**COLUMNAR SECTION**

**GENERALIZED SECTION FOR THE NEPESTA QUADRANGLE.**

<table>
<thead>
<tr>
<th>Formation Name</th>
<th>Thickness in Feet</th>
<th>Thickness in Meters</th>
<th>Character of Rocks</th>
<th>Character of Topography and Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nussbaum formation</td>
<td>Tn 20-60</td>
<td>6.0-18.0</td>
<td>Sand and gravel, often cemented into conglomerate.</td>
<td>Mesa.</td>
</tr>
<tr>
<td>Pierre shale</td>
<td>Kg 2800</td>
<td>850</td>
<td>Light gray sandy shale containing layers of iron carbonate concretions. Upper members very sandy.</td>
<td>Numerous small conical hills, &quot;tepee buttes.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fine-grained, gray shale containing vertical cylindrical limestone &quot;cores&quot; and large iron carbonate concretions.</td>
<td>Long, gently sloping uplands traversed by narrow washes which in the higher portions are moderately shallow but throughout the quadrangle are often deeply incised. Soil &quot;gumbo&quot; like and highly acid due to decomposed pyrites. Not well adapted to agriculture.</td>
</tr>
<tr>
<td>Apishapa formation</td>
<td>Ks 450-650</td>
<td>137-197</td>
<td>Sand containing thin bands and large lenses of impure limestone near the top.</td>
<td>Sandy soils. Gently undulating plains with wide, open valleys, sandy loam and fields.</td>
</tr>
<tr>
<td>Tintapa formation</td>
<td>Kt 190-220</td>
<td>57-67</td>
<td>Thin bands of impure limestone at the top; excellent shale near the middle; massive gray limestone at the base.</td>
<td>Level plains. Rocky slopes and high cliffs.</td>
</tr>
<tr>
<td>Castle shale</td>
<td>Kg 130</td>
<td>39</td>
<td>Dark shale capped by light brown to yellowish sandstone; concretions in upper part and limestone lenses near base.</td>
<td>Bare shale slopes. Low shelving bluffs.</td>
</tr>
<tr>
<td>Greenhorn limestone</td>
<td>Kg 90</td>
<td>27</td>
<td>Alternating layers of firm colored, partial limestone and silt shale.</td>
<td>Gravel slopes and washes. Rocky slopes and spurs. Farmers usually cleared with hoes.</td>
</tr>
<tr>
<td>Graneros shale</td>
<td>Kg 100</td>
<td>30</td>
<td>Dark gray shale containing concretions near base and limestone above.</td>
<td>Rough, sparsely covered. Gently undulating plains with wide, open valleys. Rocky slopes and spurs. Farmers usually cleared with hoes.</td>
</tr>
<tr>
<td>Dakota sandstone</td>
<td>Kg 100</td>
<td>30</td>
<td>Brown sandstone.</td>
<td>Rocky hills. Spanish moss.</td>
</tr>
</tbody>
</table>

**CHARACTER OF ROCKS.**

- Light-gray sandy shale containing layers of iron carbonate concretions. Upper members very sandy.
- Fine-grained, gray shale containing vertical cylindrical limestone "cores" and large iron carbonate concretions.
- Fine-grained, dark shale characterized by numerous layers of iron- and lime-carbonate concretions which are dark bluish gray but weather to rust color.
- Dark-gray to black shale, yellow at base. Iron-carbonate concretions in lower members.
- Shale containing thin bands and large lenses of impure limestone near the top.
- Sandy shale.
- Paper shale.
- Thin bands of impure limestone at the top; excellent shale near the middle; massive gray limestone at the base.
- Dark shale capped by light brown to yellowish sandstone; concretions in upper part and limestone lenses near base.
- Alternating layers of firm colored, partial limestone and silt shale.
- Dark gray shale containing concretions near base and limestone above.
- Brown sandstone.

**CHARACTER OF TOPOGRAPHY AND SOIL.**

- Numerous small conical hills, "tepee buttes."
- Long, gently sloping uplands traversed by narrow washes which in the higher portions are moderately shallow but throughout the quadrangle are often deeply incised. Soil "gumbo" like and highly acid due to decomposed pyrites. Not well adapted to agriculture.

**GENERALIZED SECTION FOR THE NEPESTA QUADRANGLE.**

**SCALE:** 1 inch = 500 feet.

**DEPT TO DAKOTA SANDSTONE.**

- 3200 ft
- 3000 ft
- 2800 ft
- 2600 ft
- 2200 ft
- 2000 ft
- 1800 ft
- 1600 ft
- 1400 ft
- 1200 ft
- 1000 ft
- 800 ft
- 600 ft
- 400 ft
- 200 ft
- 0 ft

**GRAPHIC SECTION.**

**GENERALIZED SECTION FOR THE NEPESTA QUADRANGLE.**

**SCALE:** 1 inch = 500 feet.

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**CASSIUS A. FISHER, Geologist.**