Institute of Technology

William B. Shook
Assistant Professor of Ceramic Engineering
The Ohio State University

Louis D. Smullin*
Professor of Electrical Engineering
Massachusetts Institute of Technology

T. B. Speaker*
Consulting Engineer
Purdue University

John B. Trenholme
Research Assistant in Electrical Engineering
California Institute of Technology

Jerome E. Viehe*
(Administrative Officer)
Educational Services Incorporated

David Welch
Associate Professor of Engineering Design
California Institute of Technology

Gio Wiederhold
Head of Programming
Computer Center
University of California (Berkeley)

Russell J. Wood
(Architectural Consultant)
Educational Services Incorporated

Richard H. Zimmerman*
Professor of Mechanical Engineering
The Ohio State University

* Tour completed prior to 1965.
† Promoted during or shortly after return from Kanpur.
§ Term of less than one year.
+ Tour begins in 1965.
Observation or inspection trips have been made to IIT/Kanpur by:

Shepherd Brooks
Administrator
Kanpur Indo-American Program
Educational Services Incorporated

Gordon S. Brown
Dean of the School of Engineering
Massachusetts Institute of Technology

Paul F. Chenea
Chairman of the Steering Committee
Vice President for Academic Affairs
Purdue University

Gilbert Oakley, Jr.
Vice President of Educational Services Incorporated

Robert F. Goheen
President
Princeton University

Haran H. Hatcher
President
The University of Michigan

Roger Hoyns
Vice President for Academic Affairs
The University of Michigan

Howard W. Johnson
Dean of the School of Industrial Management
Massachusetts Institute of Technology

H. Victor Neher
Professor of Physics
California Institute of Technology

Carroll V. Newsom
Trustee
Educational Services Incorporated

Joseph A. Pask
Professor of Ceramic Engineering
University of California (Berkeley)

Julius A. Stratton
President, Massachusetts Institute of Technology

Donald M. D. Thurber
Member of the Board of Regents
The University of Michigan

John C. Warner
President, Carnegie Institute of Technology

Among those who have come from New Delhi are:

Chester Bowles
United States Ambassador to India

M. C. Chagla
Union Minister for Education
Government of India

G. K. Chandiramani
Joint Secretary
Ministry of Education
Government of India

John K. Galbraith
former United States Ambassador to India

James Ivy
The Ford Foundation
New Delhi

Humayun Kabir
former Minister of Scientific Research and Cultural Affairs
Government of India

Asoka Mehta
Deputy Chairman of the Planning Commission
Government of India

R. P. Padhi
Joint Secretary
Ministry of Finance
Government of India

M. S. Thacker
Member (Education)
Planning Commission
Government of India

C. Tyler Wood
Minister for Economic Affairs and Director
U.S. AID Mission to India

Others from the Consortium institutions who have visited IIT/Kanpur are:

Herbert H. Alvord
Professor of Mechanical Engineering
The University of Michigan

Olaf P. Bergelin
Educational Services Incorporated
Program Director, United States Engineering Team
Kabul, Afghanistan

Edward H. Bowman
Associate Professor of Industrial Management
Massachusetts Institute of Technology
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