The Chromatic Illusion within the Photographic Universe, Ongoing

Subjects and Questions

The Chromatic Illusion within the Photographic Universe is a practice-based research project that aims to examine the hidden impact technology has on color rendering within the photographic. Starting from the realization that color is always artificial in photography, I will conduct a series of scientific experiments that will strip photography down to its very essence: the action of light on photosensitive materials. These experiments will address the following research questions:

- Given that color in photography is always manufactured and never merely registered, what influence does the chosen technology have on the produced color charts? Would it be possible to link different worldviews to these different color charts?
- What is the influence of a given culture on the development of color technology? Do the cultural stratifications of a geographic area determine how visual technologies decode colors?
- What remains of the chromatic heritage left by past technologies? For instance: when a certain photographic film is discontinued, is it possible to talk about extinct colors?

Theoretical and Artistic Framework

In Western culture, since Aristotle's time, the discrimination against color has taken a number of forms, some technical, some moral, some racial, some sexual, some social. Color is considered secondary to drawing, form, and structure — disegno versus colore — but its definition and understanding is very dear to the visual arts. In 2008, the Museum of Modern Art of New York presented Color Chart: Reinventing Color, 1950 to today, a major exhibition addressing the impact of mass-produced, ready-made color on the art of the past sixty years. In the exhibition catalog, curator Ann Temkin pointed out that «The search for universal truths about color dates back to ancient analogies between color and the four humors or the four elements. But anthropological studies revealing vastly different, even contradictory practices of nomenclature among cultures indicate that any universality in the experience of color is an illusion».
My research arises from a chromatic impossibility: the attempt to accurately record the colors of the sky at dusk through the photographic medium. During the so-called Blue Hour, the horizon blurs into flaming reds, cloudy whites, crystal light blues, and deep dark blues. After a series of tests in which I've tried to depict these hues, I realized that digital and chemical photography could not fully grasp this chromatic moment. The sky turning red is one of the most shared subjects in our virtual society. Yet, these images show a closed chromatic scale compared to the natural one, which I would define as open and endless. Through photographic means, twilight's vibrancy is not reproducible. Color, in fact, is not a physical quantity to measure but the human response to different light wavelengths. Since the mid-19th-century, the photography industry has tried to mimic this response through various stratagems, artifices relying on the available technologies. As opposed to painting, where real colors are used, film photography approximates the idea of color using filters and dye couplers embedded in the silver emulsion. Digital imaging uses codecs, algorithms that translate into hues the photons recorded by the sensor. In her work Standard Universal: 256, artist Angela Bulloch emphasizes technology's impact on artistic decisions concerning color representation. She designed a wooden box containing an RGB additive light system capable of generating millions of colors. Connected to customized software, the monitor shows only the 256-color palette of the Macintosh OS 9, the then-current Apple operating system. When operating in this color setting, MAC OS 9 analyzed each color that was introduced into it from external sources, such as those in scanned photographs, and assigned each to its closest match in hue within the limited 256-color range.
Artists F&D Cartier study how colors evolve according to photography's hidden materiality. In the work Wait and See, they «use expired photographic papers dating from the years 1890 to 2000. Their exposure in the exhibition space triggers an ongoing process of slow change as their appearance constantly alters. Their radically simplified experiment, designed to record light and time, connects back to the medium's early days», delivering a surprising color chart defined by the environment and the emulsions' chemical composition.
My project will expand this contemporary art context, deepening the idea of standardized colors and exploring the raw photographic material. Referring to Vilém Flusser's notions of black box and program, I will seek to produce non-redundant images carrier of information, promoting an unconventional approach to the medium. My inquiry will study how photosensitive supports and output devices record, render and display the visible spectrum. I will unfold the chromatic differences shown by photographic films, digital sensors, monitor screens, and chemical papers. In addition, I will compare systems of different periods and geographic areas. Finally, I will examine the potential of old expired films. Although their original color chart can be considered extinct, they still have a chromatic strength to explore, shaped by the passing of time.

Methodology

I will develop my project through photographic experiments, re-enacting those carried out in the 1660s by Isaac Newton with sunlight and prisms. My research will present a collaboration performed by three actors: the photographic materials, myself, and an artificial rainbow - an optical phenomenon showing the spectrum's colors at their purest state. In a dark room and through a diffraction grating, I will decompose a light beam - whose CRI is nearly the same as the sun - into the visible spectrum. I will set a modified view camera facing the projection so that parts of the rainbow pass through it. With a slider, I will move at regular intervals the apparatus along the length of the projection. Then, I will record the same hues with different films and various digital sensors attachable to the light-recorder. I will detect between 20 and 30 portions of the rainbow, a collection of color interpretations ranging from red to violet. To work in the most pristine way, the camera lens will be removed but not the shutter. The shutter will allow repeating the exact exposure times in each working session.
The research will center on the diversity of the visual recordings. In the next stage, I will verify how these are rendered by different types of outputs: chemical papers and monitors. For example, the same shade of green will be recorded and translated in multiple ways according to the technology employed. I will not consider the composition of the resulting images or narrative and aesthetic aspects. Instead, I will cooperate with the photographic elements in an alternative way: the apparatus will be modified and opened up, and the supports will be considered just a surface sensitive to light, not a place to inscribe my narcissistic and descriptive desires.

In the next page:
Fig. 1 The Sunset just before Twilight

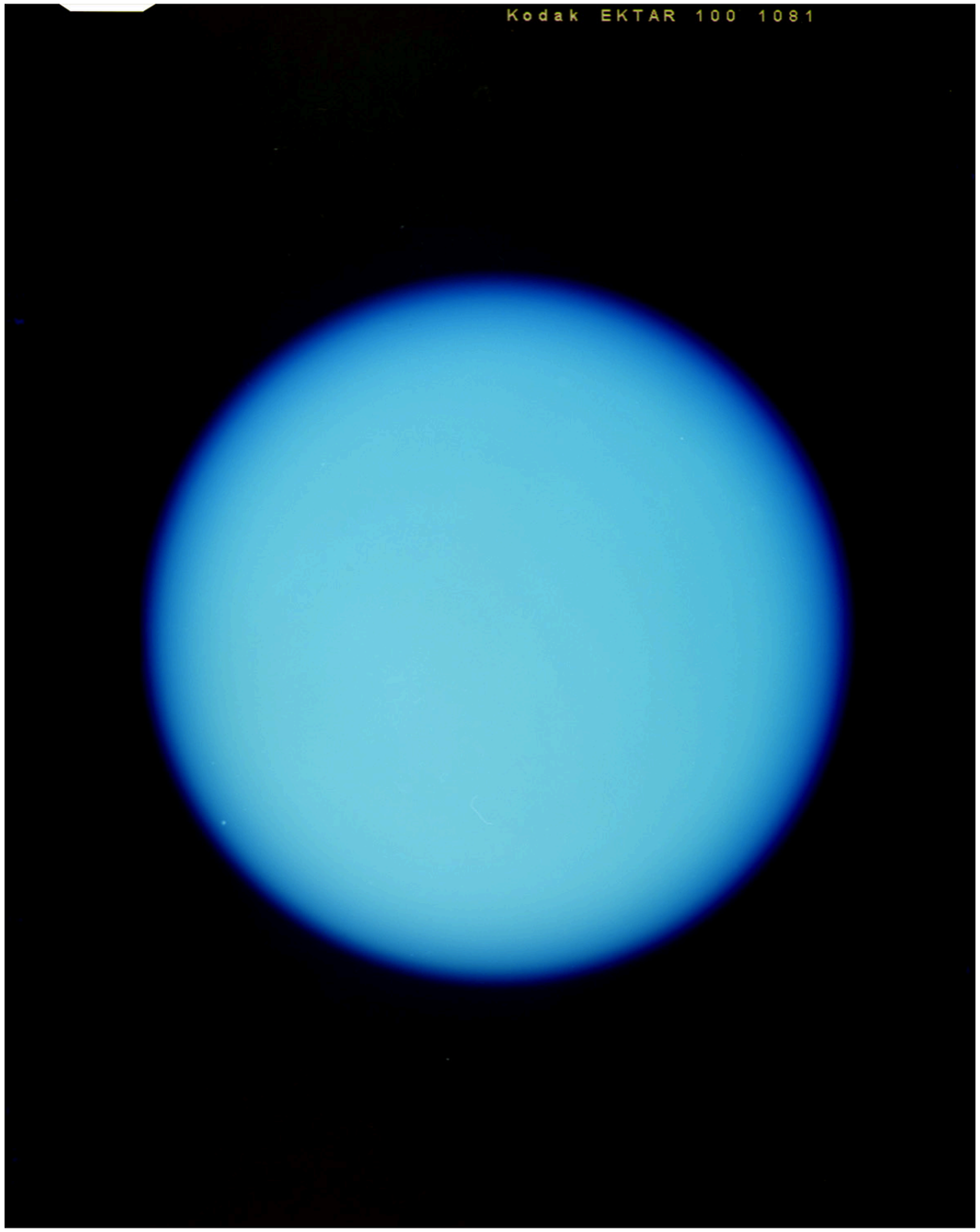
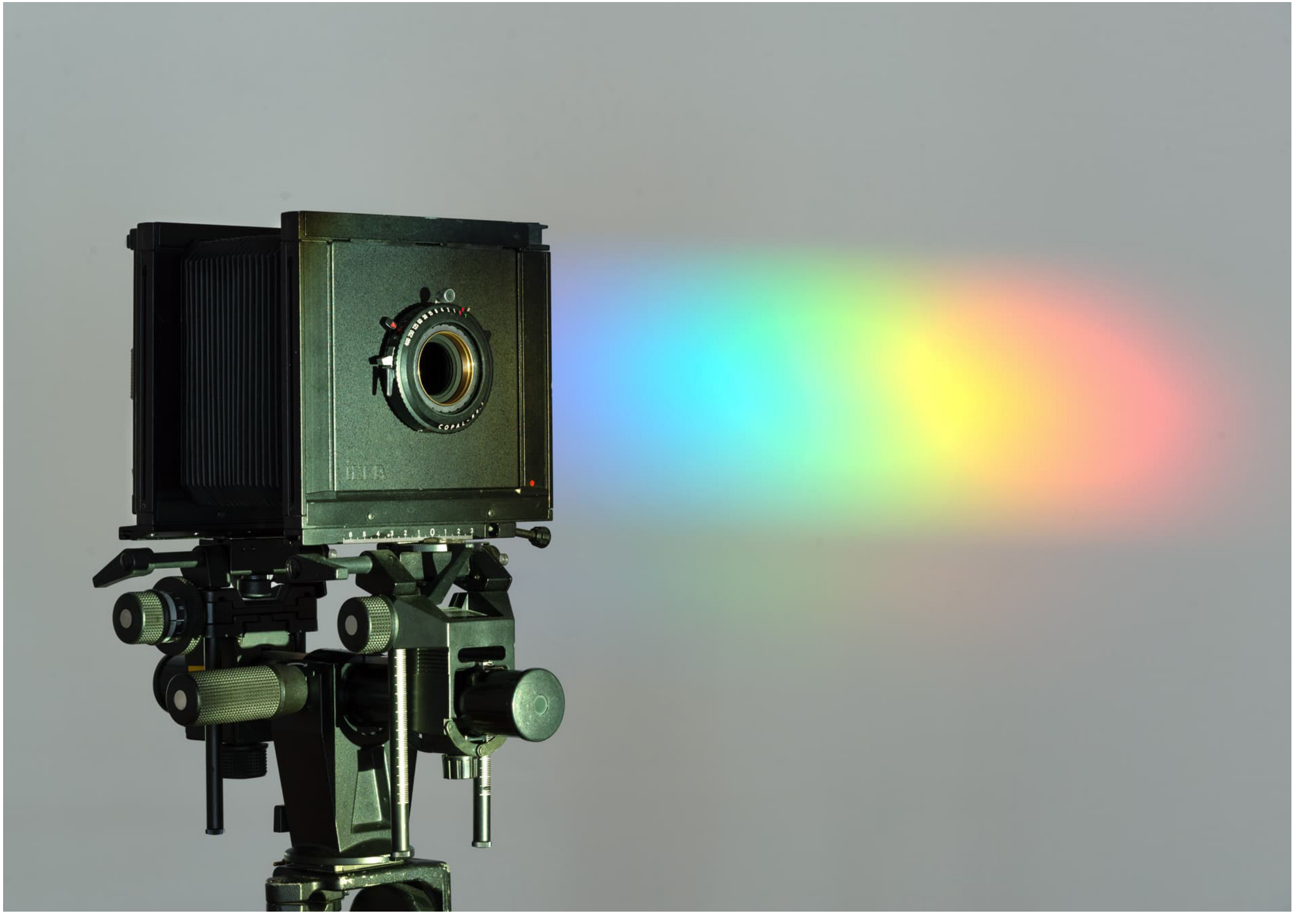


Fig.2,3 The Blue of the Sky on Kodak Ektar, 2021

In the next pages:
Fig. 4 The Artist Studio
Fig. 5 Large Format Camera with Rainbow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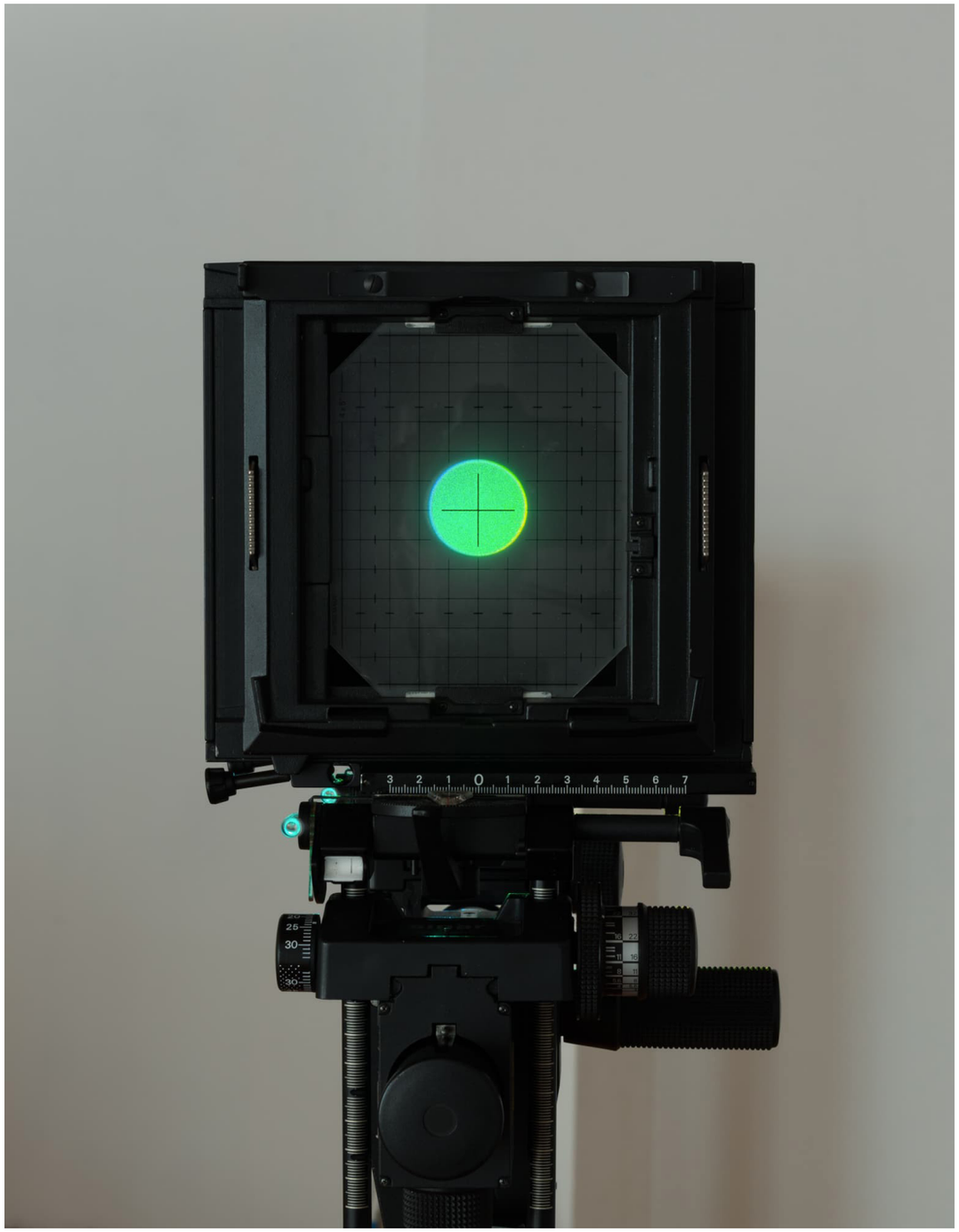


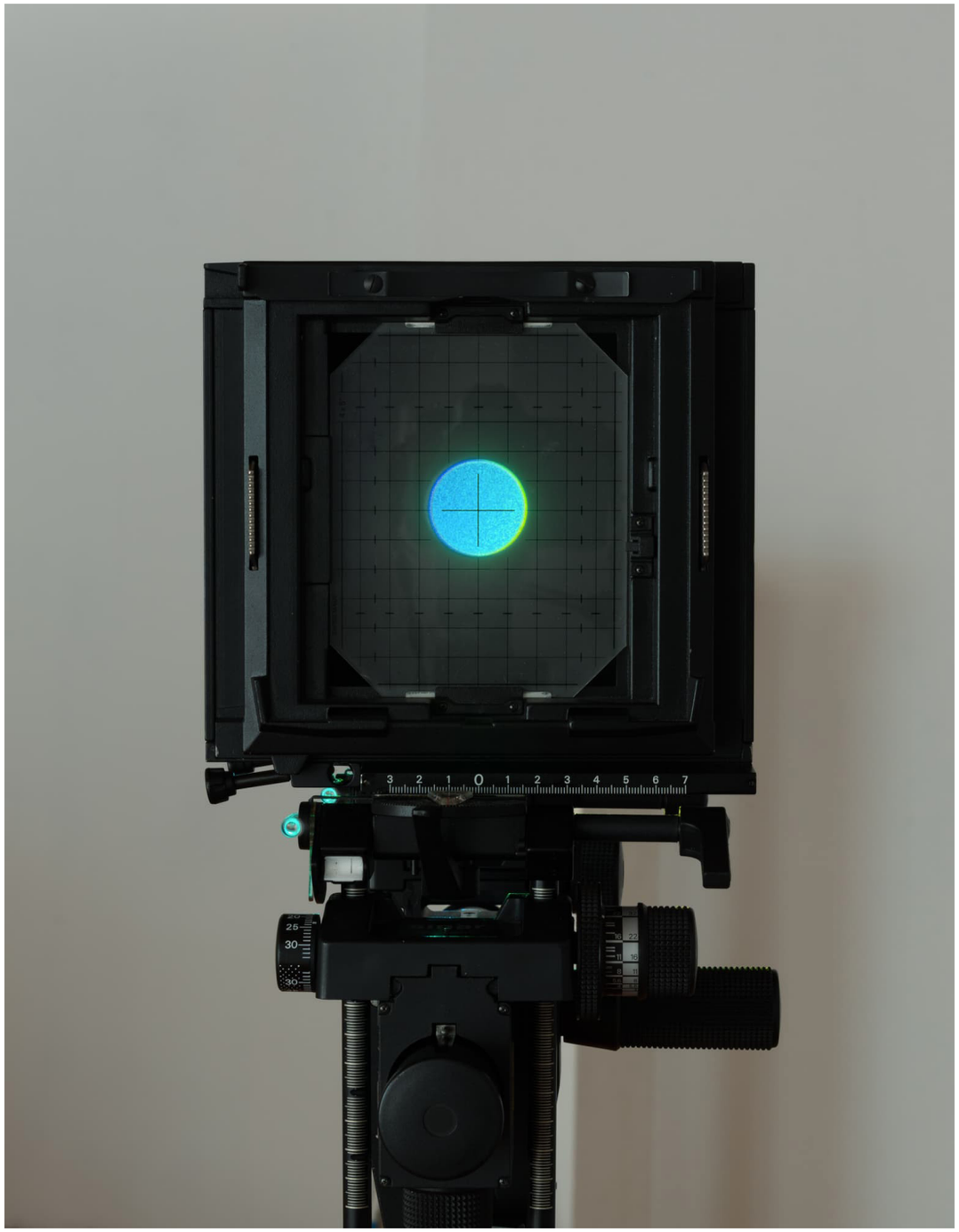


Fig. 6,7 Back of the 4x5 Camera with Different Colors

Ten Hues of the Rainbow Recorded with Two Different Color Negative Films

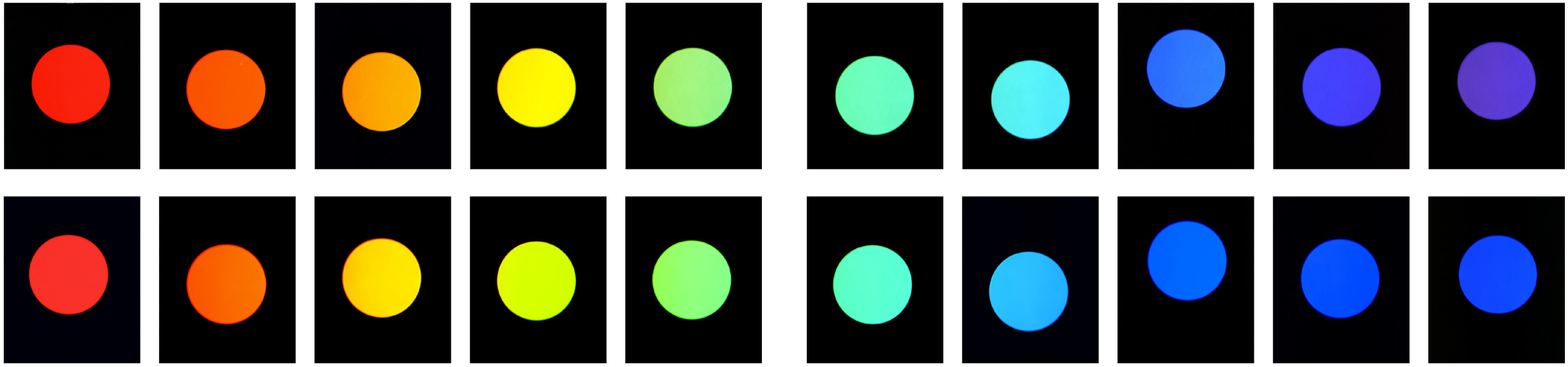
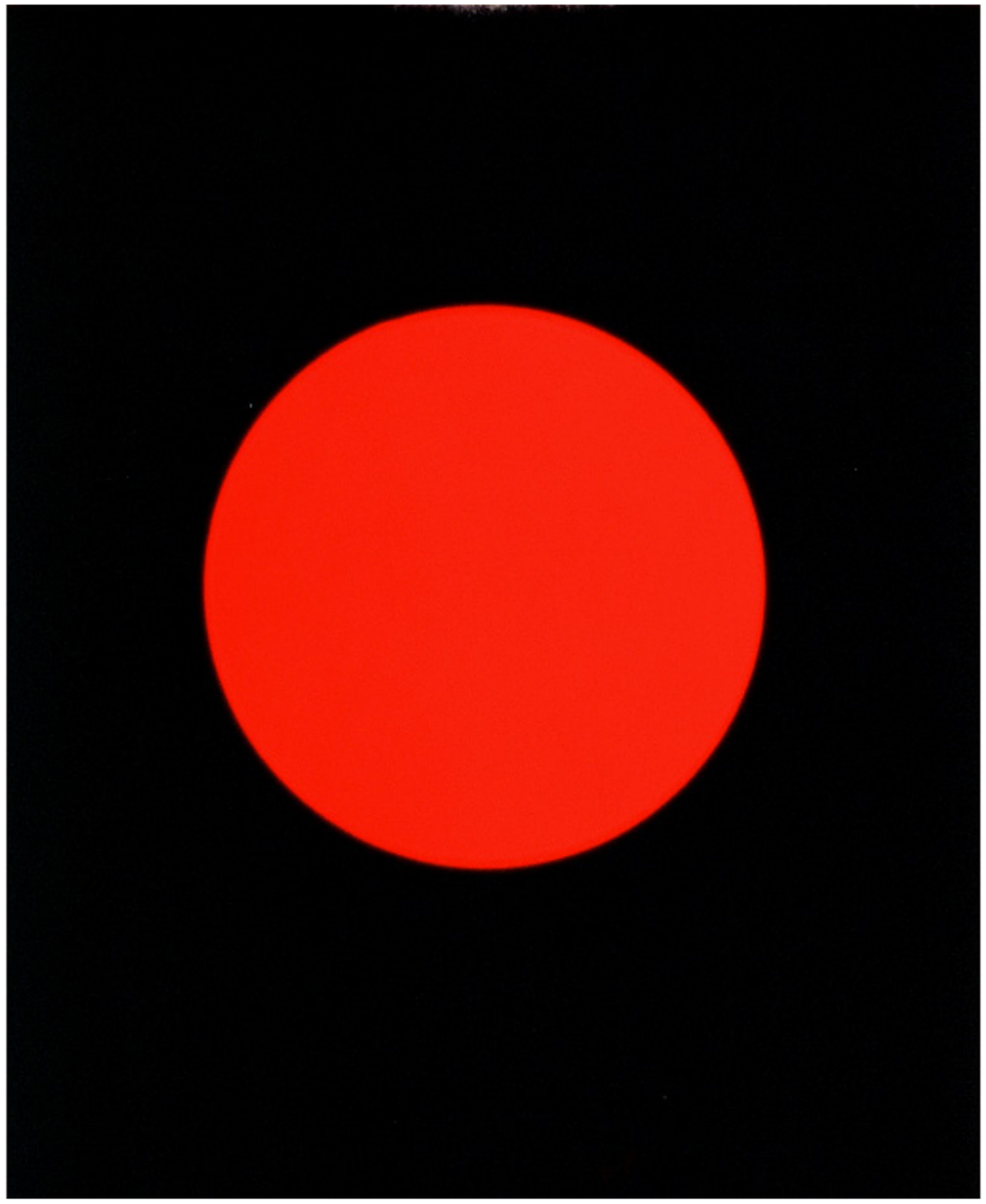


Fig.8 This test was produced in Turin during 2022, entirely by chemical means, except for the digitalization of the negatives necessary to this presentation

Fuji Pro 400 H ▼



Kodak Ektar 100 ▼

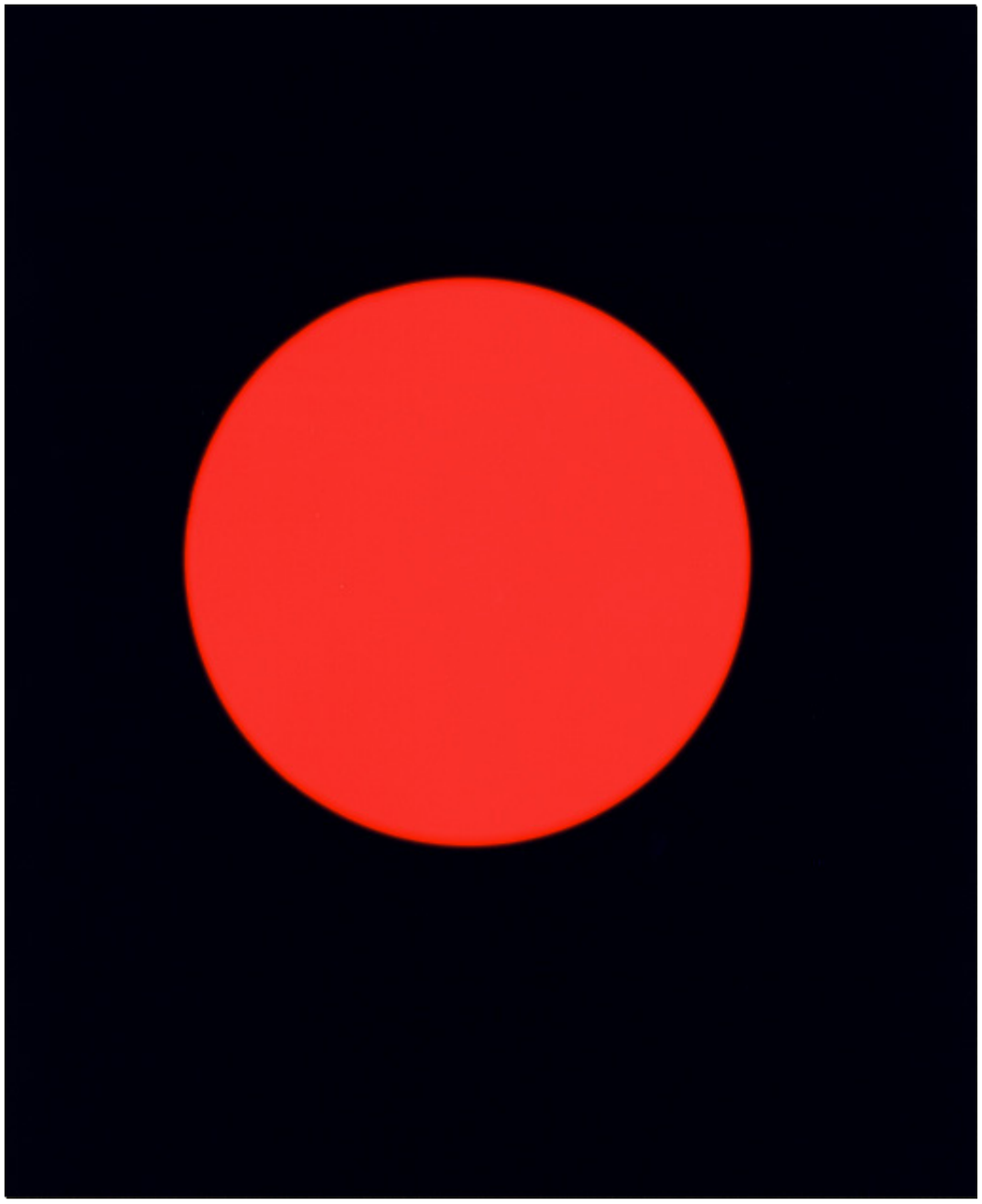
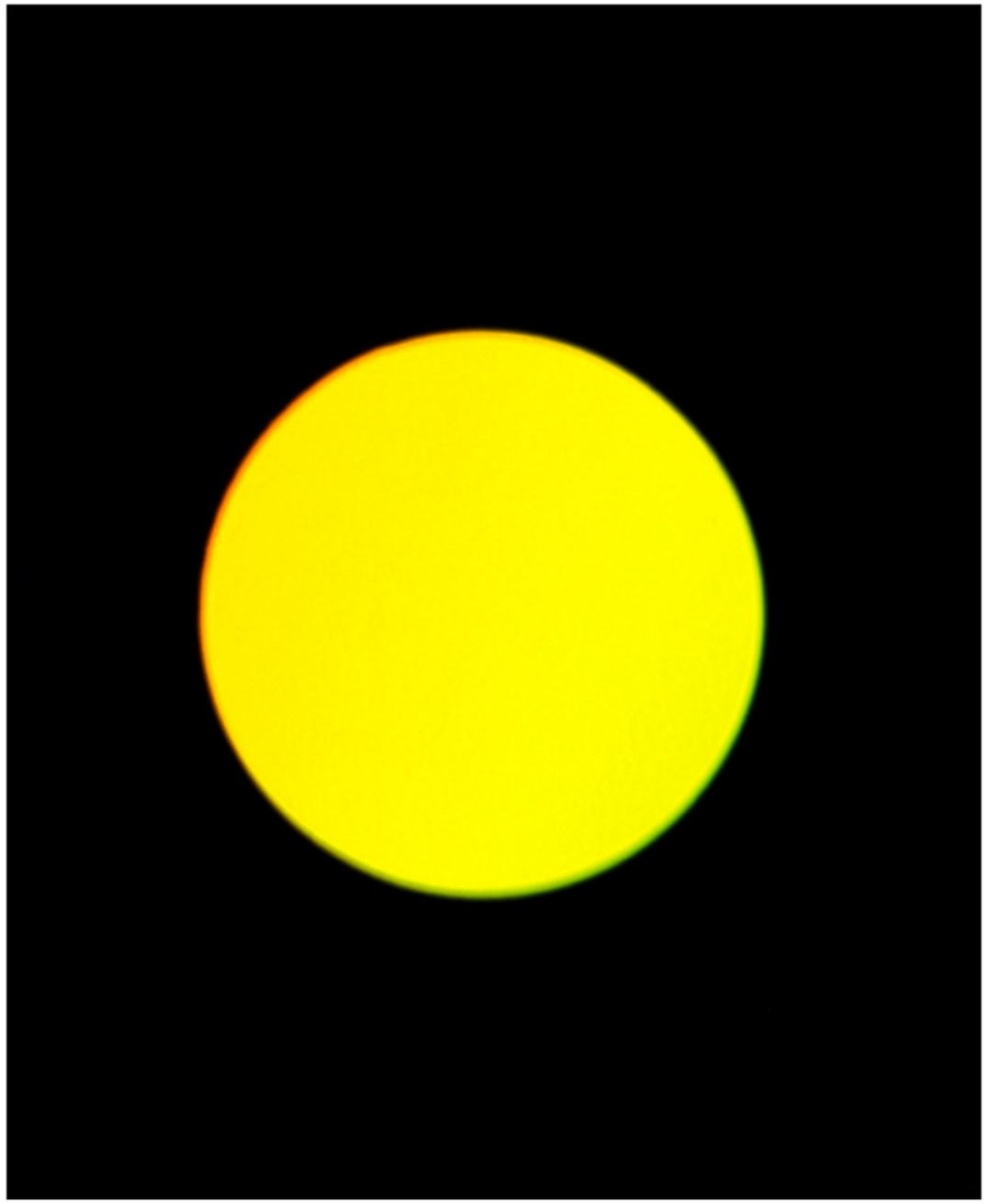


Fig. 9,10 Red Wavelength

Fig. 11,12 Orange Wavelength



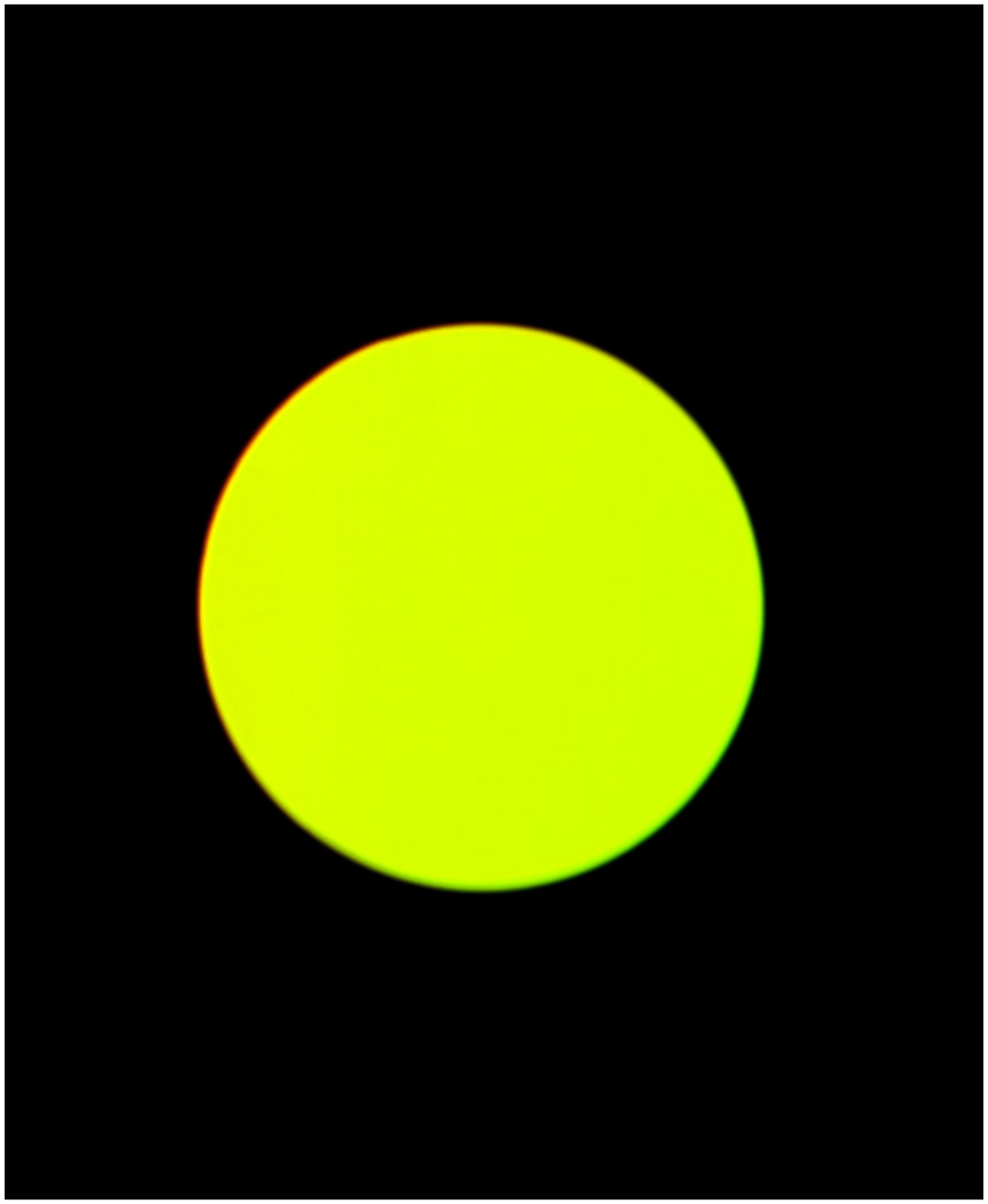
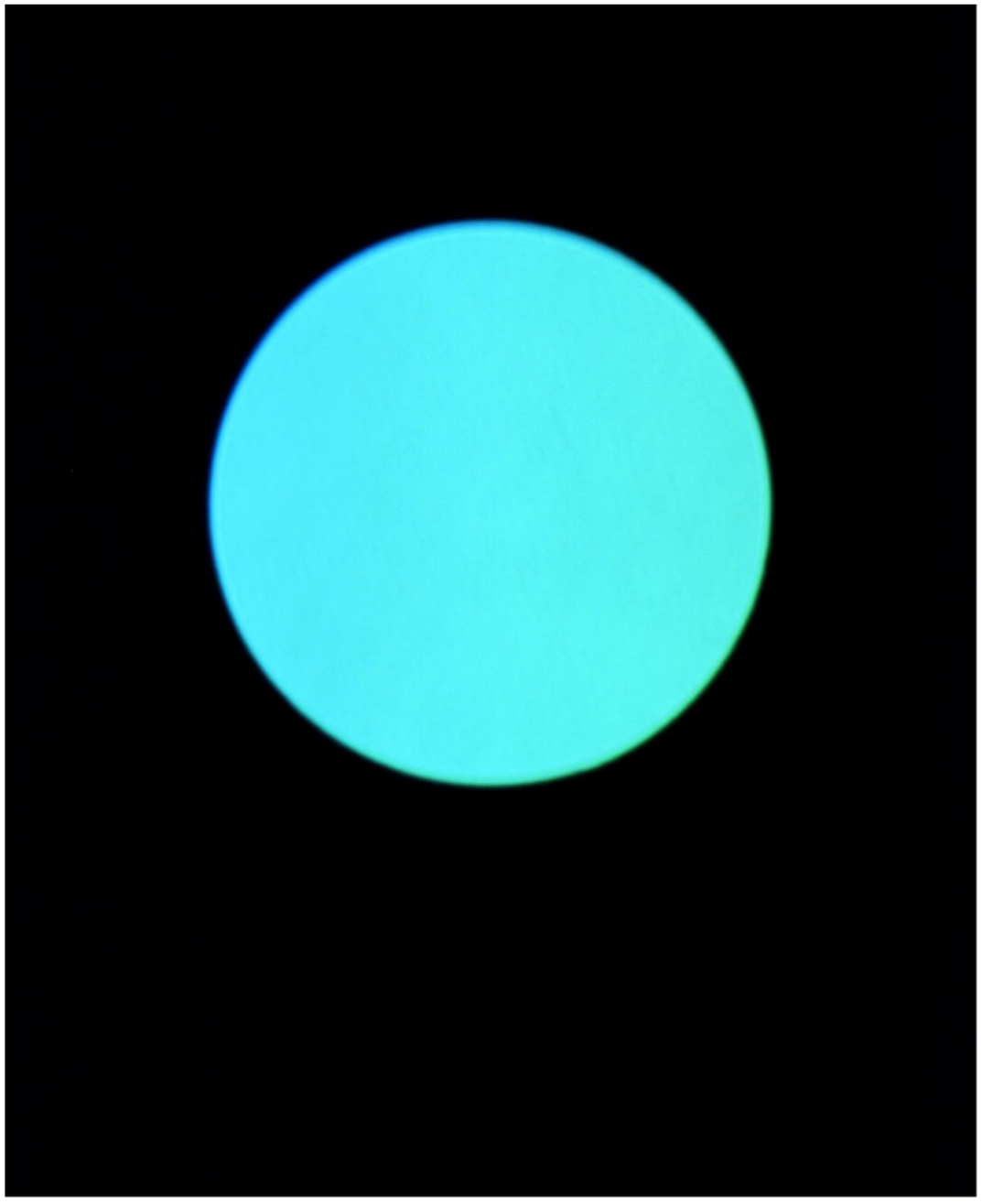


Fig. 13,14 Yellow Wavelength



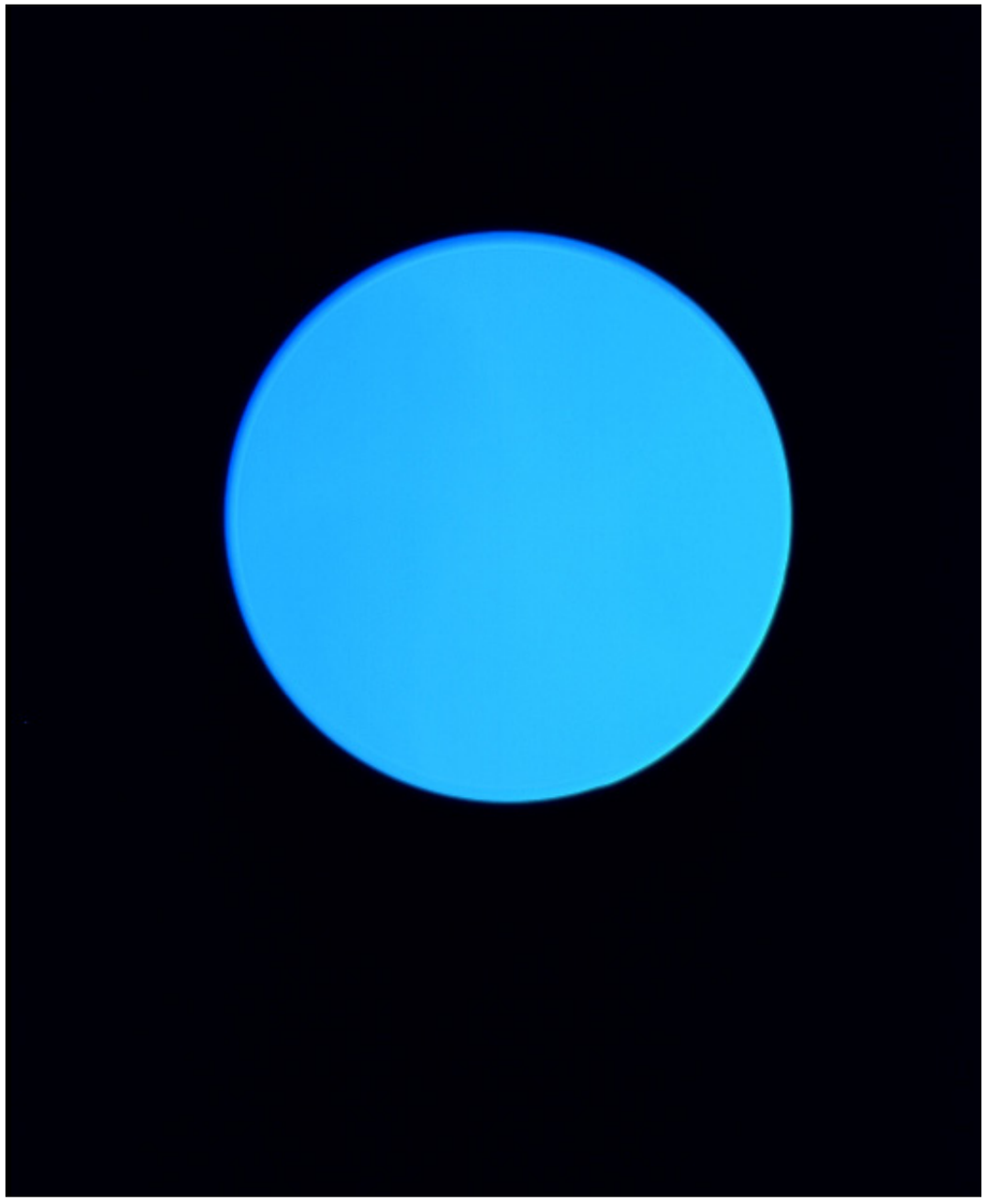
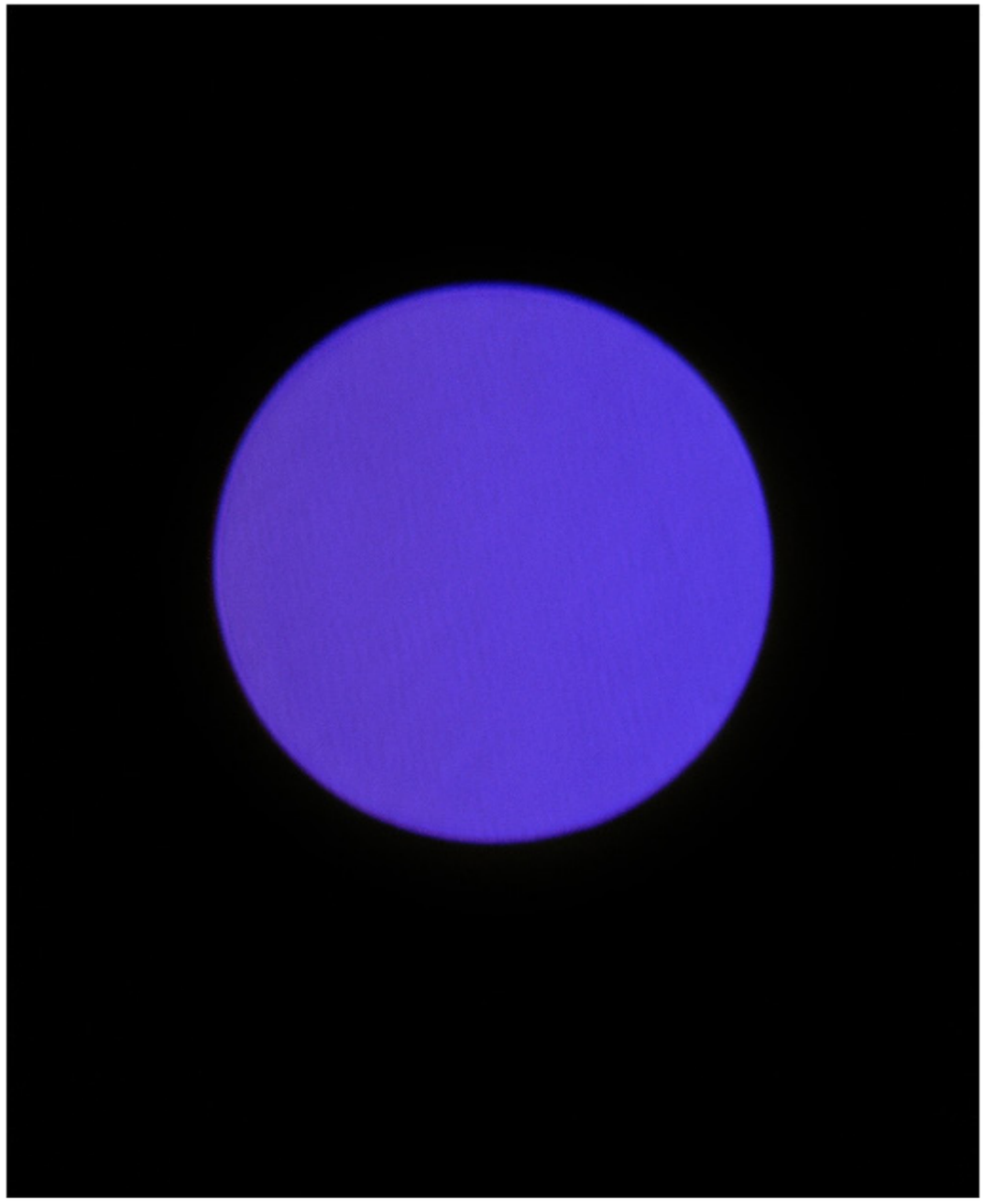


Fig. 15,16 Blue Wavelength



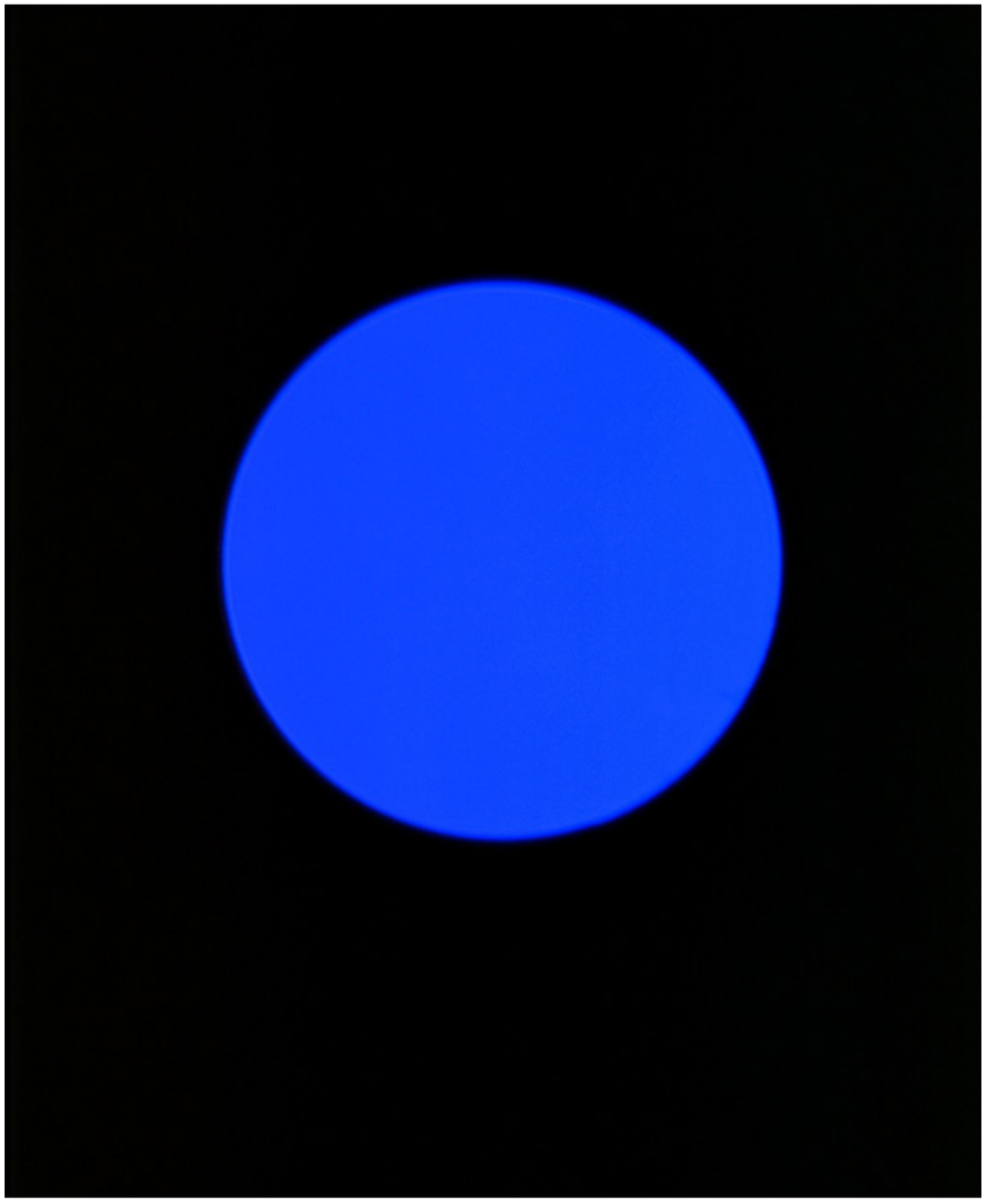


Fig. 17,18 Violet Wavelength

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Fig. 19 Ten 4x5 Color Negative Films Placed on a Light-Box Table, 2022

Fig. 20 Large Format Camera, Diffraction Grating and Light Source
Fig. 21 Green, approximately 550 Nanometers, Nikon 610
Fig. 22 Red, approximately 650 Nanometers, Nikon 610