C2PA Investigations

Tim Bray
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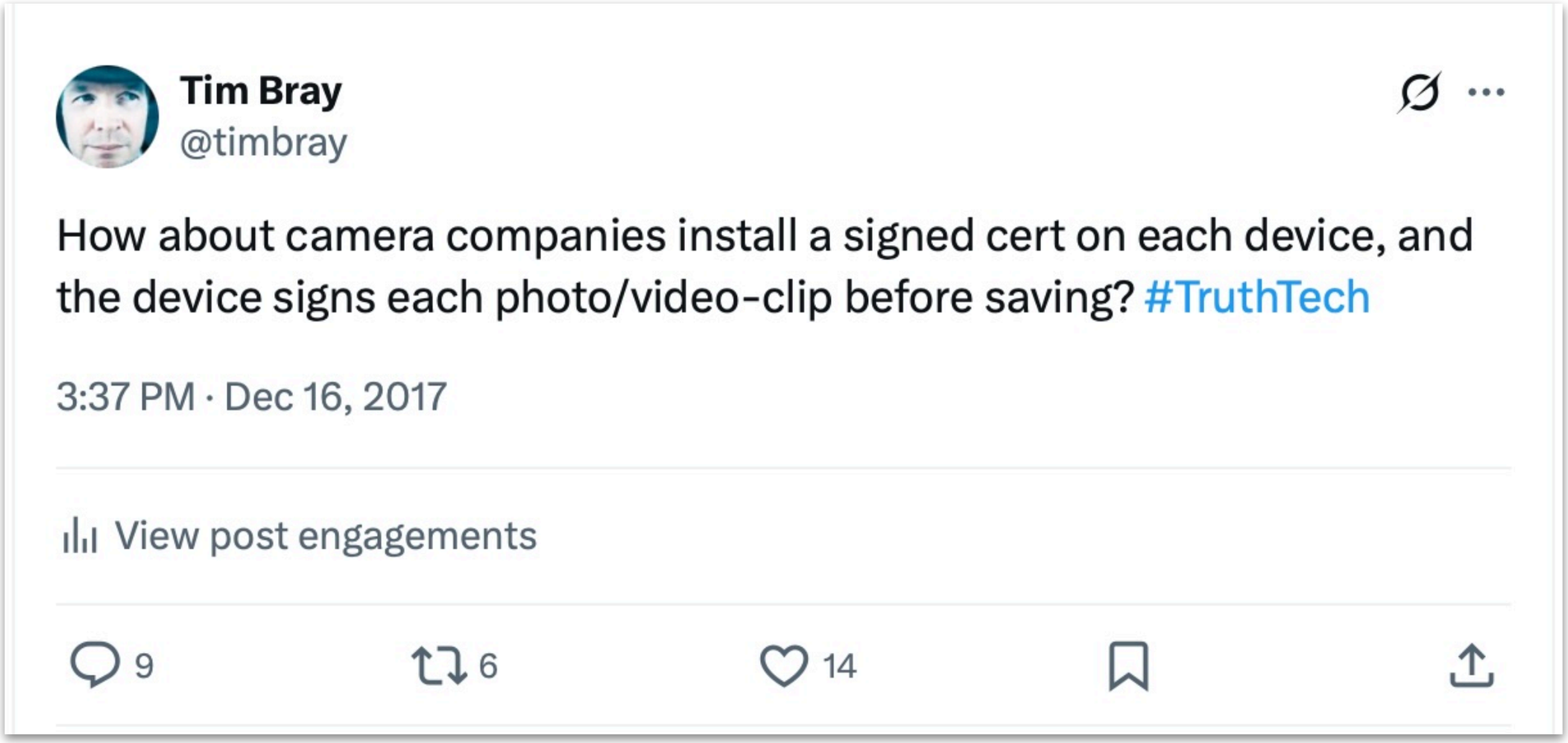
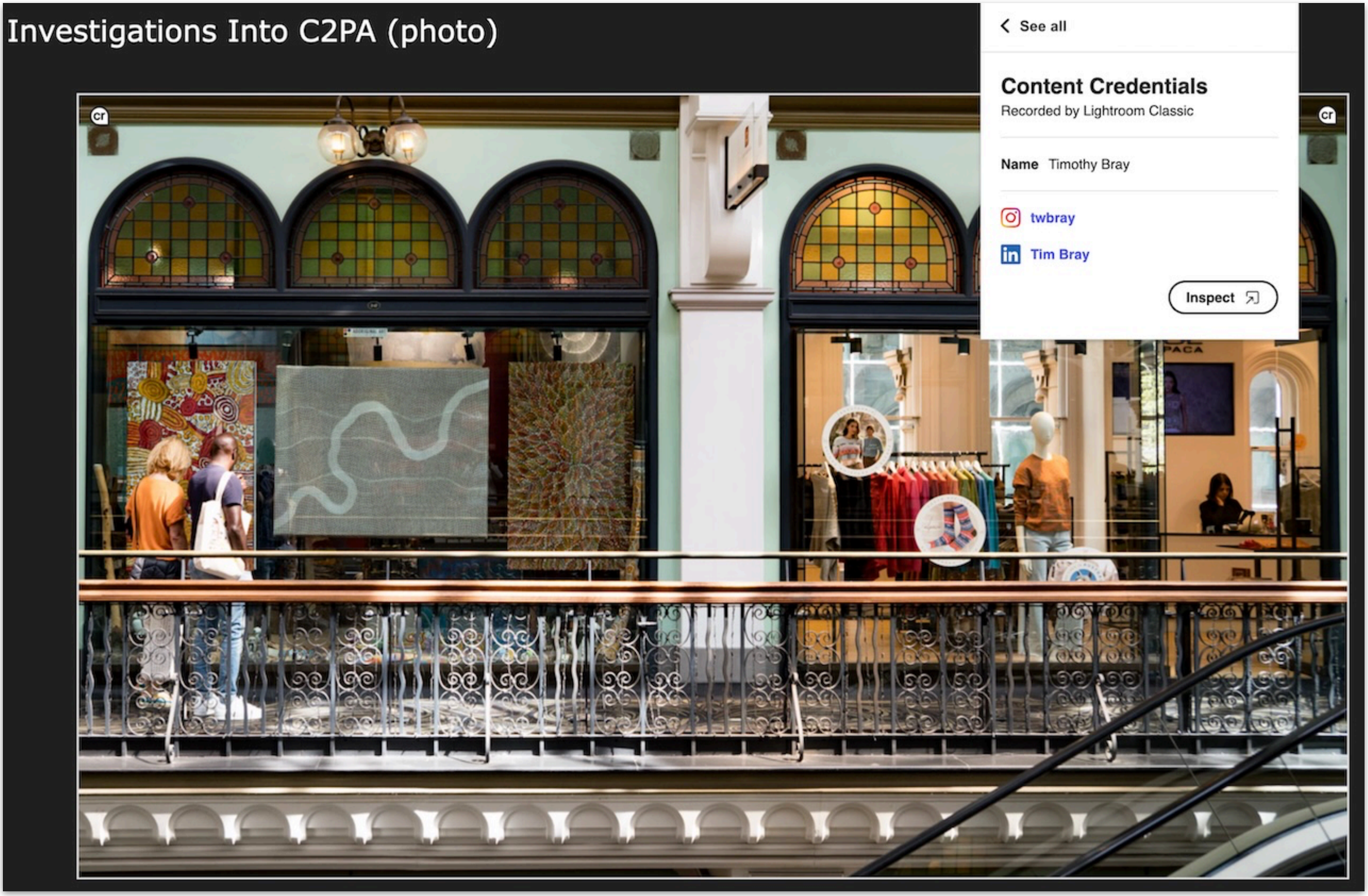
Textuality

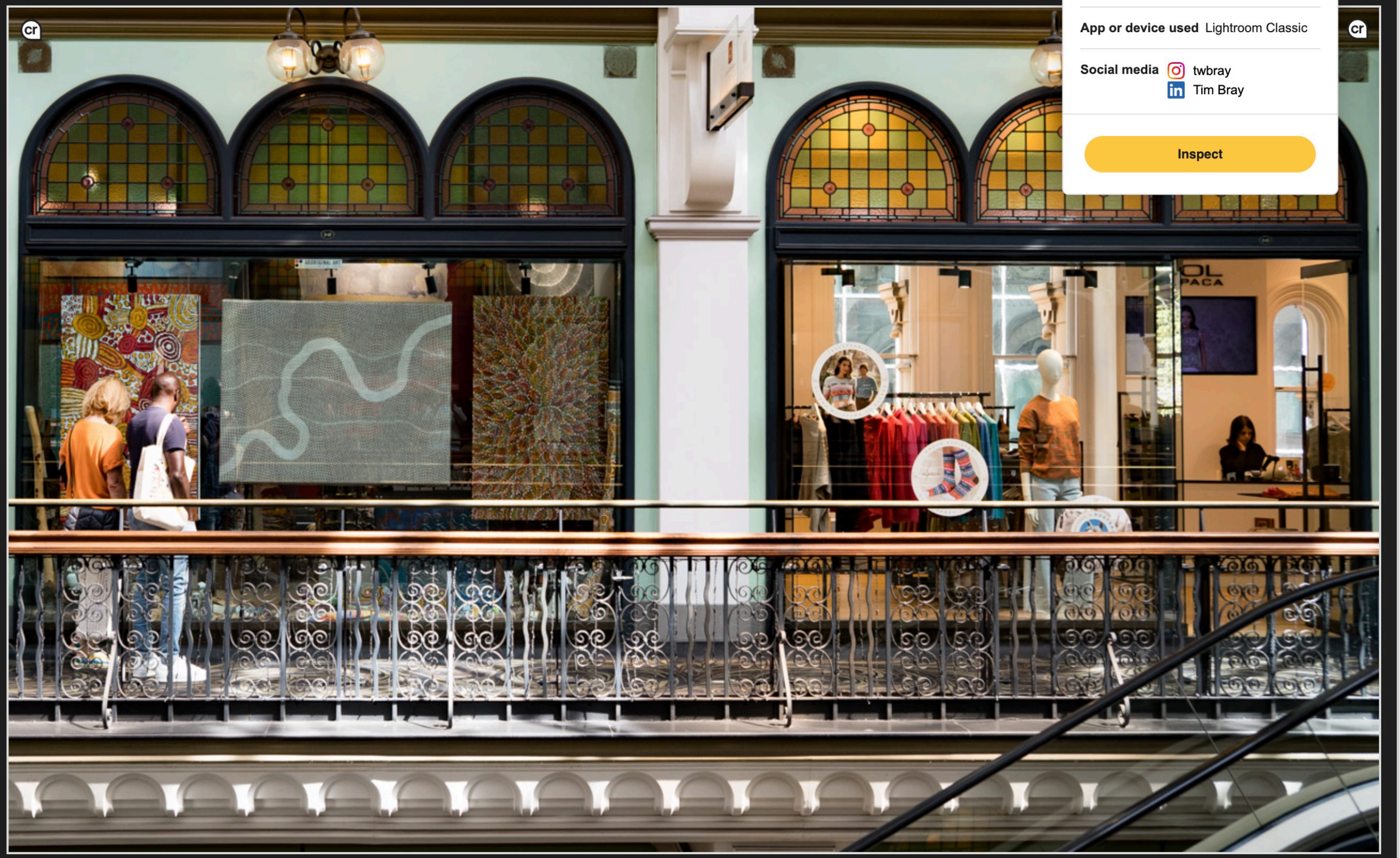


December 2017

Investigations Into C2PA (photo)



Investigations Into C2PA (photo)



Inspect content to dig deeper

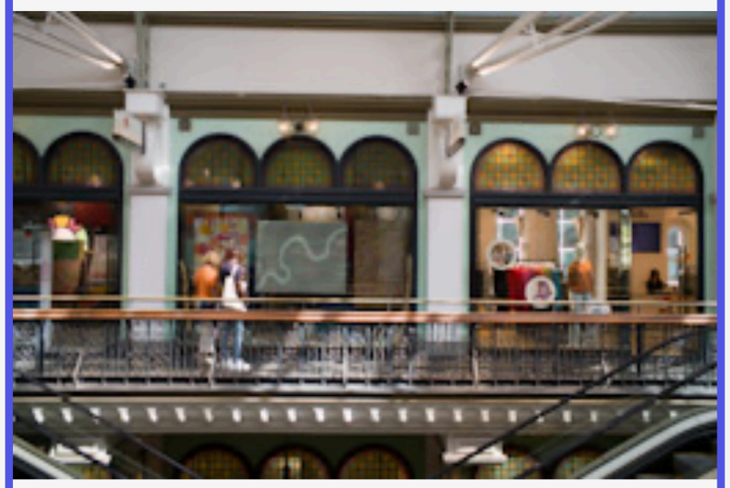
Drag content into Verify to inspect its Content Credentials in detail and see how it has changed over time.

Content Credentials are still rolling out, so the content you choose to inspect may not have information to view.

Select a file from your device
or drag and drop anywhere

Supported formats: AVI, AVIF, DNG, HEIC, HEIF, JPEG, M4A, MOV, MP3, MP4, PDF, PNG, SVG, TIFF, WAV, WebP

Something went wrong

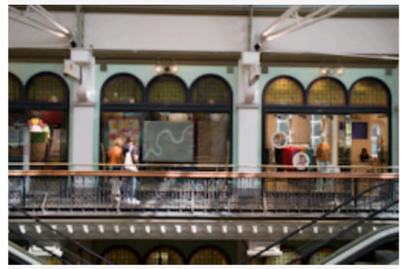


Fit

Compare

L1000004.DNG

Recorded by Leica Camera AG



Content details

Information about this content and how it was made.

App or device used

M11-P 2.2.2

Recorded by

Leica Camera AG

Camera capture details

Additional data sourced from the camera used to take an image or video. EXIF data can be edited by the content producer.

Capture date

Feb 28, 2021 at 12:28 PM PST

LEICA M11-P
R-Adapter M
7424 x 4936

ISO 640	0mm	1/250 s

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ISO 640	0mm	1/250 s

Contributor details

Information shared by people involved in making this content.

Produced by

Timothy Bray

Instagram twbray

LinkedIn Tim Bray

Content details

Information about this content and how it was made.

App or device used

Lightroom Classic 14.5.1

Recorded by

Adobe Inc. on Sep 9, 2025

Actions

Color or exposure edits

Adjusted properties like tone, saturation, curves, shadows, or highlights

Cropping edits

Used cropping tools, reducing or expanding visible content area

Opened

Opened a pre-existing file

Ingredients

L1000004.DNG

Recorded by Leica Camera AG

What I did

1. Cropped the picture down.
2. Used Lightroom's "Dehaze" tool because it looked a little cloudy.
3. Adjusted the exposure and contrast, and boosted the blacks a bit.
4. Sharpened it up.

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Recorded by Leica Camera AG

Actual C2PA Data (small samples)

Leica EXIF Fields


```
"exif:ApertureValue": "2.79917",
"exif:BitsPerSample": "16",
"exif:BodySerialNumber": "6006238",
```


Lightroom Classic Adjustments:


```
{
  "action": "c2pa.color_adjustments",
  "parameters": {
    "action": "c2pa.color_adjustments",
    "parameters": {
      "com.adobe.acr.value": "60",
      "com.adobe.acr": "Exposure2012"
    }
  }
},
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{
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  "parameters": {
    "com.adobe.acr.value": "Rotated Crop",
    "com.adobe.acr": "Crop"
  }
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```

AI or no AI?

AI or no AI?

Actions

Color or exposure edits
Adjusted properties like tone, saturation, curves, shadows, or highlights

Cropping edits
Used cropping tools, reducing or expanding visible content area

Drawing edits
Used tools like pencils, brushes, erasers, or shape, path, or pen tools

Opened
Opened a pre-existing file

ChatGPT

c2patool: ✘

digitalSourceType:

`trainedAlgorithmicMedia`

Pixel 10 with Magic Eraser

digitalSourceType:

`compositeWithTrainedAlgorithmicMedia`

Pixel 10

How this was made
Content Credentials

Media captured with a camera
Info by Google LLC

Edited with AI tools
Info by Google LLC

Edited with non-AI tools
Info by Google LLC

Content Credentials maintains the history of AI and non-AI edits. Learn more about how Google displays media history and provides transparency about AI.

Pixel 10

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- Device is just “Pixel camera”
- Not optional!
- DigitalSourceType: `computationalCapture` (if no genAI)
- Timestamp is “untrusted”

C2PA Taxonomy

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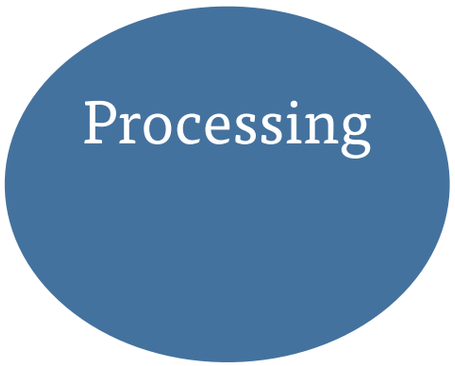

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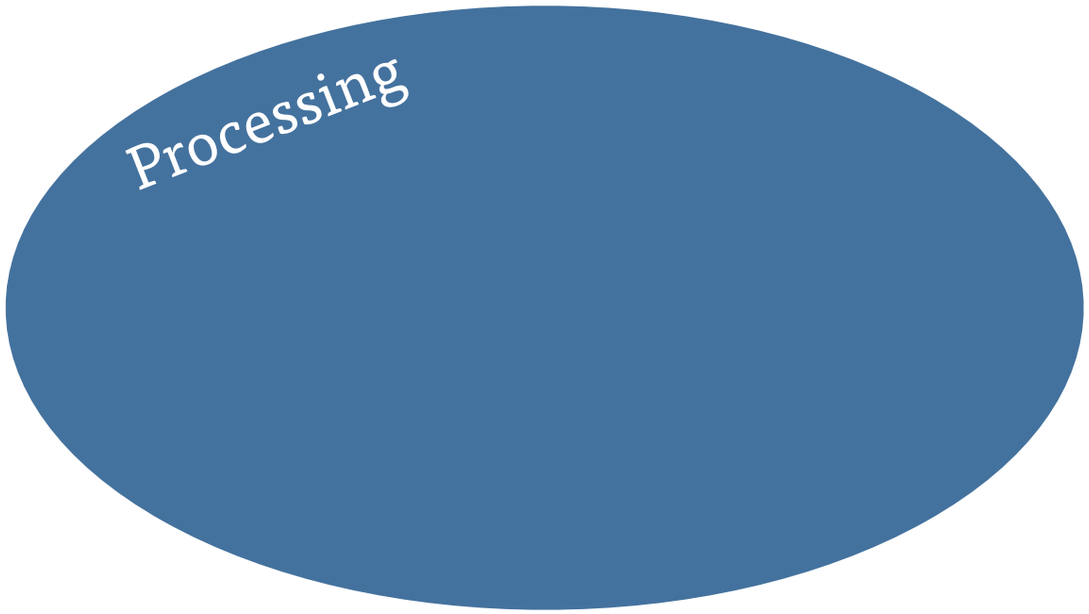

Thanks!

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