

**KANSAS GEOLOGICAL SURVEY  
OPEN-FILE REPORT 94-20**

WELLINGTON FORMATION  
BEECH AIRCRAFT CORES  
SEDGWICK COUNTY, KANSAS

By

L. H. Skelton

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BEECH - SALVAGE YARD CORE - SE NE SE - 9-27S-2E' elev. 1367, 71  
3600 feet S. of 21st. St. & 50 feet W. of Greenwich Rd.  
Sedgwick Co.

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- 0-5'  
Box 1&2      Top 6 inches dark brown deteriorated claystone, high in organic(plant) content. From 6 to 12 inches becomes darker brown, silty, contains plant fragments. Increasingly silty in upper 1 to 1.5 feet. At about 3.5 feet, begins 18 inches of featureless tan "buff" colored claystone. The bottom foot (from 4 to 5 feet below surface) contains a lot of limonitic and some hematitic staining in claystone.
- 5-15'  
Box 3&4      From 5 to 7 feet, tan silty claystone with some yellow mottling. Contains very fine crystals resembling mica but probably are gypsum. From 7 to 15 feet, becomes yellow claystone/mudstone mottled with light-gray, containing a few vugs, 2 to 3 mm diam., filled with selenite. Toward bottom, is less vuggy & selenite occurs in veinlets.
- 15-20'  
Box 5        Top 6 inches (15-15.5 feet) is non laminated red with some yellow mudstone containing no visible fossils. Iron stain lessens from about 17 ft. where the mudstone is tan to orangish. The bottom 6-8 inches(19.4 to 20.0 ft) is light-gray chalky mudstone containing a little, est <1%, gypsum filled vugs.
- 20-23'  
Box 6        17 inches gray to pinkish-colored mudstone. The upper 3-4 in contain dark-red blebs to 0.5 in. in diam. Contains minute micaeous crystals, probably of selenite. No fossils. At 21.66 feet is a 2 to 4 mm thick dark-colored zone which may be manganese stain (compacted clay left by core drill shows dendrites which may be Mn). At 22 feet is a 3 inch-thick, poorly laminated, gray-rust red-tan mudstone which phases in to light-

gray, tan mottled mudstone to 23 feet.

23-30'  
Box 7&8 From 23 to 24.5 feet, gray to tan featureless mudstone, somewhat mottled, which contains a few small blebs of selenite and a discontinuous, 2-3 mm thick, horizontal, red-brown zone at about 23.5 feet. From about 24.5 to 26.5 feet is light-gray mudstone. From about 26.5 to 30 feet, brown to tan, gray-mottled mudstone. The bottom 2.5 inches is gray mottled with tan. At about 26.25 feet is 2 inch zone of patternless, anastomosing iron oxide stains. Minute crystals, probably gypsum, no visible pyrite.

30-35'  
Box 9 (box contains only four feet of core) Light-tan to brown, silty, non-laminated claystone mottled with light-gray. Contains a few minute crystals, probably gypsum and possible gypsum efflorescence on dried core exterior.

35-44'  
Box 10 (Box contains only 5 feet of core) Upper portion of this section is gray, slightly gypsy claystone containing small iron oxide blebs. The bottom 6 to 8 inches is gray to tan claystone to siltstone laminated with silty red layers ranging from 2 mm to 8 mm in thickness. They contain hematitic lenses about 1 in diameter. Most of the Fe oxide layers are horizontal, a few vertical. No pattern discernable in vertical, i.e., no root casts, burrows, etc. The lower part is slightly gypsy. The center portion of this core is pinkish-tan claystone.

44-45'  
Box 11 12 inches chalky gypsum, disintegrated to mostly earthy form. Contains a few claystone "strings" at 45 feet.

45-55'  
Box 12&13 (Approx. 4 feet of disintegrating core in box.) From 45 to 46.5 feet is xline to nodular gypsum. Nodular

piece at 45 feet contains iron oxide "strings"-probably oxidized pyrite. Near the top is a 31 mm thick layer of banded dark and white colored gypsum. The bands average 2 to 2.5 mm thick and the dark bands contain minute pyrite crystals. Overlies dark, xline anhydrite which contains scattered secondary satin-spar veinlets, 1 to 2 mm thick, which may be filled fractures or desiccation cracks. Pink gypsum at 52 feet darkening to brown at 54 feet, in layers to 10mm thick, alternating with dark to medium-gray claystone.

55-67' (Approximately 6 feet of core recovered and in boxes).  
Box 14 From 55 to 56.5 feet, dark-gray claystone drying light-gray, thinly laminated, containing occasional discontinuous layers of gypsum to 1 mm in thickness. Minute gypsum crystals give silty appearance in sun. Max. gypsum concentration is about 5% of core in nodular patches about 3 feet from bottom of core. No fossils. No noticeable cyclicity to layers.

67-68' 12 inches of dark to light-gray "silty" laminated  
Box 15 claystone containing anastomosing gypsum layers and 1 inch thick solid gypsum band at 67' 2". Patchy xline gypsum throughout.

68-77' 14 inches of gray, silty, claystone with anastomosing  
Box 16 gyp layers over 18 inches of crumbly chalky gyp containing perhaps 10% claystone over 14 inches dark-gray claystone. Contains gyp laminae < 1 mm thick and some nodules.

77-87' 4 to 6 inch "rubble zone" from about 77'2" to 77'6"which  
Box 18&19 may be a paleosol profile containing angular gyp fragments or may be core drill debris. Overlies 17 inches of gyp material consisting of a one inch mixture of gypsum/anhydrite atop 6 inches of laminated

gyp and claystone, perhaps 50% to 60% gyp which overlies 10 inches laminated, very silty gypsum with perhaps 60% claystone. The laminae are irregular and range in thickness from 2 to 4 mm forming alternate dark and light zones approximately 12 mm thick. (There seems to be about an 18 inch gap in core at about the 79 to 80½ foot zone). At about 80½ feet is 6 inches of gray, silty claystone over 12 inches of light-gray silty claystone which contains patchy nodular anhydrite (nodules to about 12 mm diameter). Beginning about 83 feet is 26 inches of gray, massive, xline gypsum containing patches/nodules of anhydrite. This overlies 6 inches of thin alternating gyp/shale layers, consisting of about 50% gyp; the shale being slightly silty, medium-gray, laminated. From 85.5 to 87 feet is about same consisting of possible 30% gyp with a 1.5 inch thick layer of gypsum at 86 feet.

87-95' (7 measured feet of core... 1 foot missing). At 87 feet, 1 inch of gyp, laminated gray shale with iron oxide particles on exterior (may be drill bit debris). Overlays 9 inches of massive white gypsum which is above 4 inches of gray shale mixed about 40-50% gyp consisting of satinspar "strings" and selenite. At 88'2" is 35 inches of gray shale mixed with some gypsum at base of which (at about 91'1") is 1.5 inch layer of brown xline anhydrite. Below this is 33 inches of gray mudstone which fries light gray and carries thin gypsum "strings" with one inch layer of satin spar just below middle.

95-107' (about 2' of core is missing-9.9 feet measured). At 95 feet is 12 inches of white, massive, gypsum containing thin selenite seams. The upper 2 to 3 inches is darker colored, massive to xline, probably anhydrite. Overlays 90.5 inches of dark gray, non-calcareous, mudstone which dries to a lighter shade of gray. The uppermost 2.5

inches is darker gray and contains perhaps 2 to 3 % gypsum crystals. The next 62 inches has slight gypsum efflorescence; the upper 28 inches is more indurated than the lower 34 inches. The lower 36 inches has no visible gypsum. The bottom 16.5 inches (105.5 to 107 feet) is very dark, almost black, mudstone. Non-calc., no fossils, plastic when wet, dries to light gray, contains about 5% gypsum examples. The gypsum is more conc. in the bottom 1 or 2 inches.



BEECH AIRCRAFT - WELL CORE #MW-13 NW NE SW 21-T27S-R2E Sedgwick Co.  
1750' E of Webb Road & 1000'S of Central. T.D. 102 feet. Surface  
elevation 1369.81 feet.

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0-6'            Compacted soil/loess which darkens to dark-brown at  
Box 1,2,3      about 18 inches. Clay increases with depth. From 4'10"  
to 6', is non-calcareous, silty, sandy, slightly  
weathered mudstone which contains a single visible ½  
inch diameter limy nodule.

6-15'           Upper portion is dense, gray mottled with yellow, silty,  
Box 4           iron-stained very calcareous mudstone/claystone. At  
about 10 feet is a non-calcareous, 2 inch thick, reddish  
-brown to chestnut colored zone. Much grass and  
"litter" at 14 feet, obviously introduced by drill (lost  
circulation problem?).

15-20'          24 inches, calcareous, iron-stained gray, tan, and  
Box 5&6        yellow claystone overlies 6 inches of dark-red, non-  
calcareous claystone, containing "new"grass, etc.  
Lower 30 inches is very calcareous, gray-tan-yellow  
mottled claystone, iron-stained. The heavily iron-  
stained zones are calcareous.

20-25'          42 inches calcareous, iron-stained gray, tan and yellow  
Box 7&8        mottled claystone. Contains small piece of charcoal at  
21 foot level. Overlays 30 inches of same type  
claystone. Very effervescent-no iron-stain in lower 8  
inches. A few ostracodes at 25 feet (took sample).

25-30'          Upper 38 inches (25' to 28'2") is slightly to non-  
Box 9&10        calcareous gray to tan claystone. Some limonitic-  
hematitic stains and concentrations. Possible plant

fragment noted at about 26'7". Overlays 4 inches of yellow, iron-stained claystone, calcareous to slightly calcareous which is atop of 6 inches of mostly gray, less calcareous claystone. 29 to 30 feet is gray to tan calcareous claystone.

30-35'  
Box 11&12 Silty, calcareous, yellow claystone mottled by gray and tan. Lower 42 inches are iron-stained. At 32.5 feet is an approximately 6 inch zone that is less to non-calcareous. No distinguishing features, laminae, etc.

35-40'  
Box 13&14 13 inches gray, non-calcareous mudstone over 4.5 feet tan, calcareous mudstone. Some iron staining and patchy clusters of minute calcite crystals surrounded by iron oxide halo. Some minute ankerite crystals, no visible fossils, no gypsum.

40-45'  
Box 15&16 Calcareous, gray to predominantly yellow and tan mudstone. Iron stained. Some secondary calcite crystals. Some portions less calcareous. No visible fossils. Color is close to slightly weathered chipboard or particle-board.

45-50'  
Box 17&18 6 inches of grayish tan, iron-stained, fine to medium grained, angular, quartzose sandstone over 24 inches silty light-tan with some gray mudstone, slightly calcareous. Siltiness decreases toward 47'. Overlies 24 inches of gray, mottled with yellow, calcareous claystone. About midway is a quarter-coin sized carbon streak approximately 0.5mm to 1.0mm in thickness.

50-55'  
Box 19&20 4.5 feet of calcareous, darker-gray, tan mottled mudstone, less calcareous toward 50 feet. Overlays 12 inches light-gray, calcareous mudstone.

55-59'  
Box 21&22 23 inches of olive-drab mixed with gray mudstone with gypsum efflorescence. More olive-drab colored on fresh (inside) parts. Some hematitic and limonitic stains and concentrations. At 56 foot level is POSSIBLE insect-leg fossil (could be modern). At about 55'5" is fragment of what may be a pellet-filled burrow, round and elongate filled with darker colored "pellets." At about 57 feet is 22 inches of light-gray, non-laminated, mudstone which overlies 14 inches of medium-gray, laminated mudstone containing little to no visible gypsum. Laminae are about 1.0 to 1.5 mm thick. At 58'4" is 8 inches of white, nodular, somewhat disintegrated chalky gypsum.

59-65'  
Box 23&24 46 inches of gray mudstone, laminated in light and dark layers approximately 0.5 to 1.00 mm thick. Lamination decreases with depth. The lower 24 inches intercalated with perhaps 50% gypsum, the upper 3 or 4 inches of which is brown anhydrite. At 64 feet begins 24 inches of gypsum containing some thin gray mudstone layers- perhaps 10% mudstone. A sharp bottom boundary separates the gypsum from 21 inches of dark gray mudstone containing finely disseminated gypsum. (Much of the core in the interval was so soft when removed from barrel it was flattened on the side it rested on in box.)

65-77'  
Box 25 6 inches of nodular chalky gypsum overlaying 20" of gypsy gray mudstone. This overlies 12 inches gray mudstone with about 50% intercalated gypsum/anhydrite. (This sediment shows about 45° downward dip relative to long axis of core. Probably soft-sediment deformation or drag by core barrel caused it, since such was not observed in any other portion of the core.)

77-79' 14 inched of mostly gypsum with some anhydrite in gray

Box 26 mudstone matrix; many iron oxide grains, silty. At about 78 feet is 12 to 13 inches of gray-green disintegrating, silty, mudstone containing scattered iron oxide granules and a couple of  $\frac{1}{2}$  to  $\frac{3}{4}$  inch thick gypsum layers in its upper part. From 78 to 79 feet is 12 inches of mixed mudstone and gypsum.

79-90'  
Box 27 (About 4 feet of core in box; interval from about 82-83 to 90 feet is absent if box is correctly labelled.) 3 feet brown, xline to massive anhydrite over 11 inches of light-gray mudstone mixed with chalky, nodular gypsum.

90-95'  
Box 28 48 inches of brown to dark gray massive anhydrite interbedded with massive gypsum overlaying 14 inches of very dark-gray mudstone which contains perhaps 50% intercalating gypsum and brown xline anhydrite. This section contains some soft-sediment deformation probably caused by gyp/anhydrite conversion.

95-100'  
Box 29 13 inches of white to light-gray rock gypsum some which is laminated and shows soft-sediment deformation. The upper few inches contains increasing quantities of brown, xline anhydrite which comprises the top 0.5 inches. This is underlain by 11 inches of gray mudstone containing little visible gypsum which overlies 6-7 inches of increasingly gypsy mudstone which contains irregular spaced layers of satinspar ranging to 0.5 inches in thickness. The bottom 10 inches (approximately 99 to 100 feet) is medium-gray gypsy mudstone.

100-110'  
Box 30&31 Beginning at 100 feet, 12 inches of dark-gray, fairly well indurated mudstone which has  $\pm$  0.5 inches brown, xline anhydrite at top. This zone contains one POSSIBLE leaf or fragment or insect wing imprint which is more

likely a core drill mark. This overlies about 3 inches of nodular, chalky gypsum with about 0.5 inches brown, xline anhydrite at top which is above 15 inches of dark-gray, dense, non-calcareous color-laminated mudstone which contains no visible gypsum. At 102.5 feet is 3 inches of gray to white xline, alabaster-type gypsum which overlays 9 inches of dark blue-gray, non-calcareous, non-laminated mudstone. The bottom portion of this core consists of 14 inches of very dark-gray (almost black) to blue-gray, very weakly effervescent, non-laminated mudstone which contains crystalline gypsum layers, to 2 mm thick, parallel to deposition. About 2 inches from the bottom is a layer of selenite gyp which is about 0.375 to 0.5 inches thick.



BEECH AIRCRAFT CORE MW12. 500' N of Kellogg and 800'E of Webb Rd.  
SW SW SW Sec 21-T27S-R2E. Elevation 1371.69. Sedgwick Co.

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BOXES 1&2 0 to 3'. 36" of dark brown, silty, sandy, clay soil.  
0-6 feet Organic matter in top 6-8 inches. Slightly calcareous.  
3' to 6'4". 40" of reddish-brown, silty, sandy-rust-  
stained, non-calcareous mudstone. High iron oxide  
content.

Box 3 6 inches of dark red-brown silty, non-calcareous,  
4-6' clayey mudstone, as above. Changes to 8" yellow clay,  
with about 20% gray mottling and 50-60% dark-red, iron  
oxide mottling. Beneath is 26" of very calcareous,  
silty, yellow, gray-mottled mudstone. Iron oxide  
stain.

Box 4 12-14" of gray and dark yellow mixed. Maroon blebs,  
6-9.5' iron oxide, slightly calcareous, non-laminated clay/mud  
stone above 28" yellow mudstone (slightly gritty to  
taste) which is non-calcareous, slightly grey mottled,  
less iron present; is limonitic rather than hematitic.  
Non-laminated, non-bed. No visible fossils.

Box 5 48" of yellow gray-mottled, silty, very calcareous to  
10-15' slightly calcareous mudstone, becoming grayer toward  
bottom. Silt glitters in sun = calcite crystals.

Box 6 4" of dark-red very silty hackly-breaking, slightly to  
15-25' non-calcareous mudstone which is probably a paleasal  
and overlies 16" of yellow, slightly gray-mottled,  
slightly calcareous mudstone. Then 2" dark-brown, iron  
stained, calcareous, gritty, paleasal which contains  
a few pebbles including recognizable feldspar

fragments. At bottom is 20" light gray, non-calcareous, non-laminated slightly silty mudstone streaked yellow with iron oxide. Bottom 3 or 4" silty and very calcareous.

Box 7

25-30' 33" of yellow to tan, calcareous mudstone with some maroon iron stain over 12" grey, calcareous claystone. Possible slight stratification (difficult to distinguish from tool marks. Has thin, less than 1mm layers minute calcite crystals oriented from horizontal to random angles.

Box 8  
30-35'

36" of yellow, gray-mottled, non-calcareous mudstone over 7" gray calcareous claystone showing no stratification or lamination. Blocky, hackly fracture, dark gray-dries very light. Occasionally scattered  $Fe_3O_3$ , small blebs 1mm or less in diameter.

Box 9  
35-38'

3" of dark yellow, iron stained claystone atop 33" powdery gyp and massive, crystalline anhydrite. Powder is white, the anhydrite is medium dark gray.

Box 10  
38-41'

11" of brown mudstone containing gyp pebbles (etc.) over 23" of gray claystone which contains perhaps 60% massive selenitic gypsum.

Box 12  
41-43'

19" of gypsum and anhydrite. Anhydrite is dark gray, xline and gypsum is white to pink and powdery to saccharoidal. Gypsum has some intercalated, very dark-gray shale at 41' level. Next is 11" of dark to medium-gray stratified shale containing numerous small selenite crystals. Lies over 12" of gray, xline anhydrite and slightly powdery, white gypsum.

Box 11  
43-45'

6" of brown mudstone over 12" of gray mudstone over 12" of dark gray poorly stratified mudstone containing gypsum (selenite) over 10" of increasingly dark to

almost black mudstone containing filled vugs of selenite.

Box 14  
45-51' Top at 45' is 33" of medium gray mudstone mixed with maybe 30 to 40% gypsum consisting of satin spar veins less than 2 mm thick. The bottom 8" in box is same but the veins thicken and are anhydrite.

Box 13  
45-51' 8½ very dark gray mudstone/shale interbedded with about 50% gypsum. Rest of box to about 50'9" more or less the same. Bottom 3" little darker but retains high gyp content.

Box 15&16  
51-55' 36" gray to dark gray stratified shale with selenite in bedding planes. In middle at about 53.75', shale has greenish-gray color and gypsum is thickening to 0.5 inch layers. The upper 14" of this interval is about 25 to 40% dark-gray shale and about 60 to 75% gypsum.

Box 18&17  
55-58' 55' (Box 18) is 14" gray mudstone containing gyp nodules 1-1½ inches in diameter overlaying 23" of powdery to nodular gypsum (some anhydrite) with minor amounts interbedded grey mudstone. 36" powdery gyp and gray xline anhydrite in Box 17. Both boxes contain total of 73" of core.

Box 19&20  
58-61' 32" gray thinly stratified (2-3 mm) shale drying light-gray. Contains random bands of gyp to ½" or less thickness. 18½" from top is ¾" thick, saccharoidal, bedded gyp. Gyp also occurring in nodules and lenses. Remaining 30" to 61' depth is predominantly gyp with 25% or less interbedded mudstone.

Box 21  
61-62.5' 6½" gray claystone with maybe 30-40% gyp beds and nodules overlaying 12" crystalline gray anhydrite and chalky white gypsum.

- Box 22            8" anhydrite over 4" laminated, dark-gray mudstone  
62.5-67'        containing gyp "strings" 1 mm thick over about 18"  
                         laminated anhydrite. (missing some core)
- Box 23            24" mixed gray mudstone/anhydrite. Anhydrite is nodular  
67-68'        in mudstone. May be 50-50 or up to 75% anhydrite.  
                         Overlies 7" xline gray anhydrite with 15-20% white gyp.
- Box 24            28" gray xline anhydrite laminated with 1 mm thick gyp  
68-73'        (anhydrite is 2-4mm thick) over 8" gray, thinly  
                         laminated shale. Contact fairly sharp.
- Box 25            10" of dark-gray, silty mudstone intercalated with  
68-73'        selenite gyp over 18" of brown to gray xline anhydrite  
                         layers which are  $\frac{1}{4}$ " to 1" thick and separated by chalky  
                         gyp.
- Box 26            4" of gray, xline anhydrite atop of 28" of brown, xline,  
73-80'        "pearly" anhydrite. Overlies 6" of gray, xline  
                         anhydrite altered to one third gyp. The bottom 6"  
is gyp            conglomerate in gray mudstone.
- Box 27            6-7" of gray-green, gypsy mudstone atop 32" of gray  
80-85'        mudstone which is laminated, non-calcareous and well-  
                         indurated with light and dark laminae ranging from less  
                         than 1 mm to 10 mm. Basal 3" or 4" becoming gypsy.
- Box 28            36" of gray mudstone, gypsy in the upper half which  
80-85'        contains perhaps 10% or less nodules and thin bands of  
cont.            gypsum.
- Box 29            46" of dark-gray, drying to light-gray claystone  
85-97        containing anastomosing veins of gypsum. Somewhat  
1 of 3        laminated, non-calcareous, very salty tasting.
- Box 30            46" same as above except that gypsum is nodular,

same nodules are less than 10mm diameter. Gypsum constitutes probably less than 5%

Box 31 5.5 inches of light and dark-gray laminated mudstone.  
same Silty with minute iridescent crystals too small to resolve with 10x lens. Overlies 8 inches of gypsum which is atop of 4 inches of very dark-gray to black, well-in durated, very gypsy mudstone (could call it "muddy" gypsum"). This overlies 11 inches of gray to white, massive, crystalline gypsum (or anhydrite?). From 95'11" to 97' is gray, silty claystone which is medium dark-gray when damp.

Box 32 12 inches of salty, gray claystone containing gypsum  
97-98' nodules averaging about 12 mm in diameter.

Box 34 About 24 inches of massive, crystalline, dark-gray to  
98-105' brown anhydrite which contains a one inch thick layer  
top to of dark-gray claystone at about 99 feet.  
mid

Box 33 About 24 inches of mass, crystalline dark-gray claystone  
98-105' containing gypsum nodules and anastomosing selenite and  
mid to satin spar veins.  
bottom

Box 35 24 inches of dark-gray claystone containing gypsum  
105-110 nodules and two 1 inch thick layers of gypsum. Overlies 6 inches of massive, dark-gray and brown, crystalline anhydrite. The bottom 12 inches (109-110 feet?) is dark-gray, slightly salty claystone which contains anastomosing veins of satin spar and 6 mm thick layers of selenite which are parallel to a faint horizontal lamination.

