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**Acid Mine-drainage Problem of the Patoka River Watershed, Southwestern Indiana.** *Don M. Corbett.* Water Resources Research Center Rept. of Invest. 4, Indiana University, Bloomington, Indiana. 1969. xiii + 173 p. Free upon special request.

This paperback deals with the sources, distribution, and treatment of acid mine-drainage in the tributaries of the Patoka River, a far-southwestern Indiana tributary of the Wabash River. Acidities as low as 2.9 pH occur at times in parts of this watershed, deriving mainly from both pyritic materials and (so the author says) "acidic sandstones," composing railroad grades, haul-road embankments, and dumps, and affecting the streams most strongly at times of low water storm-produced "flushouts". Solution of the acidity problem is reported to be (1) burial of acid-producing materials by well-compacted earth or by inundation through damming, and (2) well-managed drainage of "bottled-up" extremely acid waters in ponds or in "cast overburden" (permeable mine dumps). Though the expression "well-managed drainage" appears in a number of places in the report, the author does not elaborate; I infer that he means the release of highly acid waters in small amounts during periods when stream levels are high. In addition to the specifics about the Patoka River watershed, there is a rehearsal of the history and publications of the Water Resources Research Center, including repetition of points made in previous reports.

The report is not well written. The abstract is not an abstract, but an apologetic introduction. It is difficult, throughout the report, to locate the significant facts, which are buried in masses of involved wordiness. The personal pronoun, literally or implied, occurs too often throughout most of the major sections. However, the author emphasizes perceptively that acidities are not *amounts*, but *rates*, related to *rates of flow* of the streams; and that water which has lost only some of its acidity and only a little of its dissolved  $\text{Cl}^-$ ,  $\text{CO}_3^{=}$ ,  $\text{Mg}^{++}$ , and  $\text{SO}_4^{=}$  is improved enough for most aquatic organisms and for human recreation. However, the wordy, involved presentation characteristic of most of the report makes the author's real contributions difficult to follow.

The greatest value of the report is in the detailed data presented for streams and old mining areas in the Patoka River watershed. Therefore it will be of most interest to geologists, hydrologists, ecologists, and coal-mine officials with an interest in that area.

JANE L. FORSYTH