

# Rock Casting

# rock casting

- realistic representation of rock form
  - small rocks seem to mimic the detail of larger rocks
- easy to work with on a layout

# Index

- Types of rock
- Rock formations
- Rock Molds
- Types of plaster
- Casting the rock
- Setting Casting on the layout
- Staining & Weathering

# Types of Rock

- Sedimentary
- Igneous
- Metamorphic

# Sedimentary Rock

- Horizontal layers known as strata
  - depth of strata varies widely
- Formed from various materials and sediments which have been compressed



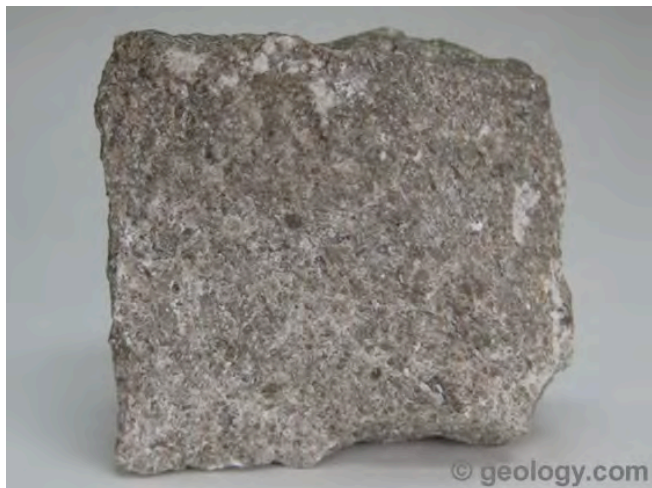
Conglomerate clastic rock with large particles with small particles or “chemical cement” between.



Coal organic composition from plant debris accumulating in swamp environments.



Shale clastic rock of clay-size (less than 1/256 millimeter) weathering debris.



Limestone chemically bonded deposits from ancient seas, such as shell, coral, algal and fecal matter and calcium carbonate.



Iron Ore Chemical formation from slurry of oxygen and iron



Sandstone clastic rock of sand-sized (1/16 to 2 millimeter) weather debris.









4.9





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# Igneous Rock

- Formed from solidification of molten rock
- Intrusive - cooled slowly below the earth's surface creating a solid, crystalline form
- Extrusive - cooled rapidly near the earth's surface resulting in vertical formations



Granite course-grained, intrusive



Rhyolite fine-grained, extrusive



Peridotite fine-grained, intrusive



Scoria vesicular(trapped gas) extrusive





















# Metamorphic Rock

- Originated as sedimentary, igneous, or metamorphic rock repositioned by the earth's movement and recast by intense heat or pressure.
- Foliated - has layers or bands
- Non-foliated - solid or monolithic





Amphibolite non-foliated



Phyllite fine-grained, foliated



Marble non-foliated



Schist foliated





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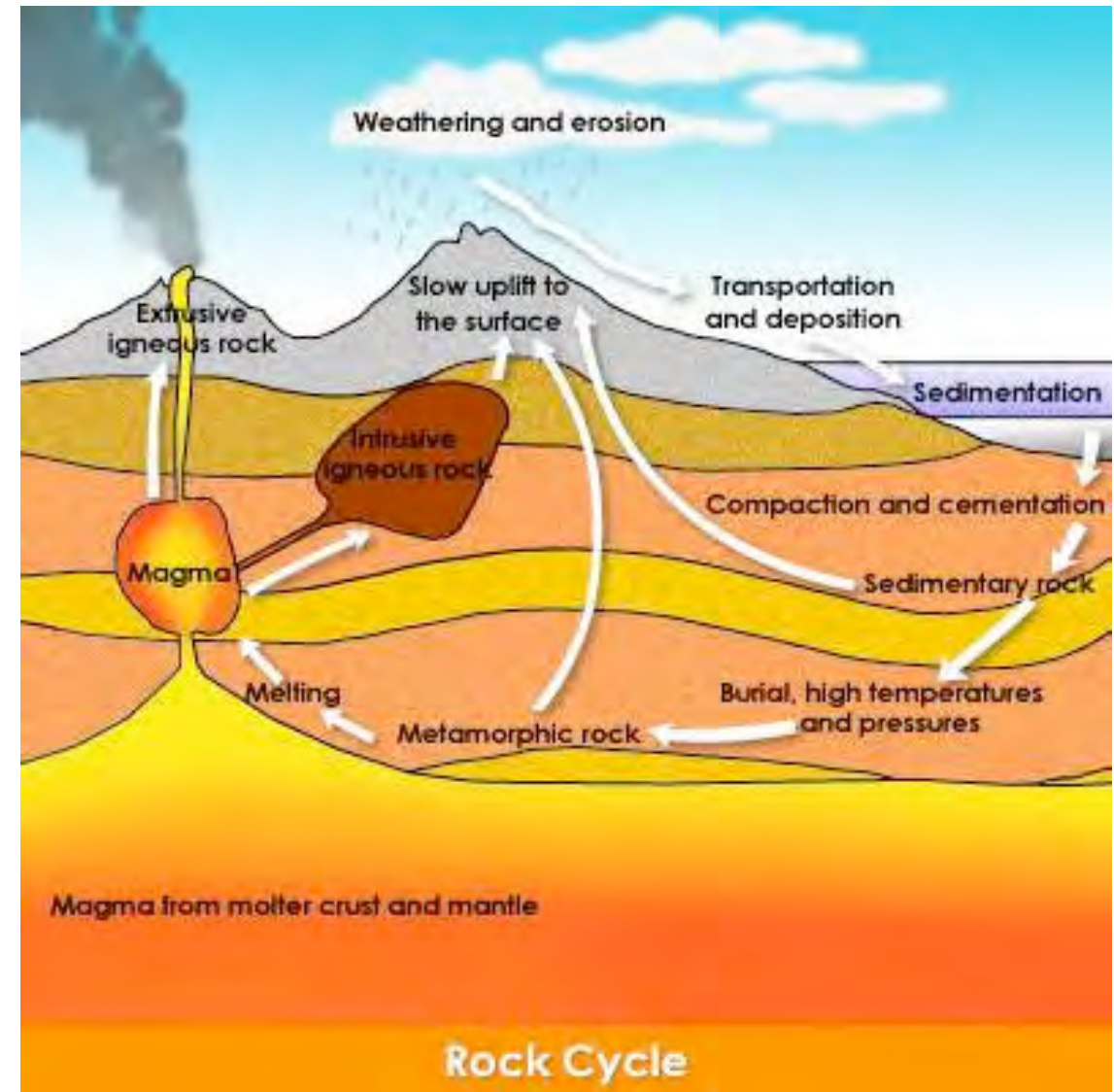
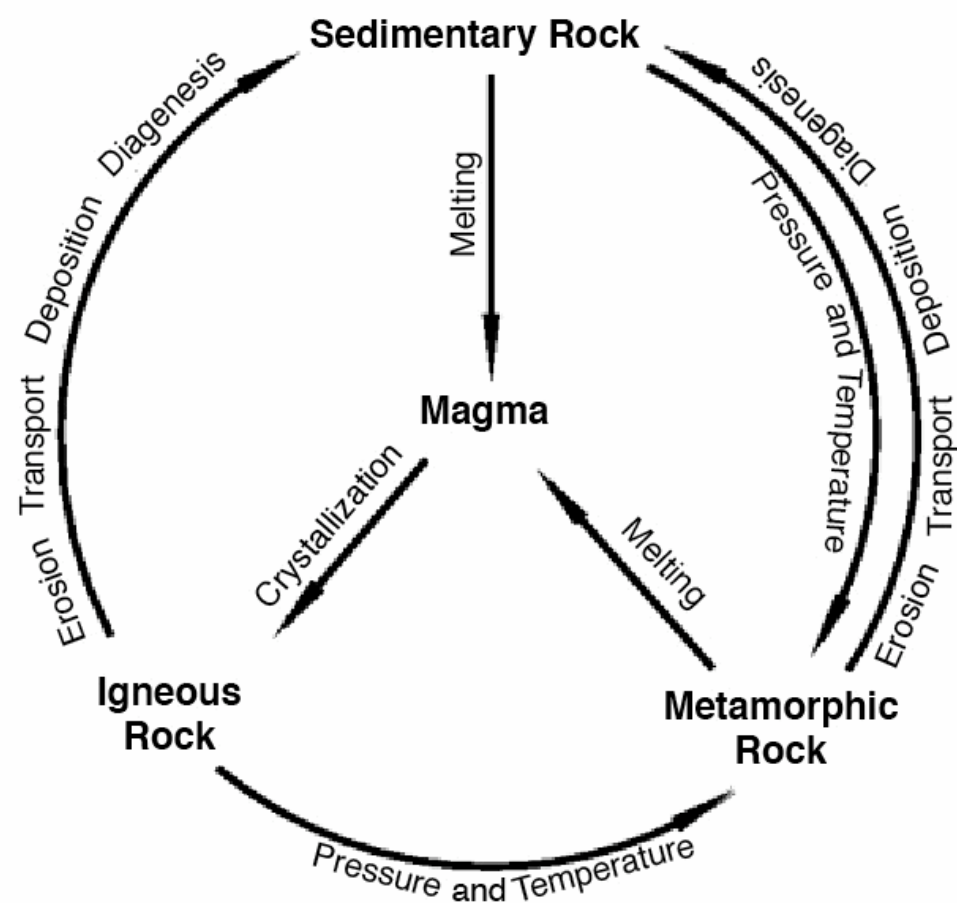




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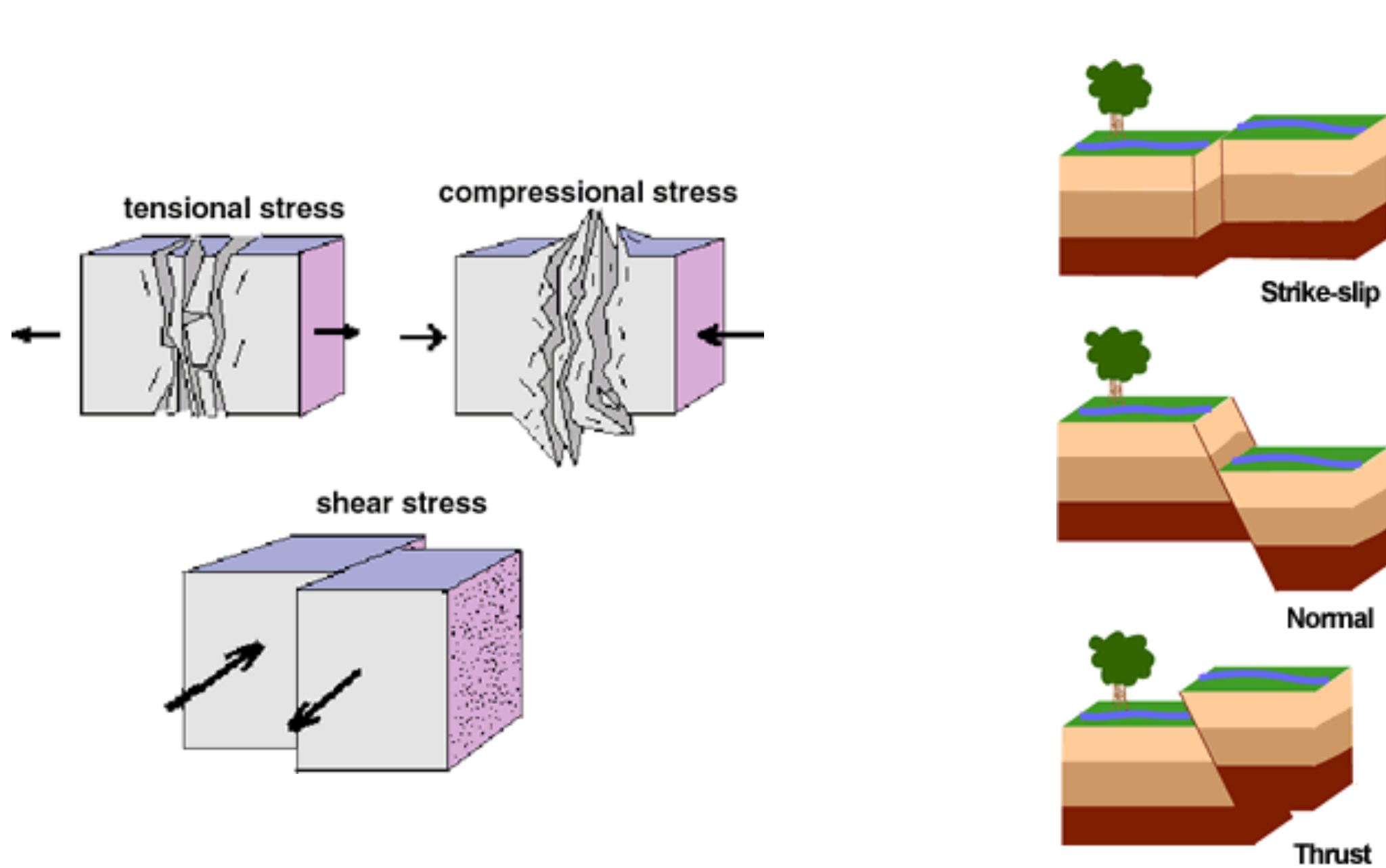


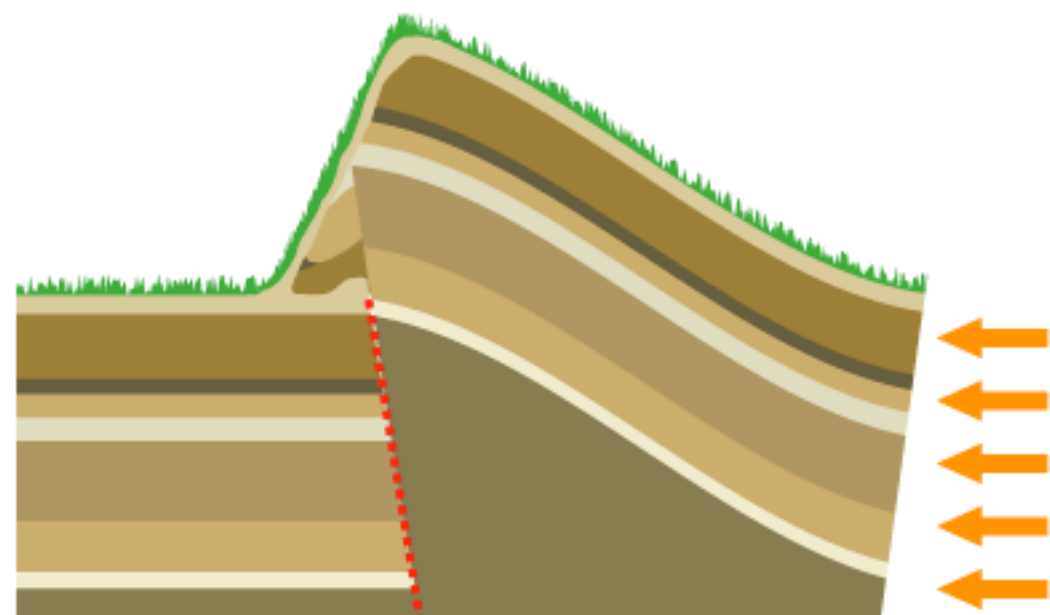
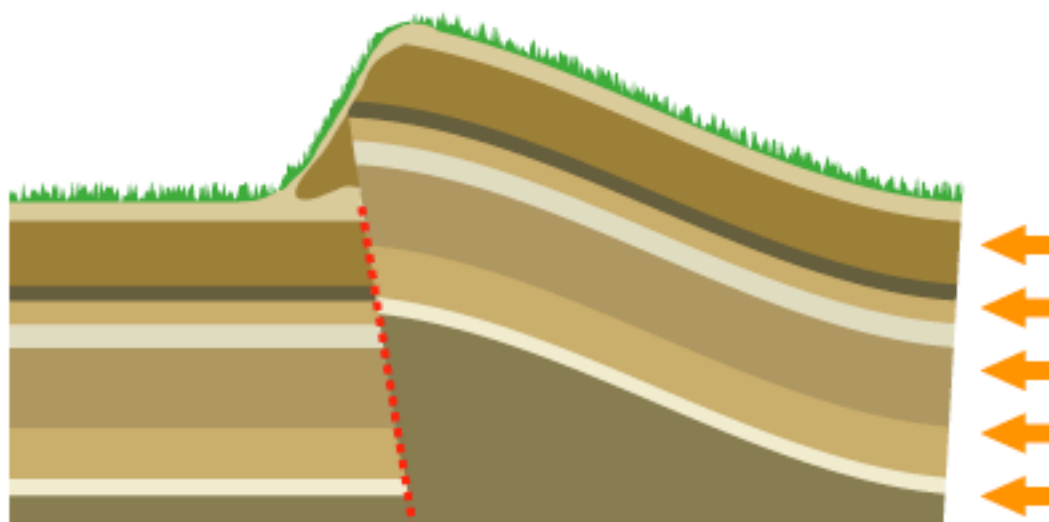
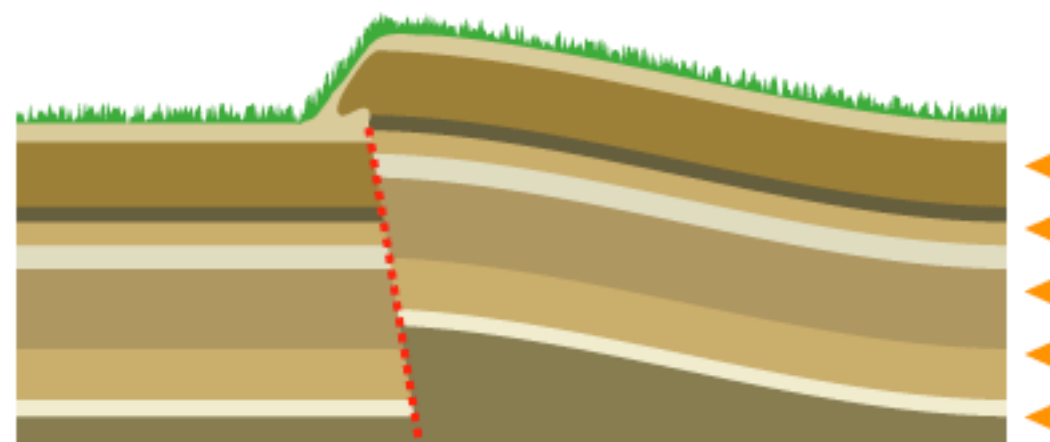
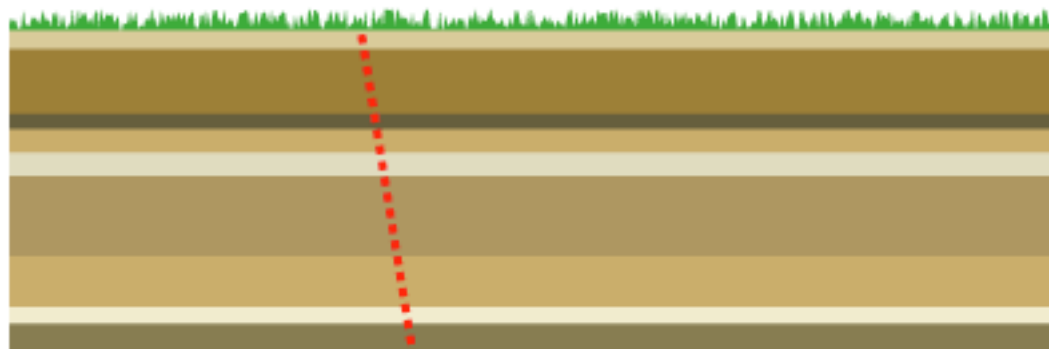
# Rock Cycle



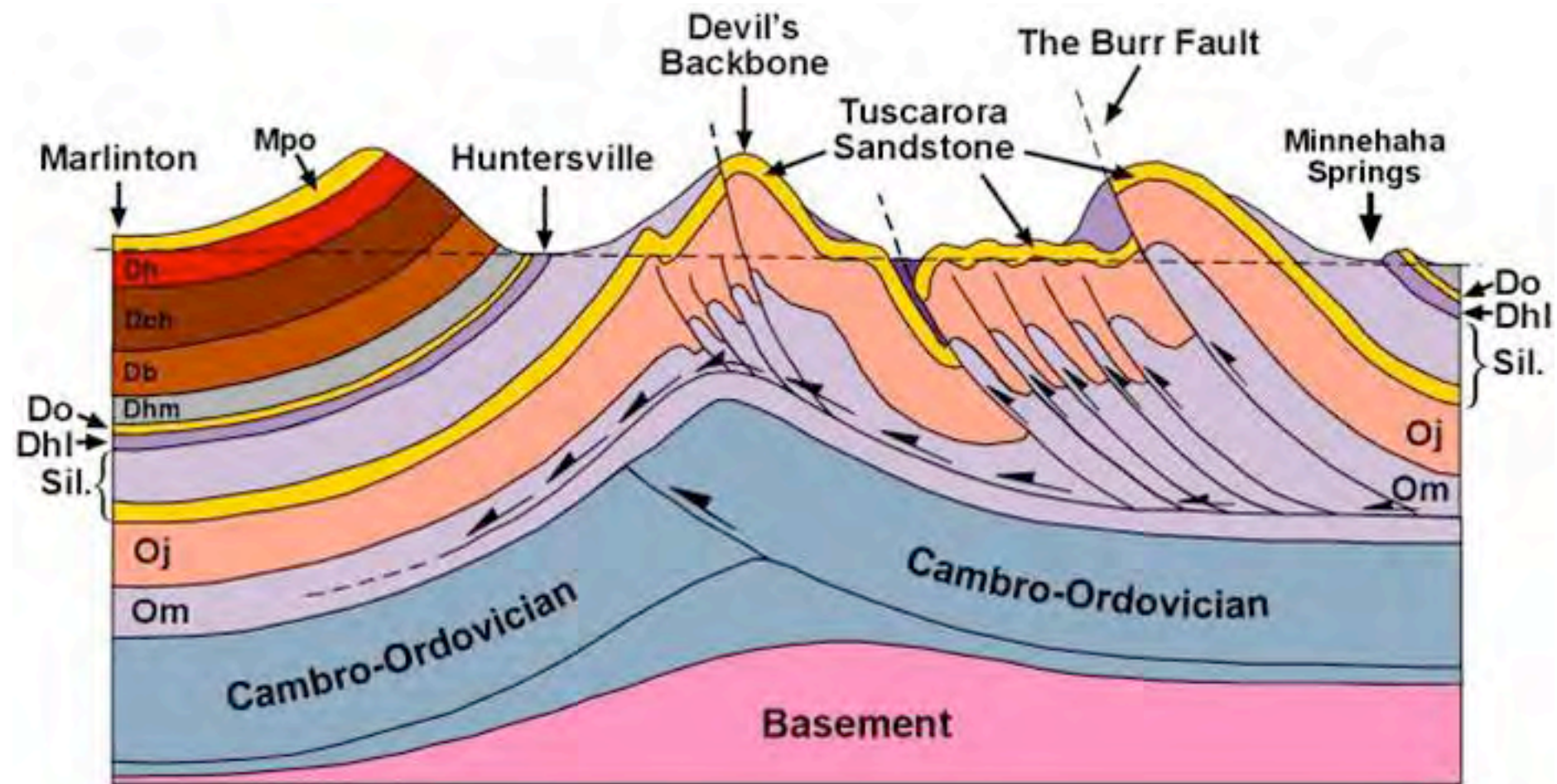


# Plate Movement









Browns Mountain Anticline



# Faults







Metamorphic

Sedimentary



# Addition affects

- Glacier
- Erosion/water
- Freeze/thaw cycles
- Weather - rain and wind



# Rock Spotting

- Pattern and texture of rocks
- Orientation of plates and faults
- Interface with landscape
- Range of color
- MR's - Planning Scenery, "Rocks Aren't Hard"

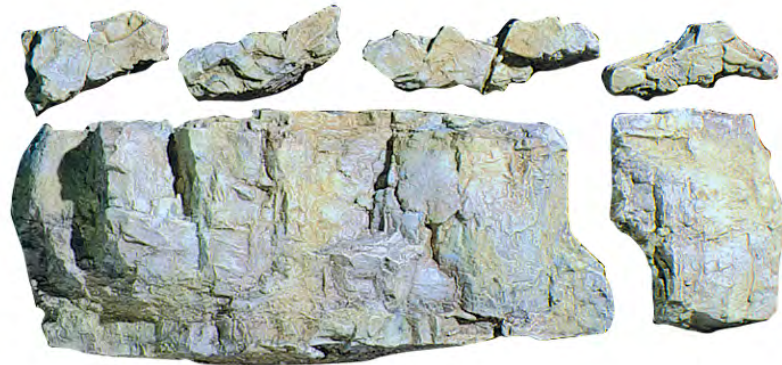


# Rock Molds

- Pre-made
- Making a mold



# Pre-made



Woodland Scenics



Bragdon Enterprises

# Making a Mold

- Latex Rubber
- Silicone Rubber
- Alginate
- Silicone Putty (Aluminite)



# Latex Rubber

- Inexpensive
- Labor intensive, several layers required
- Takes a long time
- requires a back mold
- Difficult to use in the field

# Silicone Rubber

- Moderately priced
- Heavier than latex, two layers
- May not require a back mold
- Long setting time
- Difficult to use in the field



# Alginate

- Moderately priced
- Very fast setting
- One use mold that dries out quickly
- Easy to use in the field

# Alginate





# Alginate



# Silicone Putty

- Expensive
- Very fast setting and curing
- Heavy, reusable mold
- No back mold
- Easy to use in the field



# Types of Plaster

- Gypsum Plaster
- Hydrocal
- Joint Compound, Patching Plaster (Spackel)

# Plaster

- Made from ground gypsum
- accepts stain extremely well
- semi-soft, easy to carve
- ★ Plaster of Paris, Casting Plaster
- Moulding, Pottery, Art, Dental Plaster may have lime or other additives. not recommended



# Hydrocal

- Mixture of gypsum and portland cement
- very hard, excellent detail
- may not take or alter color of stain

## ★ Lightweight Hydrocal

- Cast Stone, UltraCal, Dental not recommended

# Joint Compound

- Made of vinyl, acrylic, and ground limestone
- Does not hold detail
- Thick applications crack
- Alters color of stain
- Lightweight Spackle good foam filler



# Additional Information

- USG Casting plaster: [usgplaster.com](http://usgplaster.com)
- Lance Plaster, Chicago: [lancegypsum.com](http://lancegypsum.com)

# Mixing Plaster

- two parts water to three parts plaster
- add plaster to water, sift if possible
- let plaster absorb water - hydrate
- mix plaster - starts chemical reaction
  - increases hardness
  - decreases setting time



# Casting

- Provide stable base for mold
- Flex mold to release surface tension
- Pour plaster (hollow back if needed)
- Tap mold to release air bubbles
- Set anchors (if any)

# Setting Castings on the Layout

- Shaping castings
- Attaching the casting
- Substrates
- Composition Methods



# Shaping Castings

- Breaking the casting better than cutting
- Trim to fit
  - Place one casting over another
  - trace outline, cut or file to match
- Rub casting together to fit

# Attaching the Casting

- Dry Method
- Wet Method
- Adhesives



# Dry Method

- Let Casting dry completely
- Mix small amount of a stiff plaster
- Wet surface of casting and substrate
- Apply coat of plaster to each surface
- Press into place, let set 3 to 4 mins

# Wet Method

- Apply to substrate before casting dries
- Wet surface of substrate
- Wait for plaster casting to form a skin
- Set in place



# Adhesive

- Let casting dry completely
- Provide surface for adhesive to cling to
  - Paint back with a plaster primer/sealer
  - use casting with anchors
- Apply foamboard adhesive
- Set in place and weight till adhesive dries

# Substrate

- Hardshell plaster
- Carved Foam
- Ensure substrate will support castings



# Hardshell Plaster

- Random, free form contour
- Simple to adhere casting
- Difficult to compose castings

# Foam Substrate

- Contours are cut and shaped
- Castings require prep to adhere
- Complex compositions can be easy to support

# Composition & Technique

- Direct Applied
- Scattered
- Staggered
- Face to Face
- Building Blocks



- Several casting from the same mold can be used in a scene
- break casting into pieces and rearrange
- change the orientation

# Direct Applied

- Adhere to hardshell with plaster
- Casting edges concealed with foliage
- Follows contour of substrate





# Orientation





# Edge Treatment





# Scattered

- castings don't have to form a cliff or block
- Integrate with terrain
- Provide space between casting
- Maintain horizontal line
- Typical in west, central states, and east







Dramatic effect with a variety of textures



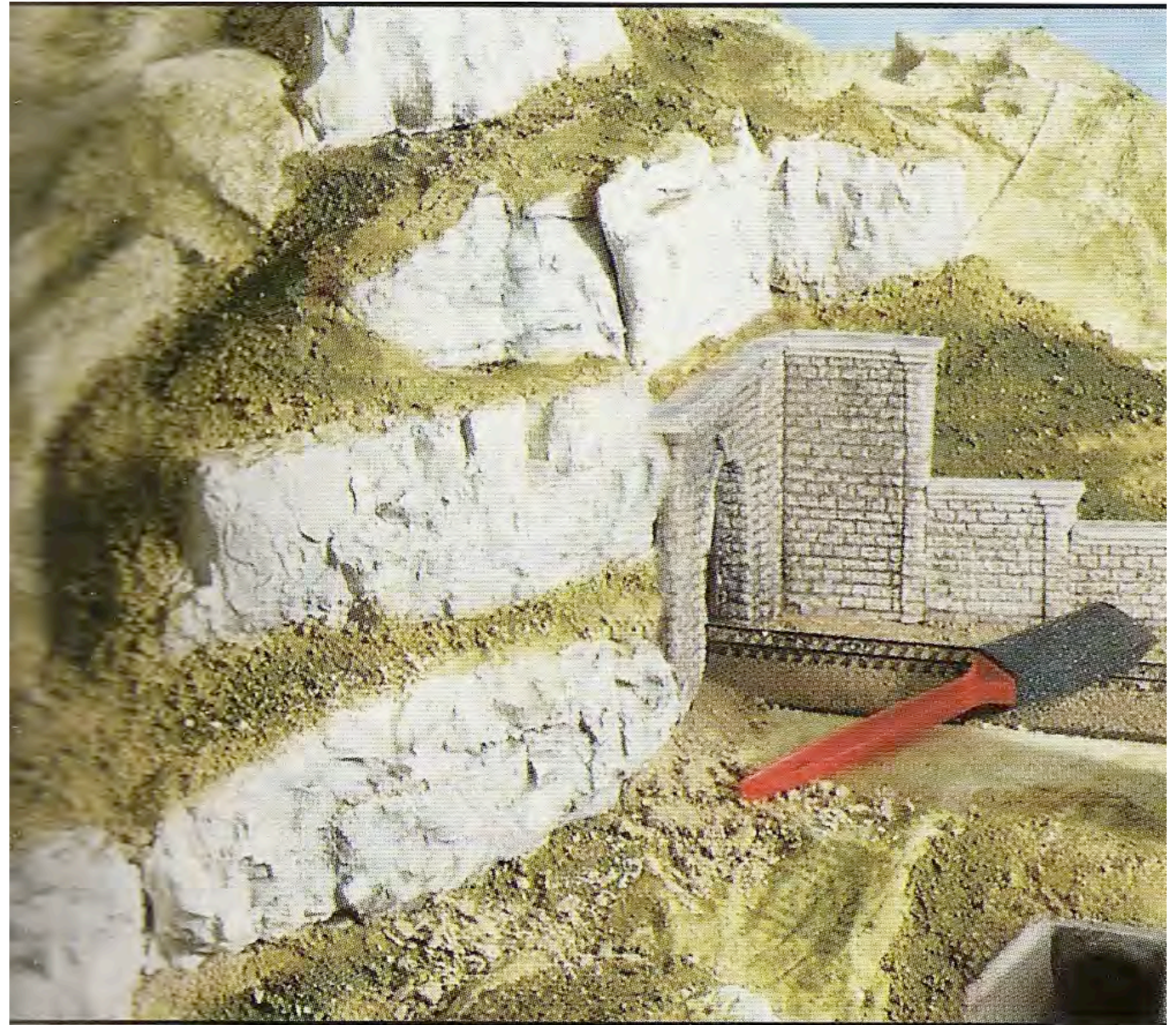


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# Staggered

- Very adaptable to layouts
- Adds illusion of depth in narrow space
- Gentle slope terraces between castings provides space for landscape materials
- Wrap sloped terrain around ends of casting with moulding plaster or lightweight spackle









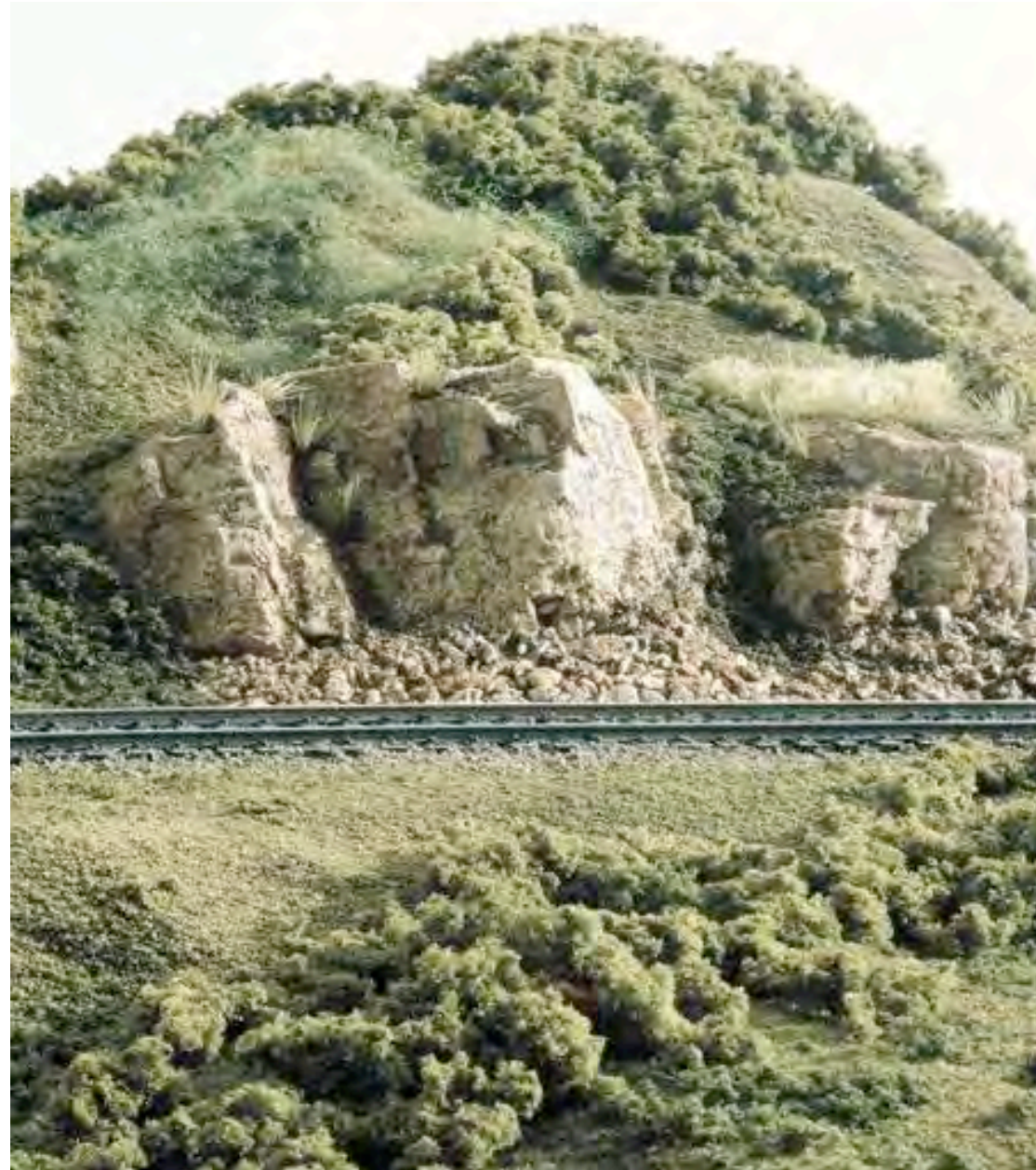


- East and Central more rounded and covered with trees, 100's of millions years old
- West severed forms and dry, 10's of millions years old
- Many rock formations adjacent to rivers



# Stacking

- Create depth by stacking several casting over each other
- Carve back edge to match face of bottom casting







Common formation for Metamorphic rock

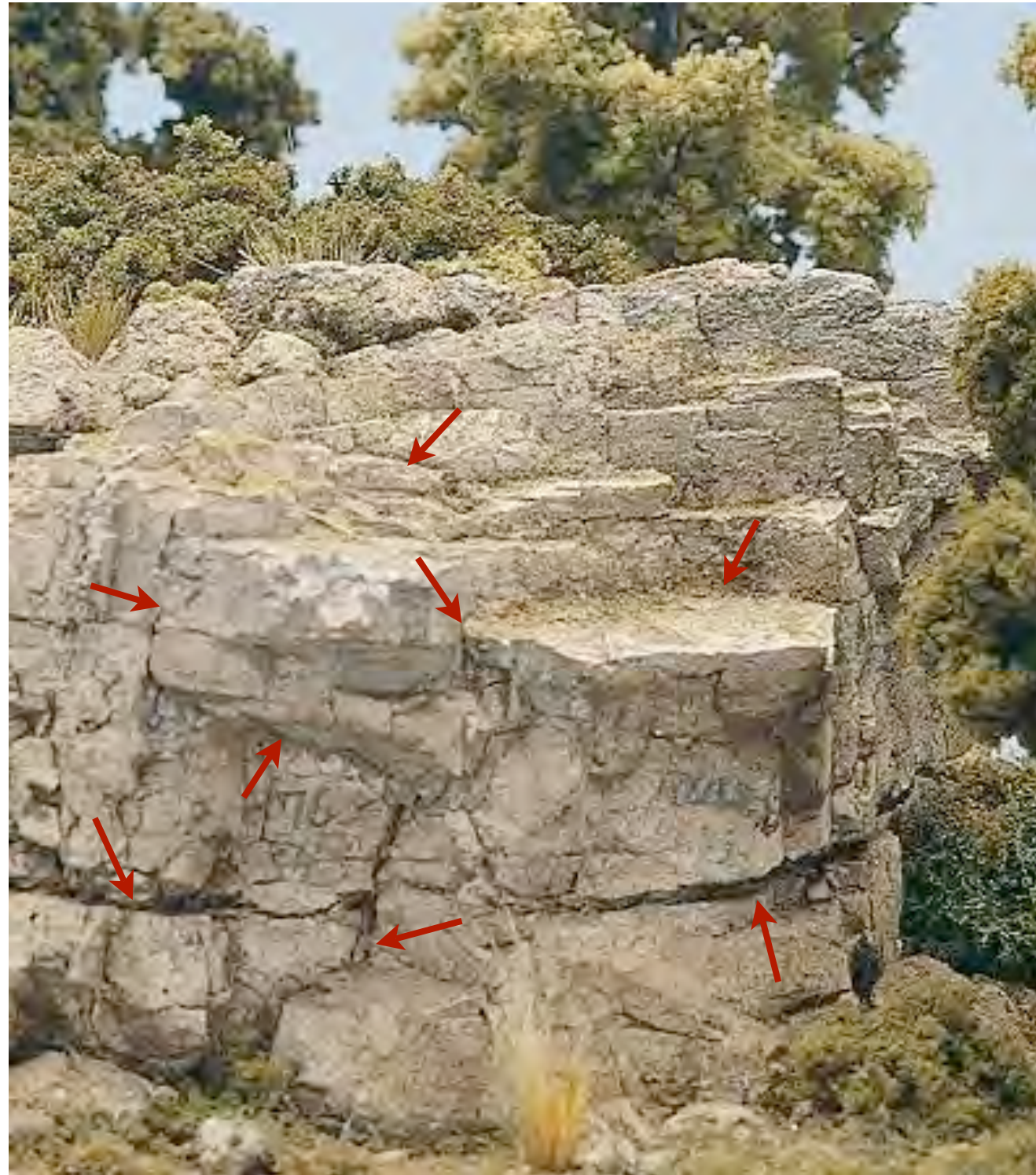


# Building Blocks

- Build complex 3 dimensional shapes and outcroppings from flat castings
- Shade and shadow create most dramatic effect, create gaps and fissures instead of butting castings
- Broken edges will take stain differently then cast face













# Composition Tips

- Rocks don't "have" to be the focal point.
- Use rocks to form the foundation of a scene, the terrain should appear to be supported by the rocks.
- Integrate rocks with terrain. Don't hang the rock casting from the substrate.
- Include fissures, texture and shadow adds more dramatic effect than form or color.

# Staining and Weathering

- Colors
- Mixing and apply stains
- Weathering



# Colors



raw umber



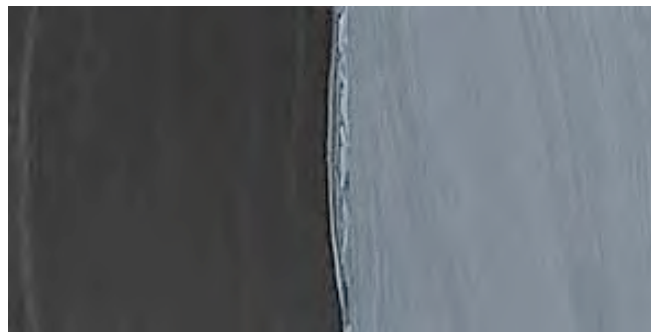
yellow ochre



paynes grey



burnt umber



ivory Black



warm grey

# Woodland Scenics



yellow ochre



raw umber



slate grey



burnt umber



black



stone grey



# Color Mix

- Mix colors for light stains
  - 1:20 for light colors
  - 1:40 dark colors
- Use at least three colors
- Refer to rock samples for color selection
- Refer to formation photos for color pattern

# Apply Stain

- Apply stain in spots
  - Pad for even tone
  - Brush for streaks
  - Sponge for speckled
- Several light layers better than single layer
- Highlight with pastel powder
- Apply final coat wash, seal



# Problem Spots

- Some unevenness expected for plaster
- Paint with a regular strength white acrylic
  - Areas that absorb all stain
  - Plasters that don't absorb stain.



# Weathering



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# Weathering

- Seal castings
- White and black washes, apply water with eye dropper for streaks
- Raw Umber for tannin stains from trees