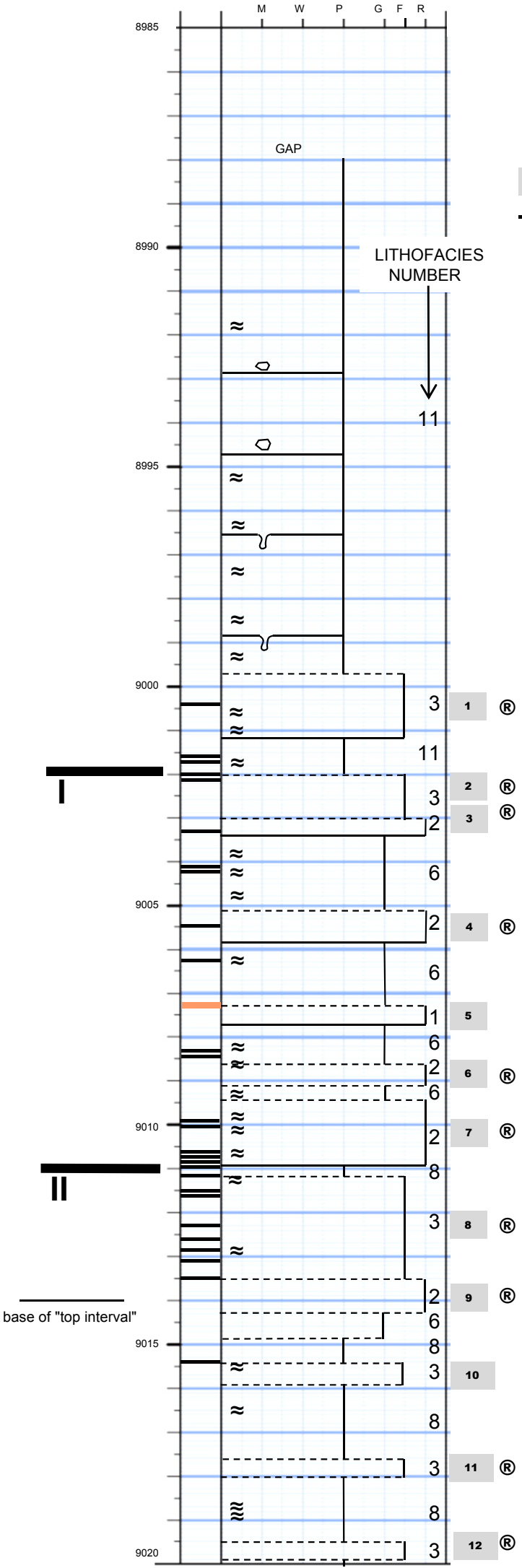
Data repository file of core descriptions for "Stylolites and Porosity in a Lower Cretaceous Limestone Reservoir, Onshore Abu Dhabi" by S.N. Ehrenberg, S. Morad, L. Yaxin, and R. Chen

Table of lithofacies descriptions

Lithofacies number	Lithifacies name	Description
1	Intraclast rudstone	LF-1 is present in thin beds (a few inches to a few feet thick) within the lowermost part of the dense-A zone and the uppermost 1-2 m of the BI sub-zone. It consists of sub-angular to rounded intraclasts of packstone to grainstone in a matrix of similar packstone to grainstone. Clast edges typically show color alteration to both lighter and darker shades in different cases. Pebble-size whole rudist shells present in some beds, both as separate clasts and included within intraclasts. Within the lower part of the dense-B zone, blackened grains are sparsely present in the packstone/grainstone matrix, but are absent from the intraclasts, which have otherwise similar packstone/grainstone texture.
2	Rudist rudstone	Lithofacies LF-2 and LF-3 are defined based on rudstone and floatstone texture, respectively, combined with having dominance of rudists together with other large bivalves in the >2 mm fraction. In most cases, the matrix has packstone or grainstone texture, but a few instances have wackestone matrix. Grains >2 mm also include coated grains, intraclasts, coral, and bryozoans. The grains <2 mm include varying combinations and abundances of orbitolinids, small benthic forminifera (especially miliolids), echinoderm and mollusc fragments, peloids, and coated grains. (Equivalent with Strohmenger et al., 2006, lithofacies 1.)
3	Rudist floatstone	LF-3 is similar to LF-2, except for floatstone texture, more common occurrence of wackestone matrix, and rare occurrence of grainstone matrix. With increasing algal/microbial encrustation of rudists and other grains, LF-2 and LF-3 pass gradationally into LF-4 and LF-5, respectively. (Equivalent with Strohmenger et al., 2006, lithofacies 2.)
4	Coated-grain rudstone	LF-4 and LF-5 are both defined based on rudstone and floatstone texture, respectively, combined with having dominance of coated grains (oncoids, encrusted bioclasts, and aggregates of *Lithocodium/Bacinella*) in the >2 mm fraction. The matrix in most cases has packstone or grainstone texture, but a few instances have wackestone matrix. The grains <2 mm do not appear to differ overall from the <2 mm grains in LF-2 and LF-3. (Equivalent with Strohmenger et al., 2006, lithofacies 6.)
5	Coated-grain floatstone	LF-5 is similar to LF-4, except for floatstone texture, more common occurrence of wackestone matrix, and rare occurrence of grainstone matrix. (Equivalent with Strohmenger et al., 2006, lithofacies 7.)
6	Coated-grain grainstone	LF-6 has gainstone to grain-dominated packstone texture. Coated grains are the dominant grain type, but also includes small benthic foraminifers, orbitolinids, echinoderm and mollosc fragments, and peloids. The coatings appear to consist of Lithocodium/Baccinella but the nature of many cases is indistinct. Grain size is medium to very coarse, and sorting varies from moderate to very poor. (Equivalent with Strohmenger et al., 2006, lithofacies 5.)
7	Peloid grainstone	LF-7 has gainstone texture, well sorted peloids as the dominant grain type, and very fine to fine grain size. Additional grain types include small benthic foraminifers, orbitolinids, echinoderm and mollusc fragments, green algae, and coated grains. (Equivalent with Strohmenger et al., 2006, lithofacies 4.)
8	Packstone	Peloids are the dominant grain type. Additional grain types include small benthic foraminifers, orbitolinids (mainly of conical shape), echinoderm and mollusc fragments, and coated grains. Grain size is fine to medium. Sorting varies from moderate to poor. Bioturbation is pervasive. (Equivalent with Strohmenger et al., 2006, lithofacies 3 and 9.)
9	Wackestone/packstone	LF-9 has texture varying from wackestone to fine-grained, mud-dominated peloid packstone, with both textures generally present in different parts of the same thin section. In wackestone-dominated thin sections, areas with discernable peloids are commonly present. Bioturbation appears to be pervasive. Additional grain types include small benthic foraminifers, orbitolinids (of both discoidal and conical shape), echinoderm and mollusc fragments, sponge spicules, green algae, and rare coated grains. (Equivalent with Strohmenger et al., 2006, lithofacies 10.)
10	Wackestone	LF-10 has wackestone texture with varying abundance of orbitolinids (mainly of discoidal shape). Within wackestone intervals that at first appear to lack orbitolinids, careful examination nearly always reveals small clusters of orbitolinids. Additional grain types that may be present locally include small benthic foraminifers, echinoderm and mollusc fragments, coated grains, sponge spicules, and green algae. (Equivalent with Strohmenger et al., 2006, lithofacies 11 and 12.)
11	Packstone containing blackened grains	LF-11 occurs only in the dense-A zone. The skeletal grains include orbitolinids, miliolids, and subordinate amounts of other small benthic foraminifers, fragments of echinoderms, green algae, bivalves, and gastropods, as well as minor sponge spicules and ostracods. The orbitolinids vary from conical to discoical shapes, with the latter predominating and commonly having orientation roughly parallel with bedding. Non-skeletal grains include abundant peloids and minor coated grains and intraclasts. A distinctive feature is the nearly ubiquitous presence of blackened (pyritized) grains, comprising up to a few volume % of samples. Clay-rich laminations are common, many of which have developed into wispy seams and stylolites. Quartz grains of silt to very-fine sand size occur in trace amounts, especially along the clay-rich seams. Pyrite is commonly disseminated along clay-rich seams and in the mud matrix. Color varies in all gradations between lighter intervals and darker intervals that generally have higher contents of blackened grains, pyrite, dolomite, and clay-rich wispy seams. Grain size varies from fine to very coarse, and sorting varies from well to poor. Mud content varies widely, from mud-dominated to grain-dominated packstone, with that latter in some cases grading into subordinate areas of grainstone.
12	Mudstone containing blackened grains	LF-12 occurs only in the dense-B zone. It includes subordinate grain-poor wackestone in thin intervals where orbitolinids slightly exceed 10 volume %. The color varies from light grey to dark grey, with darker intervals containing lighter-colored burrows and a meshwork of anastomosing wispy seams of darker, apparently argillaceous material. Grains are dominantly discoidal orbitolinids, but also include echinoderm and mollusk fragments, ostracods, green algae, and small benthic foraminifera. Whole thin-shelled bivalves and gastropods are present locally. The abundance of orbitolinids varies from rare (none to only a few in a thin section) to abundant (several tens of individuals in a thin section), but no intervals of one foot or more are entirely barren of orbitolinids. Blackened (pyritized) grains are ubiquitous, and pyrite also occurs disseminated in the mud matrix. Trace amounts of quartz silt to very fine sand grains are commonly present. Bioturbation is pervasive, including both distinct horizontal burrows and a typical fabric having indistinct bioturbated appearance. The distinct burrows are mostly 1-2 cm in diameter and appear flattened by compaction. Sediment filling the burrows tends to be similar to that between the burrows, but is commonly lighter in color. The burrows are typically enclosed by argillaceous laminations or wispy seams which bend around the burrows.



≈ = wispy seams

ş = stylolite formed at bed contact

ʃ = burrowed bed contact (typically 1-2 cm diameter burrows filled with overlying coarse grainy sediment)

R = rubble interval

⬭ = rip-up intraclast

Ⓡ = floatstone/rudstone bed with dominance of whole rudists

1 = number of floatstone/rudstone bed

—R— = rectangular stylolite (unmarked lines = jagged stylolites)

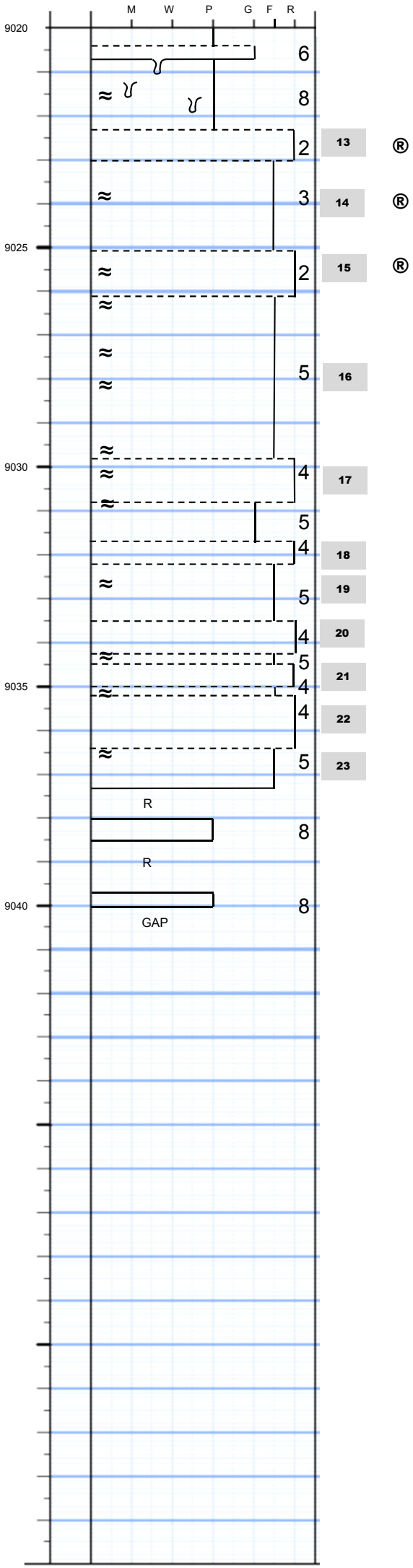
Stylolite amplitude:

1-2 cm

3-4 cm

>4 cm

>9 cm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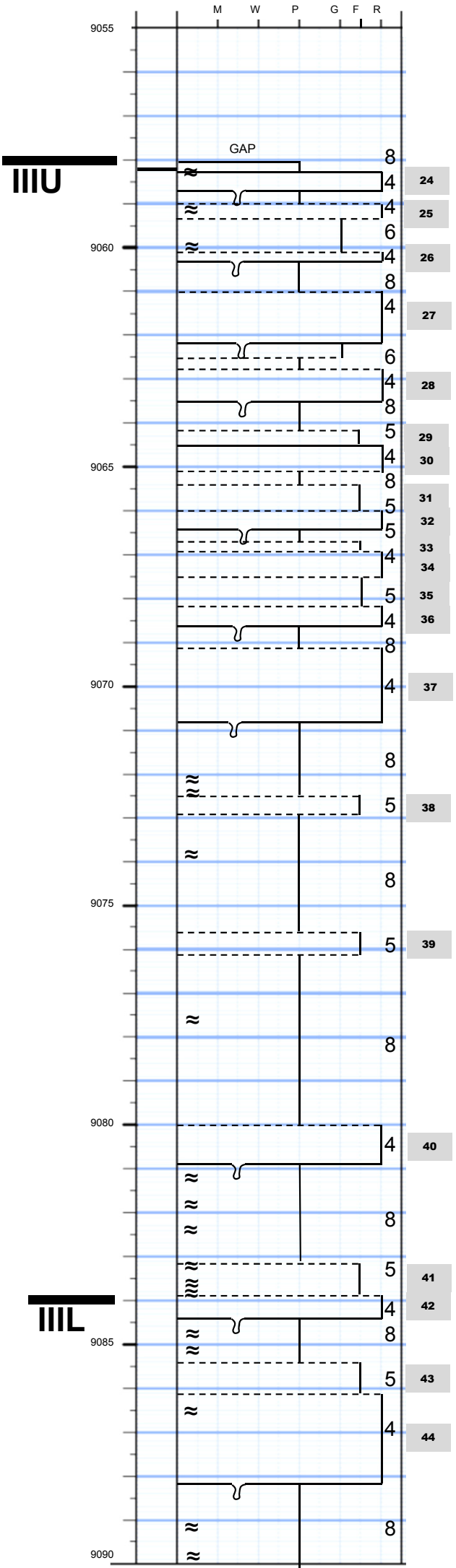
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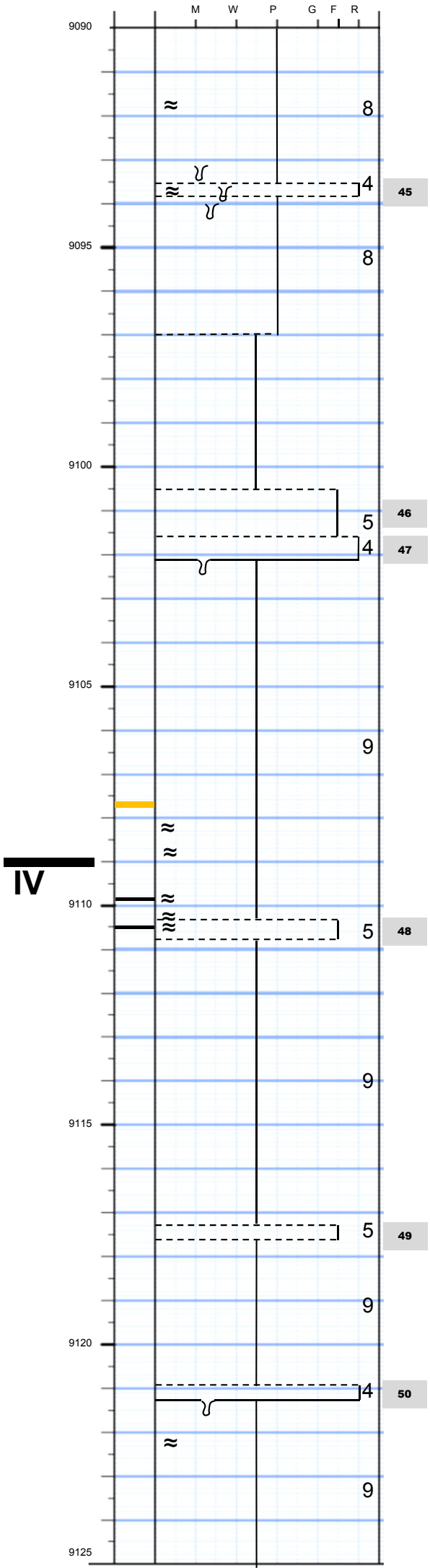
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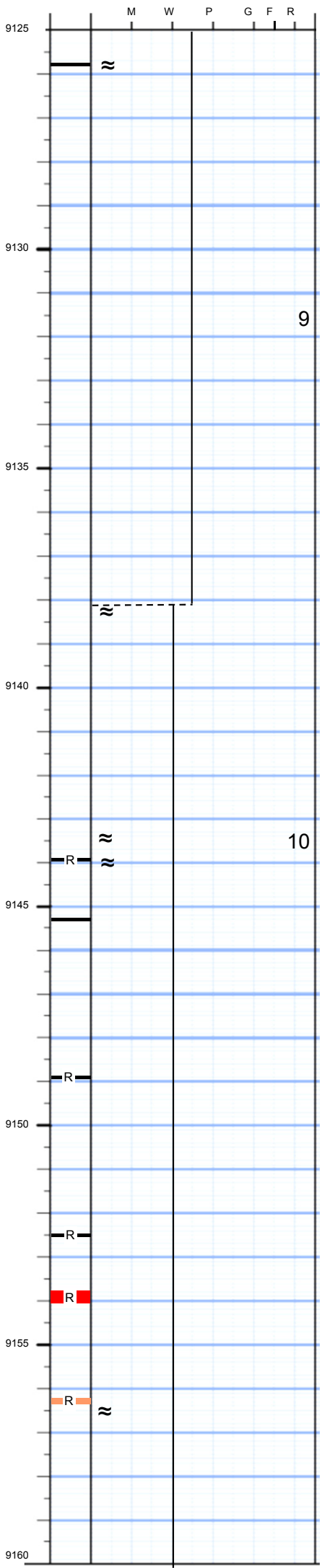
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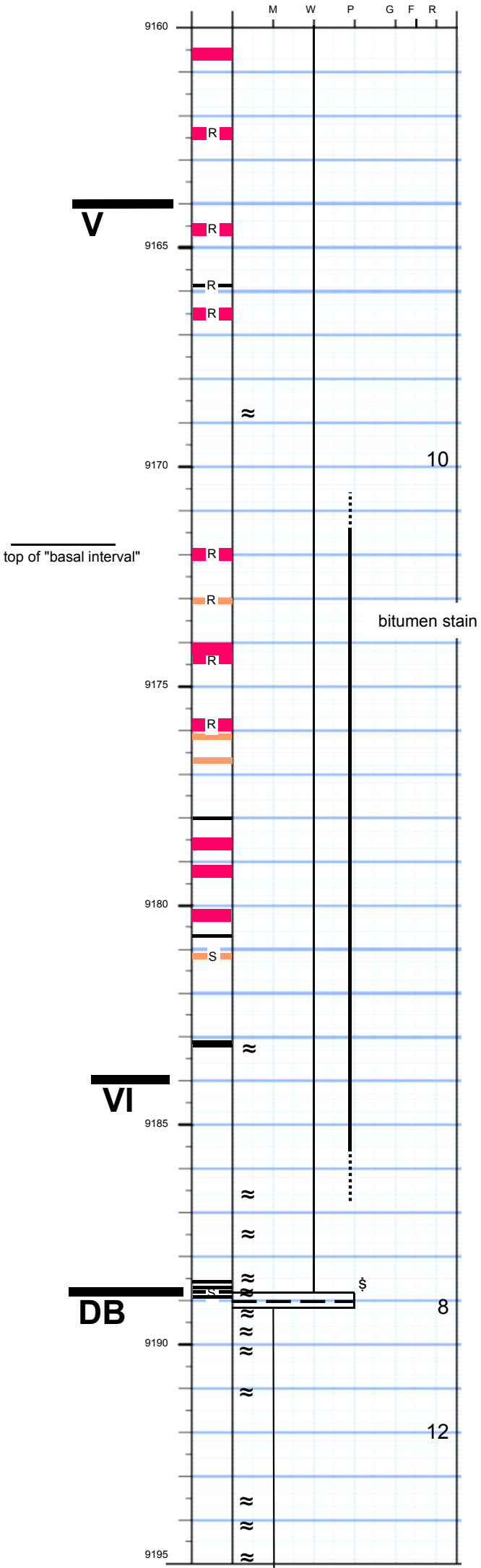
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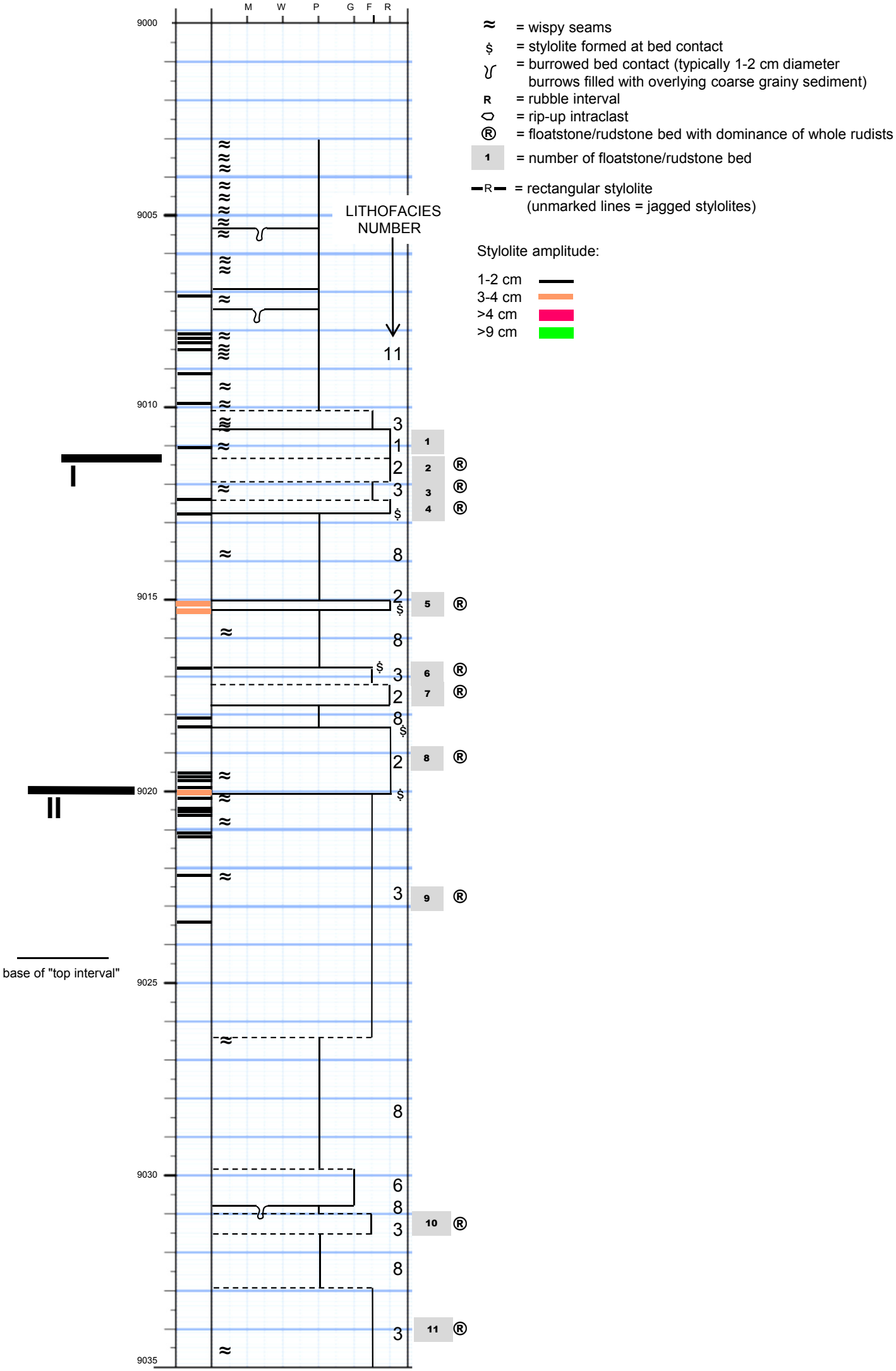
V
VI
DB
top of "basal interval"
bitumen stain
10
8
12
R
S
$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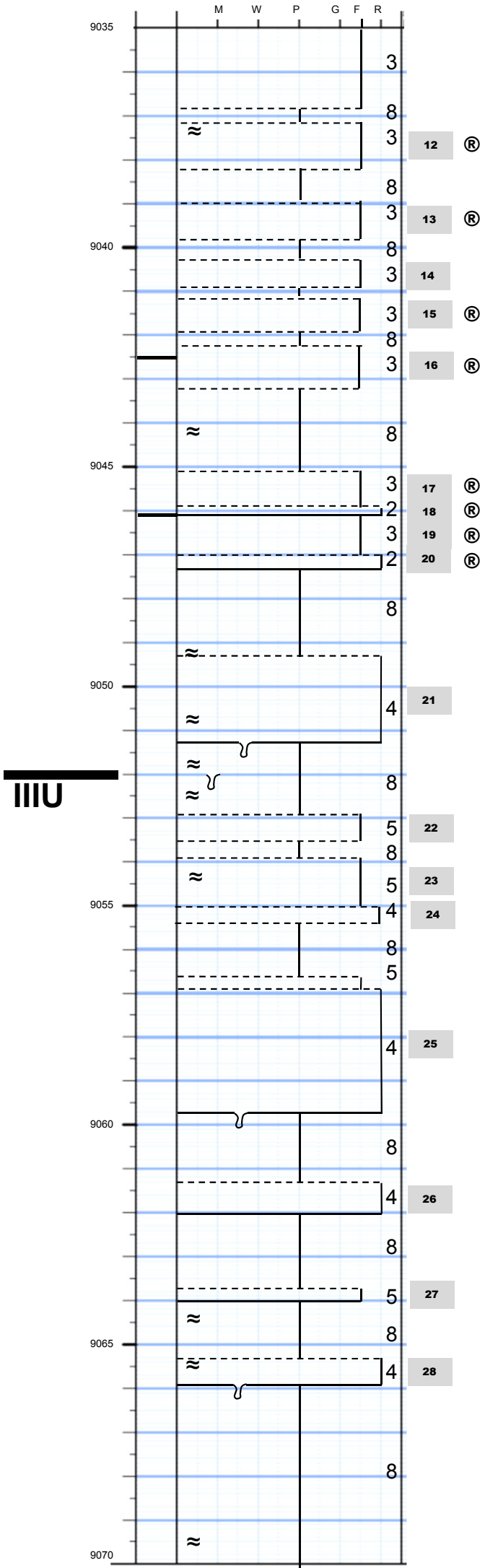
9035
LITHOFACIES NUMBER
11
I
II
base of "top interval"
≈ = wispy seams
ş = stylolite formed at bed contact
= burrowed bed contact (typically 1-2 cm diameter burrows filled with overlying coarse grainy sediment)
R = rubble interval
= rip-up intraclast
® = floatstone/rudstone bed with dominance of whole rudists
1 = number of floatstone/rudstone bed
R = rectangular stylolite (unmarked lines = jagged stylolites)
Stylolite amplitude:
1-2 cm
3-4 cm
>4 cm
>9 cm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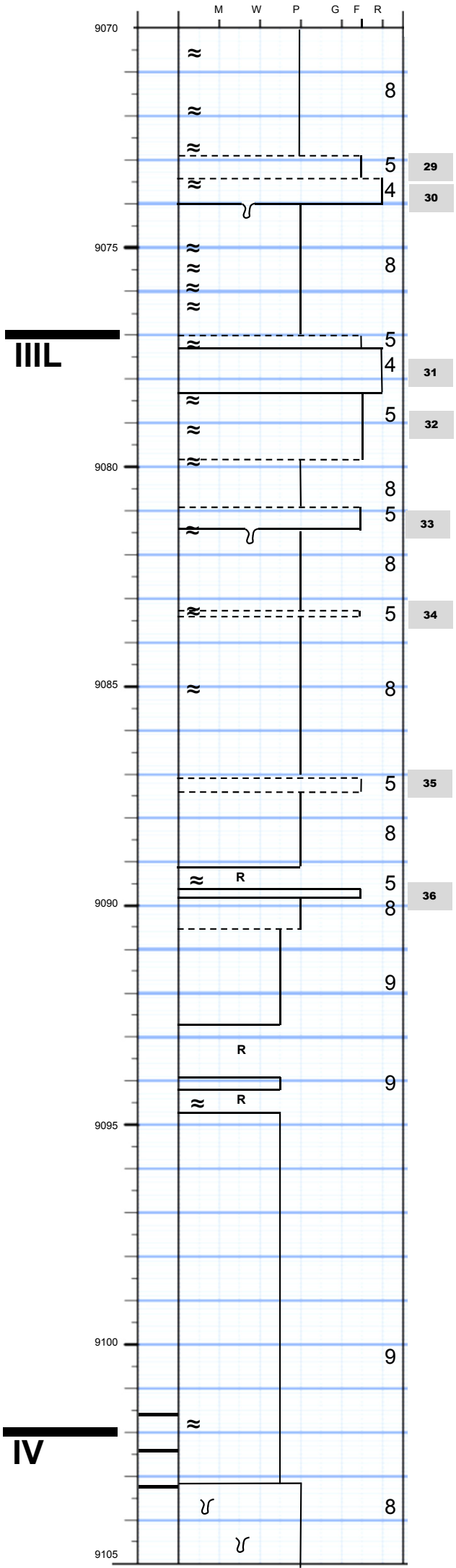
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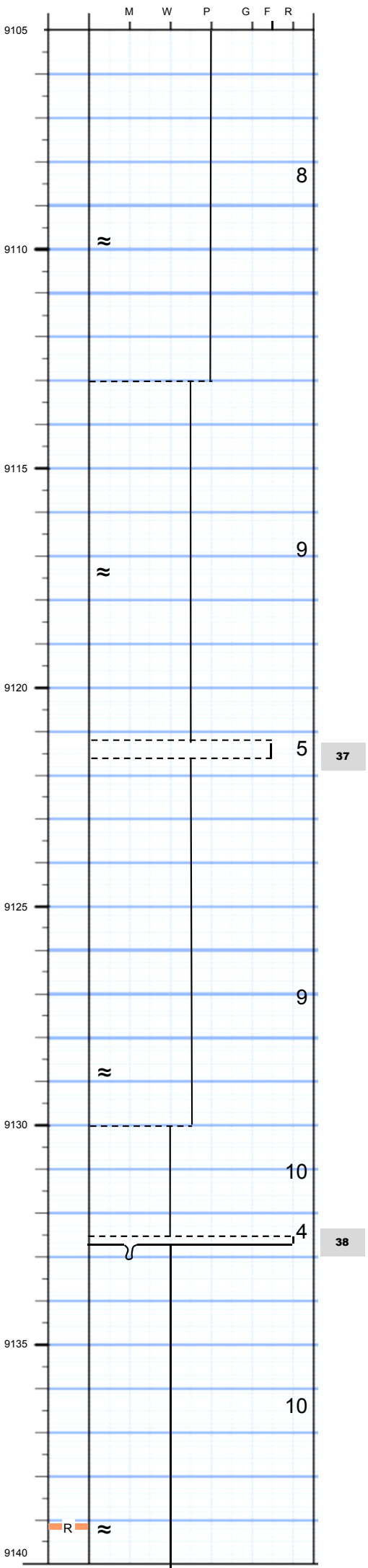
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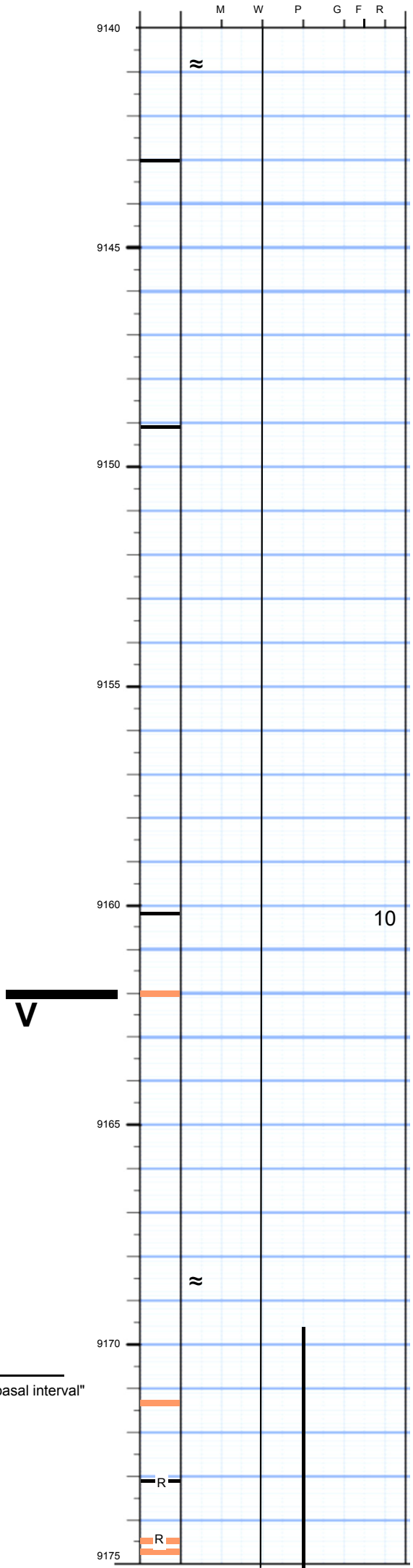
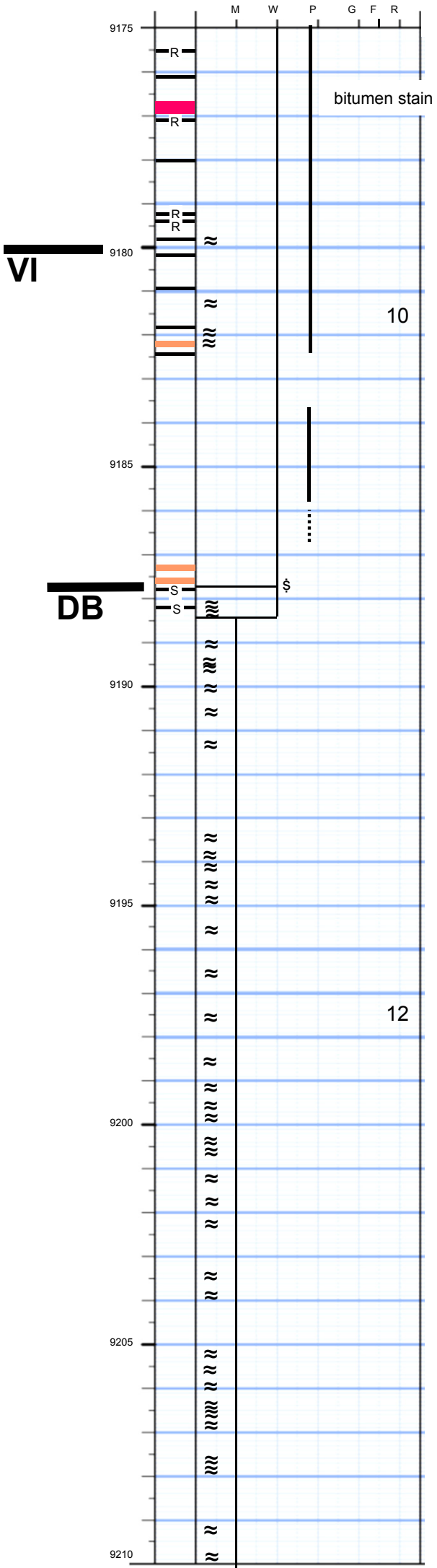


top of "basal interval"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bitumen stain
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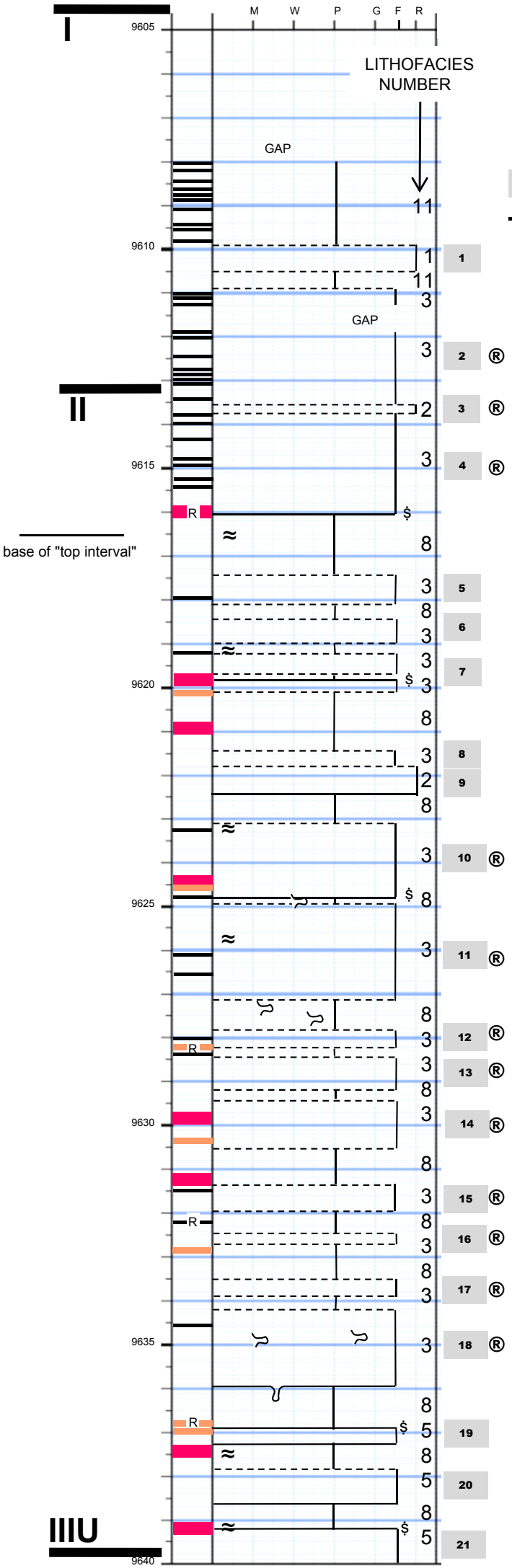

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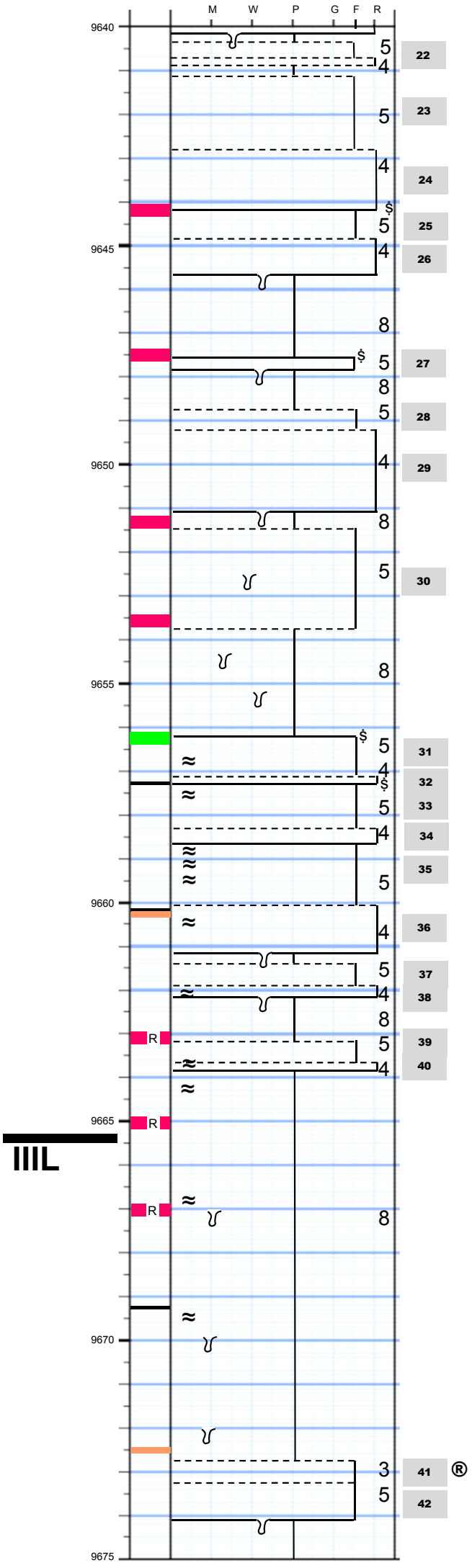
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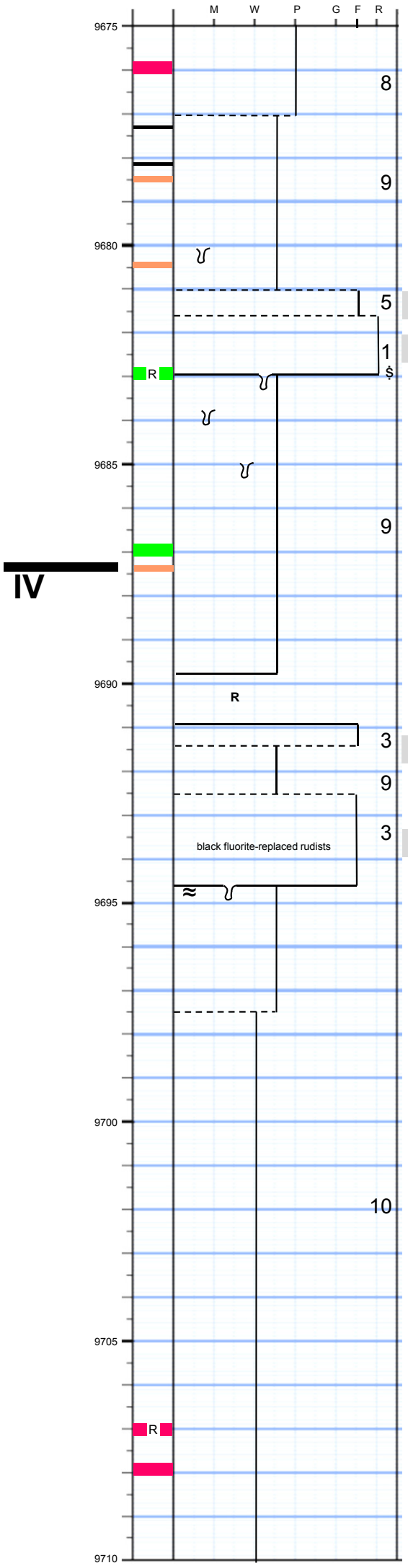
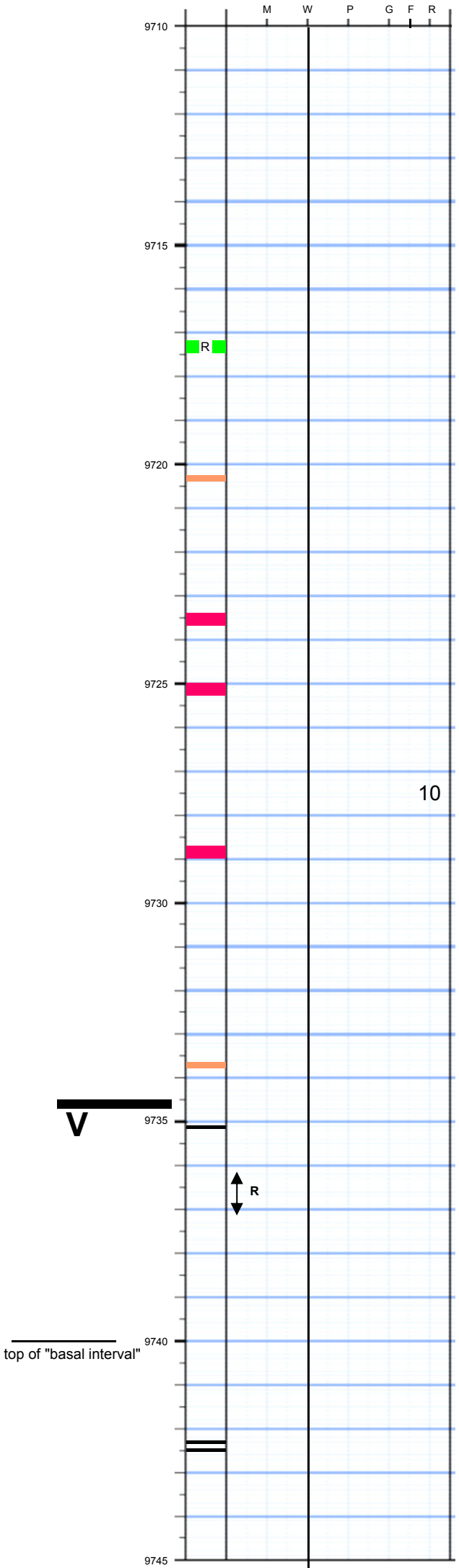


Larger clasts = intraclasts of med.-gr. G/P

P/G-filled burrows 1-2 cm diam.

upward-decreasing clast (rudist fragment) size (max. 4 cm in lower part to 2 cm in upper half)

sharp erosion surface, 8 mm relief, Fg over W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top of "basal interval"
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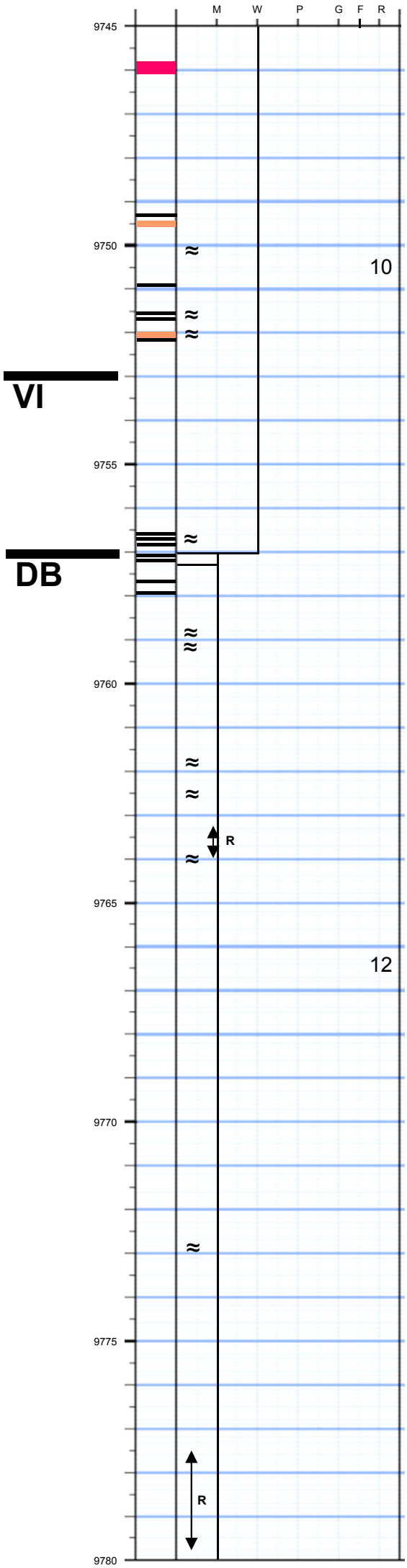
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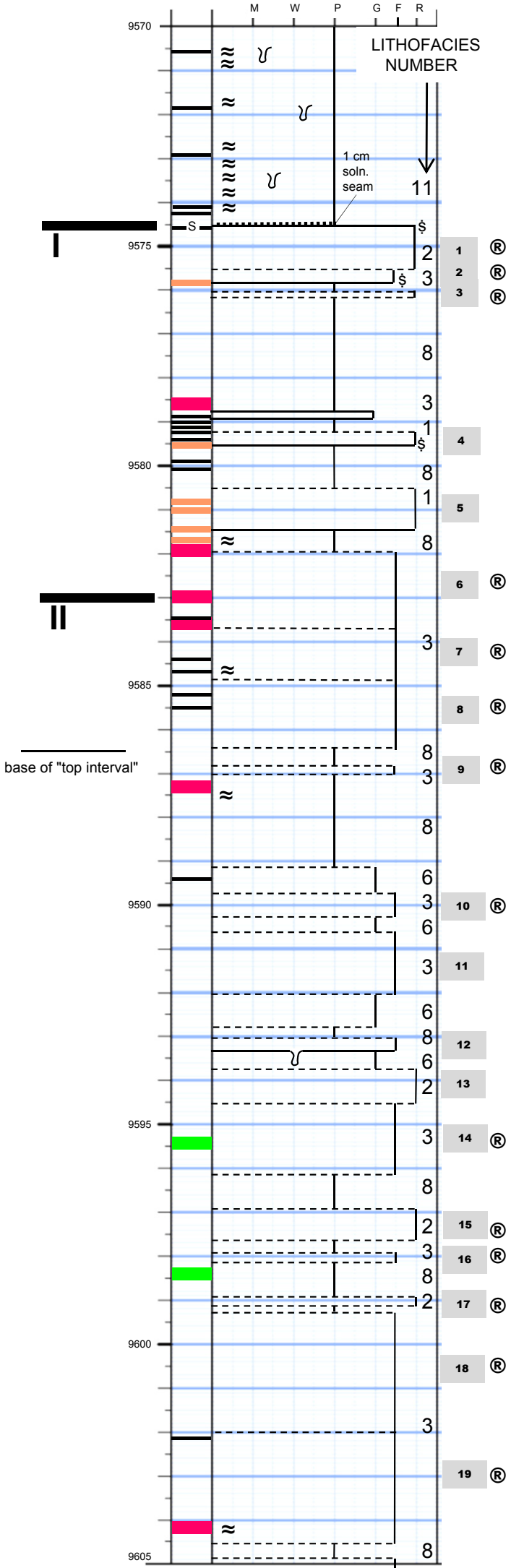

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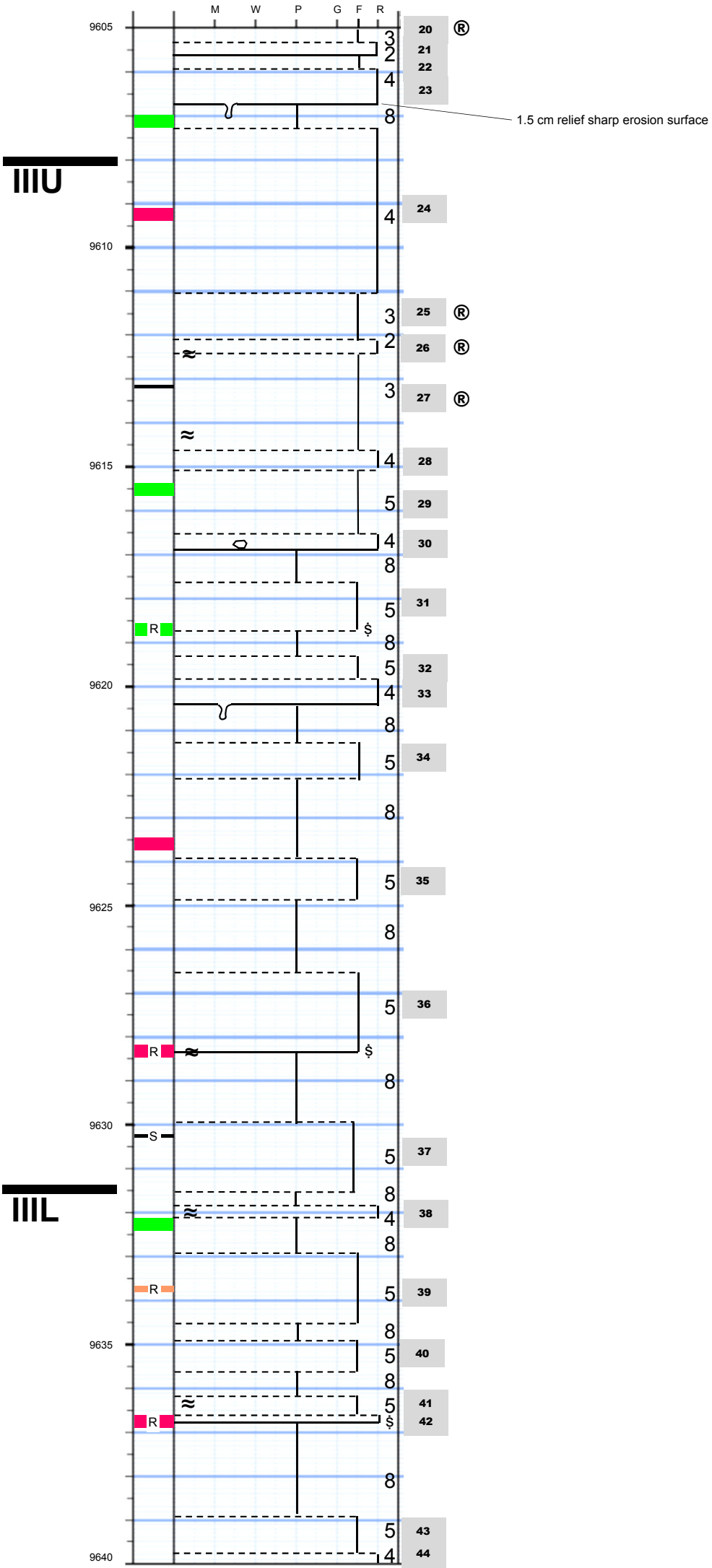
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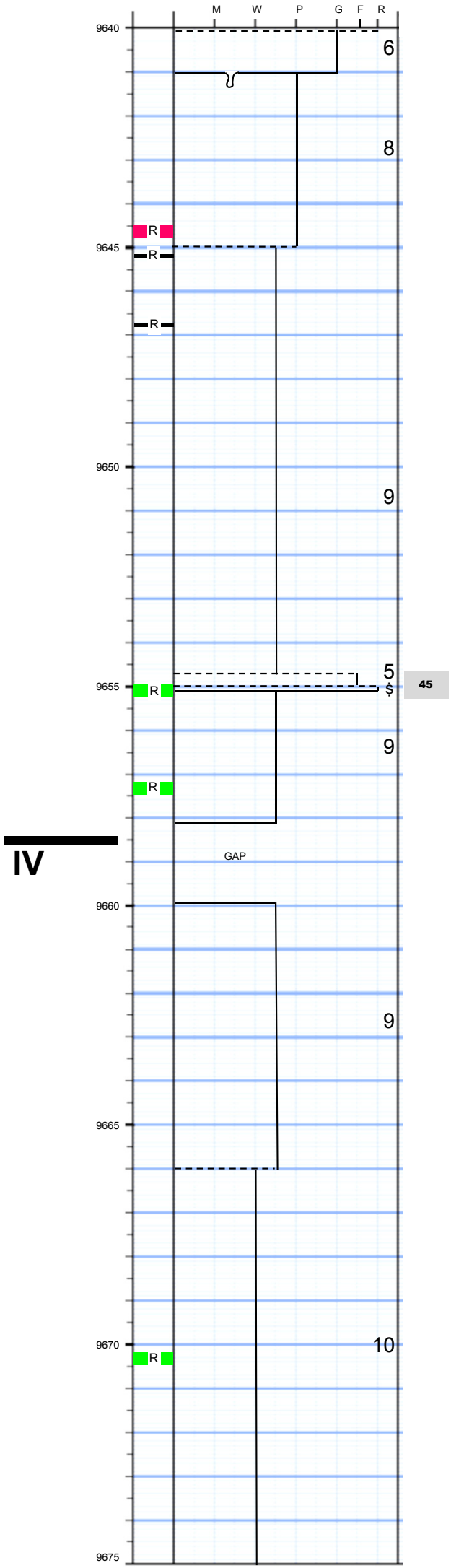
1.5 cm relief sharp erosion surface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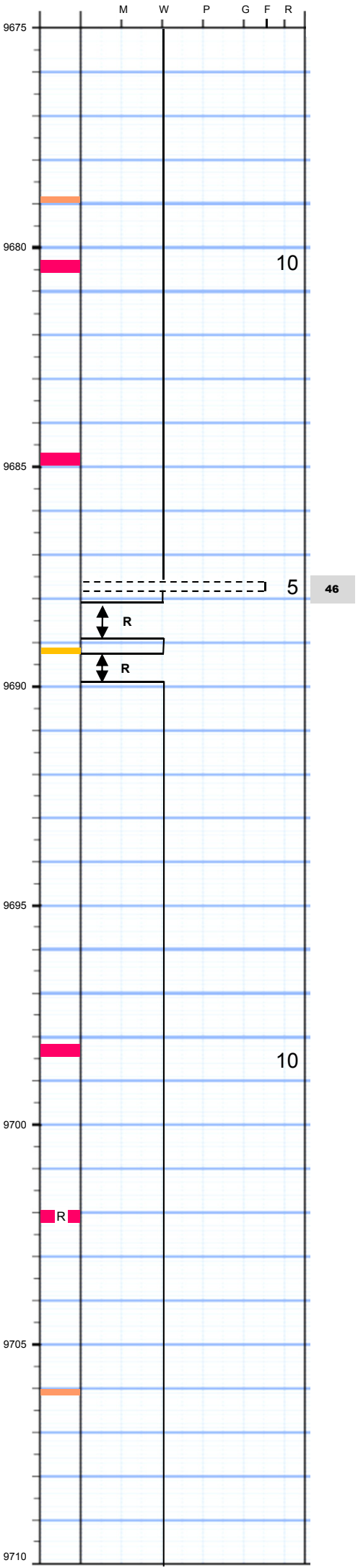
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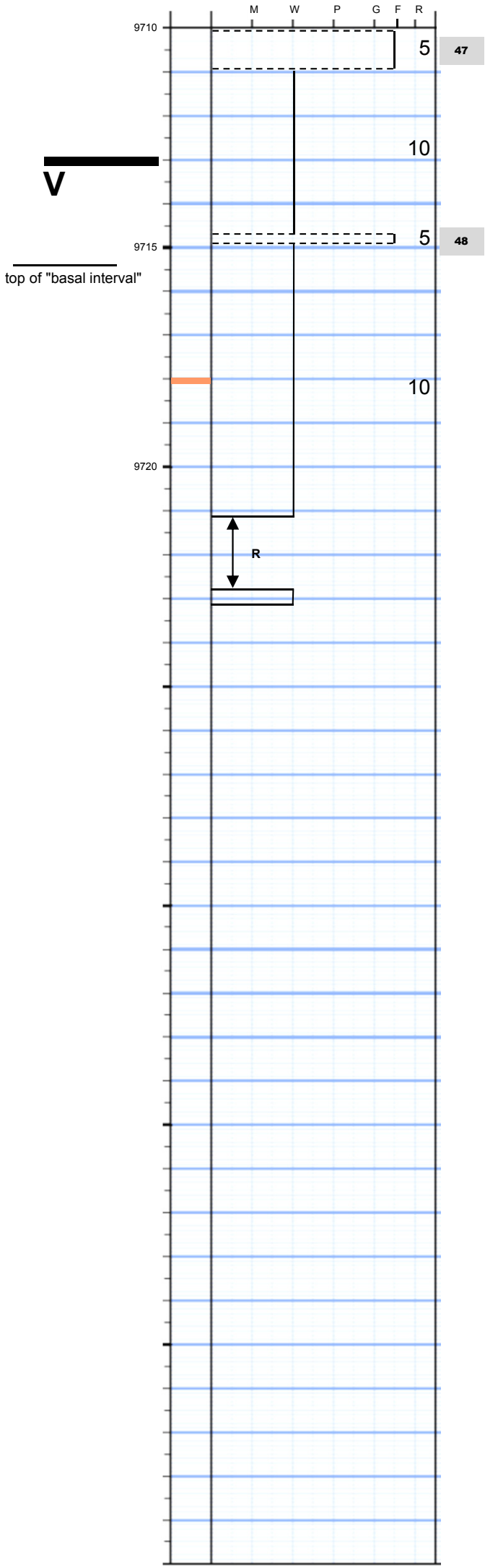
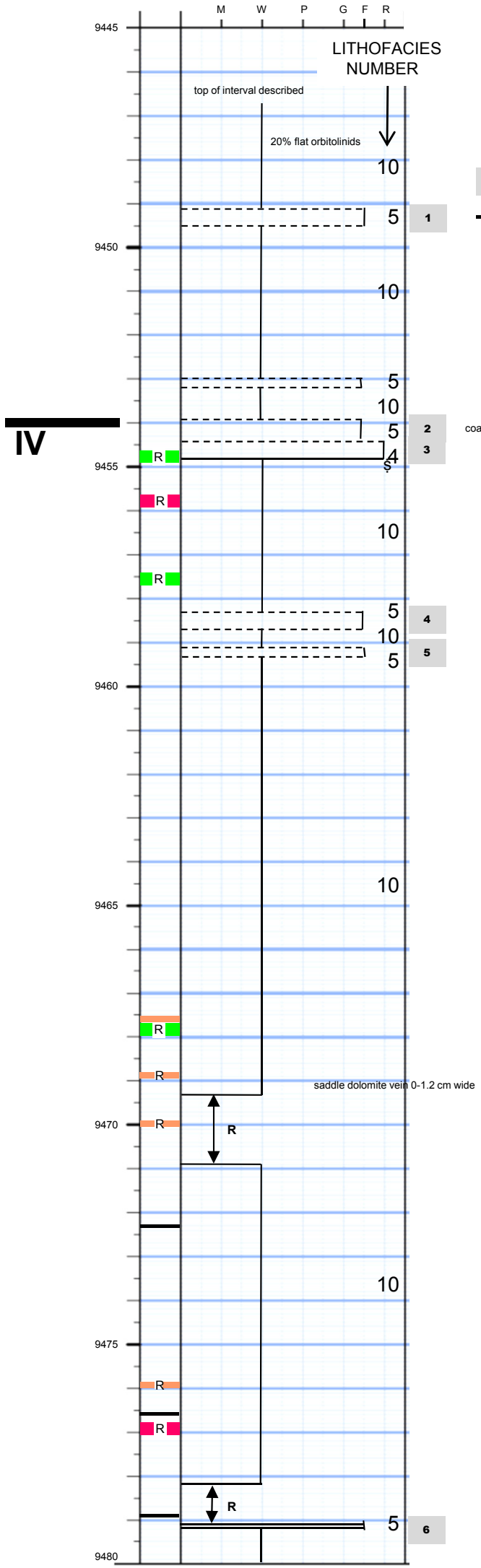


47 coated bivalve fragments <3 cm

48 coated bivalve+rudist(?) fragments, some black (=fluorite?)



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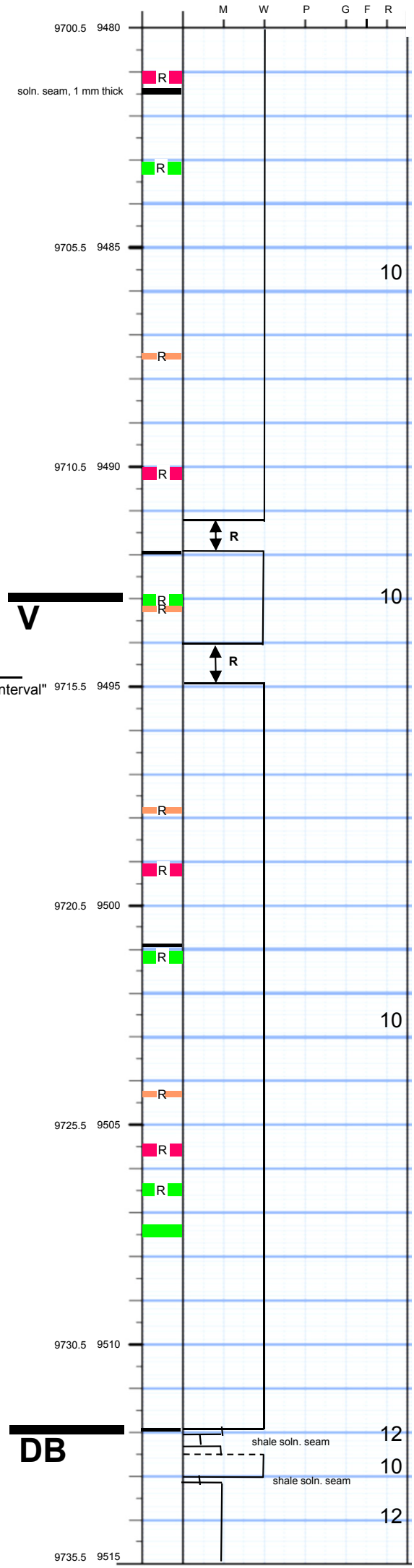

black (?fluorite) + saddle dolomite shells; network of thin black veins

black (?fluorite) + saddle dolomite shells; network of thin black veins

9718.3 AMP = 4 cm

9719.7 7 cm

9721.4 1.5 cm
9721.7 12 cm

9724.8 3 cm

9726.1 6 cm

9727.0 5 cm x 3

9727.9 13 cm

9732.4 1 cm x 8

10% flat orbitolinids + thin bivalve shells