interference mirrors and so on. These additional influences may be taken into consideration but the respective analysis becomes much more complex. The elimination of the errors is possible by requiring high quality flat surfaces for both the glass block and the interferometer mirrors.

In our case all the surfaces were flat up to 0.1λ. The checking measurements were carried out for several glass blocks with the methods described above. The linear changes for different blocks ranged from $5\cdot10^{-6}$ cm^{-1} to $25\cdot10^{-6}$ cm^{-1}. The maximal scatter of the results between the particular methods amounted up to 10%. The nonlinear changes amounted up to $1.5\cdot10^{-6}$. In the majority of blocks they were not measurable.

The further work is being done to improve the accuracy of the measurements.

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An Attempt of Numerical Estimation of the Stria Measurement due to GOST-Method

The striae are regions inside glass volume differing distinctly by the refractive index from the surrounding glass mass. These regions may be differently spread and have various forms. Any light beam is deflected by them (being refracted, reflected or difracted) by an angle α. This fact enables to observe a shadow "map" of the striae on a screen positioned perpendicularly to the beam pass direction. The procedure described above determines the essence of the so called shadow projection. The striae intensity in the method is defined by the measurement condition, for instance, the light source diameter, the distance of the glass block from the screen and so on, by which the shadow becomes invisible on the screen.

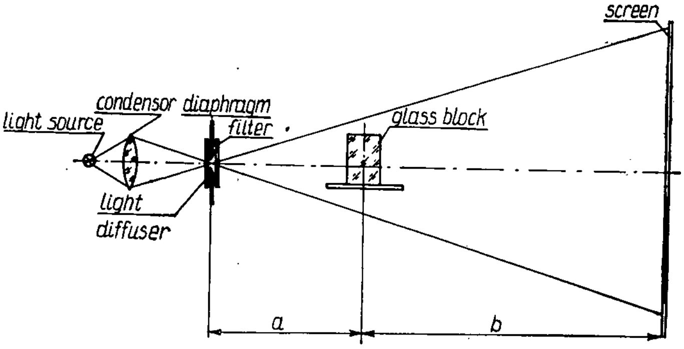

Fig. 1

Another seldomly applied method of the striae detection is due to Topler. The measurement arrangements based on the method are called striascopes (Schlierengärate in German). They allow for an immediate measurement of the angle α of the light beam deflection by a stria. In this sense it is a numerical (objective) method. The purpose of the work is to establish if there exists any connection between the two methods.

Among the shadow projection methods the one similar to that described in the Soviet Standard GOST 3521—57 has been chosen for considerations. A setup for the observation with the help of the said

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method is shown in Fig. 1. It consists of a light source, a condensor, a light diffuser, a changeable diaphragm, a neutral filter and a screen. More details concerning the particular elements of the setup are available in the said Standard GOST 3521-57. According to this standard the glass is divided into two categories.

The glass blocks, which produce no visible striae, when using a diaphragm of 2 mm diameter are classified as belonging to the first category, while those, for which the striae disappear when applying a 4 mm diaphragm, belong to the second category.

In our case the light source used in the illuminator was an electric bulb NARVA 12 V, 100 W. The diaphragm diameter was changed between 0.5 mm and 4.5 mm. The screen was made of white chalk paper. The block being under test was located at a distance as great as 250 mm from the light source and simoultaneously as high as 500 mm from the screen. By changing the diaphragm diameter Φ the state of striae disappearence was reached. Next, for the same striae the declination angle α of the light beam caused by the stria was measured with the help of the striascope. For this purpose a slit-knife method was employed.

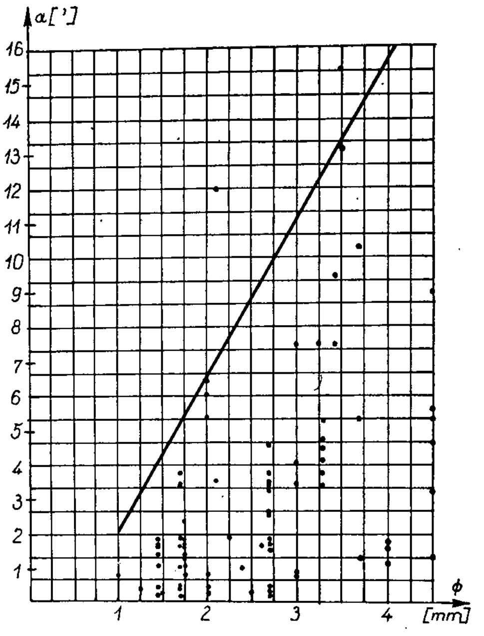

Fig. 2

The dependence of the light beam declination angle α caused by a stria on the diaphragm diameter Φ for which the given stria disappears on the screen is presented in the form of graphs (Fig. 2).

As easily seen in the graphs no relation between the two magnitudes has been obtained. It has been noticed, however, that the region of measurement points may be one-sidedly limited from above. For the majority of striae it would be correct to imagine that the stria disappearing on the screen for a certain diaphragm diameter Φ will deflect the light by an angle not exceeding some limiting value α_{lim}, which may be determined from the graph.

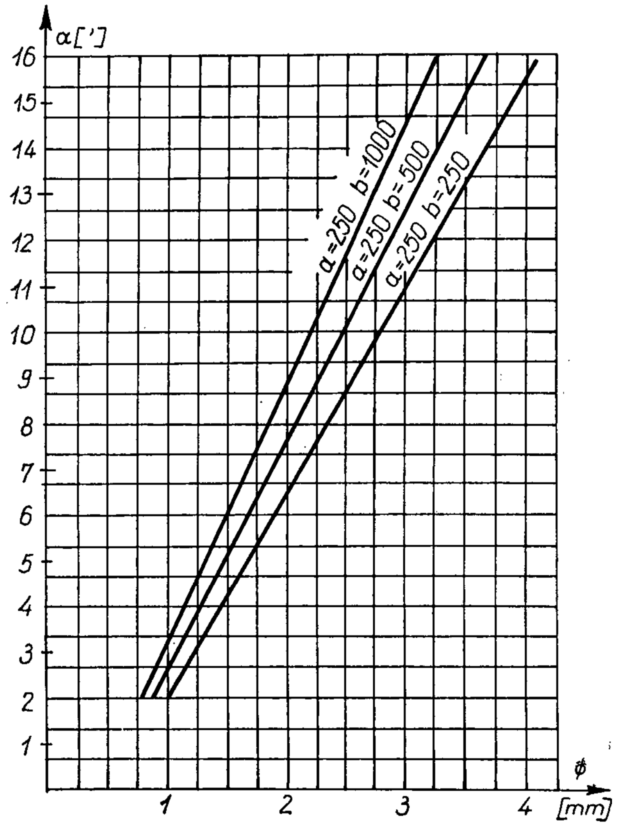

Fig. 3

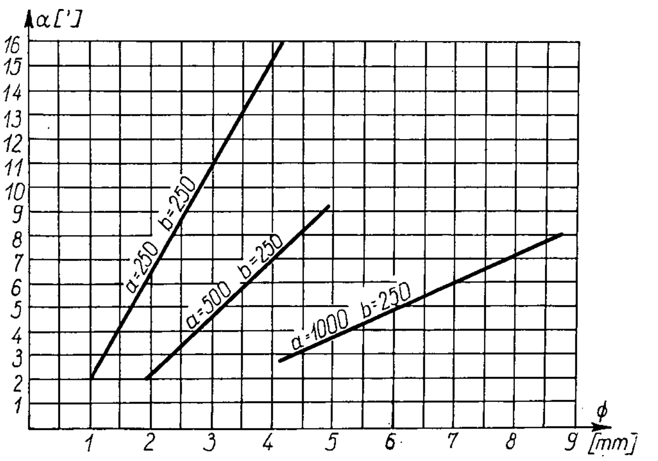

Fig. 4

Also, the dependence between the moment of the striae disappearance and the distance b (from the screen to the examined block) as well as the distance a (from the light source and the examined glass block). It has been stated that the influence of the screen-block distance is very small within the performed measurement range. It may be assumed that the influence is negligible the more, if the subjective character of the measurement is taken into consideration.

The influence of the distance a (from the light source and the block examined) is very important. It has been stated, that the stria located at the limit of visibility by a certain diaphragm diameter Φ becomes better visible when increasing the distance a from the light source to the block. However, if the diaphragm diameter Φ would be changed proportionally to the distance a, then the striae appears again on the screen. Hence, it can be concluded that the visibility of the stria on the screen depends first of all on the ratio Φ/a. The results of the measurements performed are presented on the graphs (Figs 3, 4).

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Investigation of Birefringence in the NaCl Monocrystals

1. Introduction

Investigation of the birefringence in plastically deformed NaCl monocrystals is, as a matter of fact, an examination of stress resulting from existing dislocations. The stress decay with the temperature may supply some information about the processes leading to diminishing the number of dislocations.

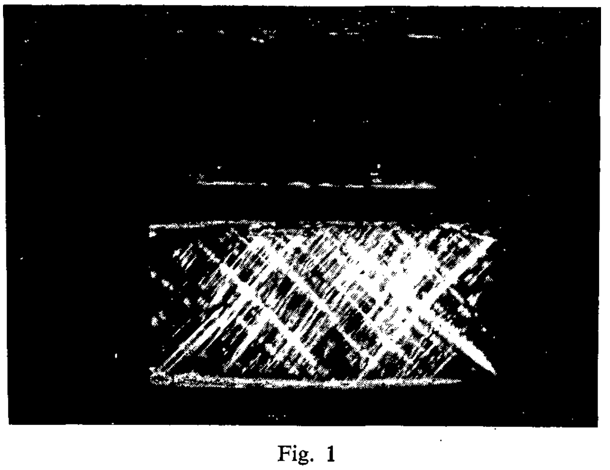

Fig. 1

Investigations of processes of hardening and tempering were carried out by many authors [1—4], and a common feature of these examinations was that the measured parameter was always the flow stress. On the other hand, each measurement of the flow stress is a damaging trial and consequently the obtained graphs of the flow stress given in the works cited above are an interpolation of the results obtained from a number of samples rather than one sample.

The purpose of the present paper was to examine the process of the stress decay in a crystal in the course of heating when taking account of the relation between the internal stress existance and the consolidation of the crystal.

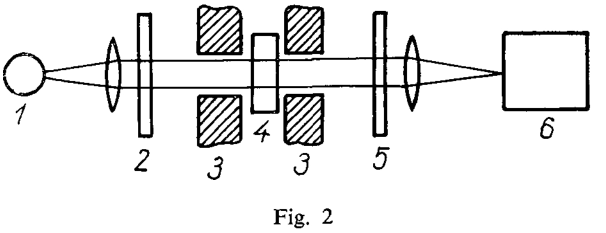

Fig. 2

2. The Experimental Part

After having been splintered into required samples the NaCl crystals were soaked at the temperature 600 °C and next cooled slowly in order to remove the internal stress. The samples prepared in this way did not exhibit any birefringence, the fact confirming the absence of internal stress. After ha-

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