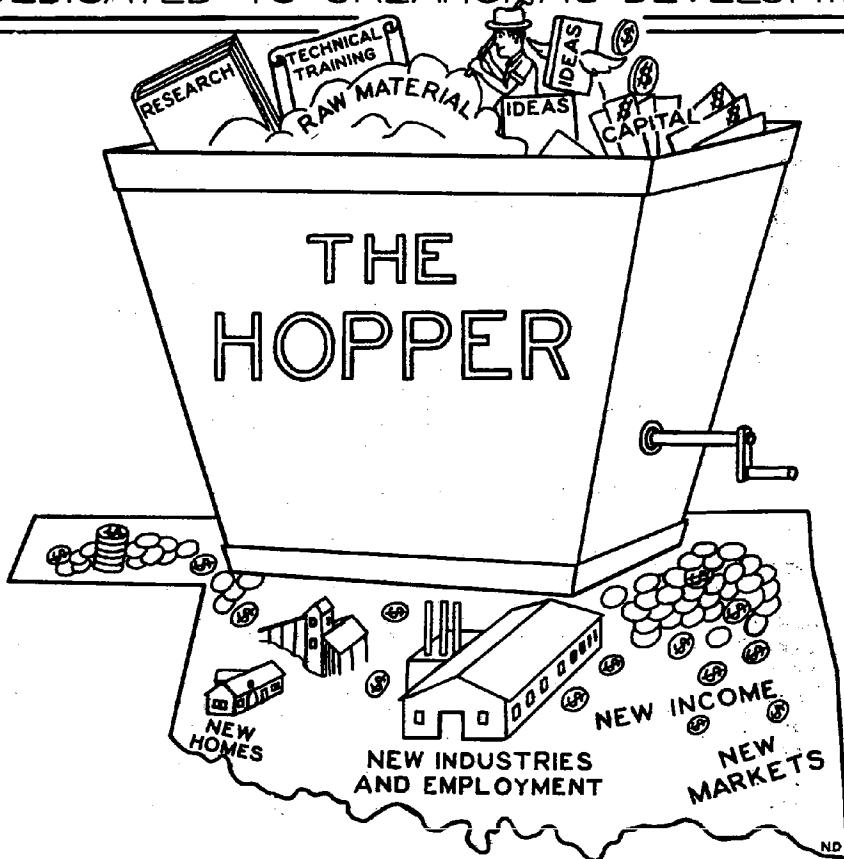

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REPORT ON OKLAHOMA RADIOACTIVE MATERIAL ISSUED

The Oklahoma Geological Survey released a new mineral report on November 10, 1954. In it, Gerald W. Chase described two known occurrences of radioactive material in Cotton County and Jefferson County. He points out that the material occurs in lenses below a wide-spread carbonaceous sandstone which lies at the base of the Garber sandstone. Further search along that contact (shown on the accompanying map) might reveal a commercial deposit.

Mineral Report 26, Occurrences of Radioactive Material in Sandstone Lenses of Southwestern Oklahoma, by Gerald W. Chase, can be purchased for \$0.25 from the Oklahoma Geological Survey.

NEW OKLAHOMA GRAPTOLITE DISCOVERY

An exposure of Viola limestone along U.S. Highway 77 near Springer, Carter County, has yielded remarkable specimens of graptolites. Dr. W. E. Ham of the Survey knew the locality and showed it to Dr. Harry B. Whittington of Harvard University. Whittington dissolved the limestone in hydrochloric acid, then dissolved the residue in hydrofluoric acid. Numerous uncrushed specimens belonging to 7 genera and 8 species were recovered. One of these is the remarkable new genus Orthoretiolites, with its only known and type species O. hamii, named in honor of Dr. Ham.

The new graptolite is described and beautifully illustrated by Dr. Whittington in Journal of Paleontology, Vol. 28, No. 5, pp. 613-621, September 1954.

OKLAHOMA SUBSURFACE STRATIGRAPHIC NAMES

by Carl C. Branson

Geologists in any older and geologically complex oil producing area are plagued by numerous subsurface names. These fall into a variety of categories:

1. Names of another oil region imported by drillers or by transplanted geologists. Examples: Big lime, Salt sand.
2. Descriptive names, indicative of color, texture, compactness, paleontologic features. Examples: Irish sand, Golf Ball zone, Dense lime, Fusulinid sand, Black Ostracod lime.
3. Surface names used in subsurface. Examples: Verdigris lime, Oswego lime (invalid on surface because of prior usage), Simpson.
4. Names derived from farm owners. Examples: Mollman sand, School Land sand, Hotson sand, Endicott sand.
5. Names of companies, operators, or drillers. Examples: Wilcox sand, Nichlos sand, ~~Fortuna~~ sand.
6. Names modified to retrieve miscorrelations. Examples: Osage Layton, Oklahoma City Checkerboard, Glenn-of-Morris, Ada-Mayes, Avant-Dewey lime.
7. Names derived from oil pools. Examples: Hewitt sand, Seminole sand, Red Fork sand, Burbank sand.
8. Invented, humorous, or contrived names. Examples: Section Two sand, Chicken Farm sand, Suitcase sand, Ninety-sixth Meridian sand.

9. Formally named units. Example: Moore formation.

The misunderstandings and errors arising from this system of nomenclature are myriad. Names are used informally in an oil company, use spreads to other oil geologists, then the names appear in print without original authorship, correlation, or definition. Misspellings are inevitable: Nichlos, Nicholas, Nichols; Mussellem, Musselem, Musselman; Misener, Misner, Meisener; Sims, Simms, Symmes; McEwan, McEwin, McEwen. Duplications are assured: 3 Smith sands, 2 Ramsey sands, 2 Thomas sands. Seldom is the type well mentioned or is a previous reference cited. It would seem that the oil geologists would abandon excess names, but they do not for many reasons. An oil company's records are voluminous and can not readily be altered, the other name may not actually be that of an equivalent unit, sands are in many cases local in distribution, and geologists may not agree on the best name for the unit.

This article is an attempt to bring the subsurface names to light, to examine them, define the units, kill the unnecessary ones. The attempt can succeed only if geologists will search their memories and help us to record the information. Needed are the following details:

source of name, well in which first found person or company who first used the name person, place, and date of first publication where now used
age, correlation, thickness, description present status of name: commonly used, rarely used, obsolete, never established

We need and here solicit help from any and all informed geologists. Lacking information is

indicated in the following pages. Let us know of other names, type well, original use of name, occurrence of unit, correlation, thickness, description. The Survey proposes to publish a list of names and a set of correlation tables when reliable data are obtained. Your help is asked for and will be appreciated.

The following listing is of subsurface names of which I have some information. Other names are separately listed at the end. It should be remembered that the term sand is indicative of porosity, and not necessarily of lithology. The Wheeler sand is a limestone. Most limes are marker beds.

Subsurface names have no status in stratigraphic nomenclature and are thus subject to no rules. Wilcox sand would be invalid because preoccupied by the older name Wilcox formation of Alabama (Eocene). Oswego, Hart, Jackson, Jefferson, Yates are all preoccupied. Descriptive names are invalid as surface names, but are recognized and used in subsurface.

In the following list, Line 1 gives name, series, and period; Line 2 gives first published reference so far located; Line 3 gives origin of name; Line 4 gives occurrence and data on correlation.

OKLAHOMA SUBSURFACE NAMES

Abernathy lime	Des Moines	Penn.
Author not identified.		
Abernathy lease of Cities Service	S E SW SE sec.	
13, T. 3 N., R. 2 W.		
East Antioch pool, Garvin Co.		
Ada Mayes	Meramec	Miss.
Mayes formation as identified in SC Oklahoma.		

Mayes is Meramec-Chester of NE Okla.
SC counties. Is lower Caney

Adkins sand Virgil Penn.
First ref.-Hayes 1952, Shale Shaker, 3-2, p. 7.
Adkins lease of Peppers, SE $\frac{1}{4}$ sec. 4, T. 2 N.,
R. 8 W.

West Marlow pool. Equals upper Coline sand.

Aldridge sand Springer Penn.
First ref.-Rutledge 1953. Petr. Eng. 25-13, p. E-14.
Aldridge lease of Skelly, SE $\frac{1}{4}$ sec. 16, T. 1 S.,
R. 4 W.

Velma field. "Second Springer."

Allen sand Des Moines Penn.
First ref.-Buchanan 1927. OGS 40-S, p. 25, footnote.
Named for Allen pool, Pontotoc Co., for village
of Allen.
Used for Calvin sandstone in Allen pool

Anderson sand Springer Penn.
First ref.-Pate 1953. Shale Shaker, 4-3, p. 11.
Anderson lease of Amerada, SE NE SE sec. 36, T. 4 N.,
R. 6 W.
Carter-Knox field. Lowest Springer producing sand

Arbuckle lime U. Cambrian-L. Ordovician
Adopted from surface Arbuckle group in old sense.
Equal to all Cambrian formations above Reagan
sandstone and all Lower Ordovician.
Used throughout Oklahoma oil fields.

Atkins sand See Adkins sand

Atlantic sand Virgil Penn.
First ref.-Tomlinson and Storm 1924. AAPG 8, p. 605.
Named for Atlantic Oil Co., discoverer in N $\frac{1}{2}$ sec.
25, T. 2 S., R. 3 W.
Graham pool, Carter Co. Lies below Johnson sand

- Avant lime Missouri Penn.
 Name of upper member of Iola limestone on surface.
 Incorrectly applied to several subsurface limes
 NC Oklahoma
- Avant-Dewey lime Missouri Penn.
 Name applied to subsurface lime identified as
 Avant and thought to be equal to Dewey lime-
 stone of surface.
 NC Oklahoma, May be Wildhorse dolo.
- Bad Hole sand Atoka Penn.
 First ref.-Bullard 1928. OGS 40-Q, p. 159.
 Origin of name not determined
 Timber Ridge pool, Muskogee Co.
- Barnes sand Virgil Penn.
 First ref.-Snider 1920. Oil and Gas in Mid-
 Cont. Fields, p. 230.
 Name for Barnes pool. Garfield Co., which was
 named for Barnes lease of Oil State Petroleum
 Co., discoverer in NW $\frac{1}{4}$ sec. 15, T. 23 N., R. 3W.
 Lies below Turkey Run ls. in upper part of Paw-
 huska fm.
- Barnett sand Des Moines Penn.
 First ref.- Snider 1920, Oil and Gas in Mid-Cont.
 Fields, p. 80.
 Origin of name not determined.
 NC Okla.
- Bartlesville sand Des Moines Penn.
 First ref.-Snider 1913. Pet. and Nat. Gas in
 Oklahoma, p. 85.
 Name for Bartlesville, Washington Co.
 NE, C, NC, Oklahoma.
- Bayou sand Missouri Penn.
 First ref.-Williams 1954. Shale Shaker, 4-9, p. 7.

Name for Bayou field, Carter Co.
In Hoxbar 300-400 feet below Anadarche ls.

Belveal sand Virgil Penn.
First ref.-Vanderpool 1925. Okla. Acad. Sci. 6,
p. 288.
Name for F. M. Belveal lease of Exchange Oil Co.,
 $\text{NE}^{\frac{1}{4}}$ sec. 24, T. 22 N., R. 14 W.
Garber pool, Garfield Co.: 100 feet below Walker
sand, 100 feet above Campbell sand.

Belleville sand See Belveal sand.

Bennett sand Penn.
First ref.- Tomlinson and Storm 1924. AAPG 8, p. 608.
Name from J. F. Bennett lease, sec. 31, T. 2 S.,
R. 2 W.
Graham Pool, Carter Co. Below Graham sand, above
Sutherland.

Big lime Des Moines Penn.
Name originated by drillers in Pennsylvania.
In Appalachian fields a Middle Mississippian ls.
Applied to Oologah ls., Altamont ls. at places,
and to a Permian lime in Panhandle
C, NE, NC Oklahoma

Bilbo sand Trinity L. Cret.
Author not identified.
Name for Geo. W. Bilbo, partner in discovery
well of Madill pool, $\text{SE}^{\frac{1}{4}}$ sec. 24, T. 5 S.,
R. 5 E.

Billings sand Virgil Penn.
First ref.-Vanderpool 1925. Okla. Acad. Sci. 6,
p. 288.
Name for Billings pool.
Noble Co.

Birdseye lime McLish M. Ord.

First ref.-Hyatt 1926. AAPG 20, p. 955.

Descriptive of spotted appearance

SC Oklahoma

Bixler sand Des Moines Penn.

First ref.-Snider 1913. Petr. Nat. Gas in Okla.,
p. 100.

Nancy Bixler lease of Midland Oil Co. SW $\frac{1}{4}$ sec. 11,
T. 26 N., R. 13 E.

Used in Hogshooter pool, Ponca field. Probably
Prue sand.

Black and Simons sand Eromide M. Ord.

Mentioned by White and Green 1931. AAPG 5, p. 405.

Origin of name not determined.

C. Okla. Not now in use.

Black Ostracod lime Missouri Penn.

First ref.-Hayes 1952. Shale Shaker 3--2, p. 9.

Descriptive of color and fauna of marker limestone
Cement pool

Black lime Meramec-Chester Miss.

First ref.-Aurin, Clark and Trager 1921. AAPG 5,
p. 127.

Descriptive of dark color

Applied to Moorefield fm., Hindsville ls. and
ls. of Fayetteville fm.

Oklmulgee Co.

Blackwell sand Virgil Penn.

First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
Aug. suppl.

Name from Blackwell field, Kay Co.

Lies above Newkirk sand, below Hotson sand

Blades sand See Blaydes sand,

- Slaydes sand Virgil Penn.
 First ref.-Gouin 1926. OGS 40-E, p. 41.
 Name for Blaydes lease, sec. 32, T. 1 S., R. 8W.,
 Empire pool.
 Stephens Co., 100 feet below Brown sand, 100
 feet above Kagay sand
- Boatwright sand Springer Penn.
 First ref.-Wallace 1954. Shale Shaker 4-7, p. 10.
 Ira Boatwright lease of Magnolia, secs. 33, 34,
 T. 5 N., R. 6 W.
 Equal to Fourth Springer sand. Chitwood area.
- Boche sand Misspelling of Booch sand
- Booch sand Des Moines Penn.
 First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
 Aug. suppl.
 Name for Booch farm, sec. 20, T. 13 N., R. 14 E.
 Morris pool.
 C. Okla. Equal to Warner ss. At places Upper,
 Lower, First, Second, Third Booch.
- Booth sand Virgil Penn.
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.
 D. Booth lease of Texas, NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 21, T. 2 N.,
 R. 8 W.
 West Marlow field. Upper Booth Lower Booth.
- Boynton sand Atoka Penn.
 First ref.-Fohs and Gardner 1914. Fuel Oil
 Jour., Aug. suppl.
 Name for town of Boynton
 Okmulgee and Muskogee Cos. Below Leidecker sand
- Britt sand Springer Penn.
 First ref.-Wallace 1954. Shale Shaker 4-7, p. 10.
 A. Britt lease of Magnolia, SW $\frac{1}{4}$ sec. 3, T. 4 N.,
 R. 6 W.
 Chitwood area. Second Springer.

No author identified.

Descriptive of compact upper bed of Bromide fm.
Marker zone in SC Oklahoma

Named by Shaw 1954. Shale Shaker 5-3, p. 9.

Brooks lease of Magnolia, type Brooks No. 3,

NW SW NE sec. 11, T. 2 S., R. 3 W.

Fox-Milroy area, Carter Co.

First ref.-Maravich 1953. AAIG 37, p. 1344.

Descriptive of color and lithology

Becker Co.,
Beckham Co.

Brown lime Des Moines Penn.

No author identified

Descriptive of clay-ironstone

For Doneley, Sam Creek, Spaniard limestones

For Banesby, Sam
C and NE Oklahoma

Brown sand Virgil Penn.

First ref.-Gouin 1926, OGS 40-E, p. 42.

Brown lease of Lone Star Gas Co., sec. 30.

T L S B S W

Stephens Co. 100 feet above Blawdes sand

Brown sand Missouri Fenn-

First ref. White 1941 AAPG Strat., p. 390.

Name for Bruner lease of McQueen et al.: NE¹/₄

sec. 4 T. 6 N. R. 6 E. Dora pool (?)

In lower part of Francis fm. Equal to Layton

Lower part of Francis M. Equal to Layton sand (3).

Burbank sand Des Moines Penn.

Sands 1834 AABC 8 p 585.

Sands 1924. AAPG 8, p. 365.
Name for town of Bunkbank, Osage Co.

Name for town of Burbank, Usage 66.
Boulders equivalent to Red Fork sand - Taft sandstone

Burgen lime	Simpson	M. Ord.
Boyle 1929. OGS 40-KK, p. 11		
Name from Burgen ss. which is below; Tyner above. Okfuskee Co.		
Burgess sand	Des Moines	Penn.
First ref.-Snider 1913. Petr. Nat. Gas in Okla., p. 86.		
Cooie Burgess lease of Prairie Oil and Gas Co., sec. 32, T. 21 N., R. 13 N. S and NE Oklahoma. Basal Des Moines.		
Burns sand	Des Moines	Penn.
Author not identified.		
Burns lease of Ohio, SE NE SW sec. 17, T. 3 N., R. 2 E., Garvin Co.		
East Pauls Valley pool, 1943. Below McKinney.		
Burr sand	Springer	Penn.
Author not identified		
Origin of name not determined.		
First Springer, Above Aldridge sand. S. Okla.		
Buttermilk lime	Fernvale	U. Ord.
Green and Aurin 1925. Oil and Gas Jour., Oct. 15.		
Descriptive of coarse white cuttings C Oklahoma		
Buzzard sand	Missouri	Penn.
First ref.-Kennedy 1937. Tulsa Geol. Soc. 9, p. 80.		
Origin of name not determined		
Osage County.		
Caddo sand	Leonard	Permian
Reeves 1922. USGS 726, p. 72.		
Name for Caddo Petroleum Co., Discoverer in Roe No. 2.		
Cement pool. Equal to Nichlos sand		

Campbell sand	Virgil	Penn.
Bullard 1928. OGS 40-Q, p. 62.		
Thos. Campbell lease of Sinclair NW NE NW sec. 30, T. 22 N., R. 3 W.		
Garber field, 100 feet below Belveal sand, Disc. 1919.		
Santrell sand		Penn.
First ref.-Bullard 1928. OGS 40-Q, p. 56.		
Cantrell lease of Empire Gas and Fuel Co. in sec. 32, T. 1 S., R. 8 S., Empire pool.		
100 feet below Surber sand, 100' above Shelton sand		
Canyon lime	Missouri	Penn.
Used in southern Okla. by some geologists for Hoxbar reefy lime.		
Canyon series is Missouri of C. Texas.		
Carmichael sand	Virgil	Penn.
Ross 1923. U. S. Bur. Mines, Rept. on Tonkawa pool, p. 9.		
J. C. Carmichael lease of Comar Oil Co., NE $\frac{1}{4}$ sec. 3, T. 24 N., R. 1 W., Tonkawa pool		
250 feet below Pawhuska lime.		
Carpenter sand	Des Moines	Penn.
First ref.-Shaw 1954. Shale Shaker 5-3, p. 2.		
Origin of name not determined.		
Equal to Edwards and Hefner sands. First and second Carpenter. NW Fox-Graham pool and Milroy		
Castle Rock sand	Springer	Penn.
Mention by Roth 1928. Econ. Geology 23, p. 45.		
Appears to be surface name; applied to sand at 2,250 feet in Schermerhorn Ardmore Co.-Jolliff No. 1, sec. 24, T. 5 S., R. 1 E., Carter Co.		
Charleson sand	See Charlson sand	

Charlson sand	Des Moines	Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 10.		
Thos. Charlson lease of Sinclair, SE $\frac{1}{4}$ sec. 22, T. 5 N., R. 8 W.		
Chickasha field. Below Glover sand, above Pooler sand. Same as Kistler sand.		
Charleston sand	See Charlson sand	
Chickasha sand	Leonard	Permian
1943 Oil Scouts and L. Assoc. 13, p. 444.		
Name for Chickasha gas pool.		
Grady Co. Not now used.		
Chicken Farm sand	Simpson	M. Ord.
No author identified		
Name from a chicken farm in Nikoma Park		
Equal to Oil Creek sand (?) Oklahoma City area.		
Chubbee sand	Missouri	Penn.
First ref.-Williams 1954. Shale Shaker 4-9, p. 7.		
J. Chubbee lease of Texas, NW NW SW sec. 5, T. 5 S., R. 1 W. SW Lone Grove pool. 1944.		
Near base of Hoxbar fm., SW Carter Co.		
Cisco	Virgil	Penn.
Texas series name used by some geologists for Hoxbar rocks in S. Oklahoma.		
City Lake sand	Springer	Penn.
Mention by Roth 1928. Econ. Geology 23, p. 45.		
Name for Overbrook ss. used in Schermerhorn- Ardmore Co., Jolliff No. 1 sec. 24, T. 5 S., R. 1 E.		
Carter Co. Not used.		
Cleveland sand	Missouri	Penn.
First ref.-Hutchison 1911. OGS 2, p. 198.		
Name from Cleveland, Pawnee Co.		
NC Okla. Upper and Lower Cleveland at places. Seminole fm.		

Clive sand	Leonard	Permian
First ref.-Hayes 1952.	Shale Shaker 3-2,	p. 7.
Source of name not determined		
Lower part of Clearfork-Wichita		
Colbert sand	Atoka	Penn.
First ref.-Fohs and Gardner 1914.	Fuel Oil Jour.	
Aug. suppl.		
Name for Colbert pool, Tulsa Co.		
Equal to Dutcher sand.		
Coline sand	Virgil	Penn.
First ref.-Hayes 1952.	Shale Shaker 3-2,	p. 7.
Coline Oil Co.		
Lower Coline sand, Upper Coline sand = Adkins sand.		
West Marlow pool.		
Cosden sand	Des Moines	Penn.
First ref.-Clark and Bauer 1921.	AAPG 5,	p. 289.
Name for Cosden Oil Co.		
Okmulgee Co. In Boggy fm.		
County Line lime	Missouri	Penn.
First ref.-Mallory 1948.	AAPG 32,	p. 1953.
Town of County Line		
Stephens and Grady Cos. Near top of Hoxbar.		
Covington sand	Virgil	Penn.
First ref.-Bullard 1928.	OGS 40-Q,	p. 62.
Name for Covington Oil and Gas Co.		
Garber pool, Garfield Co., 150' above Pawhuska lime.		
Crews sand	Virgil	Penn.
First ref.-Bullard 1928.	OGS 40-Q,	p. 62.
Crews lease of Exchange Oil Co., sec. 19, T. 22 N., R. 4 W.		
Garber pool, Garfield Co., 400' below Foraker ls.		
Crinoidal lime	Virgil	Penn.

No author

Descriptive of limestone with crinoid columnals.
In Cement pool; equal to Marlow lime.

Cromwell sand Morrow Penn.

First ref.-Levorsen 1920. OGS 40-BB, p. 324.

Cromwell Oil and Gas Co., drillers of wells in
sec. 15, T. 10 N., R. 8 E.

C. Okla. Equal to Union Valley ss.

Culberson sand Des Moines Penn.

First ref.-Mallory 1948. AAPG 32, p. 1963.

Culberson lease of British-American, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 4, T. 1 N., R. 5 W.

Equal to First Fusulinid sand. Doyle, Velma pools.

Culbertson sand Misspelling of Culberson

Culp sand Missouri Penn.

First ref.-Wheeler 1947, World Oil 127-5, p. 46.

Preston Culp lease of Peppers Ref. Co., NE $\frac{1}{4}$ sec. 6,
T. 5 N., R. 9 W.

Cement field. Below Marchand sand.

Cunningham sand Springer Penn.

First ref.-Wallace 1954. Shale Shaker 4-7, p. 9.

W. D. Cunningham lease of Magnolia, C. SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 33, T. 5 N., R. 6 W.

First Springer. Chitwood area, Grady Co.

Cushing lime Wolfcamp Permian

No author identified

Name for Cushing field where it is marker bed.

Equal to Red Eagle limestone

Deaner sand Atoka Penn.

First ref.-Bullard 1928. OGS 40-Q, p. 47.

Name for Deaner, discoverer in T. 11 N., R. 11 E.

Okfuskee County

Dense lime	Bromide	Ord.
No author identified		
Descriptive of compact ls.		
Upper unit of Bromide fm., also called Bromide		
Dense		
Detrick sand	Tyner	Ord.
First ref.-Clark and Bauer 1921. AAPG 5, p. 591.		
Origin of name not determined.		
Morris pool.		
Detrital zone		Penn.
Used in various senses and for different zones.		
Basal Hoxbar in South Palacine, basal Des Moines		
in Oklahoma City pool, Garber pool.		
Dewey-Avant lime	Missouri	Penn.
No author		
Name for subsurface Avant of Dewey ls. age.		
NC Okla. Lukert thinks Wildhorse dolo.		
Dillard sand	Missouri	Penn.
First ref.-Greene 1928. OGS 40-CC, p. 11.		
Origin of name not determined.		
Equal to Lower Cleveland sand. Pawnee Co.		
Dixie sand	Des Moines	Penn.
First ref.-Bullard 1928. OGS 40-Q, p. 169.		
Name for Dixie Oil Co.		
Wewoka pool. Above Smith sand.		
Doggett sand	Atoka	Penn.
First ref.-Lockwood 1925. Oil and Gas Jour.,		
April 16.		
Origin of name not determined.		
Above Deaner sand.		
Dora sand	Des Moines	Penn.
Ingham 1941. AAPG, STRAT, p. 419.		
Name for Dora pool, Twp. 6 and 7 N.; R. 6 E.		

Equal to Thurman ss. Seminole Co.

Doyle lime	Missouri	Penn.
Author not known		
Name for Doyle field.		
White ls. in base of County Line lime.		
Dutcher sand	Atoka	Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil Jour.		
Aug. suppl.		
Origin of name not determined		
C. Oklahoma. Locally First, Second, Third Dutcher		
Dyer sand		Penn.
First ref.-Hardwick 1950. AAPG 34, p. 1113.		
Origin of name not determined.		
South Marlow pool, Stephens Co.		
Earlsboro sand	Des Moines	Penn.
First ref.-Powers 1927. AAPG 11, p. 1098.		
For town of Earlsboro, Seminole Co.		
Equal to Bartlesville sand		
Eason sand	Des Moines	Penn.
First ref.-Engleman 1951. AAPG 35, p. 1243.		
Sidney Eason lease of Carter, NW $\frac{1}{4}$ sec. 6, T. 2 S.,		
R. 3 W.		
Local sand in Tussy zone, Milroy-Fox area		
Edwards sand	Virgil	Penn.
1954. Oil Scouts and L. Assoc. 24, p. 523.		
Origin of name not determined.		
C. Okla.		
Endicott sand	Virgil	Penn.
First ref.-Clark and Aurin 1924. AAPG 8, p. 278.		
No. 5 well on Pennok Endicott lease, Tonkawa field,		
NC Okla. Lower, Middle, Upper Endicott SE $\frac{1}{4}$ sec. 34,		
T. 25 N., R. 1 W.		

Enterprise sand	Des Moines	Penn.
Author not identified.		
Origin of name not determined.		
Equal to Bluejacket ss.		
Evansville sand	Leonard	Permian
First ref.-McKenny 1953. Shale Shaker 3-6, p. 6.		
Named for village of Evansville		
Logan Co. In Iconium member of Wellington fm.		
False Mayes	Same as Ada Mayes	
Fields sand		Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,		
Aug. suppl.		
Name for Fields pool		
Okfuskee Co.		
First Oolitic lime	Missouri	Penn.
No author identified		
Description of lithology		
Checkerboard ls. of C. Oklahoma		
Fortuna sand	Leonard	Permian
First ref.-Clapp 1921. AIME 65, p. 161.		
Name for Fortuna Oil Co., discoverer in sec. 31,		
T. 7 N., R. 9 W. 1917.		
Cement pool. Equal to Ramsey sand, basal Wellington		
Frensley sand	Wolfcamp	Permian
Author not identified		
Frensley lease of Skelly, NE $\frac{1}{4}$ sec. 35, T. 1 S.		
R. 5 W.		
Stephens Co., Velma pool. 1917.		
Fulton sand	Des Moines	Penn.
First ref.-Williams 1954. Shale Shaker 4-9, p. 6.		
Source of name not determined		
Fulton-Hewitt		
Carter Co. In lower Deese.		

Fusulinid sand Des Moines Penn.
 First ref.-Mallory 1948. AAPG 32, p. 1958.
 Descriptive of faunal content
 Equal to Third Deese

Garber sand Virgil Penn.
 First ref.-Gardner 1917 GSA 28, p. 693.
 Name for Garber field
 Garfield Co.

Garner sand Virgil Penn.
 First ref.-Sweeney 1953. Petroleum Eng. 25-13,
 p. B. 14.
 Col. Garner lease of Miller SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26,
 T. 6 N., R. 10 W.
 Cement pool. Below Gregory lime in upper Virgil

Garrett zone Missouri Penn.
 First ref.-McNeal 1953. AAPG 37, p. 2688.
 Cora Garrett lease of Carter, SE SE SE sec. 32,
 T. 11 N., R. 25 W.
 Roger Mills and Beckham Cos.

Garvin beds Wolfcamp-Leonard Permian
 First ref.-Denison 1923. AAPG 7, p. 627.
 Named for Garvin Co.
 Robberson area

Gibson sand Des Moines Penn.
 First ref.-Wheeler 1947. World Oil 127-5, p. 46.
 Name for Melinda Gibson lease of SW Antioch pool.
 Globe and Vickers, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 3 N., R. 2 W.
 6,535-41 feet.

Gibson zone Des Moines Penn.
 First ref.-Jacobson 1949. AAPG 33, p. 698.
 Name from associated Gibson sand.
 Thin ls. above Gibson sand, Garvin Co..

Gilcrease sand Atoka Penn.

First ref.-Roark 1926.	OGC 26,	p. 17.
Gilcrease Oil Co., discoverer in sec. 20,	T. 7 N., R. 9 E.,	Papoose field.
Dutcher sand at most places,	Hartshorne ss.	at places
Gilcrest sand	Misspelling of Gilcrease sand	
Glen sand	Misspelling of Glenn sand	
Glenn sand	Des Moines	Penn.
First ref.--Snider 1913.	Petr. Nat. Gas in Okla.	p. 108.
Ada Glenn farm,	SW $\frac{1}{4}$ sec. 10,	T. 17 N., R. 12 E.
Equal to Bluejacket ss. (Bartlesville sand).		
Glenn-of-Morris sand	Atoka	Penn.
First ref.-Fohs and Gardner 1914.	Fuel Oil Jour.,	
Aug. suppl.		
Glen sand as misidentified in Morris pool.		
Equal to Second Dutcher sand		
Glauconitic lime		Sil.
First ref.-Swesnik 1950.	AAPG 34,	p. 397.
Descriptive of glauconitic limestone.		
Middle part of Chimneyhill limestone.	S. Okla.	
Glover sand	Des Moines	Penn.
First ref.-Hayes 1952.	Shale Shaker 3-2,	p. 10.
Glover lease of Little Nick Oil Co.	NE $\frac{1}{4}$ sec. 27,	
T. 5 N., R. 8 W.		
Chickasha field.	Upper sand of Deese fm.	
Golf Ball zone	Simpson	Ord.
No author, in use since 1930.		
Descriptive of large frosted quartz grains		
Top of First Wilcox		
Goodwin sand	Springer	Penn.
1954. Oil Scouts and L. Assoc.	24,	p. 523.
Goodwin lease of Magnolia,	SE $\frac{1}{4}$ sec. 3,	T. 1 S., R. 4 W.
Garvin Co.	Lowest Springer sand.	

Graham sand		Penn.
First ref.-Clapp 1921. AIME 65, p. 162.		
For Graham lease of Kirk Oil Co.		
Carter Co. Above Bennett sand, below Ricketts sand		
Gregory lime	Virgil	Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.		
Gregory lease of Fortuna Oil Co., $\frac{W_1}{2}$ SW $\frac{1}{4}$ sec. 31,		
T. 6 N., R. 9 W.		
Cement field. Marker in upper part of Virgil		
Griffin lime	Virgil	Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.		
Name from associated sand		
Cement pool. Marker bed in middle part of Virgil.		
Griffin sand	Virgil	Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.		
Griffin lease of Roy Stephens, Inc., SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$		
sec. 27, T. 6 N., R. 10 W.		
Cement pool, Conglomeratic ss. below Griffin lime.		
Hallett sand	Des Moines	Penn.
First ref.-Bullard 1928. OGS 40-Q, p. 68.		
Village of Hallett, Hallett pool.		
Equal to Wayside sand (?)		
Hammar-Haindl sand	See Hammar-Haindl sand	
Hammer-Haindl sand	Simpson	Ord.
First ref.-McGee and Clawson 1932. AAPG 16, p. 974.		
Rose Hammer (N 1/3 SW $\frac{1}{4}$ sec. 11) and Margaret Haindl		
(C 1/3 SW $\frac{1}{4}$ sec. 11) T. 11 N., R. 3 W. leases		
of I.T.I.O.		
Oklahoma City field. Below Mollman sand		
Hamilton Switch sand	Atoka	Penn.
First ref.-Clark 1926. OGS 40-F, p. 10.		
Hamilton Switch village and pool.		
Equal to First and Second Dutcher sands		

Harjo sand Atoka Penn.

First ref.-

Harjo lease of Independent O.G.& E. Gas Co.

sec. 21, T. 10 N., R. 8 E.

Cromwell pool.

Harryman sand Des Moines Penn.
 First ref.-Dannenberg 1952. Shale Shaker 2-9, p.13.
 Harryman lease of Ramsey Petr. Co., C W $\frac{1}{2}$ SE NW
 sec. 27, T. 2 N., R. 9 E.
 Centrahoma pool. Equal to Booch sand (?) Disc. 1941.
 1,208-1,275 feet.

Hart sand Des Moines Penn.
 First ref.-Wheeler 1947. World Oil 127-5, p. 46.
 Hart lease of Magnolia, sec. 14, T. 1 N., R. 3 W.
 Robberson pool and vicinity. Equal to Fourth Deese

Healdton sand Penn.
 First ref.-Powers 1918. AIME 59. p. 574.
 Town and pool of Healdton
 Carter Co.

Hedland sand Missouri Penn.
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 10.
 Hedland lease
 Cement pool. Below Medrano, above Marchand sands.

Hefner sand Des Moines Penn.
 Mentioned by Shaw 1954. Shale Shaker 5-3, p. 9.
 Probably named for Robert A. Hefner lease of Sunray
 NW $\frac{1}{4}$ sec. 12, T. 1 N., R. 5 W.
 Doyle and Velma pools. Equal to Morris sand.

Helm sand Virgil Penn.
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.
 S. J. Helm lease of Texas, NW $\frac{1}{4}$ sec. 21, T. 2 N.,
 R. 8 W.
 West Marlow pool. Above Booth sand

- Hewitt sand Des Moines and Missouri Penn.
 First ref.-Swigart and Schwarzenbeck 1921. U. S.
 Bur. of Mines Rept. on Hewitt pool, p. 19.
 Hewitt pool.
 Divided into First to Seventh Hewitt sands.
- Hewitt lignite Missouri Penn.
 Author not identified
 Name from association with Hewitt sand
 Marker below Crinerville ls. in Lone Grove and
 Hewitt areas.
- Hogshooter sand Des Moines Penn.
 First ref.-Berger 1918. AAPG 2, p. 212.
 Name for Hogshooter pool, Washington Co.
 Equal to Burgess sand
- Holland sand Des Moines Penn.
 First ref.-Ohern and Garrett 1912. OGS 16, p. 16.
 Birdie Holland lease of Woverine Oil Co. NW $\frac{1}{4}$
 sec. 4, T. 25 N., R. 13 E.
 Ochelata area. Equal to Peru sand
- Hodges sand Leonard Pennian
 First ref.-Maravich 1953. AAPG 37, p. 1344.
 Origin of name not determined.
 Southeast Duff pool, Garfield Co.
- Hominy lime Virgil Penn.
 No author identified
 Hominy town and pool
 Marker bed equal to Lecompton ls.
- Hominy sand
 First ref.-White and Greene 1924. Oil and Gas Jour.
 23-15, p. 68.
 Name for Hominy pool and town, Osage Co.
 Lies on Siliceous lime. May be Burgess or Burgen
- Hoopes sand Oil Creek Ord.

First ref.-McGee and Clawson 1932. AAPG 16, p. 974.
 Hoopes lease of Skelly, NE $\frac{1}{4}$ sec. 31, T. 11 N.,
 R. 2 W.
 Oklahoma City field. Equal to Kinter sand.

Hoover sand Virgil Penn.
 First ref.-Snider 1920. Oil and Gas in Mid-Cont.
 Fields, p. 229.
 Name for Hoover lease of Mid-Co., sec. 22, T. 23 N.,
 R. 2 W.
 Billings pool. Equal to Elgin ss.

Hotson sand Wolfcamp Permian
 First ref.- Snider 1920. Oil and Gas in Mid-Cont.
 Fields, p. 228.
 D. Hotson lease of Empire Gas and Fuel Co. NW $\frac{1}{4}$
 sec. 25, T. 22 N., R. 4 W.
 Garber pool, Garfield Co., 230 feet below Hoy sand

Hoy sand Wolfcamp Permian
 First ref.-Snider 1920. Oil and Gas in Mid-Cont.
 Fields, p. 228.
 Hoy lease of Exchange Oil Co., NE $\frac{1}{4}$ sec. 25, T. 22 N.,
 R. 4 W.
 Garber pool, Garfield Co.

Hudspeth sand Des Moines Penn.
 First ref.-Maravich 1953. AAPG 37, p. 1344
 Origin of name not determined.
 Northeast Thackerville pool, Love Co.

Humphrey sand See Humphries sand

Humphreys sand See Humphries sand

Humphries sand Morrow Penn.
 First ref.-Rutledge 1953. Petr. Eng. 25-13, p. B - 41
 Origin of name not determined.
 Velma pool. Third Springer or Second Morrow

Hutson sand	Springer	Penn.
First ref.-Pate 1953. Shale Shaker 4-3, p. 11.		
Hutson lease of Texas, sec. 31, T. 4 N., R. 5 W.		
Carter-Knox field. Equal to Britt sand		
Ingraham sand		Miss(?)
First ref.-Bullard 1928. OGS 40-Q, p. 91.		
E. C. Ingraham lease of Magnolia, S ₂ SW ₄ sec. 34,		
T. 15 N., R. 5 E.		
Davenport and Lyons-Quinn pools. Below Jefferson sand		
Ingram sand	See Ingraham sand	
Irish sand	Tyner	M.Ord.
First ref.-White and Greene 1921. AAPG 5, p. 406.		
Humorous, for green color		
Tulsa area.		
Jackson sand		Penn.
First ref.-Snider 1920. Oil and Gas in Mid-Cont.		
Fields, p. 237.		
Simeon Jackson lease of Gates Oil Co., NE ₄ sec. 16,		
T. 4 N., R. 3 W.		
Healdton pool. Above Simpson sand, below Healdton sand		
Jefferson sand	Springer (?)	Miss(?)
First ref.-Bullard 1928. OGS 40-Q, p. 91.		
Probably Amy Jefferson lease of Atlantic, NW ₄ sec.		
16, T. 11 N., R. 11 E. Disc. 1921.		
Lyons-Quinn pool. Above Ingraham sand, below Sykes.		
Jester sand	Word	Permian
First ref.-Becker 1930. AAPG 14, p. 56.		
Town of Jester, Greer Co.		
Creek, Beckham, Harmon Cos. Base of Flowerpot sh.		
Johnson sand	Virgil	Penn.
First ref.-Tomlinson and Storm 1924. AAPG 8, p. 604.		
Named for Roy M. Johnson of Healdton Petroleum Co.,		

discoverer in sec. 31, T. 2 S., R. 2 W., Graham pool.
Below Kirk sand, above Atlantic sand

Johnson sand Oil Creek Ord.
First ref.-McGee and Clawson 1932. AAPG 16, p. 974.
Bertha Johnson lease of I.T.I.O., NW $\frac{1}{4}$ sec. 25,
T. 11 N., R. 3 W.
Oklahoma City field. Equal to Kinter sand.

J. N. Bateman sand Virgil Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.
Disc. SW NW NE J. N. Bateman lease of Texas NW $\frac{1}{4}$
NE $\frac{1}{4}$ sec. 21, T. 2 N., R. 8 W.
West Marlow pool. Above Helms sand.

Jones sand Missouri Penn.
First ref.-Snider 1913. Petr. Nat. Gas in Okla.,
p. 127.
Origin of name not determined. Not to be confused
with well known Jones sand(Jurassic) of Ark-La.
Creek Co. Equal to Upper Cleveland sand; Seminole fm.

Kagay sand Virgil (?) Penn.
First ref.-Gouin 1926. OGS 40-E, p. 42.
Kagay lease of Magnolia, sec. 34, T. 2 S., R. 8 W.
Empire and Duncan pools, 100 feet below Blaydes sand

Kagey sand See Kagay sand
Kelsa sand See Kelso sand
Kelso sand Missouri Penn.
First ref.-Hutchison 1911. OGS 2, p. 198.
Kelso farm SW of town of Cleveland.
Pawnee Co.

Keyes sand Morrow Penn.
First ref.-Totten 1954. AAPG 38, p. 1137.
Name for Keyes gas pool, and Keyes village.
Oklahoma Panhandle. Basal Morrow

Keys sand		Penn.
First ref.-Swigart 1920. US Bur. Mines, Rept.		
Walters field, p. 3.		
J. C. Keys lease in T. 1 S., R. 10 W., Walters pool		
Cotton Co. Above Zypsie sand, below Priddy sand.		
Kilso sand	See Kilso sand	
Kiefer sand	Simpson	Ord.
Author not identified		
Kiefer pool for L. R. Kiefer farm, Tulsa Co.		
Tulsa Area		
Kingwood lime	Atoka	Penn.
First ref.-Boyle 1929. OGS 40-KK, p. 16.		
Name for associated Kingwood sand.		
Okfuskee Co. Calcareous phase of Kingwood sand.		
Kingwood sand	Atoka	Penn.
First ref.-Bullard 1928. OGS 40-Q, p. 61.		
Named for Kingwood Oil Co.		
Okfuskee and Okmulgee Cos. Below Deaner sand.		
Kinter sand	Simpson	Ord.
First ref.-McGee and Clawson 1930. AAPG 16, p. 966.		
Kinter lease of Sinclair and Amerada, SE $\frac{1}{4}$ sec. 30,		
T. 11 N., R. 2 W.		
Oklahoma City field. Below Hammer-Haindl sand		
Kirk sand	Virgil	Penn.
First ref.- George and Bunn 1924. U.S.Bur. Mines,		
Rept. on Graham field, p. 13.		
Kirk Oil Co., discoverer in sec. 31, T. 2 S., R. 2 W.		
Carter Co., 400 feet above Johnson sand		
Kisner sand	Wolfcamp	Permian
First ref.- Bullard 1928. OGS 40-Q, p. 62		
R. R. Kisner lease of Exchange Oil Co., NW $\frac{1}{4}$ sec. 19,		
T. 22 N., R. 4 W.		
Garber field. Above Hotson sand, below Hoy sand.		
Kistler sand	Des Moines	Penn.
First ref.-Wayne 1952. Shale Shaker 3-2, p. 7.		

Name for W. L. Kistler, driller in SE $\frac{1}{4}$ sec. 14,
T. 5 N., R. 8 W.
Cement field. Equal to Charlson sand

Knox sand	Leonard	Permian
First ref.-Becker 1930. AAPG 14, p. 48.		
Name from Knox pool		
Carter-Knox field. Base of Wellington. Equal to Ramsey sand		

Lackey sand	Missouri	Penn.
First ref.-Wheeler 1947. World Oil 127-5, p. 46.		
Name for Lackey lease		
Cement field		

Lawton sand	Leonard	Permian
First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.		
Lawton pool and city.		
Equal to Garber ss. of surface		

Layton lime	Missouri	Penn.
First ref.-Beal 1917. USGS 658, p. 14.		
Name for associated Layton sand.		
Creek Co. Equal to Hogshooter ls.		

Layton sand	Missouri	Penn.
First ref.-Snider 1913. Petr. Nat. Gas in Okla. p. 127.		
Layton farm, Cleveland field.		
Creek Co. Equal to Dodds Creek ss. In Osage Co. and S. Kansas name is applied to Cottage Grove ss.		

Layton of Ponca City Same as Osage Layton

Layton of Cushing Same as Osage Layton

Leidecker sand Atoka Penn.

First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
Origin of name not determined. (Aug. suppl.
Muskogee Co. and Okmulgee Co.)

Liedecker sand. See Leidecker sand

Little lime Des Moines Penn.

First Okla. ref.-Green 1918, AAPG 2, p. 120.
Common Appalachian term for lime above Big lime.

- Hartley 1922 (AAPG 6, p. 464) says Lenapah ls.
- Little Oswego lime Des Moines Penn.
First ref.-Greene 1928. OGS 40-CC, p. 10.
Pawnee Co. Equal to Verdigris ls.
- Loco lime Missouri Penn.
First ref.-Gouin 1947. Oil Weekly 126-4, p. 37.
Loco village and pool
Stephens Co. May be Daube ls. or Anadarche ls.
- Lone Grove formation Des Moines Penn.
Williams 1954. Shale Shaker 4-9, p. 10.
Lone Grove village and pool.
Includes all of Deese except upper 250 feet.
- Lovell lime Virgil Penn.
First ref.-Lukert 1949. AAPG 33, footnote p. 141.
Credits M. D. Scruggs.
Dovell lease of Welch et al, SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 9,
T. 18 N., R. 4 W.
Equal to Toronto ls. at places.
- Lowery sand Simpson Ord.
First ref.-McGee and Clawson 1926. AAPG 16, p. 974.
Bill Lowery lease of Wirt Franklin N 2/3, NW $\frac{1}{4}$ sec.
12, T. 11 N., R. 3 W. "Uncle Bill No. 1". 1615'
Oklahoma City field. Equal to Kinter sand
- Lowrie sand Leonard Permian
First ref.-McKenny 1953. Shale Shaker 3-6, p. 6.
Origin of name not determined.
Logan Co. In Iconium mem., Wellington fm.
- Lydecker sand See Leidecker sand
- Lyons lime Morrow Penn.
First ref.-Levorsen 1928. OGS 40-BB, p. 43.
Name from Lyons sand below.
Omulgee district. Equal to Wapanucka ls.

- Lyons sand Morrow Penn.
 First ref.-Lockwood 1925. Oil and Gas Jour.,
 April 16.
 Name from Lyons dome and pool.
 Equal to Cromwell sand (Union Valley ss.)
- Lyons-Quinn sand Morrow Penn.
 First ref.-Clark 1926. OGS 40-F, p. 10.
 Named for Lyons-Quinn pool.
 Same as Lyons sand. Equal to Cromwell sand.
- M. A. Bateman sand Virgil Penn.
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.
 M. A. Bateman lease of Texas, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 21,
 T. 2 N., R. 8 W.
 West Marlow pool. Below Crinoidal lime
- McEwan sand See McEwin sand
 McEwen sand See McEwin sand
- McEwin sand Missouri Penn.
 First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
 Aug. suppl.
 Origin of name not determined.
 Bartlesville-Dewey area. Same as Cleveland sand (?)
- McKinney sand Missouri Penn.
 Author not identified
 McKinney lease of Ohio, SE NE SE sec. 18, T. 3 N.,
 R. 2 E.
 East Pauls Valley pool, Garvin County.
- Madill sand Trinity L. Cret.
 First ref.-Dott 1944. Oil S. and L. Assoc. 14,
 p. 444.
 Name for Madill city and pool
 Marshall County

Magnolia sand Missouri Penn.

First ref.-Clapp 1921. AIME 65, p. 162.

Magnolia Oil Co., Discoverer in Irwin No. 1,
sec. 14, T. 5 N., R. 8 W.

Chickasha gas field.

Main Oolitic lime Missouri Penn.

First ref.-Hayes 1952. Shale Shaker 3-2, p. 9.

Descriptive of lithology and thickness
Cement field and West Marlow pool.

Manning zone Chester Miss.

Author not identified.

Manning lease of Superior, NW $\frac{1}{4}$ sec. 27, T. 22 N.,
R. 10 W.

Major Co. Pay zone in Ringwood pool. Disc. in
NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$.

Maloney sand Missouri (?) Penn.

First ref.-Gouin 1926. OGS 40-E, p. 42.

Maloney lease of Westheimer and Daube sec. 4,
T. 2 S., R. 8 W.

Empire pool, 400 feet below Kagay sand

Marchand sand Missouri Penn.

First ref.-Wheeler 1947. World Oil 127-5, p. 46.

Marchand lease of Gorton Trust, NW $\frac{1}{4}$ sec. 2,
T. 5 N., R. 9 W.

Cement field. Below Medrano sand, above Culp sand

Marchland sand See Marchand sand

Markham sand Des Moines Penn.

First ref.-Snider 1920. Oil and Gas Mid-Cont.
Fields, p. 80.

Origin of name not determined.
NE Oklahoma

Marland sand Det. (?)

First ref.-Aurin 1920. AAPG 4, p. 174.

Named for Marland Ref. Co.

Ponca field. Above Tyner. May be Misener sand.

Marlow lime Virgil Penn.

First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.

Marlow town and pool.

West Marlow pool. Equal to Crinoidal lime.

Maroon shale

Descriptive name for a Pennsylvanian shale in Carter Co., for an upper Virgil shale in Grady Co., for a Jackfork shale on surface.

Marshall zone Bromide Ord.

First ref.-Maravich 1954. AAPG 38, p. 1124.

Origin of name not determined.

Green shale zone between First Wilcox and Second Wilcox

Maudlin sand See Mauldin sand

Mauldin sand Leonard (?) Permian

First ref.-Denison 1923. AAPG 7, p. 627.

Mauldin lease, Robberson field

Stephens Co.

Meadows sand Des Moines Penn.

First ref.-Wood 1913. USGS 531, p. 32.

Origin of name not determined

Cleveland pool. Equal to Booch sand.

Meaner sand Des Moines Penn.

First ref.-Bullard 1928. OGS 40-Q, p. 46.

Origin of name not determined.

Davenport pool. Equal to Oswego lime.

Medrano sand Missouri Penn.

First ref.-Wheeler 1947. World Oil 127-5, p. 46.

THE HOPPER

Name for B. J. Medrano lease of Magnolia, SW sec. 36, T. 6 N., R. 9 W. W. Cement field		
Megargle lime	See Megargel lime	
Megargel lime	Virgil	Penn.
Authorship not determined		
Origin of name not determined		
Cotton Co. Texas marker and pay traced into Oklahoma		
Meisener sand	See Misener sand	
Melton lime	Missouri	Penn.
First ref.-Wheeler 1947. World Oil 127-5, p. 46. Melton lease of Ray Stephens, Inc., SE ¹ sec. 26, T. 6 N., R. 10 W. Above Glover sand.		
Mervine sand	Virgil	Penn.
Clark and Cooper 1927. OGS 40-H, p. 25. Name from Mervine anticline.		
Mervine pool, Kay Co. Equal to Newkirk sand.		
Misener sand	Kinderhook	L.Miss.
First ref.-White and Green 1924. Oil and Gas Jour., 23-15, p. 42. Name for Fred D. Misener of Tulsa C, NE, NC Okla. Sand in basal Woodford-Chattanooga		
Misner sand	See Misener sand	
Mississippi chert	Osage	Miss.
No author identified. Descriptive of chert zone in top of Mississippi lime NC Oklahoma		
Mississippi lime		Miss.
No author identified.		

Adapted from Mississippian
Applied to limestone at base of Penn., Chester,
or Meramec, or Osage at various places.

Miller sand		Penn.
Gouin 1926. OGS 40-E, p. 42. Origin of name not determined Duncan and Empire pools. 100 feet above Surber. sand		
Mollie Miller sand		Ord.
Author not identified. Mollie Miller lease of Marland, sec. 9, T. 25 N., R. 2 E. South Ponca field. May be Misener sand		
Mollman sand	Simpson	Ord.
First ref.-McGee and Clawson 1932. AAPG 16, p. 973. 3. T. Mollman lease of Mid Kansas, SE $\frac{1}{4}$ sec. 23, T. 11 N., R. 3 W. Oklahoma City field. Tulip Creek or McLish Lower part of School Land sand.		
Mona sand	Des Moines	Penn.
First ref.-Hayes 1952. Shale Shaker 3-2, p. 10. Mona lease of Phillips, SE $\frac{1}{4}$ sec. 34, T. 5 N., R. 9 W., Disc. 1944. NE Comanche Co. Near base of Deese. Chickasha pool		
Moore formation	Atoka	Penn.
Named by Wheeler 1949. World Oil, Sept. 29, p. 156. Name for Moore City and pool. Cleveland Co. Atoka age in doubt.		
Morris sand	Des Moines	Penn.
First ref.-Shaw 1954. Shale Shaker 5-3, p. 9. Name for Mattie Morris lease of Gypsy, NE $\frac{1}{4}$ sec. 29, T. 2 S., R. 3 W. Fox-Wheeler area. Equal to Hefner sand		

- Morris sand Des Moines Penn.
 First ref.-Fohs and Gardner 1914. Fuel Oil
 Jour., Aug. suppl.
 Name for Morristown and pool.
- Okmulgee Co. Equal to Hartshorne sand or Upper
 Dutcher.
- Moore Carr sand Simpson Ord.
 First ref.-Clark and Bauer 1924. AAPG 5, p. 201.
 Name for M. L. Carr of Okmulgee, discovered in
 NE sec. 34, T. 15 N., R. 14 E. Disc. 1908.
 C. Okla. Considered Atoka by some.
- Mounds sand Tyner Ord.
 First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
 Aug. suppl.
 Town of Mounds, Tulsa Co.
 C. Oklahoma. Equal to First Wilcox.
- Moyer sand Virgil Penn.
 Tomlinson and Storm 1924. AAPG 6, p. 603.
 Moyer farm, sec. 31, T. 2 S., R. 2 W.
 Graham pool, Carter Co.
- Montgomery sand Des Moines Penn.
 Mentioned by Shaw 1954. Shale Shaker 5-3, p. 9.
 Origin of name not determined.
 Carter Co.
- Muncrief sand Missouri Penn.
 Atkinson 1952. Shale Shaker 3-3, p. 10.
 Muncrief lease, SW $\frac{1}{4}$ sec. 21, T. 2 S., R. 6 W.
 South Palacine field, Stephens Co.
- Muskogee lime Atoka Penn.
 No author identified
 Muskogee city and field
 Limestone marker in Muskogee Co. and vicinity.
- Muskogee sand Atoka Penn.
 First ref.-Fohs and Gardner 1914. Fuels Oil
 Jour. Aug. Suppl.
 Muskogee field
 Wilson 1935 correlates with Pope Chapel ss.

- Musselem sand See Mussellem sand
- Mussellem sand Missouri Penn.
Author not identified
M. S. Mussellem lease, 1½ mis. S. of Oilton
Mussellem of Bass 1940 is Cottage Grove ss.
- Musselman sand Missouri Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil
Jour., Aug. suppl.
Seems to be a misspelling of Mussellem, but
used for a different sand
Cushing field.
- Nellie sand Penn.
Bullard 1928. OGS 40-Q, p. 179. (as Nellis)
Name for village of Nellie
Nellie Pool, Stephens Co.
- Nemire sand Des Moines Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil
Jour., Aug. suppl.
Origin of name not determined.
In Boggy, above Bartlesville, below Red Fork.
- Newberry sand Virgil (?) Penn. (?)
Denison 1923. AAG 7, p. 628.
Newberry lease, sec. 14, T. 1 N., R. 3 W.
Robberson field. Virgil or Wolfcamp
- Newkirk sand Virgil Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil
Jour., Aug. suppl.
Town of Newkirk, Kay Co.
Above Hoover, below Blackwell sands
- Nichlos sand Leonard Pennian
Kirwan and Swigart 1923. U. S. Bur. Mines, p. 3.
John B. Nichlos, discoverer, well in sec. 26,
T. 5 N., R. 8 W.
Chickasha field, Grady Co.

Nicholas sand	See Nichlos sand	
Nichols sand of authors	See Nichlos sand	
Nichols sand	Missouri	Fenn.
Atkinson 1952. Shale Shaker 3-3, p. 10. Nichols lease, NW $\frac{1}{4}$ sec. 21, T. 2 S., R. 6 W. Equal to Lower Hoxbar		
High sand		Permian
Gouin 1926. OGS 40-E, p. 42. Elmer Nigh lease of N. Amer. O. & G. Corp., SW $\frac{1}{4}$ sec. 34, T. 1 S., R. 8 W. Empire pool, Stephens Co. 100 feet below Miller, 100 feet above Surber.		
Niles lime	Virgil	Penn.
Hayes 1952. Shale Shaker 3-2, p. 9. Name for associated sand Cement field.		
Niles sand	Virgil (?)	Penn.
Hayes 1952. Shale Shaker 3-2, p. 9. F. A. Niles lease of Magnolia, NW $\frac{1}{4}$ sec. 36, T. 6 N., R. 10 W. Cement field, Lower Virgil or U. Missouri		
Ninety-sixth Meridian sand	Atoka	Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil Jour., Aug. suppl. Name for 96th Meridian Equal to Dutcher sand		
Noble-Olson sand	Leonard	Fermian
First ref.-Becker, Wells and Fulton 1932. O. & G. Jour. 31-16, p. 14. Name for Noble-Olson Drilling Co. Disc. in 1929. Grady Co., Cement field.		

Oil City lime Missouri Penn.
Green 1918. AAPG 2, p. 121.
For Oil City town and pool.
S. Osage Co. Equal to Avant ls. of surface.

Oklahoma City Checkerboard lime Missouri Penn.
McKenny 1953. Shale Shaker 3-6, p. 6.
Checkerboard as identified in Oklahoma City pool.
Equal to Hogshooter ls.

Omulgee Wilcox sand Simpson Ord.
First ref.-Lockwood 1925. Oil and Gas Jour.,
April 16.
Wilcox sand of Okmulgee district
CE Oklahoma.

Olds sand Oil Creek Ord.
First ref.-McGee and Clawson 1932. AAPG 16,
p. 974.
Olds lease of Celine Oil Co., NW $\frac{1}{4}$ sec. 24,
T. 11 N., R. 3 W.
Oklahoma City field. Equal to Kinter sand.

Olympic sand Des Moines Penn.
Orig. des.-Tillotson 1938. AAPG 22, p. 1579.
Olympic Oil Co., discoverer
Olympic pool. Sand below Henryetta coal.

Oolitic lime Sil.
First ref.-Swesnik 1950. AAPG 34, p. 397.
Descriptive of ls. with oolites in dense matrix.
S. Oklahoma. Equal to lower Chimneyhill fm.

Osage Layton sand Missouri Penn.
No author identified.
Layton sand as misidentified in Osage Co.
Equal to Cottage Grove ss. Not the Layton of
Creek Co.

Osborne sand	Des Moines	Penn.
Wallace 1954. Shale Shaker 4-7, p. 6.		
Origin of name not determined.		
Equal to Fifth Deese. Golden Trend		
Oswego lime	Des Moines	Penn.
No author identified.		
Abandoned preoccupied surface name, from town of Oswego, Kansas.		
Equal to Fort Scott and Breezy Hill limestone.		
Panhandle Big lime	Leonard (?)	Permian
Greene 1926. OGC 40-D, p. 9.		
Name in reference to drillers Big lime as iden- tified in Panhandle.		
Marker zone of dolomite, anhydrite, salt, in Panhandle.		
Papoose sand	Morrow	Penn.
Roark 1926. OGC 36, p. 18.		
Papoose Oil Co., discoverer of Papoose pool, Okfuskee and Hughes Cos.		
Equal to Cromwell (Union Valley ss.)		
Patsy sand	Leonard	Permian
George and Bunn 1924. U. S. Bur. Mines, p. 13.		
Patsy Oil and Gas Co., discoverer in sec. 6, T. 3 S., R. 2 W.		
Graham pool.		
Patty sand	Missouri	Penn.
Atkinson 1952. Shale Shaker 3-3, p. 6.		
Patty lease, SE $\frac{1}{4}$ sec. 27, T. 2 S., R. 6 W.		
South Palacine field, Stephens Co., 300 feet below Loco ls.		
Pawhuska lime	Virgil	Penn.
First ref.-Green and Aurin 1925. Oil and Gas Jour., Oct. 15, cross sect.		

From surface name derived from city of Pawhuska.
Equal to Lecompton

Penn Caney Springer Penn.

No author.

Name for upper or Pennsylvanian part of Caney shale.

Equal to Goddard shale and Springer shale.

Peoples sand Missouri Penn.

First ref.- Fohs and Gardner 1914. Fuel Oil

Jour., Aug. suppl.

Origin of name not determined.

Equal to Cottage Grove ss. (Osage Layton).

Pawnee Co.

Ferry sand Des Moines Penn.

First ref.-Lukert 1949. AAPG 33, p. 147.

Perry city and pool.

Noble Co. Perry gas sand at 1,500 feet.

Perryman sand Des Moines Penn.

First ref.-White and Greene 1921. AAPG 5, p. 402.

E. Perryman farm, $\frac{N}{2} \frac{SW}{4}$ sec. 14-13N-12E.

Devonian pool, Okmulgee Co. Equal to Prue (?).

Peru sand Des Moines Penn.

First ref.-Fohs and Gardner 1914. Fuel Oil

Jour., Aug. suppl.

Peru pool, Montgomery Co., Kansas.

Equal to Englevale ss. in Labette shale. Way-side sand called Peru in Osage Co.

Pharaoh sand Des Moines Penn.

First ref.-Swesnik 1954. AAPG 34, p. 392.

Laura Pharaoh lease of Biffle et al, NW NW NW

sec. 15, T. 3 N., R. 2 W.

Antioch pool, Garvin Co. 1947. 5,563-71 feet.

J. Deese.

THE HOPPER

Pickens sand	Des Moines	Penn.
First ref.-Maravich 1954. AAPG 38, p. 1124.		
Name for Pickens pool.		
In lower Deese of S. Oklahoma		
Pink lime	Des Moines	Penn.
First ref.-Fohs and Gardner 1914. Fuel Oil Jour., Aug. suppl.		
Descriptive of pink calcite crystals.		
Equal to Shawah ls.		
Name used for Pawnee in Nowata Co. and in S. Kansas.		
Pink Crinoidal lime		Sil.
First ref.-Swesnik 1950. AAPG 34, p. 397.		
Descriptive of pink crinoid columnals.		
S. Oklahoma. Upper Chimneyhill fm.		
Ponca sand	Virgil	Penn.
First ref.-Fohs. and Gardner 1914. Fuel Oil Jour., Aug. suppl.		
Ponca field, Kay Co.		
Equal to Elgin ss. (Hoover).		
Pooler sand	Des Moines	Penn.
Hayes 1952. Shale Shaker 3-2, p. 10.		
Elmer S. Pooler lease of Sinclair Prairie, $\text{NE} \frac{1}{4}$ sec. 22, T. 5 N., R. 8 W.		
Chickasha field. Upper, Middle, Lower Pooler.		
Prague limestone	Virgil	Penn.
Author not identified.		
City of Prague, Lincoln Co.		
Marker in C. Oklahoma. Equal to Lecompton ls.		
Preston sand	Atoka	Penn.
First ref.-Lockwood 1925. Oil and Gas Jour., April 16, map.		
For Alex Preston, discoverer of Hamilton Switch Pool.		

Oklmulgee Co. First, Second Preston. Equal to Dutcher sand.

Priddy sand		Penn.
Swigart 1920. U. S. Bur. Mines, p. 2.		
B. F. Priddy lease, McMan Oil Co., SE $\frac{1}{4}$ sec. 4, T. 3 S., R. 10 W.		
Walters pool, Cotton Co., 100 feet above Keys.		
Prosperity sand	Leonard	Permian
Named by Reeves 1922. USGS, B 726, p. 72.		
Prosperity Oil Co., discovery well in SE $\frac{1}{4}$ sec. 5, T. 5 N., R. 9 W. 1918.		
Cement pool. 100 feet below Fortuna sand.		
Prue sand	Des Moines	Penn.
First ref.-White and Green 1921. AAPG 5, p. 402.		
Prue pool, T. 21 N., R. 10 E., Osage Co.		
Equal to Lagonda ss. (Squirrel, Perryman, Bixler).		
Pugh sand		Penn.
First ref.-Snider 1920. Oil and Gas in Mid-Cont. Fields, p. 237.		
Origin of name not determined.		
Healdton and Roberson pools. Above Dunlap sand.		
Quinn sand	Morrow	Penn.
First ref.-Lockwood 1925. Oil and Gas Jour., April 16, map.		
Quinn pool.		
Equal to Union Valley ss. (Cromwell)		
Ragan sand	Wolfcamp	Permian
Bullard 1928. OGS 40-Q, p. 121.		
Ragan lease of Twin States, NW $\frac{1}{4}$ sec. 29, T. 21 N., R. 1 W. Disc. 1923.		
Perry pool, Noble Co. Below Vann, 900 feet above Tonkawa sand.		

Ragsdale sand	Des Moines	Penn.
Mentioned by Shaw 1954. Shale Shaker 5-3, p. 9.		
Origin of name not determined.		
Carter Co. Equal to Morris sand.		
Ramsay sand	See Ramsey sand	
Ramsey sand	Des Moines	Penn.
Williams 1921. AAPG 5, p. 296.		
Name for Ramsey pool, Washington Co.		
Equal to Wayside sand.		
Ramsey sand	Leonard	Permian
First ref.-Kirwan and Swigart 1923. U. S. Bur.		
Mines, Rept., p. 5.		
W. R. Ramsey, 1923 discoverer in sec. 23, T. 5 N.,		
R. 8 W.		
Chickasha field. Equal to Fortuna sand.		
Red Fork sand	Des Moines	Penn.
First ref.-Hutchison 1911. OGS 2, p. 220.		
Red Fork pool, Tulsa Co.		
Equal to Taft ss.		
Rhodes sand	Atoka	Penn.
First ref.- Fohs and Gardner 1914. Fuel Oil		
Jour., Aug. suppl.		
Lena D. Rhodes farm, SE $\frac{1}{4}$ NW $\frac{1}{4}$ 29-17N-12E, Tulsa		
Co.		
Equal to Dutcher.		
Richter sand	Missouri	Penn.
Hosterman 1924. AAPG 8, p. 290.		
Richter lease to Amerada, SE cor. NE $\frac{1}{4}$ sec. 34,		
T. 25 N., R. 1 W., Tonkawa field.		
Below Tonkawa sand, above Layton.		
Ricketts sand		Penn.
Tomlinson and Storm 1924. AAPG 8, p. 607.		
Ricketts farm, sec. 30-2S-2W. Graham pool.		
Carter Co.		

Above Graham sand, below Atlantic sand.
Considered by George and Dunn (1924) to be
Graham sand.

Roll sand Leonard Permian
Author not identified.
Roll lease of Texas, C SE SW sec. 5, T. 3 N.,
R. 10 W.
Comanche Co. 947-974 feet.

Rose sand Wolfcamp Permian
First ref.-Maravich 1953. AAPG 37, p. 1344.
Rose lease of Shell, sec. 6, T. 1 N., R. 3 W.
at 3,683 feet.
Royal pool, Garvin Co.

Rowe lime Virgil Penn.
Hayes 1952. Shale Shaker 3-2, p. 9.
Name for associated sand.
Below Marlow lime. Cement field.

Rowe sand Virgil Penn.
Hayes 1952. Shale Shaker 3-2, p. 9.
Ed Rowe lease of Caddo Petr. Co., SW $\frac{1}{4}$ sec. 36,
T. 6 N., R. 10 W.
Cement field. Possibly upper Missouri

Ruel Blake sand Virgil Penn.
Hayes 1952. Shale Shaker 3-2, p. 7.
Ruel Elake lease of Texas, NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 21.
T. 2 N., R. 8 W.
West Marlow pool.

Salt sand Des Moines Penn.
Term brought from Pennsylvania. Used in Oklahoma
since 1905.
Carries brine in Penn.
Applied to Bartlesville sand (Bluejacket ss.)

Sames sand Des Moines Penn.
 1954. Oil Scout & L. Assoc. 24, p. 523.
 N. J. A. Sames lease of Magnolia, NE NE NE
 sec. 35, T. 6 N., R. 10 W.
 Cement pool.

Sapulpa sand Atoka Penn.
 First ref.-Snider 1913. Petr. Nat. Gas in Okla.,
 p. 108.
 City of Sapulpa.
 Equal to Booch. Name not now in use.

School Land sand Missouri Penn.
 Hayes 1952. Shale Shaker 3-2, p. 10.
 School Land lease.
 Cement field. Equal to Hedland sand.
 Not to be confused with School Land sand of
 Oklahoma City field, which is Ordovician.

School Land sand Leonard Permian
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.
 School Land lease of Ohio Fuel Oil Co., NW¹/₄
 sec. 36, T. 5 N., R. 8 W.
 NE Comanche Co. Disc. 1923.

School Land sand Simpson Ord.
 First ref.-McGee and Clawson 1932. AAPG 16,
 p. 973.
 School Land lease of Sinclair, sec. 36, T. 11 N.,
 R. 3 W.
 Oklahoma City field. Above Hammer-Haindl sand.

Scott sand Atoka Penn.
 First ref.-Fath 1917. USGS 661, p. 76.
 Name for Scott pool, near Kellyville.
 EC Oklahoma.

Sears sand Missouri Penn.
 First ref.-Hayes 1952. Shale Shaker 3-2, p. 7.

Rosa Sears lease of Texas, NE $\frac{1}{4}$ sec. 20, T. 2 N.,
R. 8 W.
West Marlow pool. Upper Sears, Lower Sears.

Second Oolitic lime Missouri Penn.
No author identified.
Descriptive.
90 feet below base of First Oolitic

Seminole sand Viola Ord.
First ref.-Levorsen 1928. OGS 40-EE, p. 322.
Seminole city and field, disc. in sec. 16,
T. 9 N., R. 5 E.
Below *Viola dolomita*, above Bromide dolomite.
Seminole Co.

Seminole Wilcox Same as Seminole sand.

Senora lime Des Moines Penn.
No author identified.
Thin ls. in Senora fm., a surface name.
Hughes and Okfuskee Cos. Surface ls. marker.

Shelton sand Penn.
Gouin 1926. OGS 40-E, p. 43.
Shelton lease, sec. 32, T. 1 S., R. 8 W.
Empire pool, Stephens Co. 100 feet below Cantrell,
100 feet above Smith.

Sholem Alechem lime Missouri(?) Penn.
 Cloud 1930. OGS 40-MM, p. 8.
 Name for Sholem Alechem pool.
 Cotton Co. Base of Missouri or top of Deese.
 Equal Confederate ls. (?)

Siliceous lime Canadian Ord.
 First ref.-Aurin 1920. AAPG 4, p. 177.
 Descriptive of chert content.
 Upper part of Arbuckle group.

Sims sand Springer Penn.
 First ref.-Rutledge 1953. Petr. Eng. 25-13,
 p. B-41.
 Sims lease of Stanolind, NE NE SE sec. 2, T. 1 S.,
 R. 4 W., Sholem Alechem pool.
 Garvin and Stephens Cos. Equal to Fourth Springer.
 Rutledge says Morrow.

Simons sand See Black & Simons sand

Simpson sand Simpson Ord.
 Origin informal
 From Simpson group of surface.
 Used in general sense throughout area.

Simpson sand Penn.
 First ref.-Snider 1920. Oil & Gas Mid-Cont.
 Fields, p. 237.
 Origin of name not known. Mistaken identification?
 Healdton pool, in sec. 15, T. 4 S., R. 3 W.

Skinner sand Des Moines Penn.
 First ref.-Fohs and Gardner 1914. Fuel Oil Jour.,
 Aug. suppl.
 Name for Skinner lease of Magnolia, NW cor. sec.
 5, T. 7 N., R. 8 E.
 Equal to Chelsea ss. of surface.

- Smith sand Penn.
Tomlinson and Storm 1924. AAPG 8, p. 610.
Name for C. R. Smith, partner in well in sec. 31,
T. 2 S., R. 2 W.
NW Carter Co.
- Smith sand Penn.
Gouin 1926. OGS 40-E, p. 42.
Smith lease, sec. 32, T. 1 S., R. 8 S.
Rainola pool, Stephens Co. 100 feet below
Shelton, 100 feet above Brown.
- Smith sand (Smith of Wewoka) Morrow Penn.
First ref.-Lockwood 1925. Oil and Gas Jour.,
April 16, map.
For R. H. Smith, discoverer in sec. 33, T. 8 N.,
R. 8 E.
Equal to Cromwell sand. Wewoka field.
- Southerland sand See Sutherland sand
- Spencer sand Leonard Permian
Author not identified.
Spencer lease of Texas, C NW NW sec. 8, T. 3 N.,
R. 10 W.
Comanche Co. At 790 feet.
- Spiers sand Springer Penn.
Wallace 1954. Shale Shaker 4-7, p. 10.
A. V. Spiers lease of Magnolia, C SW SW sec. 28,
T. 5 N., R. 6 W., 11,722-35 feet.
Chitwood area. Equal to Third Springer.
- Spires sand See Spiers sand
- Squaw sand Atoka Penn.
First ref.-Snider 1913. Petr. Nat. Gas in Okla.,
p. 108.
Origin of name not determined.
Equal to Booch sand or Atoka.

Squirrel sand Des Moines Penn.

First ref.-Snider 1920. Oil and Gas in Mid-
Cont. Fields, p. 185.

Linnie Squirrel farm, NW $\frac{1}{4}$ sec. 7, T. 26 N.,
R. 14 E.

Equal to Lagonda ss.

Stalnaker sand Virgil Penn.

First ref.-Greene and Aurin 1925. Oil and Gas
Jour., Oct. 15.

Stalnaker farm, SE $\frac{1}{4}$ sec. 11, T. 35 S., R. 2 E.,
Kansas.

Equal to Tonkawa sand. NC Oklahoma.

Stamper zone Joins Ord.

McGee and Clawson 1932. AAPG 16, p. 975.

Stamper lease, of Sinclair, S $\frac{1}{2}$ of NW $\frac{1}{4}$ sec. 30,
T. 11 N., R. 2 W.

Oklahoma City field. Below Kinter sand.

Suber sand Misspelling of Surber sand

Suitcase sand Missouri Penn.

Early drillers name for lowest pay. Applied to
Osage Layton by Sands 1927. AAPG 11, p. 1053.
Burbank field.

Surber sand Virgil Penn.

Gouin 1926. OGS 40-E, p. 40.

O. B. Surber lease of Empire Oil and Gas Co.,
SW $\frac{1}{4}$ sec. 33, T. 1 S., R. 8 W.

Stephens and Cotton Cos. Below Miller, above
Brown sands.

Sutherland sand Penn.

Tomlinson and Storm 1924. AAPG 8, p. 609.

Sutherland Petroleum Co., discoverer in Poland
No. 1, sec. 5, T. 3 S., R. 2 W.

Graham pool, Carter Co. Equal to Lower Graham
sand.

Swaggart sand	Misspelling of Swaggart sand	
Swaggert sand	Missouri	Penn.
First ref.-Lockwood 1925. Oil and Gas Jour., April 16, map.		
Swaggert lease of Western States, sec. 15, T. 27 N., R. 3 W.		
Grant Co. Deer Creek pool. Equal to Tonkawa sand.		
Swenson sand		Penn.(?)
First ref.-Aurin 1917. OGS 19, pt. 2, p. 268. Gus Swenson lease, Kay Co. SW $\frac{1}{4}$ sec. 32, T. 29 N., R. 1 E.		
Equal to Oswego (?), Misener (?).		
Sykes sand	Morrow	Penn.
First ref.-Lockwood 1925. Oil and Gas Jour., April 16, map.		
Named for Louis Sykes, discoverer in sec. 31, T. 8 N., R. 8 E., in Boggs No. 1. Wewoka pool, Seminole Co. Sand below Cromwell in Morrow.		
Symmes sand	See Sims sand	
Tanaha sand	Misspelling of Taneha sand	
Taneha sand	Des Moines	Penn.
First ref.-Snider 1913. Petr. Nat. Gas in Okla. p. 108.		
Village of Taneha, Tulsa Co. Equal to Warner ss. (Booch sand).		
Tanneha sand	Misspelling of Taneha sand	
Tatums sand	Des Moines	Penn.
Grimes 1935. AAPG 19, p. 407.		
Tatums and Tatums pool.		
Tatums pool, Carter Co. A local Deese sand.		

Thomas sand Virgil Penn.

Gouin 1926. OGS 40-E, p. 50.

Thomas lease of Magnolia, sec. 25, T. 1 S.,
R. 9 W.

N. Duncan pool. Equal to Brown sand.

Thomas sand Virgil Penn.

Named by Clark 1926. AAPG 10, p. 644.

A. M. Thomas lease of Marland, sec. 15, T. 25 N.,
R. 2 W.

Kay Co. Lies on Pawhuska lime.

Timber Ridge sand Atoka Penn.

Bullard 1928. OGS 40-Q, p. 255.

Timber Ridge pool.

Muskogee Co. Equal to Goody ss.

Todd sand Missouri Penn.

Pate 1953. Shale Shaker 4-3, p. 10.

Todd lease of Dick Wegener, SE $\frac{1}{4}$ sec. 1, T. 3 N.,
R. 6 W.

Carter-Knox field. Equal to lower Hoxbar.

Tonkawa sand Virgil Penn.

Ross 1923. U. S. Bur. Mines, p. 3.

Tonkawa pool, Tps. 24 and 25 N., R. 1 W.
Kay Co.

Trenton Viola Trenton Ord.

Informal origin. Distinguished from "Fernvale"
ls.

For Viola ls. of Trenton age.
C. Oklahoma.

Trooper sand Penn.

Edinger and Elliott 1949. AIME, Petr. Stat.,
p. 254.

Trooper Park

Oklahoma City and Nikoma Park pools.

- Tucker sand Des Moines Penn.
Snider 1913. Petr. Nat. Gas in Okla., p. 132.
Tucker farm, near Owasso.
Equal to Warner ss. (Booch). Used for Burgess
at places and for Wilcox in Cleveland pool
and vicinity.
- Tugman sand Virgil Penn.
First ref.-Maravich 1952. AAPG 36, p. 1109.
Tugman lease of Shell, sec. 11, T. 2 N., R. 8 W.,
at 7,591 feet.
Southeast Beaver pool, Stephens Co.
- Turk sand Virgil Penn.
Clark 1926. AAPG 10, p. 645.
Turk lease of Marland in Thomas pool, Kay Co.
sec. 21, T. 25 N., R. 2 W.
Equal to Upper Endicott sand.
- Turkey Mountain lime Arbuckle Ord.
First ref.-Ruedemann and Redmon 1927. AAPG 11,
p. 933.
Turkey Mountain pool, Tulsa Co.
Tulsa, Wagoner, Osage Counties.
- Turkey Mountain sand Arbuckle Ord.
First ref.-White and Greene 1924. Oil and Gas
Jour. 25--15, p. 42.
Turkey Mountain pool, Tulsa Co.
Tulsa area.
- Tussy lime Des Moines Penn.
First ref.-Shaw 1954. Shale Shaker 5--3, p. 9.
Tussy town and pool.
In Deese below or in base of Tussy sand. Equal
to Arnold ls.
- Tussy sand Des Moines Penn.
First ref.-Mallory 1948. AAPG 32, p. 1963.

Tussy town and pool.
In Deese. Below Fusulinid sand.

Unconformity sand Des Moines Penn.
McGee and Clawson 1932. AAPG 26, p. 970.
Name for sand at an unconformity.
Oklahoma City pool. Equal to Burgess sand.

Jpper Skinner sand Des Moines Penn.
Author not identified.
Sand above true Skinner sand.
Sandstone below Verdigris ls., above Croweburg
coal.

Vann sand Penn.
Bullard 1928. OGS 40-Q, p. 121.
Vann lease of Twin States, NE $\frac{1}{4}$ sec. 29, T. 21 N.,
R. 1 W. Disc. 1921.
Perry pool, Noble Co.

Vertz sand Wolfcamp Permian
Author not identified.
Vertz lease of Phillips, sec. 7, T. 21 N.,
R. 1 W. At 2,000 feet.
Fourdee pool, Noble Co.

Viola Dense Trenton Ord.
Informal origin.
For dense ls. in upper part of Viola ls.
C and S Oklahoma.

Wade sand Missouri Penn.
Hayes 1952. Shale Shaker 3-2, p. 9.
Wade lease of Gorton Trust, Mid-Kansas Wade No. 9,
SW $\frac{1}{4}$ sec. 2, T. 5 N., R. 9 W.
Cement field. Below Main Oolitic lime.

Wainwright sand Penn.
Clark and Bauer 1921. AAPG 5, p. 290.
Wainwright town and pool.

Muskogee Co., Okmulgee Co.

Walker sand Virgil Penn.
First ref.-Vanderpool 1925. Okla. Acad. Sci. 6,
p. 288.
C. K. Walker lease of Exchange Oil Co., SE $\frac{1}{4}$
sec. 24, T. 22 N., R. 4 W.
Garber pool, 70 feet below Hotson.

Walker sand Missouri Penn.
First ref.-Atkinson 1952. Shale Shaker 3-3, p. 10.
Walker lease, sec. 16, T. 2 S., R. 6 W.
South Palacine field. Equal to Lower Hoxbar.

Wanette sand Des Moines (?) Penn.
Author not identified.
Name for village of Wannette.
Asher field. Pottawatomie and Pontotoc Cos.

Watchorn sand Penn.
Author not identified.
Robert Watchorn of Watchorn Oil and Gas Co.,
drilled discovery in 1915.
Morrison pool, Pawnee Co.

Wayside sand Des Moines Penn.
First ref.-Gardner 1917. GSA 28, p. 694.
Wayside pool, Montgomery Co., Kansas
Equal to Walter Johnson ss.-member of Nowata sh.

Wellington anhydrite Leonard Permian
No author identified.
An anhydrite zone in Wellington fm.
Marker bed in N. Oklahoma.

Wheeler lime Des Moines Penn.
Buttram 1914. OGS 18, p. 38.
Name from associated Wheeler sand.
Equal to Pawnee limestone.

Wheeler sand Des Moines Penn.

Buttram 1914. OGS 18, p. 41.

F. M. Wheeler farm, NW W sec. 31, T. 18 N.,

R. 7 E., well drilled by C. B. Shaffer in 1912.
Cushing field. May be eolithic Oswego lime.

White lime

First ref.-Aurin, Clark, and Trager 1921. AAPG
5, p. 127.

Descriptive.

Equal to Frisco limestone (?); St. Clair lime-
stone (?); Viola (?).

Whiting sand Des Moines Penn.

First ref.-Snider 1920. Oil and Gas Mid-Cont.
Fields, p. 212.

Origin of name not determined.

Equal to Peru sand. Bartlesville area.

Whitney sand Wolfcamp Permian

First ref.-Bullard 1928. OGS 40-Q, p. 62.

J. R. Whitney lease of Exchange Oil Co., NE $\frac{1}{4}$
sec. 18, T. 22 N., R. 4 W.

Garber pool. Above Hotson, below Hoy.

Wigdon sand Des Moines Penn.

Reed 1923. AAPG 7, p. 53, fig. 2.

Origin of name not determined.

In T. 13 N., R. 12 E. Equal to Peru sand (?).

Wilcox sand Simpson Ord.

First ref.-Aurin, Clark and Trager 1921. AAPG
5, p. 118.

H. F. Wilcox Oil & Gas Co. well, sec. 7, T. 16 N.,
R. 13 E. in Beggs or Bixby pool.
C. Oklahoma.

Wildcat Jim sand Morrow Penn.

Bullard 1928. OGS 40-Q, p. 179.

From name of pool and Wildcat Jim Oil Co.
Wildcat Jim pool, Carter Co.

Williams sand Des Moines Penn.
1954. Oil Scouts & L. Assoc. 24, p. 523.
L. C. Williams lease of Skelly, NE $\frac{1}{4}$ sec. 16,
T. 1 S., R. 4 W.
Lower Deese. Milroy-Fox area, local member of
Tussy sand.

Wilson sand Permian
Swigart 1919. U. S. Bur. Mines, p. 9.
Clara Wilson lease in sec. 30, T. 2 S., R. 7 W.
Comanche pool, Stephens Co. Originally as
Wilson fm.

Wiser sand Des Moines Penn.
Author not determined.
Wiser Hill pool, Osage Co.
Equal to part of Cologah fm. (Not Weiser sand
of Kansas.)

Woodmansee sand Des Moines Penn.
First ref.-Maravich 1952. AAPG 36, p. 1109.
Woodmansee lease of Skelly et al, sec. 14,
T. 2 S., R. 4 W.
Northwest Milroy pool, Stephens Co.

Woods sand Morrow Penn.
Pate 1953. Shale Shaker 4-3, p. 11.
Woods lease of Pace Petr., SE SE SE sec. 16,
T. 2 S., R. 6 W.
Equal to Primrose sand. South Palacine field.

Yates sand Missouri Penn.
Atkinson 1952. Shale Shaker 3-3, p. 10.
Yates lease, sec. 16, T. 2 S., R. 6 W.
Equal to lower Hoxbar. Not to be confused with
widely known Yates sand of W. Texas and New
Mexico.

Youngstown sand Atoka (?) Penn.
Shannon and Rockwell 1920. AAPG 4, p. 277.

Youngstown pool, Okmulgee Co.
Equal to Dutcher or Hartshorne.

Yule and Funk sand Missouri Penn.
Hayes 1952. Shale Shaker 3-2, p. 9.

Yule lease (SW_4^1) and Funk lease (SE_4^1) of Ray
Stephens, Inc., sec. 1, T. 5 N., R. 9 W.
Cement field. Below First Oolitic lime.

Zypsie sand Penn.
First ref.-Swigart 1920. U. S. Bur. Mines, p. 3.
Zypsie lease of Pure, sec. 29, T. 1 S., R. 10 W.
Walters pool, Cotton Co. 80 feet below Keys sand.

Names with little or no data

Bland sand		
Brundage sand	Missouri	Garvin Co.
Dunlap sand	Ordovician	Healdton pool
Grayhorse sand	Virgil	Osage Co.
Hickman sand		Burbank pool
Independence sand		
Patchel sand	Missouri	Garvin Co.
Pawhuska sand	Virgil	Osage Co.
Section Two sand	Ordovician	
Taylor sand	Penn.	
Tonkawa lime	Penn.	Kay Co.
Verdigris sand	Des Moines	

TULSA GEOLOGICAL SOCIETY DIGEST, 1954.

The annual of the Tulsa Geological Society, volume 22, has just been published. It contains 269 pages including advertising. A number of short papers, each summarizing a talk given before one of the meetings are printed. A complete listing of geologic theses at the University of Oklahoma, compiled by Mrs. Lucy Finnerty, is included. The membership list of the Society is at the end of the book.

The Digest can be ordered from C. A. Weintz, Stanolind Oil and Gas Co., 1214 Stanolind Building, Tulsa, Oklahoma. The price is \$2.00.