

MINUTES OF MEETING OF COMMITTEE ON
GEOLOGIC NAMES HELD FEBRUARY 28, 1917 (10 to 1).

Present: Messrs. Stanton (Chairman), Butts,
Girty, Keith, Lee, Stephenson, Stose, and Ulrich.

"DESCRIPTION AND CORRELATION OF MISSISSIPPIAN FORMATIONS
IN KENTUCKY WEST OF CINCINNATI ANTICLINE" AND
SUBSEQUENT USE IN HARDIN COUNTY, ILL.
By C. Butts.

The pre-Chattanooga rocks are not exposed in Mr. Butts's area, but he wishes to discuss their correlation with the formations exposed in southwestern Illinois and eastern Missouri. Some of the names presented in Mr. Butts's list have not been approved for Survey use, while other names which have been approved for and used in Survey publications are not mentioned by Mr. Butts, who seems to be largely following Savage's classification. It was unanimously agreed that a list of the names adopted by the Committee for Mr. Weller's use in southwestern Illinois should be furnished Mr. Butts, who will follow the nomenclature of that list, and that Savage's names, if mentioned, will be used in a quotational sense.

Chattanooga shale was unanimously accepted for the area shown on Mr. Butts's map west of the Cincinnati dome. Mr. Butts stated that New Albany shale, heretofore approved

for Jefferson County, Ky., would be restricted to the Cincinnati dome, while the Chattanooga outcrops are in the southwestern part of the State.

"Tullahoma" was long ago abandoned for Fort Payne chert. Mr. Butts stated that he had no objection to Fort Payne. ~~Mr. Ulrich had no objection to Fort Payne.~~ Mr. Ulrich preferred Fort Payne, and it was unanimously recommended that that name be substituted for Tullahoma.

The following names, heretofore approved for Jefferson County, Ky., were regarded as acceptable for neighboring regions in Kentucky on Mr. Butts's identifications:

St. Louis ls. (Mr. Butts's map includes the extreme western corner of Wayne County, Ky., where Newman ls. is the approved name. Mr. Butts said he should carry St. Louis ls. as far east as he could identify it. Mr. Keith stated that Newman ls. would probably be split up when detailed work is done.)

Spergen ls.

Warsaw ls. (Mr. Butts stated the query in his letter referred only to the use of Warsaw in the Hicks dome). Mr. Butts's section of Hardin County, Ill., shows St. Louis ls. resting on Warsaw ls., with statement that at top some beds of Spergen ls. may be included in the Warsaw. From there eastward to Jefferson County, Ky., his sections show the Spergen ls. as absent. In Jefferson Co. 20 ft. of Spergen is present.

Osage ("Knobstone") group

Holtsclaw ss.

Rosewood sh.

Kenwood ss.

New Providence sh.

New Albany sh. west of Cincinnati dome in Ky.

Regarding the question whether or not the Ste. Genevieve limestone shall be included in the Chester group, the Chairman stated that this question can not be considered by the Committee until after the paleontologic evidence has been fully discussed by Messrs. Weller, Girty, Ulrich, and Butts, the paleontologists who took part in the field conference of 1916, as directed in the report of that conference. Mr. Weller is the only one who has submitted his lists to the Chief Geologist.

Mr. Butts stated there is no question about the correlations *across the territory I have covered* of the ~~beds~~, and that in this report he can discuss the beds and their correlation without fixing the base of the Chester. Pending the settlement of the base of the Chester group, the following names were accepted as used by Mr. Butts, his usage being essentially that adopted by Mr. Ulrich in Professional Paper 36:

Ste. Genevieve ls.

Ohara ls. member. (The question whether the Ohara includes an unconformity, separating it into two parts, the lower of which belongs with the Ste. Genevieve ls. and the upper of which belongs with the Chester, as claimed by Mr. Weller, was regarded as not before the Committee for adjustment until after the fossil lists referred to have been submitted and studied and adjustments have been made by those who took part in the 1916 field conference.)

Rosiclare ss. member.

Fredonia oolite member (instead of Fredonia limestone member, as heretofore adopted and published) was recommended, as requested by Mr. Butts.

My statement was that there is no question about the correlation of the Fredonia oolite member. There is a burning question about the correlation of most of the Ohara member. Butts.

In Professional Paper 36 (covering Crittenden, Livingston, and Caldwell counties, Ky.) Mr. Ulrich describes the Cypress sandstone as consisting of:

Cypress ss.

- [1.] quartzose ss., generally massive, but sometimes partly made up of oblique flags. 60-80 ft.
 - [2.] bluish or gray cherty ls., usually affording an abundance of silicified *Pentremites godoni*. 0-10 ft.
 - [3.] massive quartzose ss. 0-50 ft.
- Ohara ls. member of Ste. Genevieve ls.

Mr. Butts submits the following section for Hardin County, Ill., and Crittenden County, Ky., of rocks immediately overlying the Ohara:

Cypress ("Big Clifty") ss. 80
Ridenhower sh. 50
Bethel ss. 60 (Instead of Cedar Bluff ss., the name used during the field conference of 1916).

A comparison of these sections from the same area naturally leads to the conclusion that the upper member of Mr. Ulrich's Cypress is the same as the Cypress of Mr. Butts, that the basal member of Mr. Ulrich's section is the same as the Bethel sandstone, and that the intervening member is the same as the Ridenhower shale. Mr. Butts, however, states that that assumption is not correct, that No. 3 of Mr. Ulrich's section was based on a misconception and has no existence, that No. 2 is the upper part of the Ohara limestone member of the Ste. Genevieve limestone, and

that No. 1 is the Bethel sandstone of Mr. Butts. Messrs. Butts, Ulrich, and Girty agree that the sandstone on Cypress Creek is the upper sandstone of Mr. Butts's section and that the so-called Bethel sandstone is older than the Cypress sandstone, ~~and probably is younger than the Aux Vasse sandstone of southwestern Illinois and eastern Missouri.~~ It was therefore unanimously recommended that the new name Bethel sandstone be adopted for the lower sandstone, that Cypress sandstone be ^{applied} restricted to the upper sandstone, ^{in Mr. Butts's area} and that the new name Ridenhower shale be adopted for the intervening beds.

In Breckenridge, Warren, Logan, Todd, Christian, and Caldwell counties, Ky., the development of the rocks of the Cypress-Bethel interval, as presented in Mr. Butts's diagram, is somewhat different, consisting of:

Cypress ss. 80
Gasper oolite 140 (new name, from Warren Co., Ky.)
 1. oolite 60
 2. ss. 40 (Sample ss. member); (new name
 from Breckenridge Co., Ky.)
 3. oolite 40
Uncon. representing Bethel ss., Ohara ls., and
 Rosiclare ss., according to Mr. Butts.
Fredonia oolite 160

Mr. Butts's letter of February 12 states that he is not certain that the so-called Sample sandstone is not the same as the Bethel sandstone, but at the meeting he stated he is now satisfied, after further study of material and sections,

that it is 50 feet higher than the Bethel, and is a wedge in the midst of the Gasper oolite. He is also now of the opinion that the Bethel sandstone thins out as shown on the accompanying diagram, and that in places the Gasper rests unconformably on the Fredonia oolite member of the Ste. Genevieve limestone. His detailed diagrams (not exhibited at meeting) show the Gasper resting on the Bethel sandstone and underlying the Cypress sandstone across Christian County, Ky., and into Caldwell County. In some sections in these counties and to the east it includes at the top 10 to 20 feet of shale which Mr. Butts regards as possibly the eastern representative of the Ridenhower shale of Johnson and Hardin counties, Ill. (where the Ridenhower rests on the Bethel sandstone); in other sections this shale is absent and the Cypress rests directly on the oolite.

According to Mr. Butts's interpretation of Mr. Ulrich's Cypress sandstone (namely, that the top member of Mr. Ulrich's Cypress is the Bethel sandstone) the Gasper oolite is the same as Mr. Ulrich's Tribune limestone, as defined and mapped in Professional Paper 36 in Caldwell, Crittenden, and Livingston counties, Ky., except in the supposed typical area around Tribune, where the rocks are acknowledged by all to be the Menard limestones. In view

This isn't an opinion. It is an established fact. Butts.

"This is so by definition. Butts."

of the fact that the Gasper is not present in the vicinity of Tribune, it was unanimously recommended (Mr. Ulrich finally assenting) that "Tribune limestone" be abandoned. Mr. Ulrich explained that the error in the definition of Tribune was due to the fact he had not visited Tribune, but sent an assistant to that place, and relied upon his correlation of the beds.

It was understood that should the Sample sandstone prove to be the same as the Bethel sandstone, the 40 feet of oolite beneath it would represent the Ohara limestone member of the Ste. Genevieve limestone in whole or in part, and the upper oolite beds (60 feet thick) would represent the same interval as the 50 feet of Ridenhower shale in Crittenden County, and Gasper and Sample would be abandoned. In view, however, of the doubt which exists as to the correlation of the Sample sandstone and Bethel sandstone, it was unanimously recommended that Gasper oolite and Sample sandstone member be adopted for the eastern counties (Breckenridge around to Caldwell).

The deposits that overlie the Cypress sandstone and occupy the time interval of the Okaw formation of the Mississippi Valley are in Hardin County, Ill., and Crittenden County, Ky., divided by Mr. Butts into:

Sloans Valley ls. 50
Hardinsburg ss. 60
Golconda form. 140

The three names, which were tentatively agreed upon during the field conference of 1916, were supposed to be unpublished, but Mr. Ulrich called attention to the fact that he had just been informed that at least part of the names had recently been published by the Illinois State Survey in an oil report. The report has not yet been received by the Survey Library, but a copy was obtained from Dr. Stanton's office in the Museum, having been received ^{the preceding} day but not yet examined by him. An examination of Bulletin 35 (1917) of the Illinois State Survey (which bears on the cover the imprint "Work in cooperation with United States Geological Survey") disclosed the fact that these three names are defined therein, in a paper by Stuart St. Clair on "parts of Williamson, Union, and Jackson counties," of southwestern Illinois (Pl. 4 and ^{also in a paper by A.D. Brokaw, on the same counties (Pl. 1),} p. 46), without having been referred to the Committee on Geologic Names, and apparently without the approval of the Survey.

The type locality of the Golconda formation is in Pope County, southeastern Illinois; the type locality of the Hardinsburg sandstone is in Breckenridge County, Ky. These formations have been traced by Mr. Butts over a large area, and there seems to be no question regarding their identity. They represent the lower part of Mr. Ulrich's Birdsville formation, *above the true lypress sandstone.*

In considering possible equivalents Mr. Butts gave the following explanations of the names introduced into the Breckenridge County section by Mr. Foerste in 1910:

His "Stephensport bed" is largely Cypress sandstone and Golconda formation.

Garfield is on the Cypress sandstone, so that his "Garfield bed" or "Garfield ss." is the same as Cypress sandstone, the older name.

His Clover Creek ls. is the upper part of the Gasper oolite above the Sample sandstone, and may possibly be a useful member name.

Since the Golconda and Hardinsburg units seem not to conflict with units already named, it was unanimously recommended that Golconda formation and Hardinsburg sandstone be adopted; that "Stephensport bed" and "Garfield bed" be abandoned; and that Clover Creek limestone of Foerste be held in abeyance till detailed work is done in the area including the type locality.

Discussion of the rocks for which the name Sloans Valley limestone was proposed by Mr. Butts revealed the fact that Mr. Butts has not visited Sloans Valley (in Pulaski County, Ky.) and can not give a section of the rocks at that place. Mr. Ulrich desired to have Sloans Valley used; said he has visited the place and might have a section of the rocks there, which he believes occupy the interval between the Tar Springs sandstone and the Hardinsburg sandstone. Mr. Girty expressed the opinion

The Gasper does not outcrop on lower level and the name is applied to the Gasper if at all only through mis-correlation.

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that there is doubt regarding the correlation, and that a name from Mr. Butts's area would be preferable. Mr. Butts stated that the beds can not be traced eastward across an anticline, that he did not believe the formation had ever been definitely limited at Sloans Valley, that he submitted Sloans Valley because it was apparently regarded as acceptable during the 1916 field conference, but that he is entirely willing to use a name selected from his area, where he knows the overlying and underlying formations. He therefore proposed Glen Dean, from a railroad station in Breckenridge County, Ky., where the beds are well exposed, Glen Dean being the name used by him in his field work. He stated that he is satisfied the beds described in Mr. St. Clair's published section of southwestern Illinois as Sloans Valley are the same as the beds at Glen Dean, but he has no knowledge that they are the same as those at Sloans Valley. He stated that he doubts whether the Tar Springs sandstone and Hardinsburg sandstone extend across the anticline to Sloans Valley, and if so the underlying and overlying beds would not be the same there. Mr. Keith expressed the opinion that a name selected from Mr. Butts's area is the only safe one to adopt. It was finally unanimously recommended that Glen Dean limestone (instead of "Sloans Valley" limestone) be adopted for the beds underlying the Tar Springs sandstone and overlying the Hardinsburg sandstone in Mr. Butts's section.

There is no reasonable doubt that they are. Butts.

(Leitchfield marls was defined by Norwood in 1876 as consisting of 25-60 feet of green, purple, red, and blue marly shales, separated from the underlying Big Clifty [Cypress] sandstone by:

1. sh. and thin-bedded ls. 5
2. shaly ss. 0-20
3. heavy-bedded dark gray and blue crinoidal ls. 15-45

Several later writers have used the name. The type locality is Leitchfield, Grayson County, Ky. (in Mr. Butts's area). The type locality of "Big Clifty" sandstone is a few miles north of Leitchfield, Mr. Butts stated. Comparing Norwood's section with Mr. Butts's section the Leitchfield marl is the upper part of Mr. Butts's Golconda formation.)

The Menard limestone, Palestine sandstone, and Clore formation being identified by Mr. Butts and others in western Kentucky, the extension of those names to that region was unanimously recommended. In Breckenridge County, however, these three formations can not be differentiated, and Mr. Butts submitted the new name Buffalo Wallow formation for their stratigraphic equivalent. Mr. Butts stated that the name is on the map and is the best one available for the formation. It was unanimously recommended for adoption.

Tar Springs sandstone, a name that dates back to Owen 1857 and has had a limited use in the literature, was unanimously recommended for the sandstone developed at Tar Springs, Breckenridge County, Ky., which overlies the

" ? ?
Butts's

Glen Dean limestone and underlies the Menard limestone.

"Shot Peuch" sandstone, published as a synonym of Tar Springs sandstone, was regarded as abandoned.

In 1907, F. J. Fohs introduced (Kentucky Geological Survey, Bulletin 9, page 67) the following classification of part of the Carboniferous rocks in Caldwell, Crittenden, and Livingston counties, Ky.:

Pottsville form.

Chester group

Lockhart form. 100-175 (ls., shales, and some ss.)

Birdsville form. 315-630 (alternating sss., lss., and shales) [Restriction of Mr. Ulrich's Birdsville.]

Tribune ls. 100-150

Cypress ss. 60-150

No type locality was given for the Lockhart formation, but it is presumably in Livingston County, Ky. Comparison of Mr. Fohs's section with Mr. Butts's columnar section of Crittenden County, Ky., leads to the conclusion that Mr. Fohs's Lockhart formation is the same as the Clore formation of Mr. Butts's section. Lockhart would therefore have priority over Mr. Weller's Clore limestone, but since Lockhart is not well defined, and no type locality was stated by its author, it was decided the name should be ignored. Wherever used in Survey publications, therefore, it will either be quoted or used in a quotational sense.

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Pottsville group, divided into Caseyville sandstone above and Tradewater formation below, the names approved for Shawneetown quadrangle, Ill.-Ky., were acceptable for adjacent areas.

The Birdsville formation of Mr. Ulrich (type locality in Livingston County, Ky.) comprises all the ^{Mississippian} beds above the top of the Gasper oolite. Since the Birdsville rocks of Livingston County and eastward to Breckenridge County, Ky., as well as westward to the Mississippi River, are now differentiated into several formations, it was recognized that there is no longer any use for Birdsville formation, but no recommendation to abandon the name was made. Mr. Ulrich stated he should object to abandoning it. Mr. Butts said he did not need the name but did not see why it should be abandoned.

Secretary.

Approved:

T.W.S.

Chairman.