GEOL1602 Lab 3 **Name: _____ ID: 89_____ (9 specimens)**
Sedimentary Structures

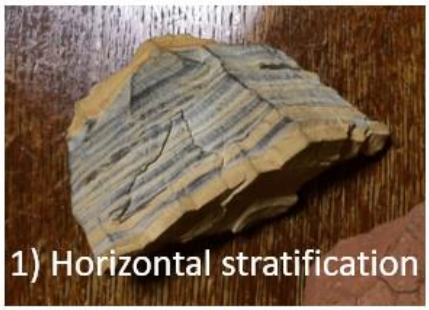
Identify and sketch each sedimentary structure and answer the questions on the right.

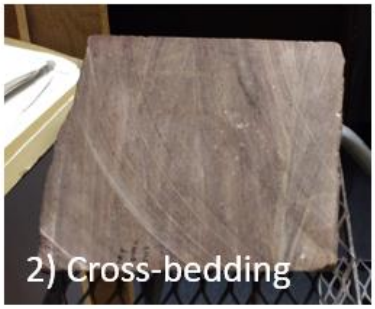
1 Horizontal stratification	Marine / Nonmarine / **Either** What environmental controls would exclude burrowing organisms and allow horizontal stratification to be preserved? ***Anoxic, oxygen depleted, deep water e.g. deep marine*** ***Fast burial regardless of the oxygenation level, e.g. pyroclastic surge, turbidite*** Extraterrestrial, e.g. Martian
2. Cross-bedding	Marine / Nonmarine / **Either** *"Cross-bedding is widespread in three common sedimentary environments: rivers, tide-dominated coastal and marine settings"* The arrow on this sample indicates right-side up. Draw an arrow on your sketch indicating the current direction.
3. Ripple Marks 1	Marine / Nonmarine / **Either** Symmetrical or **asymmetrical**? Draw an arrow on your sketch indicating the current direction.

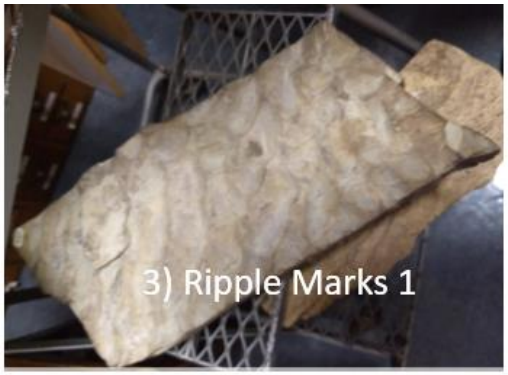
4. Ripple Marks 2	Marine / Nonmarine / **Either** **Symmetrical** or asymmetrical? Draw an arrow on your sketch indicating the current direction.
5. Mudcracks	Marine / **Nonmarine** / Either What do mudcracks suggest about the conditions of the environment? ***Formed in sediment that was once saturated with water*** ***Very fine clay material that has dried out.*** ***As water content is rapidly removed, the surface will split into cracks that extend a short way down into the mud.*** ***e.g. playa lakes (dry lakes)***
6. Graded Bedding	**Marine** / Nonmarine / Either What type of event would cause the coarser sediments to be deposited first and then finer sediments to be deposited later? ***A large amount of mixed sediment being discharged into quiet water*** ***e.g. underwater landslides, turbidity currents***

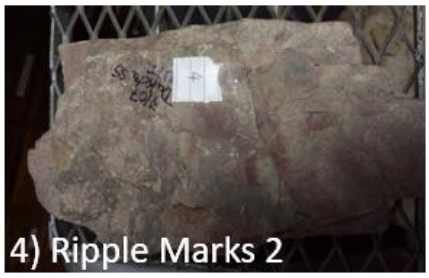
7. Stromatolite	**Marine** / Nonmarine / Either ***(can be nonmarine, the sample in the lab is marine based)*** What are stromatolites? And what are they composed of? ***Layered mounds, columns, and sheet-like sedimentary rocks formed by microbial mats*** ***Mostly carbonate minerals, e.g. calcite***
8. Horizontal trace fossil	Under what environmental conditions (high or **low energy**) was this trace produced?
9. Tool marks	Marine / Nonmarine / **Either** Draw an arrow to indicate probable flow direction *Could be either direction

LAB 3


1) Horizontal stratification

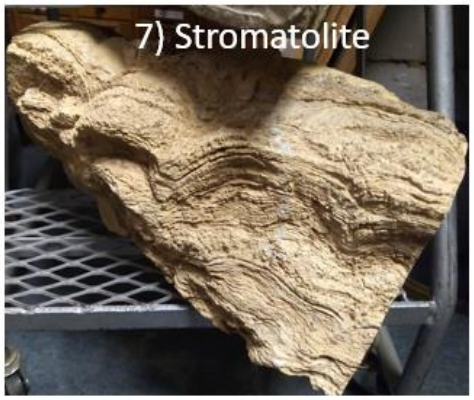

2) Cross-bedding


3) Ripple Marks 1


4) Ripple Marks 2

5) Mudcracks


6) Graded Bedding


7) Stromatolite


8) Horizontal trace fossil


9) Tool marks

Lab 3 specimens overview for LSU GEOL1602 Spring 2020 by Eric Z.