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DECORATIVE-FACING STONE MASSIF FISSURING RESEARCH

Natural stone is rather valuable decorative-facing material. Deposits of rock are characterized by a system of cracks (rocks fissuring). These cracks appear as a result of tectonic disturbances and under the influence of explosion in the massif.

The rocks fissuring system determines the choice of facing stone mining system technology and technological complex that may be rationally applied in these conditions.

The rocks fissuring plays a great role in decorative facing stone mining, because massif disruption limits the extraction of big stones (monoliths) from the deposit. That's why we should research the massif fissuring.

G. Kloos was the first to discover rocks fissuring of granite massifs and he created a morphological classification of primary cracks (rocks fissuring). Such scientists as L. Baron, M. Bakka [1,2-3], B. Belikov [4], O. Kosolapov [5], Yu. Karasiev [1,6], M. Motorny, P. Natsyk, S. Podoinykov, A. Kryvoruchko [7], S. Iskov, R. Sobolevskiy also worked in this field. They researched natural distribution system of cracks (rocks fissuring) in the decorative-facing stone deposits.

A. Kryvoruchko clearly described the interconnection of rocks fissuring with structural features of massif [7]. These researches show that the intensity of rocks fissuring can vary in area as well as in depth of the deposit.

Nowadays the designing of mining technology in the decorative-facing stone deposits is carried out according to the average rate of rocks fissuring and blockiness.

Reliable information about the rocks fissuring and blockiness of the deposit allows defining the content and the outcome of stone blocks. It also allows determining the complexes of equipment for extraction and processing of decorative-facing stone.

In the research the structural features of Pokostivka granodiorite deposit were tested studying the core sample [1]. A core sample is a cylindrical section of rocks. Core samples are obtained by drilling with special drill. For example granite got by using a hollow [steel](#) tube is called a [core drill](#).

When we drill core sample, we create a new cracks (rocks fissuring) which are difficult to distinguish from natural cracks.

That is why the interval of core sample drilling was established and it is 2 metres in depth. The average depth of core bit drilling is 30 metres.

According to the results of the cracks system elements measurements the rose-diagram (Fig. 1) was built. We can see that there are three main systems of cracks in the deposit of granodiorite (Tab. 1).

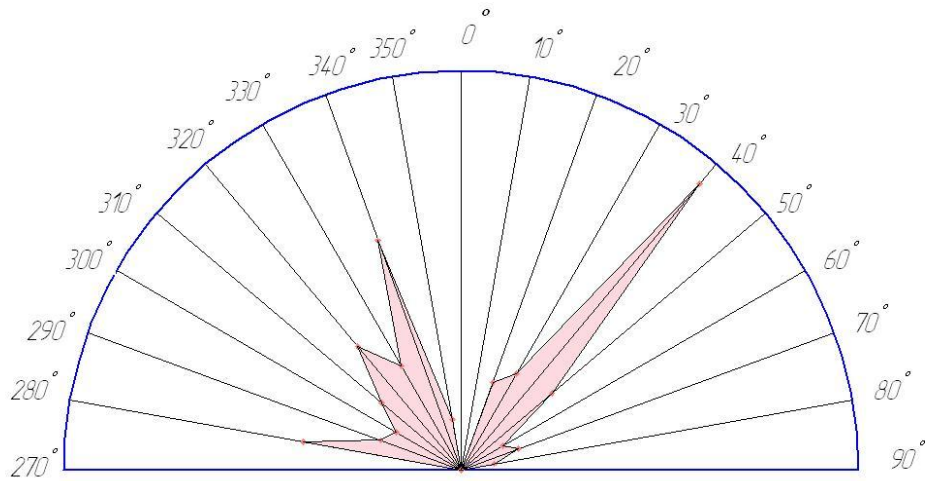


Fig. 1 Rose-diagram of rocks fissuring in Pokostivka granodiorite deposit

Table 1

The system of rocks fissuring in Pokostivka granodiorite deposit

System of cracks	Strick azimuth	Angle of dip
1	North East 30°-50°	70° -90°
2	North West 310°-340°	70° -90°
3	North East 55° -70°	0°-10°

The massif of Pokostivka granodiorite deposit is characterized by average rocks fissuring of tectonic origin, the reason of which is the anisotropy of massif structure.

It is necessary to mention that cracks are located heterogeneously, so blockiness of the massif will vary on different areas.

According to heterogeneous of cracks (rocks fissuring) we need to choose such scheme of natural facing stone extraction, in which the maximal coefficient of blockiness will be obtained, and unavoidable losses will be at a minimum level.

Thus, it is possible to make a conclusion that the research of the massif structural elements should be done to provide the correct mining extraction of decorative-facing stone. On basis of investigations we can set the coefficient of the blocks outcrop on different technological areas and carry out the geometrization of deposit.

That will help to pick up a rational system of natural facing stone extraction. It will also be possible to predict the outcome of blocks and the front of mining operations progress.

As the result the losses of decorative-facing stone raw materials in the process of extraction will decrease and the quality of raw materials blocks will increase.

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