

BLACK & WHITE

Photography — Pre-digital

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Topics to be covered

When was pre-digital

Cameras and film

Determining the Exposure required

Developing the film

Printing

Considerations

When was pre-digital

Pre-Digital was before 1990, when digital cameras started to become available

Up to 1990 the B/W cameras in use were

- Plate cameras – Used in studios
- Roll film cameras – 6 x 6 cm , 6 x 9
- 35 mm – News, reportage

Cameras that used film on spools



Folding



Plastic



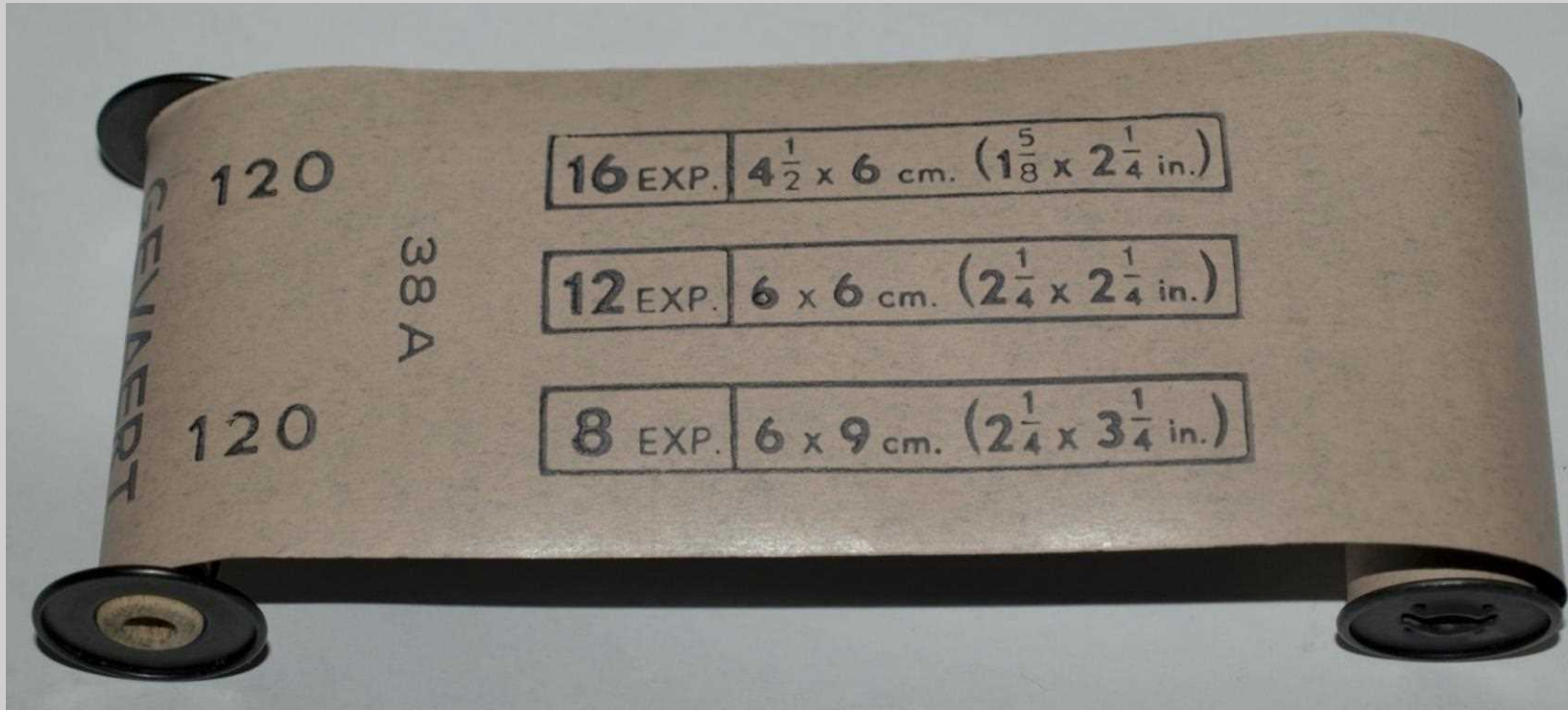
Twin-Lens Reflex



Roll Film Spool – Common types 127 – 120

Length of film on backing paper wound on a spool

- Backing paper – was light-proof paper
- On the outer side was film details and frame numbers



Loading roll film

1. Open camera back
2. Insert Spool
3. Attach paper leader to 'take-up spool'
4. Close camera back

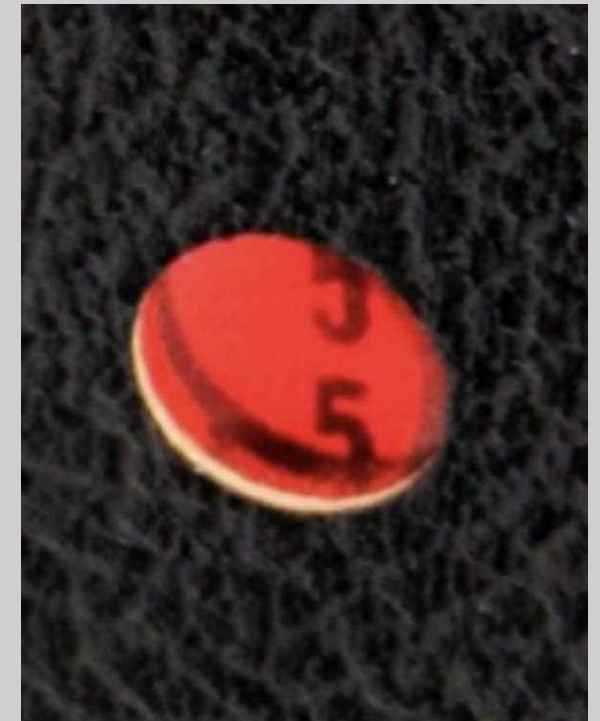
Advancing roll film

Advancing roll film to

Small red window on back of camera

- Advanced until the number "1" appears
- Film is in position for the first photo to be taken
- Advance the film until number '2' appears

The Rolleiflex had a crank to advance the film.



Cameras and 35 mm film



35 mm film – 'leader' attached to 'take-up spool'



Film - Estimating the exposure time

B/W Film has ISO of 100 – 200 – 300

Standard exposure time would be

- On a bright sunny day – 1/100 sec at f-16 on ISO 100

By using a factor of 2, one could then estimate required exposure

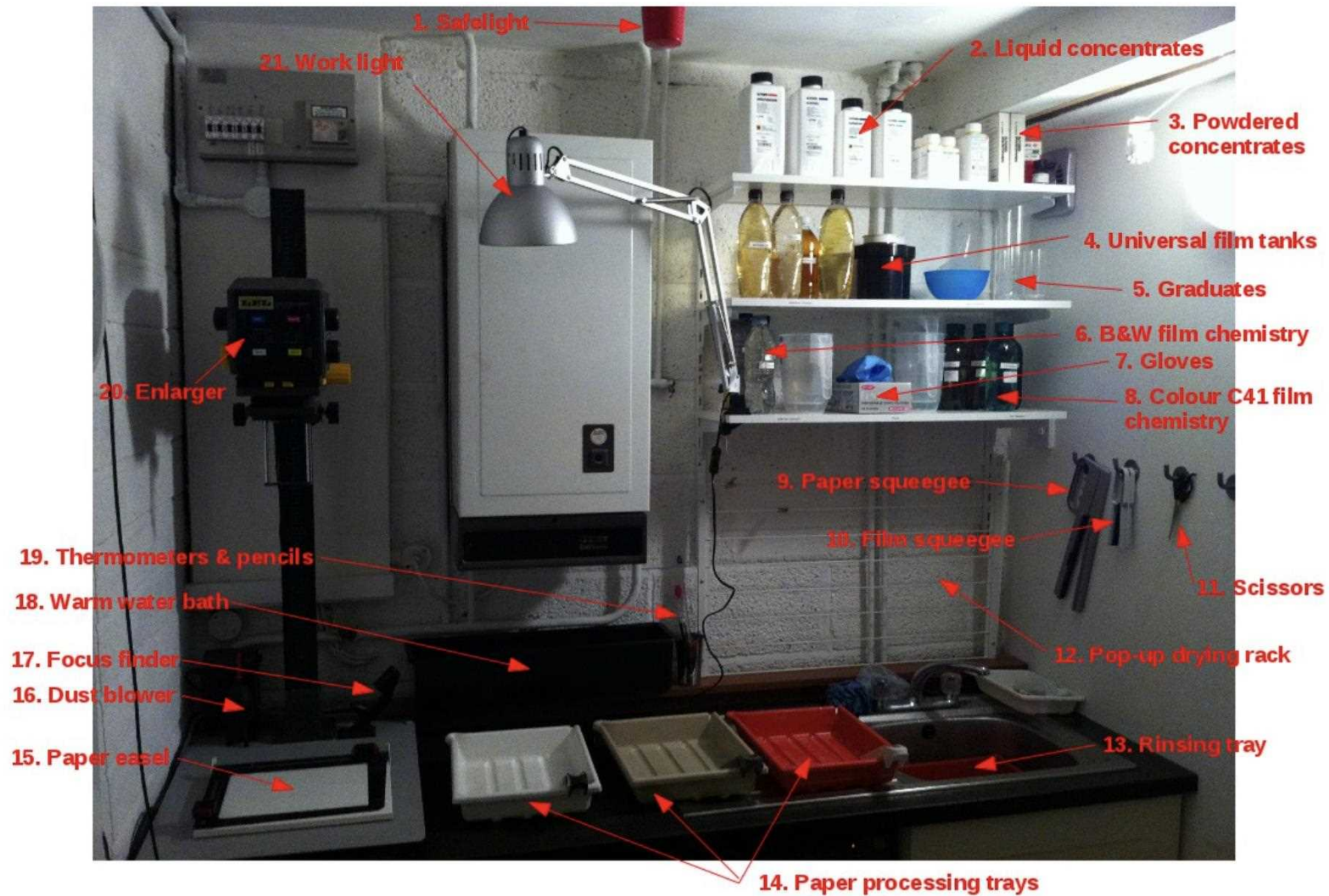
- Film speed 100 – 200 – 400
- Aperture f16 – f11 – f8 – f5.6
- Shutter speed 1/100 – 1/250 – 1/500 – 1/1000
- Also, daylight condition – Cloud – thin, thick – time of day

Developing the Film

One has a choice

1. Take film to chemist for developing and printing
2. Do-it-your self
 - requires a darkroom with chemicals and equipment

Dark room and its contents



Develop film in total darkness – using a tank

A reel with adjustable spiral grooves would hold:

- 35 mm or 6 cm width

Film was slid into the spiral grooves

Developing tank closed for processing.



Solutions are poured in and out – with light ON

1. Developer
2. Stop Bath
3. Rinse
4. Fixer
5. Final Wash
6. Film is dried and is then called the negative



Developing film also requires

Thermometer

- Temperature must be correct – usually about 20°C.
- A 'warming plate' may be required to keep solutions warm

Clock / Timer

- Capable of displaying minutes, seconds
- Early timers were clockwork
- Film typically takes 5 - 10 mins to develop
- Print typically takes 30 – 90 secs



Electronic Photography Timers

An Electronic timer was very accurate

Preset the number of minutes
and seconds

Timer could switch Light ON/OFF
for the required time
and could also bleep



Film negative is now ready to produce prints

There are two kinds of prints:

Contact prints

Print will be the same size as negative

Enlargements

Negative image is projected to a larger size

Also the image can be cropped

Contact prints

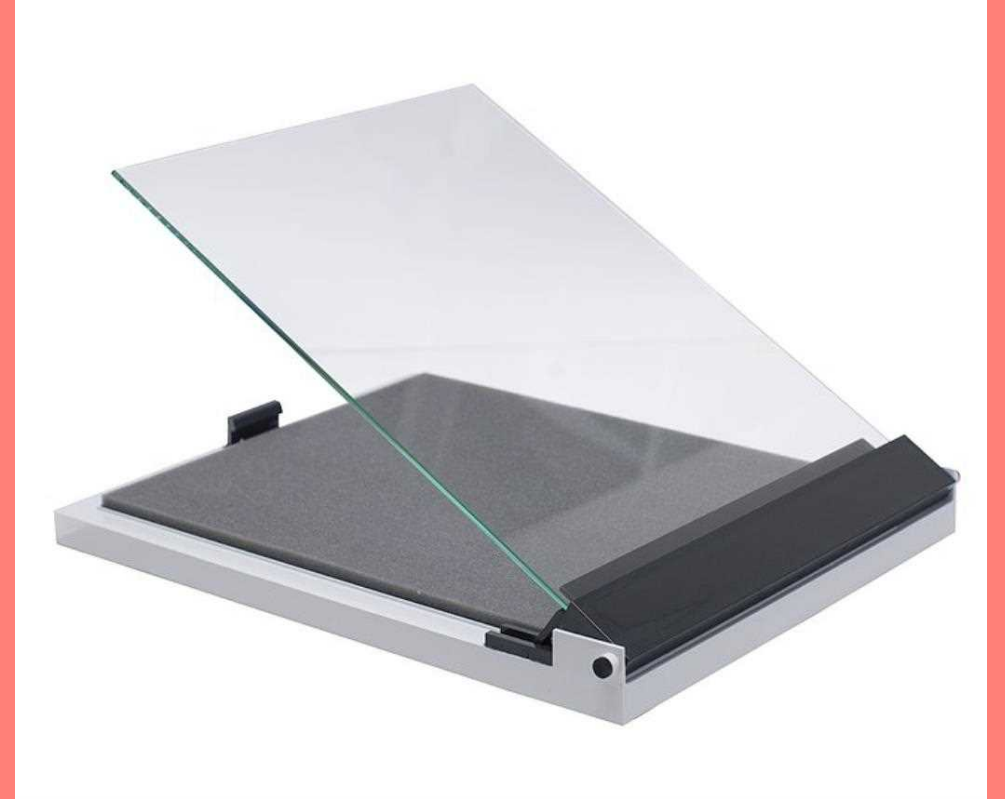
Can be made in faint red light

Contact printing frame has:

- Glass sheet
- Negative
- Photo Paper
- Base

White light then switched on/off

- Varies 5 - 60 seconds



Developing exposed paper print

Photo paper is processed in dishes containing

Developer



Stop Bath



Fixer



Sometimes one would develop a batch of prints, by shuffling them

Prints might be rinsed with water between trays

Finally, prints must be washed thoroughly, perhaps 10-20 mins

Contact prints of film for reference & selection

120 Roll film – 12 exposures



35 mm – 36 exposures



Enlargement

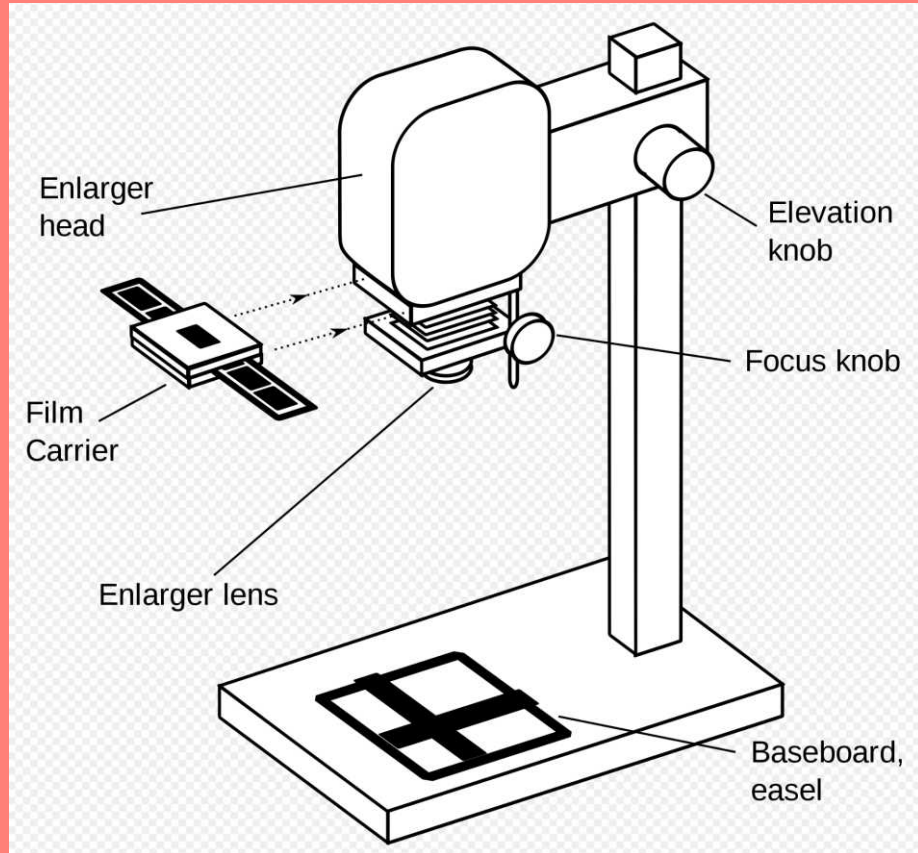
(Can be made in faint red light)

- Negative held flat in the enlarger head
- Image projected onto photo paper
- Photo paper on base is held in position by hinged
- Enlarger head moved up/down to get required print

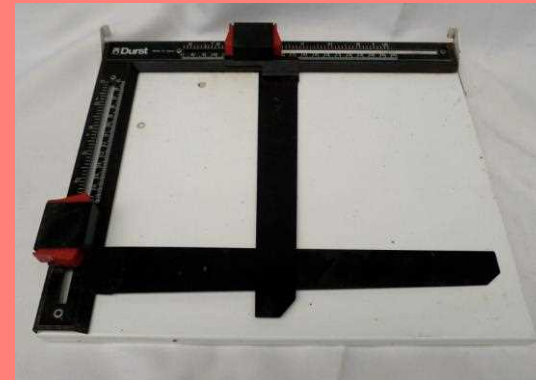
Then photo paper processed – Dev-Stop-Rinse-Fix-W



The Enlarger



The image is manually focused onto the paper – lens f4.5
White light then switched on/off – varies 5 to 60 seconds



Baseboard easel

Creating Enlargements

Select the correct exposure time using '*Test Strips*'

Steps

- Sheet of cardboard covers the whole surface of photo paper
- Hold for 5 seconds exposure
- Moved cardboard 3 cm to the right

Result

- Positive images shown in a series of vertical strips
- Exposure time of each strip is known
- Select best strip and identify exposure time required
- Create the enlargement from the chosen negative with the required exposure time

Negative identification

During manufacture just the edges of the film are exposed to show frame numbers and type of film.

When the film was developed, these exposed frame numbers would also be developed.

On Roll and 35 mm film the numbers might be

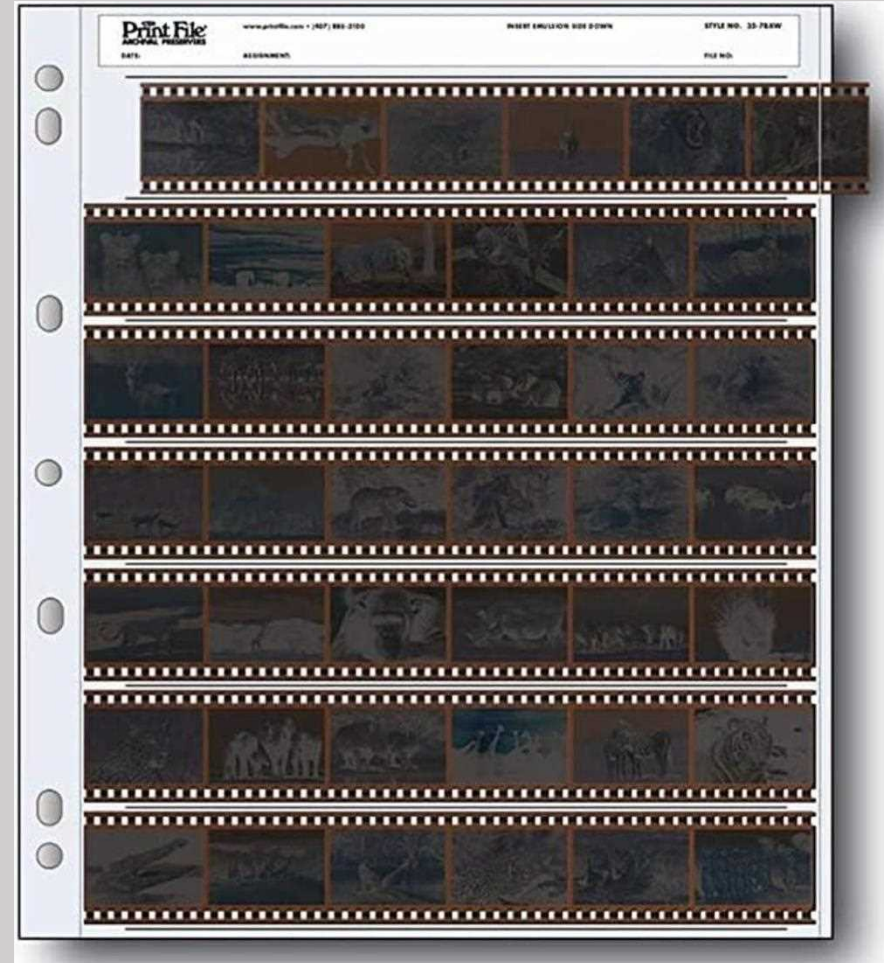
- 1, 2, 3, 4, 5, etc up to 8, 12, 36, 38

Negative - Storage

120 Roll film – 12 exposures



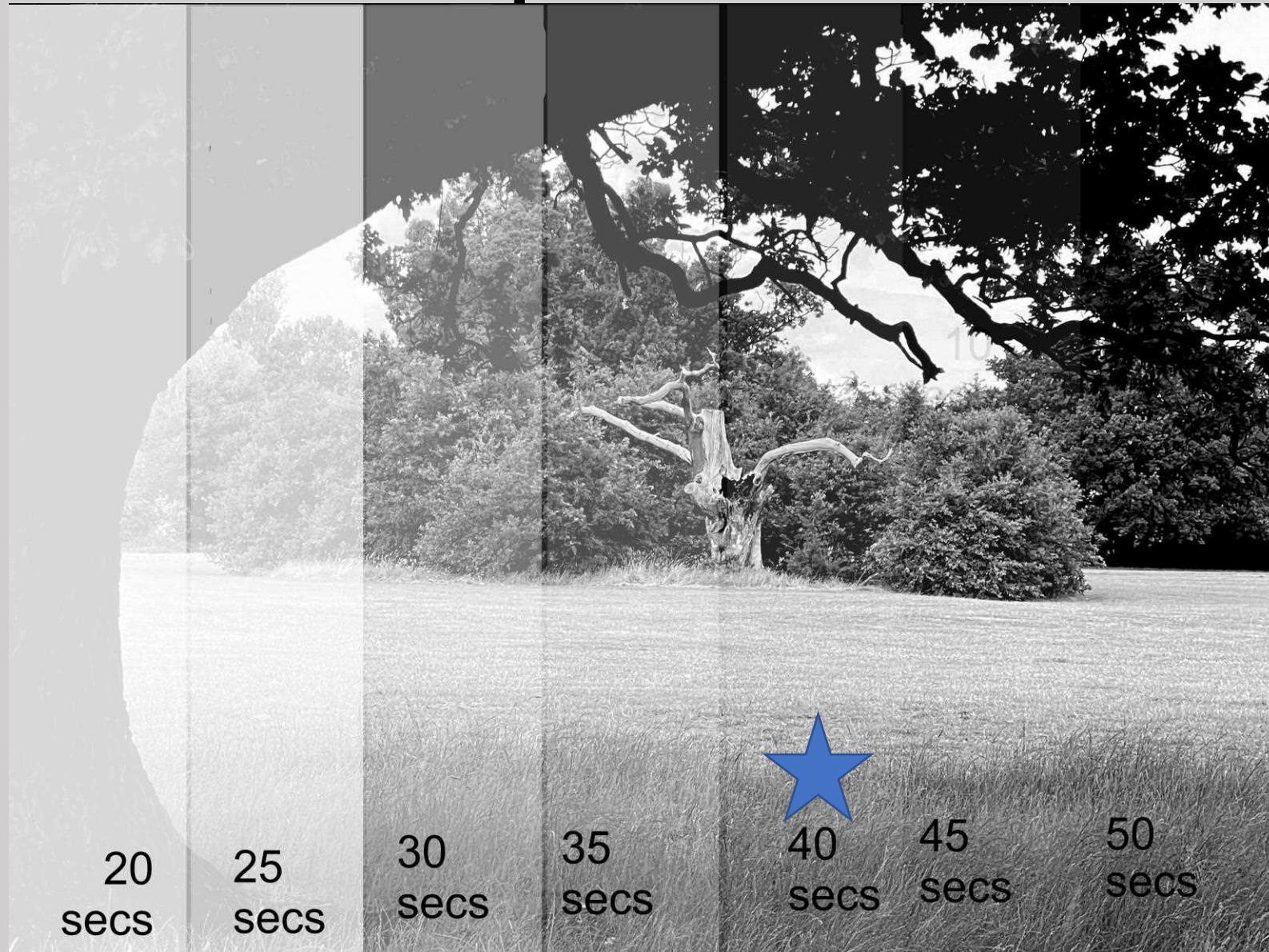
35 mm – 36 exposures



Example 1 - Negative



Example 1 - Test strips



Example 1 - Final Print



40 second exposure

Example 2 - Negative



Example 2 - Test strips



Best

Example 2 - Final Print



Considerations - Photo paper

Photo paper is graded Soft, Normal, Hard – now 1,2,3,4,5
There is a range of tones that each grade can reproduce

As negative contrast could be soft, normal or hard

- Soft Photo paper grade – Hard - capable of 5 tones
- Normal Photo paper grade – Normal - capable of 10 tones
- Hard Photo paper grade – Soft - capable of 30 tones

It looks easy, what can possibly go wrong? – 1

Under exposed



Under developed



Over exposed



Over developed



It looks easy, what can possibly go wrong? - 2

- **Temperature** - of Developing solution was critical
 - Not all properties had central heating
 - Warming hot plates were used to maintain temp at 20 C (78F)
- **Too hot** – emulsion melted
- **Scratches on film** – during drying
- **Dust** - in camera, on negative or on paper during printing
- **Dodging** - used to lighten areas of or the print
- **Burning** - used to increase the darkness of the images
- **Retouching** – pencil or black ink thinned to required shade of grey

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Pre-Digital B/W photography – Considerations

- Had to process an entire film
- 2 hours to process a film through to a negative
- 2 hours to create prints
- It was a technical challenge
- Tended to focus on sharpness
- Telephoto lenses tended to be less sharp than prime
- It was magical to see print appear during development

Black and White Photographs vs Colour Photographs

One very important difference between colour and monochromatic photography is this:

***"In black and white you suggest,
in colour you state"***

Paul Outerbridge

I HOPE YOU ENJOYED

THE PRESENTATION

AND

THANK YOU FOR WATCHING