

Valley Spring Gneiss¹

Precambrian (Llano Series) : Central Texas.

Original reference: T. B. Comstock and E. T. Dumble, 1890, Texas Geol. Survey Ann. Rept., p. lvi, 274, pl. 3.

V. E. Barnes, 1946, Texas Univ. Bur. Econ. Geology Pub. 4301, p. 56 [1945].
Intruded by Big Branch Gneiss.

Virgil Barnes, Frederick Romberg, and W. A. Anderson, 1954, Internat. Geol. Cong., 19th, Algiers 1952, Comptes rendus, sec. 9, pt. 9, p. 152-153. Oldest Precambrian rocks in Llano uplift are mostly light-colored, highly feldspathic metasediments named Valley Spring gneiss, followed by dark-colored metasediments, including amphibolite, mica schist, graphite schist, and some marble, all of which are included in Packsaddle schist. These rocks are highly folded, and during folding it is believed the igneous rocks were intruded which were metamorphosed into Red Mountain gneiss and dioritic Big Branch gneiss. Date of intrusion of peridotitic rocks, now serpentized into Coal Creek serpentine, in relation to Big

Branch gneiss not satisfactorily determined. Town Mountain granite invaded the already deformed metasediments and was followed by Oatman Creek granite, Sixmile granite, and Llanite, the latter being the youngest.

Named for Valley Spring, Llano County.

Valley Spring gneiss.

Pre-Cambrian (Llano series) : Central Texas.

T. B. Comstock and E. T. Dumble, 1890 (Tex. Geol. Surv. Ann. Rept., pl. 3, pp. lvi, 274). *Valley Spring series*.—Acidic and basic mica and hornblende schists, forming basal div. of Fernandan system. Underlies Iron Mtn series and overlies Burnetan system.

S. Paige, 1911 (U. S. G. S. Bull. 450, pp. 15-23). *Valley Spring gneiss*.—Dominantly acidic series, of light color, containing some altered ls. and bands of basic dark material. Lower fm. of Llano series in Llano and Burnet Counties. Grades, by transition zone, into overlying darker basic Packsaddle schist. [Adopted definition.]

Named for Valley Spring, Llano Co.

Valley Spring gneiss

1961

Clabaugh, S. E., and Boyer, R. E., Origin and structure
of the Red Mountain Gneiss, Llano County, Tex.: Tex. Jour.
Sci., v. 13, no. 1.

p. 7-16

S(245)

Ac12pj

Precamb.

Cent. Tex.

Valley Spring gneiss

1961

Lidiak, E. G., and others, Precambrian geology of part of the Little Llano River area, Llano and San Saba Counties, Texas: Texas Jour. Sci., v. 13, no. 3.

p. 255, 260, 268, 287

S(245)

Acl2pj

Precambrian

Cent. Texas

Clabaugh, S. E., and McGehee, R. V., Precambrian rocks of Llano region: Geol. Soc. America Guidebook, Houston Mtg.

Carries discussion of names into SE Llano region on basis of graduate work.

p. 62, 64, 68, 69, 71

Llano Ser.
Precambrian

Llano region
Central Texas

Valley Spring Gneiss

1963

Zartman, R. E., Rb⁸⁷-Sr⁸⁷ and K⁴⁰-Ar⁴⁰ ages of
Precambrian rocks from the Llano Uplift, Texas:
GSA Spec. Paper 73 (abs.)

G(200)

G29sp

p. 266

[Precambrian]

Texas

Valley Spring Gneiss

1964

Barnes, V. E., and Schofield, D. A., Potential low-grade iron ore and hydraulic-fracturing sand in Cambrian sandstones, northwestern Llano region, Texas: Texas Univ. Bur. Econ. Geol. Rept. Inv. 53
(245)

Plates 1, 2, p. 3

T7ri

Underlies Lost Creek Gneiss (new).

Precamb.

Cent. Texas

Valley Spring Gneiss

1964

McGehee, R. V., Precambrian geology of the Southeastern Llano Uplift, Texas: Dissert. Abs.,
v. 24, no. 7

043
qD63

p. 2869-2870

Underlies Packsaddle Fm.

Precambrian

SE Llano Uplift
Cent. Texas

Valley Spring gneiss

1964

Zartman, R. E., A geochronologic study of the Lone Grove
pluton from the Llano Uplift, Texas: Jour. Petrology,
v. 5, no. 3.

p. 361-365

G(520)
J827

Precamb.

Cent. Texas

Valley Spring Gneiss (age information)

1965

*
Zartman, R. E., 1965, Rubidium-strontium age of some metamorphic rocks from the Llano uplift, Texas: Jour. Petrology, (Oxford) v. 6, p. 28-36.

G(520)
J827

Valley Spring Gneiss has yielded a 1160 ± 30 m.y. age.

Precamb.

c. TX

Valley Spring gneiss

1965

*Zartman, R. E., Rubidium-Strantium age of some metamorphic rocks from the Llano Uplift, Texas: Jour. Petrology, v. 6, pt. 1.

G(520)

J827

p. 28-36

Precamb.

Cent. Texas

Valley Spring gneiss

1965

Barnes, V. E., Geology of the Rocky Creek quadrangle,
Blanco and Gillespie Counties, Texas: (1:24,000)
Texas Bur. Econ. Geology Geol. Quad. Map 29 (Map in
drawer).

p. 2

Text (245)
qG29

Precamb.

S. Texas

Valley Spring gneiss

1965

Zartman, R. E., The Isotopic Composition of Lead
in Microclines from the Llano Uplift, Texas:
Jour. Geophys. Research, v. 70, no. 4, Feb.

p. 965-975

S(200)

T28

969, 974

Rb-Sr: 1,000 to 1,100 m.
Precamb.

C. Texas

Valley Spring gneiss

1966

Ulrych, T. J. and Reynolds, P. H., Whole-Rock and Mineral Leads from the Llano Uplift, Texas: Jour. Geophys. Research, v. 71, no. 12, June.

p. 3089-94

S(200)
T28

1120 ± 25 m.y.

1000 ± 15 m.y.

Precamb.

Tex.

Valley Spring Gneiss Gp.

1966

Clabaugh, Stephen, Barnes, V. E., and others,
Geology of the Austin - Llano Area, Central Texas:
in Corpus Christi Geol. Soc., Ann. Field Trip, May.

~~P.~~

Fig. 1

G(245)

qC8lf

Precamb.

C. Tex.

Valley Spring Gneiss

1967

Muehlberger, W. R., Denison, R. E., and Lidiak,
E. G., Basement Rocks in Continental Interior
of United States: AAPG Bull., v. 51, no. 12,
Dec.

p. 2351-2380

2370-1

G(200)

Am3

1,140 m.y.

Precamb.

WC. Texas

Valley Spring Gneiss

1969

Ragland, P. C., Alpha-Autoradiography and
Morphology of Accessory Zircon Suites: Southeastern
Geology, v. 11, no. 1, Nov. p. 1-19

3.

G(231)
So8

Precamb.

Tex.

Valley Spring Gneiss

1970

Flawn, P. T. and Muehlberger, W. R., The Precambrian
of the United States of America: South-Central
United States: in The Precambrian: Interscience,
v. 4 (Rankama, K., ed.). p. 73-141

76 - geog. loc.

75, 87-age

320
R166p

Llano Ser.
1,030 $\pm$ 30 m.y.
Precamb.

C. Tex.

Valley Spring Gneiss (age)

1970

Denison, R. E., Basement Rock Framework of Parts
of Texas, Southern New Mexico and Northern
Mexico: W. Texas Geol. Soc. Symp.: The Geologic
Framework of the Chihuahua Tectonic Belt, Nov.

p. 4 - 6

210(245)

5

q G293

1120 $\pm$ 25 m.y.

[Precamb.]

S. N.M.

Valley Spring Gneiss (age)

1970

Denison, R. E., Basement Rock Framework of Parts
of Texas, Southern New Mexico and Northern
Mexico: W. Texas Geol. Soc. Symp.: The Geologic
Framework of the Chihuahua Tectonic Belt,

Nov. p. 4 - 6

210(245)

5

qG293

1120 $\pm$ 25 m.y.

[Precamb.]

S. N.M.

1971

Valley Spring Gneiss

(Llano Gp./Ser.)

Clabaugh, S.E. and McGehee, R. V., Pre-
cambrian Rocks of Llano Region: Shreveport
Geol. Soc., Guidebook #25, Sept. p. 5-26

G(237)

5,7,10-age

qSh8f

1,120 $\pm$ 25 m.y.

Precamb.

C. Tex.

Valley Spring Gneiss

1972

Mutis-Duplat, E., Stratigraphic Sequence and
Structure of Precambrian Metamorphic Rocks in
Purdy Hill Quadrangle, Mason County, Texas: GSA
-Abs. with Progs., SC. Sec., v.4, no.4, Feb.
p.287

G(200)

G3a

Precamb.

Texas

Valley Spring Gneiss (6,000')

1972

Clabaugh, S. E. & McGehee, R. V., Geologic History
of Central Texas--Precambrian rocks of Llano Region:
Texas Univ. at Austin, Bur. Econ. Geol., Gdbk. #13
/authors say this is update of Gdbk. #5 & Shreveport
Geol. Soc. 1971 Rept. /

p. 9-23

(245)

9, 13, 14 (T. 1)

qT7g

gray, ~~xx~~ pink to pale brown qtz.-gneiss

1,120 $\pm$ 25 m.y.

Llano Ser.

Precamb.

C. TX

Valley Spring Gneiss

1974

Southwestern Assoc Student Geol Soc, Economic Geology
of the Central Mineral Region of TX: SASGS Gdbk Spring,
Univ TX at Austin [no. 18].

G(200)

p. 1-120 (appendix)

qSo87f

[appendix picked up (except Cret units) to show current
age accepted in TX]

36 (F 2)

M Precamb

TX

Valley Spring Fm
(Llano Gp)

1975

Butler, J.C., Pyrite and Pyrrhotite from south-
eastern Llano County, Texas: TX Acad. Sci., J. Feb.,
v. 26, nos. 1 & 2. S(245)
p. 99-105 Acl2pj
99

of McGhee, '65

Precamb,

c. TX

Valley Spring Gneiss (at least 6,000')
(Llano Gp)

1975

Clabaugh, S.E. and McGehee, R.V., Precambrian Rocks
of Llano Region (Geol. Hist. c. Texas: GSA, s-c sec.
Gdbk. for F.T. no. 1, Mar.

G(200)

p. 12-26

qG3scf

12, 13..lith pink & gray

15..age

metamorph. sed. rock

16..thick

1120 $\pm$ 25 m.y.

Precamb.

c. TX

Valley Spring Gneiss (8500')

1976

McGehee, R. V.; Barnes, V. E., Geologic map of the
Kingsland Quad., Llano and Burnet Cos., Texas: Tx Bur.
Econ. Geol. U. TX at Austin, Geol. Quad. Map (text is
separate) #41. (245)

p.1-25, 3

qG29

under: Packsaddle Schist (Honey Fm.) (Precamb.)
unit is base of sec.

[embr.]
pink qz.-feldspar gneiss

Rb-Sr: $\pm$ 1120 m.y. (Zartman, '65)

Precamb.

c. TX

Valley Spring Gneiss

1977

McGehee, R.V.; Barnes, V.E.; Warren, L.E.; and Waechter, N.B.; Geologic Map of the Cap Mountain Quadrangle, Llano County, Texas: Univ Texas at Austin, Bur Econ Geol, Geol Quad Map No. 45, scale 1:24,000

text:

(245)

qG29

No. 45

under: Honey Fm (Precamb)
unit is base of section

Precamb

c. TX

Valley Spring Gneiss
(Llano Supergp.)

1979

McGehee, R.V., Precambrian rocks of the southeastern Llano
Region, Texas: TX Bur. Econ. Geol, Geol. Circ. 79-3.
p. 1-36

(245)

qT7gc

1, 2..of Comstock, 1890
3, 11..oldest unit in area

under: Packsaddle Schist, L. Supergp.
25..cut by: Red Mountain Gneiss

Precamb.

c. TX

Valley Springs Gneiss [file w/ V. Spring] 1980
(Llano Supergp of McGehee, '79)
[spelling error: "Springs" should be "Spring"]

Butz, T. R.; French, J. H.; Grimes, J. G.; Helgerson, R.
N.; Pritz, P. M., Regional hydrogeochemical and stream
sediment survey of the Llano NTMS Quadrangle, Texas:
U.S. DOE, NURE Rept 39-81, Oct P(200)
p. 1-43..uranium study En27gjbx
14-15, 16-17(F.3)..strat sec & map

under: Packsaddle Schist

M.Precamb

c.TX

Valley Spring Gneiss

1981

Barnes, V. E. (project director), Geologic Atlas of Texas..Llano Sheet: TX Univ., Bur. Econ. Geol. [map & text are separate: text discusses named subdivisions that are lumped together on the map]

(245)

qG29a

11

Precamb

c.TX

Garrison, J.R., and Mohr, David, Geology of the
Precambrian rocks of the Llano Uplift, central Texas
(field trip notes): Austin Geol. Soc Gdbk #5 (reprint
from GSA, SC sec, 1983) G(245)
p. 1-58..study highlights recent ident of Coal G938
Creek serpentinite as fragment of incomplete Precamb
ophiolite emplaced into protolith sed of Packsaddle
Schist before metamorphism
3, 14-16, 18 (table 1)..strat col