from J. Byrnes

Date: July 26, 1973

Subject: Geologic map of the Hartford South Quadrangle

After having reviewed both versions of the Hartford South I find a general agreement within the northern and eastern portions of the quadrangle. In these areas I have taken some liberties in extending faults over greater distances than available data probably permits and perhaps the more moderate approach used by Joe Weitz should be followed here. Furthermore, one of the two faults which extends from the Cripple Childrens Home to the Drive In Theater west of Cedar Mountain should be deleated from my version of the map.

There are several other areas where the two versions of the Hartford South geologic maps are not in complete agreement. I have prepared an overlay of Joe Weitz's map and have labelled the areas where we disagree. The supporting evidence for my interpretations of the map are listed below. In some cases I feel the evidence is strong whereas in other areas where data is sparse the interpretations may be more conjectural or intuitive than factual.

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Location # 1 Basalt ridge mapped as Holyoke from south the Mettabesset River to Cromwell Avenue, Rocky Hill.

I agree ok ✓ This is Hampden Basalt.

✓ 1. Thickness doesn't appear great in field.

2. Bore hole (water well) near France St. and New Rd. went through basalt to underlying red beds. Total basalt thickness on the order of 60 feet.

✓ 3. At Hartford Electric substation on Beckley Rd. Basalt ridge is amygdaloidal and brecciated. There appear to be two distinct flows--- these are very similar to two of the eight flows of Hampden described by Chapman (1965) in the Rte 72 cut at the Berlin Tpk.

✓ 4. Careful stud of the sedimentary units lying north of this ridge reveal several black, shale horizong which have similar stratigraphic relationships to the basalt as those seen in roadcuts at Rte 72 and the Berlin Tpk, Rte 72 at

the I-91 interchange, and along I-91 from West St. to Elm St. Furthermore, the topography north of the ridge under consideration reflects the presence of the black shales and is very similar to the topography west of the Hampden ridges along I-91 south of West St. and East of the Berlin tpk north of Rte 72.

Locztion # 2 Portland Arkose west of Vexation Mountain and Cedar Mountain

1. Unfortunately there is not a great deal of data available in this area. However, there are several reasons for mapping the area from Wolf Pit Hill to the Cripple Children's Home as East Berlin.

A. Displacement in the vicinity of Wolf Pit Hill is on the order of 100 feet as indicated by the borings for Northeast Utilities.

B. Relief between Wolf Pit Hill and Vexation Mountain (Culver Rd.) is not very great and is similar to the relief between Cedar Mountain and the area south of the Drive In Theater at "C" on the overlay suggesting a similar amount of displacement.

C. At the Drive In Theater there is some black shale on the fault plane. This appears to be the dark gray asphaltic type characteristic of the East Berlin Formation in the Hartford South. The Portland gray shales in the Hartford South are gray siltstones which seem to lack the highly carbonaceous members.

D. The bedrock contour map shows a great depression which lies west of vexation mountain and Cedar Mountain and appears to be a continuation of a large fault in the Meriden Quadrangle The Great Depression passes close to the base of Cedar Mountain near the Cripple Childrens Home and it is here that the relief between basalt and lowland becomes quite pronounced. Furthermore the Shuttle Meadow is probably covered only by slide rock here and is definitely exposed a little farther north at lthe Balf Quarry. This suggests a great deal more displacement than that at Wolf Pit Hill. Therefore displacement on the faults along Cedar Mountain south of the Children's Home may be on the order of 100 feet and only the East Berlin has been faulted down in this area. However, west of the Great Depression which probably marks the major fault, displacement was great enough to have brought the Portland Down.

Location # 3 Two Rod Highway Area

1. Northeast trending Hill (260') is underlain by haaalt as was shown by excabation of gas linetrench Summer of 1972.

2. Farther east in area from Two Rod Hwy to Pond, Housing developer reports basalt in sewer trenches at 22 feet below ground surface.

Location # 4 — End of Holyoke Basalt in Elmwood/ Northwest Trending fault.

#4 & #6 are related. A cross fault (NW) still seems in order, but I can't carry it very far. This is the reason for fault NE in #6

1. Fault of large displacement is probably neccessary to cut off the Holyoke Basalt in Elmwood. Major trends in this area are apparently to the northeast. Therefore I propose a fault zone wtih many northeast trending faults. This seems to be the case in Hartford North in the Jefferson St. Tunnel (Berkey Cross section in files). Also a fault may go through trap Ridge at "B" on the overlay and threugh the East Berling on the small brook near Sherlock Avenue.

Location # 5 — Notheast treading fault -- North Rd, France St. Area Rocky Hill

Also see M'town map A fault is necessary - it could go along NS street of Matabessett S. of E. Berlin

1. I don't think this fault exists: Believe the East Berlin is continuous across the area and is just covered by drumlins to the north. Outcrops in this area show no evidence of faulting. See your memo on N. B + H. S.

Location # 6 — Fault East of Railway through Newington- West Hartford. Dont know that there is sufficient data to justify a fault here ar not.

me too

Location # 7 — Fault--- New Rd and New Britain Ave. Rocky Hill

"when in doubt, leave it out"

1. I believe the fault cuts across the way I have mapped it. East of New Rd. the sedimentary outcrops are cut off and the dmall hills along New Rd. are drumlins. Furthermore, there may be some displacement of the ridge line North of New Britain Ave. at a point just west of Hayes Rd. The trend of gray shales in the hay field north of New Britain Ave at New Rd. is a little north of the same gray shales ~~where~~ when they were exposed in the gas line trench on Hayes Rd. Topography also suggest the fault line in this area.

2. In addition the Weitz interpretation indicates the fault cutting New Britain Ave. and Candlight Drive. But the fault wasn"t seen in the gas and sewer trenches in this area.

JTB. 8/73

Geologic maps of the Hartford South and New Britain Quadrangles.

The western side of the Hartford South has been modified to produce a better fit with the New Britain Quadrangle. Major changes have been made in the northwest ninth where a number of northeast trending faults have been extended from the New Britain Quadrangle. It has also been neccessary to use north - south trending faults in the area to account for the relationships of the Portland and East Berlin formations and repetition of the Hampden Basalt. Scarcity of outcrops in the area makes positioning of faults highly speculative at best. Howeber, the north-south trending faults have been drawn to coincide with Trout Brook and with bore hole information/ Leave in my NW fault across New Britain Ave.

The lon north-south trending basalt section in the New Britain Quadrangle just west of Newington Junction and Northwest School (Hartford South) was apparentlty mapped on the basis of reported outcrop. However, the symbol used indicates sedimentary rock over basalt which may not justify mapping basalt in this area. Farthermore , the New Britain magnetic map shows a magnetic low over this ridge suggesting the absence of basalt. Therefore the basalt has been eliminate in this interpretation. Ok

The magnetic map also show relatively high anomolies in the vicinity of the Wolcott School which might be artifacts but are more likely to be the result of basalt at or near the sufface. Other school building in the quadrangle which are not located on or near basalts do not display high anomolies and no factories are located in the vicinity of the Wolcott School. Basalt is east of S. Branch Trout Brook here (mapped)

Other changes included converging several faults in the east central ninth of the New Britain Quadrangel and "channelling" these through the fault zone whcih passes northwest of the Indian Hills Country Club. Ok

Only one major problem exists concerning the Middletown Quadrangle; A fault extending into the Hartford South east of 72°42'30" should be somewhat farther west. I jd don"t believe that the East Berlin formation is cut off just west of North Rjo

see next page

North Rd. (Cromwell- Rock Hill) as an extension of the "Middletown" fault would suggest. This fault probably lies farther west near, or along the Mettabesset River in both the Hartford South and Middletown Quadrangles.

Evidence for the fault where I have it - just west of North Road - is admittedly flimsy.

(1) Goes between ten-degree dips on your maps near North Road. See my outcrop map - same as between 10° and 8° - my strikes are more different than yours, and the one west of "NORTH ROAD" in Rocky Hill fits those to northwest better, whereas the strike of the 8° is more consonant with others to east.

(2) There has to be a fault entering the Middletown Quad near North Rd. It may be a little further west, but not much — needed to separate the East Berlin/Hampden outcrop strings a) east of North Road in H.S. & M'town, and b) Savage Hill in M'town. It could tie in along the North-south stretch of Mattabesset R., to Old Westfield Cem., with a split into the fault that dies out SE of Snow Hill at Elev. 236 — in that case, taking it north, it could split and bend NE a bit and tie into the troublesome small displacement fault that dies out (maybe) south of the Veteran's Home. In any case, part of the Savage Hill - North Road area has to be Portland. Then, leaving the one we both have mapped from west of the river at S. edge of H.S. to the Gilbert St. interchange & beyond, you might have some justification for thinking the Gilbert St. basalt is Hampden instead of Holyoke, which I think J.R.C. mentioned. That, of course, would require another fault to make a slice out of the Gilbert St. basalt blot - maybe it ain't worth it!?

JLW 8/74