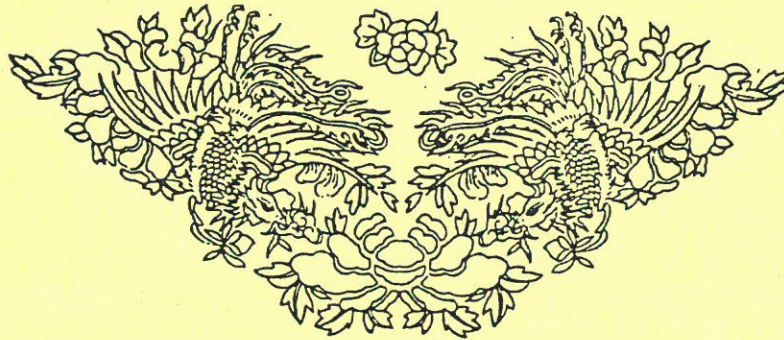


The Association of Chinese Food Scientists & Technologists in America

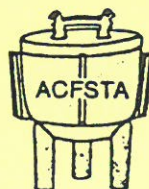
旅美中國食品科技學會

會誌



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旅美中國食品科技學會

The Association of Chinese Food Scientists & Technologists In America

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編者的話

- 由於各位對這通訊的支持與鼓勵，而使得它有今日之面目。這刊物是會友間最主要的通訊媒介，它需要你的文稿、建議及批評。文章仍以公司學校推介、食品科技、事業成功的秘訣等為主。
- 新的學會負責人已選出就職，從本屆開始會長的任期改為兩年。新會長陳慶筠已把未來兩年的計劃擬訂，並將各委員會的負責人邀請好。你若對任何一類活動有興趣，請直接和該委員會負責人連絡。
- 新的會員通訊錄 (Membership Directory) 正在整理排印中，您若有地址、職務、學歷各方面的變化，請在十一月底前通知 Peter J. Wan。
- 對新會員之吸收，副會長朱正中已經在世界日報上登過消息，並起草一封公開信，請大家利用機會向同業的同胞們介紹本學會。
- 請別忘了繳新年度 (1982~1983) 的會費，由於印刷郵資昂貴，若沒有會費的支持，這刊物將無法達到定為大家服務的目標。
- 會員中對編輯會議工作有興趣者請通知會長 Tony Chen。
- 食品工業研究所馬保之所长寄來 25 份 1981 的年終報告，有興趣者請向 Peter J. Wan 索取。

A LETTER FROM THE PRESIDENT

Dear Member:

This is the beginning of my two-year term as your president and this is also a beginning of a new era. I would like to share some of my thoughts with you.

A vital ingredient in any successful organization is its value. Without the properly identified value no organization can grow and survive. The typical example of this is the contrast of the Japanese vs. the American management philosophy. In order for the ACFSTA to become a well recognized professional organization, we also need our value. The values of our organization should be:

1. To be the best Chinese professional organization in North America.
2. To provide technical assistance to our mother country.

With these values we can be certain that the long term growth of ACFSTA will be ensured.

In the business world, one of the most effective management tools for achieving goals and objectives is called Management by Objective (MBO). I would like to share my MBO for the next two years with you:

1. Increase membership by at least 50% by 1984.
2. Continue to improve the quality of the newsletter.
3. Establish an active employment service committee to provide resume service, interview coaching and job leads.
4. Provide a professional workshop at least once a year.
5. Establish a student affairs committee for providing essential services to the student members.
6. Set up a mechanism to transfer technology to the mother country.
7. Create an opportunity for the members to participate in various association's activities.

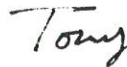
To be sure that I can achieve the above objectives, I have selected a group of competent individuals who will assist me to implement these various goals. Following are the officers and the committee chairpersons:

Angel Yang	- Secretary
Y. C. Jao	- Treasurer
Sherman Lin	- Advisor
Robert Hsueh	- Legal Counsel
Tony Chen	- Consulting & Workshop
William Chang	- Subcommittee Chairman of Consulting & Workshop
Daniel Fung	- Awards
Chifa Lin	- Employment
Santa Lin	- Annual Meeting
Sheree Lin	- Student Affairs
Peter Wan	- Publications

It is not easy for a Chinese professional to do well in a foreign country like the United States. By the same token, it is a great challenge for a Chinese professional organization to survive well in this country. I need your help, your support, your participation and particularly your feedback. If we do a good job, do let us know. We are as human as anybody else; a pat on the back is all we ask for. If there are some things that you think we have missed, please let us know as well. I will guarantee that your voice will be heard. Just remember that the future of ACFSTA is in your hands. This association will only be as good as you want it to be.

Best wishes.

Yours,



Anthony H. Chen

A LETTER FROM THE PAST PRESIDENT

Dear ACFSTA Members:

When I look back at last year, I feel like the year just zoomed through like a supersonic jet. I guess it is part of the aging syndrome; the older you are the faster time passes by. As the president of ACFSTA last year, I had the pleasure of working with a lot of wonderful people within our organization. It is truly satisfying to me to find out so many capable and responsible people among us. I firmly believe under good leadership the future of ACFSTA is as bright as a rising star.


The major objective of the last administration was to transform our society from a social gathering into a professional organization. The minor objectives were twofold: one was to inform you about what is going on as much as possible and another was to involve as many members as possible in various activities. Those objectives were achieved to a satisfactory extent. At least, I am satisfied personally. However, there were a couple of things I did screw up pretty badly. I wish I had done a better job on them. To save myself from further embarrassment, I will not mention them in this report.

In trying to achieve the above mentioned objectives, nine committees were created with each committee chaired by an individual member. The function and chairpersons' names are shown in the attached outline which was distributed to our members at the Las Vegas meeting. In general, all the committees have done their jobs very well. I would like to take this opportunity to thank all the chairpersons and committee members for their cooperation.

The Las Vegas meeting was very successful. The traditional annual banquet was replaced with a cocktail party. Attendance of the cocktail party was not as large as in the past when there was a banquet. The future administration may want to find out the actual cause. Future meeting formats should be designed to attract the majority of our members.

The forum about career preparation and career advancement was a big success. The chairperson and all the speakers have done a tremendous job. It is the first forum of this nature ever held by ACFSTA, may even be the first one in IFT convention. Congratulation are in order to those members involved in this specific activity. I personally hope this activity will be continued and further improved in the future.

To end this report, I would like to thank you all for giving me the opportunity to serve our wonderful organization last year. I am very confident our new president, Dr. Tony Chen, will be able to lead us into a new dimension. Let's all chip in our share of effort to make ACFSTA an organization we can all be proud of.


Sherman S. Lin
President 1981/82

The Association of Chinese Food Scientists & Technologists in America

旅美中國食品科技學會

ACFSTA 1982 ANNUAL MEETING

PRESIDENT'S REPORT

June 23, 1982; Pavilion No. 11, Las Vegas Hilton

1. Overall Objective:

Transform the Association from a social to a professional Society.

2. Activities:

a. Internal

- Publication Dr. Peter Wan
Includes technical and career related articles in newsletter.
Directory published in Fall.
- Annual Meeting Dr. Santa Lin
Cocktail party and forum.
- Employment Service Dr. Robert Ma
Published job opening news in newsletter. Many student members inquire about jobs. Need suggestions for improving efficiency.
- Award Mr. George Chu
Prepared award for past presidents.
- Academic Information Dr. Daniel Fung
Compiled information about Food Science curricula in different U.S. Universities.
- Fund Raising Dr. Sherman Lin
Increased membership dues. No other source of income created. Need ideas.
- Forum Dr. Joseph Jen
Career preparation and career advancements.

b. External

- Education Dr. Bill Chang
Sea Food Processing Seminar in Taiwan, August 1982. Drs. Hong-Ming Soo and Wai-Kit Nip representing ACFSTA.
Submitted twenty other short course subjects, course outlines and course coordinators to Taiwan, but no conclusion so far.
- Consulting Dr. Tony Chen
Published a consulting booklet. Made contact with both Mainland and Taiwan. No business yet.
- CACS
Established contact, possible joint project.



HIGHLIGHTS OF 1982 ANNUAL MEETING

- * This is the first time for ACFSTA to
 - (1) present appreciation awards to all our previous presidents
 - (2) organize a forum entitled "Career Preparation and Development"
- * There were more than 60 attendees participating in the annual meeting.
- * The forum was well received by all participants as indicated by the following statistics. Based on the survey returned by 13 attendees:
 - 85% felt all the topics are of interest to them
 - 77% felt the program is both useful and helpful
 - 100% will continue to support this type of program
 - 92% liked the format of presentation/discussion very much
 - 85% felt the time schedule was "just right"

The comments for the forum are:

- there were too many speakers, not enough time for discussion
 - to avoid conflict with other sessions
 - excellent forum, good job
- * The forum topics were divided into two major subjects and presided by Dr. Joseph Jen.
 - (1) Career Preparation by Drs. Daniel Y.C. Fung, Tung-Ching Lee and James H. Moy

The main contents please refer to the articles written by Dr. Fung and published in the Newsletter, Vol. 4, No. 3 (March, 1982), "How To Be Successful in Food Science".
 - (2) Career Development by Drs. Anthony H. Chen and Michael C. Tao, and Mr. George C. Chu.

The key points are printed in the following page. Several methods to improve personal communications skill were also suggested by Dr. Tao, such as, private training school and materials, and toastmaster activity.
 - * Members attending the annual meeting were asked to comment and rate the 1981-1982 activities. The following statistics are calculated based on the responses of 16 members.

<u>1981-82 Activity</u>	<u>Overall Quality, %</u>				
	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
Appreciation Award		6.2	18.8	37.5	37.5
Annual Meeting		18.8	18.8	56.2	6.2
Consulting		8.3	50.0	33.3	8.3
Employment	7.1	35.7	21.4	28.6	7.1
Fund Raising	15.4	30.8	46.2	7.7	
Membership Dues		12.5	50.0	25.0	12.5
Publication & Newsletter			25.0	25.0	50.0

- Comments and Suggestions

- (1) Appreciation Award: -Should have as many recipients as possible.
-Editors for Newsletter should be recognized.
- (2) Annual Meeting: -Use Chinese as official language.
-Combine business meeting with forum.
-Include dinner in annual meeting.
-How could we attract more attendees
-Speakers did excellent job in forum.
-Prefer no banquet.

Suggestions for next annual meeting:

Meeting place should be at the same site where the convention takes place.

Meeting should be brief, possibly less than 30 minutes.

Annual report, if time permits, can be published in the Newsletter in the issue immediately before the convention. Only highlights of the report should be mentioned at the meeting.

The technical forum and the meeting can be arranged at the same date and same place. Forum can immediately follow the meeting. (Last year's forum was excellent.)

The forum should have no more than 3 speakers. The speakers can serve as discussion leaders for a question and answer session after the speeches.

Coffee/tea/soft drinks with or without dry snack may be provided at the meeting/forum. A dinner is optional right after the forum/meeting.

- (3) Consulting - need government support.
- (4) Employment - job seeking service during the year.
- (5) Fund Raising - Contact more corporate members.
- (6) Membership - Recruit more nutritionists as members.
- (7) Publication - To inspire the enthusiasm of members through Newsletter.
- Newsletter quality is excellent.

ACFSTA 1982 ANNUAL MEETING

CAREER DEVELOPMENT FORUM

by

Tony Chen

June 24, 1982

1. Who am I?
 - Be an expert in American Culture.
 - Don't have to be Americanized.
 - Utilize your cultural strengths.
 - Minimize your cultural handicaps.
2. What am I?
 - Recognition
 - Acceptance
 - Self-discipline
3. Three key ingredients in executives.
 - Motivation
 - Energy
 - Intelligence
4. Tips to professional development.
 - Communicate well.
 - Learn to say yes and mean it.
 - Learn to say no.
 - Don't speak Chinese at work.
 - Be goal oriented.
 - Work one extra hour per day.
 - Learn how to sell yourself.
5. Three most important relationships in successful career advancement.
 - Excellent relationship with your boss.
 - Seek out mentors.
 - Win over sponsors.
6. Four principles of a competent manager.
 - Recognize expertise.
 - Put the right man on the right job.
 - Earn your subordinate's respect.
 - Have tolerance to individuality.

INVITATION LETTER FOR NEW MEMBERS

Dear Friend:

First of all, let us introduce our organization. The Association of Chinese Food Scientists & Technologists in America (ACFSTA), which was organized through a group of Chinese food scientists in 1975 unites people working in various food fields in the United States. The particular business and objectives of our organization is a non-profit, professional and educational association to promote the application of science and engineering to the production and utilization of food, by stimulating and providing means for the free interchange of technological information and ideas among food scientists and technologists.

The meeting center for the membership is generally held at the annual Institute of Food Technologist. Additionally, we do publish a quarterly newsletter to provide a close communication among members. Our newsletter includes technical papers, job opportunities and professional news. However, our activity changed from a traditional dinner meeting to plant tours, technical workshops, special contribution awards, joint study and consultation with other organizations.

During the past years, due to increased and diversified activities, ACFSTA has attracted more members (currently has 210 members) and continues to grow in size and attendance at meetings. We would like to see this organization continue to grow, so we cordially invite you, who is involved in the food field to be a part of our organization. Therefore, we can work together to reach our ultimate objective of providing better and adequate food for mankind.

For further information regarding our organization or membership, please contact:

Dr. Peter J. Wan
Anderson Clayton Foods
3333 North Central Expressway
Richardson, Texas 75080
Telephone: 214-231-6121

Sincerely yours,

朱正中

George C. Chu
Membership Committee

ACTIVITY PLANNING FOR MEMBERSHIP COMMITTEE

September 23, 1982

Dear Committee Member:

Thank you for accepting the responsibility of being a part of our membership committee. I have outlined some of our preliminary plans for recruiting new members from both universities and industries. They are as follows:

Dr. John Lu will be responsible for all universities, which are located geographically in the east of central time zone.

Dr. Tung-Shan Chen will be responsible for the rest of the universities.

Dr. Jimbay P. Loh will be responsible for all industrial magazines.

Dr. David Hung-En Chou will be responsible for all academic journals.

For universities, I am suggesting that first we list all the names of universities, which have food science or related departments. Then, send out our recruiting letter (see attachment) to each of the universities and ask it to be posted. The deadline is December, 1982.

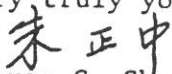
For journals and magazines, again we need to list all of them, then contact them for rates (may be free, because we are non-profit) for a small ad. So the committee can decide how or where to advertise, the deadline is December, 1982.

I will be responsible for all the food related conferences or meetings. I will contact different attendants to post our recruiting letter in each meeting.

In summary, there is a great deal of work ahead of us. I am sure that we can accomplish it by contributing each of our time and efforts, so we can see our organization grow and continue to grow. Again, I am giving my sincere thanks to each of you for being part of this challenging and meaningful task.

If there are any questions, please let me know.

Very truly yours,


George C. Chu
Membership Committee

REPORT FROM AWARD COMMITTEE

Here are the information concerning the awards committee activities:

1. Members of the committee:

Dr. Daniel Y. C. Fung, Chairman
Call Hall
Kansas State University
Manhattan, Kansas
(913) 532-5654

Members:

Dr. Tung-Shan Chen, California State University
Dr. Tung-Ching Lee, University of Rhode Island
Dr. Y. Hang, Purdue University
Dr. Levi Chang-Gang Ying

2. Activities

Currently we are drawing up criteria for the award and will have the process completed in October, 1982

3. Announcements

Anyone who has someone in mind for an award should communicate with Dr. Fung directly.

OTHER ANNOUNCEMENTS

- We welcome all the new members who have joined us since last Annual IFT Meeting. We have a total of 23 new members, 7 professionals and 16 student members.

- Since last financial report, we have received 37 membership dues which include 23 new members.

Honorary Member (\$50)	1
Supporting Member (\$30)	1
Professional Member (\$15)	15
Student Member (\$5)	20

- This is the last notice before the new directory is printed. For those who wish to change their information, please notify the Treasurer, Dr. Y. C. Jao while turning in your membership dues or write to the Editor, P. J. Wan.

OPPORTUNITIES IN RESEARCH

Stauffer Chemical Company has excellent career opportunities available at the Eastern Research Center in Dobbs Ferry, New York.

BIOCHEMICAL ENGINEER

Advanced degree in Biochemical Engineering or related discipline and a minimum of 5 years of related experience including the use of soluble and immobilized enzyme and cell technology required. Responsibilities will include bench and pilot scale experimental studies or biochemical process involving the application of enzymes to modification of food ingredients and to the synthesis of chemical and pharmaceutical intermediates.

FOOD MICROBIOLOGIST

Ph.D. in Microbiology or Food Microbiology with a minimum of 3 years applicable experience required. Candidates should be familiar with microbiological quality control food products and be able to initiate new projects as well as plan and conduct research within existing projects.

ENZYMOLOGIST

Ph.D. in Biochemistry with some formal training or work experience in food science. The position requires an individual with a strong background in enzyme chemistry to conduct enzymatic synthesis and modification studies directed towards the development of products for the food and related industries.

We offer salaries commensurate with experience and excellent company benefits. Our Dobbs Ferry location has a campus-like professional working atmosphere in a highly accessible countryside location within easy commuting distance from Southwestern Ct., Northern N.J., and New York City. Send resume in confidence to:

G.J. DeMunnik
Dept. 92

Stauffer Chemical Company
Eastern Research Center
Dobbs Ferry NY 10522



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Dobbs Ferry, NY

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We require a BS or MS in Food Science and 8-10 years experience in product development and technical support with a successful record in food service. You must have experience in interpreting and reporting experimental results and making recommendations.

Duties involve direct responsibility for experimental food service programs providing new, innovative food products, as well as a major role in planning applications research and technical support.

Stauffer offers an excellent salary, benefits and advancement opportunities. For immediate consideration, please send your resume including salary history to:

R. J. Burns
Stauffer Chemical
Company
Westport, Conn 06881



An Equal Opportunity Employer

In order to allow employment committee best serve our members, we must maximize our information flow. For those who are actively seeking employment, please send two copies of resume to Dr. Chifa Lin.

He will send your resumes to prospect companies. Meantime he will ask an experienced member to criticize the resume to make it more effective.

For those who have job leads, please also notify Dr. Chifa Lin promptly. The following are several job openings.

FROM: Wai-Kit Nip, Associate Food Technologist
Dept. of Food Science & Human Nutrition

SUBJECT: Trip report - Workshop on the handling and processing of
tuna (Taiwan, 8/5/82 - 8/16/82)

The purpose of the workshop was (1) to report to the tuna-related personnel in Taiwan the state-of-the-art of handling and processing tuna in the U.S. and (2) to make recommendations to the tuna packers on improving and expanding the tuna industry in Taiwan.

The workshop was organized by Dr. Bonnie Sun Pan, Chairperson, Department of Marine Food Science of the National Taiwan College of Marine Science and Technology and funded by the Ministry of Economic Affairs, Republic of China.

The traveler was one of the three invited speakers from the U.S. The other two were Drs. Hong-Ming Soo and Donald V. Schwall of Ralston Purina Company.

The traveler was asked to give three lectures - histamine formation, honeycombing formation, and canning and retorting of tuna during the first two and a half days' presentation, with roundtable discussion at the end of each day. Following the lectures was a six-day field trip to visit some processing plants and fish markets. The last day was the preparation of a summary report and recommendations (see attachment).

During the lectures, it was found out the tuna packers in Taiwan were not familiar with the U.S. tuna evaluation procedures. This was overcome by the literature brought back for reference. Histamine content and honeycombing formation are still the major problems in tuna quality in Taiwan. Salt content was not a problem in Taiwan because the fish was held on ice during transportation and the use of air-blast freezing to freeze the fish in the processing plant. The processing times at various temperatures were quite different between the U.S. and the Taiwanese products. This discrepancy could not be resolved at the workshop. It was recommended that the Food Industry Research and Development Institute in Taiwan should look into this and bring the tuna packers in Taiwan up-to-date on this issue. Since Taiwan does not have a pet food industry, most of the dark meat in tuna was further processed into other food products. The development of by-products was considered to be slightly more advanced in Taiwan than in the U.S.

During the site visits, it was noticed that most of the yellowfin tuna landed in Taiwan had to be auctioned at Fish Market and the top quality tunas were exported to Japan for the sashimi market. Shortage of raw tuna for processing is one of the problems in Taiwan at this time. There is a reasonably good local market for canned tuna. The tuna packers in Taiwan also produce a tuna and vegetable product which is designed mainly for the European market. This product is not economical for the U.S. tuna packers because of the labor cost in the U.S., however, this product has a potential in the U.S. All the tuna packers process products other than tuna. Only a few of the tuna packers are using the automatic control for their retorts. Many of the retorts are insulated. Post-processing handling of the cans is one of the areas which requires improvement for some of the processors.

Recommendations to Dr. Bonnie Sun Pan, organizer for this workshop, includes (1) preparation of a technical bulletin summarizing the state-of-the-art in tuna processing in the U.S. and in Taiwan; (2) improvement on sanitation in the handling and thawing of the raw fish; (3) improvement in the recovery of light meat for tuna processing; (4) improvement in their quality control/assurance programs; (5) development of a market information collecting system on tuna; and (6) establishment of a Taiwanese tuna quality standard.

(From FIRD1 198 Annual Report)

Where Should the Taiwan Food Industries Be Heading For?

Paul C. Ma, Director

Food Industry Research and Development Institute

Industrial development in Taiwan has come to a stage of turning point — from labor intensive to technology and investment intensive. Our primitive and cheap products which have been once overwhelming in the international markets have encountered sharp competition from developing countries. Advantages that we had in the past 20 years, such as low labor cost and availability of labors, have been gradually disappeared: In order to survive and continue the growth of our international market, food industries in Taiwan must move one step further in the stage of development, from developing to developed stage.

In the course of development, certainly of no exception to the food industry, some of our canned products, such as canned pineapple and mushrooms, have encountered stumbling-block in the international markets. Many people engaged in the food industries feel downhearted about this situation and have the impression that our food industry is going downward from now on. It could be true for some of our products which have been predominating in the world markets for a long time. But that is definitely not true to the food industry as a whole. Taking a look of the supermarkets in any developed country, you may discover thousands of processed foods, prepared or semi-prepared, conventional or non-conventional, convenient or instant, breakfast in packages or TV dinners, are available. Housewives are depending more and more on the prepared foods they pick up from the supermarket, not on their own cooking. Food industries, not the car industry, are ranked number one as far as the trade volume is concerned in US. However, most of their products are for local markets, and only a small percentage for export.

What we want to realize at this point is that it is now a turning point for food industries development in our country. A point where besides products for export, we have to emphasize more on the need of local market — a tremendous big market which fact people haven't yet realized. For instance, school lunch has become a serious problem in this country in the last few years. The lunch boxes supplied by numerous family style kitchens are getting prevailing all the places, but sanitation of these peddlers is questionable. Why didn't food factories step in and take up the responsibility of supplying the boxed lunch for the four million students around the country? How about supplying for the two million workers in the industries and another half million people working in the offices in the large cities. It is definitely not a small business!

The equipment and technology required for large scale preparation of boxed lunches are quite different from that of the conventional canning. Besides, the nature of the business itself is also some thing new to the canneries. It means that some adjustments in management are necessary in order to accept the new challenge.

Another possible development is the frozen foods. The shortage of vegetables in typhoon season has called for the attention of the high level government official to ask the agricultural research organization to increase the production of vegetable crops under the unfavorable weather conditions. It is difficult, if not impossible, to accomplish this against the nature, because heavy rainfalls during and after typhoon often sweep the whole island and destroy all vegetable crops. Since the vegetables are abundant in the winter season, and the prices are sometimes so cheap that farmers don't even care to harvest them, why don't we store these vegetables by means of cold storage or freezing? Of course, acceptability by consumers is a big problem. But the eating habits could gradually change — the speed of change depends very much on the efforts of promotion and development.

Modernization of conventional Chinese foods is another subject to be carried out by food technologist of this generation. Many traditional Chinese foods, such as soybean products, fermented vegetables, processed eggs are quite well known to most of the Oriental peoples and even to some extent, the Westerners. However, the ways of processing and packaging for some of these products are still very primitive. How to make use of the modern technology to improve the keeping quality will be of vital importance in order to preserve and promote the traditional products to enter the world markets.

It is not only a turning point, but also a point of taking off to the food industry in this country. For those who could successfully take off, there will be a wide-opened new territories for them to develop for the years to come. The demand is there. It is how the food industry tries to meet it.

The former Director of US/FDA once said in an address to the food industry: "We are not in the same bed enjoying the easy time, but in the same boat fighting together for the future." Realizing the time of difficulties, FIRD! would like to fight together with the food industries in the R.O.C. for the new challenges and also for the opportunities ahead of us. We have the confidence that the bright future will always be with us.

Our (From FIRDI 1981 Annual Report)

Achievement in 1981

In 1981 many research works in the field of food processing, food engineering, food chemistry and food microbiology were carried out in our Institute. Some of the achievements of these studies are summarized as follows:

(I) Corrosion of Cans

1. Mushroom cans

Canned mushroom, a low acid food, frequently induced blackening corrosion localized inside the can, which would devalue the quality of this product. The addition of 0.15% citric acid in the canned mushroom to lower the pH value to about 5.50, could not only made the detinning on the inside wall of the can appearing homogeneous but also improved the color and flavor of mushroom.

2. Asparagus cans

Canned asparagus is a low-acid, strongly detinning canned foods. Our investigation revealed that the pin-hole corrosion on the cans could be attributed to the contamination of raw asparagus by insecticides and heavy metals; impurity of base steel, characteristics of tin surface, and dosage of tin coating; kind of lacquer used, improper soldering and mechanical scratches during can-making; and others. Further study on the factors related to pin-hole corrosion of canned asparagus is being planned.

(II) Microorganisms on Canned Foods

1. Factors influencing thermal resistance of spoilage microorganisms

- (1) Addition of different percentage of soil extract to the culture medium had no effect on their thermal resistance.
- (2) In "thermal death time" (TDT) test, the post-incubation time needed should be a minimum of one week.
- (3) The spores had the strongest thermal resistance in the pH range of 7.8 to 8.0, but the resistance decreased significantly as pH lowered.
- (4) Decreasing the water activity will lower the thermal resistance of spores.

2. Thermophilic spoilage microorganisms

For sterilization of canned straw mushrooms, as of some heavily contaminated foods, the thermal resistance of *Bacillus stearothermophilus* was a better indication to be used in evaluating the optimum sterilization condition.

(III) Storage of Milled Rice

Small sized plastic bags each containing 5 kg milled rice were either vacuum-packed or CO₂ filled, and stored in ambient temperature for two years. The quality of the rice remained acceptable.

For study of storage of milled rice in silo flushed with N₂, two 20-ton airtight

silos of stainless steel were constructed. They were heat-proof and water-proof coated externally with a layer of foamed polyethylene. After 3-year storage, the quality of rice was still acceptable as judged by its general composition and from organoleptic evaluation.

(IV) New Product Development

1. Preparation and storage of Chinese foods

Among sixty items, mushroom soup with chicken feet and duck with pickled vegetables were suitable for canning. Boiled salty duck, deep fried meat ball, pork ribs with bean sauce, sea slugs with brown sauce, boiled chicken with green onion and oil, and steamed pork with rice flour could be processed as frozen foods.

2. The processing of smoked eel

In order to develop the European market of eel, a study on smoking in order to evolve a product similar to European smoked eel was conducted. The eel, after removing its mucous substance and viscera, was dipped in brine, heated and dried, then smoked in 70 ~ 80°C for four hours and packed after cooled. The vacuum-packed smoked eel could be kept for three to four weeks at 3 ~ 5°C and at least six months under frozen condition (-20°C).

(V) Automation of Food Processing Machinery

1. Automatic retort control

In this study, a P.L.C. 2002 microprocessor developed by the "Electronic Industrial Research Institute" was applied to command function of retort, and proved

to be feasible. Temperature variation around set value was approximately $\pm 0.5^{\circ}\text{C}$. The price of a basic control unit including solenoid control valves and sensors was estimated to be 80,000 N.T. dollars.

2. Teaseed (for edible oil) hulling machine

Air was pumped in high velocity through a three way pipe and negative pressure was generated. Tea seeds were fed in by suction and accelerated down through a pipe of proper length. The flow of seeds hit the baffle plate installed at the outlet of the pipe. Seeds were thus crushed by impact and the kernels were splitted out. The hulls were separated by the reversing flow of air.

3. Bamboo shoot peeling machine

An automatic bamboo shoot peeling machine was developed in the form of a horizontally rotating abrasive cylinder, which surface was consisted of many thin skew metal wires. Once when the bamboo shoots were fed in the rotating cylinder, its peels would be removed by the abrasive force of the metal wires.

(VI) Postharvest Handling and Storage of Fruits

1. Respiration measurement of fruits

An infrared gas analyzer was used for CO₂ determination, and a Varian FID gas chromatograph for the measurement of ethylene evolution. Among the nine different fruits measured, five (carambola, loquat, wax apple, lychee and longan) were found to be non-climacteric and the other four (guava, pear, mango and persimmon) climacteric fruits in their postharvest respiratory behavior.

2. Package and transportation of mango and papaya

The quality of papaya and mango for marketing could be maintained and their loss reduced during shipment, if these fruits are harvested at maturegreen stage and transported before ripened. Therefore the crucial point is to identify their maturity and ripening. This study revealed that mangos good for shipment have a lightness (L value) of skin color below 35 and yellowness (b value) below 18, as measured with Hunter color difference meter, and that the gas constituent in fruit cavity could be measured as an index of maturity of papaya.

(VII) Improvement and Development of Pickled Products

Half-dried prune is an important pickle for export, but the sun drying period extends only from April to May, which hits the raining season. The problem of drying is the critical one to be faced by the processors. Two years ago our Institute (FIRDI) developed a dryer of pilot plant scale and of high efficiency to substitute the conventional sun drying. In this study the drying equipment of tunnel dryer used in pickle factory was modified and its commercial value was evaluated. Preliminary result revealed that with installation of "plant lamp" at 3 cm interval, with a distance between lamp and prune of 10 cm, and with hot air flow rate of 6 m/sec., a standard product of 50~60% moisture content, initially of 68~73%, could be obtained by hot air drying at 55°C for four hours and at 60°C for three hours afterwards.

(VIII) A New Form of Ginger Powder

A new form of ginger powder, which is soluble in water and possesses high pungency and odor, was developed by this Institute. This product was a mixture of

fiber-free ginger powder with ginger oil or flavor carrier, or with both. Ginger oil was isolated by steam distillation. The pungent compounds dissolved in hot water were concentrated by vacuum concentration at 11 Brix and then dried by spray drying. The flavor of ginger powder was not affected by heating during processing. On the contrary the characteristic flavor of ginger was enhanced and resulted in better pungent quality. It could be an appropriate ingredient to be used in foods and drinks.

(IX) Utilization of Palm Oil

Palm oil was interesterified and/or fractionated to produce olein and stearin which possessed different melting properties for special purpose. The higher melting stearin containing more saturated fatty acid was suitable for shortening preparation, and even much prospective to be processed into cocoa butter substitute.

The lower melting liquid olein containing predominantly unsaturated fatty acid and antioxidant such as tocopherols can be used for margarine or frying oil.

(X) Protein-Starch Separation in Wheat Flour

Addition of 1.75 times or more of water and 1-2% of SSL (Sodium Stearoyl Lactylate) to wheat flour turned it into a slurry with very good fluidity. After homogenization, centrifugation and finally drum drying, products of starch and gluten concentrate was obtained. The recovery of gluten concentrate was about 27-30%. Although its protein content was only 45-50%, good elasticity and cohesion could be resulted when 0.6 times of water was added and kneaded.

This novel process was very simple and adaptable to continuous operation. The gluten concentrate may be used as an ingredient or meat extender in food processing while the starch product may also be utilized in food and other industries.

Industrial Processing of Quick Cooking Rice

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INTRODUCTION

Ordinary rice requires 20-30 min to cook to a culinary acceptability. The relatively long preparation time has restricted rice consumption in the United States. Thus, effort has been directed toward developing a quick cooking rice to increase rice consumption. With the development of the automatic electrical rice cooker, the attention time has been reduced for household rice cooking.

Quick cooking rice should be cooked within 3 to 5 min and the cooking method should be simple. After cooking, the product should match the characteristic flavor, taste and texture of conventionally cooked rice. It should be rich in nutrients, well balanced in composition and easily processed in mass quantities.

The Nissin Food Company in Osaka, Japan, has developed an instant "Cup Rice" which can meet most of the conditions mentioned above. The rice is precooked under high pressure and temperature and then dehydrated. The product can be reconstituted with boiling water within 5 min in a polystyrene cup.

Quick cooking rice is precooked and gelatinized to some extent in water, steam or both. The cooked or partially cooked rice is usually dried in such a manner as to retain the rice grains in a porous and open structures condition. The finished product should consist of dry, individual kernels, substantially free of lumps or aggregates, and should have approximately 1.5-3.0 times the bulk volume of the raw rice. The boiling water used in the final preparation of the rice should penetrate the rice grains in a relatively short time.

Many quick cooking rice products, although varying in texture, bulk volume, appearance, taste and performance qualities, are designed specifically for certain consumer uses. Some quick cooking rice for special applications, such as in dry soup mixes, casseroles or other dry food mixtures which have certain rehydration time requirements, are designed to be compatible with the other ingredients in the mix.

TYPES OF QUICK COOKING RICE

Differences in moisture levels, precooking times and temperatures, drying conditions and other processing variables can produce various types of quick cooking rice. They range from relatively undercooked rice requiring 10-15 min of "cooking," or a good quality "table" rice requiring a 5 min preparation time, such as "Minute Rice," to a variety which can be hydrated in several seconds to 1 or 2 min. The last type yields a fairly mushy, soft product when boiled. Some of these are marketed as ready-to-eat breakfast cereals.

Some consumers prefer long grain, light fluffy or slightly dry individual kernels of rice with typical cooked rice flavor, having essentially no gritty or hard, uncooked center. A notable exception to this is that in Japan and China, people prefer short grain rice which is somewhat pasty and sticky when cooked. Short grain rice merits commercial interest in developing and marketing a quick cooking rice.

Practically all processes described in patents primarily emphasize the treatment of the rice. Efforts have been made to improve milling characteristics and yields, to remove surface fats, to improve storage stability and to enhance flavor by parching the grain. Some of these processes improve nutritional quality by infusion of the surface vitamins from the bran and aleurone layers into the endosperm. This latter treatment has been developed to form a product now commonly known as parboiled rice.

QUICK COOKING PROCESSES

Many quick cooking rice products and processes have been developed and patented. Among the several processes and products developed in the past, the following are the commercially useful ones:

- (1) Raw-milled white rice is soaked to 30% moisture and cooked in hot water to 50-60% moisture with or without steaming. The product is further boiled or steamed to increase the moisture content to 60-70% and then dried carefully to 8-14% moisture to maintain a porous structure. A significant modification of the procedure is a dry heat pretreatment to fissure the grains prior to cooking and drying.
- (2) Rice is soaked, boiled, steamed or pressure-cooked to thoroughly gelatinize the grain, dried at a low temperature to yield fairly dense glassy grains, then expanded or puffed at a high temperature to produce the desired porous structure.
- (3) Rice is pregelatinized, rolled or "bumped" to flatten the grains and dried to a relatively hard and glassy product.
- (4) Rice is treated in a blast of hot air at 65.6°-315.6°C (150°-600°F) to dextrinize, fissure or expand the grains. No boiling or steaming is applied.
- (5) Rice is precooked, then frozen, thawed and dried. This procedure combines the hydration and gelatinization steps of 1, 2 and 3, as well as the critical steps of freezing and thawing before drying.
- (6) Gun puffing is a combination of some preconditioning of rice plus high temperature pressure, followed by explosive puffing to atmospheric pressure or into a vacuum.
- (7) Freeze-drying cooked rice.

THE "SOAK-BOIL-STEAM-DRY" METHODS

The first process for quick cooking rice was the Ozai-Durrani process used by General Foods Corporation to make "Minute Rice".

First, the milled white rice is soaked in water at room temperature. The moisture content of the rice is increased to 30%. The rice is next boiled 8-10 min until the moisture content has increased to 65-70%. After draining, cooling and washing in cold water for 1-2 min, the rice is spread on screens to be dried. A chamber with forced air at an inlet temperature of 140°C (284°F) and an air velocity through the grain of 61 m/min is used to bring the final moisture content of the rice to 8-14%. The drying conditions are critical in that the temperature should be fairly high, at least initially, so that moisture is removed from the surfaces of the grain at a rate sufficiently faster than it can diffuse from their interiors. This process sets a porous structure into the grain.

The precooked rice is dried in 2 or more successive steps, usually at gradually decreasing temperatures. When treated according to the Ozai-Durrani process, the dry, precooked rice grains are enlarged to about twice their original volume. The products, referred to as "Minute Rice 1," require 10-13 min preparation time. In another process, the rice is soaked in water at room temperature and then boiled in water for 1-3 min, so that the moisture is increased to about 45-55%. By limiting the boiling time and the moisture uptake, the rice grains remain intact, with little or no sloughing of surface starch. Drying is done in 2 stages. Initially, the air temperature is set at about 200°C (390°F). The rice is further gelatinized by the high heat, and the surface of the grains are quickly dried and hardened so that the grains remain in a porous condition. Some puffing occurs simultaneously forming a number of small, uniform voids throughout the rice grains. The precooked rice is placed in a drying chamber through which hot air is forced at a velocity high enough to suspend the rice in the air over a screen or porous plate. The drying at this high temperature is held for only 1-3 min to prevent scorching the grain while still doing the job of puffing and setting the structure. The temperature is next reduced to about 100°C (212°F) to complete the drying of the rice to about 10-15% moisture. The product can be prepared for serving in about 5 min.

In an improved process, rice is hydrated in stages and gelatinized to various degrees at an intermediate stage of hydration by heating to or above the gelatinization temperature in the absence of excess water. For example, rice is soaked in water to a moisture content of about 25-30%, steamed at atmospheric pressure to increase the moisture to about 30-35%, then resoaked in water at 38°-88°C (100°-190°F) to a moisture content of 60-70%. The rice is drained, rinsed and suitably dried to maintain a light porous structure. A compression or "bumping" step is suggested as an intermediate step between the steaming and resoaking steps to further modify the structure and to reduce the resoaking time. The precooking time is decreased, with a consequent increase in yield and the dry volume of the product is increased. Most important, the time required for preparation of the finished product for serving is significantly reduced. A specific example of processing steps is as follows: Raw milled white Blue Bonnet rice is heated in dry air (usually forced draft) at about 93°C (200°F) for about 15 min. The fissured rice grains are then immersed in water at 92°C (197°F) and cooked for about 11 min. The moisture content increases to about 60% at this stage. The water-cooked rice is then steamed at atmospheric pressure for 10 min. At the end of this period, the rice has undergone uniform and substantially complete gelatinization and has a moisture content of about 70%. The rice is next washed in cold water for about 2 min to halt the cooking process and to remove any foreign material. It is then drained and placed on a continuous conveyor belt in a layer of about 2.5 cm thick. The rice is passed through a forced air drier, where air at 121°C (250°F) is forced upward and downward through the bed of rice at a velocity of 53.34 m/min. This process is believed to be the one used for "Minute Rice II," an improved and quicker cooking rice, which can be prepared for serving in about 5 min.

There are several other methods for processing quick cooking rice. Readers interested in the subject can get more detailed information from the book entitled "Rice: Production and Utilization", edited by B.S. Luh, and published in 1980 by the Avi Publishing Company, P.O. Box 831, Westport, CT 06881.

Ten ways to improve your technical writing

(From Chem. Engineering 89 (18): 121, 1982)

If a chemical engineer cannot write a coherent report, the true value of his or her investigation may be distorted or go unrecognized.

Robert W. Bly, *Bob Bly Communications*

□ Better technical writing can result in proposals that win contracts, advertisements that sell products, instruction manuals that technicians can follow, and letters, memos, and reports that get your message across to the reader. Here are ten tips on style and word choice that can make writing clear and persuasive:

■ **Know your reader**—Are you writing for engineers? managers? technicians? lay people? Make the technical depth of your writing compatible with the background of your reader.

■ **Write in a clear, conversational style**—Naturally, a technical paper on sizing pumps shouldn't have the same chatty tone as a personal letter. But most technical professionals lean too much in the other direction, and their sharp thinking is obscured by windy, overly-formal prose.

The key to success in technical writing? *Keep it simple.* Write to express—not to impress. A relaxed, conversational style can add vigor and clarity to your work.

Formal technical style

The data provided by direct examination of samples under the lens of the microscope are insufficient for the purpose of making a proper identification of the components of the substance.

We have found during conversations with customers that even the most experienced of extruder specialists have a tendency to avoid the extrusion of silicone profiles or hoses.

The corporation terminated the employment of Mr. Joseph Smith.

Informal conversational style

We can't tell what it is made of by looking at it under the microscope.

Our customers tell us that experienced extruder specialists avoid extruding silicone profiles or hoses.

Joe was fired.

■ **Be concise**—Technical professionals, especially those in industry, are busy people. Make your writing less time-consuming for them to read by telling the whole story in the fewest possible words.

How can you make your writing more concise? One way is to avoid redundancies—a needless form of wordiness in which a modifier repeats an idea already contained within the word being modified.

For example, a recent trade ad described a product as a "new innovation." Could there be such a thing as an *old* innovation? The ad also said the product was "very unique." Unique means "one of a kind," so it is impossible for anything to be *very* unique.

By now, you probably get the picture. Some other redundancies that have come up in technical literature are listed below, along with the correct way to rewrite them:

Redundancy

advance plan
actual experience
two cubic feet in volume
cylindrical in shape
uniformly homogeneous

Rewrite as:

plan
experience
two cubic feet
cylindrical
homogeneous

Many technical writers are fond of overblown expressions such as "the fact that," "it is well known that," and "it is the purpose of this writer to show that." These take up space but add little to meaning or clarity.

The following list includes some of the wordy phrases that appear frequently in technical literature. The column on the right offers suggested substitute words:

Wordy phrase

during the course of
in the form of
in many cases
in the event of
exhibits the ability to

Suggested substitute

during
as
often
if
can

■ **Be consistent**—"A foolish consistency," wrote Ralph Waldo Emerson, "is the hobgoblin of little minds." This may be so. But, on the other hand, inconsistencies in technical writing will confuse your readers and convince them that your scientific work and reasoning are as sloppy and unorganized as your prose.

Good technical writers strive for consistency in the use of numbers, hyphens, units of measure, punctuation, equations, grammar, symbols, capitalization, technical terms and abbreviations.

For example, many writers are inconsistent in the use of hyphens. The rule is: two words that form an adjective are hyphenated. Thus, write: first-order reaction, fluidized-bed combustion, high-sulfur coal, space-time continuum.

The U.S. Government Printing Office Style Manual [1], Strunk and White's "The Elements of Style" [2], and your organization's writing manual can guide you in the basics of grammar, punctuation, abbreviation and capitalization.

■ **Use jargon sparingly**—Chemical engineering has a special language all its own. Technical terms are a helpful shorthand when you're communicating within the profession, but they may confuse readers who do not have your special background.

Take the word "yield," for example. To a chemical engineer, yield is a measure of how much product a reaction produces. But, to car drivers, yield means slowing down (and stopping, if necessary) at an intersection.

Other words that have special meaning to chemical engineers but have a different definition in everyday use include: vacuum, pressure, batch, bypass, recycle, concentration, mole, purge, saturation, catalyst.

Use legitimate technical terms when they communicate your ideas precisely, but avoid using jargon just because the words sound impressive. Do not write that material is "gravimetrically conveyed" when it is simply dumped.

■ **Avoid big words**—Technical writers sometimes prefer to use big, important-sounding words instead of short, simple words. This is a mistake; fancy language just frustrates the reader. Write in plain, ordinary English and your readers will love you for it.

Here are a few big words that occur frequently in technical literature; the column on the right presents a shorter—and preferable—substitution:

Big word	Substitution
terminate	end
utilize	use
incombustible	fireproof
substantiate	prove
optimum	best

■ **Prefer the specific to the general**—Technical readers are interested in detailed technical information—facts, figures, conclusions, recommendations. Do not be content to say something is good, bad, fast or slow when you can say *how* good, *how* bad, *how* fast or *how* slow. Be specific whenever possible.

General	Specific
a tall spray dryer	a 40-foot-tall spray dryer
plant unit	oil refinery evaporator
unfavorable weather conditions	rain
structural degradation	a leaky roof
high performance	95% efficiency

■ **Break the writing up into short sections**—Long, unbroken blocks of text are stumbling blocks that intimidate and bore readers. Breaking your writing up

into short sections and short paragraphs—as in this article—makes it easier to read.

In the same way, short sentences are easier to grasp than long ones. A good guide for keeping sentence length under control is to write sentences that can be spoken aloud without losing your breath (do *not* take a deep breath before doing this test).

■ **Use visuals**—Drawings, graphs and other visuals can reinforce your text. In fact, pictures often communicate better than words; we remember 10% of what we read, but 30% of what we see.

Visuals can make your technical communications more effective. The different types of visuals and what they can show are listed below:

Type of visual	This shows...
Photograph or illustration	... what something looks like
Map	... where it is located
Exploded view	... how it is put together
Schematic diagram	... how it works or is organized
Graph	... how much there is (quantity); how one thing varies as a function of another
Pie chart	... proportions and percentages
Bar chart	... comparisons between quantities
Table	... a body of related data
Mass and energy balances	... what goes in and what comes out

■ **Use the active voice**—In the active voice, action is expressed directly: "John performed the experiment." In the passive voice, the action is indirect: "The experiment was performed by John."

When possible, use the active voice. Your writing will be more direct and vigorous; your sentences, more concise. As you can see in the samples below, the passive voice seems puny and stiff by comparison:

Passive voice	Active voice
Control of the bearing-oil supply is provided by the shutoff valves.	Shutoff valves control the bearing-oil supply.
Leaking of the seals is prevented by the use of O-rings.	O-rings keep the seals from leaking.
Fuel-cost savings were realized through the installation of thermal insulation.	The installation of thermal insulation cut fuel costs.

Kenneth J. McNaughton, Editor

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1. U.S. Government Printing Office Style Manual, 1973 (out of print).
2. Strunk, William, Jr., and White, E. B., "The Elements of Style," 3rd ed., 1978, Macmillan, New York.
3. Bly, Robert, and Blake, Gary, "Technical Writing: Structure, Standards, and Style," McGraw-Hill Book Co., New York, 1982.

The author

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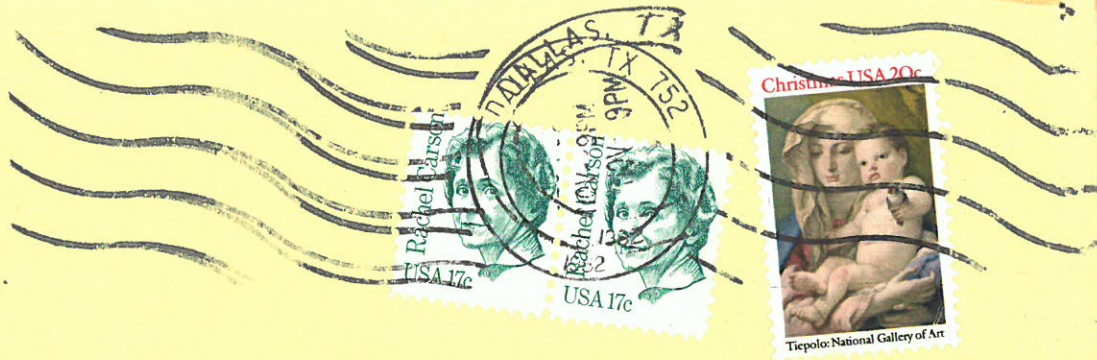
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2. 已繳交本年度 (June 1, 1982 to May 31, 1983) 會費的會員名單於本期公佈。至83年五月未交會費者將不再收到本會會誌。

3. 上期會誌截至十二月十六日共被退_回12份，名單如下，敬請轉告。
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