

on the Defense Ministry request. The native (Russian) analog should be included in the list DIM necessarily. Only analogs approved by the list DIM can substitute the foreign-manufactured components.

The FS creation process is more difficult than it looks. The draftsman should know all electronic components, understand the circuitry ones. Sometimes one FS creation takes a half day or a full day.

REFERENCES

1. O kompanii [Electronic resource]: Micran. – Access mode: <http://www.micran.ru/>.
2. Standart organizacii OmSTU [Electronic resource]: OmSTU. – Access mode: http://xn--c1arfsf.xn--plai/educational_activities/dokumenty_smk/standards/STO_OmGTU_73.02-2012.pdf.
3. Kobzar D. Procedurnye voprosy primeneniya elektronnyh sredstv v voennoi tehnike: normativnaya baza i pravda zhizni [Electronic resource]: Statya. – Access mode: www.cta.ru/cms/f/356562.pdf.

THE ORIGIN OF THE EXPRESSION “ONCE IN A BLUE MOON”. CAN THE MOON REALLY BE BLUE?

D. V. Peremitin, V. V. Vorobeva
Tomsk Polytechnic University

Looking in the sky, we can see the moon, the only satellite of the earth. It can be growing, aging or full. We usually see the full moon once a month, but there are months when we can see the full moon twice. “Blue moon” is a term that is used in astronomy for designation one of these two moons during one lunation. The lunation is a period, consisting of 29 days, 12 hours, 44 minutes, and 3 seconds, the amount of time from one new moon to the next one.

Dating back to the 1800's the term "blue moon" that was used by “Farmer's Almanac” to denote the appearance of the third full moon in a season where four full moons will occur. We usually see 12 fool moons annually. It means that the fool moon appears one time per month and three times per quarter. Sometimes a quarter can have three full moons.

The term has emerged because every full moon has its own name in every season. This tradition has existed thousands of years in many cultures. The names generally accepted today are those coming from “Farmer’s Almanac”. For example, in the second quarter of the year moons will be “pink” (in April), “flower” (for May) and “strawberry” (for June). However, whether the forth full moon appear during this quarter it would be called a “blue moon”. It means that the order of full moons during the second of the year would be “pink, flower, blue and strawberry”.

The “blue moon” emerges once every 2.7 years that is why it’s become a measure of a long period of time. That is how the idiom “once in a blue moon” appeared. The origin of this expression meaning a rare event is obscure.

Misunderstanding led to a new definition

In the “Sky and Telescope” magazine’s article “once in a blue moon” the author, James Hugh Pruett improperly mentioned that “blue moon” is the name given to the second full moon in a month. He made this conclusion by looking at “Farmer’s Almanac”. He poorly analyzed the information of this article and made an incorrect conclusion. He believed that *“seven times in 19 years there were – and still are – 13 full moons in a year. This gives 11 months with one full moon each and one with two. This second in a month, so I interpret it, was called Blue Moon”*. Pruett’s definition wasn’t strictly correct. For example, May could be able to have 2 full moons, but since it there is the second month in a quarter, the second full moon in May would be called “blue”. Thus Pruett’s definition looks true. But, if two full moons appear in June, the first full moon would be the “blue moon” and if two full moons fall in April, neither of them would be “blue”. Despite that Pruett’s definition is not always true, but it has become the most popular definition of “blue moon”. The next “blue moon” is expected by scientists on the 31 of July in 2015.

Does the moon ever actually appear blue?

There are many facts that the moon sometimes appears blue in color. It is a rare event. The effect can be caused by smoke or dust particles in the atmosphere, as happened after forest fires in Sweden and Canada in 1950 and 1951, and after the eruption of Krakatoa in 1883, which caused the moon to appear “blue” for nearly two years.

The reason why the moon looks blue is in little particles that are wider than the wavelength of red light (about 0.7 micrometer in diameter). Volcanoes sometimes produce such clouds. These kinds of clouds usually consist of ash and dust, which contain a mix of particles with a wide range of sizes, smaller than one micrometer.

“Blue moon” always inspires creative persons

“The moon is blue” is a movie with William Holden, filmed in 1953. This movie was nominated for 3 Oscars. “Manchester city”, one of the richest and most famous football club, adopted the song “Blue moon” as its official anthem. “Blue moon” is a popular music standard, written by Richard Rogers and Lorenz Hart in 1934. There is an USA’s brewing company, called “Blue moon”.

REFERENCES

1. <http://news.bbc.co.uk/2/hi/science/nature/265496.stm>
2. <https://farmersalmanac.com/>