

COMMITTEE ON INDUSTRIAL RELATIONS PROJECT

*The Industrial Relations Section is supervised by this Committee appointed by the Board of Trustees of the California Institute. (From left to right) Edwin F. Gay, Arthur H. Young, William C. McDuffie, Robert D. Gray, William B. Munro, Chairman, and Robert A. Millikan discuss plans for coming year. Max Mason and Reese H. Taylor were unable to attend.*

## INDUSTRIAL RELATIONS SECTION 1940-1941

The fundamental purpose underlying the work of the Industrial Relations Section is to aid in the gradual improvement of relations between employers and employees in Southern California through the substitution of facts for unsupported opinions insofar as this is possible.

It is only in very recent years that the possibility of a rational approach to a subject with so many controversial aspects has been realized. Handling men is vastly different from handling machines—as many engineers have come to learn. Yet, despite the apparent inconsistencies in the reactions of individuals, there are demonstrably successful ways of using certain techniques; there are other ways of employing the same techniques that produce reactions as predictable and violent as those of sodium and water.

A great deal of work has already been accomplished and far more remains to be done on problems of employer-employee relations. Work that contributes to the developing techniques of personnel administration and collective bargaining can and should be as objective, as fact-finding, and some of it as experimental as that of any physics laboratory.

The term “industrial relations” embraces many subjects; it is concerned with every point of contact between the worker and his boss. The direct contact begins when a man applies for a job and ends with his exit interview. Between these two points, the industrial relations department of a company may be concerned with testing and placing him; training, rating, and promoting him; setting his salary; fixing his hours; protecting his health and safety; administering benefit plans, such as life and medical insurance, pension, and thrift plans, for him and his dependents; discovering his grievances and adjusting

them; bargaining with his union; and, in general, creating and maintaining a high morale that makes and keeps a good employee.

Some of the problems suggested by the activities above are more tangible than others. Each step forward in the field of industrial relations is in the direction of finding concrete solutions for specific problems. Here are three examples:

Setting salaries has traditionally been a procedure hard to justify and often strongly influenced by whim or custom; systems of job evaluation are now being developed for the establishment of salary standards which are rational and consistent and which can be justified to employees and stockholders.

The hiring and placement process formerly depended upon the subjective judgment of interviewers; now, testing programs with batteries of tests for aptitudes, intelligence, skill, and temperament put additional information at the disposal of the placement officer.

Company policies on hours, wages, vacations, holidays, and working conditions have many times been vacillating and inconsistent; the increasing prevalence of written agreements is serving in a businesslike manner to clarify and stabilize practices which the employer and employee have mutually established.

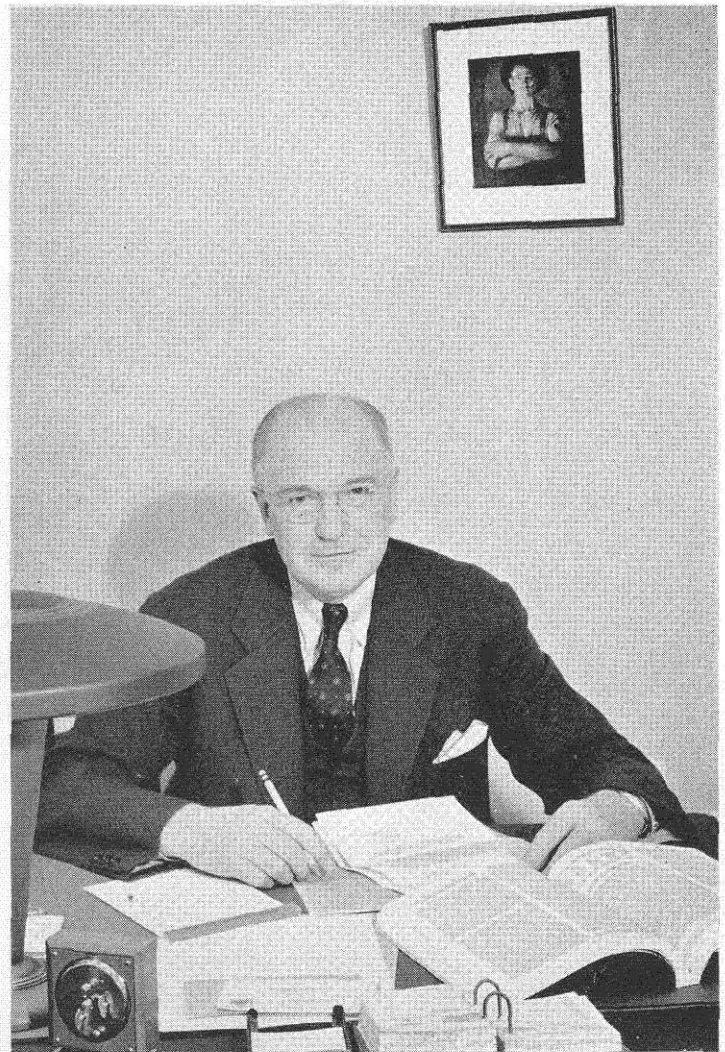
In dealing with the broad problem of industrial relations, the Industrial Relations Section of the California Institute has, during its first two years of existence in a five-year experimental period, initiated a variety of activities:

1. Training students at the California Institute who may develop into supervisors and executives.
2. Aiding directors of industrial relations and other executives charged with the duties and responsibilities of personnel



ROBERT D. GRAY

*The official record says "Associate Professor of Economics and Industrial Relations and Director of the Industrial Relations Section," but students, alumni and Sponsors say "Bob". He came to the California Institute in August, 1940.*



ARTHUR H. YOUNG

*From his "retirement" on a lemon ranch in Carpinteria, Mr. Young was drafted to help organize the Section and has remained with it as Lecturer on Industrial Relations and Toastmaster for the dinner-discussion meetings.*

administration by maintaining a library of materials which they may consult, and by furnishing speakers to discuss technical subjects at meetings of the Industrial Relations Association of Los Angeles.

3. Assisting top management in the formulation of sound industrial relations policies through a series of dinner-discussion meetings.

4. Extending and improving policies of good industrial relations by an intensive research program.

5. Improving public education on matters relating to industrial relations through speeches made by Professor Gray and Mr. Young.

It is expected that all of this program will be continued during the coming year and it is hoped that it may be further broadened by the initiation of intensive work with leaders of the labor movement.

According to the original plans for the Industrial Relations Section, four activities were to be established and maintained:

1. Instruction.

2. Field and research studies in industrial relations.

3. A library of materials relating to labor problems.

4. Periodic conferences for the discussion of these problems.

It was on the basis of this program that financial support was provided by a generous grant from the Earhart Foundation and by contributions from more than sixty individuals, industrial concerns, and trade unions. The Sponsors of the Section are drawn from many of the widely diversified manufacturing and commercial enterprises in Southern California including public utilities, oil companies, aircraft manufacturers, building contractors, banks, and newspapers as well as representatives of the steel, cement, automobile, electrical, textile, hardware, and various other industries operating in this locality.

In appraising the accomplishments of the Industrial Relations Section it should be realized that some of its achievements will be cumulative and are not subject to precise measurement at the present time. The scope and intensiveness of the research program for example, depend on the mutual trust and confidence established between the staff of the Section, on one hand, and the sources of information—unions, employers, trade associa-

tions—on the other. Much of this development can come only over a period of time.

The major accomplishments of 1940-1941 may be summarized as follows:

1. *Staff.* By August 1940 the staff of the Industrial Relations Section had been reduced by transfer and resignation to Mr. Young and Professor Gray. During the year it has been necessary to secure and train a clerical, library, and research staff, consisting of four women and two men. Mr. Veysey, who was a research fellow in the Section in 1939-1940, has returned to the Section as Instructor in Industrial Relations for 1941-1942.

2. *Improved Physical Facilities.* For more than a year the Industrial Relations Section was housed in two small rooms in Dabney Hall. In January 1941 the Section moved into its present quarters in the basement of Culbertson Hall. These quarters provide increased office space for the clerical and research staff, a joint office for Mr. Young and Mr. Veysey, a private office for Professor Gray, a special room for the Library, and a larger general room which is used for classes, conferences, and as a laboratory for the Time and Motion Study course. Adequate storage facilities are also available.

3. *Instruction for Senior and Graduate Students.* Through five general classes and one more specialized course, the Section provided instruction for 131 students, very close to the maximum which can be handled effectively.

4. *Course in Industrial Relations for Alumni.* The services of the Industrial Relations Section were extended to the alumni of the California Institute through two special classes offered at night to 31 students. While these classes have been discontinued in view of the much larger program of Engineering Defense Training, it is expected that they will be revived in the future.

5. *Expansion of the Library.* The increased space available for the Library has enabled the Section to expand its collection of materials relating to industrial relations and to make this collection readily available to students and alumni of the California Institute and to representatives of the Sponsors of the Section.

6. *Research Program.* A research program directed at both immediate and long-run objectives has been initiated. The Section completed a survey of company policies for employees entering the armed forces under the terms of the Selective Service Act and assisted the Industrial Relations Association of Los Angeles in its survey of personnel policies in Los Angeles County. The studies under way at present include one directed at methods of selecting, training, and rating supervisors and another one analyzing the contents of union agreements.

7. *Research Fellowships.* In order to provide a means by which qualified and promising junior employees of the Sponsors may secure specialized training in industrial relations, the Section has established research fellowships. Any Sponsor may nominate a research fellow who, if his nomination is approved by the Section, will be assigned to a research project under the direction of Professor Gray and Mr. Young.

8. *Engineering Defense Training Courses.* The Section has supervised the offering of eight night classes in production engineering and production supervision as part of the Engineering Defense Training Program sponsored by the United States Office of Education. During the summer the Section organized an additional full-time course in production engineering. Most of the subjects offered under this program have never been available at the California Institute.

9. *Increased Contacts.* Practically all of the activities of the Section have resulted in increased contacts. In addition, Professor Gray and Mr. Young have accepted many invitations



*A clerical and research staff has been assembled in Culbertson Hall to make surveys, answer inquiries, assist at conferences, and maintain records of Engineering Defense Training Courses.*



Many seniors, graduate students, and alumni attend classes in Industrial Relations in the Conference Room of the Section. In this photograph, Arthur H. Young is lecturing to the advanced graduate class on "Selection and Placement of Employees".

to speak on various problems in industrial relations to a wide variety of organizations located in Southern California.

### ORGANIZATION

The Industrial Relations Section operates under the general supervision of the Committee on the Industrial Relations Project appointed by the Board of Trustees of the California Institute of Technology. William B. Munro, member of the Executive Council, is the Chairman of the Committee. Three other members of the Executive Council also serve on the Committee on the Industrial Relations Project: Max Mason, Chairman of the Observatory Council; William C. McDuffie, Trustee; and Robert A. Millikan, Chairman of the Executive Council. The Committee includes Edwin F. Gay, former Dean of the Harvard Graduate School of Business Administration, now Associate in Economic History at the California Institute and member of the Research staff at the Huntington Library, and Reese H. Taylor, a Trustee of the California Institute, President of the *Union Oil Company*, and one of the Sponsors of the Section. Two members of the staff of the Section have been appointed to the Committee: Robert D. Gray, Associate Professor of Economics and Industrial Relations and Director of the Section, and Arthur H. Young, Lecturer on Industrial Relations.

The staff of the Section is appointed by the Trustees of the California Institute on the recommendation of the Executive Council and the Committee on the Industrial Relations Project.

During the past year Professor Gray has served as the administrative head of the Section. Professor Gray is a graduate of the Wharton School of Finance and Commerce of the University of Pennsylvania. For more than ten years he participated in many of the research studies made by the Industrial Research Department of the University of Pennsylvania and for a few years taught part-time in the Geography and Industry Department of the Wharton School. During the three years immediately preceding his appointment to the California Institute, Professor Gray taught in the Economics Department of the University of Connecticut and for more than a year was

special research assistant for the Life Office Management Association.

Mr. Arthur H. Young, Lecturer on Industrial Relations, has had a lifetime of work in industrial relations. For many years he was Manager of Industrial Relations for the International Harvester Company, leaving this to become Industrial Relations Counsel to Industrial Relations Counselors, Inc. For a few years he served as Vice-President in charge of Industrial Relations of the United States Steel Corporation.

Mr. Victor V. Veysey has been added to the staff of the Section as Instructor in Industrial Relations. Mr. Veysey was graduated from the California Institute of Technology in 1936, received the degree of M.B.A. in 1938 from the Graduate School of Business Administration at Harvard University, was employed as Research Fellow in the Industrial Relations Section of the California Institute, 1939-1940, and continued his graduate training at Stanford University in 1940-1941. In addition to his contribution to the instructional program of the Section, he will participate in its research activities.

The secretarial, library, and research staff consists of Miss Mary Harper, Secretary of the Section; Miss Joy Tweedie, Librarian; and Miss Evelyn Hilburn, Stenographer. Mr. Gerald G. Chappell of the *Union Oil Company* and Mr. Harold W. Dornsife of the Standard Oil Company of California are Research Fellows in the Section. Mrs. Manon Edmonds is the Secretary in charge of the Engineering, Science, and Management Defense Training Courses in Production Management, a continuation of the Engineering Defense Training Program.

### INSTRUCTION

In integrating the instructional program of the Industrial Relations Section with the established curricula at the California Institute, an attempt has been made to offer a program giving a broad understanding of industrial relations to as many students as possible, accompanied with intensive training for a smaller

number who may desire a limited degree of specialization in this field.

The broad training in industrial relations is offered through two courses. The seniors at the California Institute, especially those in the Engineering Division, may take as one of their electives in the Humanities Division the course "Introduction to Industrial Relations." In this one-term course the students examine the causes of, and proposed remedies for, some of the labor problems present in our modern industrial economy: unemployment, industrial accidents, illness, old age, wages, hours of work, and industrial disputes. In appraising solutions to these problems, the students consider the history and functions of organized labor, the efforts of employers to solve labor problems especially through the techniques of personnel administration, and the role of government in regulating labor conditions. Through this course, which was offered each term of last year, 63 students received a background which will familiarize them with some of the industrial relations problems confronting supervisors and executives in industry.

Graduate students at the California Institute are also given an opportunity to secure some basis for a broad understanding of problems of industrial relations. During the first two terms of 1940-1941 the Industrial Relations Section provided instruction in that part of the course in Business Economics dealing with industrial management. In presenting the subject of industrial management to two sections of 48 students, the staff

of the Industrial Relations Section emphasized the problems involved in establishing and administering a sound wage policy, one of the prerequisites for a satisfactory industrial relations program. The relation of the personnel department and its functions to the internal organization of an enterprise was also stressed.

The instructional facilities of the Section were further expanded during part of 1940-1941 in order that the alumni of the California Institute could participate in the activities of the Section. At the request of a group of alumni, two sections of the graduate course were offered at night to 31 students. With the introduction of the Engineering Defense Training Program, however, it was necessary to discontinue these classes "for the duration."

Three specialized projects offered an intensive training in industrial relations by the Section.

1. During the third quarter, an advanced course in industrial relations was organized for 20 graduate students. This course covered some of the technical problems in selecting and training employees. A study was made of the policies of employers, unions, and government with respect to industrial relations in selected industries: railroads, coal mining, men's clothing, petroleum refining, and aircraft.

2. Other intensive training was provided by the employment of six student assistants who participated in some of the research activities of the Section.



*Students, alumni, and Sponsors consult the Reference Library of the Section. Pamphlets and reports published by companies, unions, and research and governmental agencies are available in files at left. Some periodicals, especially union newspapers, are shelved at center back. Company magazines and books are in bookcases at right.*



*Executives, labor leaders, and members of the Caltech faculty discuss at dinner in the California Club "Why Employer-Employee Relations?" preceding the address of Thomas Roy Jones, President of American Type Founders. Four such meetings are held each year for discussion of important aspects of industrial relations.*

3. The most intensive training was provided by the establishment of two Research Fellowships. The holders of these Fellowships are engineering graduates who have had several years of practical business experience. Sponsors of the Section are invited to submit recommendations, the final choice remaining with the staff of the Section. These Fellows are assigned by their companies to work in the Section on a specific research program. During the past year, Gerald Chappell of the Union Oil Company and Harold Dornsife of the Standard Oil Company of California have taken some of the regular courses offered by the Section and have worked under the direction of Professor Gray and Mr. Young on a study of "Methods of Selecting, Training, and Rating Supervisors." As other research projects are initiated, the Sponsors will be given further opportunity to place promising and well-qualified junior employees with the Section in order that they may obtain specialized training in certain phases of industrial relations.

The instructional program for 1941-1942 will closely parallel that of last year. It cannot be further expanded because the enrollment in each section has already neared the maximum that can be taught effectively.

#### RESEARCH

One research project was completed during 1940-1941: a survey of company policies for employees entering military

service, the results of which were published in Bulletin No. 4-A, "Company Policies on Military Training and Service." Copies of the study were mailed to the Sponsors of the Section and to the companies who cooperated in the making of the survey. In addition, many requests for this publication were received from other interested organizations, the largest number being from various units of the War Department and from Selective Service officials.

The Section assisted the Industrial Relations Association of Los Angeles in its survey of personnel policies in companies operating in Los Angeles County. This study was published by the Association under the title "Industrial Relations Survey."

During the coming year publications will be released covering some of the results of two important research projects which were started in 1941:

1. Methods of Selecting, Training, and Rating Supervisors.
2. Analysis of Contents of Union Agreements in Effect in Los Angeles County.

The Committee on the Industrial Relations Project authorized the study of "Methods of Selecting, Training, and Rating Supervisors" because this project involves both immediate and long-range objectives.

The impact of the defense program is making it necessary for many companies to expand their personnel. Difficult as it

has been in many cases to secure trained employees, it has been even more difficult to secure qualified supervisors. It was felt, therefore, that the Section could be of some assistance to many organizations in this area if it helped to develop better methods of selecting, training, and rating supervisors.

In addition to this immediate objective, it was recognized that the quality of any industrial relations program is largely determined by the supervisors, especially those who directly represent management in dealing with the workers. It is the manner in which such supervisors interpret company policies that largely determines the attitude of employees toward the organization. Many of the petty grievances which fester in the minds of employees until they resort to passive restriction of output or to more violent actions, such as striking, arise out of the daily contacts of a supervisor with his subordinates. Because of the belief that no industrial relations program can be successful without good supervision and because of the belief that all organizations can achieve a high quality of supervision regardless of type, profits, or size of the company—which are facts which may restrict other components of a personnel program, such as benefit plans—considerable stress will be placed on this project.

The results of the study will be made available in printed form to the Sponsors and to the companies which cooperate in the study. Some immediate results may be achieved before the study is completed, since it is planned to hold a series of conferences on the subject. Those who participate in the conferences will have a chance to discuss their problems in training supervisors with others who have dealt or are dealing with a similar problem.

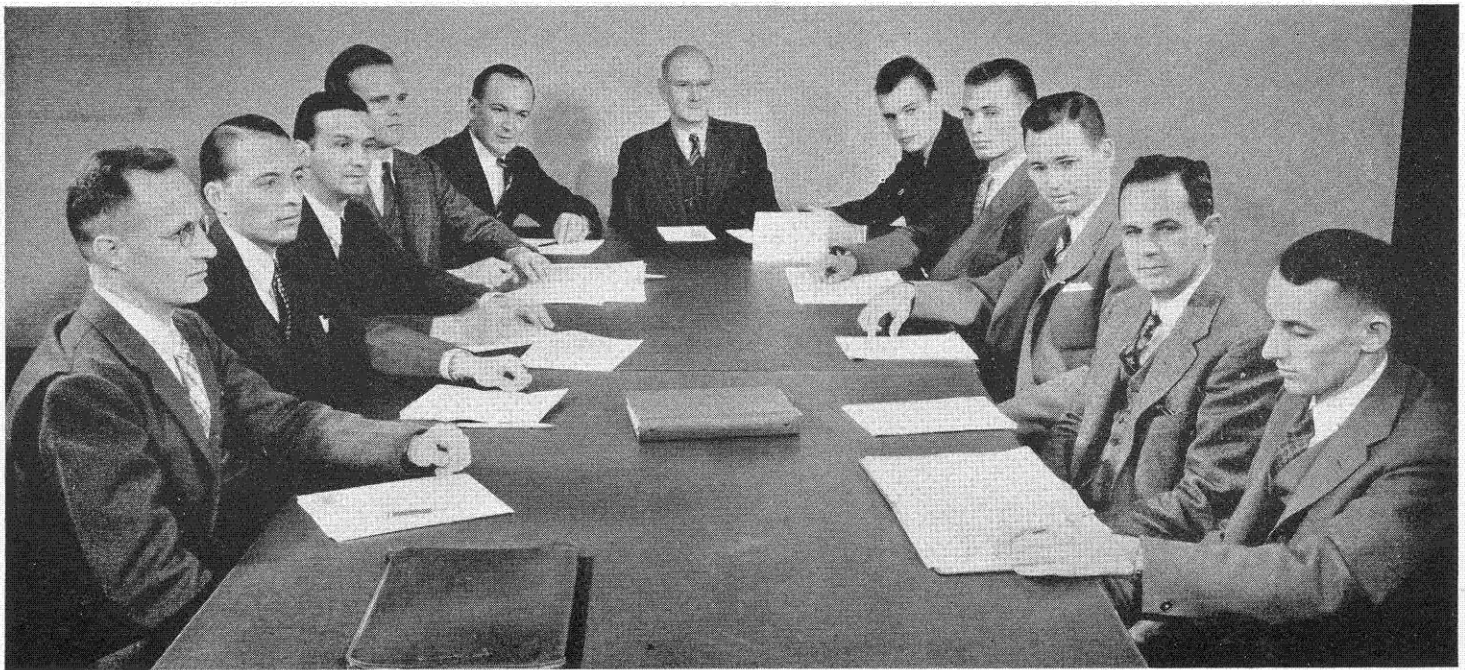
The study of the provisions of union contracts in effect in Los Angeles County may develop into a permanent feature of the work of the Industrial Relations Section. At the present time union agreements are being collected and an index of the

most important provisions is being prepared. When this work is completed, it will be possible for the Section to answer specific inquiries concerning various ways in which similar provisions are written and the extent to which they prevail in various industries. A publication will be issued as soon as possible dealing with the most important provisions. It is also expected that when agreements are renewed from time to time the Section will make further analyses and issue bulletins dealing with significant changes in the contents of union agreements. This project may be further broadened to include studies of the effects of certain provisions. A conference was held in June to discuss methods of indexing union agreements. It is planned to hold similar conferences of small groups of interested persons in 1941-1942.

#### LIBRARY

The Library constitutes a source of information on industrial relations to be used by the research and teaching staffs, Sponsors of the Section, students and alumni of the California Institute, and others interested in the material being assembled. Its new and larger quarters permit its continued growth in volume and in service.

Three types of material are included: periodicals, pamphlets, and a comparatively small number of bound books. Among the items of special interest are the contracts, constitutions, newspapers, journals, and strike bulletins published by the unions. Many companies have sent copies of their employee magazines, insurance and pension plans, and other publications. Publications of federal, state, and local governments as well as those of the International Labour Office are available, and pertinent publications of research organizations in universities and of such private institutions as the American Management Association, National Industrial Conference Board, Industrial Relations Counselors, National Bureau of Economic Research, and the Brookings Institution have been obtained for the files. There



*"Recruits" from local industries who serve as part-time instructors in their special fields for Engineering Defense Training Courses attend a "faculty meeting" presided over by Professor Franklin Thomas. Training in specific as well as general aspects of Production Management is offered "for the duration".*



*The camera plays an important part in Time and Motion Study Course, one of eight night classes in Engineering Defense Training Program. Here one of the instructors "takes" a drill press operation while students with stop watches record the "times". Substantial improvements in method of performing operation will be discovered when film is analyzed frame by frame.*

is also a collection of samples of industrial tests for selection of employees.

To be truly effective, the Library must be complete. That noticeable progress has been made toward this goal is evidenced by the increased amount and variety of material acquired and the number of sources tapped among educational, industrial, governmental, and labor organizations during the last year. Part of the growth during 1940-1941 can be measured by the number of bound books which increased from 160 to 402 and by the number of periodicals which expanded from 160 to 235. Last year information was available on only 108 companies; now data on 201 companies are in the files.

The number of unions represented has increased from 51 to 96. The total volume of pamphlet material, which with the periodicals makes up the bulk of the Library, jumped from 3,000 to 4,400 and the number of cards in the catalogue from 12,000 to 20,225.

Perhaps the most important accessions to the Library during 1940-1941 were the special studies, proceedings, and legislative series published since 1919 by the International Labour Office and many of the psychological tests used in the selection of employees.

No fundamental change in the program for the Library is contemplated. Continued and persistent effort will be made to

enlarge its coverage. When an inquiry from a member of the staff or from a Sponsor reveals a lack of information, immediate steps are taken to fill in the gaps in the collection. In order that the Library may continue to expand and be of increasing service, it is requested that additional material relating to the problems of industrial relations be supplied to it by companies, unions, and governmental, educational, and research agencies.

#### CONFERENCES

The improvement of relations between employers and employees cannot be attained as fully as necessary merely through the instruction of students who may eventually hold executive positions and through the results of research studies and the use of a collection of materials on problems of industrial relations. It is vitally important that techniques be improved and used properly and that technicians in personnel administration have access to complete and up-to-date information; but it is even more important that those who determine the major policies of a company have an awareness of the role of good industrial relations in the successful operation of any enterprise.

In order, therefore, that it may offer a complete program to industry in Southern California, the Industrial Relations Section sponsors a series of dinner-discussion meetings at which important phases of managerial and labor problems are pre-



sented to representatives of top management for discussion by men of conspicuous ability. Union leaders are also invited to participate. A full and frank discussion of the subject under consideration is facilitated by the fact that no notes are taken and no reports are made. It is anticipated, however, that from time to time some of the papers presented at these meetings may be published.

The four meetings held during 1940-1941 are listed below:

DATE	SPEAKER	TOPIC
Nov. 19, 1940	Mr. Fowler McCormick, International Harvester Co.	Policy and Procedure in Industrial Relations.
Feb. 20, 1941	Professor Elton Mayo, Harvard University.	Securing Cooperation at Different Levels of Authority.
April 29, 1941	Panel: David Babcock, Garner Beckett, John M. Cowan, Edwin F. Gay, Lloyd Mashburn, J. E. Wallace Sterling, Arthur H. Young, Chairman.	What the Defense Program Means to the Los Angeles Area.
May 21, 1941	Mr. Thomas Roy Jones, American Type Founders, Inc.	Why Employer - Employee Relations?

The program of four meetings for 1941-1942 is now being organized. It is planned that the speakers will include a representative of government, management, unions, and educational institutions. The meetings may be further broadened to include one devoted primarily to representatives of the unions and another for representatives of the various educational institutions in Southern California.

#### ENGINEERING DEFENSE TRAINING COURSES

When in the fall of 1940 the California Institute of Technology joined with most of the other engineering schools of the country in offering Engineering Defense Training Courses sponsored by the United States Office of Education, the Industrial Relations Section was asked to supervise the courses in Production Engineering and Production Supervision. Under the supervision of Professor Gray and under the general direction of Professor Franklin Thomas a staff of 11 part-time instructors was selected to teach eight classes in Industrial Organization and Scientific Management (2 sections), Time and Motion Study, Cost Analysis and Control, Rate Setting, Personnel and Industrial Relations (2 sections), and Foreman Conferences and Instructor Training. The first series of classes, which met for 18 weeks, ended on May 16th, 1941 when 118 certificates were awarded to students who had completed the classes. These subjects were immediately repeated and the present series of the classes expires on September 20th, 1941.

In order to take advantage of class-room facilities at the California Institute during the summer, a special ten-week course in Production Engineering was given under the supervision of the Industrial Relations Section, June 16th to August 23rd. The students in this course were given an integrated group of subjects: Industrial Management, Time and Motion Study, Cost Accounting, Industrial Relations, and Tool Engineering. Twenty students received certificates for completing these subjects satisfactorily.

The following instructors participated in the various classes offered:

Edmund F. Beuter	Procter & Gamble Mfg. Co.
Hugh F. Colvin	Union Oil Company of California
Trevor Gardner	Milwaukee Gas Specialty Co.
Robert D. Gray	California Institute of Technology
Victor J. Hydar	Lockheed Aircraft Corporation
Wilbert E. Karrenbrock	University of Calif. at Los Angeles
Burt C. Kendall	Food Machinery Corporation
Thomas W. Kendall	Pacific Gas Radiator Company
William Kushnick	Anchor Hocking Glass Company
Harding Palmer	Lockheed Aircraft Corporation
Donald G. Saurenman	Vultee Aircraft Corporation
Victor V. Veysey	California Institute of Technology
Fred E. Wagner	U. S. Rubber Company
Edward M. Wales	Vega Airplane Company
Douglas Watson	Procter & Gamble Mfg. Co.
Arthur H. Young	California Institute of Technology

All of these courses were conducted at no expense to the Section. While it is probable that the work of the Section was somewhat retarded because of the time spent by various members of the staff on these courses, it is felt that this diversion of effort was justified by the national emergency and by the long-range benefits accruing to the Section through the contacts established by the courses.

The most interesting results have been obtained in the courses in Time and Motion Study. For this subject it has been possible to develop a laboratory including 16mm. motion picture equipment. In addition to its regular class-room use, this equipment has been utilized to develop a file of motion pictures for the Library. Some films have been completed on examples of work simplification and methods improvement, operation of standard machine tools, and the administration of certain psychological tests. It is planned to produce other films illustrating methods of production control, inventory control, accident prevention, and training of employees. These materials will strengthen the courses in Business Economics and Industrial Relations as well as the program of evening classes.

Courses in various aspects of production management will probably be offered during 1941-1942 under the Engineering, Science, and Management Defense Training Program. The Industrial Relations Section has submitted a proposal to the United States Office of Education offering to supervise three groups of classes to be given in consecutive 12-week terms. The list of subjects to be given will be made available upon the request of persons interested in enrolling in such classes.