

How Art Can Educate the Radiologist's Eye: Duchamp's “Nude Descending a Staircase”

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Duchamp's “Nude Descending a Staircase, No. 2” was dubbed one of the most famous and controversial paintings of its day (1. Along with the cubist school of which it was a part, it helped to change the way artists and the public perceived art, and its influence persists down to the present day (2. Less known but no less notable is the fact that “Nude Descending” also offers important educational insights to radiologists, particularly regarding the daily work of radiologic interpretation.

The Nude

Born in Normandy, France, in 1887, Marcel Duchamp grew up in a household filled with paintings by his grandfather, Emile Nicolle (3. Three of his brothers also became successful artists. As a student, Duchamp excelled in mathematics and art, and after graduation he sold cartoons that combined verbal and visual puns. After service in the military, he began exhibiting his paintings and participating in regular discussions with cubist painters. In 1912, he painted “Nude Descending.”

Duchamp intended to exhibit “Nude Descending” at an art show in Paris, but it was rejected by his cubist peers. The hanging committee deemed it “ridiculous” to paint a nude descending a staircase, claiming instead that a nude should be “respected” by a more dignified pose. However, it was exhibited later in 1912 in Barcelona and the next year in New York, where it provoked harsh criticism. Teddy Roosevelt claimed that it might just as well be called, “A Well-Dressed Man Going Up a Ladder.”

The painting, which measures approximately 57 × 35 inches and features mainly ochre and brown hues, depicts a figure composed of geometrical shapes that seems to be moving in a time-lapse fashion

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down some stairs (Fig 1). The figure appears in sufficiently abstract form that its gender and age are impossible to determine. At the bottom of the painting appears, in block letters, a phrase in French, “NU DESCENDANT UN ESCALIER.”

Cubism

“Nude Descending” both inhabits and transcends the cubist vision. The Cubists, including founders Georges Braque and Pablo Picasso, abandoned the Renaissance's emphasis on perspective, which sought to capture the three-dimensionality of a figure or scene as viewed from a particular point of view (4). They also moved away from the realistic depiction of figures, instead creating images the likes of which the human eye had never beheld in the real world.

Like the impressionists, the cubists seem to have been striving to portray reality in a new way that would reveal aspects of the world not directly captured by the retina. One such aspect was space, the possibility of depicting an object as seen from multiple perspectives at once. The two-dimensional surface of the canvas depicted a three-dimensional reality in a new way, as though the spectator were moving around the object, seeing it from multiple different points of view.

Duchamp's “Nude Descending” extends this effect even further in space and time. The figure is no longer depicted as static but as moving, thereby combining multiplicity of perspectives in both space and time. The effect can be likened to a series of motion picture frames, except instead of unreeling over a span of time, the entire sequence is captured in a single image. All stages in the movement seem to be equally present in a single instant.

Radiologic Perspectives

“Nude Descending” invites a radiologist to reflect on some essential features of our daily work that have become so deeply embedded in habit that they can be difficult to recognize. One is the fact that Duchamp's figure is fragmented, a feature of essentially every radiologic image. Radiologists also see

patients not as wholes but as parts, whether as body regions (chest, abdomen, etc.), anatomic slices (ultrasound, computed tomography, etc.), or physical properties (density, echogenicity, etc.).

Just as “Nude Descending” was rejected as an affront to the dignity of the nude, so radiologic images can fragment, partition, and undermine the integrity of a physician's perception of the whole human patient. For physicians in other fields who encounter the whole patient face to face, the danger of fragmentation may be somewhat mitigated, but for diagnostic radiologists who do not meet the patient, it takes effort to synthesize the images, the patient's story, and the patient.

Some investigators and clinical sites have attempted to catalyze this synthesis by adding to radiologic image sets a photograph of the patient (5). Even where such photographs and direct patient contact are not possible, however, radiologists can still connect images to patients at least in the imaginative sense, bearing in mind that every set of radiologic images corresponds to someone's parent, spouse, sibling, child, or friend.

Another radiologically notable aspect of “Nude Descending” is its depiction of the figure from multiple spatial points of view. The cubists remind us that, depending on the perspective from which a figure is viewed, different features are either revealed or obscured. And to multiple spatial perspectives, Duchamp adds multiple temporal points of view. At one point, Duchamp's figure appears to be leaning forward and at another point back.

Radiologists need to remember that the patient looks different to different people at different times. For example, a cardiologist might view the patient through the lens of the cardiovascular system, whereas the pulmonologist might focus primarily on the respiratory system. Likewise, a patient viewed at the moment of an acute, life-threatening event may look quite different at a later point, when a multidisciplinary group has assembled for an unhurried discussion of the case.

Another feature of “Nude Descending” of special note to radiologists is the interplay it depicts between static and dynamic reality. A sequence of movements of a body through space appears to be

frozen in a single instant of time. So, too, radiologic images tend to capture but a single moment in the unfolding of a disease and its treatment through space and time. In both situations, the implication is the same: at no single point in time are we able to see the whole picture.

In this sense, the challenge to radiologists can be likened to that of a person listening to a symphony. To be heard, the music must unfold in time, and the whole work is never apparent at any moment. The same can be said for the health and diseases of patients: what the radiologist glimpses is like a still photograph or a series of such photographs, but the reality of the patient persists between the intervals, and the radiologist needs to be imaginatively engaged with that unfolding reality.

For example, suppose frontal and lateral chest radiograph show a bullet superimposed over the right ventricle of the heart. How could a bullet be lodged in the right ventricle of a living patient? The answer of course, is that the radiographic snapshot represents a single frame of an unfolding motion picture, and the bullet traveled as an embolus from another point in the body via the systemic venous system. Again, radiologists perceive still images but must think in motion pictures.

Another feature of Duchamp's painting is the fact that, when represented geometrically, a human being can become depersonalized. We cannot tell the gender or the age of the figure. We cannot discern the figure's identity, or whether it represents any particular person. We cannot make inferences about the figure's character, or how he or she might be feeling. The painting merely shows us a figure in motion.

The same can be said, by extension, about the figures depicted in radiologic images. We may be able to diagnose an intracranial hemorrhage, a bronchogenic carcinoma, or appendicitis, but the image itself tells us little or nothing about the identity of the patient or the life the patient has led. Likewise, the radiologist is called upon to avoid depersonalizing or dehumanizing the patient, making sure never to see in any radiologic image just a biologic specimen and nothing more.

By giving us so little in the way of personalizing features, Duchamp both shows us the inherent limitations of cubism and invites us to enter the painting, imagining for ourselves features that the

painting cannot supply. Peering inside the human body tells us a great deal about the biologic organism whose images we are viewing, but the radiologist needs to recollect that they correspond to a person with a biography that is still in progress.

A fifth and overarching insight of “Nude Descending” is the fact that, like every piece of art, including non-representational art, it is in fact a depiction or representation of something, either real or imagined. An image is never the same as what it represents. This point is illustrated effectively in a story once told by Pablo Picasso. One day, a US serviceman complained to Picasso that his paintings seemed inaccurate, not corresponding to the reality that meets the eye (6. Picasso responded

You mentioned earlier that you are engaged to be married. Do you have a photograph of your fiancée? May I see it? [Viewing the photograph, he expresses great surprise, perhaps even horror.] She's kind of small, isn't she?

Although radiologists have good reason to take great pride in the many important medical insights radiology can provide, we also need to heed Duchamp's warning that images are never as important or real as the human reality they depict. Radiology is in large part a representational medical art, and we need to bear in mind that representation also necessarily simplifies and abstracts. Behind every static radiologic image is a living, breathing human being with a still-unfolding life story.

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Figure 1. Marcel Duchamp, *Nude Descending a Staircase, No. 2*, 1912. Oil on canvas.

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