# TRANSACTIONS

VOLUME IX
GULF COAST ASSOCIATION
OF GEOLOGICAL SOCIETIES

SHREVEPORT

TYLER

HOUSTON

SAN ANTONIO

CORPUS CHRISTI

JACKSON

TALLAHASSEE

NEW ORLEANS

LAFAYETTE LAKE CHARLES

BEAUMONT

**HOUSTON, TEXAS**November 11, 12, 13, 1959

/ leck M. Lullwan

## TRANSACTIONS

# Gulf Coast Association of Geological Societies

VOLUME IX, 1959

DeWitt C. Van Siclen, Editor

Prepared for the

NINTH ANNUAL CONVENTION OF G.C.A.G.S.

and the

1959 FALL REGIONAL MEETING OF THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

held in co-operation with

THE GULF COAST SECTION OF THE SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS

NOVEMBER ELEVENTH THROUGH THIRTEENTH, 1959

at

THE SHAMROCK-HILTON HOTEL, HOUSTON, TEXAS

To Purchase Copies See Page 76 Published at Houston, Texas

# This Volume Is Dedicated to the Memory of Alexander Deussen (1882-1959)



AST month, the myriad friends of Alexander Deussen learned that he had passed away peacefully on September 5 at a Denton, Texas, hospital, where Mrs. Sue Campbell Deussen had escorted him four days previously from his home in nearby Ponder for a physical examination, His daughter, Lucille Deussen McRae, lives in Houston.

Alec was born in San Antonio, Texas, on January 19, 1882, the son of a San Antonio banker. After receiving his masters degree and a Phi Beta Kappa key from the University of Texas in 1904, he became a member of the faculty and taught geology for ten years. During seven of these years he also served the U. S. Geological Survey. In 1915, he came to Houston as a geologist for a predecessor of the Gulf Oil Corporation and a year later opened his office as a consulting geologist.

During his career he served as a consultant to many oil companies, both major and minor, including Standard Oil of California, Marland Oil Company, Imperial Oil Company of Canada, The Texas Company, Gulf Oil Corporation, Humble Oil and Refining Company, Kirby Petroleum Company, Texas Gulf Sulphur Company, The Freeport Sulphur Company, and many others. He also advised state and federal governments in North and South America.

When geophysics came to this continent, Alec immediately recognized it not as a competitor but, as it proved to be, a valuable tool for solving the problems of geology. He was the first person who actually operated and used the seismograph for the purpose of discovering salt domes in the Gulf Coast. He was instrumental in introducing the electric well log in the Gulf Coast, serving as a director of the Schlumberger organization when it was first organized in 1932.

Not only did Alec make direct contributions to many oil discoveries in Texas and Louisiana but his more than 40 publications contain source material which has contributed to the discovery of numerous others. Four of his classic publications were written for the U. S. Geological Survey. His Professional Paper No. 126, "Geology of the Coastal Plain of Texas west of the Brazos River," published in 1924, was in such

demand that the University of Texas republished it in 1930.

Besides being a member of 14 professional and scientific societies, he was an honorary member of the A.A.P.G.; and, in 1947, the Sidney Powers Medal, a coveted award to outstanding and distinguished petroleum geologists, was presented to him by Wallace E. Pratt, the only other recipient of this award. Mr. Pratt's sincere felicitous expressions in the citation published in the A.A.P.G. Bulletin preclude additions without resorting to redundancy.

Alec was never too busy to assist young geologists who went to him for counsel. His dignified reserve, natural friendliness, patience to listen, clear vision, rugged honesty; devotion to his profession, and sage advice inspired ideas in young scientists. These have lost their mentor, guide, and beloved friend who will endure in their hearts.

# TABLE OF CONTENTS

	rage
DEDICATION TO ALEXANDER DEUSSEN	3
INDEX TO ADVERTISERS	7
INDEX TO GEOLOGICAL SOCIETY DIRECTORIES	8
OFFICERS AND REPRESENTATIVES OF GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES	9
COMMITTEES FOR NINTH ANNUAL CONVENTION OF GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES	10
OFFICERS, GULF COAST SECTION, SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS	
OFFICERS OF MEMBER SOCIETIES OF GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES	
REPORT OF THE PRESIDENT OF GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES	
TECHNICAL PAPERS	
GULF COAST CENOZOIC HISTORY by J. D. M. Williamson	14
FRIO FORMATION OF THE UPPER TEXAS GULF COAST (abstract) by L. Bruce Forney	30 `
SEDIMENTATION AND STRUCTURE, JACKSON GROUP, SOUTH-CENTRAL TEXAS by D. Høye Eargle	31
EROSIONAL CHANNEL IN THE MIDDLE WILCOX NEAR YOAKUM, LAVACA COUNTY, TEXAS by William V. Hoyt	41
EFFECT OF STRUCTURAL MOVEMENT ON SEDIMENTATION IN THE PHEASANT-FRANCITAS AREA, MATAGORDA AND JACKSON COUNTIES, TEXAS by John E. Walters	51
HETEROSTEGINA REEF ON NASH AND OTHER PIERCEMENT SALT DOMES IN NORTHWESTERN BRAZORIA COUNTY, TEXAS by Raiph B. Cantrell, J. C. Montgomery, and A. E. Woodard	59
REVIEW OF HITCHCOCK FIELD, GALVESTON COUNTY, TEXAS by Jesse O. Reiter	63
TURTLE BAY FIELD, CHAMBERS COUNTY, TEXAS by R. P. Akkerman	71
OCCURRENCE OF MIOCENE OIL IN SOUTH LOUISIANA by Leonard L. Limes and Jack C. Stipe	77
SEDIMENTATION AND STRUCTURE OF THE PLANULINA-ABBEVILLE TREND, SOUTH LOUISIANA by Hunter C. Goheen	91
HORNWELL FIELD, JEFFERSON DAVIS AND CAMERON PARISHES, LOUISIANA by Frank R. Hardin	105
HE GRANDISON COMPLEX, LAFOURCHE AND JEFFERSON PARISHES, LOUISIANA by Ramsey L. Oakes	111
	121
$\cdot$	131
NFLUENCE OF THE JACKSON DOME ON SEDIMENTARY FACIES AND WATER-BEARING PROPERTIES OF THE CLAIBORNE GROUP IN THE JACKSON AREA, MISSISSIPPI (abstract) by Joseph W. Lang	146
FOSTRATIGRAPHIC AND PALEOECOLOGIC STUDY OF MIDWAY FORAMINIFERA ALONG TEHUACANA CREEK, LIMESTONE COUNTY, TEXAS by Mrs. Gene Ross Kellough	147
ETROLOGY OF THE ANACACHO LIMESTONE OF SOUTHWEST TEXAS by Lee L. Harvill	161

	Page
TEXTURAL DIFFERENCES BETWEEN TWO TYPES OF SHOESTRING SANDS by John J. W. Rogers and Cyrus Strong	167
LOG INTERPRETATION IN THE BRACKISH WATER FRIO TREND by Terry Walker	171
NEW LOG INTERPRETATION TECHNIQUES FOR THE GULF COAST by R. P. Burton	179
FIELD TRIP SYMPOSIUM	
ORIGIN AND DEVELOPMENT OF THE TEXAS SHORELINE by Rufus J. LeBlanc and W. D. Hodgson	197
THE GALVESTON BARRIER ISLAND AND ENVIRONS: A MODEL FOR PREDICTING RESERVOIR OCCURRENCE AND TREND (abstract) by Hugh A. Bernard, C. Fred Major and Blair S. Parrott	221
LATE QUATERNARY GEOLOGY OF SABINE LAKE AND VICINITY, TEXAS AND LOUISIANA by Henry E. Kane	225
SIZE, SORTING, MINERALOGY, AND CHEMICAL COMPOSITION OF THE RECENT SANDS OF THE NORTHERN GULF COAST (abstract) by K. Jinghwa Hsu	236
THE CHENIER PLAIN AND ITS STRATIGRAPHY, SOUTHWESTERN LOUISIANA by J. V. Byrne, D. O. LeRoy, and Charles M. Riley	237
GEOLOGIC HISTORY OF THE CHENIER PLAIN, SOUTHWESTERN LOUISIANA by H. R. Gould and E. McFarlan, Jr.	261
KEYNOTE ADDRESS	
GENERAL SEMANTICS AND OIL EXPLORATION by George C. Hardin, Jr	273
POLICY OF THE GCAGS IN GRANTING PERMISSION TO REPRINT COPYRIGHT MATERIAL FROM THE TRANSACTIONS	166

\* - - -

# INDEX TO ADVERTISERS

Page	Page
Acco Oil & Gas Co	Hudnall & Pirtle, Petroleum Geologists
Anderson & Cooke	Hutchison Bag Corp
Atwater, Cowan and Associates	
	Koenig Iron Works, Inc
Baroid Div., National Lead Co	
Bel Oil Corp	P. G. Lake, Inc
Blakey's Log Service	Milwhite Mud Sales
E. W. Brown, Jr	Morgan Minerals Corp. 191
W. H. Bryant Interests	Morgan Willeras Corp
Dan L. Clark Drilling Company	National Bank of Commerce in New Orleans
Coastal States Gas Producing Company278	National Geophysical Co195
W. E. Colson190	Nixon Blue Print Co
Core Service Inc	
E. A. Courtney193	Pan Geo Atlas Corp187
	Petty Geophysical Engineering Co
Delta Drilling Co191	
Dowell	Ridgways
	Rogers Geophysical Companies Outside Back Cover
East Texas Photocopy Co	Sahlumbarran Wall Summir Com
R. W. Eaton	Schlumberger Well Surveying Corp
Emraco Production Laboratories, Inc	Seismograph Service Corp
Formulae Wall Lan Control	Fred E. Simmons, Jr
Ferguson Well Log Service	Smith & Goodwyn
Freeport Oil Co	Southern Minerals Corp
Globe Drilling Co	Sperry-Sun Well Surveying Corp
Geophysical Service, Inc	Superior Blueprint & Photocopy Co
, , , , , , , , , , , , , , , , , , , ,	Translation Court C
Halbert Drilling Co191	Trowbridge Sample Service
Aichel T. Halbouty189	United Geophysical Corp
Herb J. Hawthorne, Inc195	
ames L. Head and Ramsey L. Oakes	Whitney National Bank of New Orleans
Maxwell Herring190	W. W. Wise Drilling Company.

# INDEX TO GEOLOGICAL SOCIETY DIRECTORIES

	270
BEAUMONT GEOLOGICAL SOCIETY	
CORPUS CHRISTI GEOLOGICAL SOCIETY	281
EAST TEXAS GEOLOGICAL SOCIETY.	
HOUSTON GEOLOGICAL SOCIETY	287
HOUSTON GEOLOGICAL SOCIETY	200
LAFAYETTE GEOLOGICAL SOCIETY	291
MISSISSIPPI GEOLOGICAL SOCIETY	302
NEW ORLEANS GEOLOGICAL SOCIETY	30
SHREVEPORT GEOLOGICAL SOCIETY	310
STIRLY LI OKT OLOLOGISAL GOGIET	31
SOUTHEASTERN GEOLOGICAL SOCIETY	
SOUTH LOUISIANA GEOLOGICAL SOCIETY	31
SOUTH TEXAS GEOLOGICAL SOCIETY	31
THE RESIDENCE SOCIETY OF ECONOMIC PALEONITOLOGISTS AND MINERALOGISTS	

### GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES

#### 1959

1959	
PRESIDENTGF	COPOR O HABOIN ID
VICE-PRESIDENT	· · · · · · · · · · · · · · · · · · ·
SECRETARY	
TREASURER	JAMES A. WHEELER
EXECUTIVE COMMITTEE	
Richard T. Chapman	Beaumont Geological SocietyBeaumont Geological Society
W. D. Dobbins. Representative Thomas J. Wintermute Alternate E. Alan Lohse Past President	Corpus Christi Geological Society
Jack Trantham,Representative Henry Goodrich,Alternate	East Texas Geological Society East Texas Geological Society
George C. Hardin, Jr	Houston Geological SocietyHouston Geological Society
Joseph F. Moss	Lafayette Geological Society
Charles E. Brown	Mississippi Geological Society Mississippi Geological Society
Lyle Harvey	New Orleans Geological SocietyNew Orleans Geological Society
Frank N. Blanchard, Jr	Shreveport Geological Society Shreveport Geological Society
H. S. Puri	Southeastern Geological Society
Troy Freund	South Louislana Geological Society
E. J. Matulich	South Texas Geological SocietySouth Texas Geological Society
EDITOR	
DeWitt C. Van Siclen	Houston Geological Society
ASSOCIATE EDITORS	vo.
Charles W. Stuckey, Jr	Houston Geological Society
Forest Moore	Begument Geological Society
Lester A. Coon	East Texas Geological Society
Emmett R. Adams	Latayette Geological Society Mississippi Geological Society
Charles De Blieux Harbans S. Purí	New Orleans Geological Society
	Godonia and Society
ADVEDTICAL IO	

#### ADVERTISING MANAGER

# CONVENTION COMMITTEES

general chairman	
Olin G. Bell	. Geologist, Houston, Texas
PROGRAM	
Raymond E. Fairchild, Chairman Arthur S. Dickinson Norman E. Smith Cecil R. Rives	Lion Oil Company Continental Oil Company
EDITORIAL	
DeWitt Van Siclen, Editor. Charles W. Stuckey, Jr. Charles De Blieux Rayburn D. Ocamb	. Union Oil Company of California . Consultant, New Orleans
ADVERTISING	
B. F. Winborn, Jr., Chairman C. M. Christi	. Exploration Service Company . Willard-Gill Petroleum Company
entertainment	
E. R. Cockrell, Jr., Chairman	. Emraco Production Laboratory, Inc.
EXHIBITS	
Curtis C. Franks, Chairman Ray V. Barron Claude Riney, Jr.	Skelly Oil Company
FIELD TRIP	
Howard R. Gould, Chairman Marcus A. Hanna H. A. Bernard Henry E. Kane R. J. LeBlanc E. McFarlan, Jr.	Gulf Oil Corporation Shell Development Company Lamar State College, Beaumont Shell Development Company
HOUSING	
Ralph A. Davis, Chairman John W. Cooke, Jr. Bob Owens Edward G. Lipp	Texas National Petroleum Company Texas National Petroleum Company
PUBLICITY	
Henry S. McQueen, Chairman R. R. Rieke Ben A. Elmdahl	Schlumberger Well Surveying Corneration
registration	
Elmer T. Musselman, Co-Chairman.  Mrs. Thomas D. Barber, Co-Chairman.	Shell Oil Company Houston, Texas
SOUND AND PROJECTION	
James H. Ogg, Chairman Stewart H. Folk Robert D. Turley	TULM Corporation
TRANSPORTATION	
Orville G. Lundstrom, Chairman  Douglas E. Bacon	North Central Oil Corporation Atlantic Refining Company
WOMEN'S ACTIVITIES	
Mrs. Robert D. Hendrickson, Chairman	Houston, Texas

# OFFICERS OF GULF COAST SECTION, SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS

PRESIDENT	Marcus A. Hanna, Gulf Oil Corporation, Houston, Texas
VICE-PRESIDENTClaude M.	Quigley, Jr., Standard Oil Company of Texas, Houston, Texas
SECRETARY	.Fred E. Smith, Texas A. & M. College, College Station, Texas
TREASURERBernard	L. Hill, Jr., The California Company, New Orleans, Louisiana
EDITORCharles W. S	tuckey, Jr., Union Oil Company of California, Houston, Texas

# OFFICERS OF MEMBER SOCIETIES OF GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES

#### BEAUMONT GEOLOGICAL SOCIETY

PRESIDENT	
VICE-PRESIDENT	Wallace W. Rangeler, Sun Oil Company
SECRETARY	Charles L. Cox, Humble Oil and Refining Company
TREASURER	George A. McCalpin, Sun Oil Company

#### CORPUS CHRISTI GEOLOGICAL SOCIETY

PRESIDENT
1st VICE-PRESIDENT
2nd VICE-PRESIDENT
SECRETARY
TREASURER Frank Brooner, Union Oil Company of California

#### EAST TEXAS GEOLOGICAL SOCIETY, TYLER

PRESIDENT	Charles R. Halstead, British-American Oil Producing Company
VICE-PRESIDENT	Paul H. Nichols, Shell Oil Company
SECRETARY	. ,Frances V. Daly, Tidewater Oil Company
TREASURER	. Leo R. Chisholm, Amerada Petroleum Company

#### HOUSTON GEOLOGICAL SOCIETY

PRESIDENTEdd R. Turner, Jr., Tidawater Oil Company
1st VICE-PRESIDENT
2nd VICE-PRESIDENT
SECRETARY Austin D. Brixey, Jr., Sinclair Oil and Gas Company
TREASURER Henry C. Dean, Tennessee Gas Transmission Company

#### LAFAYETTE GEOLOGICAL SOCIETY

PRESIDENT	William W. Henry, Union Oil Company of California
VICE-PRESIDENT	Samuel A. Spencer, Phillips Petroleum Company
SECRETARY	Adam Perez, Schlumberger Well Surveying Corporation
TREASURER	William S. McAlister, Texas Eastern Transmission Corporation

### MISSISSIPPI GEOLOGICAL SOCIETY, JACKSON

PRESIDENT	M. F. Kirby, Gulf Oil Corporation
VICE-PRESIDENT	Rudy V. Ewing, Dixie Geological Service
SECRETARY	W. H. Hollingsworth, Sinclair Oil and Gas Company
TREASURER	W. D. Lynch, The California Company

#### NEW ORLEANS GEOLOGICAL SOCIETY

PRESIDENT	Thomas H. Philpott, Olin Oil and Gas Corporation
VICE-PRESIDENT	
SECRETARY	Leonard L. Limes, Kerr-McGee Oil Industries
TREASURER	Norman R. Tabor, The California Company

#### SHREVEPORT GEOLOGICAL SOCIETY

PRESIDENT	. Frank C. Crawford, Ohio Oil Company
1st VICE-PRESIDENT	. John T. Palmer, Lyons and Logan
2nd VICE-PRESIDENT	J. C. Byrd, Jones-O'Brien, Incorporated
SECRETARY	T. C. Buchanan, Arkansas Fuel Oil Corporation
TREASURER	. Allan H. Talley, Sun Oil Company

### SOUTHEASTERN GEOLOGICAL SOCIETY, TALLAHASSEE, FLORIDA

PRESIDENT	Harbans S. Puri, Florida Geological Survey
VICE-PRESIDENT	Donn S. Gorsline, Florida State University
SECRETARY-TREASURER	. William D. Reves, Florida Geological Survey

### SOUTH LOUISIANA GEOLOGICAL SOCIETY, LAKE CHARLES

PRESIDENT	Guy W. Joyce, Union Oil and Gas of Louisiana
VICE-PRESIDENT	W. K. Grittman, Continental Oil Company
SECRETARY	
TREASURER	G. M. Couch, Texas Gas Transmission Corporation

# SOUTH TEXAS GEOLOGICAL SOCIETY, SAN ANTONIO

PRESIDENT	J. G. Joyce, Standard Oil Company of Texas
VICE-PRESIDENT	John S. Rives, George Coates
SECRETARY	Nancy Bolton, Morris Cannan
TREASURER	Bill N. Camp, Camp Oil Company

# GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES REPORT OF THE PRESIDENT

#### 1959

The Executive Committee, consisting of representatives from each of the eleven local member societies, met at Houston in April and in August. A third meeting is scheduled for November 11, the first day of the IX Annual Convention. The fourth and final meeting will be held in December when the officers for 1960 will be elected.

The Executive Committee amended the By-Laws of the G.C.A.G.S. by including the following sentence as Paragraph V: "The Executive Committee of this Association may request that the American Association of Petroleum Geologists designate the Gulf Coast Association of Geological Societies Annual Convention as a joint regional meeting with the American Association of Petroleum Geologists." Following the passage of this amendment, the Executive Committee, through the President, requested the A.A.P.G. to designate the IX Annual Convention as a joint regional meeting with the A.A.P.G. The convention was designated as the Fall Regional Meeting of the A.A.P.G. and is the first G.C.A.G.S. convention to be so designated. An A.A.P.G. Executive Committee meeting is to be held at the Shamrock Hotel in Houston during the convention.

Early in the year, all copies of volumes II and III of the Transactions had been sold. The Executive Committee voted to reprint these two volumes, and 300 copies of each were reprinted. The G.C.A.G.S. now has on hand a supply of all Transactions volumes.

I wish to express my personal appreciation to the representatives of the member societies for their diligence in attending the Executive Committee meetings and for their assistance in handling the various matters of policy and business that have arisen during the year. Special thanks are due to the Association officers.

The IX Annual Convention promises to have the largest attendance yet registered at a G.C.A.G.S. Convention. Arrangements for this convention have required the time and skill of many individuals. I want to express the gratitude of the Executive Committee and myself to those who have so generously donated their efforts to preparing for this convention.

The financial position of the Association continues to be sound, with approximately \$11,000.00 in cash and \$5,755.00 in bonds. Inasmuch as the annual budget for the Transactions and convention is in excess of \$30,000.00, this reserve is necessary for underwriting the Association's annual expenses.

GEORGE C. HARDIN, JR.