48th Annual Report of the Smalley Committee 1965-1966

The Smalley Committee, enlarged this season to include seven subcommittees, distributed over 4300 samples for cooperative analyses. Some 17,000 test results from 542 collaborators were tabulated and graded. Each subcommittee chairman has furnished his collaborators with a final report summarizing the work done and the final relative performance in terms of grades of participation. Total participation increased about 6% over last year.

Smalley Series	Number of Collaborators	Number of Samples	Graded Tests per Sample
Cellulose Yield	11	10	1
Cottonseed	38	10	5
Soybean	31	10	2
Peanut	12	7	4
Oil Seed Meal	135	15	3–4
Cottonseed Oil	64	4	3
Soybean Oil	75	4	3
Tallow and Grease	68	5	6
Drying Oil	16	6	4
Edible Fat	68	5	7–10
Gas Chromatography	24	6	1

Two new series were added to the Smalley program this season. Collaborative work on Cellulose Yields, under the direction of Dr. K. A. Kuiken, came about as a result of requests for the certification of chemists by the Examination Board. This could not properly be done without a Smalley record of the quality of work done by these chemists. It was anticipated that a single year's results, combined with data accumulated over the past three years by the Cellulose Yield subcommittee of the Seed and Meal Analysis Comimttee, would be sufficient for proper certification.

The determination of the fatty acid composition of fats and oils by Gas Chromatography has been studied by a technical subcommittee for about seven years. After several chemists expressed interest in further collaborative work, a new Smalley subcommittee was created under the direction of Dr. S. F. Herb. The results were quite enlightening and should provide valuable information for the technical committee.

Prices for participation were raised somewhat this year to cover the increased cost of sample preparation and distribution. Generally, this amounted to about 15%. A detailed financial statement will be given to the Governing Board when the books are closed.

Special thanks must be expressed to all subcommittee chairmen and to those who worked with them in sample preparation and distribution and in the grading of results. Our thanks also to the Chicago office for its efficient handling of orders for participation.

The usual high degree of analytical proficiency was noted again this year in all series. To recognize particular excellence, awards were made to 30 collaborators.

Drying Oils. With 16 chemists participating, first place was won by:

Leonard Haugse, Archer Daniels Midland Company, Minneapolis, Minnesota, with a grade of 95.50%.

J. W. Thomas, Southern Testing Labs, Inc., Westwego, Louisiana, was second with a grade of 94.50%.

Soybean Oil. With 75 chemists participating, the following were tied for first place, using normal grading tolerances, with grades of 100.0%.

C. V. Bacon, Bacon Laboratories, New York, New York
P. W. Bateman, A. E. Staley Mfg. Co., Decatur, Illinois
C. H. Brunsman, Procter & Gamble Mfg. Co., Chicago, Illinois
E. R. Hahn, Hahn Laboratories, Columbia, South Carolina
W. J. Howard, Humko Products, Champaign, Illinois
R. W. Lindeman, Bacon Laboratories, New York, New York
J. M. Riddlehuber, Plains Cooperative Oil Mill, Lubbock, Texas
J. W. Thomas, Southern Testing Labs, Inc., Westwego, Louisiana
D. W. Thorpe, Corn Products Co., Bayonne, New Jersey
F. M. Tindall, Humko Products, Memphis, Tennessee
B. C. White, Barrow-Agee Laboratories, Memphis, Tennessee

Recalculation, with no tolerances, gives first place certificate to Mr. B. C. White. Mr. J. W. Thomas wins the second place award.

Cottonseed Oil. With 64 chemists participating, two were tied for first place with grades of 98.8%. They were:

C. R. Norris, Barrow-Agee Laboratories, Shreveport, Louisiana
B. C. White, Barrow-Agee Laboratories, Memphis, Tennessee

According to the rules governing two-way ties, both are awarded first place certificates. No second place award will be made.

Edible Fat. With 68 chemists participating, first place was won by:

William Stewart, Swift & Company, Atlanta, Georgia, with a rating of 41.37.

F. D. Newcomb, Lever Brothers Co., Los Angeles, California was second with a rating of 38.86.

Gas Chromatography. With 24 chemists participating, first place was won by:

Norman Lafond, Archer Daniels Midland Co., Mapleton, Illinois with a final grade of 98.39%.

The Research Analytical Laboratory, Hunt Foods and Industries, Fullerton, California was second with a grade of 98.09%.

Tallow and Grease. With 68 chemists participating, first place was won by:

John R. Ledin, Woodson-Tenent Laboratories, Des Moines, Iowa, with a grade of 100.0%.

Peanuts. With 12 chemists participating, first place was won by:

Philip C. Whittier, Law and Company, Montgomery, Alabama, with a rating of 49.81.

G. Conner Henry, Law and Company, Atlanta, Georgia, was second with a rating of 44.76.

(Continued on page 292A)

Symposium on Automation in Lipid Research (Morning Session). Left to right: Jacob Levine, R. F. Witter, G. J. Nelson, Chairman, N. K. Freeman, A. Antonis, L. C. Jensen.

● Los Angeles . . .

(continued from page 250A)

participant presented an individual contribution on various aspects of this important topic. M. Fefer (Enjay Chemical Co.) and A. J. Rutkowski (Enjay Chemical Laboratories) represented the petrochemical viewpoint. Fefer described the chemistry, production and applications of Enjay's "Neo-Acids," synthetic α-substituted carboxylic acids produced from olefins. K. T. Zilch (Emery Industries, Inc.) presented a comprehensive picture of eastern European developments in synthetic fatty acids by oxidation of paraffinic hydrocarbons. Zilch has been intimately involved in surveying these developments for the Fatty Acid Producers Council for the past several years. R. A. Reck (Armour Industrial Chemical Co.) reported new developments at Armour on petrochemical technology to illustrate what this "natural" producer is doing to keep abreast of the newer threats from the petrochemical industry.

The entire two and one quarter hour seminar was chairmanned by N. O. V. Sonntag (National Dairy R & D), who steered the group through all the main topics, permitting each side to make its main points, and then summarized each discussion. Dr. Sonntag, in addition, surveyed the prospects for the synthesis of straight-chain saturated and unsaturated fatty acids from olefins, Ziegler intermediates and alcohols.

The group made a number of extremely interesting comments and observations on what is going on within the petrochemical industry. Four highlights: Synthetic fatty acids are the third threat presented to the natural fat chemical industry in the last ten years; the first two were "solved," namely, synthetic glycerine and the advent of cheap tall oil fatty acids. Enjay's "Neo-Acids" are unique and different and are not likely to pose a competitive threat to natural fatty acids. Ziegler intermediate carboxylations and oxidations are likely to prove to be more competitive for synthetic fatty acid production than most people, in fact, realize. Derivatives may also be produced directly from petrochemical basestocks without necessity for the isolation of synthetic fatty acid intermediates.

Panel Discussion on Synthetic Fatty Acids. Left to right: Morton Fefer, A. J. Rutkowski, N. O. V. Sonntag (Chairman), R. A. Reck and K. T. Zilch.

Examination Board. Left to right: E. R. Hahn, R. W. Bates, N. W. Ziels, R. T. Doughtie, Jr., (Chairman) C. W. Hoerr and R. C. Stillman.

Symposium on Automation in Lipid Research, afternoon session. Left to right: K. E. Stine, J. H. McCloskey, A. I. Holtz, C. R. Eddy, John Stouffer and G. J. Nelson, Chairman. Missing is Arthur Karmen.

Annual Banquet an Antimated Affair

The golden-shell and burgundy-red decor of the Pacific Ballroom was an exciting setting for Tuesday evening's banquet. The Pacific Ballroom was "pacific" in name only, however, since it was filled to capacity wth members in a most festive mood. A background of pleasant music accompanied an excellent dinner and sparkling conversation. Les Leenerts, master of ceremonies, presented to the audience a youthful musical trio who delighted the audience with a program of folk music.

Bleaching Method Subcommittee. Far side of table: E. R. Hahn, R. L. Gregory, J. W. McEwan, and B. I. Repahronis. Near side of table: Walter Kitchens, W. T. Coleman, and D. L. Henry.

Safety Committee. Left to right: George Cavanagh, Charles Atwood, Norman Witte, Carl Senter, and L. J. Weber.

Awards Luncheon, Pacific Ballroom.

The Ladies Committee deserves a very special vote of thanks for their contribution of the unique centerpieces which graced the tables at Tuesday's banquet.

Plant Emission Panel Summarized

Wednesday's sessions included a panel discussion entitled "Plant Emissions, Water and Air Pollution," led by Francis Scofield. These presentations were not published in abstract form prior to the Los Angeles meeting, and they are summarized here:

G. W. Fiero, Humble Oil and Refining Company, discussed the general problem of air pollution, particularly as developed by hydrocarbons, outlining the reactions taking place in the atmosphere and summarizing such information as was available on the concentrations of various hydrocarbons commonly encountered and their relation to eye irritation, ozone formation, and smog.

L. M. Hartman, of Chevron Research, summarized experimental work which had been done by the California Manufacturers Association on the smog forming tendencies of various solvents and solvent mixtures, and indicated the progress which was being made in a revision of the proposed Rule 66 by the Los Angeles Air Pollution Control District, covering solvent emissions.

A. E. MacGee, Consultant, stressed the point that solvent emissions constituted a very small fraction of the total contribution to air pollution and emphasized the dangers of overstressing one particular source. In the area of water pollution problems, E. G. Paulson, of the Calgon Corporation, outlined some of the problems that various plants faced and stressed the importance of manufacturers knowing what pollutants were being discharged from their plants and their effect on the surrounding water supplies.

C. G. Bueltman, of the Soap and Detergent Association, stressed the growing responsibility of manufacturers for the use that was made of their products, using as an example the detergent industry where manufacturers are being forced to produce biodegradable detergents so that foam and similar problems will not be encountered in sewage disposal plants into which these detergents are discharged. He indicated that the detergent industry had succeeded in dealing with this problem in a fairly satisfactory manner, but pointed out that other industries could easily be faced with a similar problem.

Soaps and Detergents Session, Left to right: R. C. Taylor, R. M. Anstett, B. E. Gordon, Eric Jungermann, W. C. Powe, A. M. Mankowitch, M. E. Ginn, and Arno Cahn, Chairman.

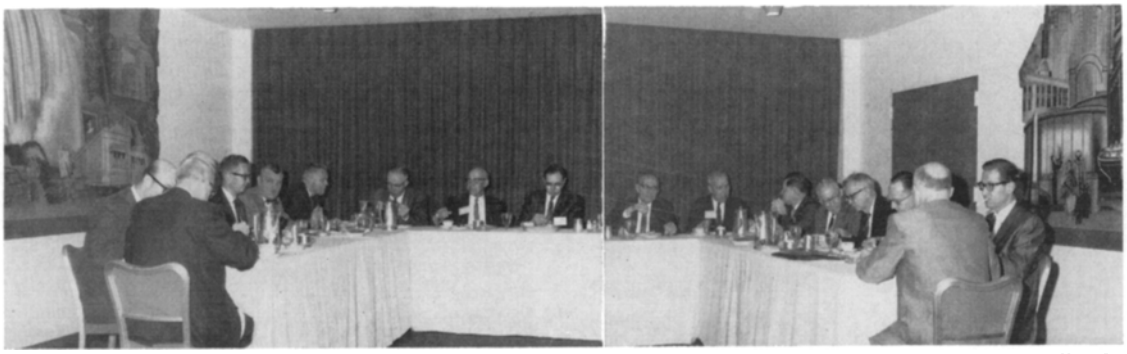
J. C. Harris (left) turns AOCS gavel over to C. W. Hoerr.

C. W. Hoerr (center) presents Special Award in Lipid Chemistry to R. H. Barners, who received it on behalf of George O. Burr. W. O. Lundberg, Peter Kass, and R. T. Holman look on.

In an extensive and animated discussion period the problem of phosphate-containing detergents was discussed at length. Mr. Bueltman pointed out that there was no real evidence that phosphates in detergents contributed to water pollution and algae growth to any serious extent and stressed that all efforts to make satisfactory heavy-duty detergents without phosphates had been so far unsuccessful.

Sessions on "Biochemistry and Nutrition of Lipids," "Analytical Chemistry," and the final phase of the "Inter-

E. G. Hammond, Chairman of the Bond Award Committee (center) presents Bond Award Gold Medal to C. C. Litchfield (left). Honorable Mention winners include C. R. Smith (far left), R. D. Harlow and R. T. Holman (far right).



Journal Committee Breakfast. Left to right: R. A. Reiners, S. M. Gaskins, C. H. Hauber, L. O. Leenerts, A. F. Kapecki, J. C. Harris, F. W. Quackenbush, D. H. Wheeler, A. R. Baldwin (Chairman), J. C. Cowan, M. W. Formo, Eric Jungermann, R. T. O'Connor, L. A. Goldblatt, G. C. Cavanagh, C. W. Hoerr and Raymond Reiser.

disciplinary Aspects of Lipid Research" Symposium, were also held on Wednesday.

C. W. Hoerr Receives AOCS Gavel

At the Awards Luncheon, held in the Pacific Ballroom Wednesday noon, J. C. Harirs turned over the well-worn tomahawk gavel to incoming President C. W. Hoerr. In reviewing the new President's record of service to the AOCS, Mr. Harris made official the group's appreciation of the fact that Mr. Hoerr's interest has manifested itself throughout the years of his membership in continuous contributions in all areas of Society activity.

Mr. Hoerr's first official function was to introduce R. C. Stillman, President 1964–65. Mr. Stillman presented the Past President's key to J. C. Harris, whose year in office witnessed many notable events. Among these are the launching of *Lipids*, in January, 1966; annual exhibition booth sales through the Executive Office; the establishment of new liaison with the American Medical Association and the Geochemical Society; with the AOAC-ASTM group, and the addition of the AOCS Monterrey, Mexico, local section.

Mr. Hoerr's next, and very pleasant duty was to present the AOCS Special Award in Lipid Chemistry to George Burr, in whose honor a special symposium was conducted at the meeting. A review of Dr. Burr's career was presented by Peter Kass, and a commemorative placque, a portfolio of letters from Dr. Burr's former students, and a check for $1500 was received in Dr. Burr's absence by R. H. Barnes of Cornell University. The portfolio of letters was an unique and affectionate expression of appreciation of which Dr. Burr can be most proud.

Smiles in anticipation of the banquet to come. Standing, left to right: Mrs. Robert Conner, Cecelia Gilmore, Mrs. John Cowan, Mrs. Richard Atwood, Mrs. J. C. Harris, Robert Conner, J. C. Harris, Mrs. L. O. Leenerts, Werner Schulz, Mrs. John Gleason, Richard Atwood, Mrs. Werner Schulz, Mrs. Joseph Michaelson, C. W. Hoerr and Mrs. C. W. Hoerr. Kneeling, left to right: A. F. Kapecki, J. C. Cowan, L. O. Leenerts, Joseph Michaelson and John Gleason.

Carter Litchfield Receives Bond Award Medal

Earl Hammond presented the Bond Award Gold Medal to C. C. Litchfield for his presentation of the paper, "Gas-Liquid Chromatography of Triglycerides from Erucic Acid Oils and Marine Oils," presented at Cincinnati in October, 1965.

The Bond Award Gold Medal is given for the paper ajudged the best presented at each of the two national meetings. This system recognizes both excellence of delivery and content of papers from the AOCS technical program. Co-authors receive certificates, with honorable mention to second and third place speakers. Co-authors of this winning paper were R. D. Harlow and Raymond Reiser. Honorable Mention Awards were given to R. T. Holman, for the paper, "Pyrolysis Chromatography of Lipids. I. Mass Spectrometric Identification of Pyrolysis Products of Hydrocarbons." Co-authors of this paper were Manfred Deubig and Herbert Hayes.

The Second Honorable Mention Award was given to M. O. Bagby, for the paper, "Sterochemistry of α-Paranaric Acid from *Impatiens edgeworthii* Seed Oil." Co-authors of this paper were C. R. Smith, Jr., and I. A. Wolff. The award was accepted by Mr. Smith, in the absence of Mr. Babgy.

S. S. Chang Presents MacGee Awards

MacGee Honored Student Awards were presented by S. S. Chang, Chairman of the MacGee Honored Student Program Subcommittee, to R. C. Bull and T. C. Hutsell.

Mr. Bull is a PhD candidate at Oregon State University in Corvallis, Oregon. His research has focused on studies of the metabolic roles of vitamin E. and selenium using rat liver homogenates—a study of the metabolic function of vitamin E and selenium in regard to lipid autoxidation and other functions within the liver cell.

Mr. Hutsell, candidate for a PhD in biochemistry, is currently enrolled at Purdue University, Lafayette, Indiana.

Local Liaison Committee. Left to right: J. C. Cowan (Chairman), D. P. Arndtsen, S. S. Chang and J. Stutz.

Mrs. L. O. Leenerts with her committee and several of the visiting members' wives.

The area of research described by Mr. Hutsell is "The effect of different fats and other lipids in the diet upon experimental atherosclerosis in the cholesterol-fed rat. The effect of hypercholesterolemic drugs on atherosclerosis and the mechanisms by which these drugs exert their effect." His earlier work has been concerned with the analysis of short-chained fatty acids. For the past several years he has been performing analysis of collaborative samples in the AOCS program to develop methods for the analysis of feed grade fats.

Smalley Awards, Others, Honor Proficiency

The Smalley Awards, presented by W. J. Miller, are to be found in the special report of the Smalley Committee, on page 287A of this issue.

The AOCS Awards program is one of its most forward-looking and positive contributions to the Society's ceaseless effort to retain leadership in the field of fats and oils research. At the time of presentation of any award, large or small, everyone involved—giver, receiver, and those just observing—share a warmth and an exhilaration that motivate all. J. C. Harris, in his Presidential report (JAOCS May, 213A) pointed up the value of the Society's valuable program in this area, as a means to raising both Society and individual effectiveness. The many award winners at the Los Angeles meeting and the entire membership will surely endorse this program.

You Can Win Them All!

In adjourning the 57th Annual Meeting, 1966–67 President C. W. Hoerr thanked the entire local committee for their extensive and successful efforts in providing a superior and comprehensive meeting: L. O. Leenerts, General Chairman; Mrs. L. O. Leenerts, Ladies Chairman; J. M. Michaelson Co-Chairman; R. T. Conner, Technical Program; H. R. Jackson, Publicity; W. C. Skarda, Finance; R. W. Atwood, Registration; W. F. Schulz, Entertainment; W. J. Park, Hotel Arrangements; J. J. Gleason, Golf; and H. C. Bennett, Advisor.

R. T. Doughtie, Jr. (left) presents the Smalley and Barrow-Agee Cups to R. C. Miller, accepting for the Woodson-Tenent Laboratories.

"Fun in the Sun" for the Ladies

Mrs. L. O. Leenerts, who was Ladies Chairman in 1959, on the occasion of the Los Angeles meeting of that year, served once again as chairman of this companion program to the main meeting, providing tours of Los Angeles' most memorable sights, and tips on shopping, a perennial diversion whose pleasures are not to be overlooked.

Mrs. Leenerts served as personal hostess and guide for over 100 guest wives to enjoy the variety of the widespread community which is cumulatively known as "Los Angeles."

Early Monday morning the ladies assembled in the Garden Room East for coffee, and then boarded buses for a scenic tour of beach resorts, relaxing later at a buffet lunch at Knotts Berry Farm and Ghost Town.

Tuesday's feature was a tour of the Universal City Movie and TV Studios. The afternoon offered a choice between visits to either the new Art Museum or Forest Lawn, with its world-famous stained glass windows, paintings and sculpture.

Thoughtful consideration of the interests of members' wives is an attractive feature at AOCS meetings, and surely an incentive to increased atendance by both husbands and wives.

• *Smalley Report . . .*

(Continued from page 287A)

Cottonseed. With 38 chemists participating, first place and the Barrow-Agee Cup was won by:

Thomas J. Moore, Woodson-Tenent Laboratories, Little Rock Arkansas with a rating of 56.51.

Paul Cretien, Texas Testing Laboratories, Dallas, Texas, was second with a rating of 50.65.

Celluiose Yie'd. With 11 chemists participating, two were tied for first place with ratings of 92.5. They were:

Fred D. Mathis, Hercules Powder Company, Chattanooga, Tennessee

Paul D. Cretien, Texas Testing Laboratory, Dallas, Texas

According to the rules governing two-way ties, both are awarded first place certificates. No second place award will be made.

Soybean. With 31 chemists participating, first place was won by:

R. C. Pope, Pope Testing Laboratories, Dallas, Texas with a rating of 62.78

W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Arkansas, was second with a rating of 57.93.

Meal. With 135 chemists participating, first place for the determination of moisture was won by:

George G. Dickinson, Dickinson Laboratories, El Paso, Texas, with a rating of 78.16

Horace Keith, Paymaster Oil Mill Co., Lubbock, Texas, was second with a rating of 76.29.

For the determination of oil, first place was won by:

Thomas J. Moore, Woodson-Tenent Laboratories, Little Rock, Arkansas with a rating of 82.29

W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Arkansas, was second with a rating of 80.96.

For the determination of nitrogen, first place was won by:

M. P. Etheredge, Mississippi State College, with a rating of 78.78

W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Arkansas was second with a rating of 74.61.

For the determination of crude fiber, first place was won by:

M. A. Clark, Hartsville Oil Mill, Hartsville, South Carolina, with a rating of 75.06

P. C. Whittier, Law & Company, Montgomery, Alabama, was second with a rating of 70.16.

Last year, the twelfth Smalley Cup, awarded annually for the highest proficiency in the analysis of oil seed meal, was retired by E. R. Hahn, Hahn Laboratories, Columbia, South Carolina. The new cup, awarded this year, was graciously donated by Mr. Hahn.

For combined proficiency in the determination of moisture, oil, and nitrogen with an aggregate score of 74.01, the Smalley Cup was won by W. D. Simpson, Woodson-Tenent Laboratories, Wilson-Arkansas.

M. A. Clark, Hartsville Oil Mill, Hartsville, South Carolina, was second with a rating of 73.26.

Respectfully submitted,
M. J. ANDERA
L. V. ANDERSON
R. T. DOUGHTIE, JR.
K. H. FINK
S. H. HERB
W. H. KOESTER
K. A. KUIKEN
W. J. MILLER, Chairman

(Continued from page 274A)

EFFECT OF SEX AND GONADAL HORMONES ON RAT PLASMA LIPIDS DURING THE DEVELOPMENT OF AN ESSENTIAL FATTY ACID DEFICIENCY. R. L. Lyman, Rosemarie Ostwald, Pauline Bouchard and Angela Shannon (Univ. of California, Berkeley). *Biochem. J.* **98**, 438–50 (1966). Male, female and castrated rats treated with estradiol or testosterone were given an essential fatty acid-deficient diet containing 10% hydrogenated coconut oil for 9 weeks. The concentrations and fatty acid composition of plasma phospholipids, cholesteryl esters and triglycerides were determined. Between the 2nd and 3rd weeks of the deficiency, concentrations of plasma cholesteryl esters, phospholipids and triglycerides decreased, then remained relatively constant. There were no significant differences between males and females, but estradiol caused a significant rise in plasma phospholipids and triglycerides as compared with testosterone. During the first 2 weeks of the deficiency, linoleic acid in the plasma lipids of all groups decreased to low concentrations and changed very little thereafter. Females maintained higher percentages and concentrations of arachidonic acid and stearic acid in plasma phospholipids and arachidonic in cholesteryl esters than did males. Males had higher proportions of eicosatrienoic and oleic acids. There was no sex difference in the fatty acid composition of plasma triglycerides. Estradiol treated rats had concentrations of cholesteryl and phospholipid arachidonate comparable with those of female rats and higher than the testosterone-treated group. Eicosatrienoic acid in the estradiol treated rats was high and resembled that of the male rats, apparently because of the higher concentration of plasma phospholipids in this group. Supplementation of the EFA-deficient rats with linoleate (by replacing the 10% hydrogenated coconut oil with an equivalent amount of safflower oil) restored plasma cholesteryl and phospholipid linoleate and arachidonate nearly to normal concentrations in a single day. The increase in arachidonic acid was accompanied by a similar quantitative decrease in eicosatrienoic acid. These sex differences appear to be related to the smaller size of the female rat and to a more direct influence of estradiol on the formation or maintenance of phospholipids rich in arachidonic acid.

THE BIOHYDROGENATION OF α-LINOLENIC ACID AND OLEIC ACID BY RUMEN MICRO-ORGANISMS. P. F. Wilde and R. M. C. Dawson (Inst. of Animal Physiol., Babraham, Cambridge). *Biochem. J.* **98**, 469–75 (1966). α-U-C^{14}-linolenic acid was incubated with the rumen contents of sheep and the metabolic products were characterized by thin-layer and gas-liquid chromatography and absorption spectroscopy in the ultraviolet and infrared. A tentative scheme for the biohydrogenation route to stearic acid is presented. The main pathway is through diconjugated *cis-cis-cis*-octadecatrienoic acid, non-conjugated *trans-cis (cis-trans)*-octadecadienoic acid and *trans*-octadecenoic acid, but other pathways are apparent. Washed rumen micro-organisms possessed only a limited capacity to hydrogenate α-linolenic acid and oleic acid but the rate was greatly stimulated by a factor(s) present in the supernatant rumen liquor. Pure cultures of micro-organisms isolated from sheep feces possessed negligible ability to hydrogenate unsaturated fatty acids compared with a mixed population of rumen micro-organisms.

FATE OF CHLORINATED ORGANIC PESTICIDE RESIDUES IN THE PRODUCTION OF EDIBLE VEGETABLE OILS. C. M. B. Gooding (Corn Products Co.). *Chem. Ind. (London)* **1966**, 344. The following chlorinated organic pesticide chemicals were added to a crude cottonseed oil in pilot plant work at levels at least three times higher than highest established FDA tolerances: Aldrin, BHC, Chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Kelthane, Lindane, Methoxychlor, Sesone, Strobane, TDE, or DDD, and Toxaphene. The final edible oil after the normal stages of processing (alkali-refining, bleaching, and deodorization) contained no pesticide residues. These results have been confirmed in plant-scale tests. A vegetable oil containing 2.8 ppm Chlordane with 0.5 ppm of DDT and DDD was subjected to hydrogenation during processing; the pesticide residues disappeared presumably through adsorption by the activated carbon in the catalyst or possibly by destruction by dehalogenation in the hydrogenation process. Although no tolerances have been established in the U.S. for processed edible vegetable oils, it appears that none may be required since the processing of these oils involves steps which result in products free of chlorinated organic pesticide residues.

STUDIES ON THE MECHANISM OF FATTY ACID SYNTHESIS XVI. R. E. Toomey and Salih J. Wakil (Dept. of Biochem., Duke Univ. Med. Center, Durham, N.C.). *J. Biol. Chem.* **241**, 1159–65 (1966). Acyl-malonyl acyl carrier protein (ACP)-condensing enzyme, prepared from extracts of *Escherichia coli*, catalyzes