

3.

Mining equipment, contact interaction, vibration, fretting, tribomonitoring, resistance fretting, essence of fretting.

(G. Tomlinson, 1939 .)

ПАГУБНЫЕ ПОСЛЕДСТВИЯ ФРЕТТИНГА



. 1.

-
-
-
-

(. . 2.).



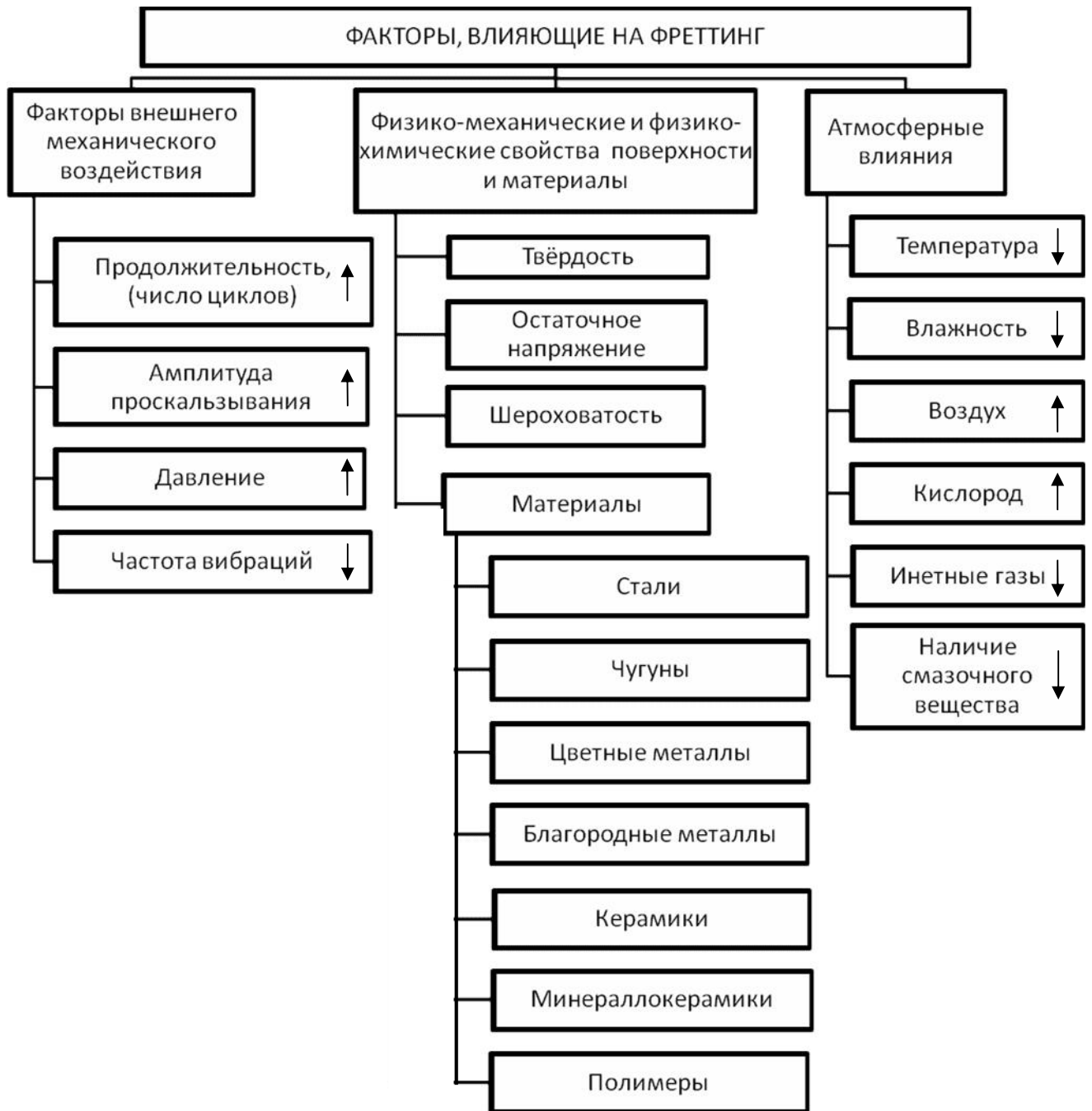
. 2.

1.

10 / .

2.

3.

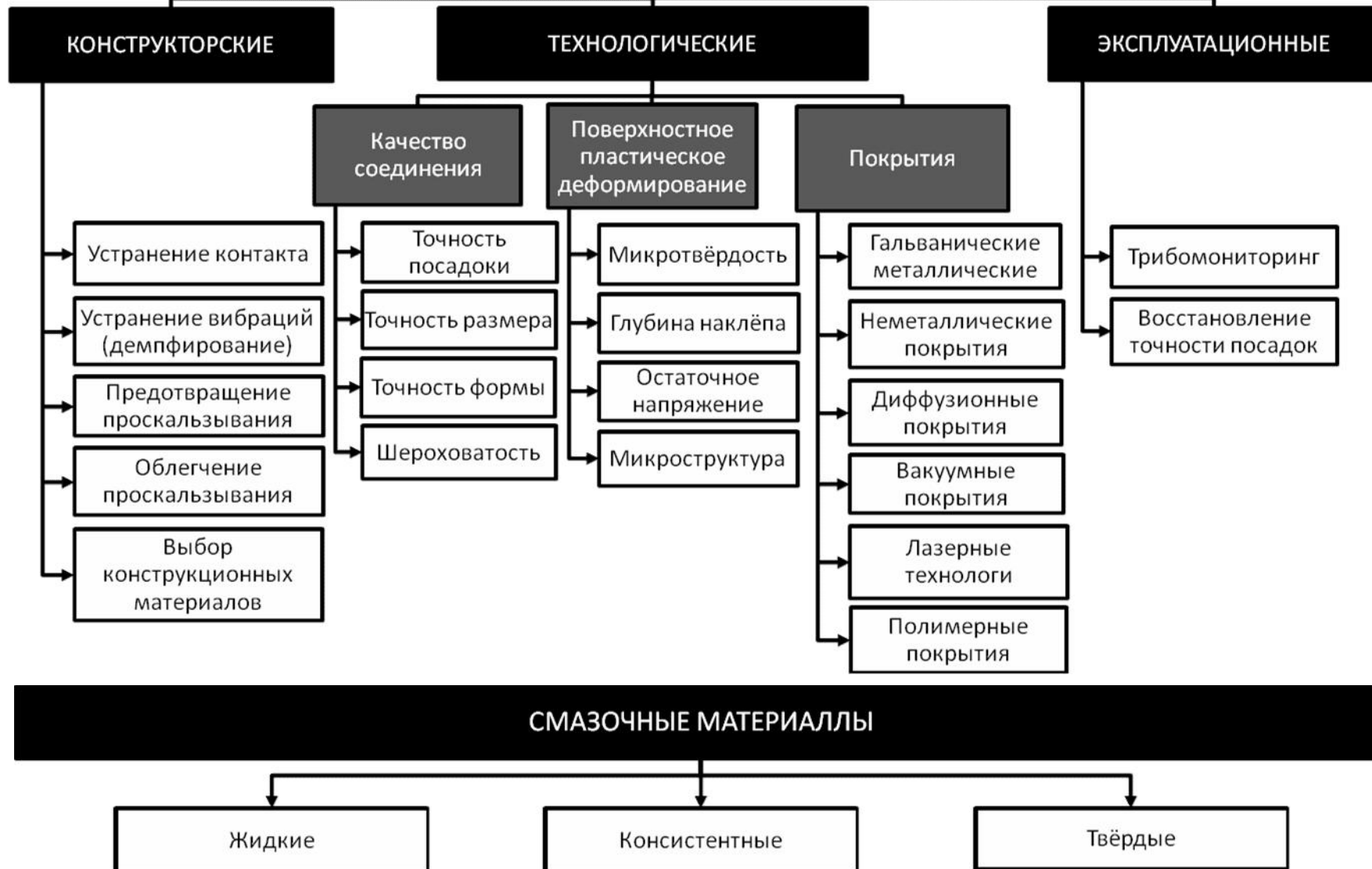


.3.

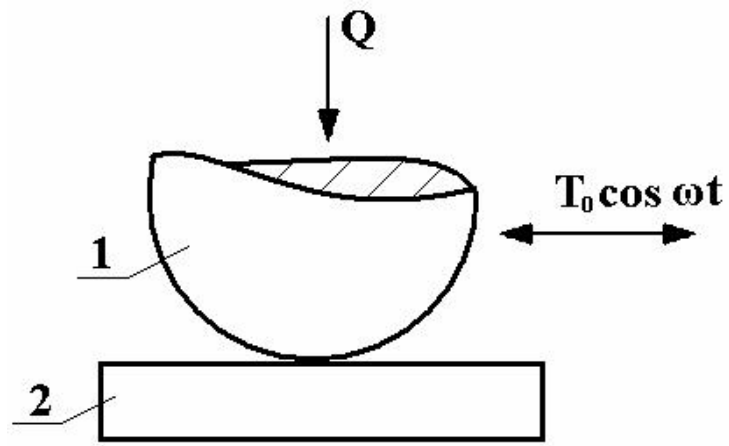
(- ↑ ; -

↓).

МЕТОДЫ ЗАЩИТЫ ОТ ФРЕТТИНГА



.5.



.5.

1

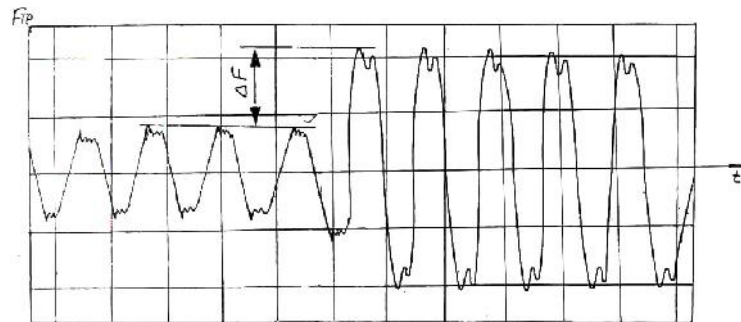
Q

2

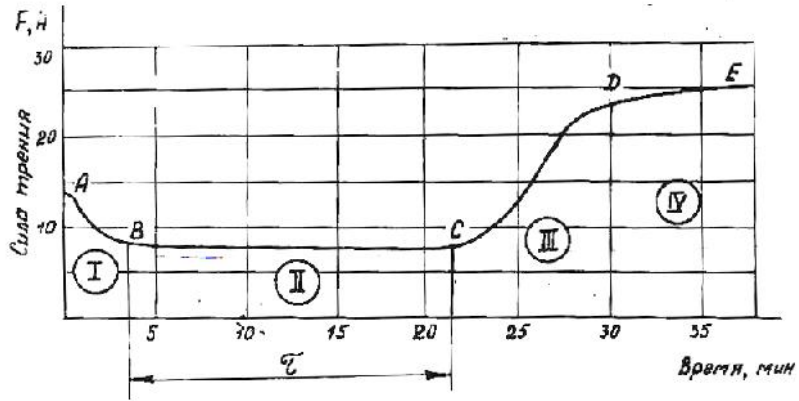
$T_0 \cos t,$

. 6.

. 7.



.6.



. 7.

- I,

- II

- III

- IV

$$\tau = k_1 R_a \exp\left(-\frac{k_2 A Q v}{R_a}\right)$$

R_a -

; -

; Q -

; -

; 1 2 -

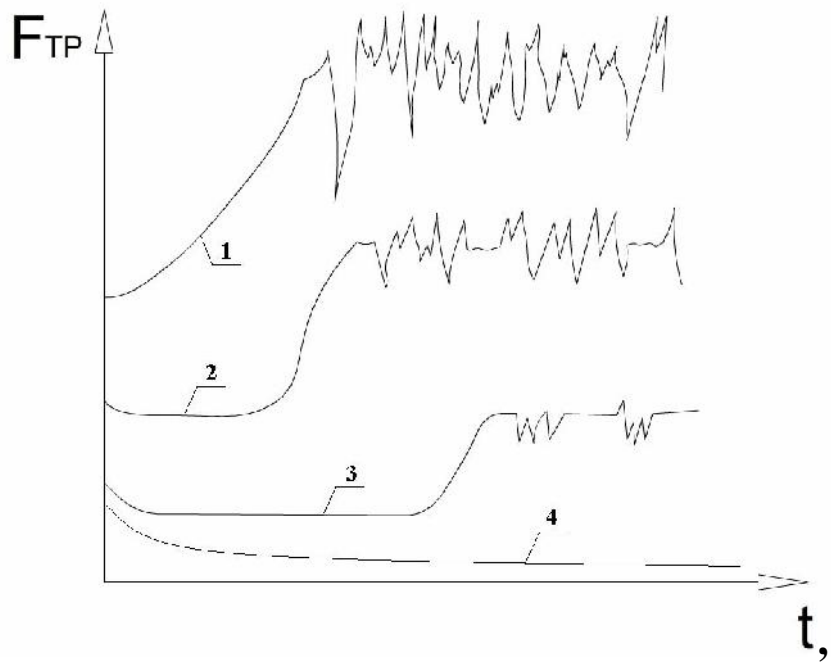
. 8.

1 -

2 -

3 -

4 -



.8.

(. . .5.)

$$q(r) = q_0 \left[1 - \left(\frac{r}{a} \right)^2 \right]^{1/2}$$

q_0 -

;

r -

μQ ,

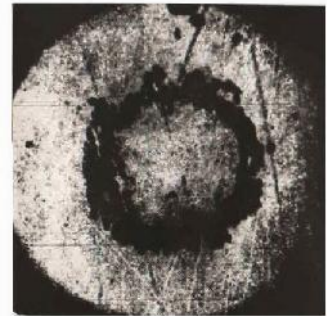
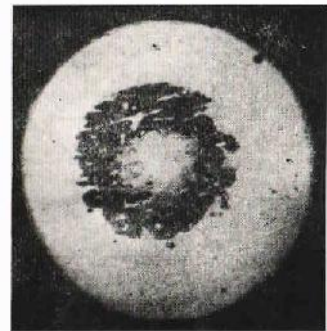
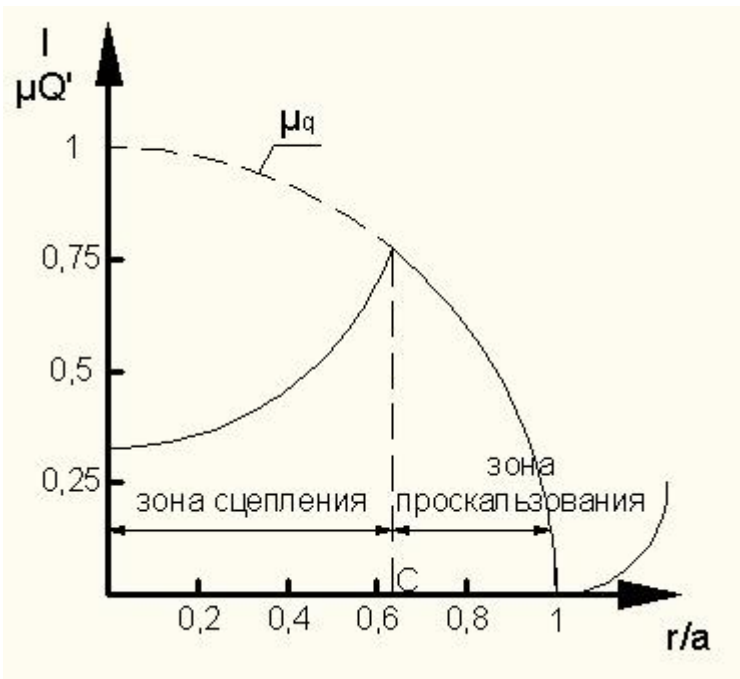
$c \leq$,

(. . .9.).

$$\frac{c}{a} = \left(1 - \frac{T}{\mu_n Q} \right)^{1/3}$$

$$T^* = \mu_n Q$$

$$c \leq (\dots 9. \dots)$$



)
9.) -

)
;) -

$$\Delta W = \frac{9\mu^2 Q_0^2}{10a} \left(\frac{2 - \nu_1}{G_1} + \frac{2 - \nu_2}{G_2} \right) \times \left\{ 1 - \left(1 - \frac{T^*}{\mu Q_0} \right)^{5/3} - \frac{5T^*}{6\mu Q_0} \left[1 - \left(1 - \frac{T^*}{\mu Q_0} \right)^{2/3} \right] \right\}$$

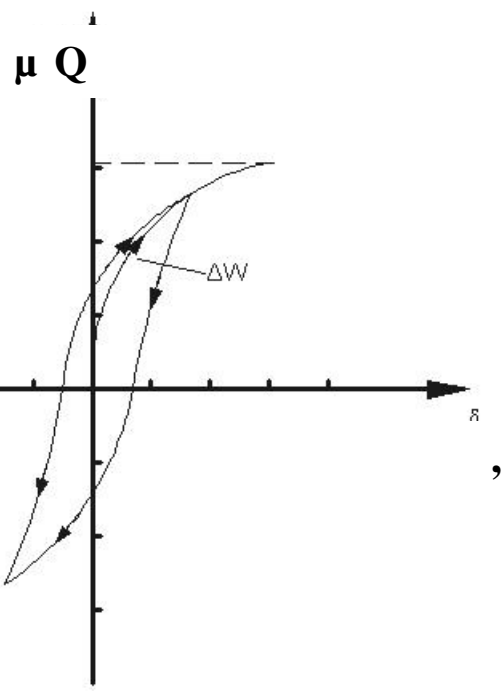
1 2 -

; G₁ G₂ -

(. . . 10.).

. 11

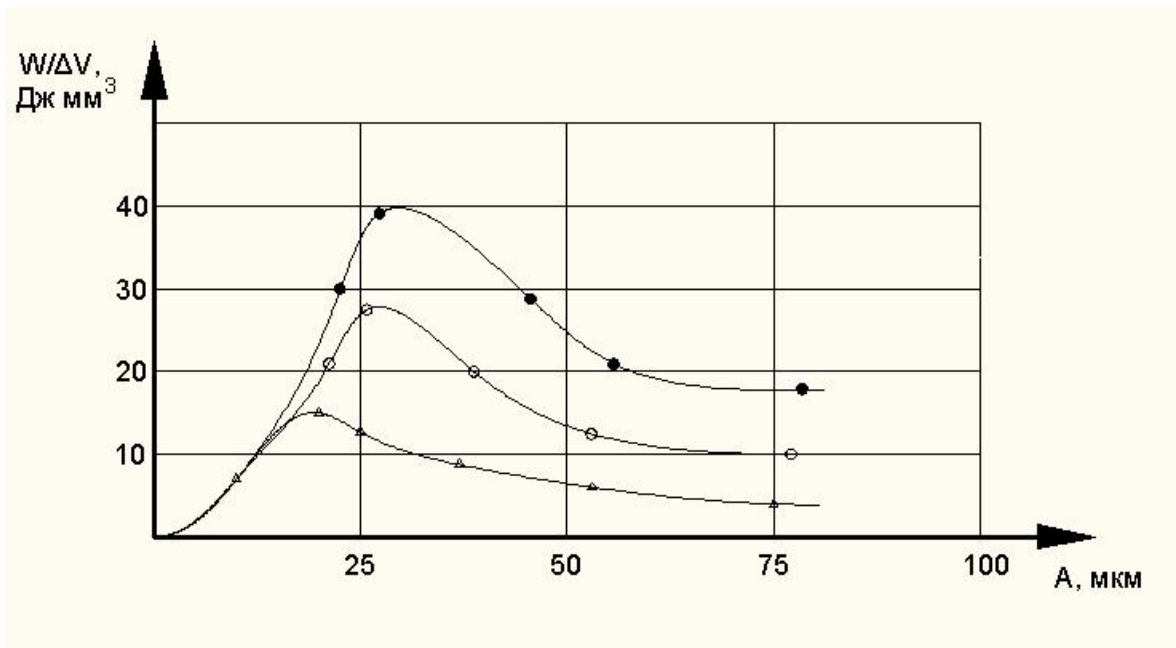
, (. . .)



. 10.

:

-



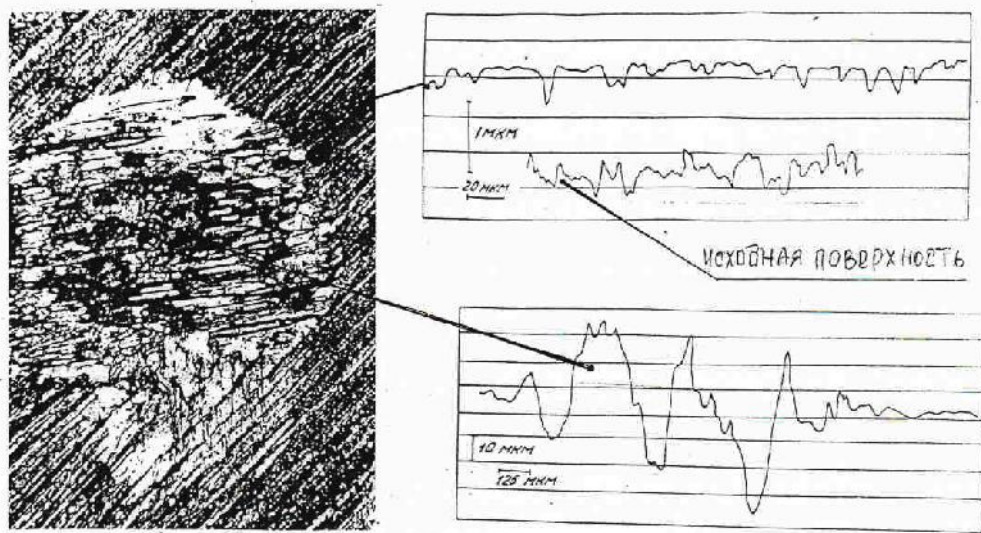
. 11.

q : -10 ; -20 ; -30 .

. 12.

(

),



. 12.

- 12 ,

- 30

, « - »,

- 60

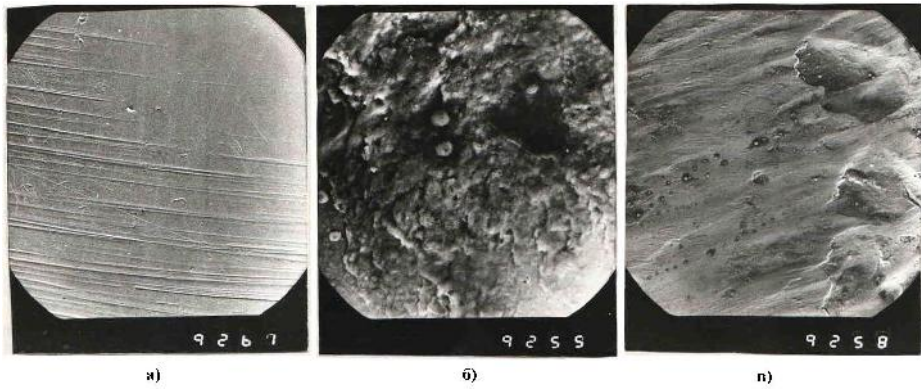
- 20 ,

- 30 ,

- $5 \cdot 10^3$.

40 . _____ :

(. . 13.).



. 13.

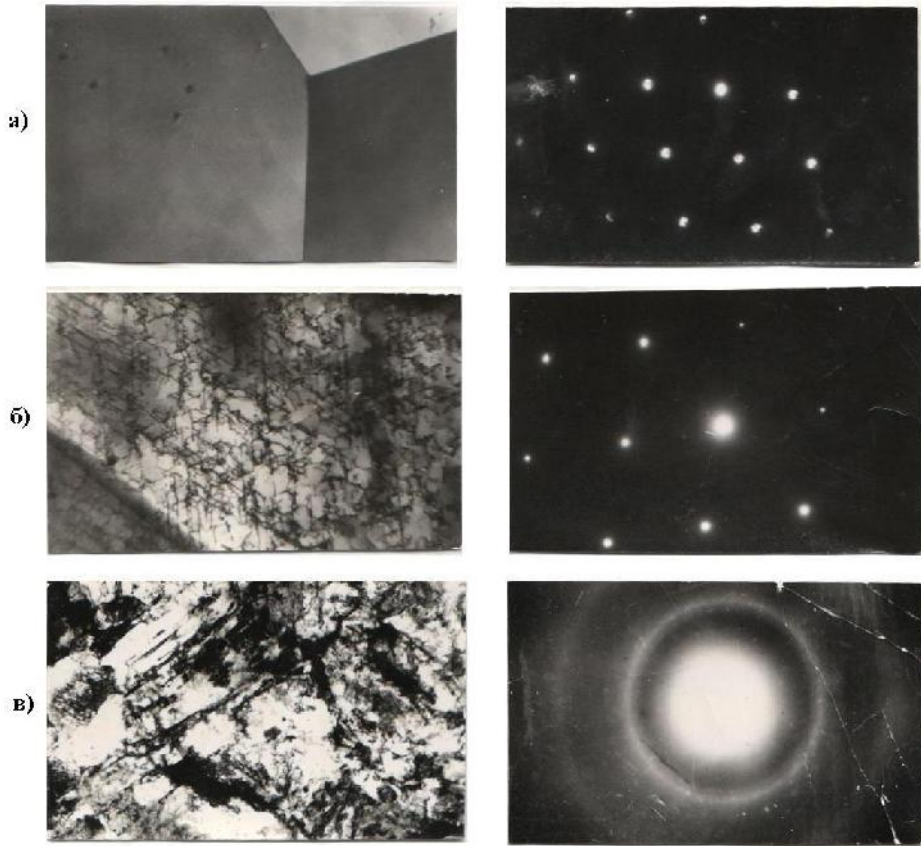
30

1000 :)-

;)-

;)-

(. . 14.).



. 14.

1 18 9

30000 :)-

;)-

;)-

1.

2.

3.

