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51. Не может быть на Марсе голубого неба - это очередная фальшивка НАСА.

12-15 minutes

More than two months have passed since the landing of the Perseverance (Perseverance) rover (since February 18, 2021), and the mass hysteria about the landing and the photos sent has not stopped yet. Moreover, over time, the theme of a large number of photographs of "Martian" landscapes was replaced by the theme "Will the Martian helicopter take off or not?" and again filled all the news feeds. The helicopter is called Ingenuity, and if I'm not mistaken, it translates as "Naivety".

And then the topic of artificial oxygen production on Mars is already being discussed. In this way, a constant interest in the "Martian" theme and the theme of US space achievements is maintained. Just about there, to Mars, will fly constantly exploding during landing "Starship" (Starship). And if not this year, then certainly next, Elon Musk himself will visit Mars.

But all these Martian images, Martian helicopters and even Martian spaceships are just as much a scam as the moon landing. All Martian imagery is taken on Earth, possibly on the Canadian island of Devon. But this is no longer so important, there are many abandoned and inaccessible places on Earth that resemble a Martian desert landscape. But the blue sky betrays that this landscape is earthly.

In all of NASA's "Martian" images, we see excess yellow or orange. He literally at all objects.

This is a snapshot of a helicopter, allegedly taken on Mars from a rover.

If we remove this clearly redundant yellow color, then we will see that behind it hides the usual earthly blue sky.

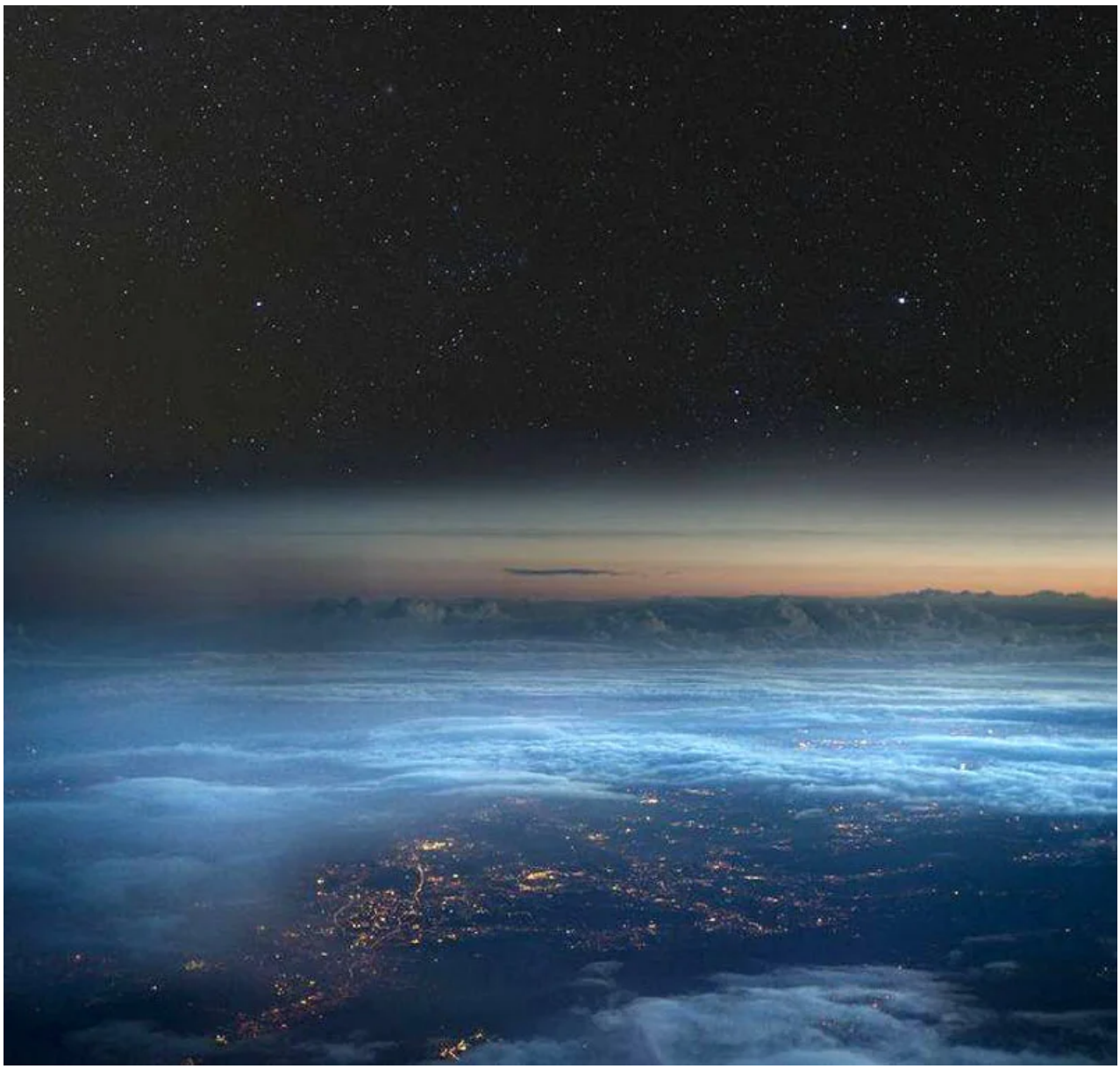
The "Martian" image has been color corrected.

From the readers of my articles, probably no one knows that for several years I worked as a professional color installer at a film copy factory. And he "exposed color" to many films that were shown at the box office in our country. For example, a copy factory needs to print 900 film prints of Star Trek (2009) for cinemas throughout Russia. And so I made sure that these copies did not differ from the reference, brought for comparison from Europe. I controlled every 20th copy, and if I noticed any deviations in color, I immediately made amendments to the light passport.

So I, as a color installer, immediately see the unnatural color of the "Martian" landscape, it is artificially distorted.

Please do not teach me in the comments what color grading is, citing quotes from Wikipedia. Half of what is written on Wikipedia on these topics is outright nonsense. Better share your experience in Photoshop.

The sky on Mars should be black, except that at the very line of the horizon, the color can be black and blue. This is due to the low density of the Mars atmosphere. The pressure of the atmosphere on the surface of Mars is about the same as on Earth, in the stratosphere, at an altitude of 31-32 km.



This is how the sky looks from the stratosphere of the Earth.

On the surface of Mars, the pressure is 6.1 mbar, 160 times less than on Earth. The atmosphere scatters light so weakly that at any time of the day you can observe stars on Mars, even during the day - you just have to stand with your back to the sun.

In 1898, the English physicist Rayleigh created the theory of light scattering by particles whose size is much smaller than the wavelength of the scattered light.

As L. Aslamazov and A. Varlamova write in their book "Amazing Physics" (1988), Rayleigh originally assumed that the color of the sky is due to the scattering of sunlight on the smallest particles that dust the atmosphere. However, he later came to the conviction that the sun's rays are scattered by the gas molecules that make up the air.

> In 1908, the Polish theoretical physicist M. Smoluchowski expressed the idea that rather unexpected objects - inhomogeneities of the particle density - should act as scatterers in an optically homogeneous medium. ... Finally, A. Einstein in 1910 created a consistent quantitative theory of molecular light scattering, based on the idea of Smoluchowski. For gases, the scattered light

> intensity calculated by Einstein's formula exactly coincided with the result obtained earlier by Rayleigh.

Due to the thermal motion of molecules, there is always a nonzero probability that the concentration of molecules in a certain region of space will exceed the average concentration for some time, and at the same time, naturally, the concentration of molecules in the neighboring region will decrease for this time. These deviations are called *fluctuations* (from the Latin word fluctuari - to fluctuate). Because of them, refraction and scattering of light occurs.

In a 2012 article "What color is the sky on Mars?" Vitaly Nasennik writes:

> Let's try to estimate the number of molecules in the atmosphere of Mars. The main part of the atmosphere of Mars is carbon dioxide with a molar mass of 44, and in air (a mixture of nitrogen and oxygen) - about 29. Consequently, the number of molecules that scatter light, giving color and brightness to the Martian sky, is 1.5 times less (than on Earth at an altitude of 31 km - L.K.).

And here's his output:

> The brightness of the sky on Mars relative to the light of stars, which can be taken as a standard, will be 140-215 times less than on Earth.

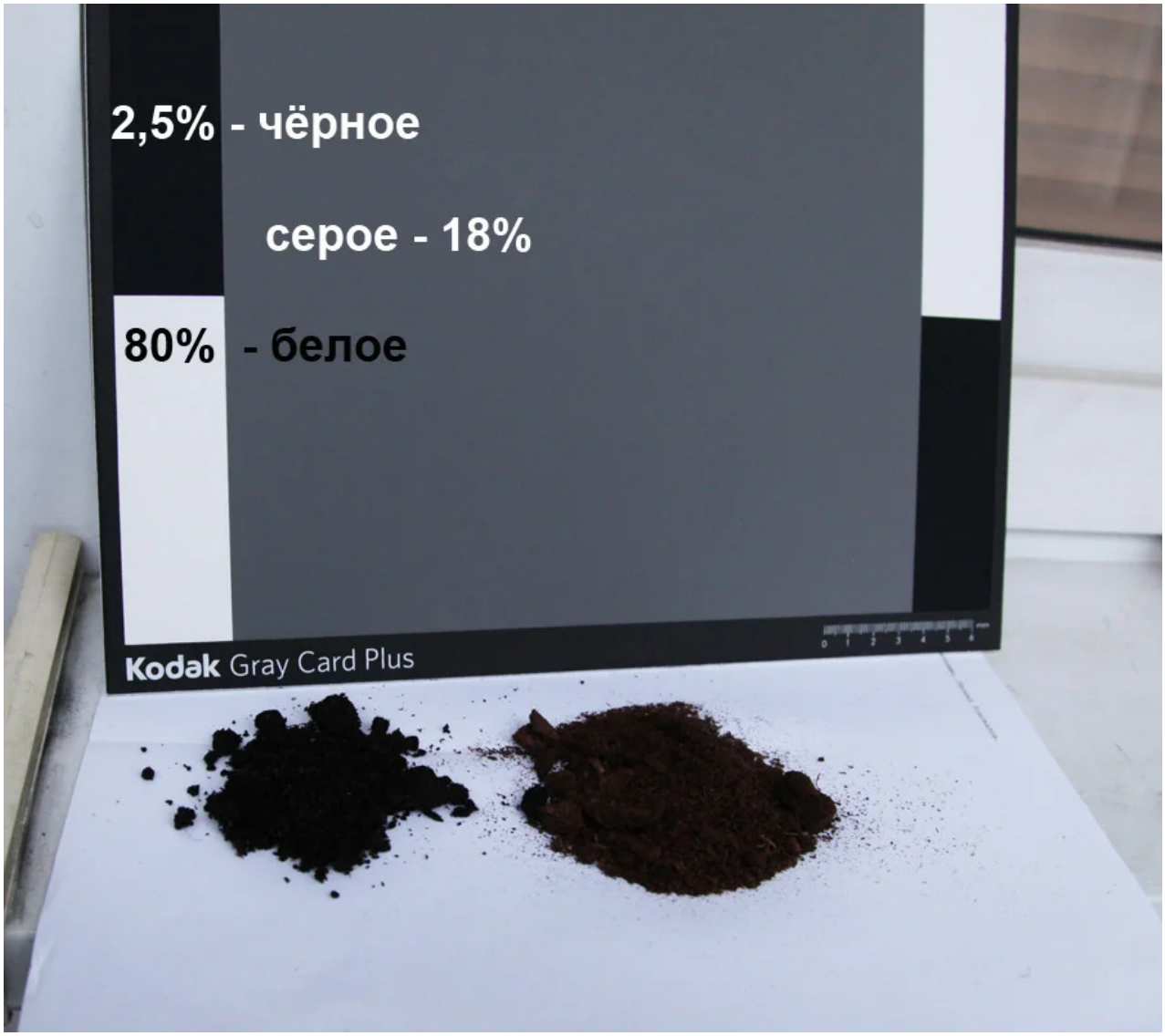
To understand whether this is a lot or not enough for the sky - "140-200 times", I took out from a set of optical glasses two neutral-gray filters, NS-7 and NS-9, and installed them against the background of a landscape with a blue sky. One glass (NS-7) reduced the light by 2.5 times, and the other, NS-9, darker, 60 times.

> Left - neutral gray glass HC-7 (the inscription is engraved in the upper right corner of the glass), right - glass HC-9.

Bright clouds barely shine through the glass, which reduces the brightness of the sky 60 times, but the sky is barely "readable", it is already completely black. And this weakening of light is only 60 times (not 140 and not

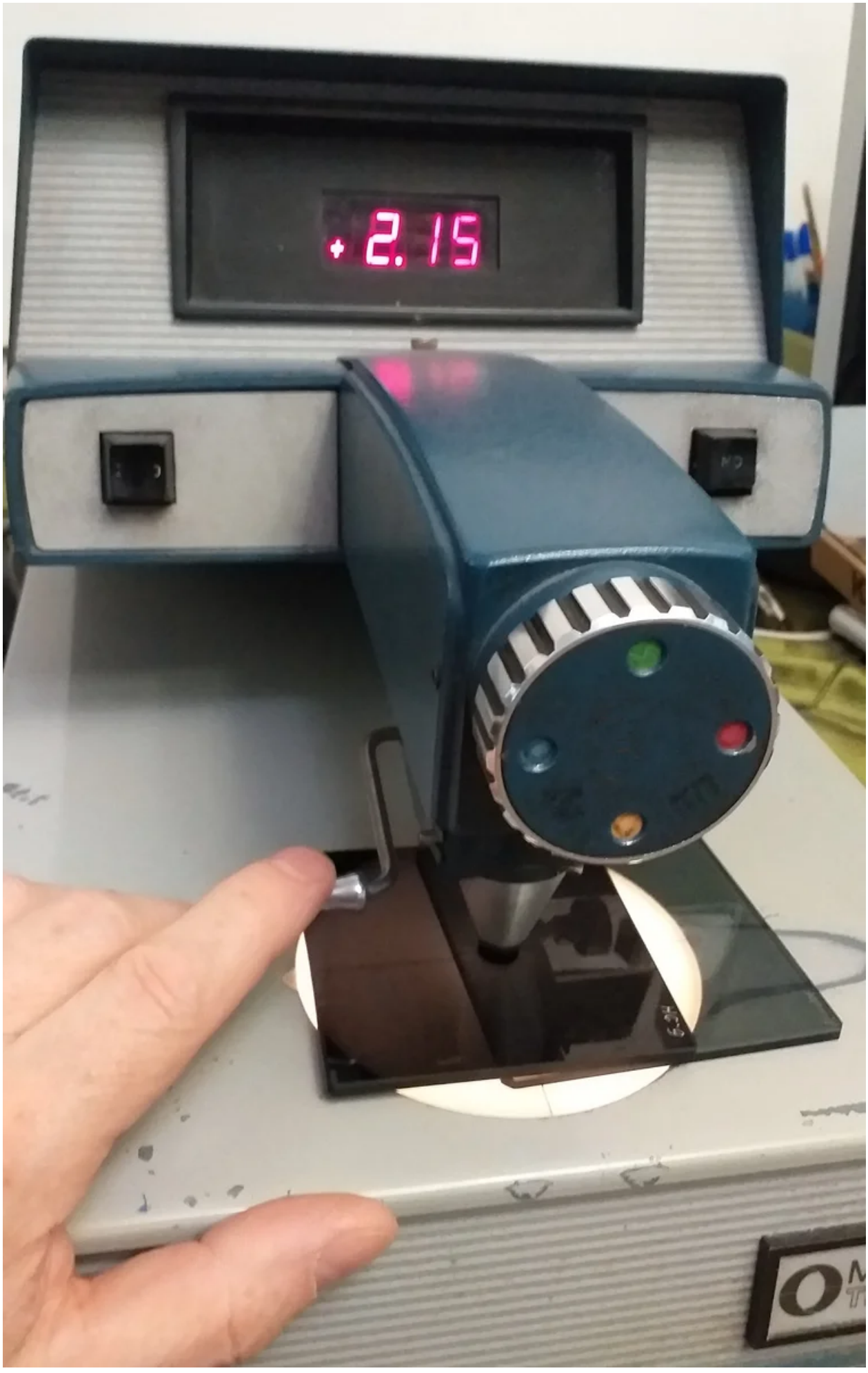
215).

However, there is nothing surprising in the fact that a decrease in brightness 60 times leads to virtually complete darkness. If we take the Kodak standard gray scale, then the white field there differs from the black one by 32 times in brightness. The white field (white paper) reflects 80% of the light, and the black ink reflects 2.5%. Any object that is less bright, which differs from the white field by 32 times in brightness, will look black in the photo.



Kodak reference gray scale taken with a digital camera

Now let's take and add two filters, NS-7 and NS-9. Together they give a density of 2.15 - this is how the densitometer shows.



Measurement of two folded filters (NS-9 and NS-7) on a densitometer.

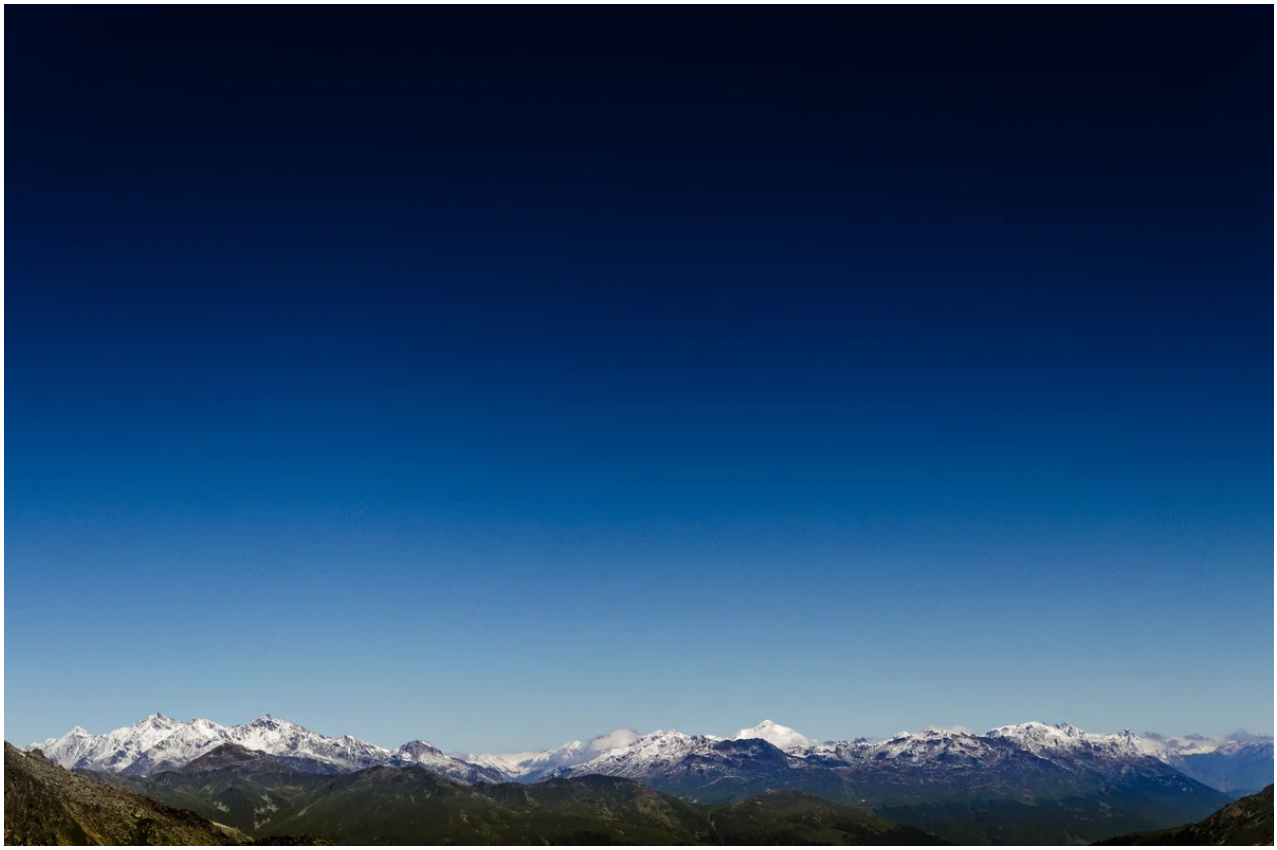
Since the densitometer shows logarithmic values, raising 10 to the power of 2.15 we get that this set of neutral gray glasses reduces the transmitted light flux by 140 times.

The filter reduces light by 140 times.

This is how dark the sky on Mars should look in photographs on a sunny day. The eye, perhaps, will see a little more - the "dynamic range" of the eye exceeds the "dynamic range (latitude)" of the digital matrix. But we are not discussing what the eye sees, but what will turn out in the photograph.

And there is absolutely no way the sky can be yellow, as NASA shows.

Once, to explain the color of the sky, Rayleigh applied his law to the scattering of sunlight in the atmosphere and found that radiation with a short wavelength is scattered most of all. In the visible range, these are blue-violet and blue rays. But since the eye's sensitivity to violet rays is very low, we do not feel this component in the color of the sky and perceives the sky as blue-blue. Therefore, no matter where we are, on Earth or on Mars, violet, blue and blue rays will be most scattered in the atmosphere. The scattering intensity of blue rays is about 4 times higher than that of red ones. With strong light scattering, the sky will be blue-blue, but high in the mountains, overhead, where the thickness of the atmosphere in a straight line upwards is less than in the distance to the horizon, the sky will turn into a black-violet tone.



> The sky high in the mountains looks dark purple.

If the atmosphere of Mars were denser, it would be lighter. But it is very rarefied and, in principle, cannot be bright, as NASA demonstrates. "Martian" images with bright skies and atmospheric haze, like on Earth, are another fake by NASA.

Of course, in the "training manuals of the State Department" the "line of defense" for the propagandists of NASA is spelled out. They are encouraged to write that there are sandstorms on Mars all the time, and that *Martian dust is rich in blue, absorbing iron oxide, which has the opposite effect of a "dark yellowish-brownish" sky.*

> However, most of the time, there is a lot of dust in the atmosphere of Mars, so most often the sky is of a different color.

And defenders of American lies also mention the strong Purkinje effect, which makes the sky on Mars look blue.

> Since Mars is 1.5 astronomical units from the Sun, the amount of light on the surface is half that on Earth. Due to insufficient light, our eyes switch sensitivity to blue light because we switch from using color-sensitive cones to using color-insensitive rods. This is called the Purkine effect. Therefore, the first astronaut to land on Mars is likely to describe the sky bluer than one might expect.

I have no difficulty in finding the source of this often quoted nonsense. It turned out to be a certain astrophysicist, **Santiago Perez-Hoyos,** *MSc in Astrophysics, PhD in Planetary Sciences, University of the Basque Country.* Maybe a real person, maybe a fictional one. Okay, if some student with a failing student wrote about the effect of the Purkinje effect on the perception of the sky on Mars, one could understand his ignorance, otherwise he seems to be an astrophysicist with experience, to which lawyers and NASA trolls are now and then referring.

The fact is that this effect manifests itself at very low levels of illumination, with twilight vision. In the daytime, the eye is most sensitive to a green-yellow color with a wavelength of 555 nm, and at night the peak shifts to a blue-green region, to a wavelength of 505 nm. This shift in the maximum color sensitivity is known as the Purkinje effect, named after its discoverer. The Czech physiologist Purkinje discovered in 1825 that parts of road poles painted in red and blue look the same in brightness during the day, but look different at dawn: blue appears lighter than red.

So, according to information from the book of C. Padham and J. Saunders "Perception of light and color" , daytime vision switches to twilight when the brightness decreases by 4 orders of magnitude, i.e. 10,000 (ten thousand) times.

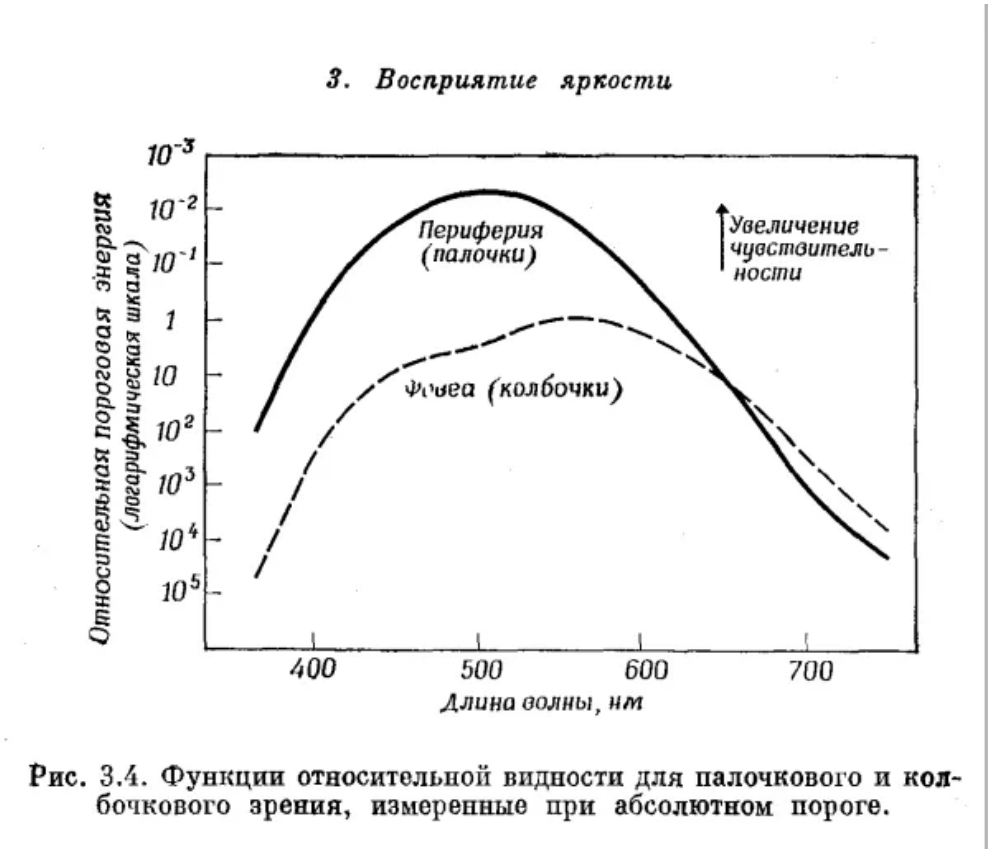


Рис. 3.4. Функции относительной видности для палочкового и колбочкового зрения, измеренные при абсолютном пороге.

And on Mars, the surface illumination on a sunny day is only 2 times less than on Earth. Therefore, no Purkinje effect is triggered on Mars during the day.

When do we notice this effect? When the illumination falls several thousand times. In sunny weather on the Earth's surface, the illumination is 30-40 thousand lux, and at night in the moonlight - only 0.3 lux. You woke up at night in a room, and all around it was twilight. The only light source is the moon outside the window or a street lamp, to which the distance is 50 meters. Then only light-sensitive sticks work, and the whole image looks BLACK-WHITE. The image does not turn blue, since we do not perceive any colors at such a low light level, just a red color (a red blanket, for example) will look black, and a blue T-shirt will appear light. But the astrophysicist Peres-Hoyos does not know these elementary things and therefore thinks that in low light everything turns blue.*bluer than you might expect. "*

Output.

Due to the highly rarefied atmosphere, the sky on Mars should appear black. However, NASA shows very different "Martian" landscapes with the sky. The frame shows terrestrial atmospheric haze and an overly

bright sky. This sky is as blue as on Earth. In order to hide the clearly earthy color of the sky, NASA distorts the color of the photographs, deliberately taking the entire frame in yellow or orange tones.

PS Of course, I know that "naive" in English will be written "ingenuos", not "ingenuity". And I know that (despite the similarity of words) the name of the helicopter is translated as "Ingenuity".

Cameraman L. Konovalov was with you. Until next time!