Lecture 3
Cartography II- Geo 154

FT Okyere

Assignment progress?

- Get the data
- Get to work

Last week- Copy section services

- Scribing detail by laying translucent scribe-coat
- Disadvantages:
  - One man at a time- SLOW
  - Accuracy due to parallax (thickness of scribe coat)
- Alternatively
  - Produce images onto four pieces of scribe coat
  - Use Scribe coat

Ferro-prussiate blue or blue key guides

- Wiped onto paper or plastic.
- When exposed by U.V light the exposed areas turn light blue
- Unexposed areas are washed off
- Reapply a special developer if a deeper blue is needed
- FPB is +ve working

Proofing

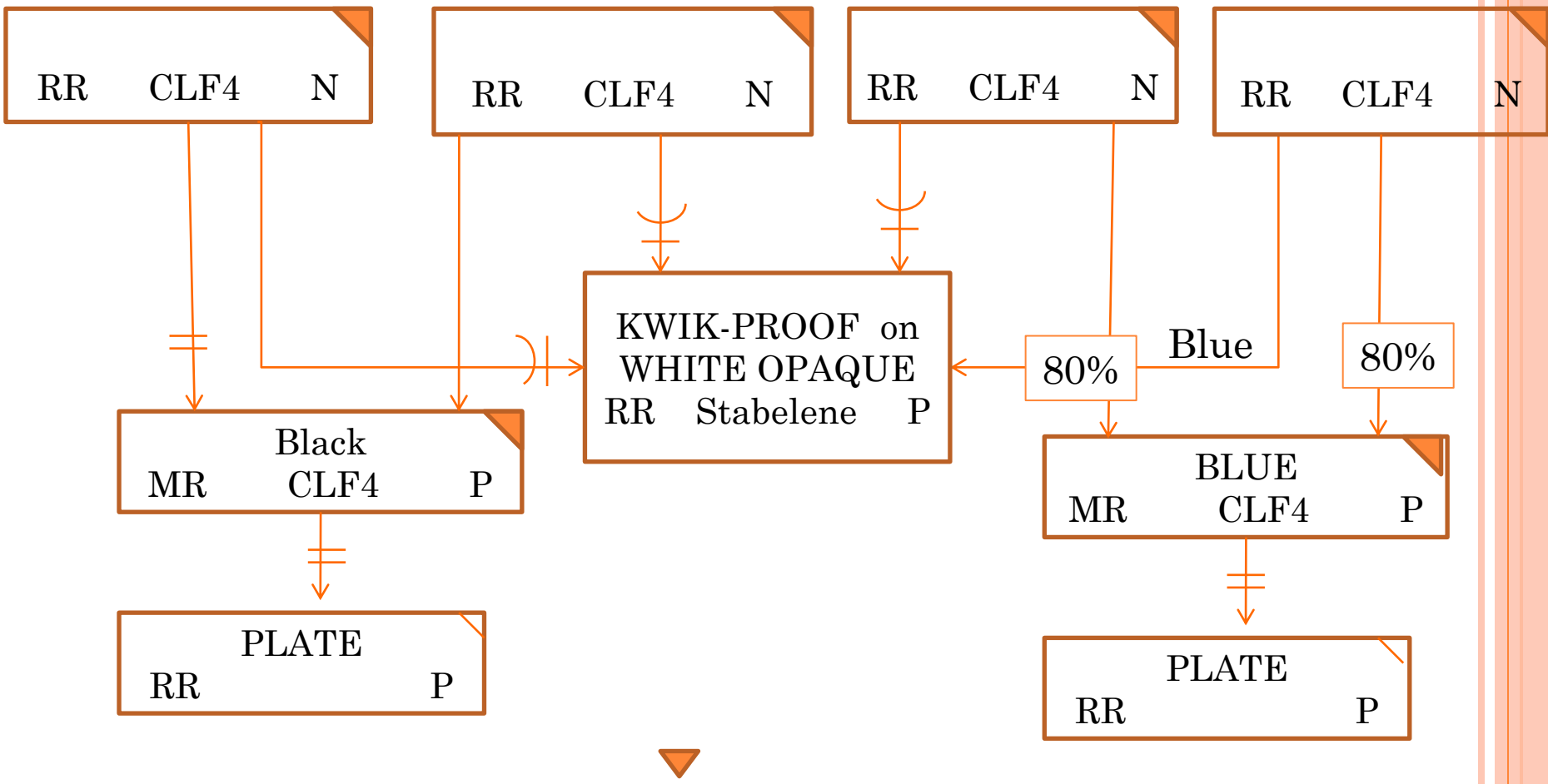
- Before a map is finally printed and published consider the ff factors
  - Accuracy
  - Completeness
  - Design
  - Legibility of the map-
    - Names on one colour seperation not to obscure important detail from another

Proofing

- Because of the above reasons
- Make a colour proof before printing
- Do this to avoid repeat corrections- time wasting
- Complex maps require proofing stages
  - Paper proofs- printing plates
  - Plastic proofs- opaque or transparent plastic
- Choice of paper or plastic proof
  - Paper takes less time compared to time taken to make the plate
  - Plastic proof requires the full process

Proofing- Negative proofing

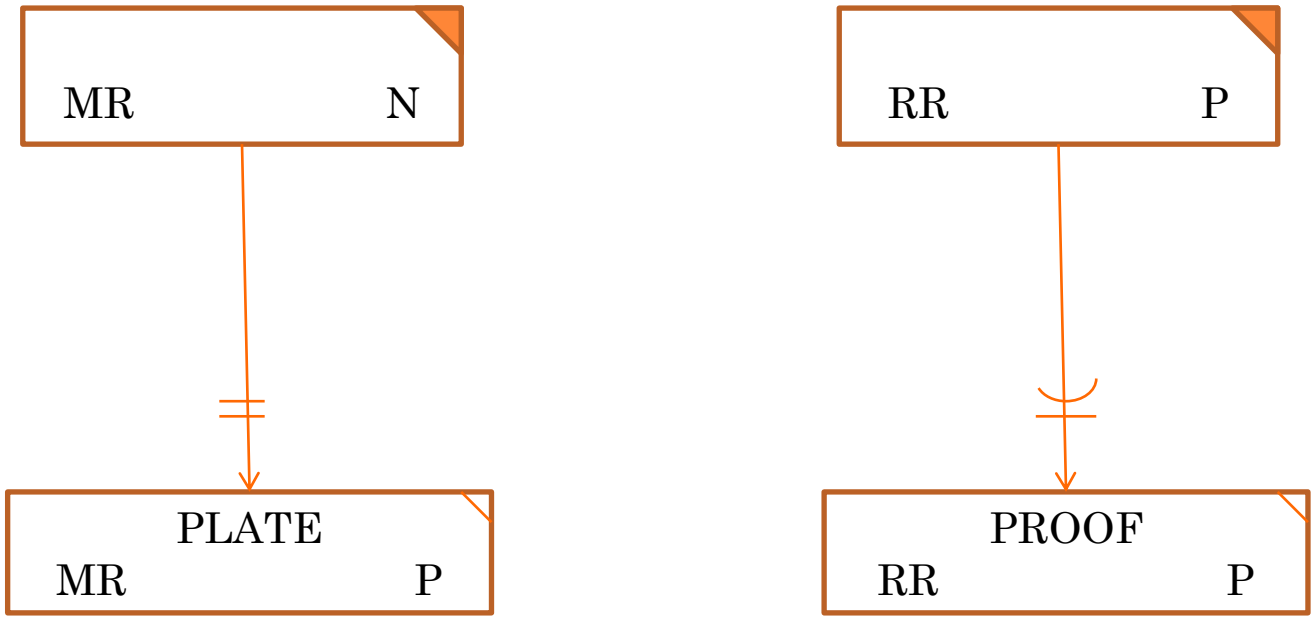
- Negative proofing
- Or Kwik proof
- Or Kimoto Magic Coat
- Made on plastic material (plastic proof)- PVC or Polyester
  - Wipe-on the liquid(quicker)
  - Or Use a whirler for a thicker, stronger
- Exposure is to a negative film
- After removal of the unexposed unhardened coating by washing the result is positive
- For each colour the base needs to be recoated and exposure made of the appropriate negatives


RR CLF4 N
RR CLF4 N
RR CLF4 N
RR CLF4 N
KWIK-PROOF on
WHITE OPAQUE
RR Stabelene P
80%
Blue
80%
Black
MR CLF4 P
BLUE
MR CLF4 P
PLATE
RR P
PLATE
RR P

Positive proofing-e.g. hausleiter

- This system uses standard positive working (result +ve) dichromated colloid emulsion
- Wash off hardened emulsion
- White opaque plastic (Preferrably PVC)
- When PVC is used etching inks can be used to give a permanent image.

Positive proofing-e.g. hausleiter



Comparison of positive proofing and other systems

- Advantages
  - Bright dense colours
  - Good if originals are positive
  - Ink used not light sensitive
- Disadvantages
  - Recoating of base material for every original- takes time compared with –ve proofing
  - Correction require repeating reproduction steps if several positives are combined.

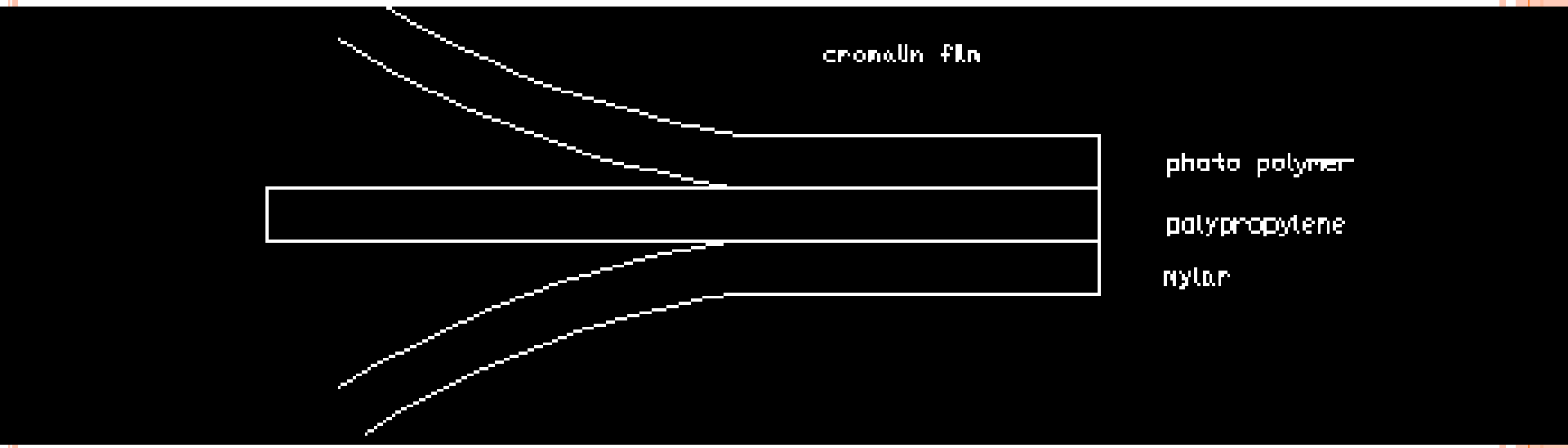
Comparison of negative proofing and other systems

- Advantages
  - Quick- esp wipe-on coatings
  - Combined Image can be made with Multiple exposure
  - Good if originals are negative
- Disadvantages
  - Limited range of available colours
  - Appearance of proof is paler
  - Proof is therefore not suitable for checking colour balance
  - Constant supply of liquid colours

The cromalin system

- Made of Cromalin Film
- Toners
- Laminating and
- Toning equipment- (Not a photocopier)
- **(Toner** is a powder used in laser printers and photocopiers too)
- The powder sticks to a photo polymer
- Toners are dry colourants- 13 process colour toners are available

The cromalin system



THE CROMALIN SYSTEM

- Cromalin film consist of
- a tacky (Slightly adhesive or gummy to the touch) photo polymer layer between
- The specific polymer used varies by manufacturer but can be a styrene acrylate copolymer, a polyester resin, a styrene butadiene copolymer, or a few other special polymer.
- a protective poly-propylene film and
- Mylar polyester film base.
- A toning console (a desklike structure)- installed to facilitate
  - Fast
  - Clean toner application

The cromalin system

- The cromalin laminater laminates cromalin film to a proofing stock.
- Film unwinds from feed roll. The poly propylene film is stripped from the cromalin film and winds on to a take up roll.
- The remainder of the cromalin film travels through two rolls and with heat is laminated onto a proofing stock.
- PVC ruled out?

The cromalin system

- When the photo polymer is exposed through a film positive
- Exposed areas are the non-image areas
- These areas harden and do not receive toner

The cromalin system

- After exposure the top protective mylar film is peeled off
- Toner is applied with an acryl applicator
  - Should have excess toner on it
  - Move applicator lightly and quickly back and forth and sideways without pressure
  - As a fine powder, toner can remain suspended in the air for some period, and is considered to have health effects.
- Excess toner pushed into a vacuum slot.
- Clean the proof (photo polymer?)
- Repeat the process and give a longer exposure for the last colour (5x)

Preparation of printing plate

- **Types of Printing plate**
  - Zinc
  - Aluminium(mostly made of aluminum)
  - Multi-metal

PRINTING PLATES- ZINC PLATE

- Zinc is darker
- 2.5 times heavier
- Pliable(adjusting readily to change; adaptable)
- Dissolves readily in
  - HNO3
  - H2SO4
  - HCL
- Does not oxidise easily compared to aluminium
- Not affected by cold solutions of NaOH(caustic soda) and KOH (caustic Potash)
- Good grease but poor water reception
  - Tendency for image to scum(extraneous matter) if care is not taken

PRINTING PLATE- ALUMINIUM PLATES

- Aluminium is lighter in colour
- Work is more legible than zinc
- Gives a finer deeper grain than zinc- clean and sharp image
- Image does not hold as zinc
- Not affected by nitric acid but rigorously by HCL and dil H2SO4 not conc. H2SO4.
- Not affected by NaOH and KOH
- Poor grease receptive qualities but good water receptive qualities

Preparation of printing plate- anodized Aluminium plate

- Subjected to electrolytic process in a chemical bath
  - Hard and finely grained surface- no graining
  - Good water and grease reception and
  - Protection from oxidisation(rusting)

Multi- metal plates

- Bi-metal (two metals)
  - 1st metal- Non-image areas water receptive(no ink will be applied). Al and Cr.
  - 2nd metal- Image areas- grease receptive. Copper and brass(B**rass** is an alloy of copper and zinc).
  - Maximum life of image and non-image areas
- Tri- metal- plate
  - Aluminium steel or zinc coated with
  - Copper and copper in turn coated with
  - Chromium

Multi- metal plates- tri-metal plate

- Tri- metal- plate advantages
  - No graining. Fine line and half tone work.
  - Less water- so less emulsification of ink
  - Image area more permanent- Longer runs
- Disadvantages
  - Expensive to buy and prepare
  - Alterations on plate are difficult

Preparation of printing plates

- Graining
  1. Matt surface
  2. Increases area for chemical actions
  3. Better driving contact for ink and dampening rollers
- Counter Etches
  - Solutions used in first stage of preparing a plate.
  - Clean plate of dirt and oxides- but not damage to grain
    - Use weak acid then
    - HCL(37-38%)
    - Use1:160 parts of water for zinc and deep etch plates and stainless steel plates
    - Acetic Acid($HC_2H_3O_2$) 99%. 6:160 parts of water for counter etching aluminium (in Albumen and Casein surface plate coatings)

Preparation of printing plates

- Albumen and Casein Surface plate coatings(or Casein Coatings)
  - Albumen- from egg white
  - Casein- derived from modified milk
  - These are light sensitive surface plate coatings and combine with ammonium dichromate(NH4)2Cr2O7 and ammonia(NH3).

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- Questions