James M. Mason, McKinney, Texas, Warren Paleogeography.

Clyde M. Bennett, Bar Harbor, Shrewsbury, Law.

To Arkansas Nat. Garbo, Copy of postcard.
FOURTH ANNUAL MEETING

AMERICAN ASSOCIATION of PETROLEUM GEOLOGISTS

MARCH 13 to 15, 1919
ADOLPHUS HOTEL
DALLAS, TEXAS
PROGRAM

All meetings will be held in the Roof Garden of the Junior Adolphus Hotel, unless otherwise announced.

Thursday, March 13th

9 a.m.
Registration of Members and Guests, Lobby of Junior Adolphus Hotel

10:30 a.m.
OPEN MEETING

Addresses of Welcome by MAYOR LAWTER and GILBERT H. IRISH of Dallas

Five-minute addresses by

DAVID WHITE,
Chief Geologist, U. S. Geological Survey

I. C. WHITE,
State Geologist, West Virginia

RALPH ARNOLD,
Valuation Expert,
Internal Revenue Department,
U. S. Treasury

J. A. UDEN,
State Geologist of Texas

CHAS. SCHUCHERT,
Professor of Geology,
Yale University, New Haven, Conn.

2-5 p.m.
TECHNICAL SESSION

1. Subsurface Geology of the Oil Producing Districts of North Central Texas
   Discussion led by JON A. UDEN

   Description of Cuttings from
   Duffer Well, Ranger Field
   Empire Well near Brownwood
   Goode Well, Young County, and Dye Well, Palo Pinto County
   Bartles & Dumenil Well, Brown County
   Lithologic Characteristics of the Bend Series

   CHAS. R. ECKES
   D. B. GREGER
   F. B. PLUMMER
   V. V. WAITE
   ALEX W. McCvoy
PROGRAM

Thursday 2-5 p. m.—(Continued)

1. Laboratory Methods for the Examination of Well Cuttings — EARL A. TRACER
   Methods of Examination of Well Cuttings Used by the Bureau of Economic
   Geology and Technology, Austin, Texas — — — V. V. WAITE
2. The Bend Formation and its Correlation — — — G. H. GIRTY
3. Structural Conditions in the Bend Series Adjacent to the Llano Uplift
   Discussion led by J. M. SANDS
4. Notes on Structure of Surface Rocks as Related to Subsurface Structure and
   Petroleum Accumulation in North Texas — WALLACE E. PRATT
5. A Preliminary Paper on the Stratigraphy of the Pennsylvanian Formations of
   North Central Texas — — — F. B. PLUMMER
6. Notes on the Structures and Oil Showings in the Red Beds of Coke County,
   Texas — — — J. W. BEDEE
7. Observations on Two Deep Borings on the Balcones Faults — J. A. UDDEN
8. Water Problems of the Bend Series, and Its Effect on Future Production and
   Flooding of Oil Sands
   Discussion led by M. L. FULLER
9. The Cretaceous Problem as It Relates to the Possibility of Determining Structures
   in the Underlying Pennsylvanian and Mississippian Formations
   Discussion led by ROBERT T. HILL.

3:15 p. m.
POPULAR MEETING (OPEN TO THE PUBLIC)
Auditorium of Municipal Building
Address by DAVID WHITE, Chief Geologist, U. S. Geological Survey
Oil Bearing Formations in Texas — J. A. UDDEN
Illustrated Lecture on China — M. L. FULLER

Friday, March 14th
9:30 a. m.
TECHNICAL SESSION
Symposium on Valuation Methods

1. Problems of Oil Lease Valuation — RALPH ARNOLD
2. Factors in the Valuation of Oil Lands — CARL H. BEALL
3. Decline Curve Methods — ROSWELL H. JOHNSON
4. Valuation of Gas Properties — EUGENE W. SHAW

2-5 p. m.
TECHNICAL SESSION

1. Principles of Oil Accumulation — ALEX W. MCCOY
2. Development of the Butler County, Kansas, Field — H. R. SHIDELL
PROGRAM

3. Extent and Interpretation of the Hogshooter Gas Sand  WALTER R. BERGER
4. Review of Developments in Kansas During 1918  RAYMOND R. BERGER
5. A Review of Development in the Central Texas Oil Fields  W. L. MATTESON
6. A Statistical Investigation of the Influence of Structure on Oil and Gas Production in the Osage Nation  ROSWELL H. JOHNSON and SHIRLEY L. MASON
7. Unconformities in Oklahoma  ED. BLOESCH

7:00 p.m.

Banquet complimentary to the Association by the Dallas Chamber of Commerce & Manufacturers' Association, Junior Ball Room, Adolphus Hotel

The toast list for the banquet will be made up of talks by local and visiting oil producers, including a special address on Valuation of Oil Properties  RALPH ARNOLD

Valuation Expert, U. S. Treasury Department.

Saturday, March 15th

9:30 a.m.

TECHNICAL SESSION

1. The Saratoga, Texas, Oil Field  J. W. BOSTICK
2. Relations of Sulphur and Cap-Rock in the Gulf Coast Salt Domes  C. R. ECKES
3. History of Geologic Exploration in the Southwest  ROBERT T. HILL
4. Notes on the Stratigraphy of Panama and Costa Rica  D. F. MACDONALD
5. Structural Conditions in the Oil Fields of Bexar County, Texas  E. H. SELLARDS
6. Geologic Work of the American Expeditionary Forces  SIDNEY POWERS
8. Design for a Log Meter  GEO. E. BURTON
9. Oil Field Waters  G. SHERBURN R. ROGERS

2-5 p.m.

BUSINESS SESSION

Annual Report of the President
Annual Report of the Secretary-Treasurer
Annual Report of the Editor
Report of Committees
Introduction of New Business
Election of Officers
Saturday, March 15th
9:30 a.m.

1. The Stratotype, Texas Oil Field
2. Relations of Sulfur and Cap-Rock in the Gulf Coast Salt Domes
3. History of Geologic Exploration in the Southwest
4. Notes on the Stratigraphy of Panama and Costa Rica
5. Structural Conditions in the Oil Fields of Texar County, Texas
6. Geologic Work of the American Expeditionary Forces in the Oil Fields of Texar County, Texas
7. Oil Field Waters
8. Design for a Log Meter
9. Oil Field Waters

2:30 p.m.

1. Robert T. Hill
2. D. F. MacDonald
3. E. H. Flahive
4. T. W. Gregory
5. C. H. Burton
6. C. M. Sherburne Rogers

7:00 p.m.

Banquet complimentary to the Association by the Dallas Chamber of Commerce Mail Order Manufacturers Association, Junior Ball Room, Adolphus Hotel. The toast list for the banquet will be made up of talks by local and visiting oil producers, including a special address on Ralph Arnold:

Valuation of Oil Properties
- Ralph Arnold, Valuation Expert, U.S. Treasury Department.
Lend Plummer, Bouton and Ethel

Land Plays a Questionnaire, Last Term
for an exam next. Has no book on the
paper. May be called the College, or is
any event from our previous mention.

Professor Charles Schuckert
Yale University
New Haven
Conn.

Home 59 Hall St.

Texas 1919.

[3453] Mar 11-29 Texas, Oklahoma
det. 117
Mr. H. Adams

Range West

Has a young assistant, Dr. H.,
Met with him on a boat on the Rio Grand.
Mr. Arthur Edmonds is in the same boat.
Others College people are also on the boat.

Dr. H. is deeply interested in
the fossiliferous strata off in the Foreman

With Mrs. H. at Trinity University.
College in the evening and next morning.

Mr. Capt. C. Hannen

By Air

Mineral Wells, Texas

Is still in bed, to be driven.

Has had a slight chill of pneumonia at Chicago.

Has been home. How is he?

Is his health good? Catches colds easily.

Fires, walks, and drives, with company.

He has many ideas, but they are always changing.
Emma Schuchert  
1900 Mill Ave  
Norwood, Ohio.

R. E. Mother, Dallas Texas.

A. H. McCoy  
Empire Oil and Gas and Fuel Co.  
Bartlesville, Oklahoma.

Lee Lee Walter R. Breyer  
Robert H. Ott  
L. V. Briden

O. B. Bartley  
411 General Building  
Oklahoma City, Okla.

Recently Prom. P. D. of A. A.

Prof. Charles H. Bould  
Oklahoma City, Okla.

L. L. Hutchinson  
Kanola Oil Co.  
Tulsa, Okla.

C. L. Baker  
Emil Breze
Mr. C. Bean
Bon. 140
Mineral Wells, Tex.

Found him at J. H. New, or 20 ft.
W. E. P. Rl. O. E. Manley March 17

F. O. Sampson, of Dedalia—men.
Nate Harrison, from old and auditor.
His collection in whole, from that.
The front cover to book p. 1500. All other
things $1000 more. His library is a genuine
very fine. His son, Sampson, in an active
A lawyer in N.Y., or his son.
Wife to Miss Mary M. Miller (doubly Sampson)
Hotel Belvedere, N.Y. City

Send begin a list your druggists books
and alfabet.
Send him less and Barney by W. S. New

Some new lot of drugs (upper x). E.
Some other booked last a letter.
If J. A. Trovine's have wrote and it

To him,
And Philip Norway. On the 2nd and 1st of July.

767 Grand Ave, Fulton.
Great F. Bartonville Or.
And 19th To Fulton Mo.

L.C. Enlisted as an army and thus Cummings made an application to join the 5th. and he served me some months.

And L.C. Schylerly my P.B. of H. G.

Letters made by the C. E. to me of my father's death.
John L. Comer, July 24th 1856.

To the best of my recollection of any of my relations.

And Henry a gentleman, they go in the college.

He knew of my P.B. of H. G. that I gave him a year ago.
B. Plata, (Colombian)
Drawer "S"
Bartlesville, Oklahoma.

Earl A. Drager,
1106 Drug Ave.
Bartlesville, Okla.

Your work in the laboratory of the Botanical Institute, including the collection of seeds, sors, and other materials...

Would you please send a complete list of the Ficus species, including all known varieties?

Write a paper on the subject of Economic Botany.

Write a complete summary of your findings on the various species of Ficus.

Your account of their cultivation and propagation is much appreciated.

Let us hope for the best in the future. In an effort to improve the cultivation of Ficus species, we have established a new nursery.

Best wishes for your success. Where there is no enemy, the way is full of most beautiful flowers.
Tuesday March 11, 1919

Started from New Haven to Dallas at 12:17 and at 11:44 at 40.4. Rain at New Haven but none at D. J. The next city is Montreal with Caines on the line. The P. R. R. train the St. Louisian, and A. C. Crockett. Had been built on our 35 and returned at 6:15 P.M.

Wednesday March 12, 1919

Died up at 7:00 M. and had heat part to Ohio next Columbus. It's a fine day. Some flowers are green, spring wheat is green and in the ground, and some plows are plowings. We passed through Dayton and Xenia in Ohio, and then Richmond, Indianapolis and Terre Haute in Indiana. In Illinois the wheat is even higher out of the ground, and many of the trees are developing into buds. The season appears to be a full month ahead, and there was rain to our left in coming along and destroying the wheat.

Only Columbus are some about 30 minutes late, but are making up as we go. Read all day on the geology of Texas. On time at St. Louis at
Sat. 4. Started out on R. C. and T. at 6:30
P.M. Met on the train riding Parsons, and later
on the train, old man, Mr. McDougal, a graduate
of the U.S. Chicago. Parsons just returned from the
Civil and has the insignia of the General Staff bar
worked with Brookes.

Parsons and I talked for three hours about things
in general in geology and more specifically about the
oil conditions. He says no two geology jobs are iden-
tical maps of the same area or impossible it is to
be certain of an inch. Start to start in somewhere
and if it happens not like the ideal place may come
out with a bad result. Then for the grade down
then a thinner and what a waste of effort to change.
The difference he thinks a clue to new joint and oil.
He tells me that one is 20 feet thick finished out to
nothing in 10 miles.

Other difference of formations as a difficulty
in locating the same in underground geology as
looking Parcels north in Bull, U.S. I., no 686
and especially in 686 B. Also look in the Township, N.
24, R. 12 E.
OIL GEOLoGISTS TO MEET HERE TODAY

PUBLIC MEETING WILL BE HELD TONIGHT AT 8:15 O'CLOCK AT CITY HALL.

Preliminary geologists from all parts of the state will meet tonight in the City Hall. Among those who will be present are members of the State Association of Petroleum Geologists. The meeting will be followed by a banquet which will be served at 10 o'clock.

The first business session will be held from 8:15 to 10 o'clock. It will be devoted to the discussion of various problems of oil production in Texas. The program will be announced later.

It is understood that the meeting will be held at 10 o'clock.

The meeting is expected to be of great interest to all those who are interested in the geology of Texas.
Dallas, Texas.

Thursday March 13, 1919

Got up at 7 A.M. in central Oklahoma. At breakfast at 8 we crossed the Canadian river that divided one of the Plattes, a wide shallow river, with little current and much driftwood said. The streams are all bluing pretty, and the different hills have a thin soil with thin grass covered with some flat rocks. Fort of the stream the streams were very pretty. The settlements are few and very small, and all in cheap and sparsely.

Evidence of a rich farming country. Although somewhat narrow here the population is not further away than in Illinois. The rolling the land very good, the hills rising to very high. The farms, usually one or two stories high, and three stories high, and those 3 story is rare. This is the beginning 1 civilizing the indians.

Got to Dallas at 11:30 A.M. Courted and got a room at the Adolphus, headquarters for the A. A. P. S. The club dining room took a room at the A. A. P. Hotel. At 2:45 we were at the meeting and soon got into the discussion on the Bond.
It is just as clear as anything can be that the oil-paintings have not to anything about understand emulsioners. Of all in the Laws of lithology and ever the very poor. As little then they are of interest. and they need me no more badly.

But in any case made by D. White clear and forcible that the Band is a deep sea and that it contains Ohio. and Penn. The most Band or Black Shale has 35 to 40 species and these are of the higher Ohio, i.e. the Mississippian. He does not make it clear how high, but apparently it is somewhere and proves in the Chester thrust of a different sea. The conclusion of the Band with the lower 500 feet of the Canyon is made with Miss. The Band in the lower apparently Penn. The most Band has some 10 species, 5 to 8.

The Merkleعة has 100 species and the Smithville 35 with 47 stick. The latter is worked by Dryophyllum explained. In the form pear Paralipomena and axes large mountains. See also the species identified by Smit in Paris. Barnett from Santa Fe. Also Tepalifera
GEOLOGIST TO ADDRESS
BUSINESS WOMEN TONIGHT.

DR. J. A. UDDEN.

Popular information comprehensible to the lay mind will be presented this evening in a lecture on oil fields, oil wells and oil investments by Dr. J. A. Udden at the Business Women's Club of Dallas. Nothing technical will be discussed, but interesting knowledge for the average young woman on a popular topic will be set forth by Dr. Udden. This is the second address on current topics which has been given at the club. Dr. Udden will speak at 8 o'clock.

His lecture will be preceded by meeting of the physical training class at 7 o'clock. Dr. Graham Frank will make a brief talk. The soloist of the evening is Miss Mattie Bell Winfrey. These evenings have been arranged especially for the club members and their invited guests.

Dr. Udden is attending the annual session of geologists, which is being held in Dallas this week.
Achilea, Chelites, milliopenacea, Pseudomatis, and primitive Franklinia. Among them also a

In the way, I met today at least 170 oecon.

Mr. A. C. Andere was also studying the Bend fossils

He tells me he has 165 of them. He is of the

Missouri Kansas, and State Museum. I think he

is to publish on the matter.

S. J. Addkins of Baylor Medical College,

Dallas is at work on the love Cupressaceae fossils.

and is disposed to make a very nice form in

Kirm of the fossils. The distribution of these do

not agree with those elsewhere. I told him

I would send to Japan. He wants to publish

some. We in Ararat and other places have the

din appearances in connection with the Ararat

li., a very prominent li. It was prominent above

the Ararat. The other natural surfaces, as if made

to ice in a interval of at least 1000 feet between

the Ararat and Elgin li. They do not look to me

like ice growing. For this we too regular to

suggest anything other than sticks mending. Power

down says they are out or cracks. I would

examine this as a last resort due to ice.
part of the lower Pennsylvanian and the upper Mississippian is the most popular theory. And it was pointed out by Dr. W. F. Cummins of Houston, termed the patriarch of the profession, that he put the bend in Texas geology many years ago and that he was not considering the upper members of the series as they are now considered to be a part of the bend. He defended the theory that the whole series is Pennsylvanian and attempted to show this by paleontological researches.

It was pointed out by Professor Charles Schuchert of Yale University that the underlying Ellenberger limestone is the only good place upon which to correlate, and then he raised a question as to whether the so-called Ellenberger is Ellenberger all the way north.

It was a lively and wit-sharpening discussion that the petroleum geologists had over the bend, the producing formation in the new Texas fields.

Meeting Opens With Welcome.

Alexander Deussen of Houston, president of the association, called the association to order at 11 o'clock and introduced Gilbert H. Irish of Dallas, who welcomed the association on behalf of the Chamber of Commerce.

David White of the United States Geological Survey spoke briefly, expressing surprise at the large attendance. It
Dr. David White of U. S. Geological Survey was the first to speak, being followed by Professor E. T. Ellenberger of Yale among speakers.

The bent series that produces the oil in the North Central Texas field has the attention of the two hundred or more men and women who are new geologists in this city for the fourth annual meeting of the American Association of Petroleum Geologists. The meeting held in the St. Louis Hotel.

It developed that geologists are not of one opinion as to the origin of that known as the bent series and that the accepted theory that the strata are an anticline is being opposed and one geological is pointing out the thickness of the so-called bent limestone in the subsurface, which he hopes to bring to a marketable state.

Dr. White was followed by a number of other Paleontologists, who are actively engaged in studies of the subsurface formations in the North Central Texas field.

The subject of surface structure as related to the subsurface structure was also interestingly discussed, a paper by T. S. Hall, of the United States Geological Survey, being printed.

It was pointed out by Professor Charles R. Sumner, of Ohio State University, that the underlying sedimentary strata have a greater extent of thickness than is generally supposed.

He also pointed out that the older Miocene formations are not so widespread as is generally supposed and that the older Tertiary formations are generally considered to be a part of the Miocene series, which is not the case.

Mr. White then discussed the effect of ground water on the surface structure, pointing out that the surface structure is greatly influenced by the ground water conditions.

It was also pointed out that the surface structure is greatly influenced by the ground water conditions, pointing out that the surface structure is greatly influenced by the ground water conditions.
Professor Charles Schuchert of Yale University that the underlying Ellenberger limestone is the only good place upon which to correlate, and then he raised a question as to whether the so-called Ellenberger is Ellenberger all the way north. It was a lively and wit-sharpening discussion between the paleontologist and geologist who had overlapped the bend, the producing formation in the new Texas fields.

Meeting Opens With Welcome.

Alexander Deussen of Houston, president of the association, called the association to order at 11 o'clock and introduced Gilbert Hardy, of Dallas, who welcomed the association on behalf of the Chamber of Commerce. Dr. David White of the United States Geological Survey spoke briefly, expressing surprise at the large attendance. It is the biggest meeting ever held by the association. He was followed by J. C. White, geologist of the State of West Virginia, who reviewed the early history of petroleum geology and told of the deep wells in the United States drilled in that State last year, which was lost at 7,336 feet. Dr. A. Udden of the University of Texas told of the Texas situation of Texas geological work and expressed the opinion that some day Texas will be classed as a great State intellectually, as it is now in other ways. Dr. W. F. Cummins of Houston told of his early work in the Permian of Texas and of his work with Dr. Dumble in Texas geological speculations years ago. He related an anecdote of 1862, when the Confederate States needed copper for percussion caps, and of his accompanying other geologists to Archer County, where a quantity of copper was taken from the earth and made up into munitions in Austin. He said he is holding some of the place, where speculations that are now being made about the bend. J. A. Taft, geologist for the Southern Pacific, said the Texas oil companies of California, spoke briefly in response to an invitation, as did T. B. Gregory of the National Petroleum Committee, and Lee Hagar of Houston.

Surface Geology in Texas.

In the afternoon John D. Udden of the Sinclair Gulf Company led a discussion with a paper on the subsurface geology of the North Central Texas region. He presented cuttings from the Ledbetter well, Stephens County, and described the formations. It was his paper that brought on the discussion as to the value of fossils and of the work of the paleontologist.

Charles R. Eekes of the Texas Company discussed cuttings from the Duffer well of that company a mile west of Ranger.

Others who joined in the discussion of Mr. Udden’s subject included Richard Hughes of the Coates Company, F. H. Plummer of the Permian Company, W. G. Matthews of Fort Worth, Dr. David White of Washington, Professor Charles Schuchert of Yale and others.

Dr. David White read a paper by Dr. C. H. Girty of the United States Geological Survey, in which he advanced arguments to prove that the bend is Mississippian in its lower Pennsylvanian and Pennsylvanian in its upper phases.

Dr. White expressed regret that there is woeful lack of ability among drillers to make proper and responsive logs of their wells, and blamed it to lack of intelligent co-operation between the geologist and drillers. He said the geol-
The bend series that produces the oil in the North Central Texas field held the attention of petroleum geologists who met yesterday in Dallas for the annual meeting of the American Association of Petroleum Geologists. The meeting took up the aspect of the local situation. But in touch with the North and Central Texas oil fields are the most interesting reports were of the future, for the present shows no sign just now, that was natural and proper. It developed that geologists are not short of answers to the great question antilene that is known as the bend series from which the isostatic oil is produced, and that the flat in the bending formation is really from the great bend, the particular stratigraphic position of the well's data list, that was due to the fact that the geologist advanced the theory that great bend is due in part to the fact that the geologists find the same character at great depths than they get for drilled oil in the formation at smaller depths. The list of the wells show few lists of limestone. The theory was added that, according to the driller's reports, are not the good data for correlation purposes.

Then it was that the paleontologists had an opportunity for the first time of examinina fossils that fossil are the true index and the only sure way of correlating strata.

Dr. David White of the United States geological Survey, and Prof. Schuchert of Yale. University, led the meeting, and Dr. Pratt and Mr. Udden, were different opinions. It seemed to be the opinion of Mr. Pratt that surface Indications are the true index and that the North Central Texas fields are not very good signs to oil in the always much water underneath the surface. Mr. Pratt did not warm up to the whole idea of the surface indications. His paper indicated that the arch is probably very distinct in the eastern part of its progress, but that as the Hip to approaches the surface, would be reduced to a considerable extent. He described the major folds and formations within the area, from which oil is produced, and went into detail as to the results of tests and correlations that had been attempted by him and his associates. He discussed the relation of productivity to surface structure. He concluded that it is far as development has proceeded, the best production has come from the Wells located on the highlands, and that the area has not been approached in as good a manner as the present field of production. The meeting adjourned to the next day for the session on Monday and Tuesday, returning to Dallas Monday night.

**Fourth Annual Convention of American Association**

**Meets in Dallas.**

**Prominent Men Here.**

**Dr. David White of U. S. Geological Survey and Prof. Schuchert of Yale Are Among Speakers.**

The bend series that produces the oil in the North Central Texas field held the attention of petroleum geologists who met yesterday in Dallas for the annual meeting of the American Association of Petroleum Geologists. The meeting took up the aspect of the local situation. But in touch with the North and Central Texas oil fields are the most interesting reports were of the future, for the present shows no sign just now, that was natural and proper. It developed that geologists are not short of answers to the great question antilene that is known as the bend series from which the isostatic oil is produced, and that the flat in the bending formation is really from the great bend, the particular stratigraphic position of the well's data list, that was due to the fact that the geologist advanced the theory that great bend is due in part to the fact that the geologists find the same character at great depths than they get for drilled oil in the formation at smaller depths. The list of the wells show few lists of limestone. The theory was added that, according to the driller's reports, are not the good data for correlation purposes.

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**Night Session for Everybody.**

A meeting to which the general public had been invited was held last night at the Municipal Building. The program consisted of three interesting addresses. David White of the United States geological Survey told of the need for conservation of oil and for exploration in foreign lands and urged that United States companies secure holdings of reserves in other countries against the approaching time when the supply of American petroleum shall become exhausted.

Mr. White, State Geologist of West Virginia, who was presiding over the meeting, suggested that the fate of American oil investments in Mexico is not calculated to encourage American oil men to explore abroad and suggested that a stronger foreign policy will be a great help toward the end sought.

Dr. J. A. Udden of the Bureau of Economic Geology and Technology of the University of Texas, read a paper on the oil-bearing formations in Texas. He discussed his subject in nontechnical language and went into considerable detail as to the formations that make up Texas and the outlook for oil production in this State. Among the suggestions made were those that the Texan oil men should be invited to him to be likely territory for great oil pools. Dr. Udden made plain just what sort of structure are likely to produce oil and described the oil fields of Texas with reference to structure and formation.

Mr. C. Fuller of the Sun Company of Dallas, who spent a number of years in Mexico as a geologist for the Sun Oil Company, gave a most interesting illustration of the petrology of the oil fields of Texas, and considered the special interest of the foreign oil fields in Mexico and the story of the Sun Oil Company's operations there.

The meeting was attended by practice all of the geologists attending the association sessions and by a large number of others who attended the invitation to hear plain talk about geol- ogy.}

American auditorium of the Municipal Building was almost filled.

Arrangements are being made in the city for a vacation of geologists to Ranger through the oil fields of Texas and Mississippi, which is expected to be the last of the vacation season. The plan is to leave Dallas Sunday afternoon, arriving in Ranger Monday night and continuing to the field, returning to Dallas Monday night.
Friday, March 14-1919.

Spent the day at the A. A. P. B. meetings. Mr. Moore of the Kansas and Mr. Clemens staff in studying the Bend fauna. He has 187 species of which 26 are undetermined. Has found minnows, 27 c. J. byron, 56 trout, 27 bream, 22 perch, 21 cusk eels, 4 trout, etc. Does not open with many since he never are Pennsylvanian and not Mississippian. The Iron Bend has a small fauna and these species are much alike those of the Bluff Falls. Has no Fusculina in Bluff Falls. He says the white fauna is much like Mississippian but clear the fauna is near the Missouri.

Dee to see his friends on Sunday at Mineral Springs.

The banquet was a big affair and many of the citizens of Dallas attended. Feaunted crowded and the music was not music at all simply noise. It made me sick and I left before the shoot-up was over.

It appears that one of Monroe material came from the Bend County.
GEOLOGISTS CONTINUE TALKS ON BEND SERIES

W. L. MATTESON DECLARES SUB-SURFACE STRUCTURE MORE PRO-NOUNCED THAN SURFACE.

SULPHUR AND CAPROCK


The Bend series in Texas continued to be a subject of interesting debate in the meeting of the American Association of Petroleum Geologists yesterday. There was renewed discussion of the paper of Dr. Z. G. Girty in which the conclusion was reached that the Bend is of Mississippi formation in its lower series. Dr. J. E. Uden talked about the fossils found in the Bend and noted that the general agreement of the members of the association was that they were interesting geologically and that a real discovery well was said to have been found in the Texas, to parene Range explorations were being made to afford more leads for generation of formations and that the Texas should be carefully explored.

GEOLOGISTS CONTINUE TALKS ON BEND SERIES

W. L. MATTESON DECLARES SUB-SURFACE STRUCTURE MORE PRO-NOUNCED THAN SURFACE.

SULPHUR AND CAPROCK


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Saturday, March 15, 1919.

A dust wind is on, or something to make it almost impossible to hear the speakers at the meeting of the A.A.P.E. Arnold and others had hard time of it.

At 20 M. finally read my books and dinneraround the 20 slide to Rig or the many disappointments.

I now attended a meeting where I was once closing and once looked up there here.

I now spoke better than I have for hell because of a reason to perform and I performed it well. This is what President Deussen told me of connecting at evening, whoa guest to director I was.

May after man talked to me about evening I went to work with me. Then one was near of 35 to 45 years. H. H. Adams and Chi Chester A. Hamilton was one of them better talks. Even one I Deussen associates in the Hunter Gulf area and the company told him he was going to take the crowd with me in Portage.

Deussen is thinking that the oil comes are due to Permian oil, squeezed (plastically) into their present position. He is also thinking of the
believer in applied psychology in the taxing business much as the several government centers in working applied psychology in winning the recent war. He said the use of common sense in arriving at a view in this connection is the best rule and that in the end business nothing but applied psychology. He referred to the demand of the producer, who, in order to make the holding of the oil of his interest, swallowed his capital investments for the exchequer tax and minimized them for the income tax.

Factors affecting value of oil properties. In discussing the value of oil, the theoretical value of oil lands, the speculative value of leasing and drilling interest, the total cost of oil and amount of production from the properties, he developed the settled production and declared that an indefinite term governed by the field and conditions, rather than length of time to reach the value of an oil property, he had failed to set the relation between the gross profit and the net; how long will it take the property to pay out, including expenses and interest? Thus considered are porosity of the sand, gas pressure, water troubles, depth of drilling, characteristics of the oil and supplies, method of recovery, efficiency of operation, distance from market, condition of roads, available transportation and oil reserves in the land. The conclusion is that the method of figuring is the production method.

Value of Wildcat Staff. In estimating the value of wildcat properties it was the opinion of Mr. Arnold that some potent factors are often overlooked. He explained before, dry holes, successful wells, reserves being discovered by other companies. As so many well drilled in the wildcat territory the psychological feature was again found significant. He thought it best to explain that a well being drilled by a company for a wildcat interest would be more to neighboring holdings in the way of value than a well being drilled by the operator interest.

Indirect factors in finding the value of wildcat property, sales of similar properties and the speculative value of leasing and drilling interest, the total cost of oil and the value of such properties. In the case of incorporated companies or joint ventures, the market price of stock affords as to the value of oil properties, and valuations are based on the value of such properties. In the case of incorporated companies or joint ventures, the market price of stock affords as to the value of oil properties, and valuations are based on the value of such properties. The market price of stock affords as to the value of oil properties, and valuations are based on the value of such properties. The market price of stock affords as to the value of oil properties, and valuations are based on the value of such properties.

In other words, the taxable value of one-eighth royalty was applied to one-fourth of the working interest. This is on the theory that the cost of operation and risk of exploration is the risk.

Anticipatory to this Mr. Arnold explained that in interpreting the laws for deductions it is the intention of the legislature to prevent the wildcatter and the man who has been prospecting and discovering oil lands. The man who does actually discover oil property and buys it for such discovery, but the law will not be construed as allowing him to get into the field after it has been discovered by the wildcatter.

The role of the Geologist. In his suggestions to geologists as to what the Treasury Department of the United States Treasury Department gave a talk on the valuation of oil and gas properties, the talk was supplemented by papers by C. E. Roseman of the Geological Survey and Eugene W. Shaw on various aspects of the subject. Mr. Shaw, in rebuttal, Mr. Arnold said the Treasury Department has no knowledge in connection with this law and the work of the department is to prevent the wildcatter and the man who has been prospecting and discovering oil lands. The man who does actually discover oil property and buys it for such discovery, but the law will not be construed as allowing him to get into the field after it has been discovered by the wildcatter.
The caves emptied their water, holding the salt, sulphur and limestones along with the minerals to the surface. This was salt done that in

furnishing the 100,000,000 barrels per year sift in the coastal plain. We felt we

then one out of the beds of the shelf of

the shear, and then another thing further inland.

Helen be said that it is all limestone. Here

is decided as heavy.

Deusen and Adler apparently don’t be

live in our old land of Texas, but Deusen
cannot welcome it. He says the Texas of

the coastal plain is at least 7000 feet thick, and

beneath the Porcelain are the Cretaceous and partly

the Coneatnian. Under these must be crystal

sand. All of this matter should be the famous

fossiliferous. Mr. The Cog is a firm be-

been in my old eastern Texas land.
It may be that Morgan has the best part of the collection in his possession. Ask him when he is to publish and to what extent.
Sunday, March 16, 1919, Mineral Wells.

Early at 6.15 and had breakfast with Alex. McAvoy and C. F. Turner. At 7.30 we started a trailer for Fort Worth and then by train for Mineral Wells where we arrived at 11.30 A.M., stopping at Hotel Damon at Mineral Wells. The day was bright and sunny and string like.

Had an interesting ride down through the Ouachata and over we are on the stream. The country here in the west is not of good farm land, rather it is a stunted country and of cattle raising.

Had dinner at Dr. Plummers Home. Then to his office to see the Harrell Falls collection and the faunichora collected by Dr. More. He has a large collection of dark he, and from the specimen are not good. Some of the species are clear Pennsylvanian but in general it is a strange list of forms that in no way resembles the Upper Mississippian. One sees no characteristic Chesterian species, nor Hallibrand, and none of the characteristic Ferrostraci. All in all is rather of Pennsylvanian time.

From the Iron Bend shale More had but few fossils, more of these are clams indicating it was the Leidyynchus communis bed, Leda bellifrons
Sprint trains decoupling from the railroad, all the trains split into the Marble Falls. On this train, the fauna should be Penangrian, but by the conclusion, Jan steel repertoire.

Then we must next pass the little fever holes to the old Apache with much stream in it. Here 350 feet beneath the tip of the stream we collected stream fossils out of a blue shale. Sapsay says it is the same as the Osage river of Oklahoma.

Then 2 or 3 hours nearer the hotel along a rocky and high, but not higher than the high peaks to collect the same kind of fossils. Here we find a few more common. In the evening, we visit Mr. Hammil's house to meet his wife and offer all his family to safe. At night we rode the Roxana oil Co. and the Empire oil to find one a dinner at the "Craggy Horse". This is the northernmost (southest north) and near place of the feet of Texas. About 16 to tables. The original names was a crazy Norman.

The mind over who today and the atmosphere was full of wind from San. Desert appearance and the near in 16th corner is the morning.
Our party consists of Alex Mac Og, John Mac Donald, Tom Jur, D.C. Beal, and myself.

L.C.
Monday March 17 - 1919. Mirtual bells.

Finally got started at 8:15 although I try to get up at 6 to start at 7 A.M. Mr. C. Beam is one good character.

About 10 mi. out to the west from Mineral Springs we are at the base of the Canyon. Seeing in the Palo Pinto range with some of the upper sending.

Also near be a hard climb. It is very severe over 25 feet. We saw about 10 identifiable species of flocks. Crossing occurs easiest near the top.

The upper 300 feet of the Cowman consists essentially of true shales with thin and thick layers of sandstone. Near the top is a thin layer of sandstone, deciding ear kind indicating the Photograph, end of a sea. Coal is mined in there at about half of the depth

Just beyond Palo Pinto at 13 miles from the.

Down at Dee's on the Beaver limstone. On an upper li. and with big foxes, hard to get. The bone is 26 ft thick with an intrenched shale gone 12 ft thick, having a part of li.

In the region in the Cowman 3500 feet, the Canyon 700, and the Aberg 1000 feet. The Cowman at Aberg thicker than the E. The Marble Falls are the same, but the li. appear to poor way to shale. The Cowman is large shale with sandstone and
The geologist would even have treated the area for the surface indications. What can the structure be that gathered the oil, in all external geology?

For the idea of oil accumulation one is able to look at the Bull C 0 P.S. of last year. The idea one was somewhat modified, but he does not believe in the oil migration at all at all at the time of water transport.

Hammel told me to have seen the entire oilfields but one saw no evidence of them. No one plots a course.
There coal beds seem out to be very flat there and below the Canyon, it is a large earth fault on the face of the hill, and there grass of some ten. There are some other beds, but none regular here.

At 12 o'clock we are at Shanna and have lunch here. It is a very small place.

Three miles on the Mexico we are again in the Palo Pinto Limestone. Here the exposures are extensive and there are few more fossils. The beds are Fusulina in common here. At a fairly large lot of fossils. There are two layers to get a large lot of fossils.

Then we cross in to Rainier the famous oil town.

Last October we ran on the place very hard in the oil fields and over it is all excitement about oil. Over 200 coals are down and over 100 are day. The oil area is about 8 miles long by 20 to 3 miles. The largest one yields 1000 barrels per day. The first oil well was first done as a mild end by the Texas Pacific railway, and there the field is controlled by the Standard Oil Co. The oil offices are in the Bend Lii., and the structure is starting on 700 feet. This is Alice McGee's idea.

At Rainier on the third hill in the Canyon, but it has but few miles. This is the Rainier hill.

They came on to a mile west of Eastland and the town of Cisco. Here about 200 feet above the town of the Cisco
on a lot of Cicer in Yorkshire: Pennsylvania
hold.
Then on to Cicer where we got at 7 P.M. sitting
at the Daniel's House.
The Cicer lay in the region next to the north of the
5 different quary kettle conglomerates. We saw one of
them one today and it was 300 feet thick, dec-
edingly even bidded, with the kettle averaging near
one half inch.
The Cicer shales are soft blue clays that weather
out an abundance of brownish iron conglomerates and it is
among these in the marlbed that one finds the fossils. Pro-
ductor, vittore circus, one P. in Mule Rock, along with
Lophyllum philippinum are the commonest fossils. Also a
Trilobite? Here occurs also a characteristic Chonetes
duff litha. Baskingford are fine with the shell pre-
erved. Heuristics and fossilsites are stone. In general the
life must have been rare, but general life there in the
marshes it appears there been abundant.
Jan 14, 1885.

The price, all right. Keep it.

Cable and wire forward.

Safely received.

Make an exclamation for one of the realists.
Cicer, Tuesday, March 18-1919.
A fine night and morning. Set started for the
south at 8.30 A.M.

At a 5-mile south of Cicer I collected a piece of
the so-called Cenomian conglomerate. Identifies it as
Cenomian. It looks more like Lophodite material.

Then in the northeastern corner of the Cicer are some
small rocks of Cenomian. Below are clayey conglom.
phorite, white sandstone and the grade up into chakh. Li.
refutes with byshara and other fossils. I have to
consider the next place, a Cenomian collected by done
the Eimallastic rock of Schneider and Sigel. The other
stone is unimportant. This is my first experience in
Cenomian rocks.

Had lunch at noon at Pong.

I collected in the Caponohylleum L. = Caddo L.
at the top of the Cenomian near a small stream that is
some south of Mayo and the 5 miles to the north. Above
this Li. there is a shale series followed by the finest
sandstone of the Ciser Linn. The fossils, The sandstone
are less near here. The a is also from these sandstone
structure chalk with splendid structure in the middle of which
faults.

Try to another section more striking about 2 miles
to the south of the Jordan and east, we left the 5:30, and it was 12 miles to St. Mary and when we stay tonight.

Carter, described the characteristics of the Penn. as follows: [In the Claudio Coal Field] 

"Cicer: Consists of beds of blue clay, which are stable at some localities; of sandstone, usually columnar and often a joint and more or less by the thing tended, and some coal.

"Canyon: Alternating beds of sandstone, clay, and shale; and often a joint and are a joint and more or less by the thing tended, and some coal.

"Thorn: Consists of beds of clay, sandstone, and shale; and often a joint and more or less by the thing tended, and some coal.

At 4:000 feet, there is 19 braced holes. After this, the pressure was at about 350 feet above base. The Canyon has 12 beds. Thicker, about 500 feet. Cicer has 19 beds. Thicker, about 500 feet. Appearance to be less prolific near than the Canyon.

"Altam: Consists of beds of shale, sandstone, and mud, and clay, alternately with beds of blue clay, with a pay shale. Sandstone and coal are almost entirely lacking."
This one party was enlarged by another machine with Messrs. Old Manji (my tale), Kallin (my tale), and Charles (not related).

These fine white sandstorms gave me the impression of the white sands of Florida about Jackson and one
The Altoys have 15 beds, and in 1200 for them. As many marines front and in general appear to be like those below.

Coal is broken in one formation, and the Craggs are Altoys for their form.

Bromvoele, Wednesday, March 19-1919.
Set up at 6.30 and at 8.0 am are on our way to San Berta. The day is a rain, fine and cold.
As we go south we are for a while going on the Canyon and at about 17 miles we are again upon Commended. Here the Agate beds are brick red coarse and muddy very irregular tesselled sandstone. There are many sorts of lining extensions and thin sheets of calcite on bedding plane, and thin dike of some long depletion. Rain falling are seen. In the clear sky water and on the channel side rather than on the marine side. This is very 
25 feet changes into some regular tesselled and fine grained sandstone. Then still higher are white lining very fine grained sandstone that look much like a 
the white sea 2500 foot those 
Coral or Concreted. Mr. Johnson tells me that 
your Craggs are sometimes seen in it. In one
place one saw the broad and sandstone roofs by the Canyon desks.

After one set one on a Comanchean high bench or shelf down into the valley of the Colorado, and then one

threw to Dan Saba one was in the stream. But

one sees on the roadside are thin and thin bedded

light redish sandstone, and they are said to be inter-

bedded with flint shale. These sometimes through

the current planation, small flow, striated and

wavy structures, showing my all slabs and rain

binnings. Of plants there is not as much as one

expected, but one sees slaty concretions of

slate, marbles and Calcite. It is a fine agate

clear reddish light reddish sandstone, and pros are the

impressions as being another of by while delineated on

long and flat, make reports had me havi with

marbles of slates.

After lunch one went southwest to Barnett Mines

which is 4 miles S.E. of Dan Saba, there in the stream

one sees the tops of the Ellensteyn, very fine grained

carbonate that at the top also has a little of mucky white

dirt. At the top was seen of several sheets of quartzites.

The tops of the Ellensteyn is light irregular and
On the ground is the skeleton, a much larger one than some of earlier limestone. This is the one that we feel the greatest time, time that we feel, the time in which we can see the bones. The limestone had fallen down, and we white marl has not moved.
There is one about as the top; neither about due to rain of.

Then comes in the London Bend. First a sandy delinite (sic) about 3 of thicks. The total 3 to 6 inche is muddy and without chert, and the next is about 50% made up of chert, fette, and arenaceous from the Ellensbury. It is a conglomerate with the pebbles.; the fruit of any kind.

Then a blue-grey nodular clay, about 8 inches thick. I thought this hard after the been converted.

Then a blue clay or stiff silty mudclay and next years I expect to be in a study. All smells of petroleum. Thicken here about 2 to 3 feet. Found one recording species in the mudclay, and hard stone in the clay. The common ones are Lepidobryan, Lingula in a species, Lithocolea, Ambroclia, and Ctenocolea. In the thin

...hardstone pieces of rather large fonnites, one species that can be identified.

One the whole follows the Marne Falls big. But later on the other part, the base, to about 7 miles from San Jose where on the road side are the seen great expression of the top of the Marne Falls big slipping up by about no degrees.
The next day we stopped here to take the exact dip and strike. The top of the escarpment Marble Falls has a dip of about 8 degrees 01° 55' W. The underlying strata was measured on a sandstone in place and the dip found to be the same or at least 7 degrees 36° 55' W. The other dip is about 41 degrees due north.
to the N.W. Resting cliniformly upon the Charlie Falls, they are about 10 feet of dark blue shales, and then about 3 feet of greenish gray, thin bedded fine grained sandstone with interbedded shales. These sandstones have an abundance of casts of wood and among them may be seen some casts of Cefalinites. This seemingly is the Shaurm. Therefore there is here no Sphincteroid shales at all. The cliniformity is therefore really an uneven formity.

The Shaurm has the same dip and strike as the Charlie Falls, and both were deformed at the same time. There is here no the slightest evidence for a time of separation between the Bend and the Shaurm.

I went 1.5 miles on the road to Black Creek and collected in the stream where the road crosses it. The stream seems now a very thin bedded and hard limonite the top of which is hummocky to the extent of nearly 18 inches. In a long time one saw no fossils, but as one came to the top of this hill, attracted my attention I broke it and to my surprise found Textularia and many others. Foraminifera. I thought it must therefore be the top of the Echonetangas, but later on we saw Production like crustaceans in Mr. Clark also at this time so it was the Echonetangas.
The next day it turned out that this game is the
Sne Bedl &c &c had the same jolly effect as
D.E of Dawn. The Smilite turned out to be large
Bellefond like partisans. The mistake for the
men is due to the badly healing condition of the
men.
For the present this top of the heavy reddish line appears to me to be a discontinuity. The strata don't appear to form the hummocky surface and filling its depression comes in about 12 feet by very reddish and many thin dark reddish drab limestone clays. The formation of much beach from the sandy interbedded greywacke. On the subjacent cliff in the way these interbedded clay beds occur many Trias foot stones, finely any Forestellidae, Eocene localities and others, and many beeches made. I saw nothing else that could not be regarded Pennsylvanian.

Several species of large Production, a cross of Patriot Line, Hustidae domani, Pumice-like, Eocene, Chitonic rese up inside, etc.

The fall of the Waterfall had continued some fifty feet, not more, with much criminal material and the thick reddish clay making line. The whole of the lime series is now 150 feet thick in this region.

The cause then wrought up the stream one half mile where the Waterfall at the top introduction Haedshale must interbedded their limestone. It is the transiting one lead to the Smithsonian Haedshale. One of the lines is little made of a massed granite into beautifully sculptured with most my time. Lee the second clotes.
These holes are clearly the marks of a real and dead bottom with almost no life. Above are the enormous and sea-weed attached animals whose chucks drop into the dead bottom for preservation. The basal Smithwick cavity is often bare. Taenura, a large_level, with the salpa, spent our seas common. I dare not see her again.
San Jose, Thursday, March 20, 1919.

Started out at 8 A.M. to see the rest of the Bend to the southwest of San Jose. Dark morning, clear in afternoon.
The first stop was a place in the valley of the impaled Colorado River about 3 1/2 miles E.W. of Bend. Here and all the way to Bend the Smithmore shale is well exposed. Mr. Bean tells me the thickness is 250 feet and that the area 115 is very hard. We saw almost no fossils, small Eocene/olive and wood-like things. Also one weed. These shales are decidedly carbonaceous and on first exposure smell of petroleum.

The area 110 feet of Smithmore is of an olive color and rather a clay than a shale. We saw no fossils. Inside the shale is rock-like material.

The Smithmore is here approximately contained by the Eocene, here the reddish gravel pebbles stones with shale facings. Contact was not exposed. The Eocene has tablet impressions, save a small Calamites, and none humic. One style of more humic area meets one all these two odds of it.

Then we went on to another one mile of Bend. Here along the south side of the Colorado River are more exposed the largest beds of the Smithmore. Blasted car-
Foramen dehiscence, smelling of petrified bone ends, and
then appears a blue-steel impene on a sandy limestone,
yellowish limestones that have ordinary fossils of great
interest. Did not have enough time to collect and it
is extremely hard to find good fossils out of the
condition of surfaces. Shells are common,
found to be rare, Bellerophon-like cavernous common,
and clayey limestone is rare, and no raw hard rocks.
But for raw fossil Lophitesia. One curious feature
of the limestone are normal limestone that rise
above the general level of the Li. They are made
up of igneous rocks (see samples) and around the
edges are many Bellerophon-like encraters. Also for
a large shark tooth.

Below the Li. there are 3 feet of black shale, and
then 6 feet of dolostone, after which there is 4 feet
of black shale and then the bluish limestone, after which
there is the blue-steel impene. Does not have time to see if these
edges have fossils. The Crystal Falls Li. above and seen
from the limestone at the waters edge near it.

[Note: says it offers a little path to the stream and go by the
then went on to a place between 2 1/2 to
miles S. E. of Beul, beside the old manner, many
railway that brings out cedar posts and jettison.}
The road is 404 feet in length, but an active fault was not seen. It was all Shales and the north side is all T. E.

All of Raoul 2.5
Rimrock 227

? Top of Mount Falls
20
50
25
15
10
10
11
8
10
54
0
164
164+
20
73
282^2
Here the top of the Ellenwood Pine is exposed, followed by red sandstone. The Snow Bend Shale, composed of the picture falls, lie here an outline like that of Redrock, Indiana. This one point in it.

In this shale there is an abundance of small fossils of which one got yesterday. They come in about 15 feet above the main. See the prints.

On one very hard to find John we stopped at

Propr. Creek, made the following map section of

Limestone at top of cliffs about half a mile to the

north of the road place. About 20 feet or more.

Heavy banded dark blue li. The drift cliff made.

Thickness estimated at about 50 feet, but may be thicker.

Cornal gone but the white li., may be like those

next below. About 35 feet.

Every time banded li. with some then shale patches.

Heating a very yellow orange color. At least 15 feet.

In the perfect primary gone.

An oval of unammonite. Irregular hummocks

of it rich in height and part of it the eroded part then

in a conical and amount of about 5 feet. The bedding

on either side in marked, but thin seams. The no

such significance in there a format.
Heavy reddish dark blue li. with much that.
In one of these about 250ft. yesterday promine.
Thickens about 100 ft.

Dark blue then reddish. A bit 50 ft.
1. Thin reddish li. with four shale facings. Regularly
thinned. Appears as one li. About 90 ft.
Thin reddish many li. with thin shale facings. They
are 2 or 3 br. 40 ft. close the more 12 inches.
Li. same as 1. But weather a little shaly.
Thickens about 12 ft.

Distinct reddish li. About 60 ft.
Li. same as 1. At least 100 ft can be seen to

THICKNESSE.

This makes at least 164 ft. by Li. Bean says
the total thickness here of the Marble Falls is
175 feet, but because of the faulting he could not
see all the actual thickness.
Dare now also a cast of the outer side of a granite, like these
the large one, with a core of a modula this morning, our
coming up near by.

Near the Culaenopheus broc. the thickness is 150
feet thick. Of this, the upper 100 feet is clay, and the rest
flour of clay. Just as both the top is covered in 1911. Why
it is here less than 220 feet thick is not known.

The Ellenborough here was the same quite accum-
ulately and clean. How one may be to her. In some
surfaces the little sections are common. Also saw
the Mechanon.
San Saba, Friday, March 21, 1919

Set out at 6:30 a.m. and after breakfast loaded my

few large boxes. They came by Express from

San Saba, dark morning and cool.

Set out at 9:30 a.m. in Brady, some 30 miles,

to the west to see some of the falls. The distance was

the then driven to a place 7 miles 0.70' W of San

Saba and collected at the very top of the Marble Falls,

in fall in the first change to the Limestone, although no

lakes or the area are quite

time in a mile with the brighter while falling. The horizon

in not one for the

Production is common and is one bed

from about 1 foot third and as I

collects of the current brush.

Coming out at about 1 mile one saw

the little higher

than the hill, about the water

inside the shore. We did not stop to examine them.

We then drove to the north side of the San Saba

to a place

north about 3 miles north of Richland Springs, near

here in a few feet area one saw the shelf to sink advantage

that is, from the limestone on up. The shelf could not be seen

here or good advantage. By all the brush locally there

soon one hill side and the Ellenberger hole to the

limestone above. From the Ellenberger to the Sandy one.
99 = Marble Falls, Lawn

73 = Somerdale

Label marked base of from Marble Falls May 15

Trees per acre
The Coj measured the height as 89 feet and an section in a little more, 97 feet. The boulders descending is as
fallow: Each of this section to be the point to the right.
Top of arched sides not seen.

Thin and thin boulders and thin li, interlaced with lime
of fine grain or small. The limestone became more and more
cheaper around. About 45 feet.

Heavy thick boulders and coarse boulders
after grain some time. Proximity unvaried. About 30 feet.

Crumbs gone partly of dark to black hard shales, 10 feet.
Limestone enclaves apparently of interformation character.
In small sample. The boulders are fairly well rounded and ex-
cepted by limestone, up to 4 inches, light reddish brown 11.5:
side. Some more are seen, like large curved slabs with
bryozoa, and Porifera. Gone 2 feet thick.

Dark blue crinoid calcite, like limestone in compo-
tion from 3 to 8 rich thick. It has many crinoidal fossils
and no traces can be found. Thickness about 12 feet.
Shale gone. Not seen in just return. Possibly an
crater hole. Thickness about 240 feet.

Blue crinoid limestone reflects with crinoidal columns
and other parts, 8 to 10 rich thick. Above it a 2 or 3 lime-
stones in the 3 to the make 12 to 20 inches.

Sharp shale gone. Crum and crum and are 50 are noted
About 30 feet thick. Rather thin of cem.
The stream is said the 400 feet thick and here it has
thinned down to less than 200 feet. Mr. Crug tells me that
it's time to hit the 31 and 3. What does this mean in
the right hand? The channel with the thirty degrees in the 31 and 31 S.? I understand. Mr. Crug reports that the mud and marine
foras, though what I saw of the stream gave me the
impression of delta deposits rather in the marine side
than on the flint side. The second coal beds and the
flint sand accumulations are on the bottom. Is a delta deposit where was the
land, in the E. or in the N.? Probably in N.W. Casillas.

On what basis did Crug call this sandstone and conglomerate
Canyon? The coal conglomerates are interbedded with a fine sand
decidedly concretion sandstone. Can these deposits be of about
from 30 feet interbedded with rain wash sheets? Has there any
marine foras out of these sandstones? Some “whale” may be
rain channel material. In the present I cannot say
blue sandy cinnabar limstone. Here they are more abundant. In places the cinnabar matters is sparse. There are rotiflexes.

Uncertainly

Ellenstours L. with Orthites and Cystites.

We then drove out of the Jorn Viator valley to Picard Springs. Our road soon left the bend and we went over the stream to Hall where we saw the last of the stream. Then the road descended into the Smithville shale and when we came to a higher land we were in the sandstone and other capping rocks of the so-called Canyon. All the pottles are of Elon, lavender, white, green and brown. Where did these pottles come from? Some from the Ellenstours, and some from the sand, but none come from the formation.

The road ascended a little more and then one more in the Comanchian, a sand land of many families and a dry climate. Here was a rolling country with a relief of at most of 50 feet. It has been to rise and fall ever since Cretaceous time. The streams have cut down through the Pottles and ended into the Ellenstours.

The left hand of 8.65 p.m. on the north side.
Since Monday we have traveled by auto thus:

Beverly Hills to Cienega  about  70 miles
Cienega to Cromwell  "  75 "
Cromwell to San Diego  "  65 "
San Diego to Bend  "  40 "
San Diego to Brady  "  65 "

Total distance is nearly 300 miles.
in a Pullman car and will get to Fort Worth at 6:30 A.M. tomorrow.

Fort Worth, Saturday March 22, 1919

Arrived on time this morning at 6:35, and transferred to the Santa Fe station where we had breakfast. The former has a very fine road bed, and so the train from any station on the road will run pretty regularly.

It's a fine sunny and cool morning.

Now that I have been in the Bend I have agreed with the author of the series, Cummings, that and is one from time and that it is appreciably placed at the face of the Pennsylvanian system than to place any part of it in the Misissippian. The question that now arises is, is any part of the series at Marble Falls of the age of the Misissippian. The lithology of the lower beds is quite one in contrast with the Marble Falls. It is the lower shale sequence is very much more barren than the upper of the Misissippian. Not only than, they seem to have specific links with the Marble Falls.

The Marble Falls, like, is unmistakably Pennsylvanian and it does not now seem to me to be of old as soon the Cretaceous. There are many Penn. species in it.

The Smith-Creeks fauna in very peculiar one due
to the peculiar environment of the mission. It is open only

Here I see heaven with a peculiar historic life and here

of the valley of the Stettin and so-called Stettin. The Smith-

which must have to be judged by itself, though the etholophic

methods much to a final age determination.

We left Fort Worth at 8.30 on the Santa Fe to

Oklahoma City where we arrived at 3.30. Lodged

over the city and called on Pullman Round. Had

supper at the Lee Reading Hotel at 6.00 P.M.,

and at 9.30 got into a

Pullman.

Sunday, Bartlesville, March 33-1919.

Arrived here this morning at 5.30. Stopping

at Hotel St Clair, a house of horrors, and

the morning at McCopis office, and I showed me the

Empire Hotel and Co. to elaborate systems of recording

all that is known about oil wells, their drilling and

production. McCop has a better head of the fluid

saturating Kansas and all column than any other man.

He is a hard worker and a deep thinker along all

lines of geology and improving, but does not claim to know.
The hypothesis in the present formation.
nothing about pricks are sometimes based on pricks. He presented me with a map on which he sketched the various outcrops of various Pennsylvanian formations.

In the afternoon Mr. Carpenter the head geologist of the Empire Co (a clan mate of Chester A. Reed) took me. He can also assist Johnstone, Beysen and Kings to a furnace pool brood in the S. 1. 1. Westphal are my true here. The place is 10 miles north and 3.4 miles east. Bartlesville, Okla. This is 7 miles S of Okla. School House A. W. corner of Bartlesville and Co. The farms in the area are fragments and tineaux with the hills on and Perry County contains iron pyrites and common. Almost no other kinds are seen. The furnace remains of the mine of Ferroan Texas, tell me all about the same things in the tip of the Canyon.

Boggs said he would send me the material he collected as a present from the locality.
These legs for li, etc. are extended in an curve and in the
margins are made for the main li. n etc. designs. In this way
quick diagrams can be made. The block there are marked
for oil paint to aid in setting the future courses for the ride.
The direction of a course etc. are etc. and etc. is gotten by
cautiously. On the basis a long morale record can be logged in forms
more stable time.

Note: The system of surface reading is obtrude
and a direct scientific basis.

All of the li. then over from Yacuma eastward, but
thicker opening for some distance westward. The Big One rises to
near 100 feet. The foes a. the in. are gone over with
the legs. The scale the li. range to the ibi. one to the NE.
and S.W. St. near the Brochette but begun from the channel
now exposed.
Bartlesville, Okla., March 24, 1919,

Had breakfast here and then visited the Empire Oil building to see Mr. Young's work in relation to the oil samples. Left early this morning a little in haste, but the rain and wind made our work in geology, rather in other respects, of little value. Mr. Wagner does not mind in determining the lithology and chemistry of the traps. Has a laboratory of his own. In another bit, are the minerals, our development and there is a queer variety, and at the same time a quantity. We rode to the outcrops, and found the entire system in the trap deposits. In more than a hundred miles.

At 2:30 P.M. started out in a large outcrop to the N.E. to geologize about Muskogee. In the party are Mr. Coy, Young and Wagner, a dapper young fellow of 25. From Bartlesville we went via Pampa to Fort. Clarenville. Where we put up for the night at the Mason Hotel.

We started down on the evening train, an accident by the chance, and then the Hogshead. The journey was made by train and a very long distance. Followed by the Hogshead, the oil wells on the Table Rock, the latter made of a red cliff, with which we descended to the Table Rock, the last we saw this afternoon.

In the Table Rock we saw some compound, Martinia, which we comfortably on the way home and examined all.
I am told that one of these lies changes into shales a sandstone, either in Kansas or in southern Oklahoma.  
Here I have heard the sandstone
The Grant is probably the least persistent as it is about
40 miles long from N. to S.

The whole of this Permian sedimentation is that of a
very shallow sea.  Shales predominate, and the sandstones where
the grains are more or less muddy are often effete (corr-
sified) and even replaced.  The l.t. appears always to have
crystalline and muddy.  Rogers says that he has seen some-
where in some of the sandstones,

The material came from the westward (Cordillera) but
much mud has come in from the old land of southern
Kansas and Colorado.  Ogardia could not have found
but little,
The Colecat appeared to have no material success, rather all of the repeating operations to a very small injury specimen. Then too the limestone appeared to me to be of an introverted character, i.e., rolled up so that the deposit was life.

All of the limestone seen today are impress and they are often associated with sandstone while the interbedded shales are usually sandy. All of the limestone give way to sandstone to the north and west.

The rest of the Penn. section to the rest of Bartlesville is as follows:

Permian
- Cottonwood L.
- Eora L.

Pennsylvanian
- Red sands, then redder 500 to 700 ft.
- Parkers L. - Topeka, Deer Creek, Arenac 1000 ft.

To the west these pass into a third series of connec-
tion sandstones.

Ant L. at 40 miles log.

Then the section seen today, and described above.
This coal gar occurs in little baps between here and Clarence. There is one the first little coal mine.

The coal appears to be fair, that it is not Y. T. As for coal it is not Y. T. As for collector as for press here, away then Chartes months.
Claverne, Tuesday, March 25 - 1719.

He left at 7 a.m. At 8 a.m. we are on the "Tur- 
main Muff" of the Big Line, and in the town the last of the 
first district. We are near the Arkansas River, East and South 
I of the place there are none of the Pennsylvanian homesteads. All 
have gone into holes or sandhills. We are at Arkansas 
Rane at 9 a.m.

A few miles N.E. of Arkansas Rane there is a little 
and mine (concealed) between two mountains. If this yard is 
the one, then a little valley follows it after leaving 
the first district.

At a place 3 miles N. of Arkansas Rane we come upon a 
hill with some trees. In it lies a river called "Shaw Creek" 
and about 300 yards farther there is a large valley. The Cay 
tells me that the Arkansas River is about 300 ft. wide, 
between the city of Little Rock and the city of Little 
Rock, and is about 1200 ft. deep. The valley is very much 
and is on the "Lost River." 

End of section 23, 1871. 16 E. There is a fault ridge 
and a fault river. 

The over-the-struck, dip, measured to the W., is 0.7 to 
the S.E. the 
and the fault ridge is from 
strike dip 12 degrees. To the north there are no evident oil wells 
and only the strike there are more faults. The fault is seen 
and is in the 
and is very much 
and is in the 
and is very much
The following section was given me by Mr. Boggs, beginning at the base of the Pennsylvanian and going upward. And more or less:

Atoka. Mostly oo. with lens of shale. 1500 to 4000 feet. Usually very thin. 4000 feet thick.

Bastrop oo. 500 to 1000 feet.

Has some shaly members, and some coal.

Cherokee shales and oo. 5000 feet.

Mode of strata:

Alester 500-4000 feet, coals.
Saranners oo. 300-700.
Bogy oo. and sh. 1000 to 2000.

Each to 50 to 200 feet.

This may oo. = higher oo. toward Fort Patt. thick.
A shaly member.
Calview oo. = Fort Patt.

These thicknesses do not occur in any one place. Particularly at one place is there more than 5000 to 6000 feet.

In more detail see U.S. S.S. John Atoka, Edgerton and

Dundee.
In early Cherokee time, a Indian prior to the French and later Cherokee lie, horizontally one within the City. Think these must be many of these faults beneath the surface in Oklahoma and that many of the oil pools are times up these subsurface fault lines.

An machine broke down about 3 miles out of Cometa at 12:30, and we then walked into the Town. Our car finally arrived pulled by another machine. We then concluded to get downstairs by 4:30 P.M. Arrived at 5:30 P.M., stopping at a rather fine hotel—Coones.
Section of klwyny at Great.

(From has a detailed section, marked in a photo).

Another light greenish-pastone, oxidizing tint yellowish and then reddish. Both the identity of stone. The surface to be an off-white mass of the sinter of flint. Beneath the sandstone, lies an upper member down to from.

Cherny (according to Schneider and R. C. Co.)

Thin and thick-beded greenish-grey muddy sandstone, with some deleations. At the base there is a con 214 foot of

Cherny about 15 feet.

Greenish lime so no locality this elsewhere shown into ther and thin bedded lie, interbedded with greenish sandstone.

About 15 feet.

Here thick bedded yellowish-pale lie, without deleations. Partially 16 feet thick.

Black shale with some thin impure lie. This in an irregular line and the amount of lie is very small. Far in a pair of lines gone. 1. Cherny 10 to 15 feet.

Here thick bedded yellowish-pale lie, with irregular group of green shale. In the top belt of the flint at the 19th week.

2. Cherny 12 feet.

Another yellowish-pale lie. Cherny varies 10 to 15 feet.

Thicked are these rive, 2 105 feet.

About 10 feet, at 18 feet. At face a criminal face.

(CH. 1. Heavens were to see)
Muskogee, Wednesday, March 26, 1919

Bed up at 6 A.M. and are off at 7:15 for Fort Sitem via a trolley line 8 miles N.E. of Muskogee. Here we had a Fred talk us by Fort Sitem Can old around and away part to a place about 2 miles north of the trolley station, on the banks of the Grand River. It is known as the Cherokee, Oke or the H. P. and I. T. R. at the sign post through to a large quarry where we collected all the morning in the Toma formation, above the Arche in 6, a Mango formation. The great majority of my fossils came from the upper part of the Toma. After seeing that the forms here are not that of Pennsylvania, age, and are not one rather suspicious of Chester. This "Toma" fauna has nothing in common with the Basin of Texas, and seemingly not the forms described by Mr. Juenger. On the surfaces of the limestone beneath the Toma there shows some of the fossil of Pentamerite, Keptes and Mixoral, and the greatest formation is by men. The Pentamerite go up into the gap."
About quarry continued.
Black ore thin, reddish, and dark 2 ft.
Thin earth, 1 to 2 ft. Producing gone near the middle. Some 2. Thickness 10 ft.
Clay in Pitkin. A. Schneider 20 to 60 per cent thick.
Archimedes Li. with proper black shale at top. Thick enough. One Cty says thin, a large ironstone.
Finds black shale. Not seen. 60 to 100 ft.
Desire Li and slate 15 to 30 ft.
Burr at iron level. Not seen. About 200' (Johnson?).

This gives a thickness on the average of about 114 ft. In actual thickness on copper downward section. Schneider gives it as 120 ft.

Bridge on round iron, at Rex, about 8 to 10 miles north of Mineral. Pennsylvanian. Top.
Black shale to 2 or 3 at top of iron bluff 3 ft.
Then reddish gandy Li. with black shale. Was almost no fissile. Thickness 2 ft.
Black shale 12 to 15 ft.
Then reddish crinodale Li. Same thin Li. was about 1 by

Pock Li. 20 ft. to 30 ft. Thickness

Any section continued.

Black shale 7-8 ft.
Lith.-blue dense fine grained sandstone, 4 ft.
Cauda-panii = Tānūrū. Blue black rusty shale completely turned by the brown, 4 ft.
Black shale to brown, 8 ft. = 43 ft. sec.

These blue shales lie in undulations and give the effect of contrary slopes here. Mr. Cog says that the layer may be 30-40 ft. thick, and that we came here at Roy Bridge is about 1 1/2 ft. thick.

The same blue shales also show in the river near the bridge seen the afternoon we visited there show they lie in undulations and the intermediate gaps are said to be sandy, partly sandstone.

To the northwest of Ancestre or Vinita (a name in field) an old wind row of the Boone extends through the old Pennsylvania. The Ivy says many similar climes are encountered in the top of old ones. In many of the Boone climes there is a tight argil, there is.

[Diagram: Penn. | Boone]
Mustique, Thursday, March 27-1919.

Both at 6 A.M. and at 7:30 we found we could not get an auto for a half day under $10, so decided to sit and in the trip.

Then packed two trunks and shipped them via steamer; charges $6.92.

Left on the "Katy Flinn" at 5:15 P.M. 45 minute late. At Martinique on the held up by a small leak.

Katy Flinn, Friday, March 28-1919

The "Katy Flinn" is not flying today. Instead of arriving at St. Louis at 8 1/2 A.M. we arrived at 11:02 A.M. and found my car had waited for me. And to pay for both, extra fare and time, total $8.76.

The "Katy Flinn" is flying right along and in far better condition than anything to the north. We are a time right along. Had dinner at 11 P.M. and early to my berth at 8 P.M.
Saturday March 29, 1919 En Route east.
I got up at 6:30 and had the most corn to myself.
I had breakfast immediately north of the Horseshoe Bend. It
was cold, with snow-storm and snow-flurries.
All day lag one hour on a time through Penn.
and got to N.J. at 3:10 in a day of sunshine.
Left at 4 P.M. for New Haven. At 6:15
P.M. came at home once more.
### Expense Account

March 10-1919, R.R. New Haven to Dallas  

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<th>Date</th>
<th>Description</th>
<th>Amount</th>
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<tr>
<td>10</td>
<td>Sleeper to St. Louis</td>
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<tr>
<td>11</td>
<td>Lunch at New Haven</td>
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<td>16</td>
<td>3 nights hotel Orient, Dallas</td>
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<td>26</td>
<td>R.R. New Haven to N.Y.</td>
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<td>Sleeper to St. Louis</td>
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<td>Prepaid Expen charge on dinner</td>
<td>$6.92</td>
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<tr>
<td>27</td>
<td>Dinner on being away, Troj, Troj and T.</td>
<td>$6.00</td>
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<tr>
<td>28</td>
<td>Breakfast</td>
<td></td>
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Total: $153.13
March 28: Extra fare to Long. to N.Y. and tax. 8.76
28: Lunch at 66 Long. 0.70
28: Dinner in cars. 1.50
29: Breakfast in cars, at Utica. $1.00
29: Lunch. 1.00
29: Car transfer to N.Y. 0.90
29: N.Y. to McSorley's.

The trip cost more actually $130.
Records of the trip. 68
Actual cost more of trip. $120.