

COWLES COMMISSION
FOR
RESEARCH IN ECONOMICS

ALFRED COWLES 3rd, DIRECTOR

*Annual Report for the Year Ending
December 31, 1935*

COLORADO SPRINGS · COLORADO

THE COWLES COMMISSION FOR RESEARCH IN ECONOMICS

THE Cowles Commission for Research in Economics was founded in 1932 as a not-for-profit corporation to conduct investigations into problems of current economic interest, with particular reference to the application of statistics and mathematics in the solution of these problems. Any activity which promises ultimately to further the unification of theoretical and factual studies in economics is within the sphere of interest of the Commission.

A function of the Commission is to issue from time to time various monographs of an economic - statistical or econometric nature without, however, assuming responsibility for theories or opinions expressed therein. Monograph No. 1 entitled *Dynamic Economics: Theoretical and Statistical Studies of Demand, Production, and Prices*, by Charles F. Roos, now Director of Research for the Cowles Commission, was published in 1934. Two monographs are now in course of preparation by the staff, one a study of the action of stock prices, and the other an analysis of some experiments in economic planning. In addition, the staff members are encouraged to publish in journals shorter studies of a factual or theoretical character.

The Commission maintains a statistical research laboratory in Colorado Springs, Colorado, and includes the following in its personnel: Alfred Cowles 3rd, Director;

Charles F. Roos, Director of Research; Harold T. Davis, Mathematician; William F. C. Nelson, Economist; Forrest Danson, Statistician; Herbert E. Jones, Assistant Statistician. It also employs several full-time secretaries and computers, about a dozen part-time college student computers, and a number of graduate student assistants. Besides the ordinary computing machinery, the laboratory is equipped with Hollerith card-punching, sorting, and tabulating machines.

The Commission is affiliated with the international Econometric Society, which nominates an Advisory Council. Members of this Council in 1935 were Professor Ragnar Frisch, University of Norway, Oslo, Norway, Research Consultant for the Commission; Professor Irving Fisher, Yale University; Professor Arthur L. Bowley, London University; Professor Wesley C. Mitchell, Columbia University; and Mr. Carl Snyder, Federal Reserve Bank of New York. Mr. Cowles is Treasurer and Mr. Roos Secretary of the Econometric Society.

The office of *Econometrica*, the journal of the Society, is located at the Cowles Commission. In 1935 the Commission continued its subvention to this journal, and the following members of the Commission continued to assist in its publication: Mr. Nelson as Assistant Editor, Mr. Davis as one of three Associate Editors, Mr. Roos as a member of the Advisory Editorial Board, and Mr. Cowles as Business Manager.

MONOGRAPHS IN PREPARATION

DURING the year substantial progress has been made on the two monographs in course of preparation by members of the staff of the Commission, and it is expected that both will be published in 1936. The monograph on the action of stock prices will present new monthly indexes of common stock prices covering all or part of the years 1872 to 1918, or in some cases 1872 to 1926, where they will be joined to the Standard Statistics series. These fresh indexes embrace all industrial and public utility stocks quoted on the New York Stock Exchange for two successive months and weight the prices of the stocks by shares outstanding. All proper corrections for stock rights, split-ups, and other capital changes, have been effected. In addition to the major classifications and one all-inclusive series, indexes have been prepared covering all sub-groups, such as steel, copper, automobile stocks, etc., for the periods for which data are available. In all, 53 pairs of such indexes have been computed, the first including, the second excluding, the effects of cash dividends. Also, properly weighted indexes of common stock yields covering all these classifications have been prepared, and an index of earnings on common stocks will also be presented. It is proposed to include all this fresh statistical material in the above-mentioned monograph and reserve analyses, a substantial amount of which has also been accomplished, for a second volume to be published later.

The monograph dealing with some experiments in economic planning is already in manuscript form and is now in process of editing and revision. It will contain chapters devoted to the evolution of the NRA idea, the creation of the NRA, the development of NRA general policy, personnel and administration, technology and hours of work, the compulsory shorter work week, wage distributions and wage changes, collective bargaining, cost and cost formulas of codes, some specific price experiments, open prices and terms of sale, fair trade practices and the consumer, and some problems of the small business man. The analysis will be concluded by an evaluation of the NRA and related experiments.

PUBLICATIONS AND PAPERS IN 1935

IN July 1935 a text-book, *Elements of Statistics*, by Mr. Davis and Mr. Nelson of the staff of the Commission, was published by the Principia Press; and in the course of the year, Volume II of *Tables of the Higher Mathematical Functions*, by Mr. Davis, was published by the same press.

In 1935 the following papers by staff members were published or presented at scientific meetings:

1. "Economic Theory of the Shorter Work Week," by Charles F. Roos, *Econometrica*, Vol. III, No. 1, January 1935.

2. "A Statistical Study of Climate in Relation to Pulmonary Tuberculosis," by Alfred Cowles 3rd and Edward N. Chapman, *Journal of the American Statistical Association*, Vol. XXX, No. 191, Pt. 1, Sept. 1935.

3. "Annual Survey of Statistical Information: Capital Formation and the Flow of National Income in the United States," by Charles F. Roos, *Econometrica*, Vol. III, No. 4, October 1935.

4. "Practical Problems in the Method of Multiple Correlation Analysis," by Alfred Cowles 3rd, presented at the Colorado Springs meeting of the Econometric Society, June 22-24, 1935.

5. "Painting and Prices," by W. F. C. Nelson, *ibid.*

6. "Some Periodic Aspects of the Stock Market," by Harold T. Davis, *ibid.*

7. "Cost Experiments of the NRA," by Charles F. Roos, *ibid.*

In addition the following papers were prepared in 1935 by staff members for presentation at the St. Louis joint meetings of the Econometric Society with the American Association for the Advancement of Science, January 2 and 3, 1936:

1. "Effects of Building Activity and Other Factors on Security Prices," by Alfred Cowles 3rd.

2. "Effects of Credit, Building Costs, and Rent, on Building Activity," by Charles F. Roos.

3. "Statistical Validity of the 40 Month Stock Market Period," by Harold T. Davis.

THE 1935 SEMINAR

IN the summer of 1935 the Commission inaugurated an advanced seminar in mathematical statistics and economics, the following lectures being given under its auspices:

1. "Generalized Multiple Correlation for Pairs of Sets of Economic Variates," by Harold Hotelling, Columbia University.

2. "Multiple Correlation Analysis of Intercorrelated Variates," by Alfred Cowles 3rd, Cowles Commission.

3. "Lag Analysis with Special Reference to the Building Industry," by Charles F. Roos, Cowles Commission.

4. "The Statistical Validity of Harmonic Analysis," by Harold T. Davis, Cowles Commission and Indiana University.

5. "The Mathematical Theory of Index Numbers," by Thomas H. Rawles, then of Yale University, now of Colorado College.

6. "The Location and Development of Economic Areas," by August Loesch, University of Bonn, Germany.

7. "Business Cycles and Population Waves," by August Loesch, University of Bonn, Germany.

8. "The Economics of Overhead Costs with Applications to Pumping," by Herbert E. Jones, hydraulic engineer and statistician, now of the Cowles Commission.

THE 1936 SEMINAR

THE Cowles Commission proposes to organize a second seminar to be held in the summer of 1936. During this seminar, which will extend from July 1 to August 1, certain facilities of its laboratory in the way of computational and supervisory assistance will be made available to qualified research workers who attend and who are investigating problems within the sphere of interest of the Commission.

Through arrangements completed this year with Colorado College, qualified research workers in the fields of statistics and economics who wish to attend or participate in the summer seminar may secure rooms in McGregor Hall of the College free of charge for the duration of the seminar. A limited number of rooms in this Hall will be available at nominal cost for wives or husbands of participating research workers, and those with families may rent furnished houses belonging to the College, its affiliates, or faculty members, at rates ranging from \$60.00 per month upwards. Board will be furnished, when desired, at Bemis Hall of the College for \$7.00 per week per person.

Applications for computational help or rooms should be addressed to the Cowles Commission.