



21014—88

20 . 10—88'709

Rolled products of ferrous metals.
Surface defects. Terms and definitions

21014—88

0901

01.01.90

: »
 , , ,
 , , ,
 , . ,
 , , ,

26877—86.

1.

. 1.

2.

.

-

-

.

- -

. 1

« ».

2.1.

,

,

,

.

2.2.

. 1

,

.

- 2.3. . 1 (D), -
- 3. () (F) .
- . 2—5.
- 4. , 1 (. 6). ,
- 5. ,
- 6. 1 (. 7—10). 2.
- 7. -
- 8. 3. — -
- , — . -

1. (*

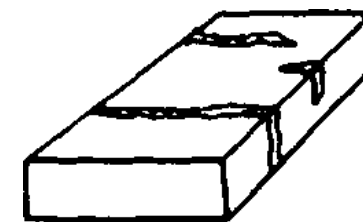
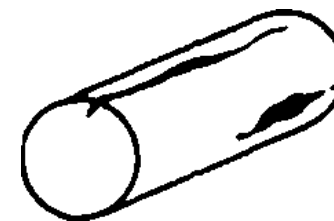
()

- D. Eingewalzter Sand Und Elogwaltzte Schlacke
- E. Rolled slug patch. Sand mark
- F. Contamination Jamine

2. (-

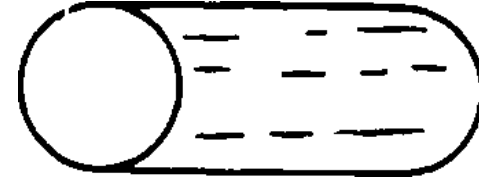
()

- D. Ausgewalzter Schlackneiscnschluss
- E. Shelf, Rolled crust
- F. Croflte lamine



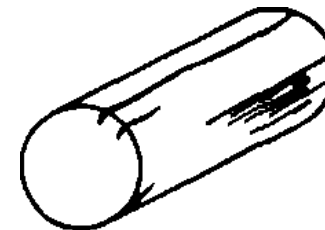
3.

- D. Haarriss, Schuppe
- E. Hairline, Spill
- F. Fissure capillatre

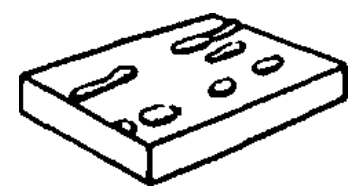


4.
)

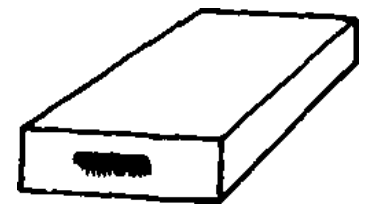
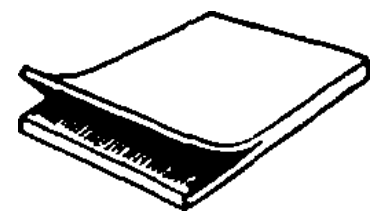
- D. Eingewalzte Blase
- E. Rolled blister
- F. Soufflurc laming



*



*



5.

D. BcUblasv. GescMvssene
Blasen (Beulen)

-ia

6.

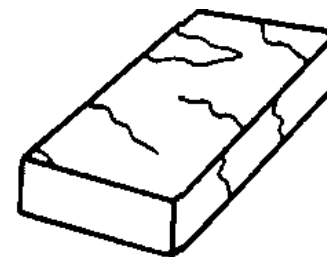
D. Doppiung
, Delamination
Exfoliation

II
1.
2.

7.

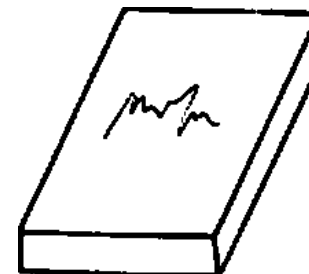
0. Brandriss Von Blocken,
Qwerauf bruche

- E. Ingot hot tear
- F. Crique



8.

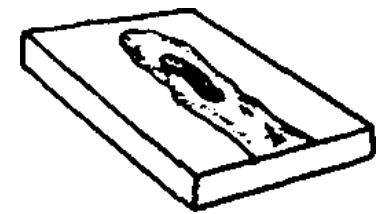
- D. Schale “
- E. Sliver. Rolled scab
- F. Rephurc de lingot



OZD

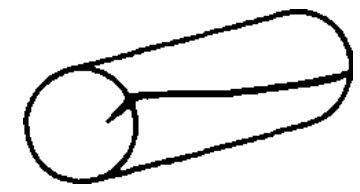
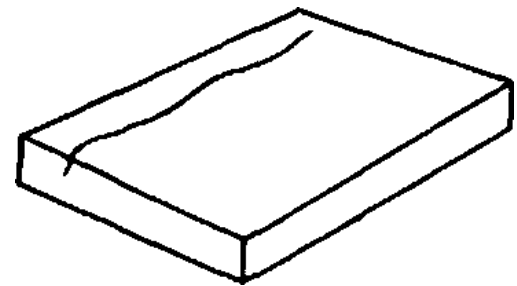
9.

- E. Rolled burn-on
- F. Sable incruste famine



10.

- D. Eingewalzter Riss
- E. Rolled crack
- F. Fissure laming

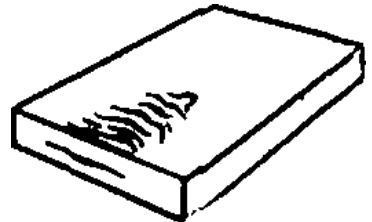


./

11.

- D. Grober
- E. Pipe

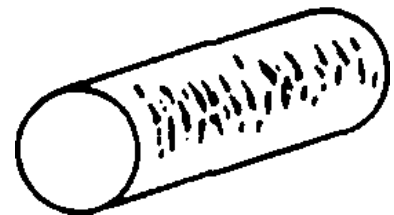
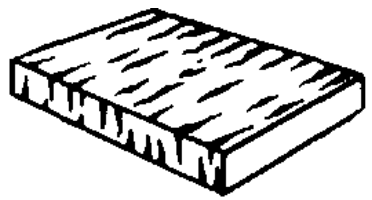
- 1.
- 2.



12.

- D. Brandriss
- E. Hot tears
- F. Crique

- 1.
- 2.

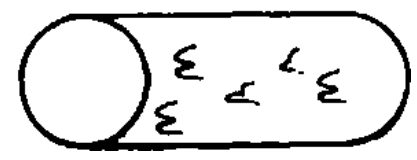
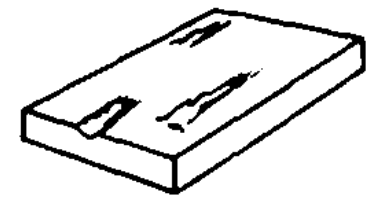
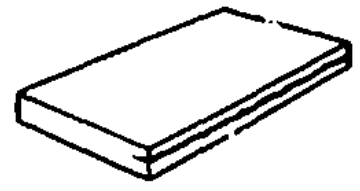


13.
H ut.

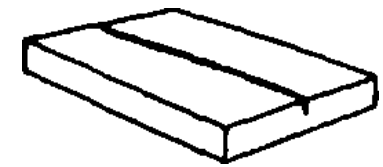
- D. Kantenriss
- E. Cracked edge
- F. Crique sur les bords
- H
- . A'.wu.wmi

Folded edge
F Bord lainini-
15.

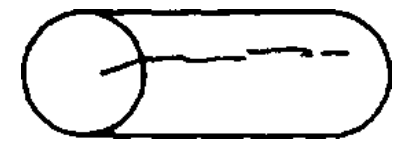
- 1). Geuakte Schale
- E. Sliver. Rolling skin
- F. Rephure



16.



- D. Spannungsriss
- E. Stress crack
- F. Criqic de tension



17.

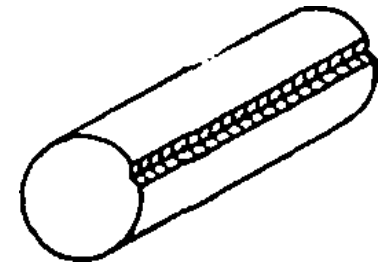
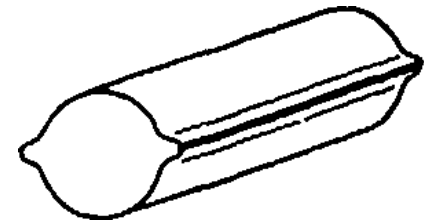
- D. Loch
- E. Pigeon hole
- F. Cante

1 .

- D. Walzmat
- E. Ridge
- . Saific

19.

- D. Langseinschnitt
- F. Coupe de lam/nage



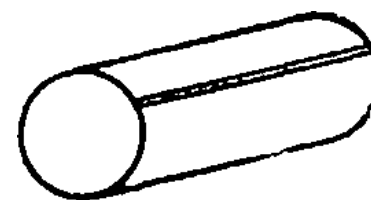
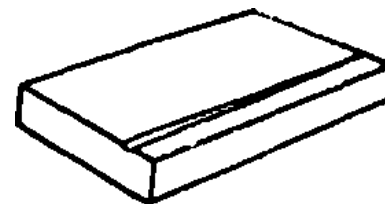
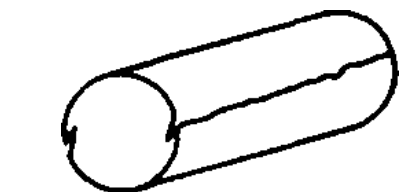
20.

23.

- D. Oberschmiedung
- E. Forging fold
- F. RepTiure de forgeage

24.

- D. Riffe
- E. .we, -Lade mark
- F.)



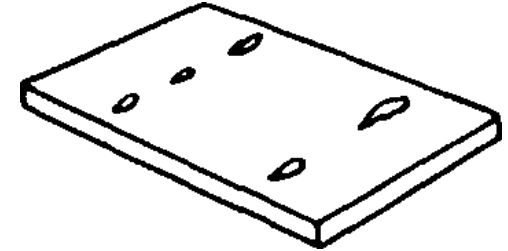
25.

- D. Durchgangsbrüche
- E. Through tears
- F. Ruptures, Troupes



26.

- » Anbrüche
- E. Surface tears
- F. Cassures, Dechirures



27.

- D. Schrammen
- E. Guide scratch



23.

- D. Durchstiche
- E. Pricks
- F. Piques



29.

!

&'

ikou

D. Eindriick

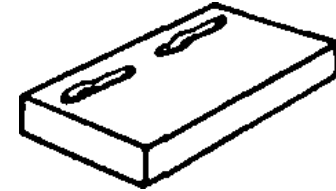
E. I ideiliitioiut .11 id roll marks

F. Marques tin cyliitdc de laminoir

,Lii|n'hr HoncpxiHK'TH im.'ic

11 Xi

« «



30.

.UoTOHWr' HU.KhKtl

ICHMIIII

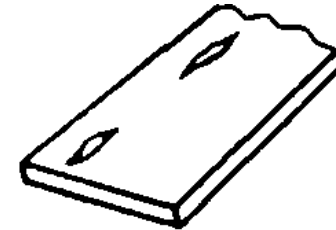
hxixbucio

1). Austfcxxnl/le Ahdrucke

E. Rolled hide nla I ions

F. Marque Inmiiiccs

11 Xi



31.

D. Ahdriickiel/

E. Nel shaped roll marks

F. Reticule des marques

ii.iuoniriimiix

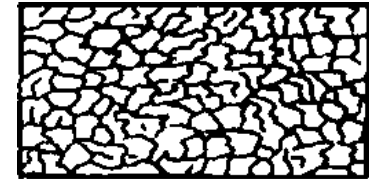
II



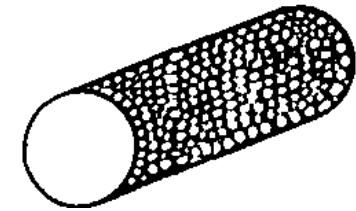
32.

- D. Schnppenheit
- E. Rippled surface
- F. Ecallles

1.



2.



33.

TM

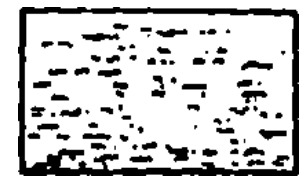
- D. OberflachenuverhiUung
- E. Surface overheating
- F. Surchauffc de la surface

34.

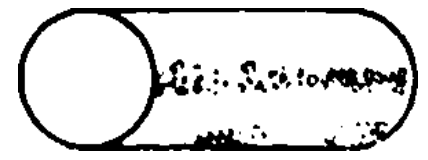
- D. Einwalizuttdcr, Zundure-
inualzungen
- E. Rolled-in scale
- F. Scorics de laminoir



35.

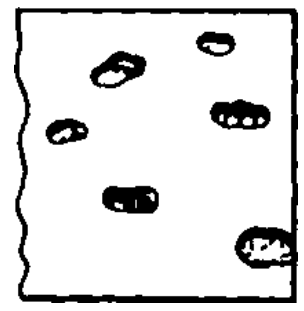


- D. Rauhigkeit, Rattermarke
- E. Pitted surface
- F. Surface grel6e



36.

- D. Zundernarben
- E. Pitting, Scale pits
- F. Scories de puit



37.

- D. Eingewalzte Metallteilchen
- F. Particules mitalliquea la* mintes



38.

F. Soufflure de surface



39.

D. Abplatzter Zunder

E. Exfoliating scale

F. Calamine d'alachante



40.

D. Eingewalzte Fremd-
schlusse

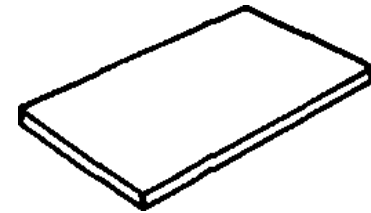
E. Rolled-in foreign particles

F. Particules par laminage

41.

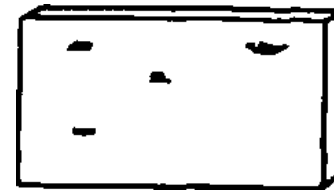
D. Anschuemmung des
talls

42.



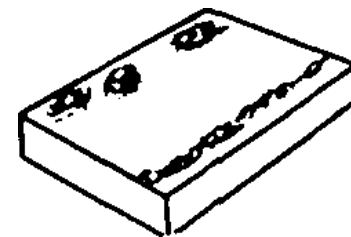
- D. Schleifstellen
- E. Grinding traces
- F. Marques de dtgrossisage abrasif

43.



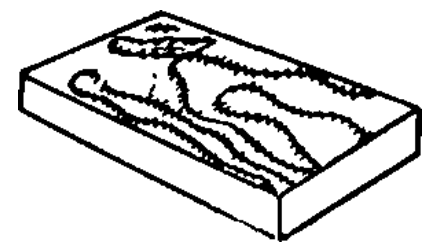
- D. Grauc Flecken
- E. Gray spots
- F. Taches grises

44.



- Fleckenaufkohlung
- E. Spot carburization
- F. Taches de carburisation

45.



- D. Verunreinigungsilccken
- E. Dirt spots
- F. Taches de crassc

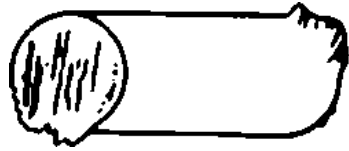
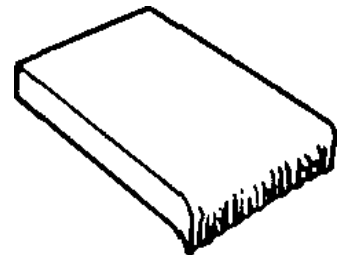
46.



- E. Sticker-patches
- F. Taches d'adhesion du sou-
dage

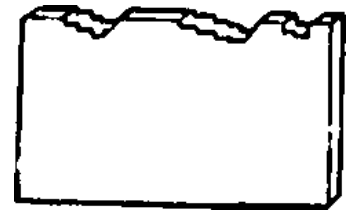
47.

- D. Pressgrat
- E. Burr
- F. Bavure



48.

- D. Scharte
- E.
- F. Breche



- 49.
- D. Siirnriss
- E. End crack
- F. Fissure sur l'cxlftmile

()

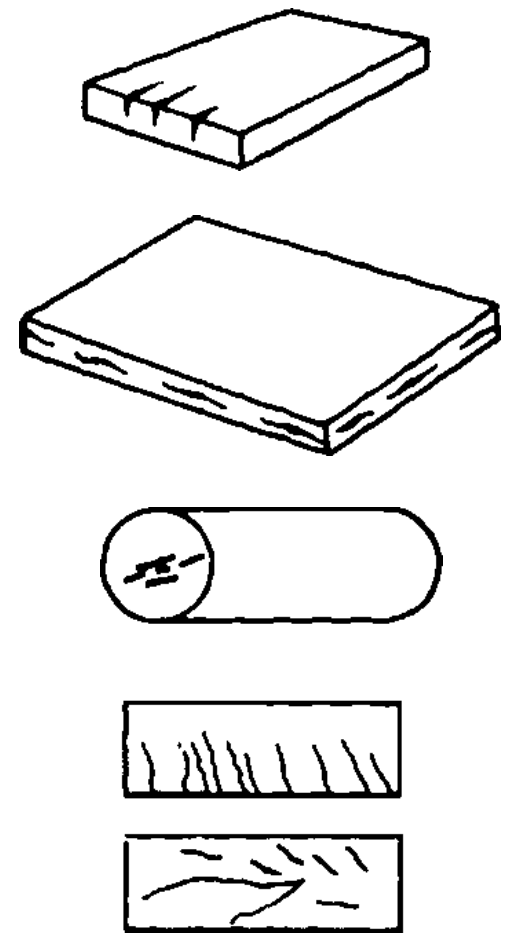
(

50. - -

C>t(1OHUCTO(Tb

- D. Gleitlinien, Fliesalinien
- E. Slip bands
- F. Bandes de glisseincnt

45'

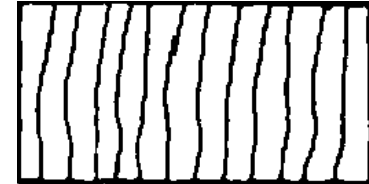


mit t

5?

51

D. Kaliverlestigungssreifen



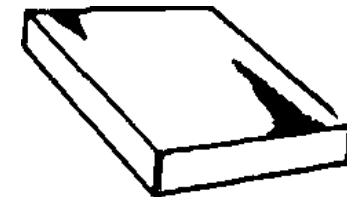
52

D. Knicke
 E. Cross breaks. Coil breaks
 F. Pliage

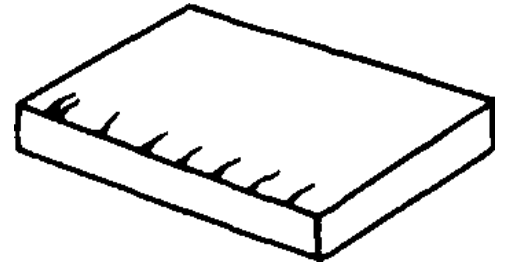


53.

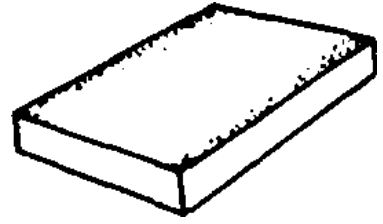
D. AnlauHarben
 E. Heat tints. Oxidation lints
 F. Cotileurs de recul



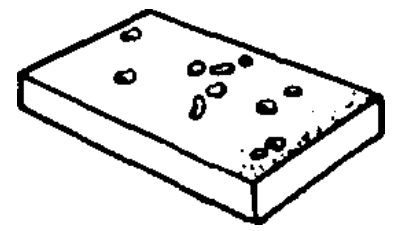
- 54.
- D. Beizrisse
- E. Pickling cracks
- F. Fissures de decapage



- 55.
- D. unzureichendes Beizen
- E. Underpickling
- F. Decapage insuffisant



- 56.
- D. Überbeizung
- E. Overpickling

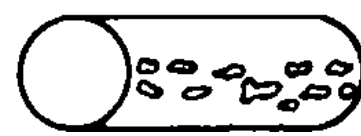
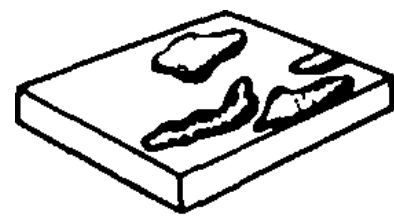


57.

- E. Slime deposit
- F. D£pd(de boue

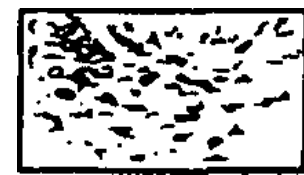
58.

- D. Zunderresle
- E. Scale residue
- F. Reales de calamine



59.

- D. Eisenrostflecken
- E. Rust spots
- F. Taches de rouille



	24
	42
	29
	38
	37
	36
	38
	1
	37
	37
	62
	3
	3
	6
	18, 47
	29
	42
	48
	11
	51
	17, 25
	50
	62
	47
	2
	1
	1
	1
	27
	23
	45
	13
	48
	22
	14
	23
	2, 8
	41
	13, 48
	47
	18
	50, 52
	24
	8, 15
	33
	2
	2
	56, 59
	56
	14

	13
	33
	18
	50
	42
	19. 27
	21
	45
	29
	45
	27
	52
	11
	26
	7. 12
	26
	13
	26
	28
	57
	57
	14. 29
	29
	44
	64
	53
	55
	55
	48
	4
	34. 35
	34
	34
	39
	34
	35. 36
	58
	29
	30
	8, 15
	2
	60
	52
	12
	33
	12
	56
	56
	56
	1
	15

!

	8
	41
	18
	30
	64
	61
	19
	45
	24
	30
—	50
	51
	51
	20
	46
	9
	9
	45
	45
	45
	53
	27
	25
—	5
	4
	4
	4
	4
	5
	60
	57
	45
	45
	58
	46
	55, 57
	59
	30. 43
	43
	46
	46
	44
	53
	44
	45
	6
	20
	25
	38
—	11
	36

41
6
6
56
6
12
13
7
12
7
59
24
14
42
14, 20
50
11
35
35
35
35
44
21
4, 17
30
43
31
29. 31
17
14
21
21
52
42
42
45
6
47
37
46
56
55, 60
4
3
10
16
16
10
16
16
4

^

	16
	16
	10
	10
	16
	49
	54
	10
	16
	61
	28
	14
	31
	23
	18
	11
	11
	63
	50
	63
	53
	40
	37
	40
	35, 58
	36
	32
	15
	32
	48
	1
	42
	6

Abdrucknetz	31
Abplatzter Zunder	39
Anbrüiche	26
Anlauffarben	53
Anschwemmung des Metal ls	41
Ausgewalzte Abdrucke	30
Ausgewalzter Schlackeneisenschluss	2
Beizblase	5
Beizrisse	54

Brandriss	12
Brandriss Von Blocken	7
Dopplung	6
Durchgangsbrüche	25
Durchstiche	28
Einbeulungen	62
Eindrücke	29
Eingewalzte Blase	4
Eingewalzte Fremdeinschlüsse	40
Eingewalzte Metallteilchen	37
Eingewalzter Riss	10
Eingewalzter Sand Und Eingewalzte Schlacke	1
Einwalzunder	34
Eisenrostflecken	59
Falteinungen	21
Fleckenaufkohlung	44
Fliesslinien	50
Geschlossene Blasen (Beulen)	5
Gewalzte Schale	15
Gleitlinien	50
Graue Flecken	43
Grober Anbruch	11
Haarriss	3
Kaltverfestigungsstreifen	51
Kantenriss	13
Knicke	52
Kratzer	63
Langseinschnitt	19
Loch	17
Matte Fläche	64
Oberflächenüberhitzung	33
Pressgrat	47
Queraufbrüche	7
Rattermarke	35
Rattermarken	60
Rauhigkeit	35
Riefe	24
Schale	8
Scharte	48
Schleifrisse	61
Schleifstellen	42
Schrammen	27
Schuppe	3
Schuppenheit	32
Spannungsriss	16
Stirriss	49
Oberbeizung	56
Oberschmiedung	23
Überwalzung	22
Unzureichendes Beizen	55

	icpMima
Verunreinigungsflecken	15
Walznat	18
Zundereinzu alzungen	31
Zundernarben	36
Zunderreste	38

	ivpMHiid
Burr	47
Coil breaks	52
Compression marks	62
Cracked edge	13
Cross breaks	52
Delamination	6
Dirt spots	15
Dull surface	61
End crack	19
Exfoliating scale	39
Folded edge	1 1
Forging fold	23
Gray spots	43
Grinding cracks	61
Grinding traces	42
Groove	24
Gt ide mark	24
Gt 'de scratch	27
Hi :ks	48
Hc.rline	3
Handling marks	62
He H tints	53
H<? tears	12
Inc eolations and roll marks	29
Infcot hot tear	7
Lap	22
Net shaped roll marks	3!
Overpickling	56
Ox dation liqts	53
Pi. kling cracks	54
Pic ling lints	60
Pigeon hole	17
Pipe	11
Pitted surface	35
Pitting	36

	lepMHHa
Ridge	28
Rippled surface	18
Rolled blister	32
Rolled Jmrn-oii	4
Rolled crack	9
Rolled crust	10
Rolled indentations	2
Rollcd-m foreign particles	30
Rolled-in scale	40
Rolled scab	34
Rolled slag patch	8
Rolling skin	1
Rust spots	15
Sand mark	59
Scale pits	1
Scale residue	36
Scratch	58
Shell'	63
Slime deposit	2
Slip bands	57
Sliwr	50
Spill	8. 15
Spot cai bnrizatioii	3
Slicker patches	44
Stress crack	46
Surface overheating	16
Surface tears	33
Through tears	26
Underpickling	25
\\ rinkles	55
	21

Bandes de ghsscmeiit	50
Bav lire	47
Bord lamine	14
Brcche	48
Calamine delachaliir	39
Cassiires	26
Cav ite	17
Contamination laminc	1

Couleurs de recuit	53
Coupe de laminage	19
Crique	12
Crique de lingot	7
Crique de tension	16
Crique sur les bords	13
Croute lamine	2
Decapage insuffisant	55
Dechirures	26
Depot de boue	57
Ecailles	32
Empreinte de choc	62
Exfoliation	6
Fissure capillaire	3
Fissure lamine	10
Fissure sur l'extremite	49
Fissures de decapage	54
Marques de degrossissage abrasif	42
Marques du cylindre de laminoir	29
Marques laminees	30
Nuances de decapage	60
Particules metalliques laminees	37
Particules par laminage	40
Piqures	28
Pliage	52
Rainure	24
Rayure	63
Rectification	61
Repliure	15
Repliure de forgeage	23
Repliure de laminage	22
Repliure de lingot	8
Restes de calamine	58
Reticule des marques	31
Rides	21
Ruptures	25
Sable incruste lamine	9
Sailie	18
Scories de laminoir	34
Scories de puit	36
Soufflure lamine	4
Souffure de surface	38
Surchauffe de la surface	33
Surface grelee	40
Surface terne	64
Taches d'adhesion du soudage	46
Taches de carburisation	44
Taches de crasse	45
Taches de rouille	59
Taches grises	43
Trouees	25

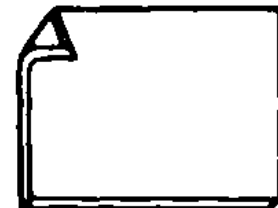
1.

- D. Stirnumblegen
- E. Turn-up, Turn-down end
- F. Surface de bout replie



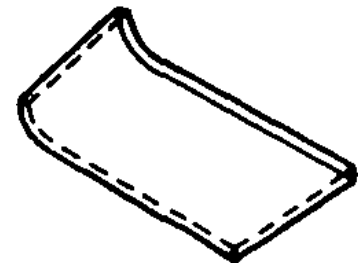
2.

- D. Gerrummte Ecke
- E. Bent angle
- F. Angle recourbe

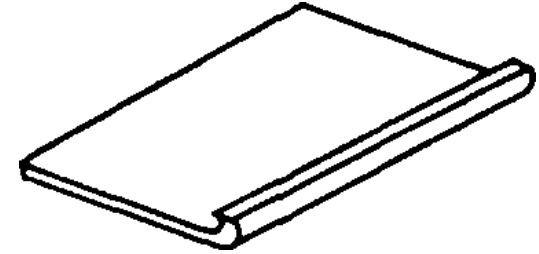


3.

- E. Beni end, Turned-in end, Turn-down end
- F. Rcplier bord ou extremity



4,



- E. Bended edge
- F. Bord pas coupe

3,

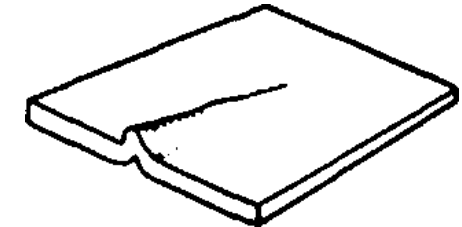
,1 1



- D. Unebene stirn
- C. Uneven end, Horns
- F. Surface de bout integrate

6.

- D. Faltung
- E Fold
- F. Ride. Pli



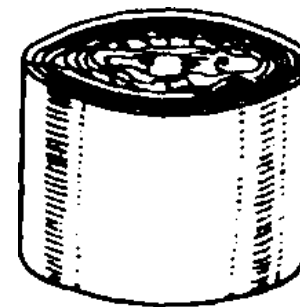
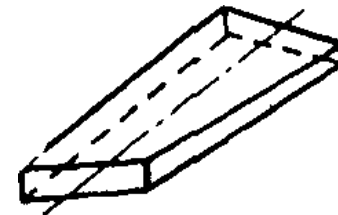
7.

- I). Rautigkeil
- L Rhomboillily
- F. Form rhomhuidalc

< napyiiicHiui

| *.1

Mvprc*



8. (-)

(),

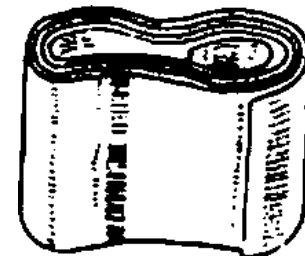
- D. Blechverdrehung, Bandverdrehung
- E. Twisting
- . Tordage des (des (dos bandes)

9.

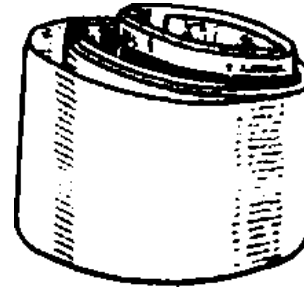
- . Coil with (olds
- . Rides dans de rouleau

10.

D. Abgellachler Ring
. Crumpled coil
F. Rouleau froissi*

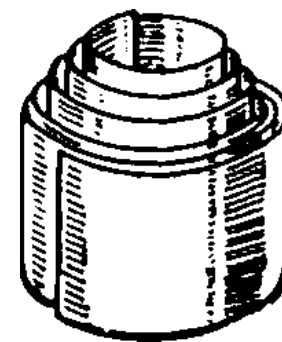


II.
D. Undicht aufgcwicklcher
Ring
h Loose coil
F. Rouleau dessert



12

F. Telescoped coil
F. Rouleau vo (elcscopiquc



,

8
10
4
1
4
4
4
1
1
5
3
3
5
4
4
4
4
10
3
1. 4
4
8
10
5
7
11
9
10
9
12
6
8
8
10
12
5
2
8
5

Abgeflachter Ring	10
Bandverdrehung	8
Blechverdrehung	8
Faltung	6
Gerrummte Ecke	2
Rautigkeit	7
Stirnumbiegen	1
Undicht aufgewickelter Ring	11
Unebene stirn	5

Bended edge	4
Bent angle	2
Rent end	3
Coil with folds	9
Crumpled -coil	10
Fold	6
Horns	5
Loose coil	11
Rhomboidity	7
Telescoped coil	12
Turn-down end	1.3
Turned-in end	3
Turn-vp	1
Twisting	8
Uneven end	5

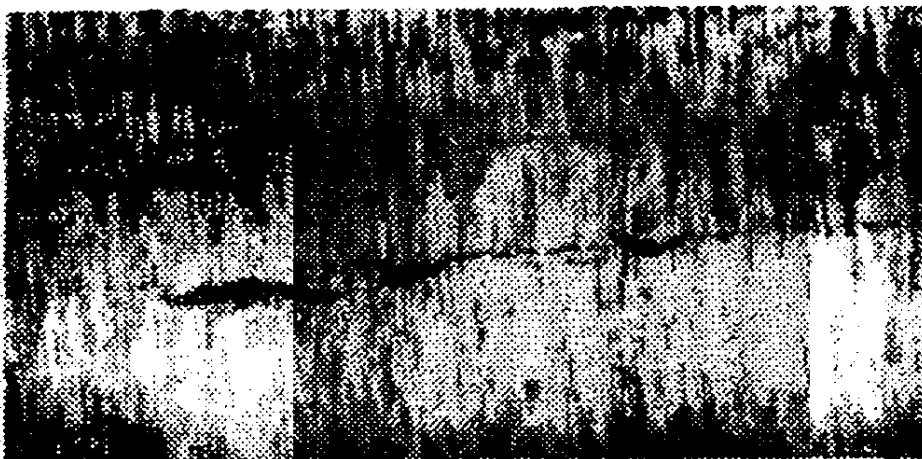
Angle recourbe	2
Bord pas coupe	4
Form rhomboidale	7
Pli	6
Replier bord ou extremite	3
Ride	6
Rides dans de rouleau	9
Rouleau desserre	11
Rouleau en telescopique	12
Rouleau froisse	10
Surface de bout integrate	5
Surface de bout repliee	1
Tordage des totes (des bandes)	8

2

:

() ,

1. ()

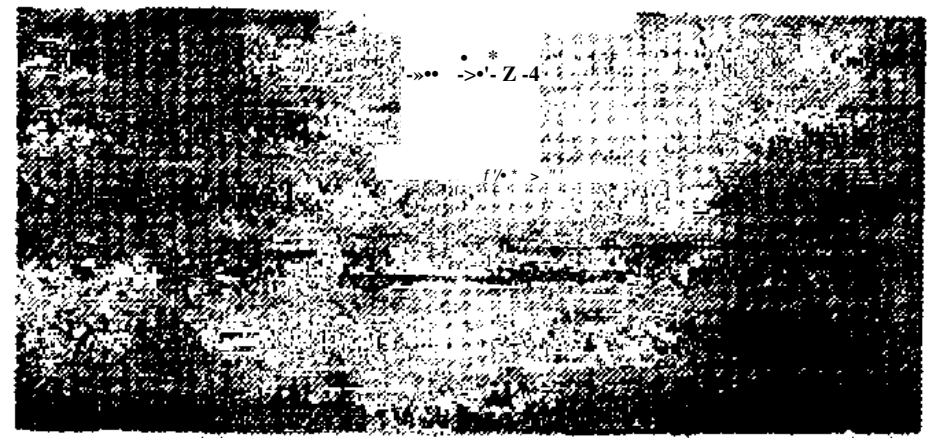


— ; — 50 X

2. ()

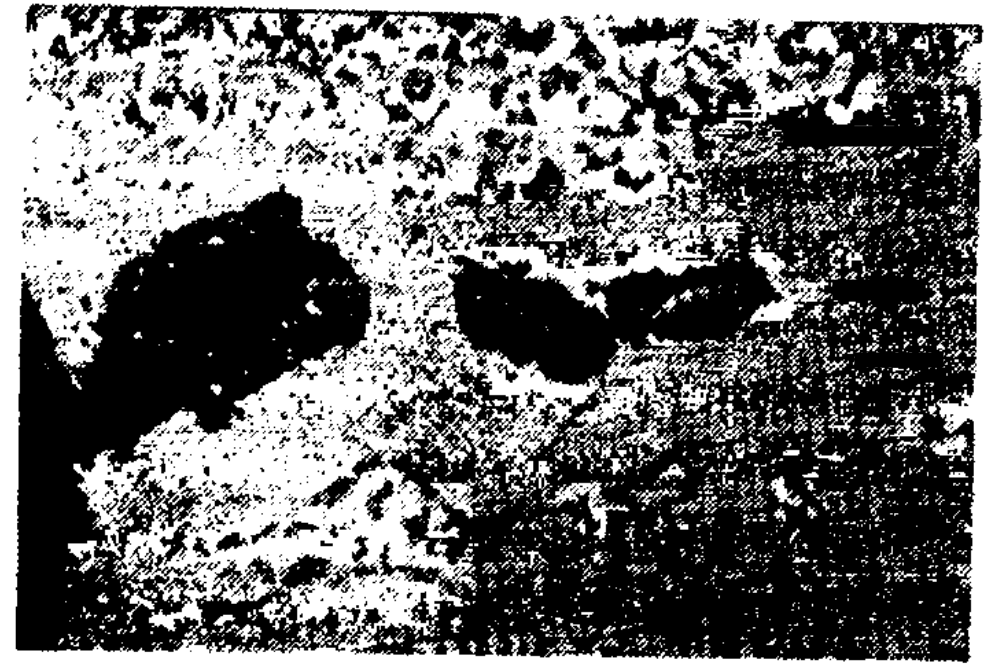
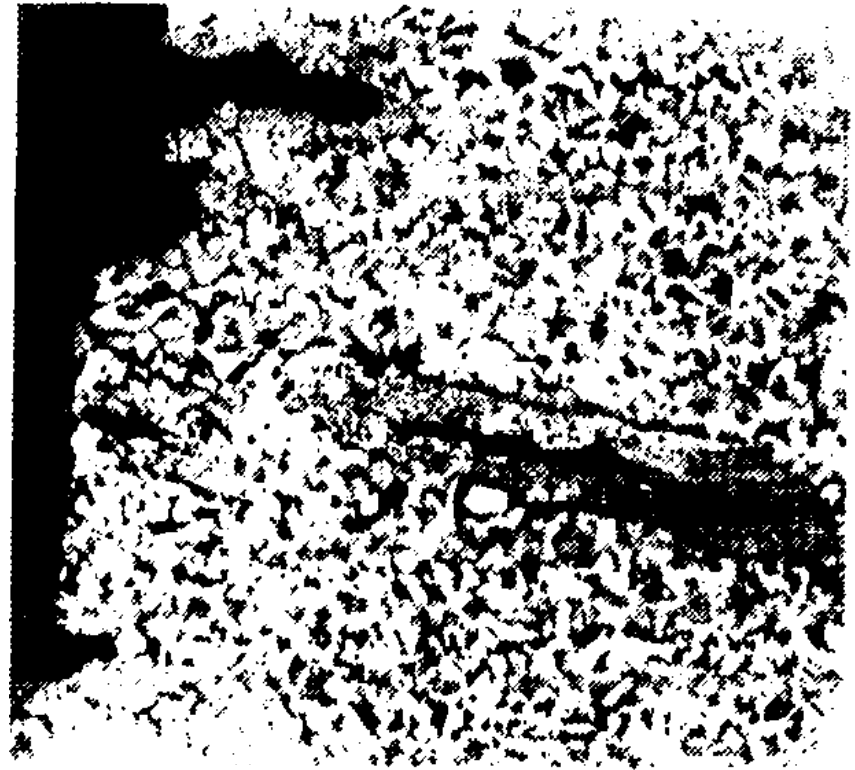


4 ()



а

б

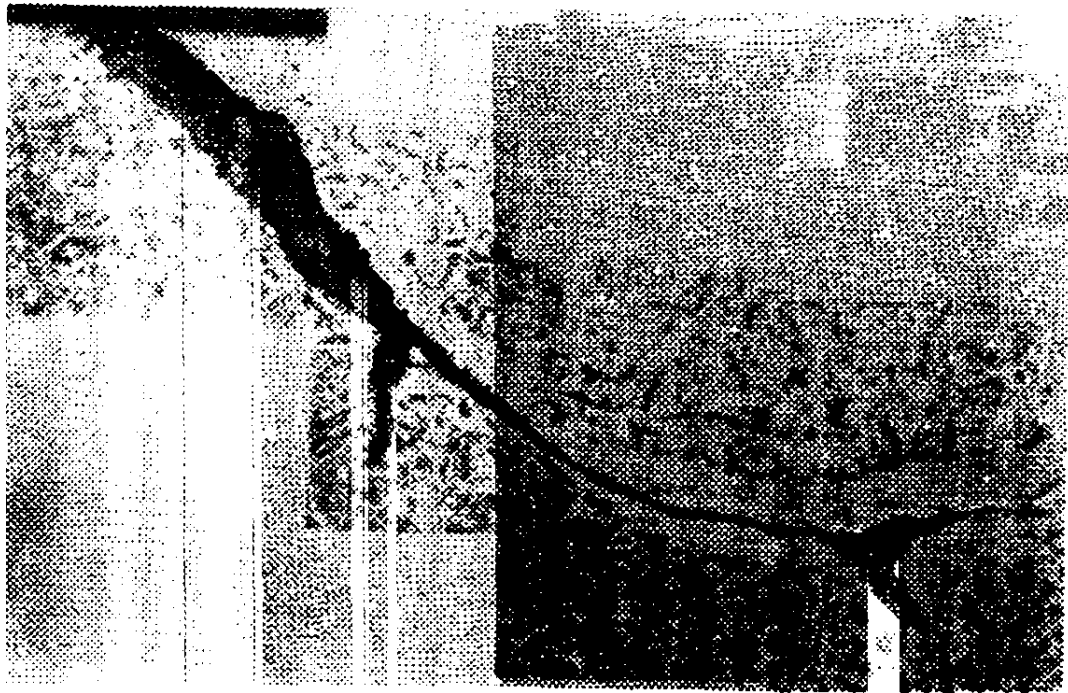


а

б

а, б - те же условия; а - МННрН ірүһтүрп і 100 ; б - » а *»ніс 30»

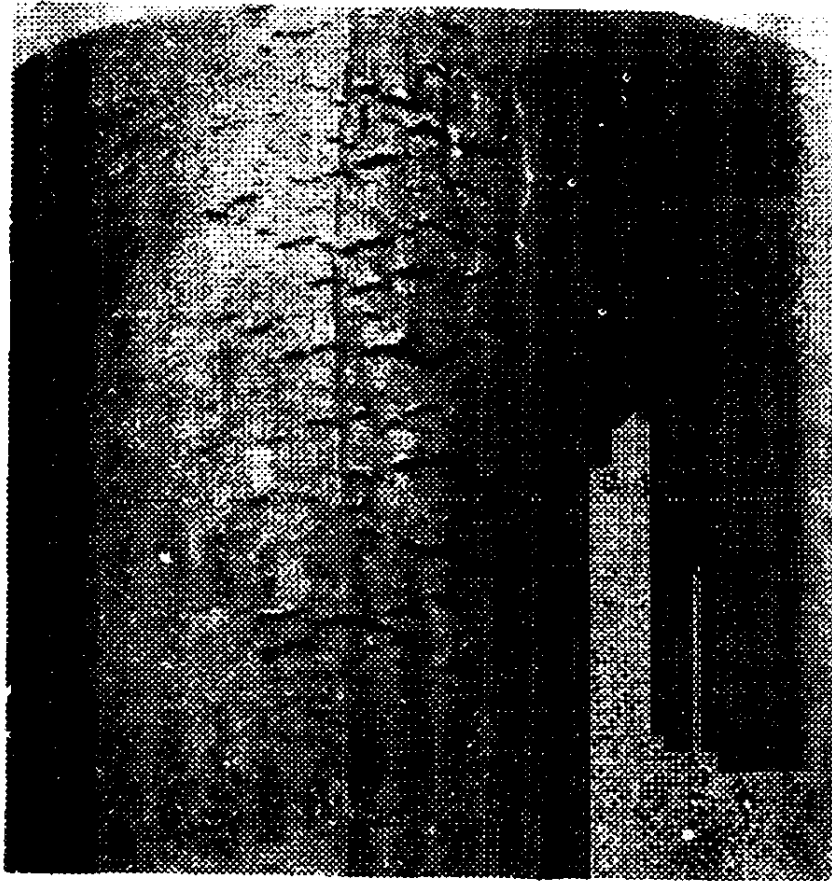
10 ()



— : —

100 :

12.



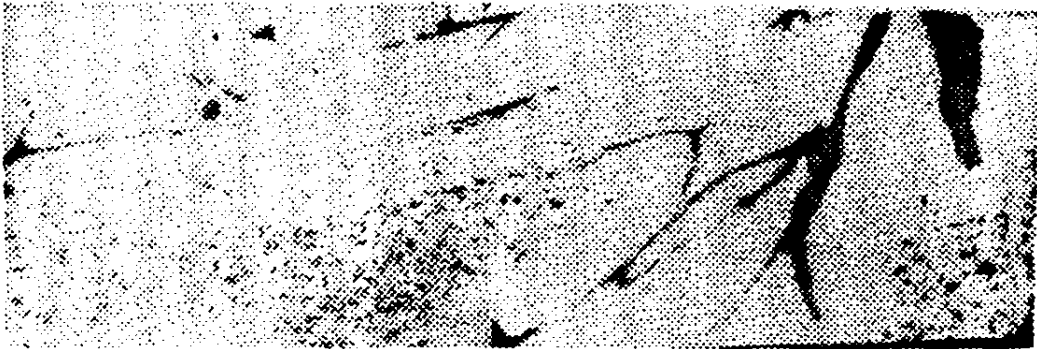
a



, — ; —

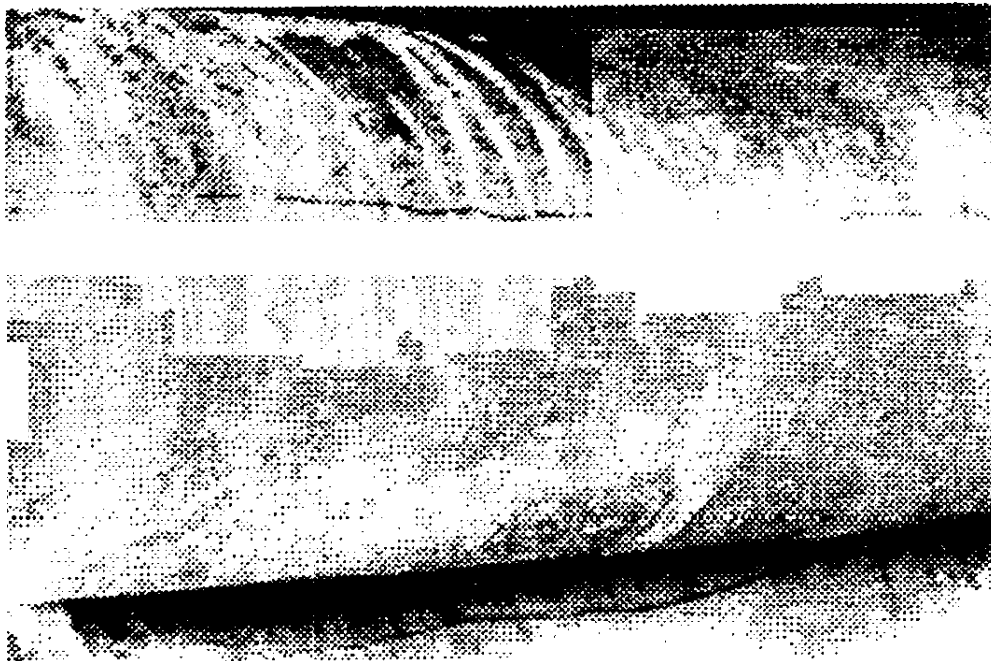
100^

15.

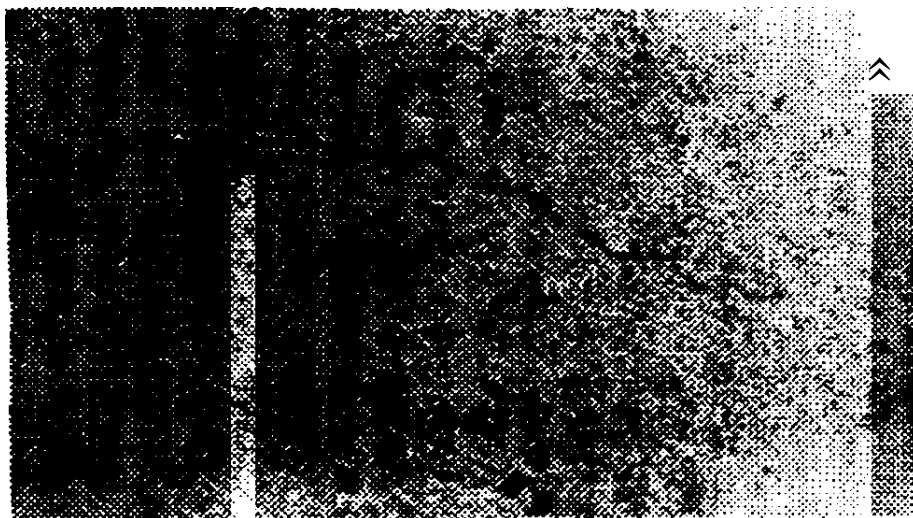


— ; — 100 **

16.

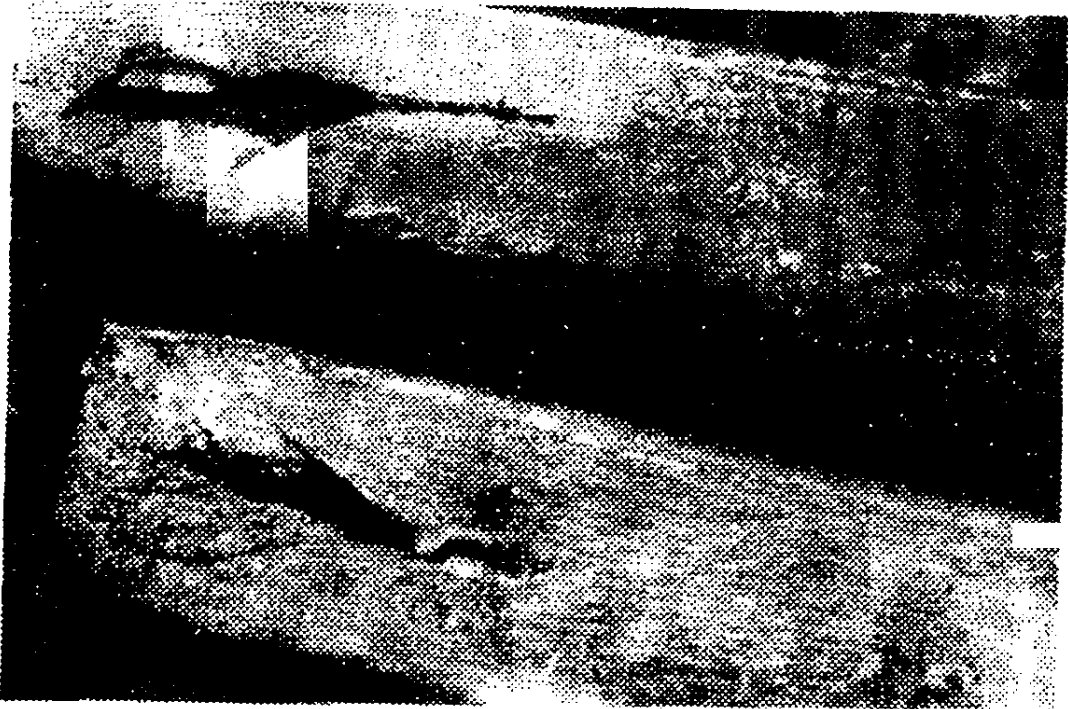


a



— ; 6 — ; — 100*

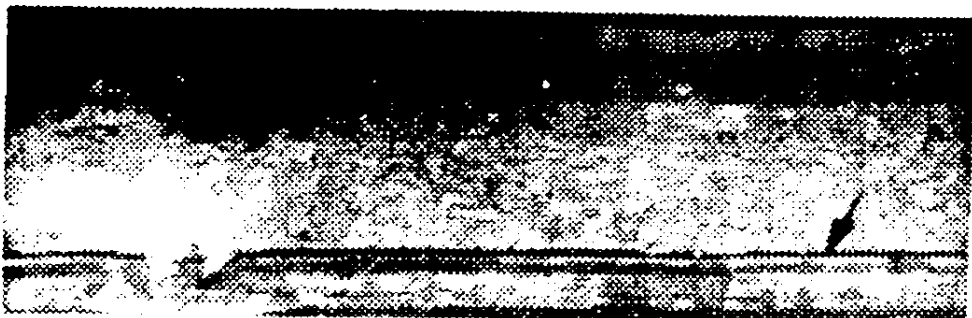
17. ()



18. ()



19. ()

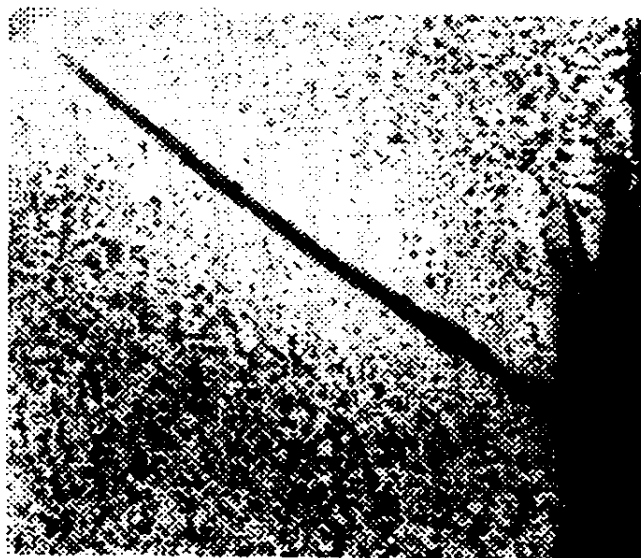
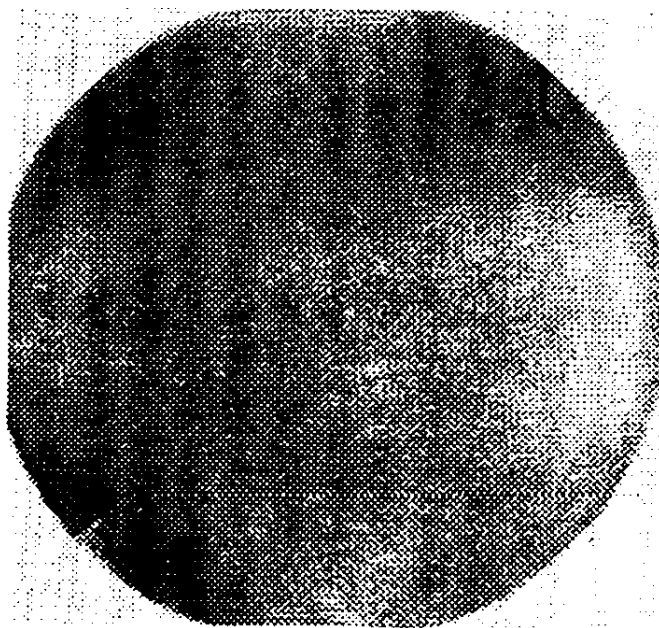


21. ()



22.





; —

; —

100 *

23.

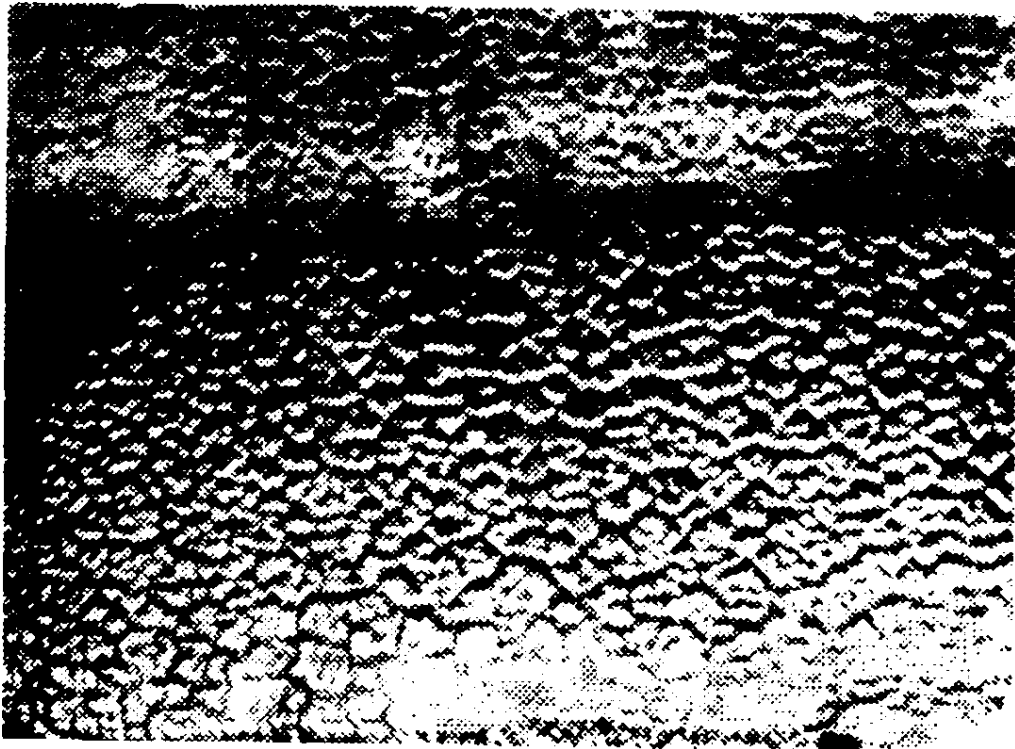
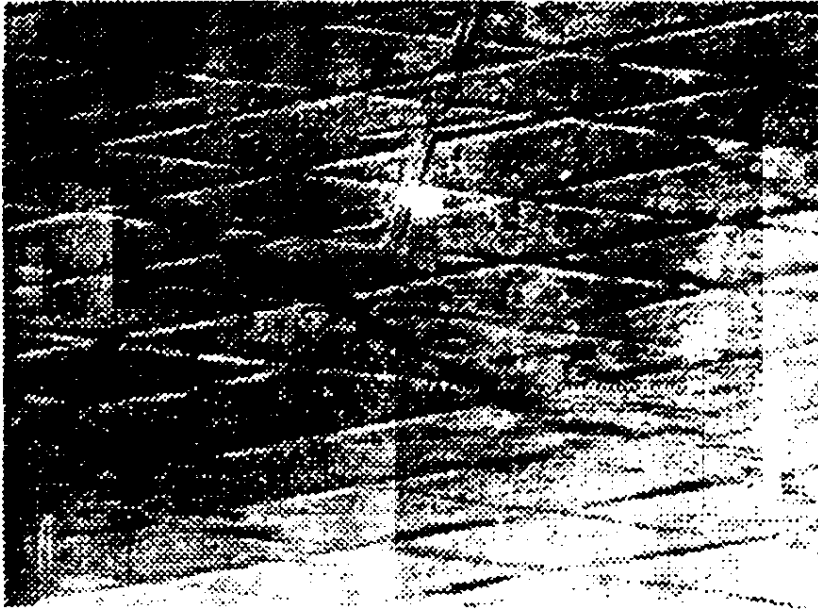


— : —

24. ()



29.

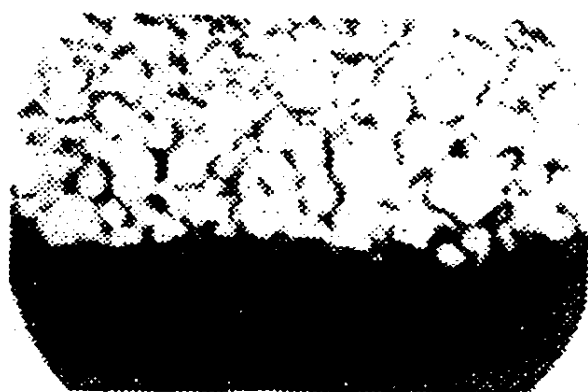
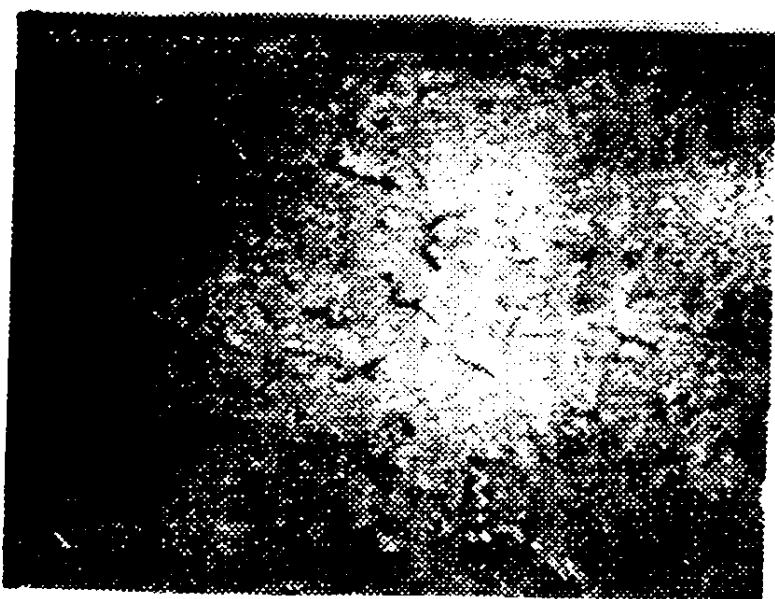
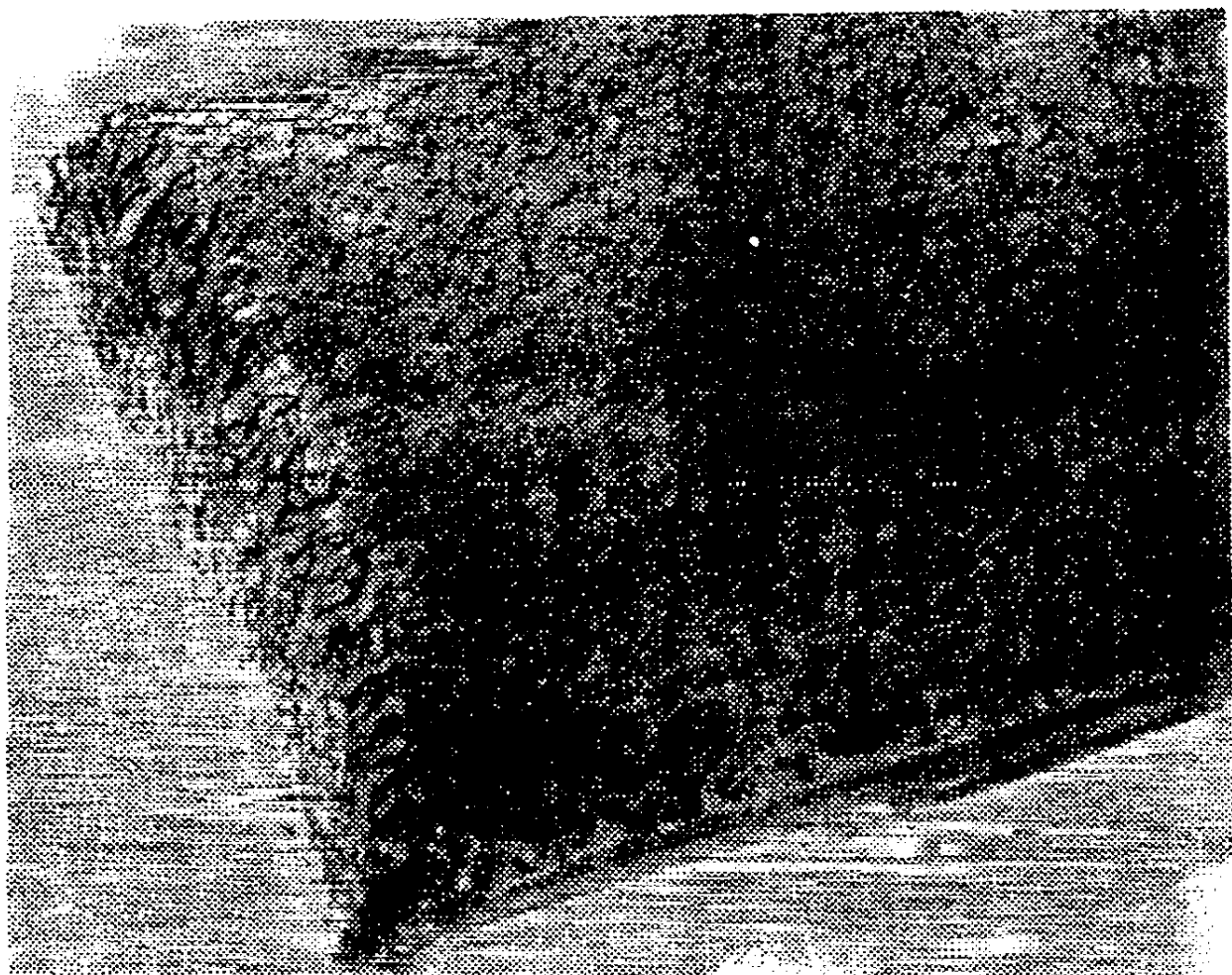


Q—

;

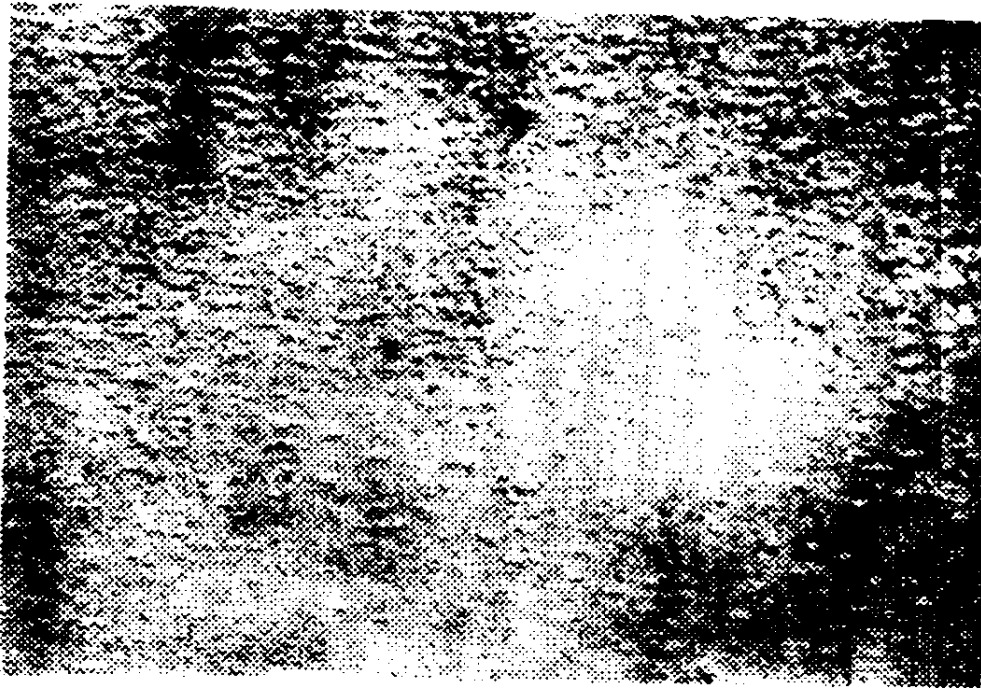
*

32.

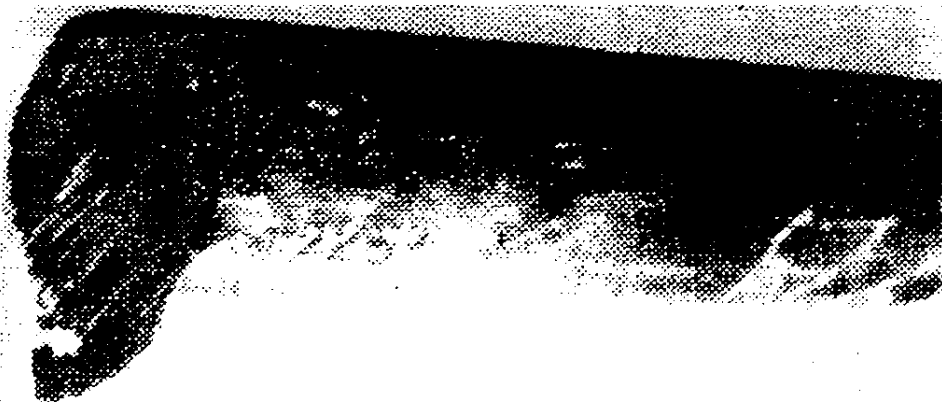


, — ; — * \ 300

35. ()



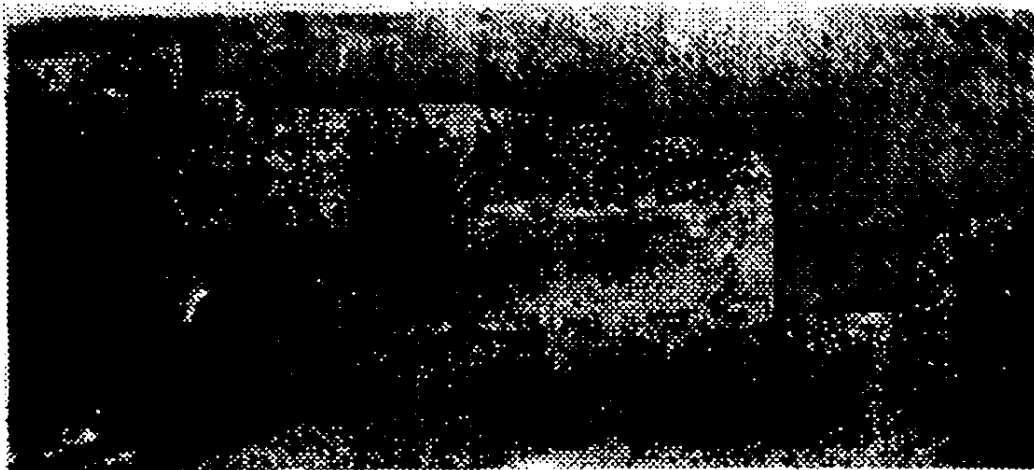
47. ()



54.



56. ()

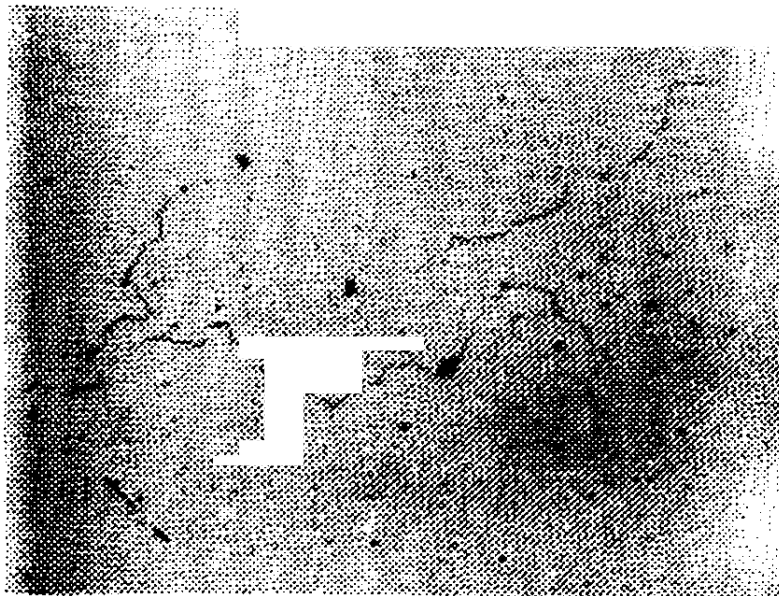


58.

()



61.



6

— ; —

80

1.

· · , · · , · · , · · ,
· · , · · , , · -

2.

3724

-
16.11.88

3.

20847—75, 21014—75

4.

— 2000 .

— 10 .

5.

- -

26877—86

. . .
. . .
. . .

. 21.12.88 . 15.02.89 4.0 . . . 4,0 . . . 4,04 .- . .
16000 . 20 .
« » .123840. . .
.» 3. . 256. . 2875