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### *NEW HIGH-RESOLUTION CAMERA NEARS REALITY*

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NEW YORK – When photographer Clifford Ross first saw Colorado's Mt. Sopris, he was so taken with the beauty of the mammoth formation that he jumped on the roof of his brother-in-law's car – denting it – to photograph the landscape.

But Ross found that his 35 mm photos didn't get anyone else excited. They simply didn't capture enough detail to convey the majesty of the white-capped mountain surrounded by grassy fields.

So he decided to make a camera that could create an image as awe-inspiring as the vista before him. The result was R1, a 110-pound, 6-foot film camera that produces what experts say are some of the highest-resolution landscape photographs ever made.

"Mountain I," a 5-foot-by-10-foot color photograph captured by that camera, is on display at the Sonnabend Gallery in New York through July 30.

Ross, 51, wanted to share a near-replica of reality, without any of the blurring visible in most large prints. "You can choose to go up to the picture and experience it intimately with a sense of unbroken reality," he says .

Details of the mountain's snowcapped peak – 7 miles from the camera – are in sharp focus, as are individual blades of grass only 100 feet away. When sections of the image are magnified nearly four times, other details are clearly visible: the shingles on a barn 4,000 feet from the camera, a red bird in the grass 150 feet away.

A lower-resolution image captured on everyday 35 mm film would break down when displayed at the size of "Mountain I." Viewers would see a fuzzy, fractured image – and Ross' miniature red bird would likely not be visible at all.

"You have to ask the question, 'What's the point of painting a scene like this when you can reproduce it with no loss of resolution?'" says Conor Foy, a 36-year-old painter. "The resolution of this seems to be more than anything I've seen before."

Ross acknowledges that he has very little technical background. "I'm not a research scientist and I'm not a designer of photographic mechanisms," the first-time inventor says. "I'm doing this because I want to make a piece of art."

Benjamin Donaldson, a large-format photography teacher at the International Center of Photography, calls Ross' camera an unusual example of art driving science rather than the other way around.

Similarly large images have been created before by seaming numerous photos together, and other photographers have used film even larger than Ross' to capture high-resolution images. One black-and-white photographer, Douglas Busch, built a camera that uses custom-made film larger than 3 feet-by-5 feet.

But Ross, an admitted perfectionist, found existing large-film cameras unsuitable. Some were too small. Others produced only black-and-white photos. The largest ones lacked the refinement he wanted.

"All of the inventions that were wrapped up into my R1, were an antidote to the problems that I see in all view cameras," he says, referring to the accordion-style cameras used for maximum image quality.

But as Ross sought to create something new, he found himself returning to the old, implementing common sense solutions and incorporating outdated parts – an anomaly in today's digital age.

The R1 – the R is for Ross – is similar to the accordion-style view cameras used in the 19th century. It is built around the body of a World War II-era camera originally designed to take pictures from thousands of feet in the air. Mirrors, vacuum pumps and a microscope help focus the image precisely.

But when Ross' 9-inch-by-18-inch negatives are digitally scanned, the result is decidedly high-tech. Each image yields a 2.6-gigabyte file – huge for a single image.

Kodak Chief Technology Officer James Stoffel says Ross' file is more than a thousand times the size and resolution of those generated by a typical digital camera for consumers. High-end professional digital cameras usually create images that are around 20 megabytes, offering less than a hundredth of the resolution of Ross' images.

Much of the camera's precision focusing is achieved with what Ross calls "meat and potatoes" innovations.

A vacuum pump ensures that the film is flat to within one-thousandth of an inch, and a dual-mirror device keeps the film parallel to the lens. Sand bags strapped to the camera and tripod prevent the machine from shifting, and a reinforced aluminum cradle maintains the parts of the camera in perfect alignment.

Because the camera uses film meant for aerial shots, its negatives must be chemically treated to reduce their unusually high degree of contrast. That leaves sharp details but muddy colors.

So after digitally scanning the negative, Ross and his assistants must manipulate the image using Adobe Systems Inc.'s Photoshop software to return the mountain's colors to their initial vibrancy. Though the method might raise questions about accuracy and purity, Ross tries to avoid making any significant changes and works from memory to restore the scene.

The process is so lengthy that the one-time painter can produce only five to eight images a year. Three years passed between Ross' first snapshot sketches and the exhibition of "Mountain I."

Ross refuses to divulge how much the camera cost or how it got funded, but says he did not receive corporate backing.

Confined by the size of available paper, the images will remain 5 feet-by-10 feet – at least for now. Ross says he hopes one day to string flat-screen monitors together to create an 18-foot-by-36-foot display wall, and he believes the hyper-reality of the image will hold up at that size.

Kodak's Stoffel says it's unlikely the R1's technology will be adapted for the average consumer, though high-end professional applications are possible. He says he has no specifics in mind.

But Ross remains focused on art.

"I want to give people the feeling that they have when they are overpowered by the grandeur and the beauty of nature," he says. "It's the kind of thing that artists have been trying to do for hundreds and hundreds of years."