CAPTURING MOVEMENT

USING FLASH

Tony Stringer – 10 September 2024

CAPTURING MOVEMENT USING FLASH

- Movement in still photography
- How the camera shutter works
- How flash works
- Different flash modes
- Coffee/tea break
- Equipment, set up and practical demonstration
- Discussion

MOVEMENT IN STILL PHOTOGRAPHY

A photograph catches a moment in time, it freezes action, but action can still be implied:

- Positioning a subject in the image in a way that implies a path of travel
- Freezing a moving object at its zenith
- Allowing a moving subject to blur by careful choice of shutter speed
- Long Exposure
- Panning – following a moving subject with the camera to blur the background
- Multiple exposure
- ICM (Intentional Camera Movement)
- Zoom Burst
- Lens Blur
- Creative use of flash

HOW THE CAMERA SHUTTER WORKS

The mechanical or “focal plane” camera shutter has two key components:

- A first or front curtain, and
- A second or rear curtain
- The curtains are used to expose and block the sensor from light
- The shutter speed is a measure of the time that the shutter is exposed to light, not the speed of the curtains

Electronic shutters found in some mirrorless cameras do not use mechanical shutters but are designed to emulate them

Lets look at some stills taken from the following Utube video:

https://www.youtube.com/watch?v=xX9w98dHVLg

HOW THE CAMERA SHUTTER WORKS

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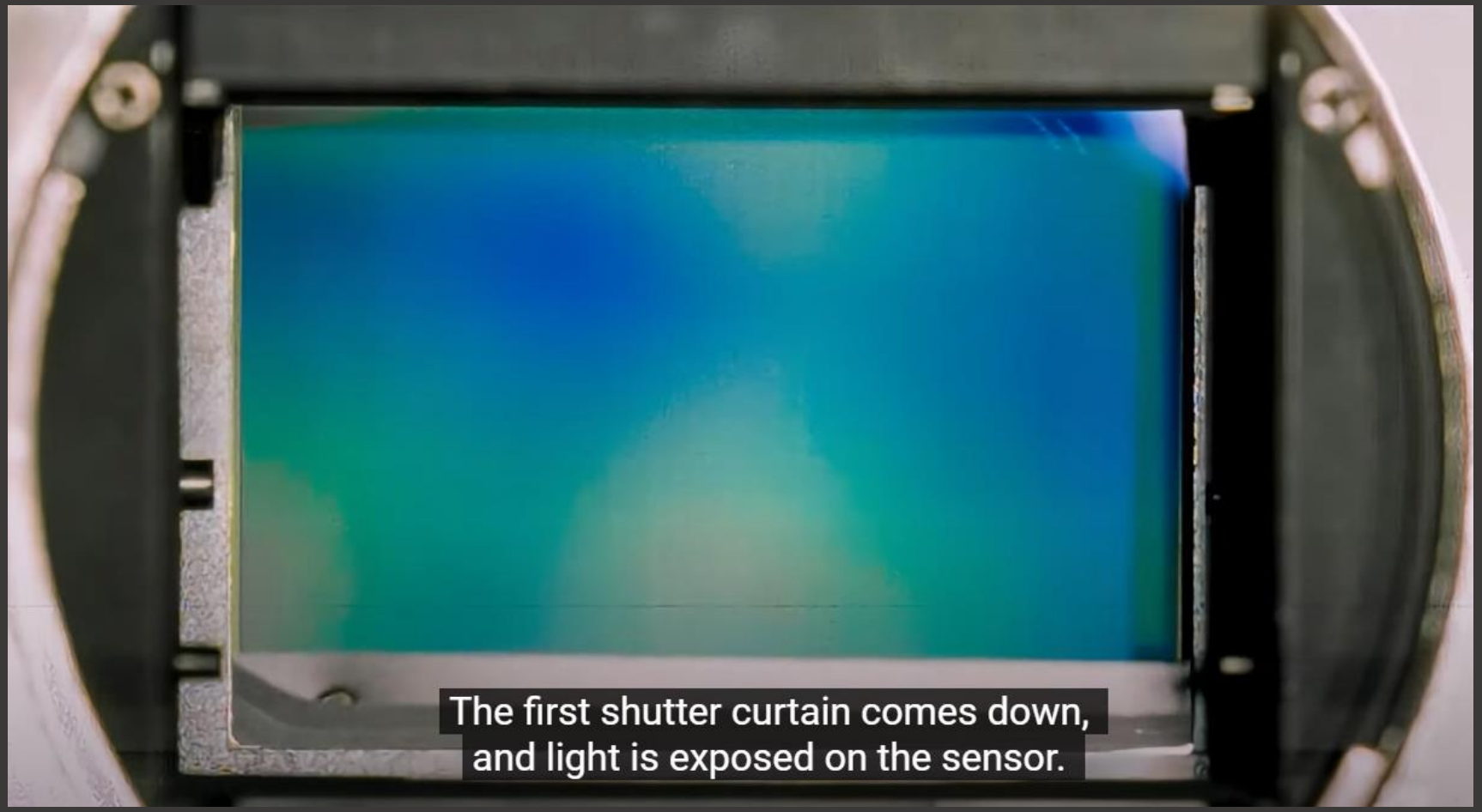

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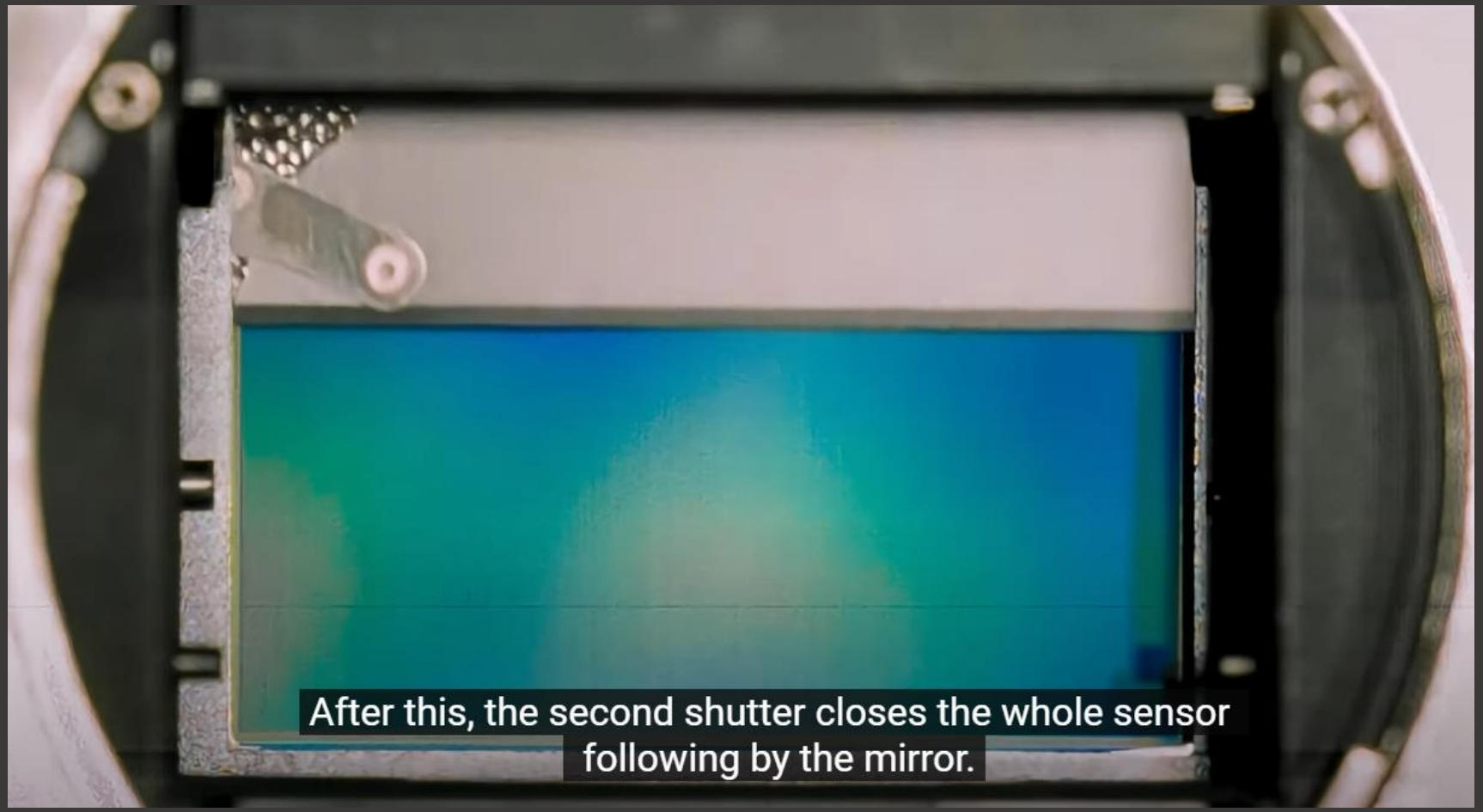

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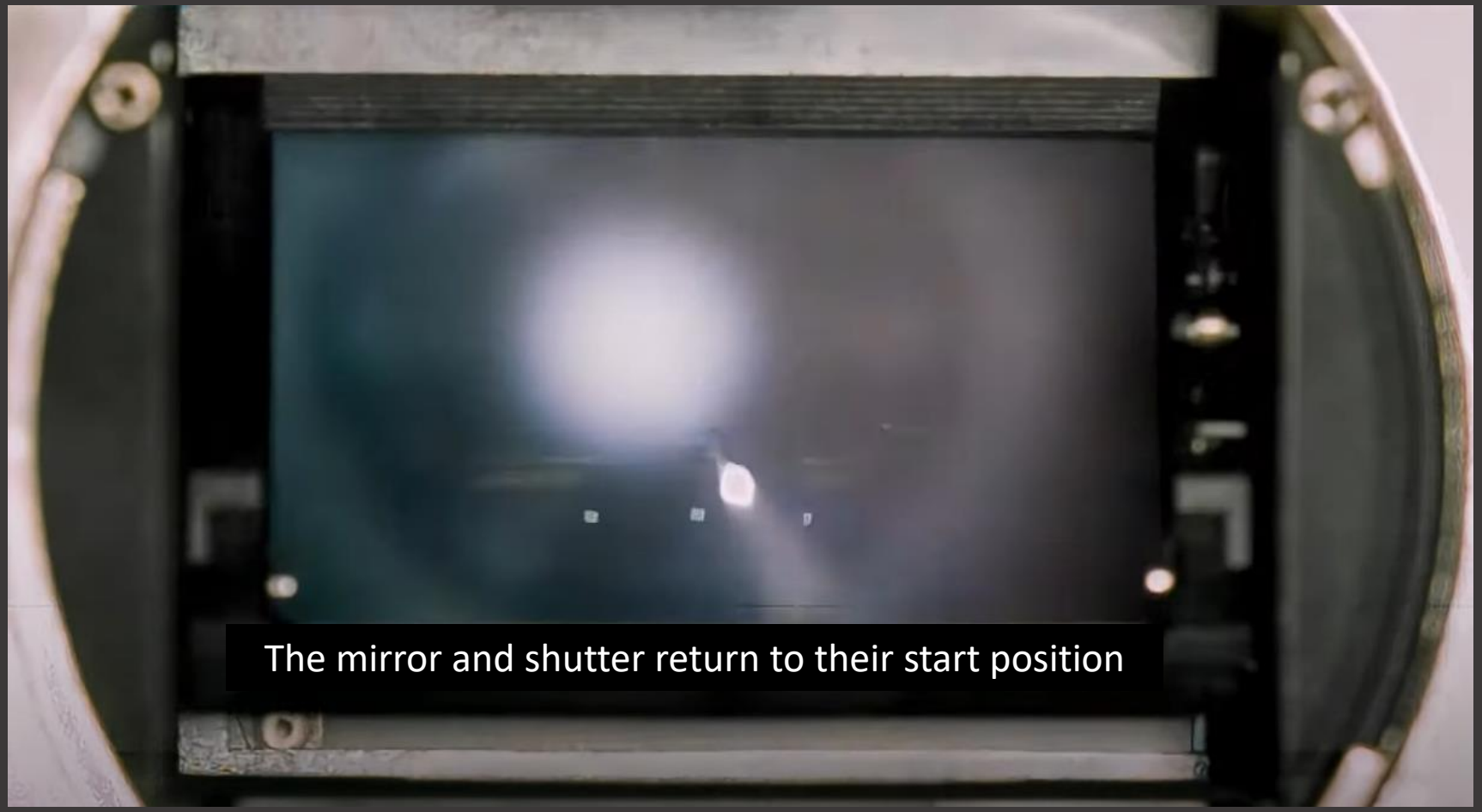

HOW THE CAMERA SHUTTER WORKS

The amount of time that the sensor is exposed to light (shutter speed) is determined by the time interval between the front curtain opening and the rear curtain closing

HOW FLASH WORKS

- A flash unit floods the subject with a short burst of light
- Typical flash durations are around 1/1000th of a second at full power
- The triggering of the flash needs to be synchronised with the shutter release:
  - Too early and part of the sensor will be covered by the front curtain
  - Too late and part of the sensor will be covered by the rear curtain
- The sensor needs to be fully exposed and typically this requires a shutter speed of 1/200th or 1/250th of a second.

FLASH MODES

- Front Curtain synchronised flash (usually the default on your camera)
- Rear Curtain synchronised flash
- Slow synchronised flash
- Delayed flash using external controller/manual trigger
- Multi mode/repeating flash

FRONT CURTAIN SYNC (THE DEFAULT)

- Front Curtain opens
- Sensor fully exposed
- Flash triggers
- Rear Curtain closes

REAR CURTAIN SYNC

- Front Curtain opens
- Sensor fully exposed
- Flash triggers just before -
- Rear Curtain closes

WHAT DIFFERENCE DOES THIS MAKE?

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No difference is discernible at normal sync speeds!

WHAT IF YOU USE A SLOW SHUTTER SPEED?

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Front Curtain Sync:

- Flash triggers at the beginning of the exposure when the front curtain opens.
- Movement subsequent to the flash is caught as a blur.

Rear Curtain Sync:

- Flash triggers at the end of the exposure before the rear curtain closes.
- Movement prior to the flash is caught as a blur.

FRONT Vs REAR CURTAIN SYNC

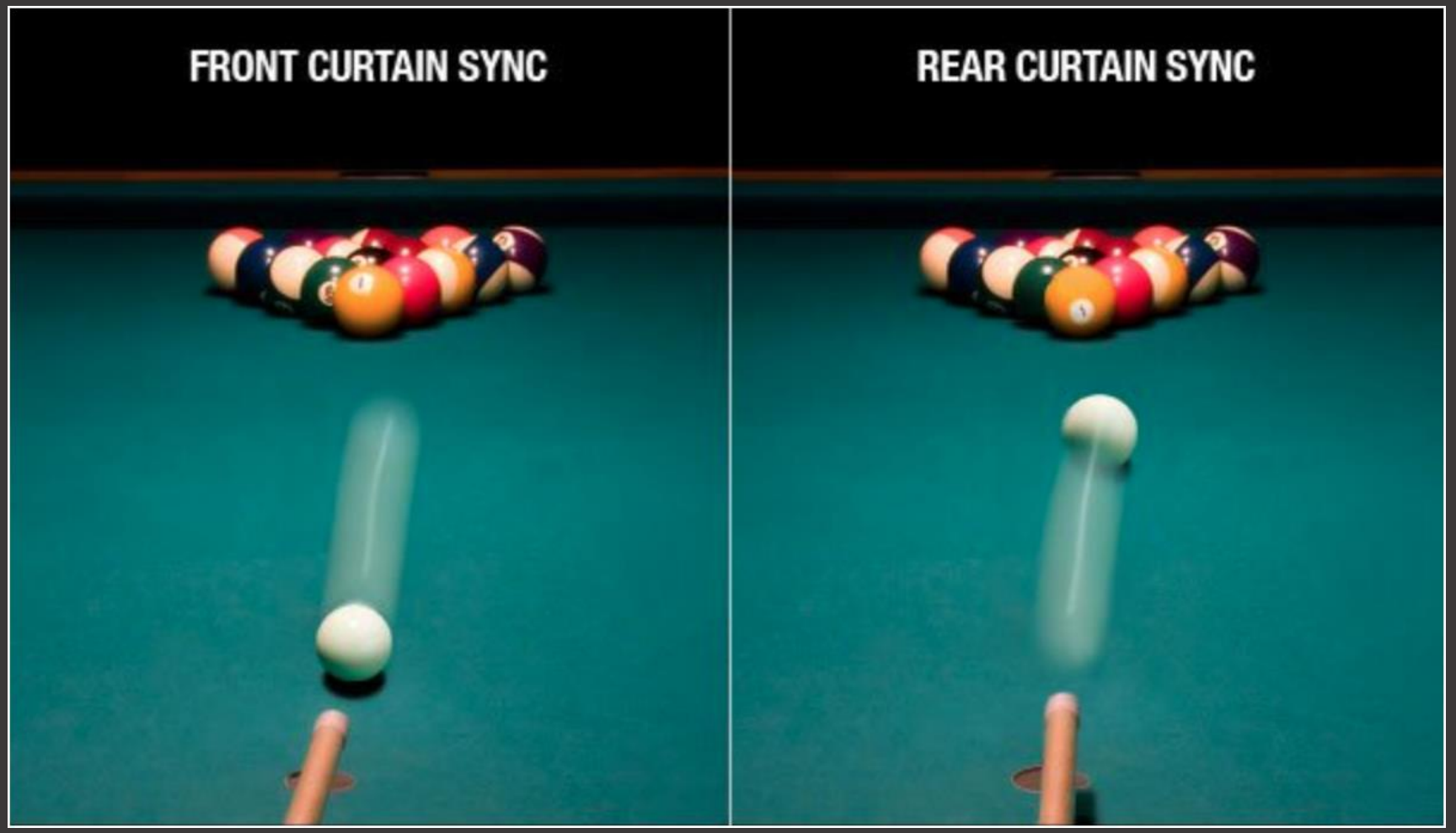

Image taken from https://www.exposureguide.com/high-speed-sync-flash/

SLOW SYNCRONISED FLASH

Automates using your flash with a slow shutter speed, usually with the camera in aperture or program mode.

May have front or rear curtain options.

DELAYED FLASH

- Exposure of 1 second with flash triggered at 0.5 seconds.
- Movement pre and post flash captured as light blur

Image taken from Petapixel article :
https://petapixel.com/2020/03/12/understanding-front-vs-rear-curtain-sync-and-how-to-use-both-for-portraits/

MULTI MODE/REPEATING FLASH

Flash triggers several times during the exposure.

Camera captures the subject in a different pose each time the flash fires resulting in an image that shows the type of result you would expect from taking stills from a movie and combining them in one image.

MULTI MODE/REPEATING FLASH

MULTI MODE/REPEATING FLASH

This technique is not restricted to a moving subject, it can also be used while moving the camera or the flash light to produce interesting effects.

There are more presentations about flash in the members area of the club website.

COFFEE/TEA BREAK

https://get.wallhere.com/photo/blue-drink-morning-tea-splashes-cup-liquid-color-lighting-macro-photography-still-life-photography-247476.jpg

SET UP – GENERAL GUIDELINES

- Need to balance ambient light vs flash
- Works better with dark backgrounds and lighter subjects

SET UP – EQUIPMENT REQUIRED

Required:

- Camera
- Tripod
- Flash unit
- Remote trigger

Optional:

- Dark backdrop
- Continuous lights to modify/add ambient light
- Off camera flash triggers and flash stands
- Flash controller

SET UP – DETAILED APPROACH

- Consider:
  - Background/subject distance
  - Ambient light
  - Position of subject and direction of movement
  - Camera angle and focal length
- Set up your equipment*
- Frame image and prefocus

* (note you will usually need to set your camera to manual mode, manual focus and prefocus your camera)

SET UP – DETAILED APPROACH Contd.

- Decide on exposure time, aperture and ISO, bearing in mind:
  - The time required for the movement cycle
  - The ambient light levels
- Take test shot and adjust settings as required
- Set up your flash using camera recommended settings
- Take test shot and adjust flash power as required.

DEMONSTRATION

WHAT IF THE SYNC SPEED IS TOO LOW?

If you want to freeze action you can try reducing flash intensity:

- Reducing the intensity of the flash reduces the duration of the burst of light.

- If you are working in very dark conditions the shorter burst of light from a flash set to a lower intensity can be enough to freeze action.

REDUCED INTENSITY

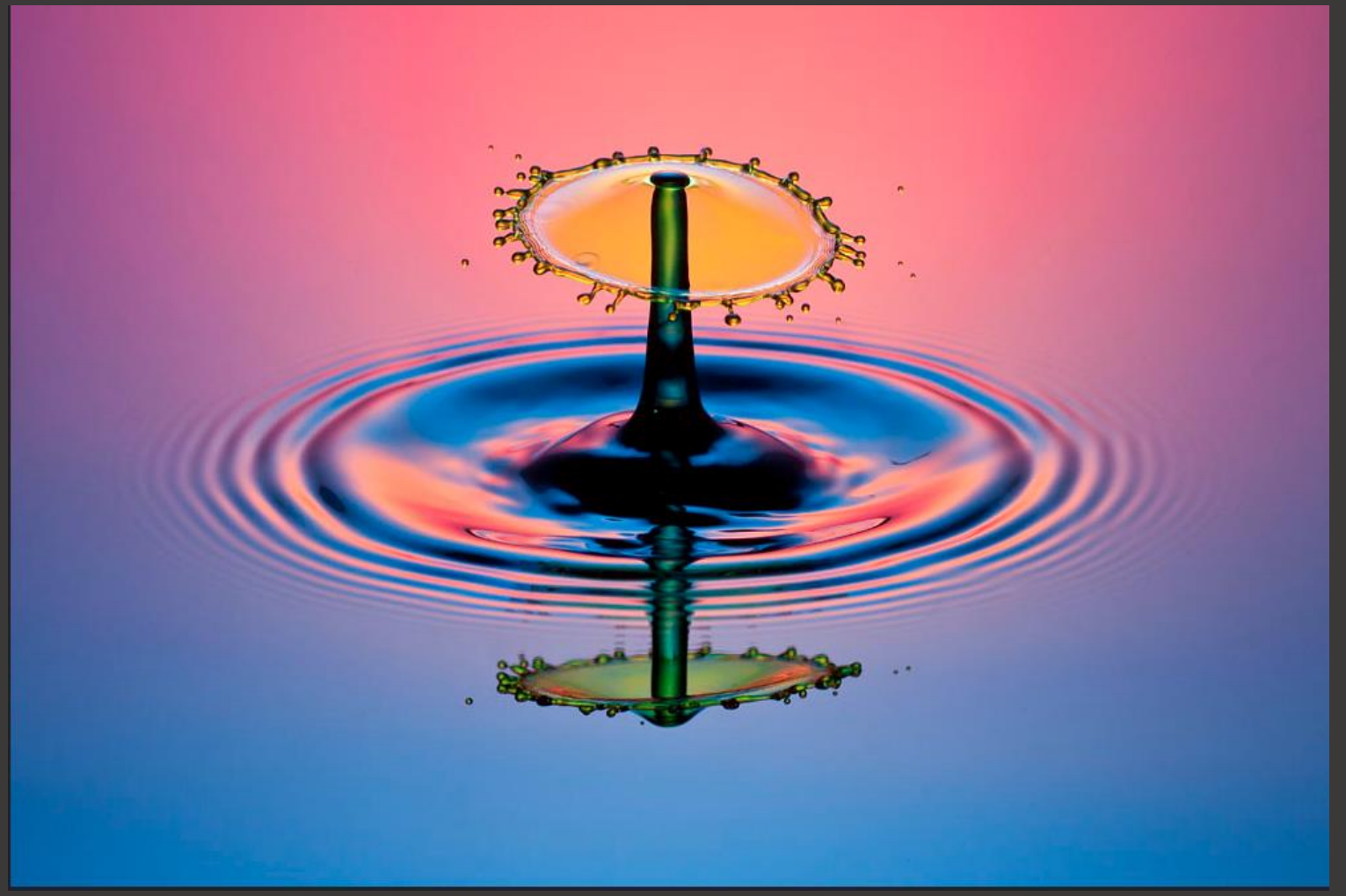

Image by Corrie White https://www.flickr.com/photos/10756887@N07/4814734507/

WHAT IF THE SYNC SPEED IS TOO LOW?

If you want to freeze action you can try High Speed Sync:

- Only available on specific cameras and flash combinations
- The flash unit emits rapid pulses of light throughout the exposure i.e. as soon as the front curtain starts opening and until the rear curtain closes.

HIGH SPEED SYNC FLASH

SOME EXAMPLES TO DISCUSS

How would you shoot the following to give a sense of movement:

- A ballet dancer
- A juggler
- An wet tennis ball being dropped onto a hard surface

QUESTIONS, DISCUSSION AND IDEAS FOR NEXT WEEKS PRACTICAL