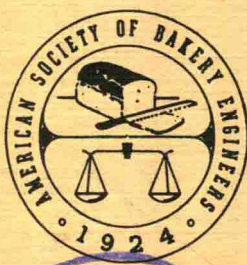


PROCEEDINGS
of the
Sixty-Ninth Annual Technical Conference
AMERICAN SOCIETY OF BAKERY ENGINEERS
1993



February 28 - March 3, 1993

CHICAGO, ILLINOIS

PROCEEDINGS
of the
Sixty-Nineth Annual Technical Conference
**American Society
of
Bakery Engineers**

February 28, - March 3, 1993

Chicago Marriott Hotel, Chicago, Illinois

We gratefully acknowledge the cooperation of the business papers in the baking and allied fields for generously contributing space to describe the activities of the Society during the year. Our special appreciation to those which gave careful coverage to our Annual Technical Conference

We extend our sincere thanks to the members of the Bakers Courtesy Club of Chicago who serve during the Annual Meeting as ushers, microphone monitors and maintained the information desk. On behalf of our members, the Society thanks the "ASK ME" men for serving.

Creed of the Bakery Engineer

AS A MEMBER OF THE AMERICAN SOCIETY OF BAKERY ENGINEERS
IT IS MY DESIRE AND PRIVILEGE. . .

To live the ideals of Fellowship, Inspiration, and Education which prompted the forming of this organization.

To further the interest and progress of the baking industry in whatever way a greater service may thereby be rendered to society.

To be broad and free with the exchange of ideas and information among fellow Engineers.

To promote and practice cleanliness in its highest principles; not alone cleanliness of person, shop and equipment, but also of mind and habit.

To be ever alert to the advancement of the science of baking.

To foster study and knowledge among those engaged with me in the manufacture of bakery foods, realizing always that in the enhancement of our profession in the public esteem each individual contributes an important part.

To assist a fellow Engineer at any time in his problems, upholding in word and deed the substance of the Engineers' Creed and Golden Rule **"All Things Whatsoever Ye Would That Men Should Do Unto You, Do Ye Even Unto Them."**

To follow this simple Creed in heart and mind, being ever aware of the responsibility that falls upon me as a producer of one of, if not the most important of all foods, and to do honor to the ancient and honorable profession of Baking.

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2 N. Riverside Plaza, #1733
Chicago, IL 60606
(312) 332-2246

Printed in the U.S.A.

TABLE OF CONTENTS

Introduction

Introduction	5
Program Book Highlights	7
Officers	6
Creed	2

Monday Morning Session

Opening Address - Thomas A. Shannon	13
Invocation - Charles B. Clark	13
The Chairman Comments-Thomas E. Lewis	13
The President Reports-Robert A. Fischer	14
Program Preview-Winn V. Horn	16
Annual Business Meeting - Thomas E. Lewis	17
Knowing Your Industry - W. O. Pulver	18
Knowing Your Society - Sallie J. Rudd	19
Presentations and Introductions	20
Keynote Address - Art Turock	23

Monday Afternoon Session

Developing Ingredient Specifications - Jeffrey S. Duus	33
Labeling - 1993 - Elizabeth J. Campbell	39
OSHA Update - James D. Dykes	45
Americans with Disabilities Act - William R. Cooper	51
Stress Management in the Bakery - Dr. Evan H. Bergwall, Jr.	63

Tuesday Morning Session

In-Store Bakery Trends - Edward M. Lee	65
Fiber - Richard B. Koch	73
Product Color Measurement - John D. Anderson	81

Tuesday Afternoon Session

Waste Management by Microbial Enhancement - Dr. Willard T. Blevins	89
Storm Water Management - Christopher C. Rants	97
Storage Tank Regulations - Thomas A. Tuncil	103
Recycling in the Bakery - Melvin G. Cox	117
The Clean Air Act - Kevin M. Burke	127

Wednesday Morning Session

Bread Makeup - Dale E. Stimpson	135
Contaminant Detection Technology - Stephen T. Gidman	139
Hard Roll Makeup - J. William Long	145
New Plant Design and Startup - Wayne W. Palmer	155
Installation of Officers	169
Chairman's Comments and Appointments	170
Final Adjournment	171

Miscellaneous

Conference Photographs	217
Subject Index of 1993 Conference	173
List of Papers-1975-1993	179
List of Technical Bulletins	202
List of Engineers' Information Service Reports-1975-1993	203
Miscellaneous Membership Information	205
Registration List -1993	209
Membership Application	223

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American Society of Bakery Engineers

ROBERT A. FISCHER, PRESIDENT

THOMAS J. KUK, SECRETARY

2 North Riverside Plaza

Chicago, IL 60606

69th Annual Technical Conference

Chicago Marriott Hotel

February 28 - March 3, 1993

Chicago, Illinois

Introduction to the 1993 PROCEEDINGS

This issue of the PROCEEDINGS - as was the case with all previous issues - is intended as more than a transcript of the program for the Annual Technical Conference; it is a valuable reference source for technical information on bakery production. All members of ASBE receive a copy as privilege of membership and most of them consider the PROCEEDINGS as an indispensable addition to their libraries.

As a technical reference book, this volume includes reproductions in complete form of all papers which were presented, transcripts of all the discussions following each paper as well as any handout material distributed. All photographic slides were reproduced to the best of our ability. The quality of all reproductions varies according to the quality of the original artwork.

This volume also contains a Subject Index for the 1993 Program, a list of all papers presented from 1975 to 1993 and a list of Technical Bulletins and EIS Reports issued since 1975.

Besides the technical data, there is a complete registration list for the Conference. The Table of Contents has also been provided for ease in locating specific papers, reports and sections.

Total registration for the 69th Annual Technical Conference was 1225 paid attendees, not including spouses who accompanied registrants. Included were those who received complimentary badges as well as those who pre-registered and chose not to attend.

1993 - 1994 OFFICERS



The 1993-94 Officers for the American Society of Bakery Engineers are from left to right: Third Vice-Chairman Neil A. Bailey, Second Vice-Chairman Winn V. Horn, First Vice-Chairman Ronald C. Dunkelberger, Sr., Chairman M.D. "Dave" Wood, President Robert A. Fischer and Secretary-Treasurer Thomas J. Kuk

Officers of Affiliates to ASBE

Australian Society of Baking

Chairman Wayne Rapp
 1st Vice-Chairman Ken Bertalli
 2nd Vice Chairman Dr. Graham McMaster
 3rd Vice-Chairman Greg Jones
 Secretary-Treasurer Desmond Hennessy

British Society of Baking

Chairman K.A. Shaw
 1st Vice-Chairman R.W. Simms
 2nd Vice Chairman G. Criticos
 3rd Vice-Chairman P.L.T. Morrow
 Treasurer Colin Everson
 Secretary Martin Roebuck
 Assistant Secretary Mrs. L. Izatt

American Society of Bakery Engineers

69th Annual Technical Conference

Sunday February 28 - Wednesday March 3, 1993

Schedule of Events and Conference Activities

INTRODUCTION to the 69TH ANNUAL TECHNICAL CONFERENCE

On behalf of the Officers, your Program Committee, Session Chairmen and Speakers, it is my privilege to welcome you to the 69th Annual Technical Conference and Exposition.

Our program has been developed around the suggestions you made last spring and we are fortunate to have an outstanding group of speakers to cover the topics you requested. Regulatory and environmental issues, ingredients, industry trends, production equipment and techniques as well as some new ideas and a new bakery will be explored over the next three days.

Our speakers are experts in their respective fields. Each paper has been written to inform, but also to generate questions from the audience which allow a spontaneous exchange of information and ideas. I encourage you to take advantage of the question and answer period at the end of each presentation.

Enjoy and profit from the Program and be sure to let your Program Committee know what you want to hear and see next year when ASBE will be 70 years young.

Winn V. Horn
Program Chairman

Glenn P. Campbell
First Assistant
Program Chairman

James R. Loveless
Second Assistant
Program Chairman

REGISTRATION

Please register promptly on arrival to prevent delays during meeting hours.

Registration Hours

Saturday	2:00 P.M. to 5:00 P.M.
Sunday	10:00 A.M. to 5:00 P.M.
Monday	8:00 A.M. to 5:00 P.M.
Tuesday	8:00 A.M. to 5:00 P.M.
Wednesday	8:00 A.M. to 10:00 A.M.

Fifth Floor Foyer

Please cooperate by keeping escalator landings free of crowds, and avoid group conversations in front of registration desks.

Registration Fees at Meeting

Members	\$125.00
Non-Members	\$145.00

Registration includes the Table Top Showcase, the Officers' Reception and the Bakery Foods Display. Admittance to these events is limited to registrants—by badge only.

JOINING THE SOCIETY

A non-member who joins the Society before registering for the 69th Annual Conference can register as a member.

The Membership Committee maintains a desk in the registration area during the registration hours. Committee members are on hand to explain the benefits of membership and to assist in signing up new members.

AN EXPLANATION OF BADGES AND RIBBONS

Badge Inserts

White with burgundy printing
A colored dot denotes a new member
(who has joined since 8/1/92)

Ribbons

White for overseas visitors
Silver, coral, ruby & gold for members
with 25 years or more of continuous
membership.
Blue for members on the program.
Green for Committee Chairmen,
Advisory Committee and Executive
Committee members.

Schedule of Events and Conference Activities

PRE-CONFERENCE SCHEDULE OF EVENTS

SUNDAY, FEBRUARY 28, 1993

10:00 A.M.-ADVISORY COMMITTEE MEETING

Northwestern and Ohio State Rooms
Sixth Floor

(Committee members only)

11:30 A.M.-1:00 P.M.- GLADYS FISCHER LADIES' BRUNCH

Great America I & 11
Sixth Floor

11:30 A.M.-ADVISORY COMMITTEE LUNCHEON

Wisconsin and Purdue Room
Sixth Floor

(Committee members only)

12:30 P.M. - EXECUTIVE COMMITTEE MEETING

Michigan and Michigan State Room
Sixth Floor

(Committee members only)

4:00 P.M. -PROGRAM PARTICIPANTS' RECEPTION AND MEETING

Chicago Ballrooms A & B - Fifth Floor
(Speakers, session chairmen and meeting
chairmen only)

POST-CONFERENCE SCHEDULE OF EVENTS

WEDNESDAY, MARCH 3, 1993

1:00 P.M. - EXECUTIVE COMMITTEE MEETING

Denver and Houston Rooms
Fifth Floor

(Committee members only)

THURSDAY, MARCH 4, 1993

8:00 A.M. - PROGRAM COMMITTEE MEETING

Lincolnshire II
Sixth Floor

(Committee members only)

SCHEDULE OF LADIES' ACTIVITIES

SUNDAY, FEBRUARY 28, 1993

11:30 A.M.-1:00 P.M.—GLADYS FISCHER LADIES' BRUNCH

Great America I & 11 - Sixth Floor

6:00-7:30 P.M.- OFFICERS' RECEPTION

Chicago Ballrooms D - H - Fifth Floor

TUESDAY, MARCH 2, 1993

9:00 A.M.-2:30 P.M. - SPOUSE PROGRAM

Chicago Gangster Tour & Luncheon

Meet in Hotel Lobby between 9:00 and 9:30

SCHEDULE OF Non-ASBE-CONFERENCE FUNCTIONS

MONDAY, MARCH 1, 1993

7:30 A.M. - KSU-FSU BAKERY SCIENCE AND
MANAGEMENT ASSOCIATION BREAKFAST

Denver and Houston Rooms—Fifth Floor
Ross Holton, Breakfast Chairman

11:45 A.M. - AIB Alumni Association Luncheon

Chicago Ballrooms A/B/C—Fifth Floor
Michael W. Moore, Luncheon Chairman

TUESDAY, MARCH 2, 1993

7:45 A.M. - ALLIED TRADES OF THE BAKING
INDUSTRY, INC. EARLY BIRD BREAKFAST

Salon III - Seventh Floor
Stephen V Kelly, Breakfast Chairman

11:45 A.M. - ALLIED TRADES CANADIAN
LUNCHEON

Chicago Ballrooms, B/C-Fifth Floor
Terence McCann, Luncheon Chairman

12 NOON - ATBI DIRECTORS LUNCHEON
MEETING

Los Angeles & Miami Rooms—Fifth Floor
Steven B. Smith, President

Schedule of Events and Conference Activities

THE 69TH ASBE TECHNICAL CONFERENCE

SUNDAY - FEBRUARY 28, 1993

2:00 PM- 5:30 PM - TABLE TOP SHOWCASE
Grand Ballroom 7th Floor
*A.G. Oszlanyi, Charlotte, NC Gregory E. O'Neal,
St. Louis, MO Co-Chairmen*

6:00 P.M. 7:30 PM - OFFICERS' RECEPTION
Chicago Ballroom D - 5th Floor
*Chris V. Cipriani, Goldsboro, NC
Reception Chairman*

MONDAY MORNING PROGRAM - MARCH 1, 1993

Chicago Ballroom - 5th Floor

9:15 AM - Greet Old and New Friends

9:30 AM -GENERAL SESSION

*Thomas A. Shannon, Youngstown, OH
Meeting Chairman*

- Introduction of Officers

Thomas A. Shannon

- America the Beautiful (Please Stand)

Andrew Maier II, Reading, PA

- God Bless America (Please Stand)

- Invocation (Please Stand)

Charles B. Clark, Fort Smith, AR

- The Chairman Comments

Thomas E. Lewis, Maple Grove, MN

- The President Reports

Robert A. Fischer, Chicago, IL

- Program Preview

Winn V. Horn, St. Charles, MO

- Annual Business Meeting

Thomas E. Lewis

- Knowing Your Industry

*International Baking Industry Exposition
W.O. Pulver, Chicago Ridge, IL*

- Knowing Your Society

*ASBE Membership Committee
Sallie J. Rudd, Kansas City, MO*

- Presentations and Introductions

- Introduction of Keynote Speaker

James J. Diver, Chicago Ridge, IL

- Keynote Address

Art Turock, Seattle, WA

- Announcement

Thomas Shannon, Meeting Chairman

- Adjournment

MONDAY AFTERNOON PROGRAM - MARCH 1, 1993

Chicago Ballroom 5th Floor

1:05 PM - General Session

*Dave Wood, Dallas, TX
Meeting Chairman*

- Introduction to Technical Production Session

*Mark F. Livesay, Lancaster, PA
Session Chairman*

- Developing Ingredient Specifications

*Jeffrey S. Duus,
Quality Bakers of America,
Greenwich, CT
Topic: Improving quality - control what
you buy*

- Labeling -1993

*Betty Campbell
Food and Drug Administration,
Washington, DC
Topic: Current status of the new labeling
laws*

- OSHA Update

*James D. Dykes,
American Institute of Baking,
Manhattan, KS
Topic: Safety Programs - Recent citations
and fines*

- Americans with Disabilities Act (ADA)

*William R. Cooper
Quality Bakers of America Cooperative
Greenwich, CT
Topic: Bakery Compliance*

- Stress Management in the Bakery

*Dr. Evan H. Bergwall Jr.,
Pittsburgh, PA
Topic: Countering a stressful workload*

4:15 PM - 6:45 PM -TABLE TOP SHOWCASE
Grand Ballroom - 7th Floor

TUESDAY MORNING PROGRAM - MARCH 2, 1993

Chicago Ballroom 5th Floor

9:50 A.M. - GENERAL SESSION

*James J. Diver
Chicago Ridge, IL
Meeting Chairman*

Schedule of Events and Conference Activities

-Introduction to Technical Production Session

William K. Hube, Jr.
Raleigh, NC
Session Chairman

-In-Store Bakery Trends

Edward M. Lee
Donohue/Meehan Publishing Co.,
Des Plaines, IL
Topic: Review of products and market opportunities for bakers

- Fiber

Richard B. Koch
Protein Technologies International,
St. Louis, MO
Topic: The health benefits of fiber in bakery foods

- Product Color Measurement

John D. Anderson
J.D. Anderson Co.
Dunedin, FL
Topic: Contrast versus color, a new approach to an old problem

TUESDAY AFTERNOON PROGRAM - MARCH 2, 1993

Chicago Ballroom 5th Floor

1:50 PM - GENERAL SESSION

Ronald C. Dunkelberger, Sr.,
Reading, PA
Meeting Chairman

- Introduction to Technical Production Session

Sidney Helms,
Dunwoody, GA
Session Chairman

- Waste Management by Microbial Enhancement

Dr. Willard T. Blevins,
Auburn University,
Auburn University, AL
Topic: Use of microorganisms in the bio-degradation of bakery waste

- Storm Water Management

Christopher C. Rants,
Metz Baking Co.
Sioux City, IA
Topic: Regulations affecting storm water run-off

- Storage Tank Regulations

Thomas A. Tuncil,
EPSYS
Harrisburg, PA
Topic: Removal and installation

- Recycling in the Bakery

Melvin G. Cox,
Interstate Brands Corp. Knoxville, TN
Topic: In-plant recycling opportunities and benefits

- The Clean Air Act

Kevin M. Burke
American Bakers Association
Washington, DC
Topic: Alternate fuels for bakery vehicles

TUESDAY EVENING PROGRAM - MARCH 2, 1993

5:00 PM - 6:45 PM -BAKERY FOODS DISPLAY

Salons I & II - 7th Floor

Tom MacDonald, Franklin Park, IL
Chairman

Harold D. Fortner, Cicero, IL
Assistant Chairman

Frank Sberna, Pickerington, OH
Regional Chairman - East

Daryl W. Block, Coal Valley, IL
Regional Chairmen - Mid-Central

Roy M. Rodgers, Memphis, TN
Regional Chairman - South

Chris Garoutte, Oakland, CA
Regional Chairman - West

Richard L. Koenig, Franklin Park, IL
Regional Chairman - Northwest

Roger W. Strand, Minneapolis, MN
Regional Chairman - Central

James H. Barnard, Harrisburg, PA

William J. Crowther, Darien, IL

Michael L. Fisher, Kannapolis, NC

Daniel L. Herzog, Schaumburg, IL

William A. Hoffman, Chicago, IL

John R. Jansen, Chattanooga, TN

George J. Kiefer, Huron, SD

Jack H. Locke, Jr., Dallas, TX

Melvin W. Mueller, Mt. Prospect, IL

Ronald Reid, Pittsburgh, PA

Fred A. Turner, Cockeysville, MD

WEDNESDAY MORNING PROGRAM - MARCH 3, 1993

7:30 - 10:00 AM - COFFEE SERVICE

Coffee, Tea, Sweet Rolls Fifth Floor Foyer
(outside of Salons D & E)
Compliments of ASBE.

8:05 AM - General Session

Thomas E. Lewis,
Maple Grove, MN
Meeting Chairman

- Introduction to Technical Production Session

Charles D. Steward,
Richmond, VA
Session Chairman

- Bread Make-Up

Dale E. Stimpson,
APV Baker, Inc.,
Goldsboro, NC
*Topic: New concepts from the divider to the
moulder*

- Contaminant Detection Technology

Stephen T. Gidman,
Graseby Goring Kerr, Inc.
Scarborough, Ont, Can.
*Topic: The latest advancements in foreign
substance technology*

- Hard Roll Make-up

J. William Long,
Gemini Bakery Equipment Co.
Philadelphia, PA
Topic: New make-up line capabilities

- New Plant Design and Start-up

Wayne W. Palmer,
Mrs. Baird's Bakeries, Inc.
Fort Worth, TX
*Topic: Tradition and technology come together
in a new bread and roll bakery*

- INSTALLATION OF OFFICERS

**- CHAIRMAN'S COMMENTS AND
APPOINTMENTS**

- THE LORD'S PRAYER

Andrew Maier II,
Reading, PA

11:00 AM - FINAL ADJOURNMENT

