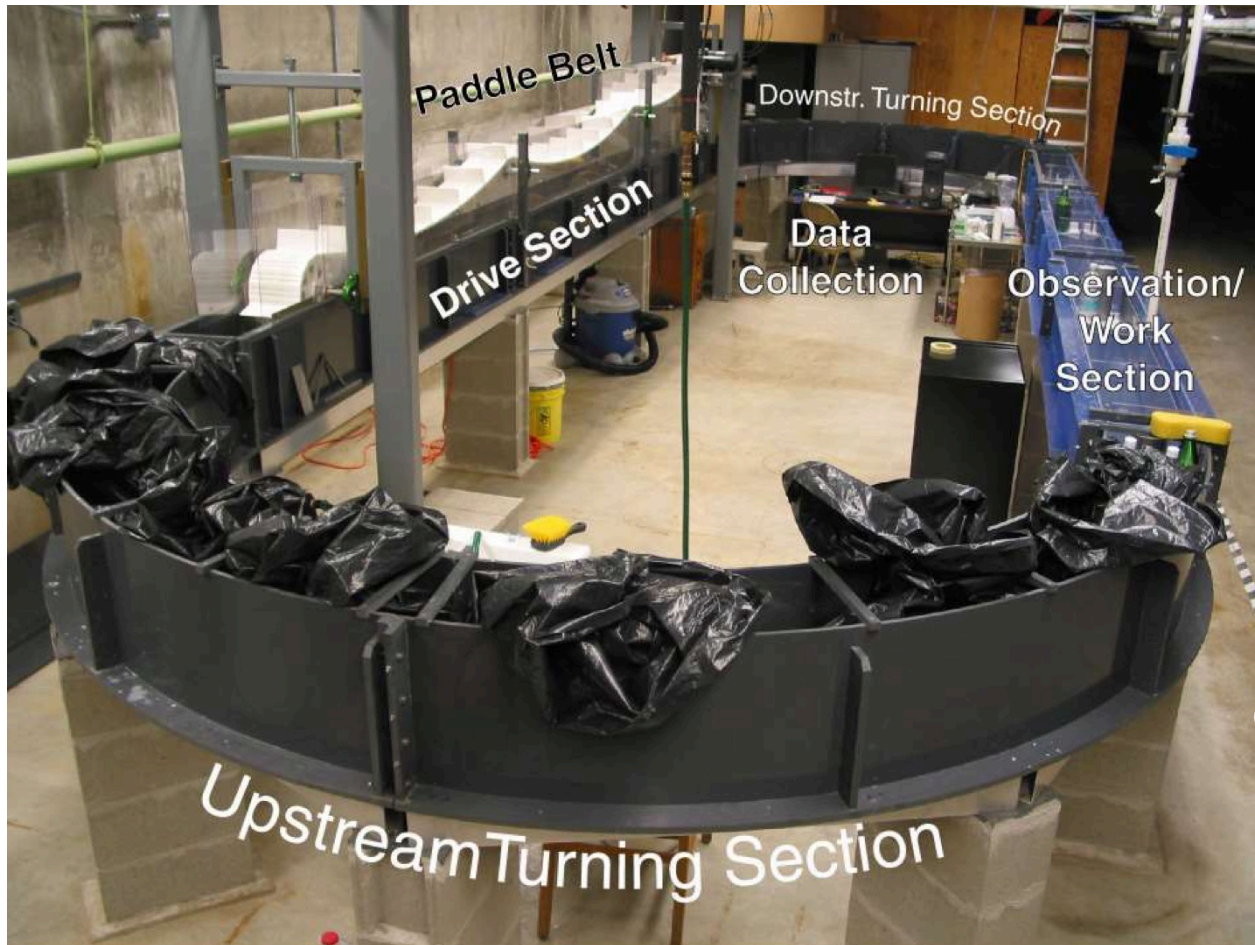


Simulating Flood Deposition of Mudrocks: A Proposal to Build and Operate a Second-generation Racetrack Flume

Steven A. Austin, Ph.D

Abstract: Sedimentologists have assumed that shales and other fine-grained sedimentary rocks (“mudrocks”) accumulated during millions of years as dispersed clay-size particles settled vertically and very slowly through calm ocean waters. That is the classic argument concerning “mudrocks” made for 180 years by uniformitarian geologists against the possibility that Noah’s Flood accumulated thick sequences of strata. However, sedimentologists have recently suspected that the common structures of planar lamination and cross lamination in shale could have been made by very fast-flowing currents. Geologic science is poised for the “Mudrock Revolution.” Some sedimentologists suspect that mud laminations can be accumulated at greater than one millimeter per second. The physics of rapid mud deposition involves three critical steps: (1) clay floccule formation, (2) inclined floccule settling within a moving current, and (3) floccule deposition within the fluctuating boundary layer at the sediment-water interface. A large racetrack flume needs to be built that simulates the physics of the three steps in rapid accumulation of mud. The flume has three major design requirements: (1) Froude number of up to 0.9 within the stability field of upper-flow plane bed and thin laminations, (2) large-scale channel to encourage laminar flow with floccule settling, and (3) enough flume momentum to allow a declining current to produce a boundary layer allowing mud floccules to accumulate at rates of up to several millimeters per second. The proposed circulating flume would be over 50 meters long and be driven by a moving conveyor belt of paddles. More than 100 cubic meters of water (25,000 gallons) would attain a velocity of up to one meter per second. Within the current at velocity of about 0.2 meters per second, cross lamination of mud is suspected to form, a conclusion supported by experiments in first-generation racetrack flumes. Within the current at velocity above 0.4 meter per second, planar lamination of mud is suspected to form. Other sediment (sand) could be introduced into the flume to make more familiar sedimentary bedforms (large-scale cross beds). Such a flume could celebrate the contribution of Dr. Henry M. Morris, Jr. to the science of hydraulics and to his leadership in the modern creationist movement. Imagine building a machine that simulates the process that rapidly deposited 70% of the earth’s sedimentary strata record! Creationists should immediately take possession of the “Mudrock Revolution” by doing empirical science. A big racetrack flume needs to be demonstrating principles of catastrophist sedimentology by making laminated mud deposits very rapidly!

Racetrack flumes have been used by engineers to simulate how sewage particles are dispersed in an estuary. A much bigger and more powerful flume needs to be built so creationists can take possession of the “Mudrock Revolution.”



Shown above is a first-generation racetrack flume.