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On Wednesday, April 7, 1954, several householders and car owners in the Davenport area reported to the newspapers that their property had been spattered with blue spots during a severe rainstorm. A similar incident was reported from Detroit, Michigan on Thursday, April 8, 1954. Newspaper jargon referred to the incident as "blue rain". Varied explanations as to the origin of the "blue rain" included the possibility of wind blown paint, "fall-out" particles from hydrogen bomb tests in the Pacific, vegetable material of some type, tree buds, or pollen.

The authors became interested in the problem and a trip was made to one of the houses which had been spattered by the "blue rain". The general appearance was as if the white painted house had been speckled with a fine spray of mulberry juice. The spots averaged 5 millimeters in diameter, the center being a dense mass of bluish-purple material surrounded by a paler halo. An automobile parked on the St. Ambrose College campus presented a similar appearance.

Scrapings from the spots were transferred directly to glycerine jelly on microscope slides. Microscopic examination of the slides revealed the presence of organic fragments and anthers containing pollen grains. The pollen grains found in the material collected from the house were identified as elm whereas those collected from the car were identified as poplar.

When collecting the material from the house, it was noted that the spots were confined mainly to the front part of the house indicating the possibility of a local origin for the material. A large American elm (*Ulmus americana* L.) was in flower in the front yard and specimens of the flowers were obtained. Dissection of these flowers and tests for water soluble pigments showed no bluish-purple pigment in the bud scales nor in the calyx but such a pigment was found in the anthers. Anthers placed in water droplets on white paper produced bluish-purple spots comparable to those found on the white house. Drying of the spots intensified the color, and the pigment became indelible. Further experiment indicated that the pigment was soluble in acid but not in alkaline solutions. Acid turned the bluish-purple pigment a bright red. When an alkaline solution was added to an acid extract of the pigment, the color again reverted to a bluish-purple. It resembled a typical litmus reaction. The concentration of pigment was in direct proportion to the age of the anthers, the immature anthers having

the greatest concentration of pigment. Immature anthers stored for a year reacted slightly to all the solubility tests.

Similar tests for soluble pigments were made on catkins collected from white popular (*Populus alba* L.) on the St. Ambrose College campus. The water soluble bluish-purple pigment was detected not only in the anthers but also in the bracts; there was no evidence of the pigment in the floral discs. In the poplar catkins, as in the elm anthers, the pigment was soluble in acid but not in alkaline solutions, and the same reversible "litmus-like" reaction could be obtained.

The anthers recovered from the house, those recovered from the car, and those obtained from the respective trees were all in a very immature state. In ordinary circumstances the anthers of elm remain attached, gradually shriveling and losing their pigmentation as the fruit matures; the dried anthers are shed intermittently. In poplar the anthers are shed with the catkins. In the opinion of the authors the coincidence of a strong wind and heavy rain occurring while the anthers of elm and poplar were still in an immature stage of development was responsible for the "blue rain". The wind driven rain was of sufficient force to prematurely dislodge the anthers and deposit them upon buildings and cars where subsequent evaporation of the raindrops left the pigmented fragments as a residue.

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