Inside AOCS

Officers and Directors of Northeast Section, AOCS, 1982

Pictured from left to right: Andrew Menasian, Vice-President; John Hasman, President, William Bernholz, Director, Howard Gordon, 1982 Professional Service Award Recipient; M. Debbie Meiners, Arrangements Chair; Mark A. Bieber, Director; Martin Freedman, Treasurer. Not pictured: Chi-Tang Ho, Secretary; Ann Metzner, Glen Jacobson, and A.M. Rosetto, Directors.

Northeast to meet Nov. 16

The Northeast Section will meet Nov. 16 at Rutgers University to hear a presentation by Michael Blumethal of Libra Laboratories Inc. on laboratory computerization.

The date for a symposium on analytical methods has been rescheduled for March 8. Time and site will be announced later.

At the Oct. 21 meeting at the Robin Hood Inn in Clifton, New Jersey, AOCS President Karl Zilch was the featured speaker.

Northeast Section members are mailed individual notices about upcoming meetings; others should seek information from AOCS Headquarters in Champaign or from John Hasman, section president, at Best Foods, in Union, New Jersey.

Howard Gordon honored

Howard T. Gordon, associate manager of the fine chemicals technical services for Hoffmann-LaRoche, received the AOCS' Northeast Section Professional Service Award for 1982 as the section held its opening meeting of the year Sept. 14 at the Robin Hood Inn in Clifton, New Jersey.

Gordon has held every office in the Northeast Section and actively participated in obtaining new members, successfully soliciting corporate support for the section's annual symposia, and served as a program chairman.

"From Concept to Fulfillment: Some Chemical and Marketing History at Hoffmann-LaRoche" was the topic of Gordon's talk in which he traced some of the history of vitamin A and the carotenes from discovery in the 1880s to present applications. His talk analyzed how creativity and innovation are prerequisites to technological development, showing that research and development are not luxuries for a firm, but a necessity if the firm wishes to be a leader in its field.

Gordon received a plaque from section president John Hasman. Mark Bieber and Debbie Meiners, both of the Best Foods Division of CPC International, organized the meeting.

Congratulations to the 1982 Professional Service Award Recipient.

Dr. Benjamin Borenstein and Patricia Fallon McGarry with Howard T. Gordon (middle).

Limit set on sessions

The AOCS Executive Committee has decided that future AOCS Annual Meetings will have no more than six simultaneous sessions unless the National Program Planning Committee approves exceptions.

The decision probably will take effect with the 1984 meeting in Dallas. In the past, there have been as many as nine simultaneous technical sessions, with registrants often complaining there were too many conflicts.

The change does not necessarily mean a decrease in the number of technical papers. The Executive Committee discussed making more time available for technical presentations on Monday by eliminating the plenary breakfast that day and by holding the annual AOCS business meeting on Sunday afternoon. In addition, the committee suggested tighter scheduling of technical papers, allowing 15 to 20 minutes maximum per paper. Technical sessions could begin as early as 8:30 a.m. and run until 5 p.m. On such a schedule, about 120 twenty-minute papers could be presented each full day, allowing for a 90-minute lunch break.

The Executive Committee also voted in favor of a Wednesday–Sunday scheduling of AOCS annual meetings, if it means hotels would offer lower room rates to attendees. Executive Director James Lyon reported some hotels offer rooms at 30% lower rates for Wednesday–Sunday meetings than for Sunday–Thursday meetings.

The first meeting that might use a Wednesday–Sunday schedule probably would be 1986, since commitments already have been made for meetings through then.

With AOCS facing an operating deficit for the coming year, the Executive Committee passed several resolutions designed to cut the deficit. The first was to raise basic AOCS dues to $50 from the present $34 effective with billings for 1984. At the same time, nonmember subscription price for *JAOCS* will be raised to $60. Subscription rates for *Lipids* will not be changed. The Executive Committee also voted that all AOCS meetings should be budgeted to provide a "reasonable return" to the society. Projected monograph income was raised by $10,000 to what the committee felt was a more realistic goal and the committee directed that the world conference exhibit budget be changed to show a return of at least $15,000 to the society during 1983.

The committee approved four requests for emeritus membership. Those approved were from Richard J. Bell of Anderson Clayton; Maison G. De Navarre, of Terry Corporation; Le Roy Dugan Jr. of Michigan State University, and Russell O. Sinnhuber of Oregon State University. All have been members of AOCS at least 30 years.

The AOCS ad hoc committee on Referee Chemists, Smalley Program and Uniform Methods plans to meet during the 1983 AOCS annual meeting with referee chemists to hear the chemists' suggestions for improving the programs. The committee met earlier this year with representatives of trade associations who use the AOCS programs as a basis for trading standards and analytical work.

New aflatoxin method coming

A new method for determining aflatoxin in cottonseed, cottonseed meats, cottonseed flakes and cottonseed meal is pending before the mycotoxin subcommittee of the AOCS Seed and Meal Analysis Committee. It is expected to be approved by that subcommittee and the Uniform Methods Committee and to replace the existing method, AOCS Aa 8-71.

The new method for determining aflatoxin in cottonseed products has been adopted by the Association of Official Analytical Chemists (AOAC) with whom AOCS, the American Association of Cereal Chemists and the International Union for Pure and Applied Chemistry (IUPAC) maintain a joint committee on mycotoxin analysis.

The revised AOAC method was published in the Journal of the Association of Official Analytical Chemists Changes in Official Methods, Oct. 15–18, 1979 (1980, 63, 391-394; 26.A01-26.A09) based on a successful collaborative study (J. Assoc. Off. Anal. Chem. (1980), 63, 899–906). The method, including optional high performance liquid chromatography in addition to thin layer chromatography for the determinative step, was described by former AOCS President David Firestone as precise and as accurate as a preceding revision of the original method and, in addition, reduced the amount of time and reagents needed. Firestone is General Referee for Fats and Oils for the AOAC.

Old *JAOCS* and *Lipids* sought

The Food Protein Research and Development Center at Texas A&M University is seeking donations of back issues of selected journals, including *JAOCS* and *Lipids*, for its departmental library.

The center does not have funds to purchase the journals, but qualifies as a not-for-profit institution for tax credits on donations. The center does have funds to pay shipping charges of donated materials, E.W. Lusas, center director, says.

Journals sought, besides *JAOCS* (and its predecessor publications) and *Lipids* include *Oil Mill Gazetteer, Cereal Chemistry, Cereal Foods World, Food Technology* and *Journal of Food Science.*

"I have heard of cases where heirs to estates discarded sets of bound volumes of technical journals because they were not able to find anyone who could use them," Lusas said. "We would appreciate your keeping us in mind, in case inquiries come in, and also alerting readers to our new departmental library."

The center's address: Food Protein Research and Development Center, Texas A&M University System, Faculty Mail Box 183, College Station, TX 77843 (telephone: 713 845-2741).

Precision of analysis from Smalley Committee experience

Compiled by Jim Ridlehuber, Chairman, Smalley Committee

Since about 1915, the American Oil Chemists' Society has conducted a cooperative analytical program for members of the Society and other laboratories worldwide. The program as presented by the Smalley Committee is intended to stimulate the upgrading of analytical work through public acknowledgment of individual excellence. In addition, referee laboratories are certified by the AOCS Examination Board only after satisfactory participation in the Smalley program.

In response to numerous requests, we have compiled a summary of average means and standard deviations, so that individual laboratories may gauge the proficiency of their work with that of their peers. In all cases, the data presented is the most recent available, mostly from the 1981-82 series, with some from earlier years. The means and standard deviations are calculated by the following:

Means $\bar{x}$, and standard deviations, s_x, for each determination and deviations relative to the standard deviation, t_{ix}, for each individual determination, i, are computed by standard methods:

$$\bar{x} = \Sigma (x) / n$$

$$s_x = (\Sigma (x)^2 - (\Sigma (x) (\bar{x}) / (n - 1))^{1/2}$$

$$t_{ix} = (x_i - \bar{x}) / s_x$$

Outliers are arbitrarily designated as data outside ± 3 s_x limits, practically found when $(t_{ix})^2$ is greater than 9.0, for series with more than 50 participants. For series with less than 50 participants, 3 is considered high. The formula for rejection as outliers is the square root of (2 times the natural log of the number of participants). The outlier value will be about 2.5 for 20 participants, and 2.65 for 30 participants. When outliers are encountered, they are deleted from the summations, and the calculations above are repeated until no further out of tolerance items are found. Outliers are flagged, counted for enumeration in the annual summary, and are dropped from further consideration.

	Number of samples averaged	Average mean	Average standard deviation
Oilseed meal series (144 enrolled):			
Soybean meal:			
Moisture	9	8.71	0.193
Oil	9	1.42	0.086
Nitrogen	9	7.96	0.064
Crude fiber	9	4.53	0.237
Peanut meal:			
Moisture	6	8.24	0.202
Oil	6	1.04	0.062
Nitrogen	6	7.89	0.058
Crude fiber	6	11.39	0.398
Cottonseed meal:			
Moisture	7	7.97	0.234
Oil	7	5.54	0.104
Nitrogen	7	6.73	0.060
Crude fiber	7	12.56	0.606
Coconut meal:			
Moisture	4	8.77	0.355
Oil	4	4.54	0.085
Nitrogen	4	3.63	0.040
Crude fiber	4	11.74	1.555
Safflower meal:			
Moisture	6	6.31	0.182
Oil	6	1.31	0.067
Nitrogen	6	4.97	0.070
Crude fiber	6	28.55	1.033
Rapeseed meal:			
Moisture	5	8.19	0.206
Oil	5	3.64	0.110
Nitrogen	5	5.99	0.056
Crude fiber	5	11.37	0.676
Protein concentrate:			
Moisture	3	6.45	0.183
Oil	3	0.48	0.057
Nitrogen	3	12.94	0.103
Crude fiber	3	1.26	0.160
Cottonseed (31 enrolled):			
Foreign matter	20	1.31	0.217
Moisture	20	9.12	0.167
Free fatty acids	20	0.86	0.161
Oil	20	17.24	0.215
Ammonia	20	4.01	0.054
Linters (5 participating)	10	11.74	0.539
Soybeans (51 enrolled):			
Moisture	20	10.25	0.258
Oil (to 12% moisture basis)	20	19.11	0.351
Ammonia	20	6.68	0.086
Sunflowerseed (27 enrolled): Participating:			
Foreign matter	16	5.94	1.219
Moisture	16	6.02	0.255
Oil (AOCS clean seed basis)	18 16	41.92	0.726
Oil (NIOP as-is basis)	20 16	42.05	0.763
Oil, NMR	5 16	41.98	0.643
Protein	15 16	19.64	0.509
Peanuts (hulled and cleaned seed)			
Moisture (18 enrolled)	14	5.87	0.183
Free fatty acids	14	0.38	0.102
Oil	14	46.85	0.381
Ammonia	14	5.84	0.063
Safflower seed (17 enrolled):			
Moisture	10	5.50	0.123
Nitrogen	10	2.33	0.079
Oil	10	41.31	0.469
Rapeseed (17 enrolled):			
Moisture	8	7.19	0.210
Nitrogen	8	3.48	0.094
Oil	8	42.94	0.638
Soybean oil, crude (76 enrolled):			
Free fatty acids	12	0.55	0.054

Neutral oil, chromatographic	12	98.42	0.141
Bleached color, red	12	1.55	0.327
Cottonseed oil, crude (44 enrolled):			
Free fatty acids	12	1.69	0.116
Refining loss, cup method	12	7.71	0.474
Refined color, red	12	6.75	0.854
Bleached color, red	12	3.51	0.486
Vegetable oil for color only (44 enrolled):			
Refined cottonseed oil, red color	6	6.84	0.660
Bleached cottonseed oil, red color	6	2.37	0.307
Bleached soybean oil, red color	6	2.15	0.327
Tallow and grease (65 enrolled):			
FAC color	10	18.00	2.454
Refined, bleached color, red	17	4.94	1.139
Titer	17	41.35	0.241
Free fatty acids	17	5.99	0.192
Moisture	17	1.04	0.165
Unsaponifiable matter	17	0.57	0.121
Insoluble impurities	17	0.15	0.055
NIOP Fats and Oils (36 enrolled):			
Specific gravity	10	0.91567	0.000266
Free fatty acids	10	1.47	0.039
Iodine value	10	46.39	0.348
Saponification value	10	229.01	1.613
Color, Lovibond red	10	4.44	0.691
Aflatoxins (Total of B1, B2, G1, G2):	Number enrolled		
Peanut meal, aflatoxins	71	5	103.80	52.40
Corn meal, aflatoxins	61	5	14.60	7.86
Cottonseed meal, aflatoxins	32	5	71.24	35.46
Aflatoxins in milk, Total M1	19	5	0.13	0.12
Aflatoxins standard solution	19–71	4	1495.0	467.25
Fish meal (40 enrolled):			
Crude protein	8	61.10	0.699
Moisture	8	9.34	0.352
Oil, petroleum ether	8	9.20	0.294
Ash	8	19.37	0.284
Pepsin digestability	8	94.50	0.966
Salt	8	1.21	0.122
Sand	8	1.39	0.260
Fish oil (16 enrolled):			
Free fatty acids	8	4.54	0.070
Moisture	8	1.00	0.040
Iodine value	8	175.72	4.244
Color	8	12.95	0.450
Fish solubles (16 enrolled):			
Crude protein	8	32.91	0.302
Moisture	8	50.13	0.606
Oil, petroleum ether	8	6.62	0.331
Ash	8	8.06	0.300
pH	8	4.38	0.088
Ammoniacal nitrogen	8	0.68	0.044
Salt	8	2.62	0.101
Sand	8	0.41	0.066
Drying oils (9 enrolled): (data courtesy Lee C. Sveum, Chairman, Drying Oils Subcommittee)			
Acid value	6	3.60	0.138
Iodine value	6	130.90	4.10
Color, gardner	6	5.35	0.242
Specific gravity	6	0.9232	0.00067

Gas chromatography (10 enrolled):
(Standard error is the standard deviation divided by the mean, times 100)

	Standard error of major peaks		
1980–81 season	Mean	Low	High
Coconut oil	9.0	2.5	18.5
All other oils	4.0	1.1	12.2

The following additional data on preparation of methyl esters and fatty acid composition determination, courtesy of Carl W. Fritsch, Chairman of the Gas Chromatography Subcommittee:

Distribution of Deviations between Trimmed Means from All Participants and the Twenty-Four Subgroups

	Percent of total deviations		
Deviation range	Cottonseed oil	Coconut oil	Peanut oil
0.0–0.09	80.00	64.17	83.71
0.1–0.19	10.42	18.75	8.71
0.2–0.29	5.42	7.92	4.92
0.3–0.39	2.08	2.92	1.14
0.4–0.49	.42	2.08	.76
0.5–0.59	.42	.83	.38
0.6–0.69	.83	2.08	.38
0.7–0.79	.00	.00	.00
0.8–0.89	.00	.42	.00
0.9–0.99	.00	.42	.00
1.0 and greater	.42	.42	.00

Degree of Difficulty of Analyzing Oils as Measured by the Sum of Their Standard Deviations

Oil	Sum of standard deviation
Sunflower	2.1
Safflower	2.3
Corn	2.3
Soybean	2.9
Soybean-cottonseed mixture	3.0
Cottonseed	3.2
Palm	4.0
Lard	4.1
Rapeseed	4.2
Hydrogenated soybean	4.4
Peanut	4.5
Coconut	6.8
Tallow	8.6
Butter	13.6
Fish	13.9

Edible fats (97 enrolled):
Standard error is the standard deviation divided by the mean, times 100. Data courtesy of Carl W. Fritsch.

	Percent standard error		
1980–81 season:	Mean	Low	High
Free fatty acids	19.6	7.3	36.8
Free glycerine	41.3	33.5	49.0
Alpha monoglycerides	15.0	10.7	19.2
Wiley mp	2.2	1.7	2.6
Capillary mp	3.7	2.2	5.5
Congeal point	2.5	1.6	3.8
Solid fat index			
10.0C	2.9	2.1	3.8
21.1C	3.5	2.5	5.5
26.7C	4.1	3.0	4.7
33.3C	5.4	2.8	8.3
37.8C	10.5	5.9	15.0
Color			
yellow	17.0	11.0	23.0
red	15.5	10.0	22.7
Peroxide value	58.1	47.3	65.0
Iodine value	1.3	1.2	1.5
AOM stability	22.7	14.5	33.6

Cellulose yield on cottonseed linters:
Precision data, 10 laboratories for 3 years, about 1965:

Cellulose yield level	78%	73%	68%
Standard deviation, within labs.	0.4	0.6	1.1
Limit of within labs. std. dev.	1.1	1.7	3.0
Standard deviation, between labs.	0.6	0.6	1.4
Limit of between labs. std. dev.	1.7	1.9	3.9

Cellulose yield data courtesy Kenneth A. Kuiken, Chairman, Cellulose Yield Subcommittee.