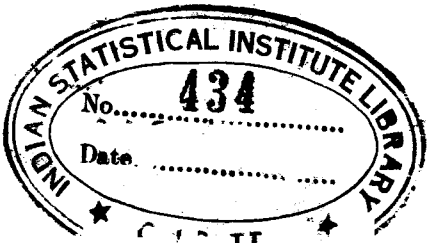
STRAWS IN THE WIND

by

W. A. Shewhart

Paper to be presented at the luncheon meeting of the New York Local Section of the ASME on May 8, 1945



PETROLEUM DIVISION

Thursday, May 10th, 7:30 P.M. **Room 501**

Chairman: To be announced later.

Subject:

"Some Mechanical Aspects of Hot Catalyst Elevators in Thermofor Catalytic Cracking Units"

Speaker, STANLEY M. MERCIER, Chief Engineer, Jeffrey Manufacturing Company, Columbus, Ohio.

Subject:

"Mechanics of Flow in Fluid Catalytic Cracking Units"

Speaker, HENRY P. WICKHAM, Process Engineer, M. W. Kellogg Company, New York City.

Little has been said or printed regarding the *mechanical* aspects of "Cat Crackers." The mechanical means of handling large quantities of catalyst at the high temperatures in these modern refining units involves factors of design and special procedures of operation unique to mechanical engineers.

Realizing this, the Metropolitan Petroleum Division and the Refining Sub-Committee of the A. S. M. E. Petroleum Committee (national) have been fortunate in securing Mr. Mercier and Mr. Wickham, who are exceptionally well qualified to discuss the main mechanical feature of the Thermofor and the Fluid catalytic cracking units respectively.

Meeting in charge of R. W. FLYNN, I. TAYLOR and J. SEXTON.

QUALITY CONTROL METHODS

Engineering Societies Building
29 West 39th Street
New York, N. Y.

Tuesday, May 8, 1945 **Room 501**

A one-day meeting for the presentation and discussion of some experiences and trends of modern industrial quality control methods.

Morning, 9:30 A.M.

Chairman: RUSSELL F. PASSANO, Metallurgical Engineer, Bethlehem Steel Corp.

1. ***Precision Bearing Quality Control***

   C. R. SCOTT, S. K. F. Industries, Front and Erie Avenue, Philadelphia, Pa.

2. ***Control of Machining Processes***

   L. S. YOUNG, Westinghouse Electric & Manufacturing Co., Springfield, Mass.

Luncheon, Pennsylvania Hotel, 12:30 P.M.

Speaker, DR. WALTER A. SHEWHART, Bell Telephone Laboratories, Summit, N. J.

Subject:

"Some Straws in the Wind"

Afternoon, 2:00 P.M.

Chairman, G. W. CRAWFORD, Manufacturing Superintendent, Radio Corp. of America, Harrison, N. J.

3. ***Parts Preparation Control for Radio Tubes***

   H. S. BASCHE and W. A. BRADOF, Radio Corp. of America, Harrison, N. J.

4. ***Analysis of Special Radio Tube Tests***

   J. H. CAMPBELL, General Electric Co., Schenectady, N. Y.

5. ***Radio Tube Finishing Controls***

   J. R. STEEN, Manager of Quality Control, Sylvania Electric Products Co., Emporium, Pennsylvania.

Meetings in charge of M. S. SYMON.

Straw #1

1. Numerous papers on the ABC's of QC.

   1944 - 74 articles classifed by our library came across my desk. Most of these were on a very elementary plane

   Almost all dealt with either:

   a. Sampling inspection.

   b. Process control in the manufacturing plant.

2. Three book manuscripts within the past year.

   All written down. All contain much that is good. All contain much that is very bad. All directed to inspection and process control in manufacturing plant.

3. Many view this situation with alarm and have so expressed themselves to me through letters and conversation.

   At least two men have independently expressed themselves by the phrase:

   "Quality control engineers need to raise their sights".

Name of Committee	Sponsor	Date of Organization	When Initiated
Joint Committee for the Development of Statistical Applications in Engineering and Manufacturing	ASME ASTM IMS ASA AMS	12/5/29	7/1/28 ~~Oct. 1928~~
Committee on Interpretation and Presentation of Data (now being reorganized)	ASTM	3/18/30	Oct. 1929
Committee on Applied Mathematical Statistics	NRC	1/15/43	4/4/42
Emergency Technical Committee on Quality Control	ASA	12/11/40	June 1940
NDRC Applied Mathematics Panel	NDRC		
AIEE Committee	AIEE		
NRC - SSRC Committee	NRC SSRC		April 19,1945

Great Britain

British Standards Institution
Ad hoc Committee on Statistical Methods in Mechanical and Industrial Standardization

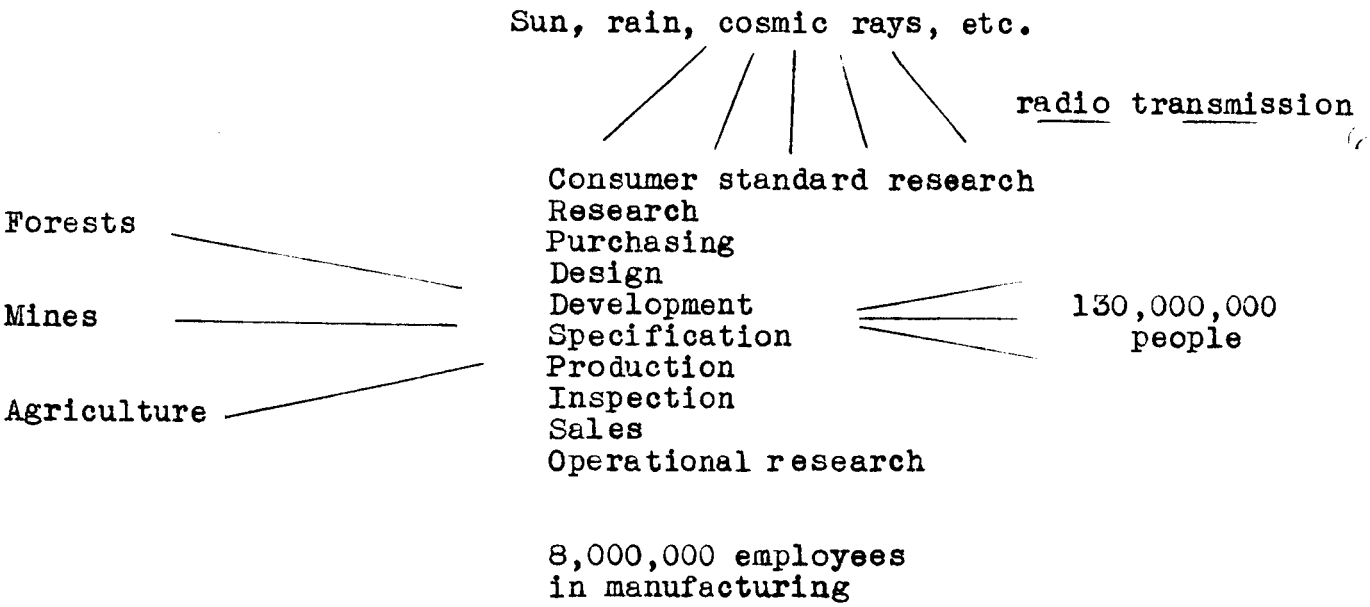
Organized 5/11/32

Visit to America of Dr. Charles Darwin - Sept., 1941.

British Ministry of Supply

National Physical Laboratory - April 1, 1945

Travelling fellowships.
Industrial Engineering



"Management is the art and science of preparing, organizing, and directing human effort applied to control the forces and to utilize the materials of nature for the benefit of man."

Straw #2

ASA

Resolution of Directors of the American Standards Association, May 19, 1944:

Resolved, That in the opinion of the Board, because of the growing importance of standards for consumer goods, the scope and work of the ASA be broadened and clarified by removing the present restrictions which limit the work of the ASA to the engineering field; and that the ASA should be so organized that it can handle any standard or standardization project which deserves national recognition, whether in the field of engineering, accounting, business practice, or consumer goods.

Straw #3 Sec of Commerce

December 15, 1944 - Invitation to fifty of the nation's leading industrial executives:

"At the request and in the name of the Secretary of Commerce of the United States, you are hereby invited by the Visiting Committee of the National Bureau of Standards to attend a "Conference on Standardization" .... on Friday, January 12, 1945, at 10:00 A.M."

Signed by F. B. Jewett K.T.Compton
W. D. Coolidge Gano Dunn
Vannevar Bush

Visiting Committee of the National Bureau of Standards.

Resolutions Passed at this conference:

Resolved, That in the opinion of the Conference, the rapid growth of standards activities, their extension into new fields, and the bearing of standards upon production and sale all make it important for top management to give attention to this matter and to provide for its orderly development.

Resolved, That the Conference notes with approval the steps taken by the American Standards Association to broaden the scope of its work so that it may deal with any standard or standardization project, whether in the field of engineering or consumer goods or in any other field which deserves national recognition.

Straw #4

Article from Consumers' Guide, March 1945.

"How Good is It?"

Our Uncle Sam shops by standards to get an answer to that question. Why don't you?

"Buyers and sellers in retail stores and markets seldom speak the same language-do not have the opportunity to speak the same language as is given other sellers and buyers from the producer to the retailer. The manufacturer or producer sells according to standard, the processor, the wholesaler, and the retailer all buy according to standard. They speak the same language. They know what they are talking about. (Can you imagine any of these operators paying attention to prices without knowing quality and quantity?) But there, too often this common language stops. The buyer in the retail store or market can't talk that language because he hasn't had a chance to learn it. When standards are stated on labels so that shoppers understand them we'll all be talking the same language."

New York Times:

"Quality deterioration of many types of goods has been notable during the war period. This, of itself, will make for a sharp rebound when merchandise once again becomes more freely available. Better definition and control of quality will become paramount.

"Consumer groups, even during the war period, have been pressing for merchandise standards keyed with price and are likely to exert an extremely powerful influence during the post-war period. Better goods at lower prices will be their objective.

"Retailers and manufacturers are fully aware of this and many of them have plans will in hand to take the lead in buying according to standards and specifications and in training sales people in use of labeling to provide the customer with essential data on merchandise."

Straw #5

ASTM

ASTM Bulletin, March, 1945.

"The successful development of standards in the ultimate consumer goods field will require more factual knowledge concerning the wants of consumers and more basic data on use values than are now available. Accordingly the Executive Committee, acting upon a recommendation of the special committee, is arranging for the establishment of a project within the Society for the development of techniques for obtaining knowledge of consumer wants and for accumulating data on which to base specifications and methods of test for ultimate consumer goods. This project will be an important aid in the implementation of the entire program and will necessarily utilize social statistical, psychological, and economic approaches, in addition to those of science and engineering.

Straw #6

Post-War Competition

I do not expect to hear so often the argument "Yes, I know our percentage rejection is high, but why should I worry. We are paid on a "cost-plus" basis".

One large English chemical firm is in the market for fifteen highly trained quality control statisticians to put in their research and development department.

Industrialists in the Birmingham district (England) have established a 500£ competitive travelling scholarship for study of QC in the United States.

Dr. Womersley, who was in charge of a quality control "fire brigade" of about fifty men in the British Ministry of Supply went on April 1, 1945 to the NPL to head up, under Dr. C. G. Darwin, an Applied Mathematics Division. A part of his new job is to direct research in statistical control methods for research and development as well as all other fields of quality control.

Conclusion

Quality Control is a management problem.

Quotation from recent address of Mr. M. Herbert Eisenhart, president of Bausch and Lomb Optical Company (Industrial Quality Control, March, 1945).

"It seems to me then that quality control, standing definitely in line with the other primary tools of management, offers the ways and means for another safeguard for the Private Enterprise system in our American economy. As we look into the future, when our individual enterprises will have lost the biggest customer they have ever had, the Federal Government, the obstacles in the way of self-preservation will be increasingly complex. We will have not only more keen and effective competition from many new concerns in our own country, but foreign manufacturers will be eager to sell more of their products in this country. Top management of successful enterprise in this country will be faced with tremendous competitive conditions, and yet I am sure that with top management viewing its obligations comprehensively, effectively and thoroughly, our American System of Free Enterprise can continue in a world concerned with the new concept of internationalism. This can be done, however, only through effective utilization of the available tools of management and among these the contributions of quality control must be received with enthusiastic approva

The Future Problem

An adequate science of control for management should take into account the fact that measurements of phenomena in both social and natural science for the most part obey neither deterministic nor statistical laws, until assignable causes of variability have been found and removed. Statistical control provides practical control-chart and run-char techniques for discovering such causes so tha they can be removed, or taken into account, and it provides statistical hypotheses, experiments, and tests of hypotheses for discov ing and using statistical laws resulting after the assignable causes have been removed.

The steps involved in attaining and making the most efficient use of a given degree of control often involve the co-ordinate effort of literally thousands of employees, including physicists, chemists, engineers, sale agents, purchasing agents, lawyers, and economists. Very few of these people have ever had training even in classical statistics and probability and yet many of them must be sold on the use of statistical control techniques if the control statistician is to have an opportunity of making his full contribution to management in the solution of its problems. This situation constitutes a problem, not only for those now in industry, but also for those responsible for training the industrial leaders of tomorrow so that they will have sufficient knowledge to help them recognize the potential contributions of statistical control theory and technique.

In the future, the control statistician must do more than simply study, and measure the effects of, existing cause systems; he must help his colleagues devise means for modifying these cause systems in the best way to satisfy human wants. The control statistician must not be satisfied with simply measuring the demand for goods; he must help change that demand by showing, among other things, how to improve the quality of these goods to the consumer. He must not be conten with measuring production costs; he must help to decrease production costs.

The future contribution of the statis-, tical control statistician lies not so much in analyzing data put to him as in helping to getdata in which assignable causes have been segregated so that analysis will lead to valid conclusions not otherwise possible. Not only may each industry expect to profit by having on its consulting staff a highly trained control statistician with a broad background of training in the physical and social sciences and with a flair for cooperat with his colleagues, but there is also great need for creating, through college training, a statistically minded new generation of those natural and social scientists who will have charge of preparing, organizing, and directing the effort of those who are "to con trol the forces and to utilize the materials of nature for the benefit of man."