## IN MEMORIAM

## HENRY MATTHEW BURLAGE

When Dr. Henry Matthew Burlage accepted the appointment, effective in September, 1947, as Professor of Pharmacy and Dean of the College of Pharmacy, he did so knowing the challenging nature of the task he was undertaking. Although the college had been located on the campus of the University in Austin for some twenty years since its move from Galveston, it had yet to occupy quarters of its own, its offices, laboratories and classrooms having been dispersed through several buildings on the campus.

Such undesirable physical facilities, coupled with abnormally low faculty salary and equipment budgets, had made the recruitment and retention of young qualified faculty persons extremely difficult for the retiring Dean Gidley. With rapidly increasing undergraduate enrollment demanding heavy teaching loads and with no program of graduate instruction and hence no teaching assistants or other graduate student assistance, laboratory research and publications by the faculty were virtually non-existant.

Burlage stipulated six administrative commitments as conditions of his acceptance:

The question of a building for the college be resolved quickly.

Staff be immediately increased to a number commensurate with enrollment.

An M.S. and Ph.D. program be established.

Undergraduate enrollment be limited to available facilities and graduate job opportunities.

The dispensary be enlarged and improved.

The University administration assist the proposed new faculty members in securing housing in Austin.

President Painter agreed to the first five stipulations; the sixth was beyond his jurisdiction.

The honors and accolades accorded Dean Burlage at the time of his retirement from the Deanship and again when he retired from full-time teaching, attest to his success in overcoming many of the frustrating difficulties apparent at the beginning of his administrative term. The five conditions mentioned above were fulfilled during the first decade; full accreditation was received and maintained; and the College gradually became known as one of the few best Colleges of Pharmacy in the South and certainly among the top ten in the nation.

Henry Matthew Burlage was born on May 23, 1897, in Rensselaer, Indiana, but he grew up in the small village of Earl Park, Indiana, graduating from the local high school in 1915, as a member of a class of six graduates. Although his parents had little education, his mother stimulated and encouraged Henry's ambition to attend College. He worked his way through Indiana University, during his last year serving as an assistant and tutor in chemistry, and graduated with an A.B. degree in chemistry in 1919, having been elected to Phi Beta Kappa.

During 1919-1921, Burlage pursued his studies in chemistry at Harvard University, serving as a teaching fellow and graduate assistant in industrial chemistry. He received the Master of Arts degree in chemistry from Harvard

in 1921, but financial difficulties forced him to interrupt his academic career. He accepted employment in the laboratory of Charles B. Jordan, dean of the College of Pharmacy at Purdue University, where he did routine clinical laboratory testing for the TOTC Department and was introduced to the mysteries of filling student prescriptions for the Student Health Service by Professor William F. Gidley, whom he later succeeded as Dean at the University of Texas. Developing a growing interest in pharmacy and the chemistry of drugs, he earned the Ph.G. degree and then the newly offered B.S. degree in pharmacy in 1924. He then accepted appointment as instructor in pharmacy at the University of Washington in Seattle, where he pursued the Ph.D. degree in pharmacy under the direction of Dr. E.V. Lynn. After receiving this degree in 1928, Burlage became associate professor of drug analysis at Oregon State College and inspector for the Oregon State Board of Pharmacy.

During the course of his studies in Seattle, Burlage married Alleda

Virginia Robb in 1925. A skilled botanical illustrator, she has illustrated

many scientific publications and shared her husband's interest in ecology

and natural history.

After serving as an associate professor of pharmaceutical chemistry at Purdue University for two years, 1929-1931, Burlage was appointed to a full professorship at the University of North Carolina in Chapel Hill.

During the sixteen years he spent at North Carolina, Burlage devoted much time and effort in an attempt to build up research and the graduate degree program. His feeling that administrative support of these efforts

was far from adequate contributed to his decision to move to the University of Texas when the deanship became available.

Dean Burlage served as Dean from 1947 until 1962 and continued to serve as Professor of Pharmacy and Pharmaceutical Chemistry until 1970. During his administration, in addition to bringing his initial stipulations to fruition, the Dean initiated the formation of the Pharmaceutical Foundation, the Pharmacy Extension Service, the Visiting Lecture Series and the Texas Journal of Pharmacy.

Among the many honors he received during his active career were the award of an Honorary Doctor of Science degree in 1961 from Purdue University and the Honorary Presidency of the American Pharmaceutical Association. He served as President of the American Association of Colleges of Pharmacy, the National President of Rho Chi Honorary Society and Treasurer of the Texas Pharmaceutical Association, as well as Chairman and member of many national and state professional committees. He was listed in "American Men of Science" and "Who's Who in America", as well as several other biographical listings, and was a member of a large number of professional and honorary societies, including American Pharmaceutical Association, American Chemical Society, American Association for Advancement of Science, Academy of Pharmaceutical Sciences, Phi Kappa Phi, Phi Beta Kappa, Phi Lambda Upsilon, Sigma Xi, Rho Chi, Kappa Psi and Alpha Chi Sigma. He was a Knight Templar, Masonic Lodge.

An excerpt from the citation delivered by Dean G.L. Jenkins of the School of Pharmacy, Purdue University, at the time Dean Burlage received

his honorary degree, reads as follows:

Dean Burlage's contributions to the advancement of education, especially in the pharmaceutical sciences, have been many and varied, and are mirrored in his success as a scientist, and as an educational administrator. He has held high offices in the professional organizations of pharmacy, most recently having been elected President of the American Association of the Colleges of Pharmacy in 1960. In addition to his eminence as an educator, Dean Burlage is a well recognized scientist. He is the author of more than one hundred books and papers pertaining to pharmaceutical science and education. Mr. President, because of his accomplishments in science and education, Henry Matthew Burlage is presented for the award of academic honors by Purdue University.

At the Appreciation Dinner on the occasion of Dean Burlage's retirement from the office of Dean of the College of Pharmacy, Dr. Joseph R. Smiley, President of the University of Texas at Austin, remarked in part:

He has brought not only the expected high levels of scientific and professional achievement to his position, but a generous measure of common sense and genuine human warmth. It would be a gross understatement, as you, his friends and former students, know, merely to say that he has been popular and widely admired. I am convinced that Dean Burlage has substantially advanced the cause and the profession of Pharmacy throughout the state and, indeed, because of his service on national boards and committees and his recent tenure as President of the American Association of Colleges of Pharmacy, on the national scene as well. The profession of Pharmacy is becoming infinitely more exacting and more complex as dramatic new advances and discoveries are made. These new directions and new areas of learning have taken their place in the pharmacy curriculum. Dean Burlage has been, as his selection to high national offices demonstrates, in the forefront of shaping these changes and adapting them to existing courses and degree requirements in our own College.

Although Dr. Burlage retired as Professor emeritus in 1971, he continued active and interested and produced two major publications during the last years of his life: "The Four Walls of Pharmacy", written with his son, Robb,

and "Pharmacy's Foundation in Texas", a history of the College of Pharmacy written with Margot E. Beutler.

Dean Burlage died at his home in Austin, October 6, 1978, survived by his wife, Alleda, and his son, Robb, esteemed and respected by the faculty, students and alumni of the College of Pharmacy, and by pharmacists throughout the state and the nation.

Lorene L. Rogers

President of The University of Texas

at Austin

Bill D. Franca

Secretary of the General Faculty

This Resolution was prepared by a Special Committee consisting of Dr. Lee Worrell, Chairman, Dr. William Sheffield, and Dr. Esther Hall.

## PUBLICATIONS OF HENRY MATTHEW BURLAGE 1927-1978

- 1927 Examination of Asarum Caudatum. J. Am. Pharm. Assoc. 16, 407-11 (with E. V. Lynn).
- 1931 Phytochemical Studies of Several Oregon Plants. J. Am. Pharm. Assoc. 22, 33-40.
- 1932 Report on Santonin. J. Assoc. Off. Agri. Chem. 15, 417-18.

  Aromatic Elixir. Practical Druggist 50, Oct., 16-17.

The Development of Modern Drugs. Carolina J. Pharm. 13, 233-236, 252-255; 14, 3-4.

Laboratory Manual of Pharmaceutical Technique (105 pp.). Book Exchange, Chapel Hill, N.C. Revised in 1934: 1936, Part I and Part II.

Outlines for Study of History of Pharmacy. (44 pp.). Book Exchange, Chapel Hill, N.C.

1933 Report on Santonin. J. Assoc. Off. Agric. Chem. 16, 346-348.

The Assay of Nux Vomica by a Methoxy-difference Method. J. Am. Pharm. Assoc. 22, 298-304. (with M. L. Jacobs and F. J. LeBlanc).

Laboratory Manual for Galenical Pharmacy. (91 pp.). Book Exchange, Chapel Hill, N.C. Revised 1937.

The Development of Modern Drugs. Carolina J. Pharm. 15, 2-4.

1935 The Theory of Pharmacy and Academic Standards. J. Am. Pharm. Assoc. 24, 156-158.

A Valuable Addition to the Pharmacist's Library. Carolina J. Pharm.  $\underline{16}$ , 207.

A Comparison of the Four Year Curriculum in Pharmacuetical Subjects. J. Am. Pharm. Assoc. 24, 228-231.

1936 A Study of the Swelling Factors of Various Species of Psyllium. J. Assoc. Off. Agric. Chem. Oct. 1936.

Studies of Three U.S.P. and N.F. Preparations by Shortened Procedures. J. Am. Pharm. Assoc.  $\underline{25}$ , 123-128. (with W. J. Smith).

Assay of the Official Sulfur Ointments, J. Am. Pharm. Assoc. 24, 945-948. Abst. in J. Elisha Mitchell Sci. Soc. 51, 241-242. (1936). (with Charles E. Brady).

Determination of the Mucilage Content of Psyllium. J. Assoc. Off. Agric. Chem. 19, 104.

Laboratory Manual for Inorganic Pharmacy (revised). Book Exchange. Chapel Hill, N.C.

1936 Some Observations on the Preparation of Intravenous Solutions in the Hospital Pharmacy. J. Am. Pharm. Assoc. <u>25</u>, 756-758. (with H. C. McAllister).

The Development of the United States Pharmacopoeia and National Formulary. (Abst.) Jour. Elisha Mitchell Society 52, 172-173; also in Univ. North Carolina Record No. 311: 171-112.

- 1937 Chrysopsis graminifolia, Its Composition and Preparations. J. Am. Pharm. Assoc. 26, 415-418. (with H. Dale Roth).
- 1938 Phytochemical Studies of Piscaria (Eremocarpus setigera) I. Examination of the Oil of the Seed. J. Am. Pharm. Assoc. 27, 666-667.
- 1939 Are the Pharmacy Schools under the Four Year Curriculum Obtaining an Improved Type of Student? Am. J. Pharm. Education 3, 337-349. (with R. J. Wherry).

Epidermophytosis. Am. Profess. Pharmacist 5, 251-254. (with A. Kirk Hardee, Jr.).

1940 Notes on the Preparation of Lotio Flava, N.F. VII. J. Am. Pharm. Assoc. 29, 88-89.

The Assay of Lead Oleate Plaster and Lead Oleate Ointment, N.F. VII. J. Assoc. Off. Agric. Chem. 23, 787-789.

Rhus Dermatitis. Am. Profess. Pharmacist 6, 155-156, 227-230.

1941 Elixir of Thiamine Hydrochloride and its Stability in Combinations. Carolina J. Pharm. 22, 130-132, 138-139.

Trenchmouth. Am. Profess. Pharmacist 7, 634-638.

Notes and Queries. Carolina J. Pharm. 22, 168-169, 293.

1942 The Venom of the Black Widow Spider and Its Treatment. Am. Profess. Pharmacist 8, 155-189.

Stabilized Hypochloride Solutions as a Source for Chlorine Test Solution and its Application in Testing for the Bromide and Iodide Ions. Pharm. Arch.  $\underline{13}$ , 81-87.

Edited the National Pharmacuetical Syllabus. Tentative Fifth Edition, Chapel Hill, N.C. Revised 1945.

1943 Laboratory Manual and Study Guide to Fundamental Principles and Processes of Pharmacy. First Edition. Chapel Hill, N.C.

A Study Guide and Problems to the Literature of Pharmacy. Burgess Publishing Co., Minneapolis, Minn.

The Future of Pharmacy. Am. J. Pharm. Education 7, 732-738.

1944 Fundamental Principles and Processes of Pharmacy. (615 pp.)
McGraw-Hill Book Co., Inc., N.Y.

North Carolina Prescription Survey. Am. Druggist 110, No. 4, 82-83.

A Comparative Study of the Suspending Properties of Clays with Special Reference to Bentonite. J. Am. Pharm. Assoc. 34, 302-305. (with Joseph La Rocca).

Laboratory Manual to the Pharmacy of Medicinal Products I. Book Exchange, Chapel Hill, N.C.

There is Profit in the Pharmacy. Modern Hospital  $\underline{64}$ , No. 3, 94.

Is the Pharmaceutical Press a Free Press? Am. J. Pharm. Education  $\underline{9}$ , 406-407.

Black Widow, America's Most Poisonous Spider. Book Review, Am. Profess. Pharmacist 11, 754-756.

Filtering Aromatic Elixir. Letter to Editor. J. Am. Pharm. Assoc. Pract. Pharmacy Ed.  $\underline{6}$ , 305.

Library Resources of the University of North Carolina. University Press. Chapter 10, 91-96.

North Carolina Prescription Survey. Am. Druggist 111, No. 6, 56-57, 134.

The G. I. and Hospital Pharmacy. Modern Hospital 65, No. 5, 102, 104, 66, No. 1, 104.

The Assay of Nux Vomica Preparations by Chromatographic Methods. Elisha Mitchell Scientific Soc., 61, 2202-7. (with Joseph La Rocca).

Drug Culture in North Carolina. J. Elisha Mitchell Scientific Soc. 61, 218-219. (with E. A. Brecht).

Laboratory Manual for Principles and Processes of Pharmacy. (With J. B. Burt and L. W. Rising), McGraw-Hill Book Co., Inc., N. Y.

1947 Pharmaceutical Applications of Isopropyl Alcohol I. As a solvent in Pharmaceutical Manufacturing. J. Am. Pharm. Assoc. 35, 379-84. (with Doris Bullard Hawkins).

Pharmaceutical Applications of Isopropyl Alcohol II. Solubilities of Local Anesthetics. J. Am. Pharm. Assoc. 36, 26.

1948 "The Dispensatory of the United States of America", Texas Druggist, 67, No. 7, 10, A Book Review.

"Trends in Pharmaceutical Education," Texas Druggist, 67, No. 4, 11, 28.

"An Approach to Teaching New and Unofficial Remedies". Am. J. Pharm. Education 12, 290-2.

"Pharmaceutical Applications of Isopropyl Alcohol, III, Solubilities of Sedatives, Hypnotics and Sulfonamides," J. Am. Pharm. Assoc. Sci., Ed., 37, 345.

"Laboratory Manual for Inorganic Medicinal Products", revised edition, Hemphill's Book Stores.

"Fundamental Principles and Processes of Pharmacy", 2nd. ed., McGraw-Hill Book Co., Inc., New York. (with J. B. Burt, C.O. Lee and L. W. Rising).

"Laboratory Manual for Fundamental Principles and Processes of Pharmacy" 2nd ed., McGraw-Hill Book Co., Inc. N.Y. (with J. B. Burt, C. O. Lee and L. W. Rising).

"Study Guide and Problems to the Essential Literature of Pharmacy", Section A, revised edition, Hemphill Book Stores. Annual Edition through 1970.

"Forgotten Man in Pharmacy", Texas Druggist, 68, 18.

Laboratory Manual "Inorganic Medicinal Products", Hemphill's Stores, 2nd ed.

- 1950 "Trends in Medicinal Preparations", Proc. District No. 6; Natl. Assoc. Boards of Pharm. and Am. Assoc. Colleges Pharm. (March 9, 10, 1950). pp. 12-18.
- "Recent Trends in Treatment of Gonorrhea and Syphilis", Southern Pharm. J., 43, No. 9, 74-5 (with Eino Nelson).

"Inhibition of the Growth of Egg Cultivated Tumor Tissue by Extracts of Cooperia pedunculata", Proc. Soc. Exptl. Bio. & Med. 77, 841-3 (with Alfred Taylor, George McKenna and Nell Carmichael).

"The History of The Development of Blood as a Therapeutic Agent", Am. Profess. Pharmacist, 17, 41-50, 71-77. (with Esther Jane Wood Hall).

"Control and Distribution of Poisons in Texas", Texas Druggist, 71, No. 6, 30-32 (with Arthur H. Dunlap).

"Recent Advances in the Treatment of Leprosy", Am. Profess. Pharmacist, 17, 1009, 1012-1014, 1046 (with Richard L. Robertson).

Book Reviews: "Scoville's Art of Compounding", Remington's "Practice of Pharmacy", Texas Druggist, 71, Sept., 35-7.

1952 "Studies on the Rootstocks of Nutgrass, I", Am. J. Pharmacist, 124, No. 2, 1-5. (with John Y. P. Wu).

"Lyophilization", Am. Profess. Pharmacist 18, 434-8, 457 (with W. L. Guess).

"A Study Guide and Problems to the Essential Literature of Pharmacy", Part A, 1952 revision, Hemphill's Book Stores, Austin, Texas, Annual Reviews

"Some Psychological and Physiological Aspects of Obesity", Southern Pharm. J. 44, No. 6, 84-6 (with Bestrom Oshens).

"Industrial Dermatitis", Texas Druggist, 71, No. 7, 41-53 (with Robert T. Wallace).

"Visammin (Khellin) - A Drug for the Treatment of Angina Pectoris". Midatlantic Pharmacist  $\underline{1}$ , Jan. No. 5, 28-30 (with I. K. Meyer).

"Ion-exchange in Water Conditioning", Am. Profess. Pharmacist, 18, 783-9, 823-6 (with J. R. Moreno).

"Gelfoam, the Absorbable Hemostatic Sponge", Texas Druggist 72, No. 5, 36-7, 40-2, 44-6, <u>Ibid</u>. No. 6, 42, 44, 46-7 (with Donald Burkett).

"Blood as a Therapeutic Agent", Am. Profess. Pharmacist 18, 878-94 (with W. J. Campbell).

1953 "Studies on Toxic Plants for Antibacterial Effects." Texas Reports on Biology and Medicine 10, 803-15. (with M. E. Jones, G. F. McKenna, and A. Taylor).

"Cancer chemotherapy Experiments with Plant Extracts." Texas Reports on Biology and Medicine 10, 1062-74. (with A. Taylor and G. F. McKenna).

"Studies on <u>Pythium debaryanum</u> Hesse for antibacterial Activity." Am. J. Pharm. <u>125</u>, 151-61 (with L. Debes).

"Testing of Some Species of Phytophthora for Antibacterial Activity." Am. J. Pharm. 125, 233-9 (with R. M. Pennington and C. C. Woodward).

"Interprofessional Relations in the Health Sciences." Texas Druggist 72, 8, 22-4.

"Hyaluronidase, A Spreading Factor." Am. Professional Pharmacist 19, 200-1, 234-9 (with J. W. Kaufman).

Book Review: "Skin Therapeutics-Prescription and Preparation." by M. K. Polano. Southern Pharm. J., 28, p. 46.

"Introduction to Pharmacy. "McGraw-Hill Book Co., N.Y. 3rd ed. pp. 710 (with J. B. Burt, C.O. Lee, and L. W. Rising).

"Studies on Toxic Plants for Antibacterial Effects II." Texas Repts. Biol. and Med. 12. 229-35 (with S. M. Gibson, G. F. McKenna and A. Taylor).

"A Study of Antibacerial Effects of Silicones." Drug Standards 22, 7-14 (with Esther Jane Wood Hall and Mary Elizabeth Jones).

"Historical Notes on the Development of Ophthamology." Am. Profess. Pharmacist 20, 1043-46, 1090-91 (with Eugene Hickman).

"Chemotherapy Experiments with Plant Extracts and Transplantable Tumors." Texas Repts. Biol. and Med. 12, 500-8 (with G. F. McKenna and A. Taylor).

Studies on the Assay of the National Formulary IX for Total Alkaloids in Cinchona." Drug Standards  $\underline{22}$ , 148-55 (with Joseph Moreno).

"Plants Extracts Tested Against Egg Cultivated Viruses." Texas Repts. Biol. and Med.  $\underline{12}$ , 551-7 (with A. Taylor, G. McKenna and D. M. Stokes).

1955 Chapter VII. "Textbook of Pharmaceutical Compounding." edited by Rufus A. Lyman and Joseph B. Sprowls. J. B. Lippincott Co., 2nd ed. 1955, pp.477.

"Methylcellulose Dispersions." J. Am. Pharm. Assoc. Pract. Pharm. Ed. 16, 38-9 (with W. J. Campbell and W. R. Lloyd).

"A New Liquid Petrolatum-Jelly Base." J. Am. Pharm. Assoc. Pract. Pharm. Ed. 16, 234-6 (with J. W. Kaufman and W. R. Lloyd).

"Disintegrating Agents in Tablet Manufacturing." Am. Profess. Pharmacist 21, 348-50, 383-85, 450-1, 473 (with Homi Kavarana).

"The Effect of pH and Iron Salts on the Stability of Solutions of Liver Fraction I, N.F. IX." Drug Standards 23, 73-9 (with L. O. Wilken and F. V. Lofgren).

1956 "Certain Polyethylene Oxide Esters as Emulsifying Agents in Ointment Bases." J. Am. Pharm. Assoc. Pract. Pharm. Ed. 17, 517-8, 525 (with Eugene Hickman and W. R. Lloyd).

"The Use of Plants Extracts in Chemotherapy." Drug Standards 24, 135-44. (with George F. McKenna and Alfred Taylor).

"Studies on Toxic Plants for Antibacterial Effects III." Texas J. Sci. <u>8</u>, 227-34. (with Madge Steber, George F. McKenna, Alfred Taylor and Dorothy M. Smith).

"Anticancer Activity of Plant Extracts." Texas Repts. Biol. and Med. 14, 538-56. (with Alfred Taylor and George F. McKenna).

"Laboratory Manual for Introduction to Pharmacy." McGraw-Hill Book Co., Inc., N.Y. 3rd ed. pp. 271. (with J. B. Burt, L. W. Rising and W. J. Sheffield).

"What will be the Effects of Increased Enrollments in the Faculty requirements for Colleges and Schools of Pharmacy?" Proc. Natl. Assoc. Boards Pharm. and Am. Assoc. Coll. Pharm. 6th District, 30th Annual Meeting. 45-51.

"College Shows Continued Increase. Annual Report:" Texas Druggist 75 (10), 26-27, 52.

"Benzyl Benzoate, A Review." Am. Profess. Pharmacist 22, 1011-16, 1043-44. (with Safwat D. Kutob).

"The In Vitro Activity of Some Antibiotic Ointments Containing Hyaluronidase." J. Am. Pharm. Assoc. Pract. Pharm. Ed. 17, 514-16, 525 (Safwat D. Kutob and W. J. Sheffield).

"The Facilities of the College of Pharmacy of the University of Texas." Am. J. Pharm. Education 20, 172-4. (with W. R. Lloyd).

1957 "Proceedings of the 8th Annual Teachers' Seminar on Pharmacy Administrations." Am. Assoc. Coll. Pharm. pp. 261 (with Esther Jane Wood Hall).

"Publications of the Faculty of the College of Pharmacy." Bull. Univ. Texas Coll. Pharm.  $\underline{5}$ , No. 5, 1-16. with four annual supplements.

"Solubilities of Drugs." Bull. Univ. Texas Coll. Pharm.  $\underline{5}$ , No. 6, 1-34. Pharm. Extension Service Bull.  $\underline{2}$ , No. 2, 1-34.

"Annual Report of the University of Texas College of Pharmacy". The Texas Druggist  $\underline{76}$ , No. 10, 23, 76-77, 84.

"The Effect of pH on the Stability of Solutions of Liver Fraction I, NF X in the Presence of Ferrous Lactate and Ferrous Gluconate." Am. J. Pharm. 129, 277-89. (with H. H. Kavarana and F. V. Lofgren).

"Unpublished Abstracts of Articles on Pharmaceutical Subjects in Thirteen Journals - 1955-56." pp. 36 (with Dorothy M. Thompson) Series 2, 1958; Series 4 and Series 6,(1959); Series 10, 11, 12 (1960) Became Pharmaceutical Abstracts Vol. V, 1964.

"Pharmaceutical Aspects of Sequestering Agents." Am. Profess. Pharmacist 23, 620-3, 646 (with Jaime N. Delgado).

1958 "An Investigation of the Relative Stability of an Oral Liquid Vitamin Preparation." Drug Standards 26, 51-6 (with J. N. Delgado and F. V. Lofgren).

"Index of Plants of North Carolina with Reputed Medicinal Uses." Henry M. Eurlage, 702 E. 43rd St., Austin, Texas 78751, pp. 322.

"Modern Anthelimintics." Am. Profess. Pharmacist 24, 25, 32-33, 36-37, 916-3. (with B. D. Parikh).

"A Five Year Grade Study of Pharmacy Students in the Courses - Pharmacuetical Calculations and Introductory Pharmacy." Am. J. Pharm. Education 22, 193-200.

"Publications of the Faculty of the College of Pharmacy." First Supplement Bull. Univ. Texas Coll. Pharm. 6, No. 7, pp. 1-8 Annual Supplements through 6 appearing in the Texas J. Pharm. 5, No. 2, 44-48 (1964).

"An Examination of the Oil of the Seeds of Persimmon (Diospyros virginiana L., Fam. Ebenaceae)." J. Am. Pharm. Assoc. 48, 449-51. (with Cecil P. Cloughly).

"Orientation to Pharmacy." The Blakiston Division, McGraw-Hill Book Co., N. Y. pp. 287 (with Charles O. Lee and L. W. Rising).

"Tracer Techniques in Pharmacy." Am. Profess. Pharmacist 25, 841-9, 852-3. (with J. S. Mayell).

Editor. Texas Journal of Pharmacy. Vols. I-V.

1960 "The Separation of Some Fatty Acid Ester Mixtures by Chromatographic Adsorption." Texas J. Pharm. 1, 14-20. (with Wallace L. Guess and William R. Lloyd).

"Kinetics and Mechanism of Polymerization Reactions in Pharmacy." Texas J. Pharm.  $\underline{1}$ , 47-55. (with Kiran Randeri).

"Adventures in Course and Curriculum Building I. Visiting Lecture Series." Am. J. Pharm. Education 24, 170-3.

"Acne Vulgaris: The Status of Therapy." Am. Profess. Pharmacist <u>26</u>, 749-55 (with James C. King).

"Sequence of Amino Acids in Proteins and Polypeptides." Am. J. Pharm. 132, 282-94 (with V. D. Gupta).

1961 "Address of the Vice-President." Am. J. Pharm. Education 25, 21-5.

"Address of the President." Am. J. Pharm. Education 25, 363-8.

"The Hospital Pharmacist and 'Span' of Management." Am. J. Hosp. Pharm. 18, 604-7 (with Sidney A. Rosenbluth).

1962 "Examination of the Seeds of Polanisia Trachysperma."
J. Pharm. Sci. 50, 586-8 (with Man Nohan Kochhar).

Editor. "Creative Research in Pharmaceutical Sciences." 4th Annual Visiting Lecture Series pp. 232; 5th Series in 1963; 6th Series in 1964.

Book Review. Texas J. Pharm. 3, 65-6.

- 1963 Editor. Physical and Technical Pharmacy." Blakiston Div., McGraw-Hill Book Co., N.Y. pp. 740.
- 1964 "Pharmaceutical Abstracts." Annual vols. for V through X with cumulative author and subject indexes.

- "Motivating Influences to the Study of Pharmacy. II."
  Texas J. Pharm. 5 31-5; III. Ibid. 147. IV. Texas Pharm.
  84 (11), 20, (1965); V. 1961-1966, Am. J. Pharm. Education
  31, 225-7 (1967); VI. Texas Pharm. 89(7)16, 40 (1970);
  VII. Ibid. 90(1), 33.
- 1966 "Supply and Demand of Pharmacists in the 6th District." Texas Pharmacy 85(11), 37-9, 41, 43.
  - "The Pharmacy and the Cigarette Hazard." Texas Pharmacy 85 (4), 44.
- 1967 "College Enrollment Data, 1966-67. Texas Pharmacy 86(4), 33.
- 1968 "Index of Plants of Texas with Reputed Medicinal and Poisonous Properties." Henry M. Burlage, 702 E. 43rd St., Austin, Texas 78751, 272 pp.
  - Editor. "Experiments in Physical and Technical Pharmacy." Austin, Hemphills Publishing Co., pp. 342.
- 1969 Letter to the Editor. "Re. Pharmacy Technicians." Texas Pharmacy 88(6), 16.
  - "Commercial Spice Racks vs. Health Information Centers in the Community Pharmacy." Texas Pharmacy  $\underline{88}(10)$ , 27.
  - "Professional Students Auxiliary Interests and Obligations." Texas Pharmacy 88(12) 24.
- 1970 "Should Pharmacies Sell Cigarettes." Texas Pharmacy 89(2), 25.
  "Become Involved." Texas Pharmacy 89(10), 46.
- 1971 "Women's Liberation in Pharmacy Fact or Fiction." Texas Pharmacy 90(8), 26.
  - Address to the University of Texas Pharmacy Alumni Association in Recognition of his Retirement. Texas Pharm. 90(9), 38-9.
  - "Ethics, Obligations and the Drug Vendor Plan." Texas Pharm. 90(12), 22.
  - "Clinical Pharmacy A Student's Viewpoint." Texas Pharmacy 90(2) 34.
  - "Pharmacist Technicians (Aides)." Texas Pharmacy 90(3), 36.
  - "Clinical Pharmacy its Application in Community Pharmacy." Texas Pharmacy 90 (5), 15, 35.

- "Pharmacists' Involvement in Depressed Areas." Texas Pharmacy 90 (6), 35.
- 1972 "Free Health Clinics For or Against." Texas Pharmacy 91(4), 37.
  - "Pharmacy Speaks its Mind. Do You?" Texas Pharmacy 91(5), 26.
  - "A Tale of Ethics-Pseudo or Real I. Conglomerate Ethics: Drug Price Fixing." Texas Pharm. 91(10), 10. II. "Snail Pace Decision Making." Ibid. 91(11), 26-7. III. "Legal Delays Clutter the Courts and Price-Fixing Decision." Ibid. 91(12), 10.
  - "Pharmacy Unification." Texas Pharmacy 91(6)47.
  - "An Epoch in American Pharmacy ???? The NARD-APhA Conference." Texas Pharmacy 91(1) 20.
- 1973 "The Crude Drug Industry in North Carolina and Adjacent Areas." Carolina J. Pharm 53(1), 29-37 (with George M Hocking).
  - "The Wild Flowering Plants of the Highland Lakes Country of Texas." pp. 158. 702 E. 43rd St., Austin, Texas 78751.
  - "A Tale of Ethics-Pseudo or Real? "Over-The-Counter Debacle!" Texas Pharmacy 92(4), 38.
  - "Is the Small Independent Pharmacy Doomed?" Texas Pharmacy 52 (5), 40.
- "The Four Walls of Pharmacy", Vantage Press, New York, N.Y., pp.116.
- 1978 "Pharmacy's Foundation in Texas." The Pharmaceutical Foundation of the College of Pharmacy, The University of Texas at Austin, Austin, Texas. pp 600 (with Margot E. Beutler).