

Э. Хокинс, Д. Эйвон

Фотография. Техника и искусство

Издательство «Мир»



ФОТОКИНОТЕХНИКА
в книгах издательства «Мир»

Л. Гонт

Экспозиция в фотографии

Р. Рёссинг

Увеличение фотоснимка

Э. Хокинс, Д. Эйвон

Фотография. Техника и искусство

К. Престон-Мэфем

Фотографирование живой природы

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Photography
The guide to technique
Andrew Hawkins and Dennis Avon
Blandford Press Poole
1980





Москва «Мир» 1986

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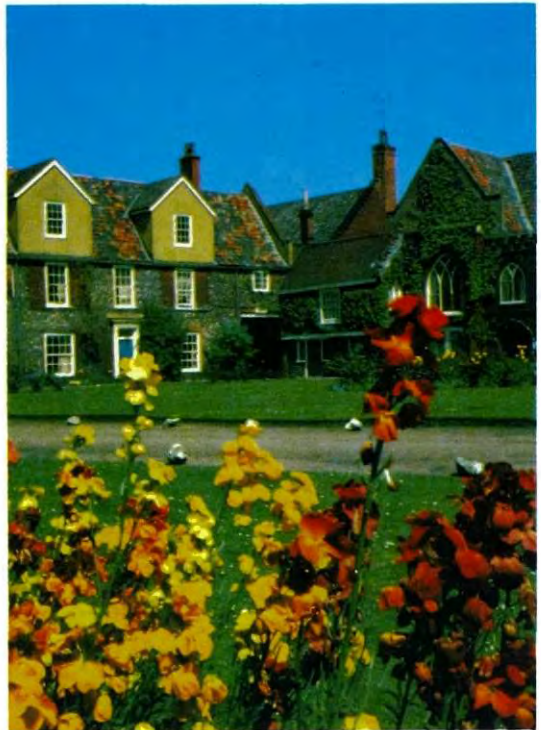
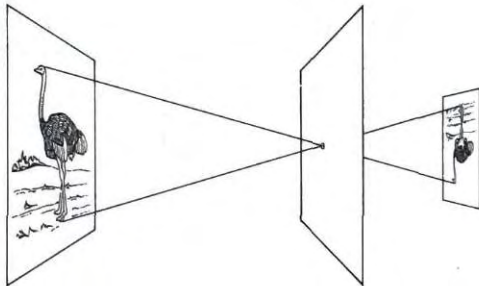
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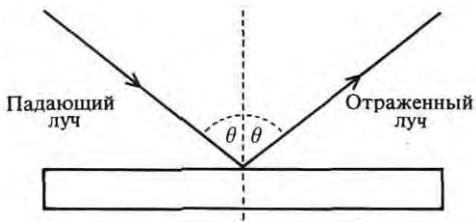
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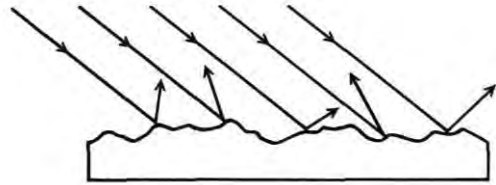
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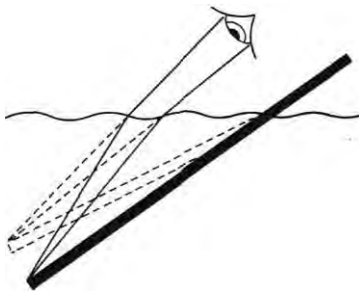




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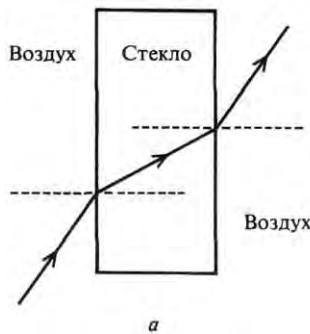
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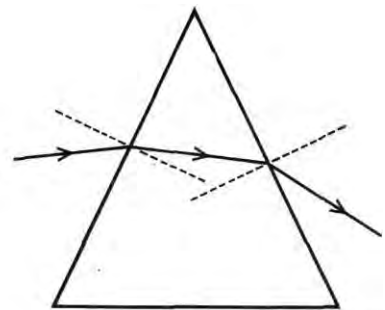
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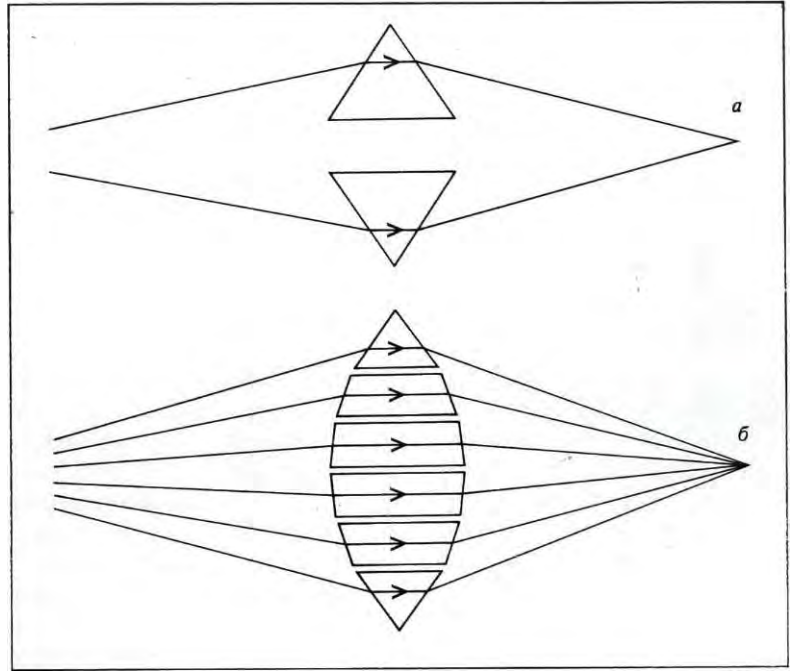


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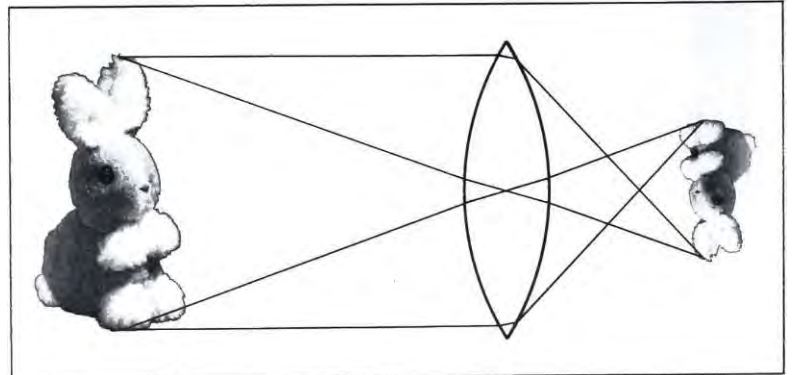


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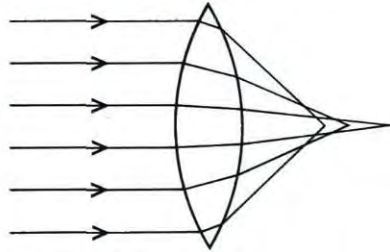
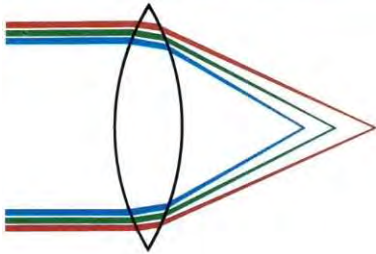
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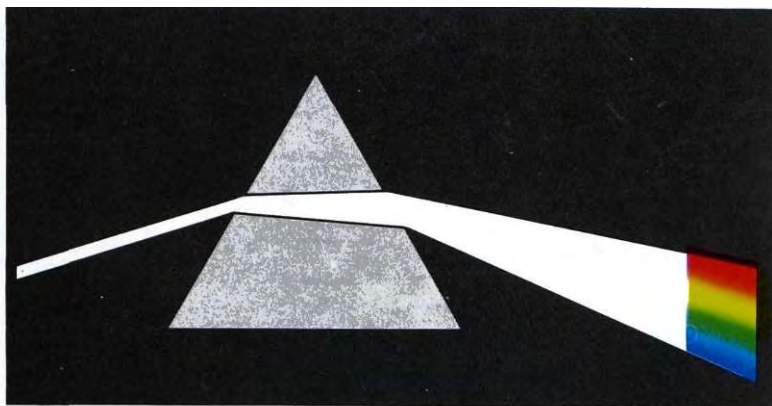
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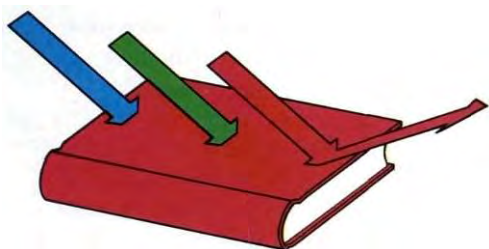
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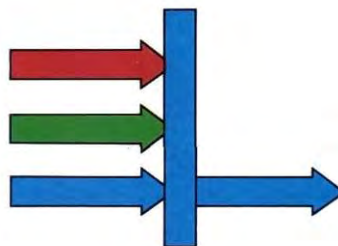
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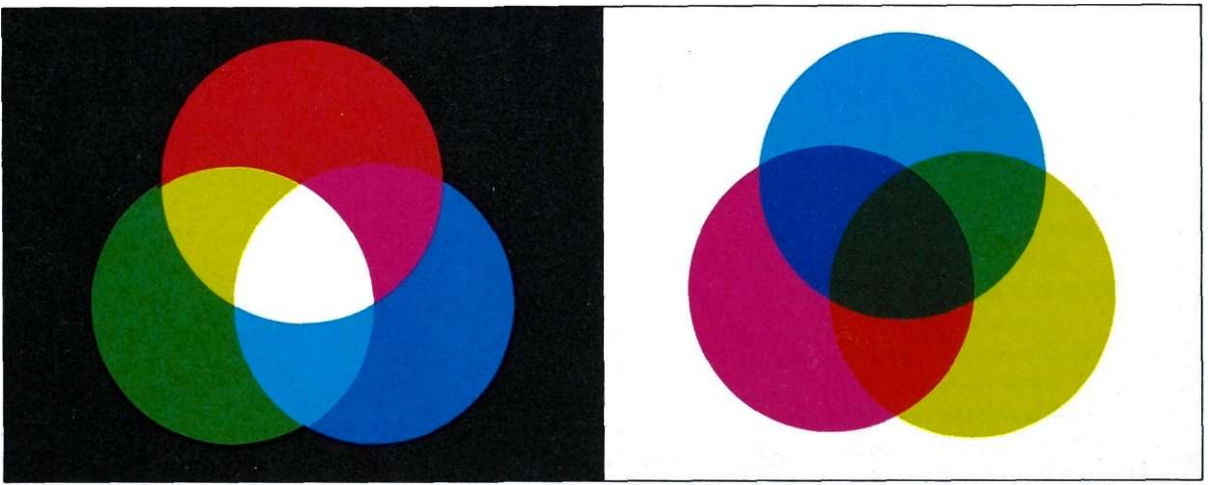
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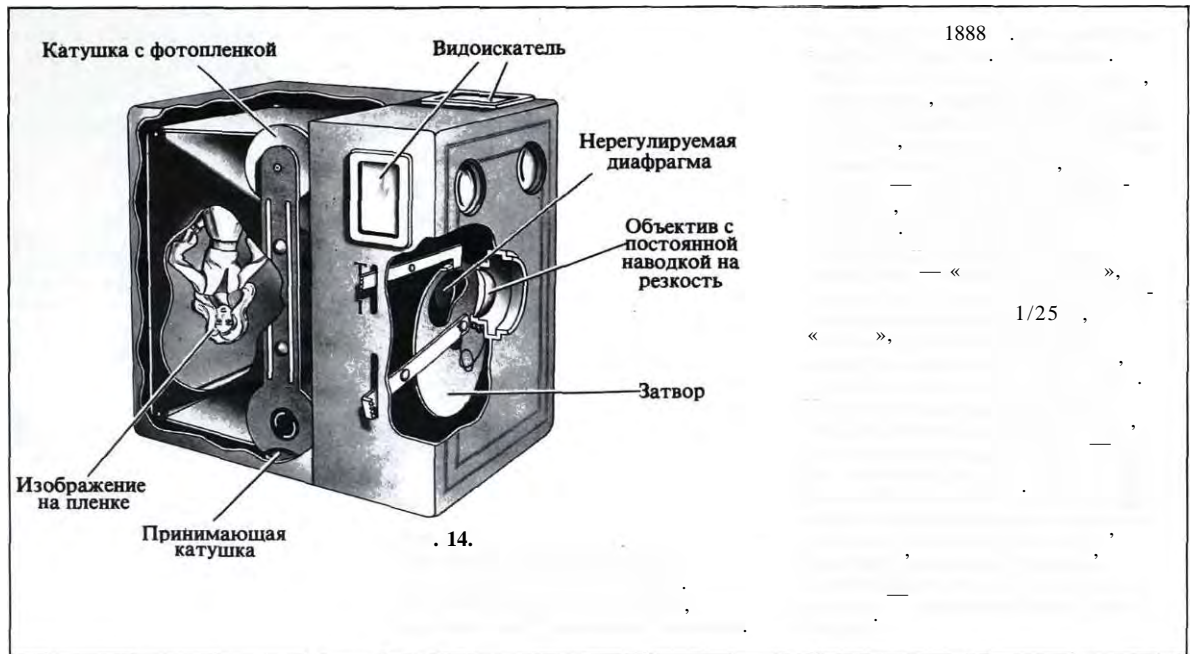
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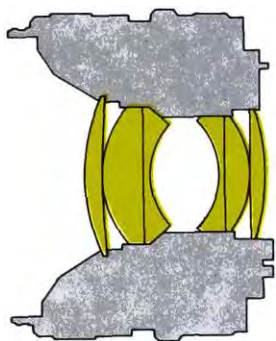
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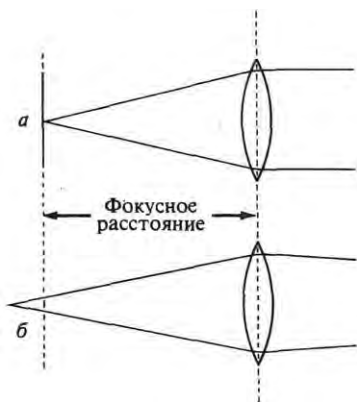
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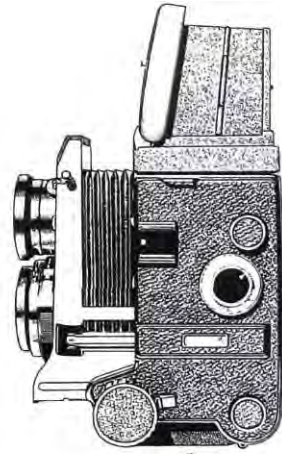
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1:1.

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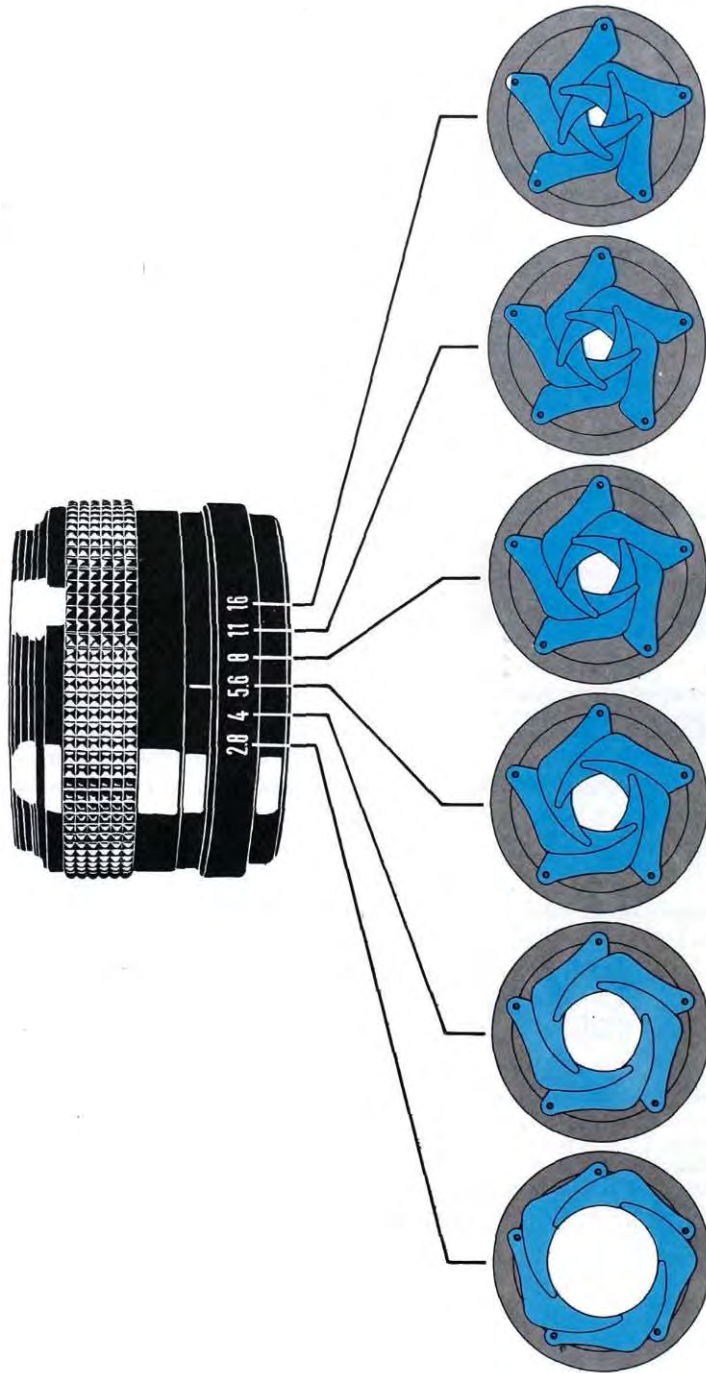
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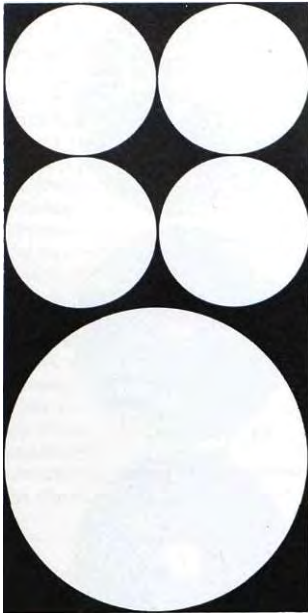
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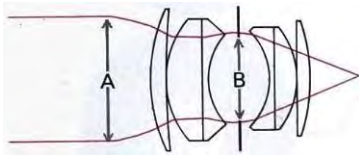
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1:16 1:22,

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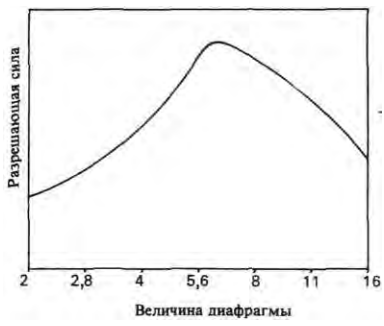
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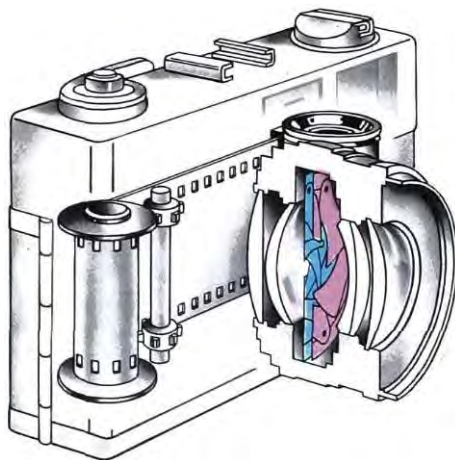
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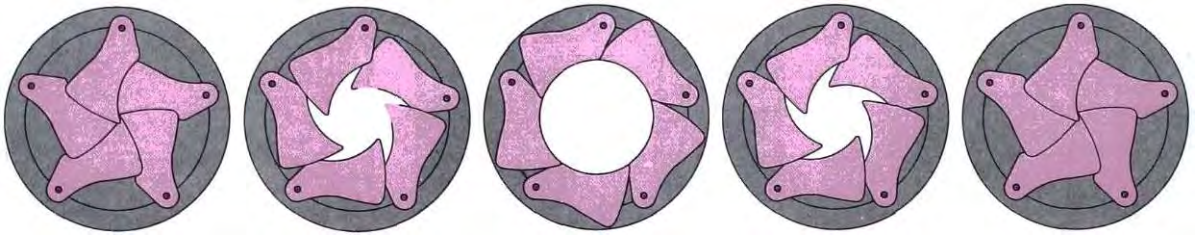
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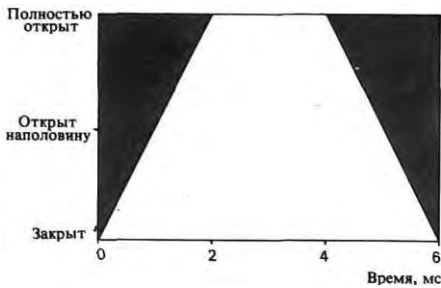
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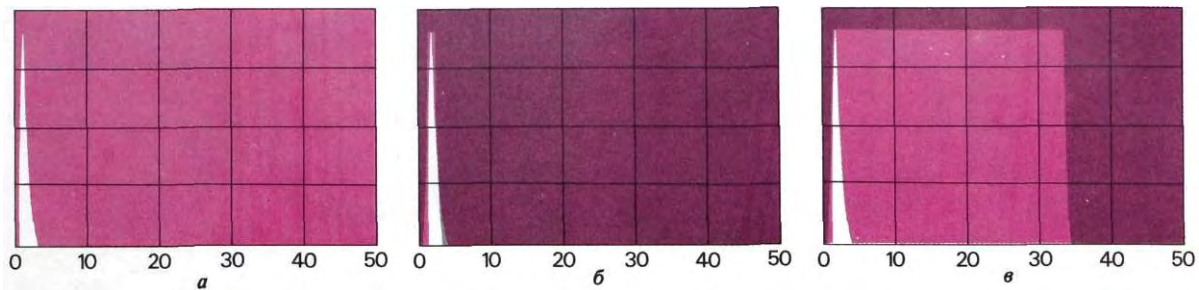


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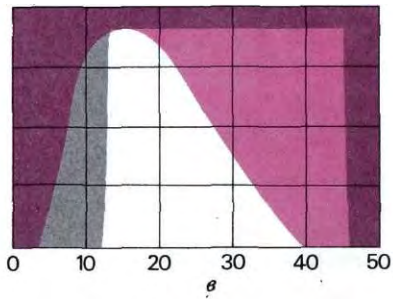
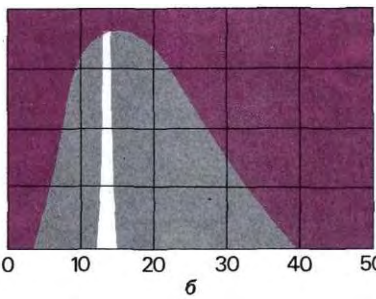
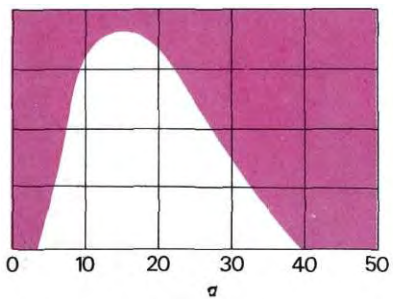
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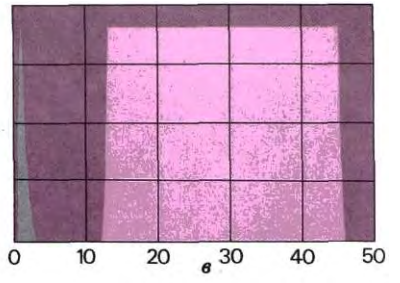
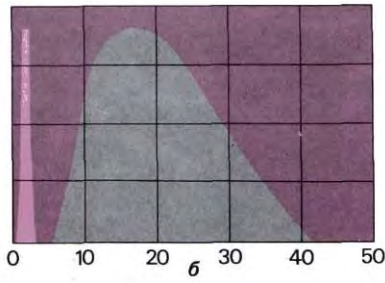
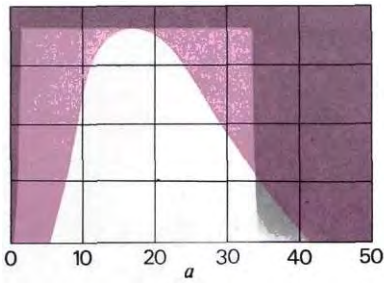
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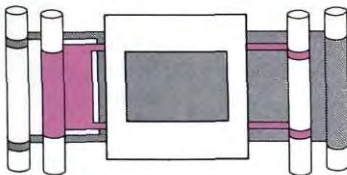
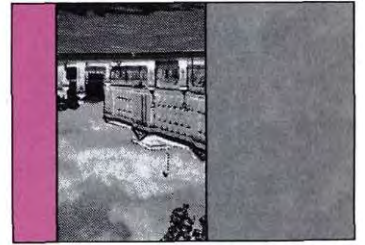
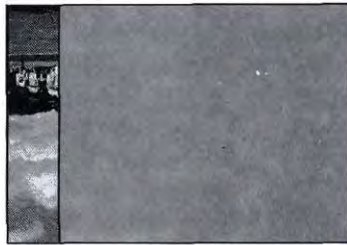
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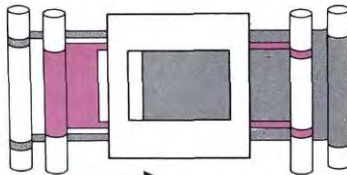
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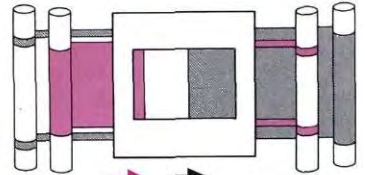
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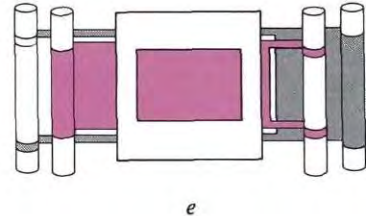
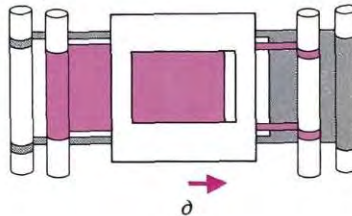
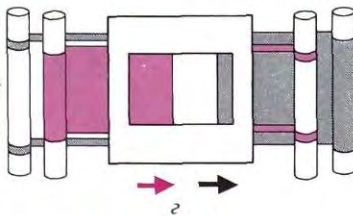
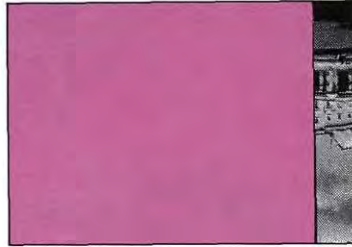
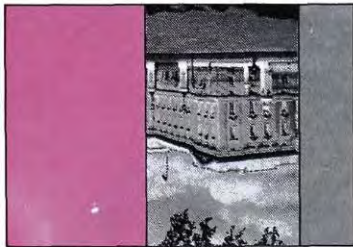
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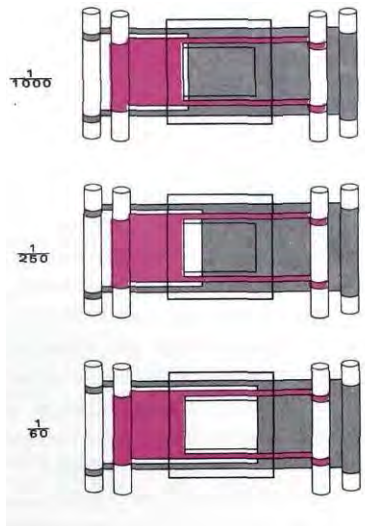
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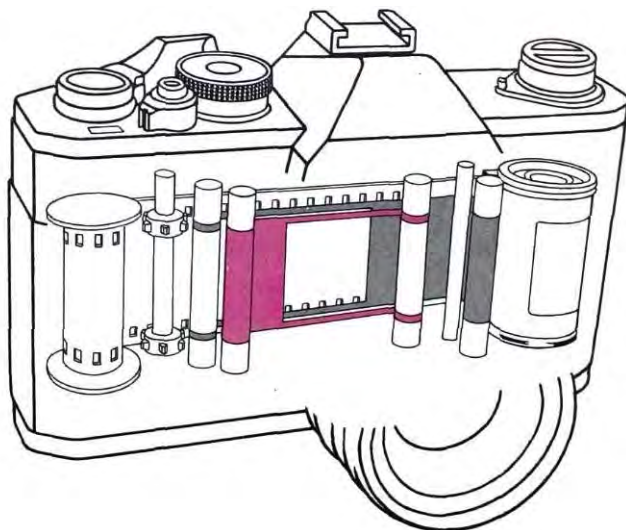
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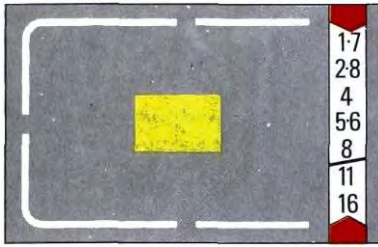
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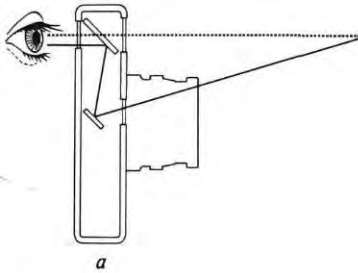
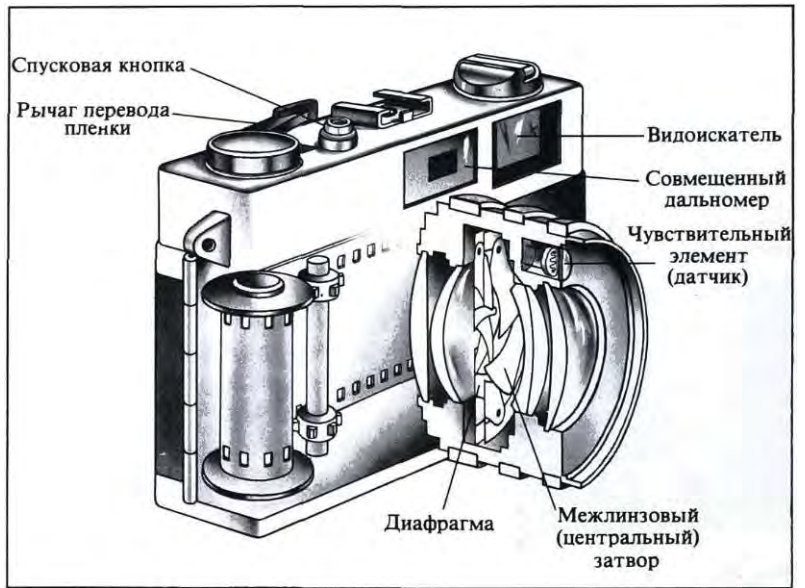
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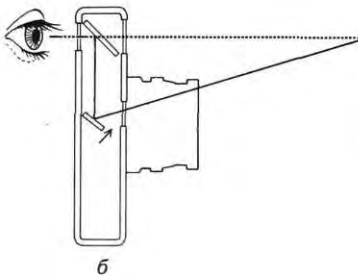
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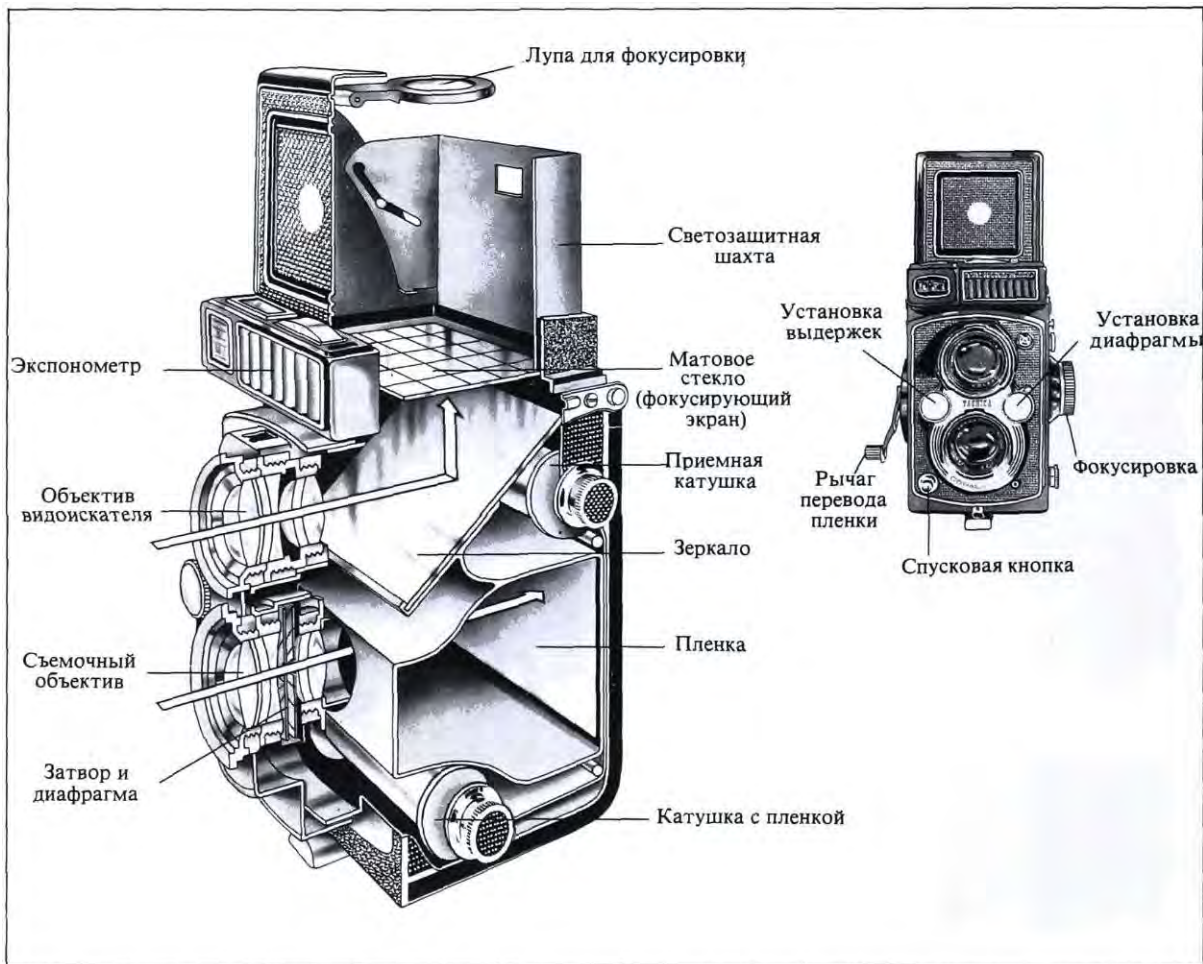
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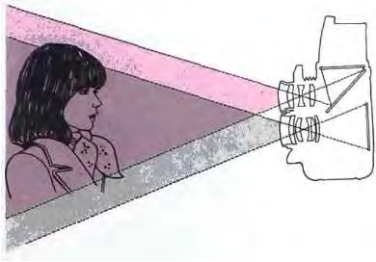
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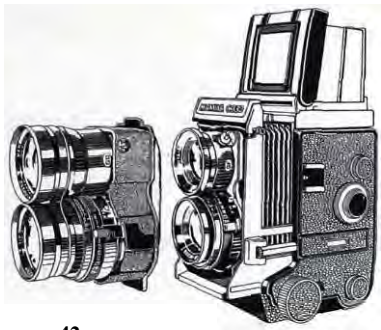
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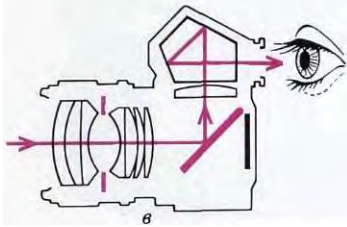
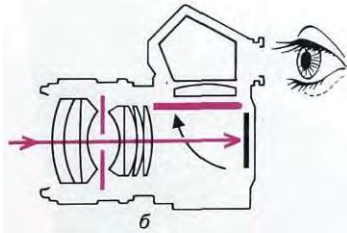
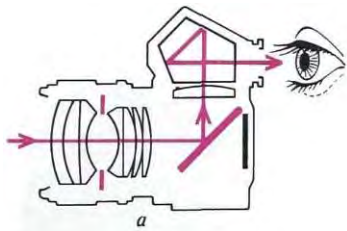
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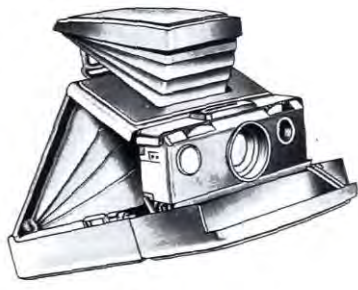
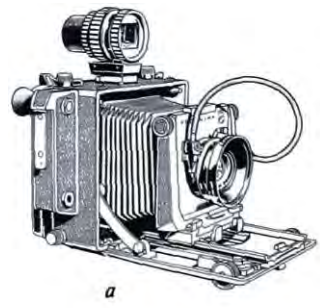
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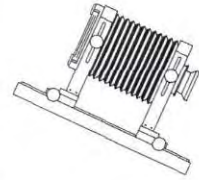
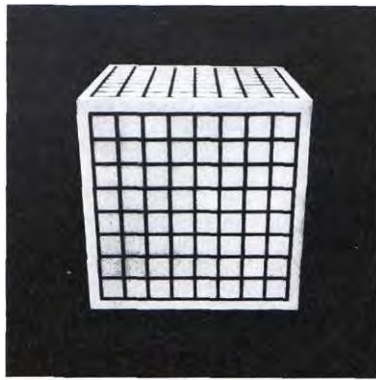
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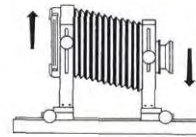
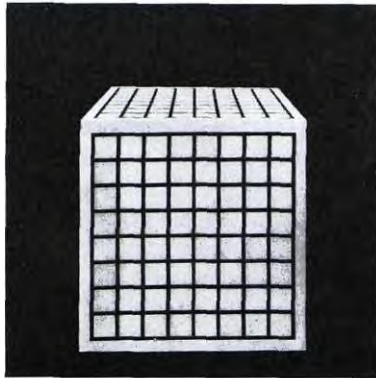


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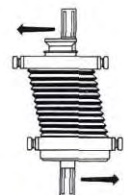
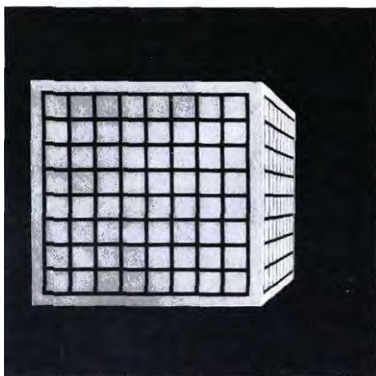
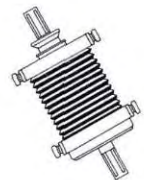
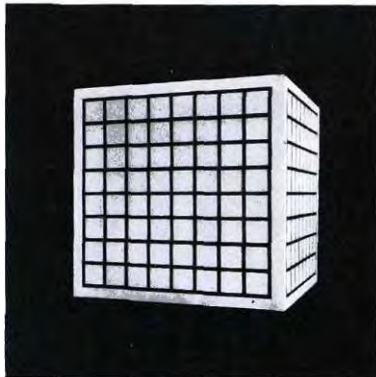
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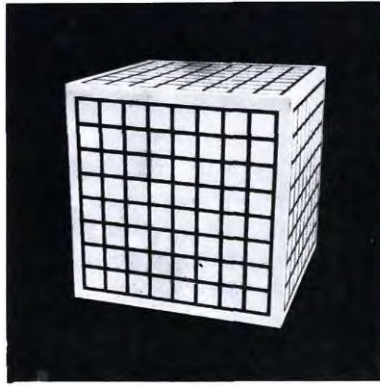


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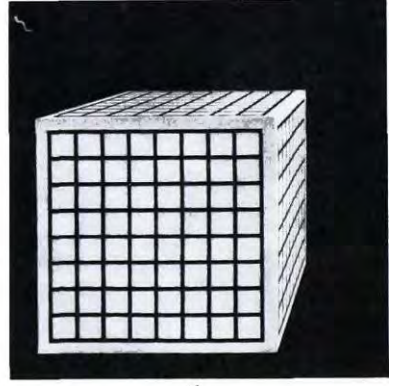


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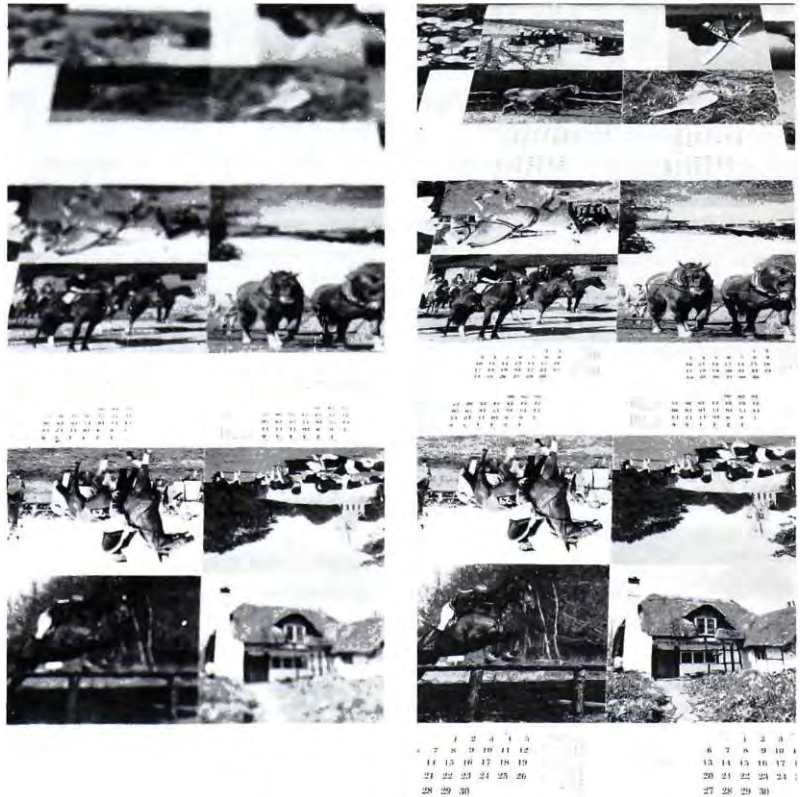




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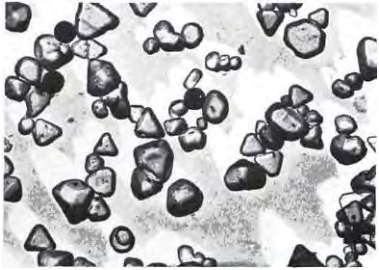
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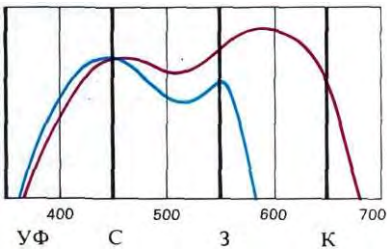
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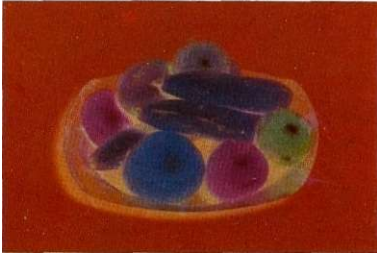
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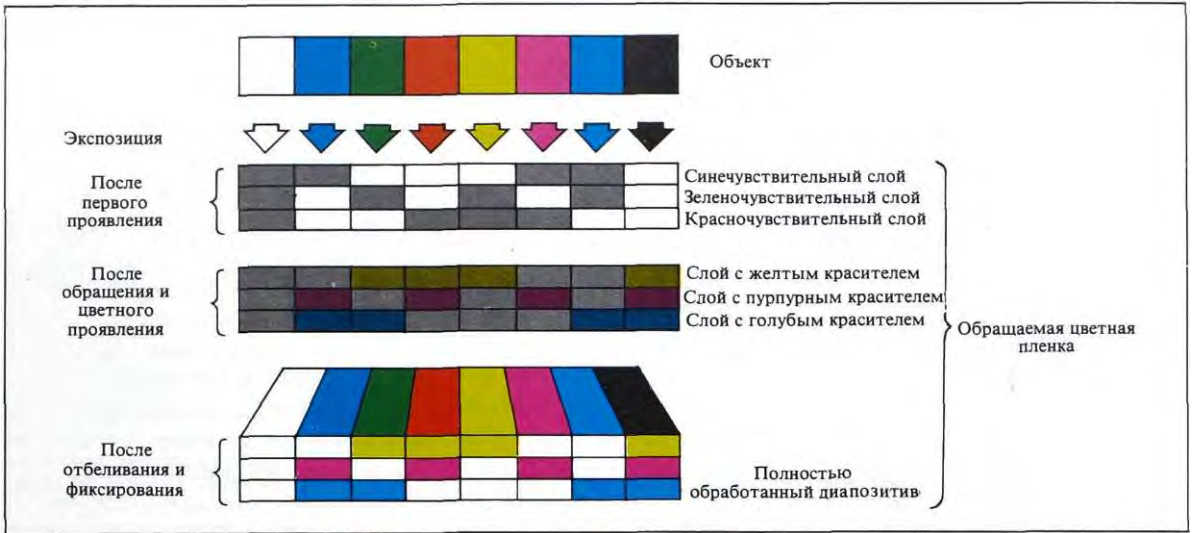
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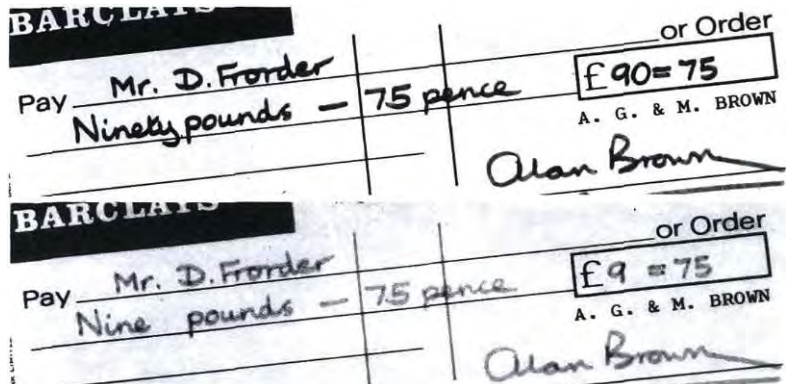
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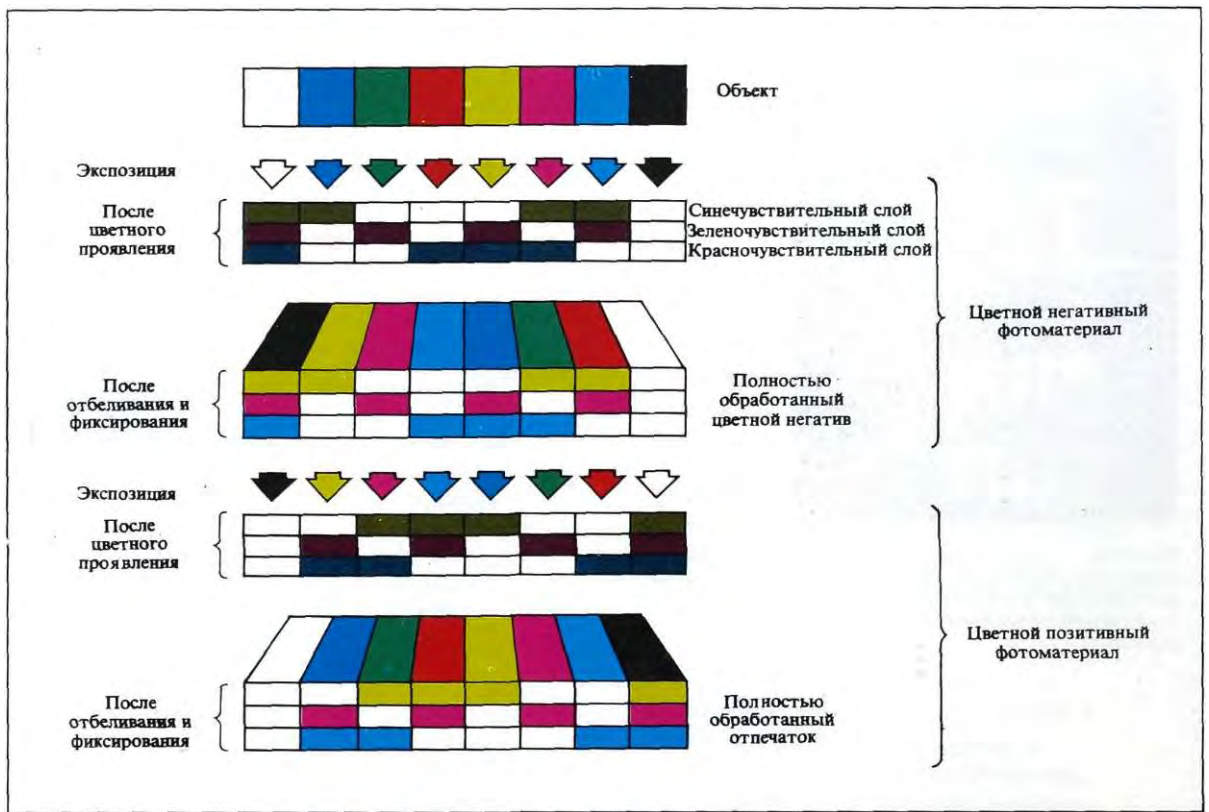
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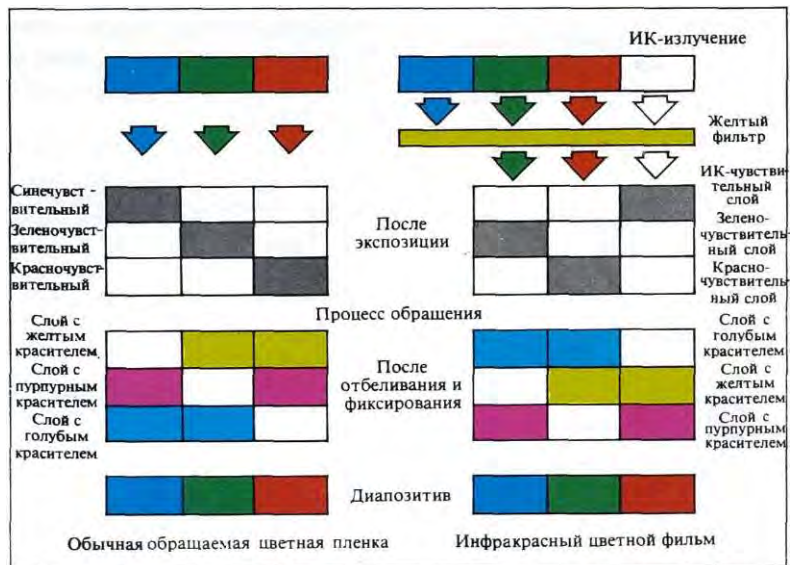
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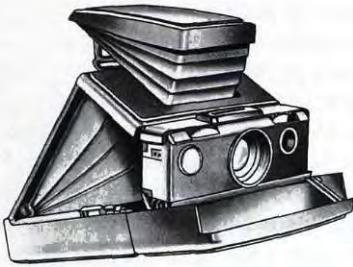
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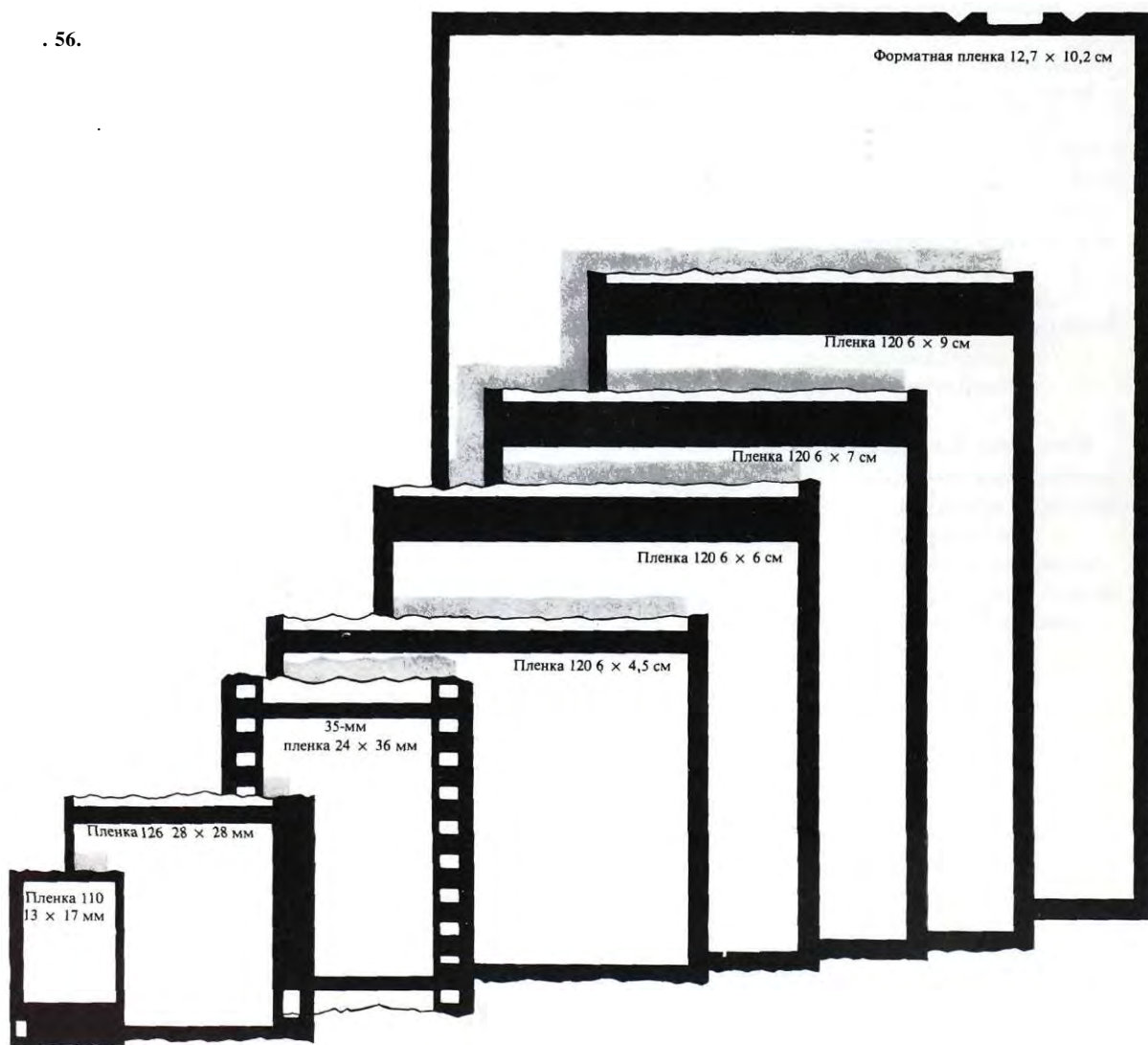
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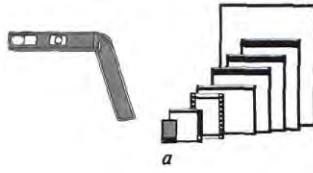


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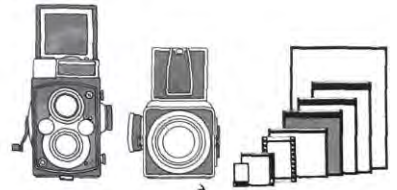
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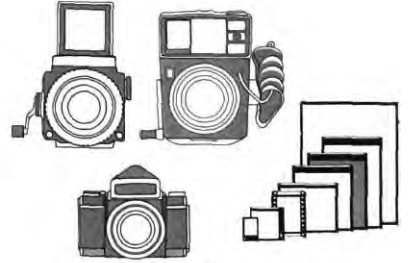
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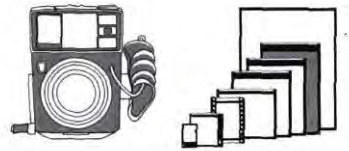
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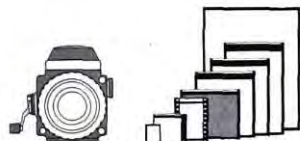
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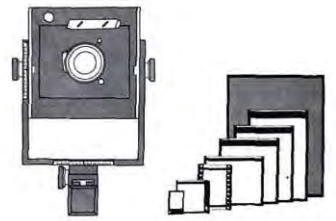
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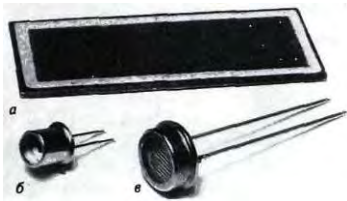
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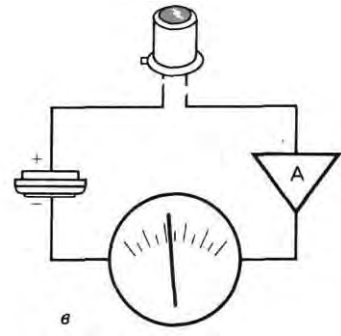
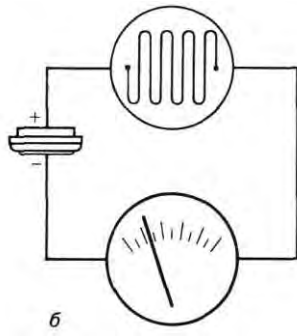
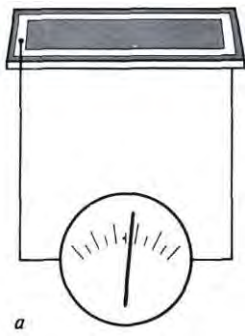
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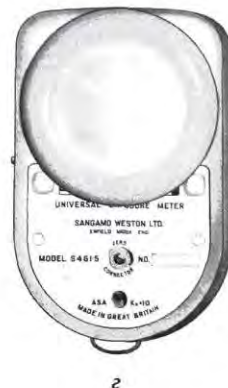
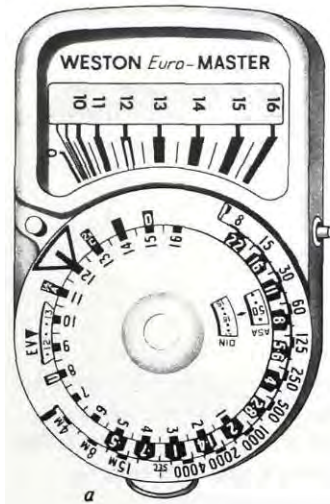
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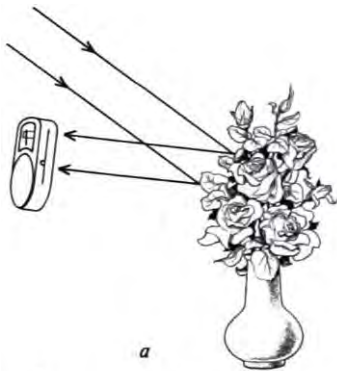
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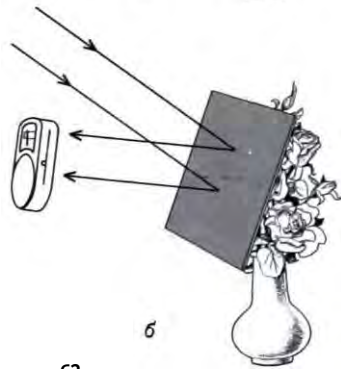
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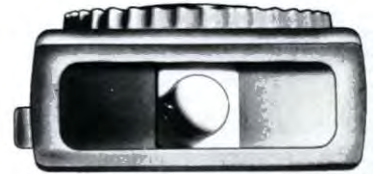
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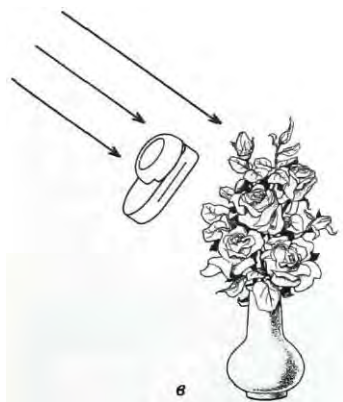
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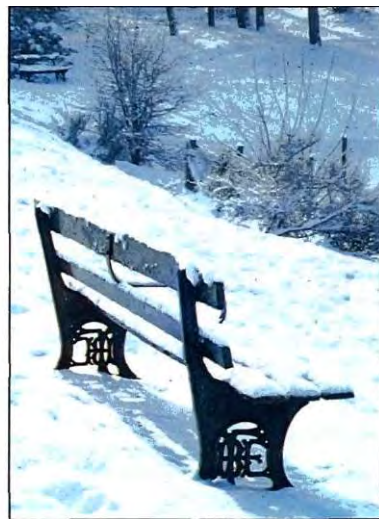
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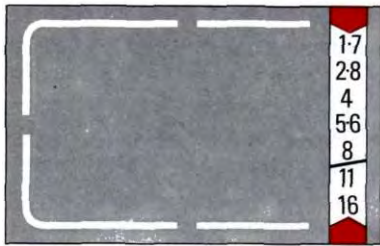
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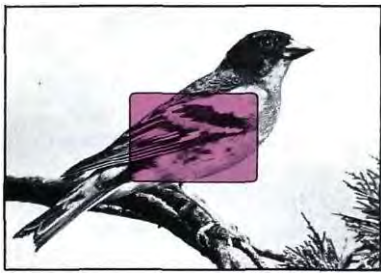
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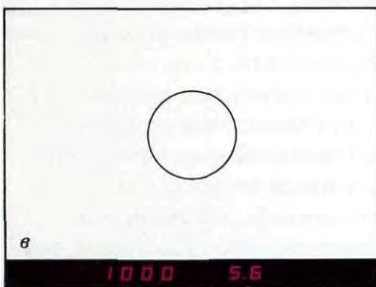
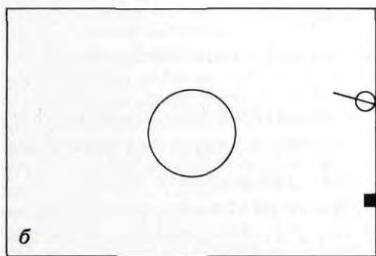
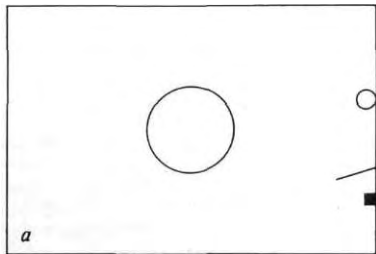
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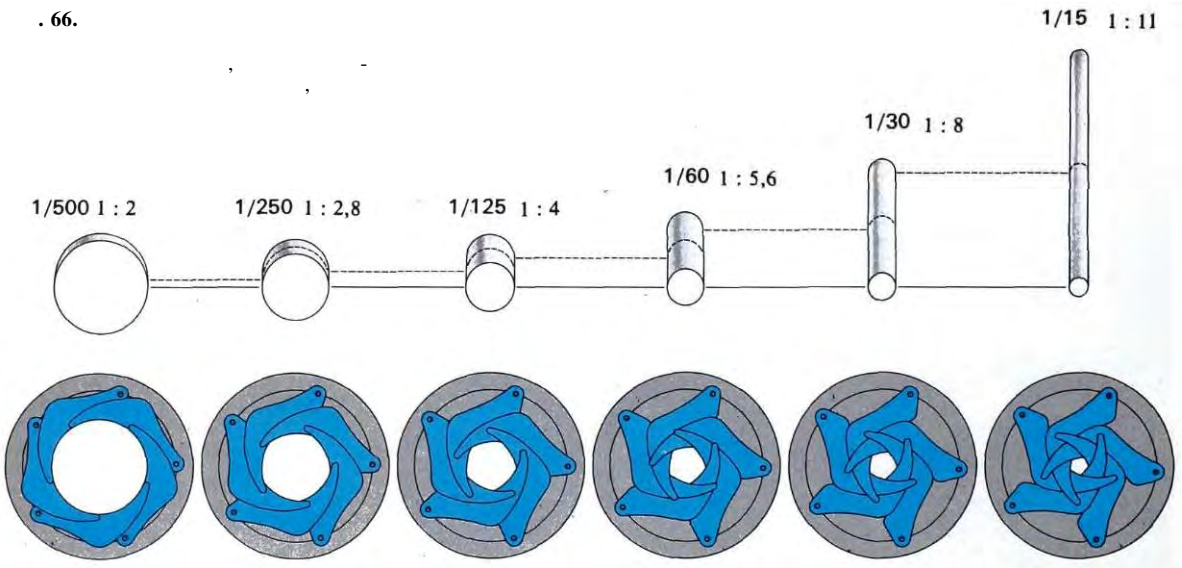
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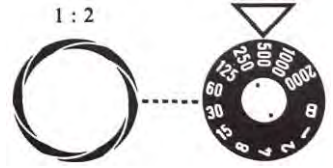
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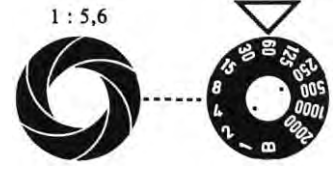
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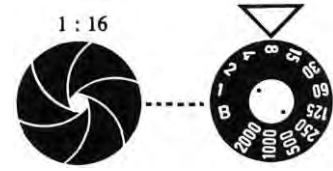


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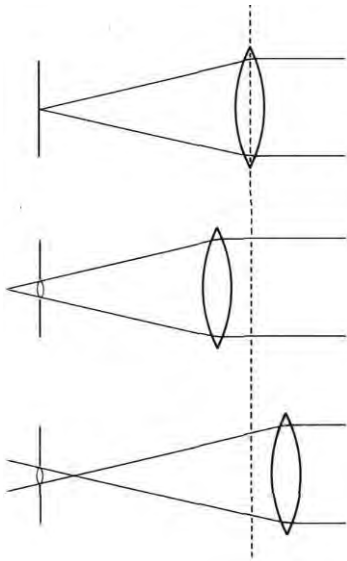
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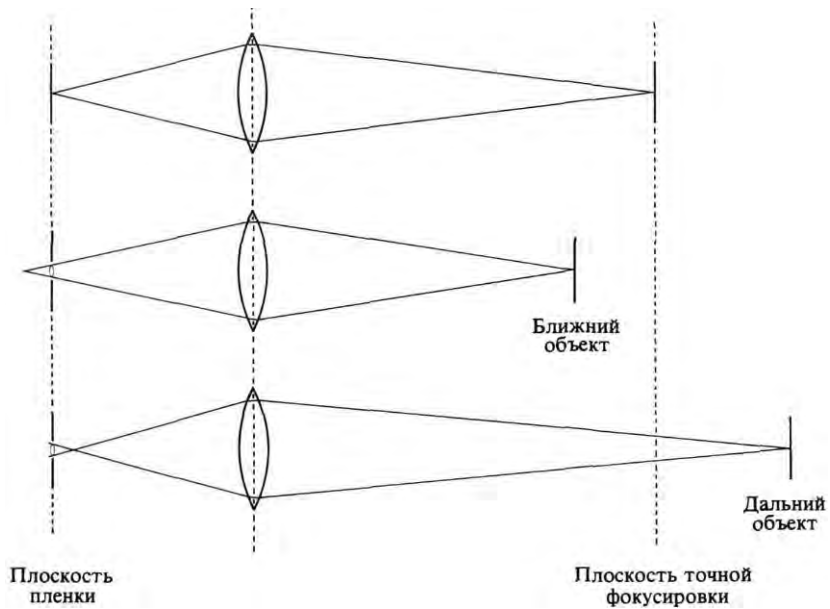
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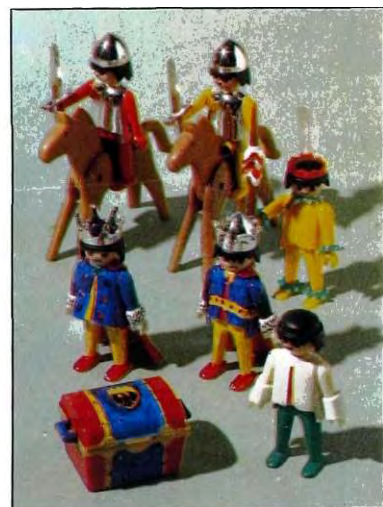


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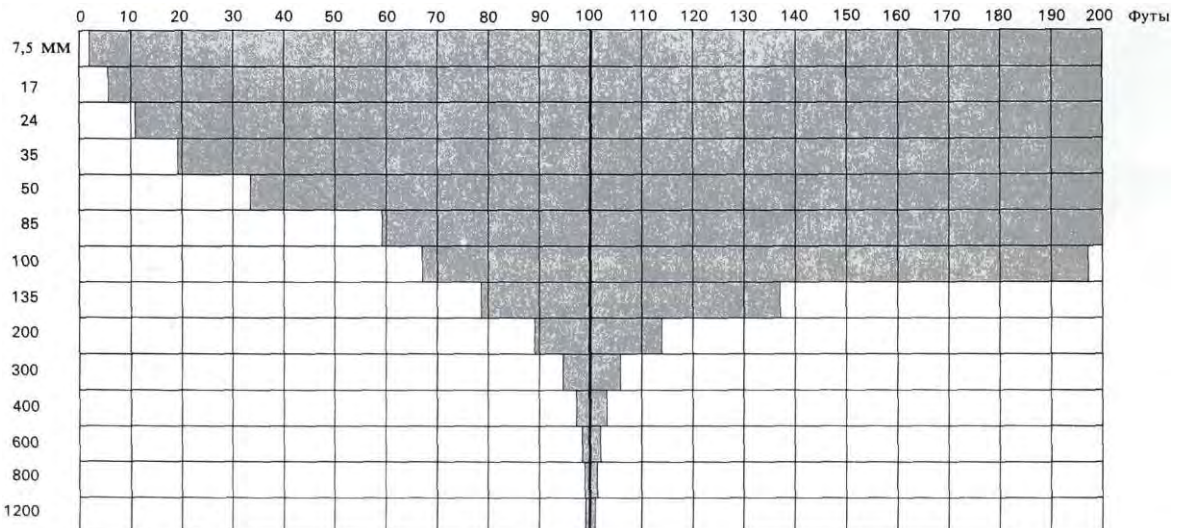
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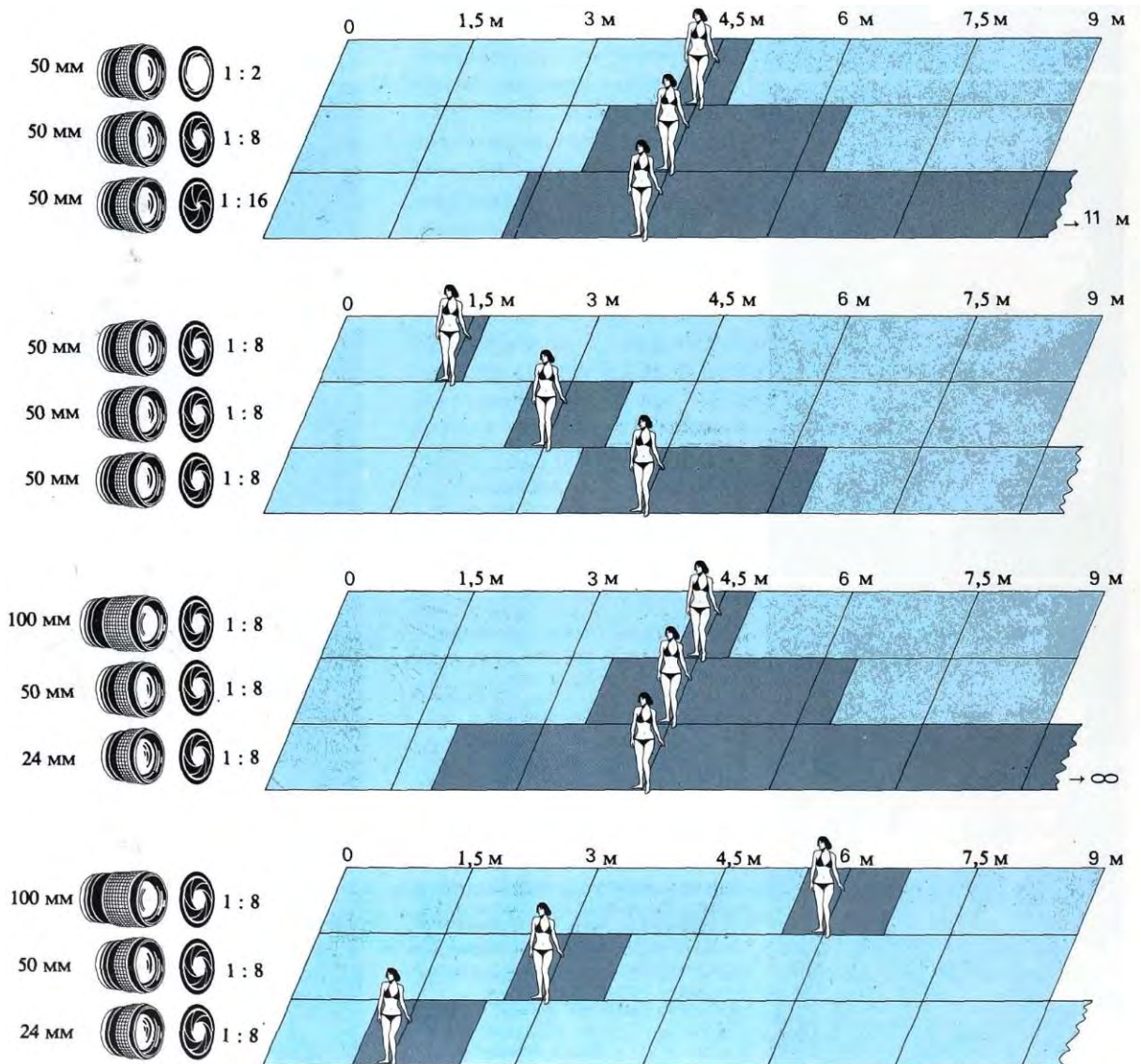
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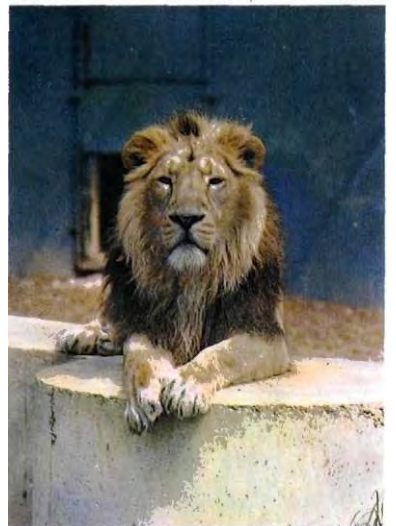
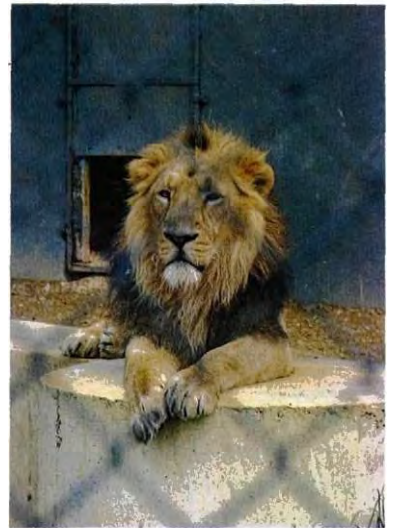
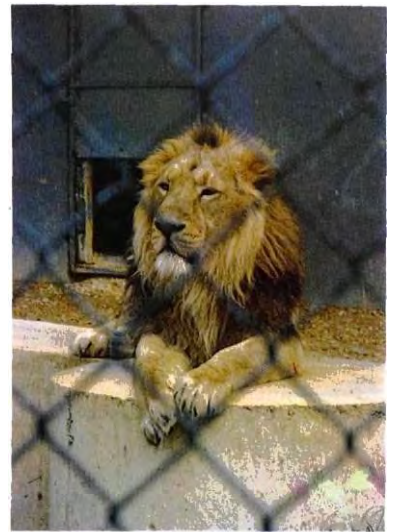


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FTb, 50-
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Kodachrome 25. —

. Canon FTb, 50-
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1:8, Kodachrome 25. —

Canon FTb, 50-
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1:16, Kodachrome 25.



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Kodachrome 64. —

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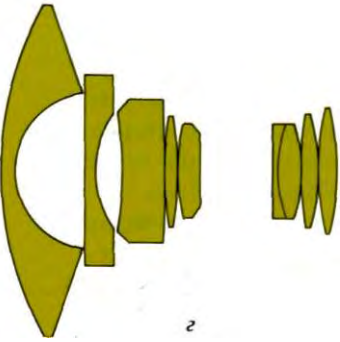
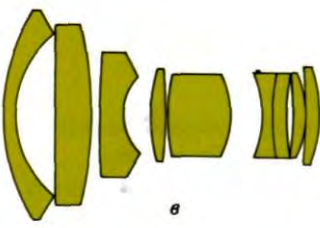
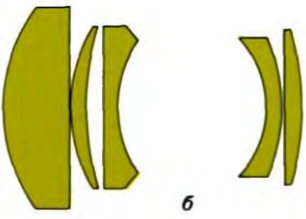
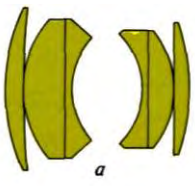
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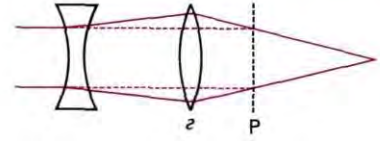
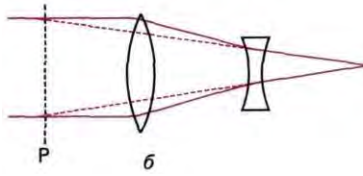
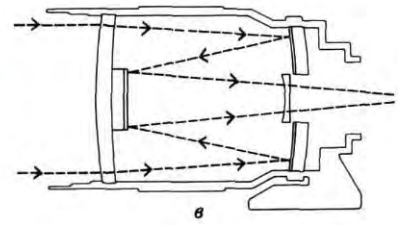
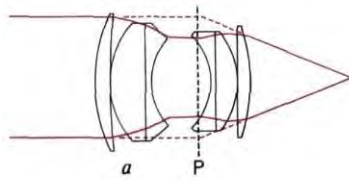
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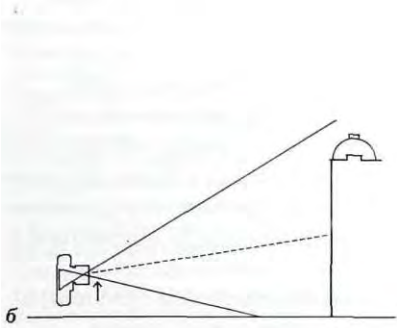
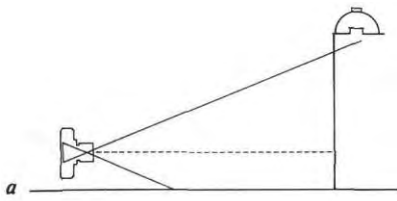
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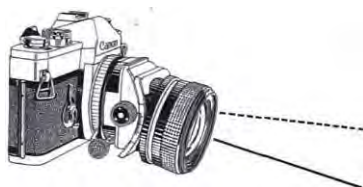
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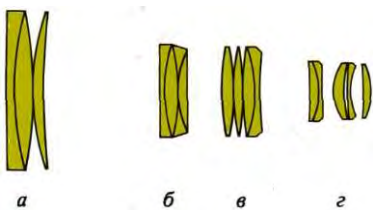
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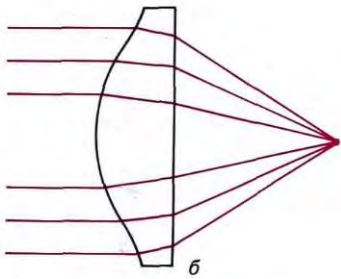
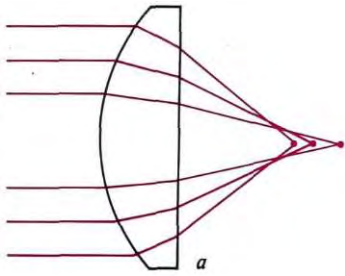
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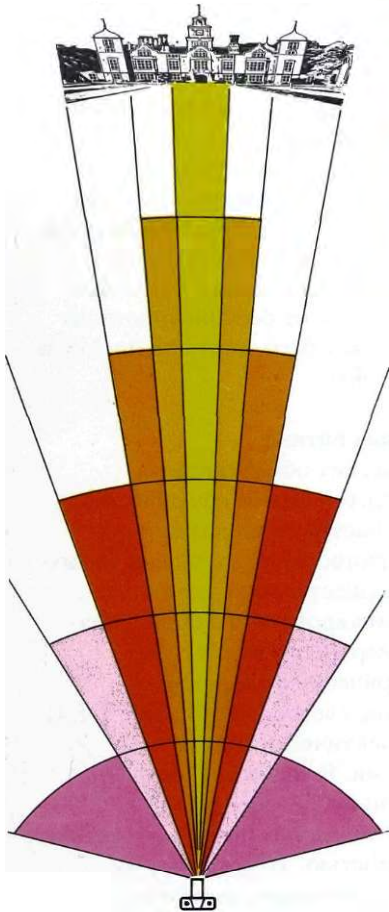
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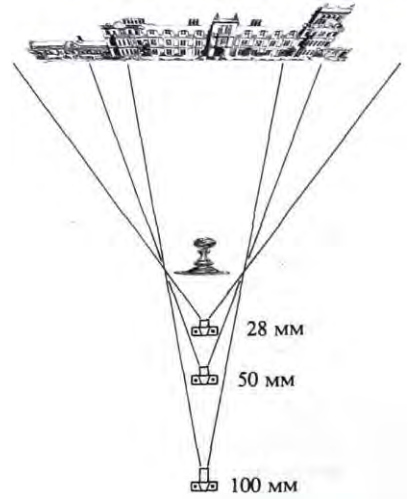
Объектив «рыбий глаз» — горизонтальный угол зрения 150°

28 мм	— 65°
50 мм	— 40°
100 мм	— 20°
200 мм	— 10°
500 мм	— 4°



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1. The first step in the process of identifying a problem is to define the problem. This involves identifying the symptoms and the underlying causes of the problem. Once the problem has been defined, the next step is to identify the stakeholders who are affected by the problem. This is important because it helps to determine who has a stake in the solution and who is responsible for implementing it. The third step is to gather information about the problem. This involves conducting research and consulting with experts in the field. The fourth step is to analyze the information and identify the most effective solutions. This involves weighing the pros and cons of each solution and determining which one is most likely to be successful. The fifth step is to implement the solution. This involves putting the solution into action and monitoring its progress. The final step is to evaluate the results of the solution. This involves determining whether the solution has been successful and whether it has had the desired impact.



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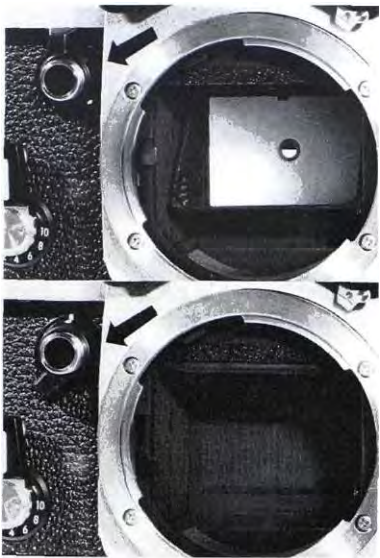
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135 , 1/250 , 1:8, Agfa 18.

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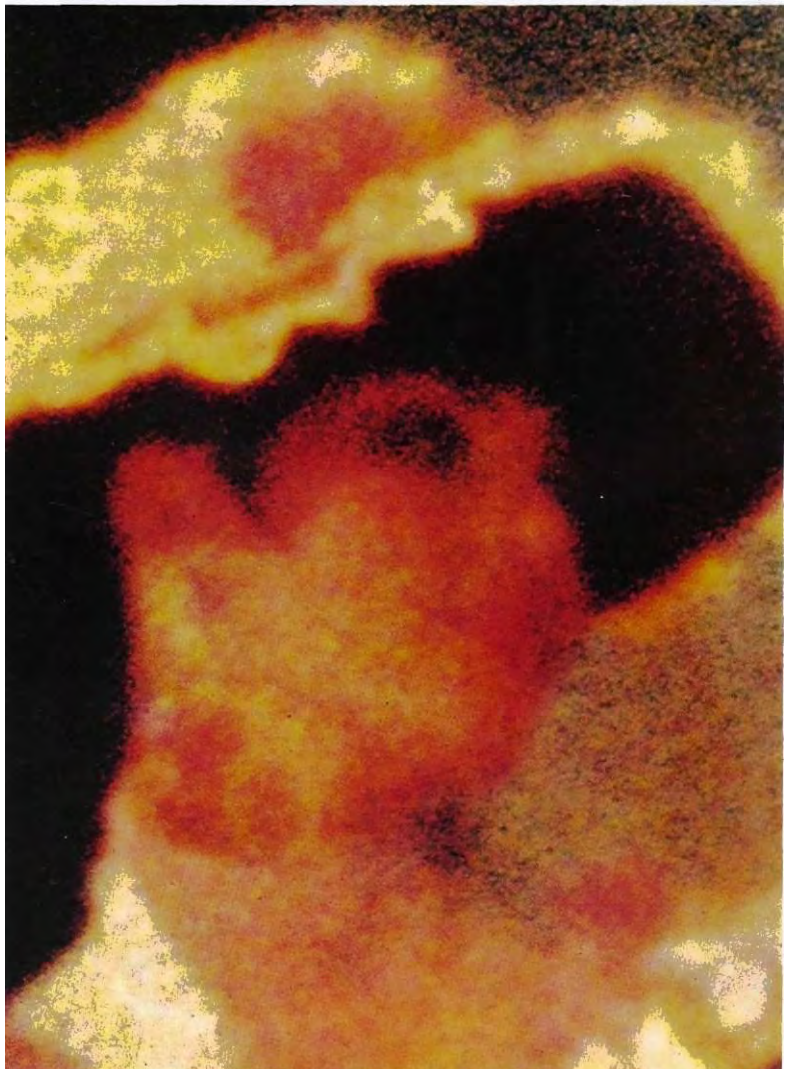


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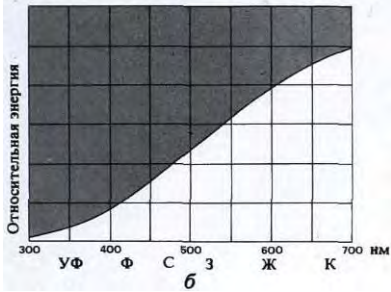
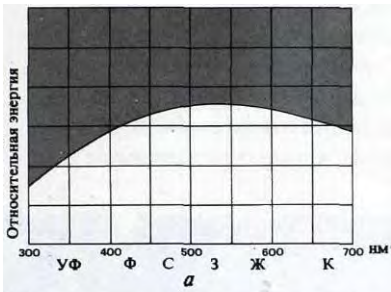
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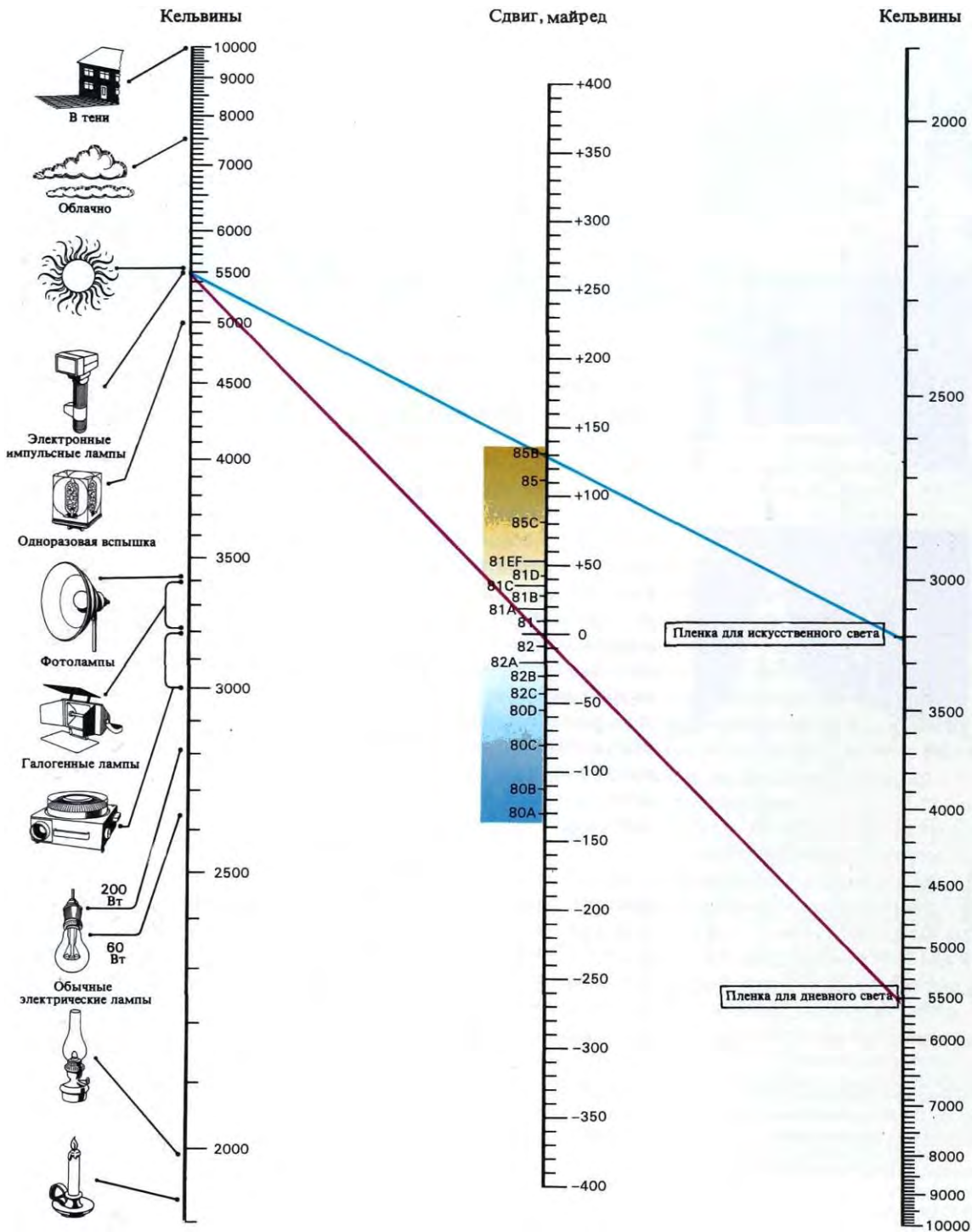
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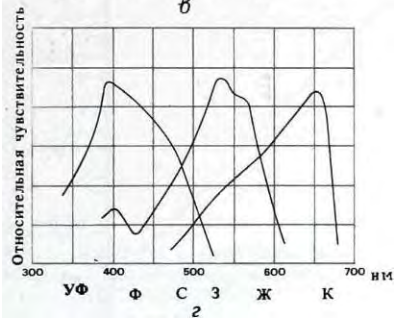
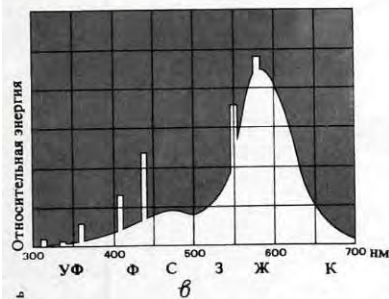
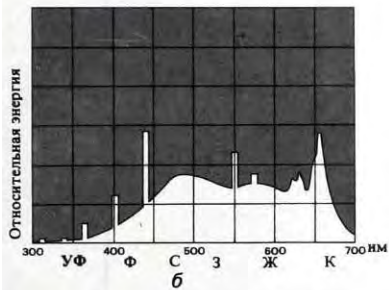
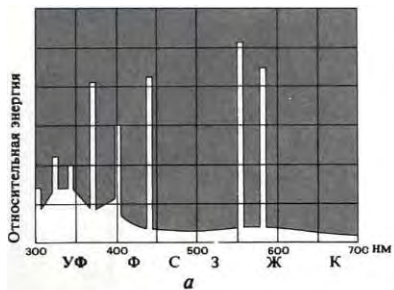
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1. "Warm White", Kodachrome 64.
2. "Colour Matching", Kodachrome 64.
3. Philips "Colour 32", Kodachrome 64.
4. Philips "Colour 34", Kodachrome 64.
5. Philips "Colour 34", Agfa CT18.

4 5



. 84.

(Gentian)

(Moming-Glory):

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40. — «

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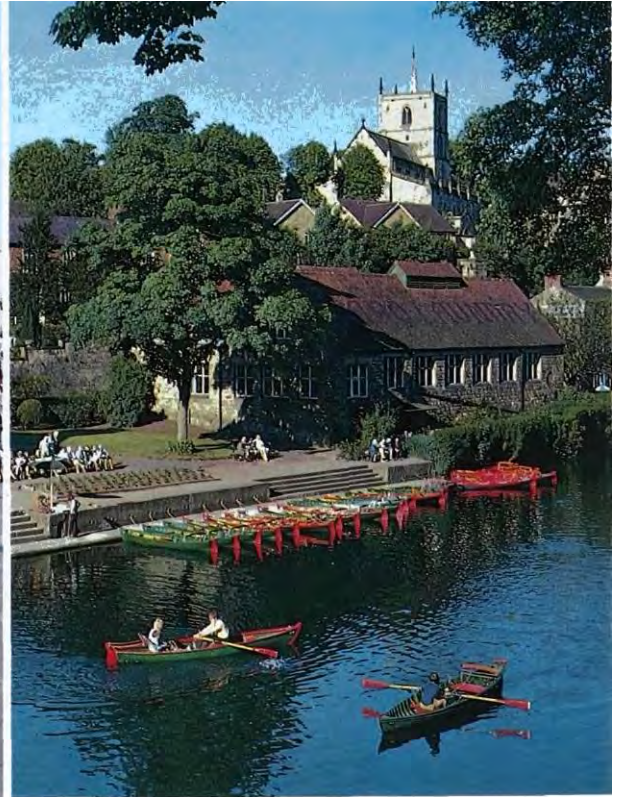
41. —

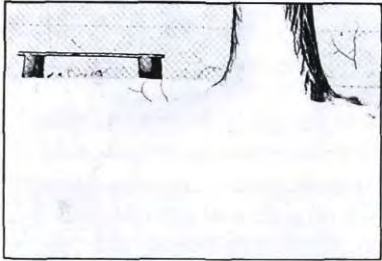
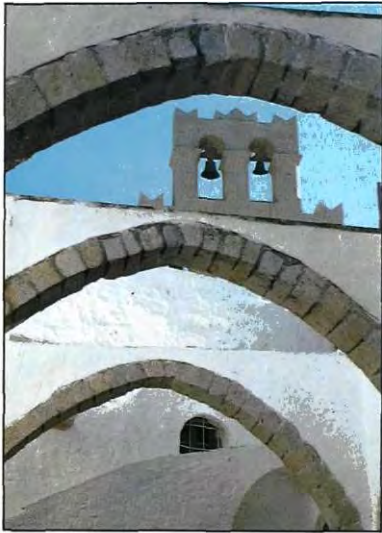


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42.

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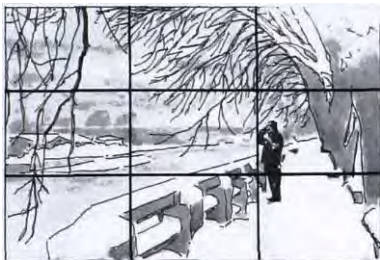
43.



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48.

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51.





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53.

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. Canon FTb,
1/125 , 1:6,3, Kodachrome 25.



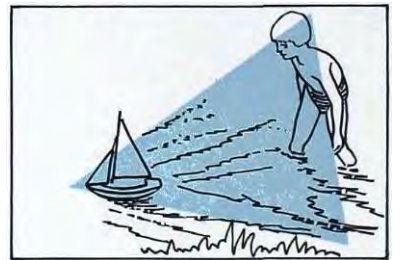


54.

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55.



56.



57.

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58.

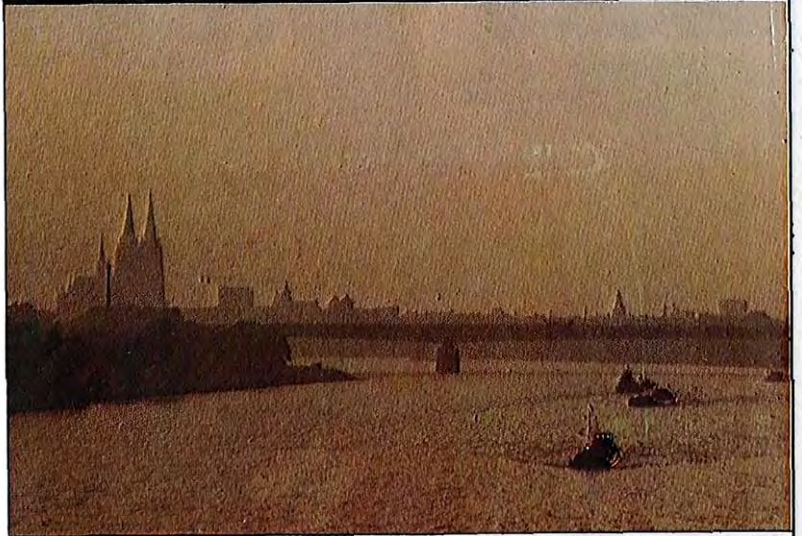


59.

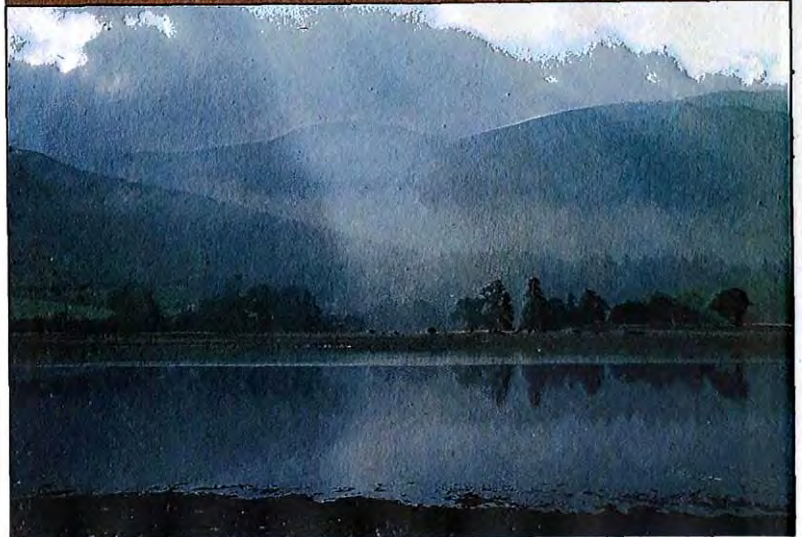
60.

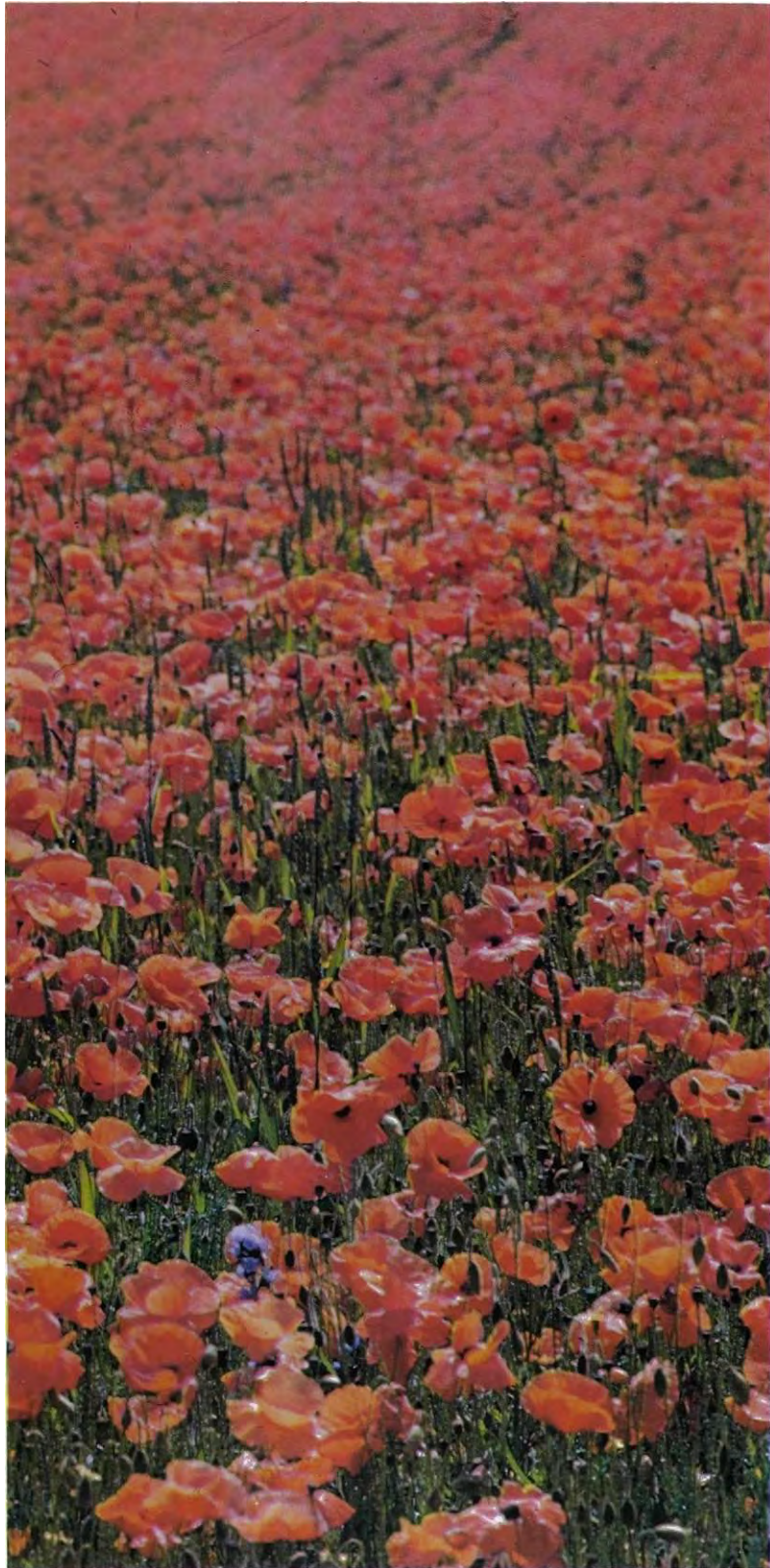


61.



62.





63.

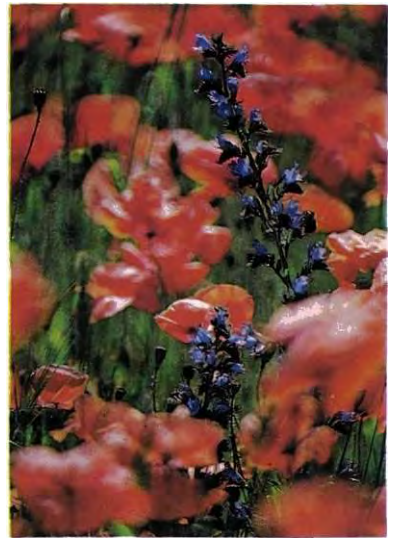
« »

300-

. Canon FTb, 135-
, 1/125 , 1:8, —
Ektachrome 64. — 500-

1:8

4 .



. Nikon F 2,500-
Nikkor,
1/125 , Ektachrome 64.

64.

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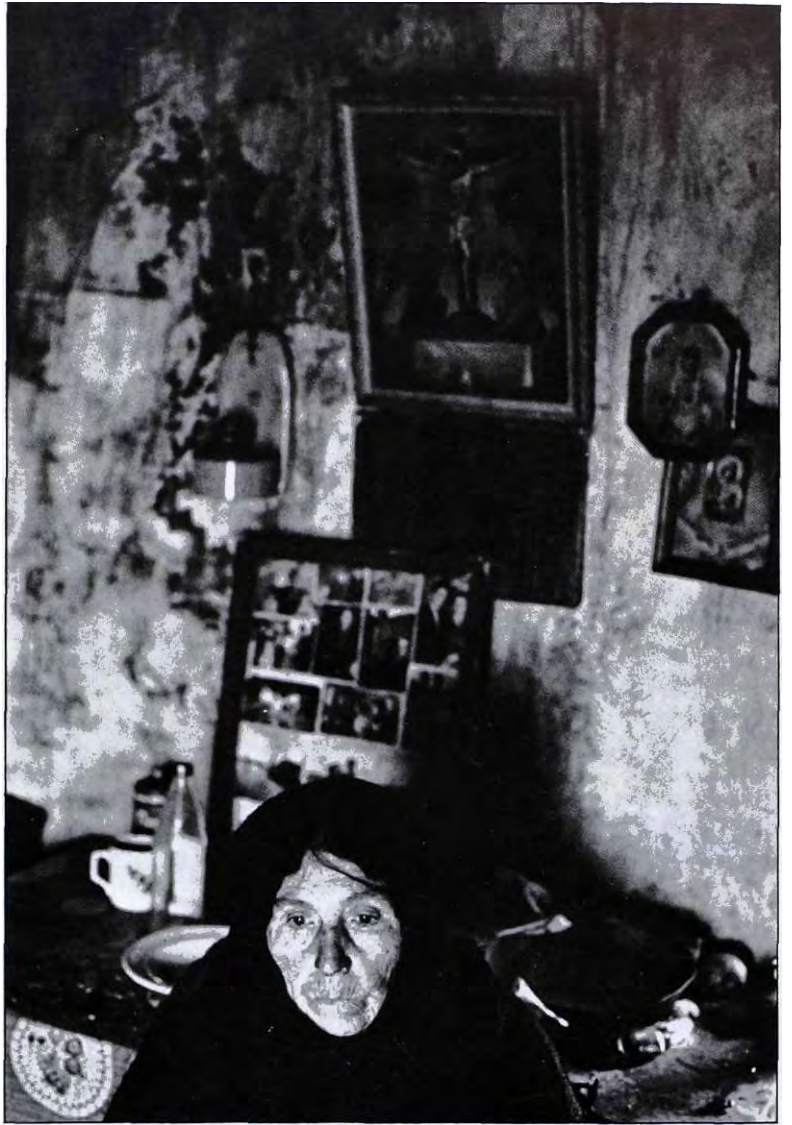
65.



66.

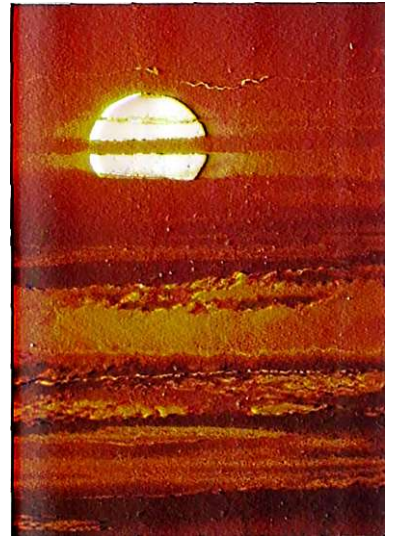
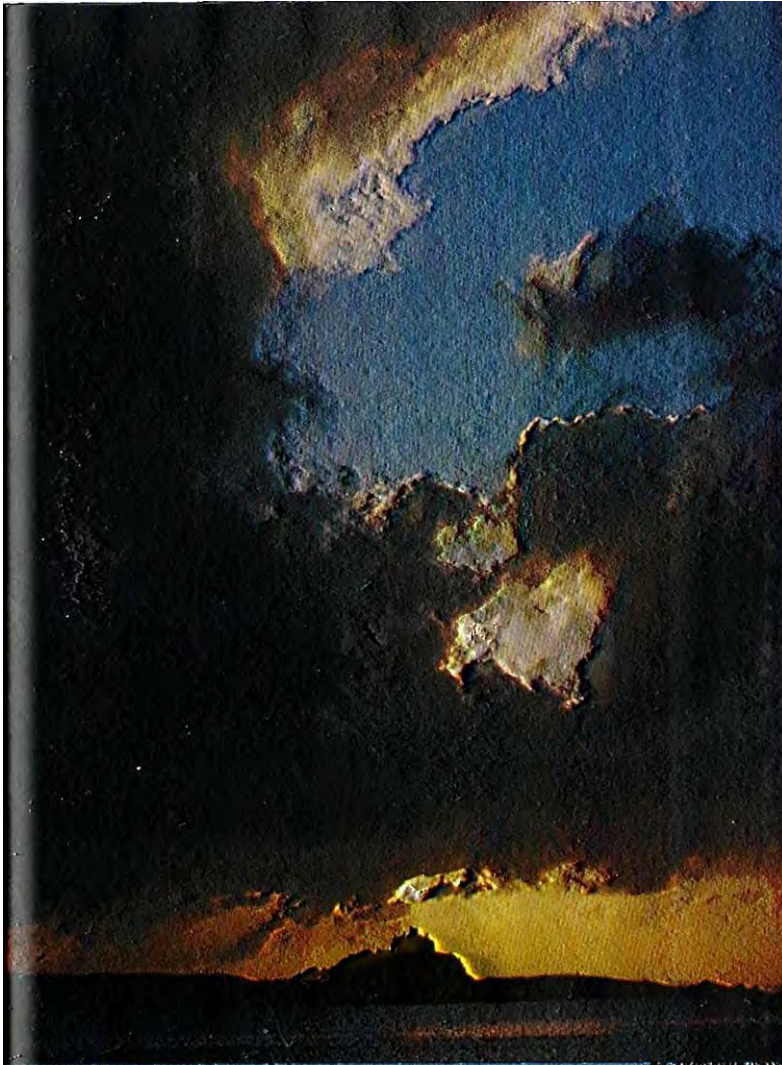


67.



68.

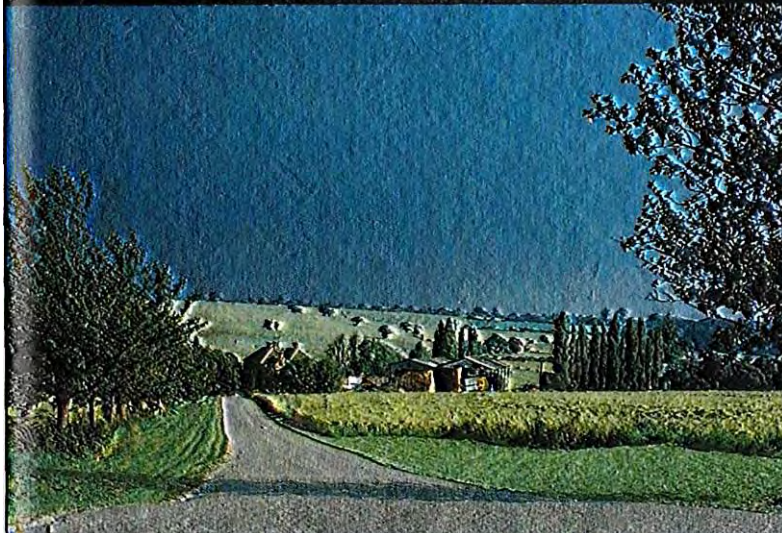




69.

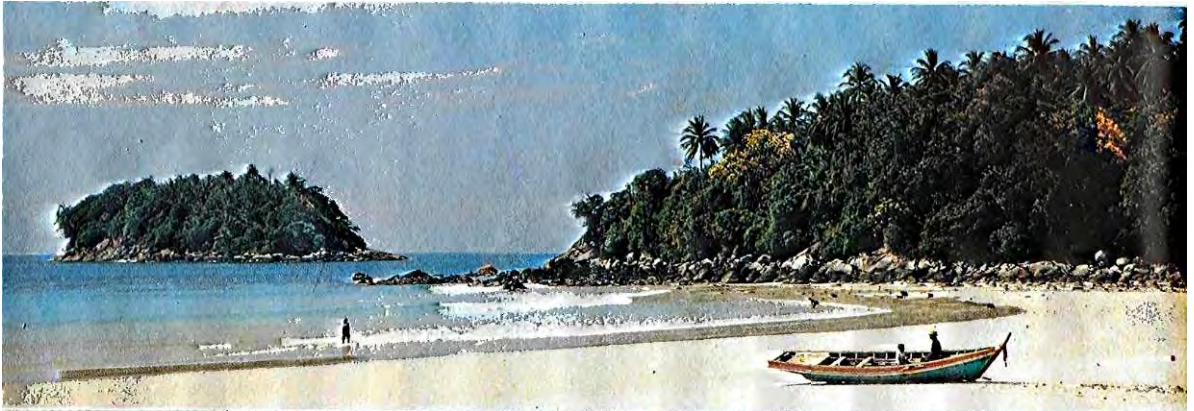
« »,
« »,
500- (, 1/125 ,
1:8, Kodak Ektachrome 64.

70.



71.

« ».



Kodak:

1/4

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72.

1/60 , 1:8, Ektachrome.

73.

1/30 , 1:8, Ektachrome.

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1977

74.

1/30 , 1:11, Ektachrome.

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Kodak,

Kodak

Blue Peter,

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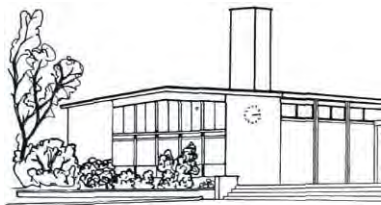
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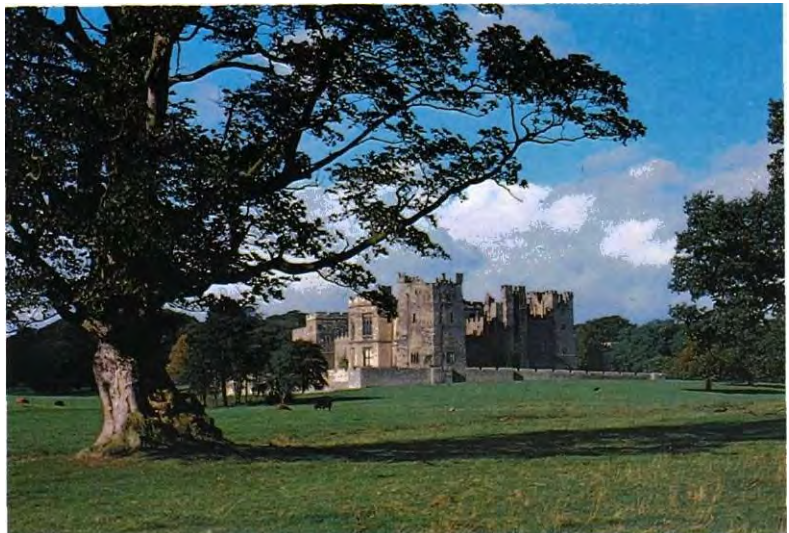
a



b

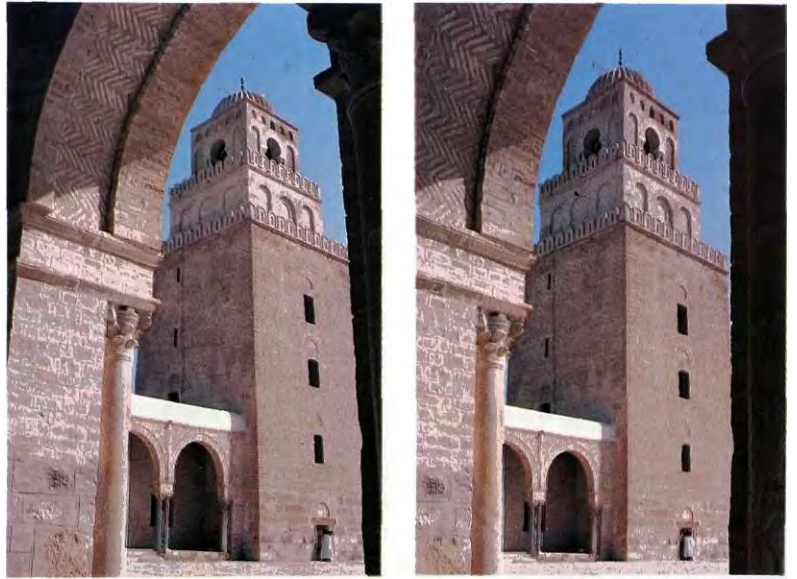
. 85.

75.



76.

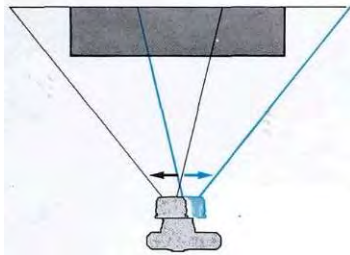
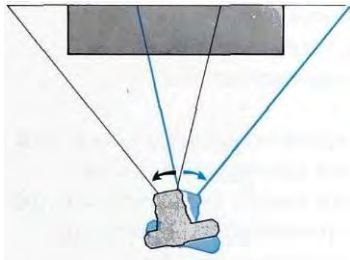
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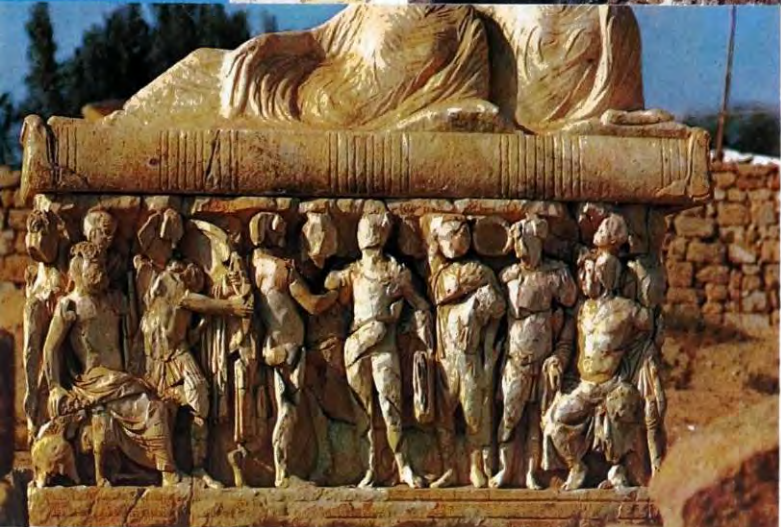
78.



79.

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135-

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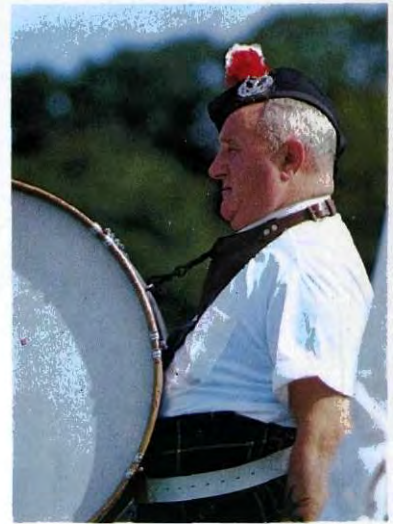
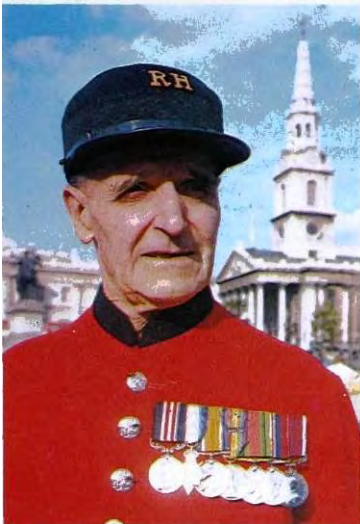
80.

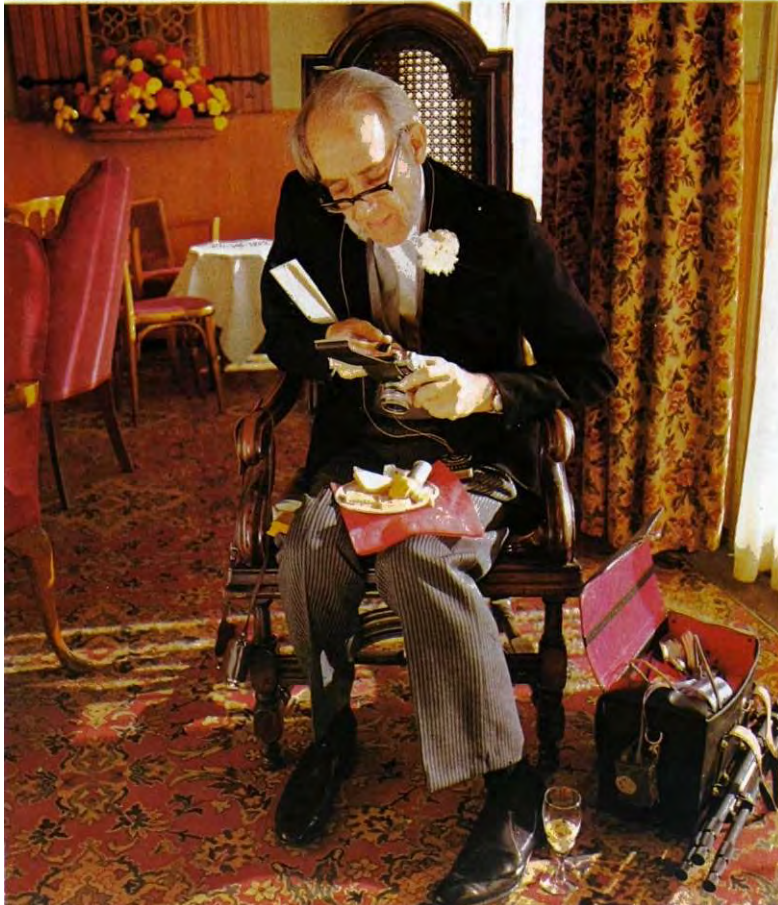
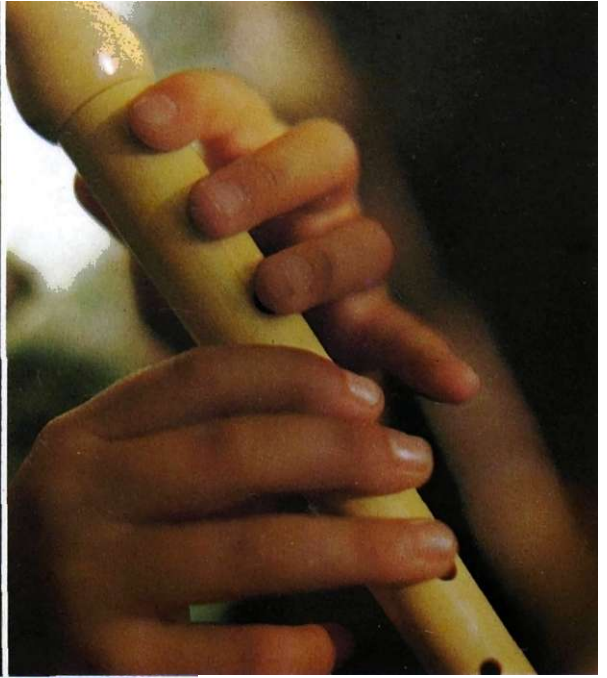


81.

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82.





83.

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1/125 , 1:11, Ektachrome 200.

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1/125 « », 1:8, Ektachrome 200.

84.

1/30 , 1:11, Ektachrome 64.

85.

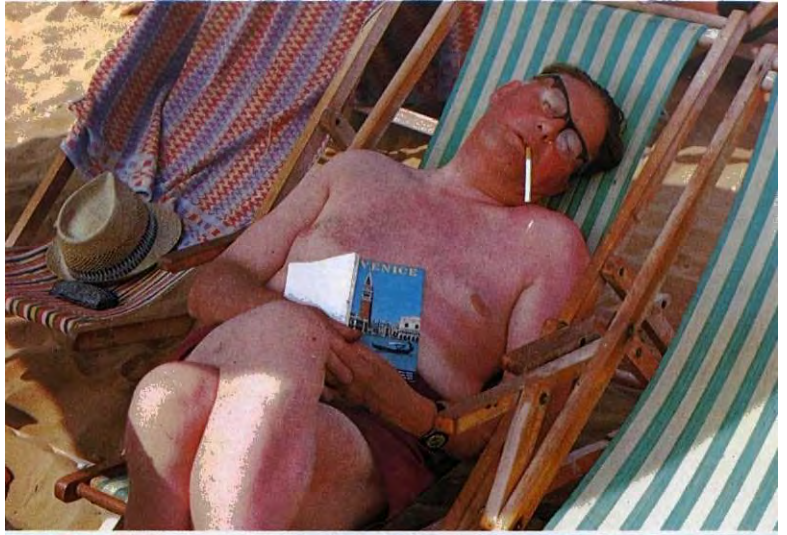
« »

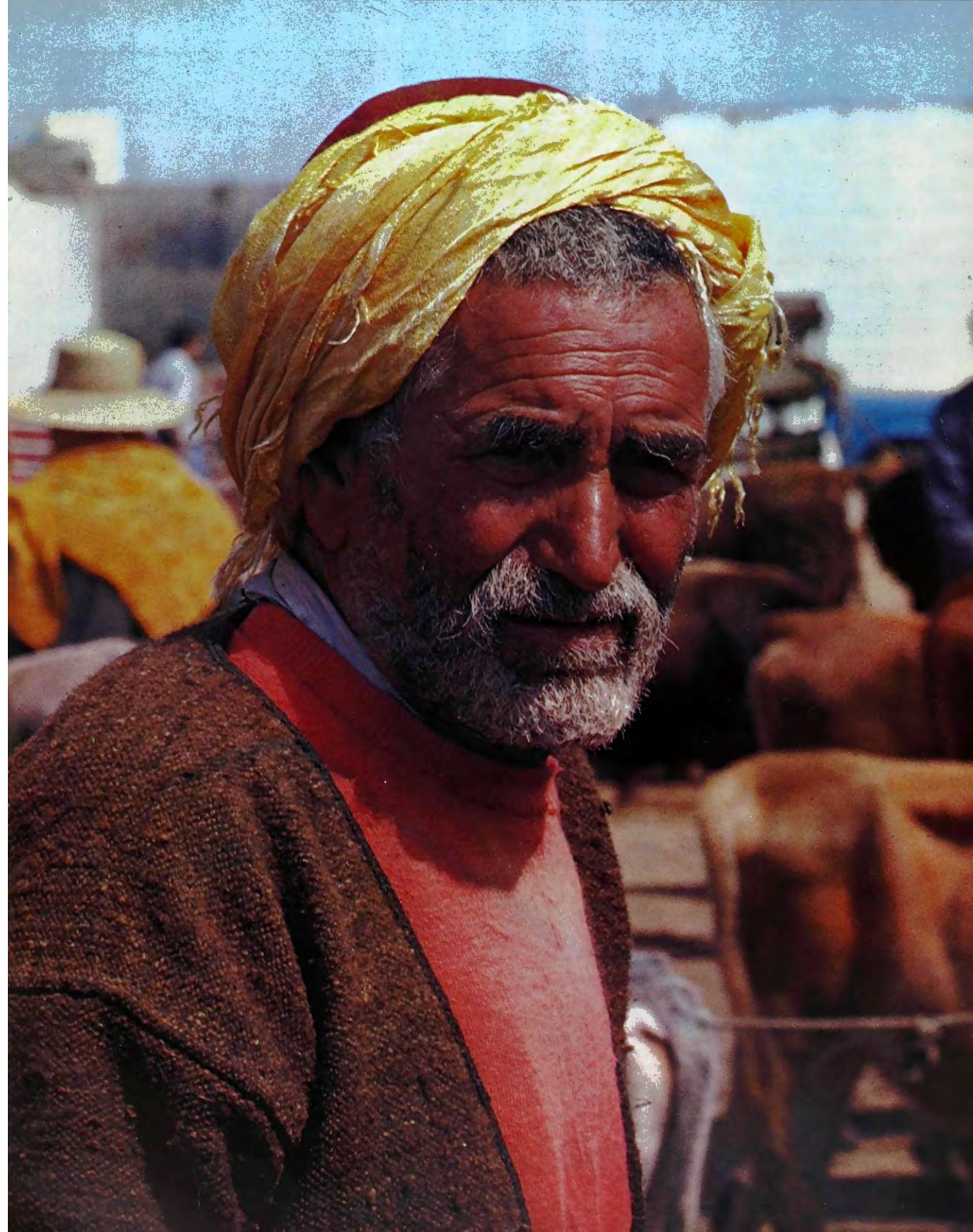
86.

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87.

88.





89.

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1:8, Wratten 1 . 1/60 ,
Ektachrome 64.



90.

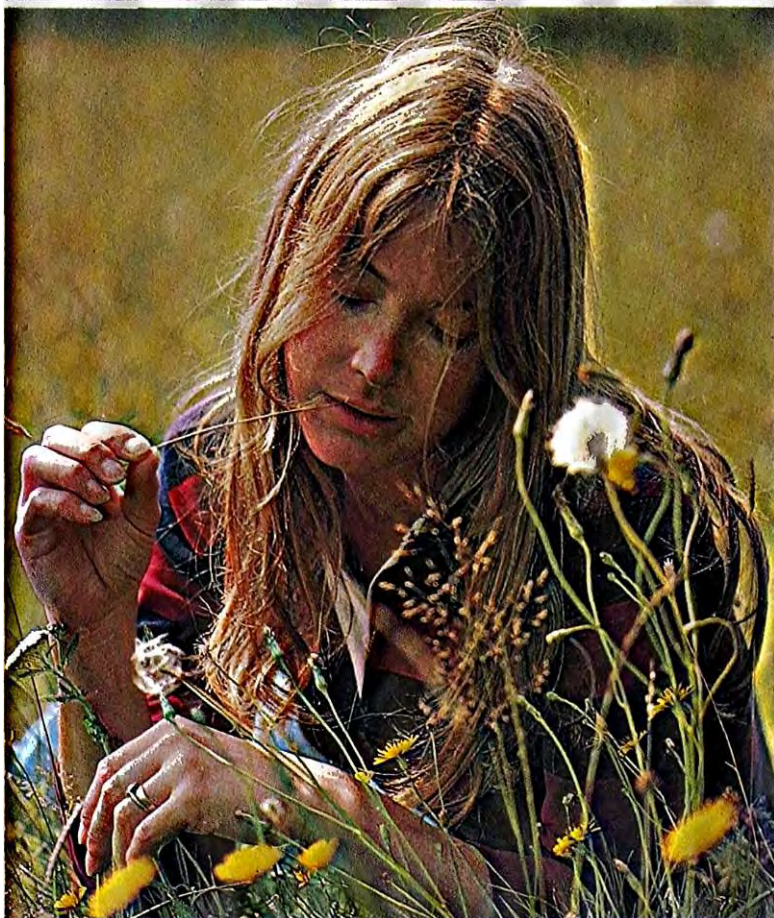
1/ 125 , 1:8, Ektachrome 64.



91.

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1/30 , *1:5,6*,
Ektachrome 200.
92.



1/30 , *1:4*, *Ektachrome* 64.
93.



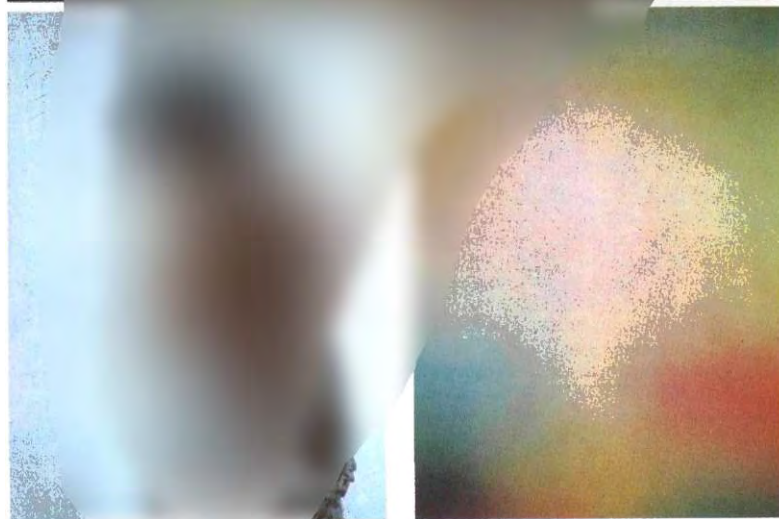
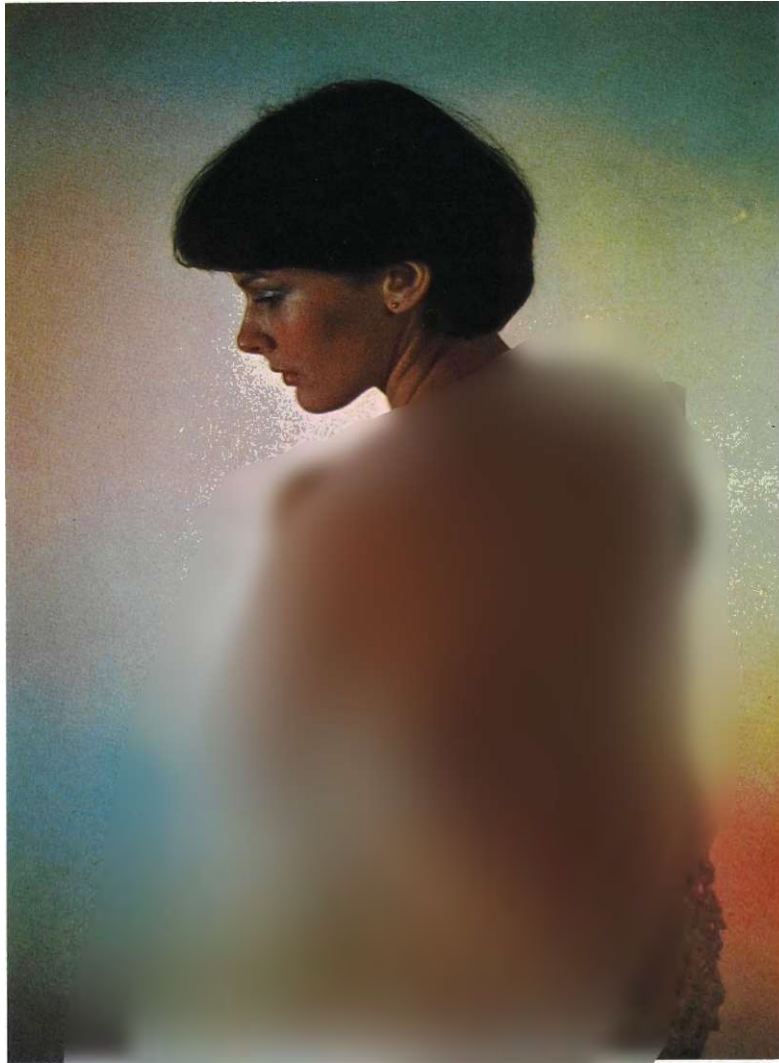
94.



1/ 125 , 1:8, Ektachrome 64.
95.

1:32, Ektachrome 64.
96.

« ».
1/15 , 1:8,
Ektachrome 64.



97.

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98.

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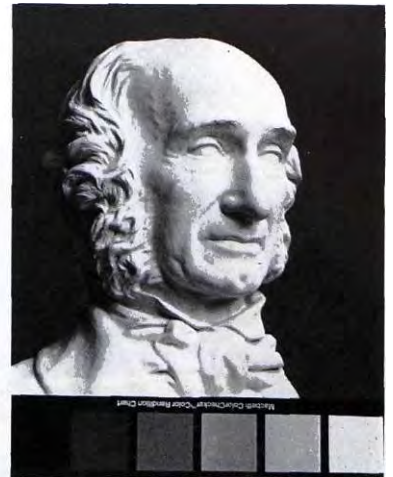
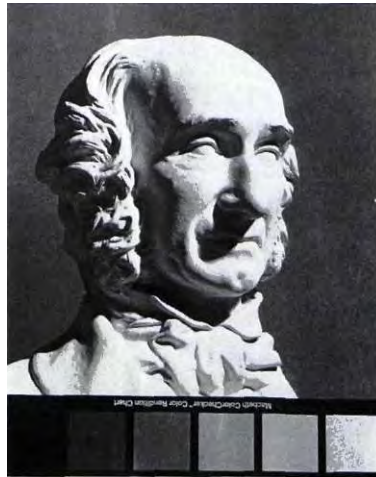
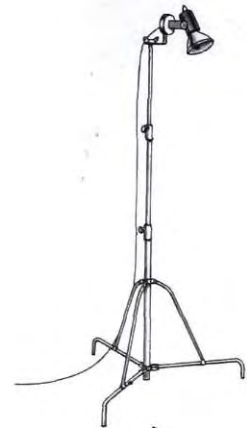
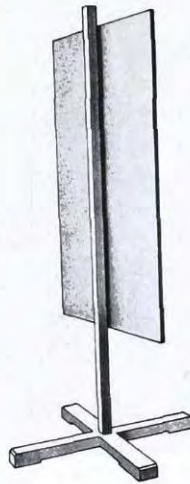


Рис. 86.

Портрет человека в профиль и в 3/4 фронтальной и 3/4 задней точки зрения. — Стенд для портрета; 2 — осветительный прибор; 3 — осветительный прибор; 4 — осветительный прибор; 5 — осветительный прибор; 6 — осветительный прибор.



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100.



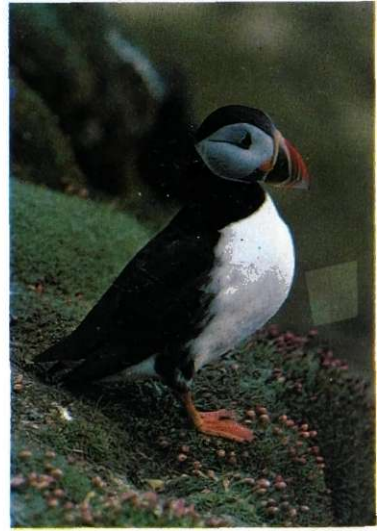
. 87.

101.

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Ektachrome 64. 1/1000, 1:4, 135-

102.

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« »,
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103.

35-

135-



104.



105.

500-
Nikon F,
Nikkor, 1/250, Kodak
Ektachrome 64.



106.

Canon F1, 300-
1/250, 1:6.3, Kodak
Ektachrome 64.



107.

135-

35-



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108.

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1/60

. Canon F1, 135-
+ 9-

, Sunk Auto
Zoom 4000, 1:11, Kodak Ektachrome
64.



109.

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20 ().





110.

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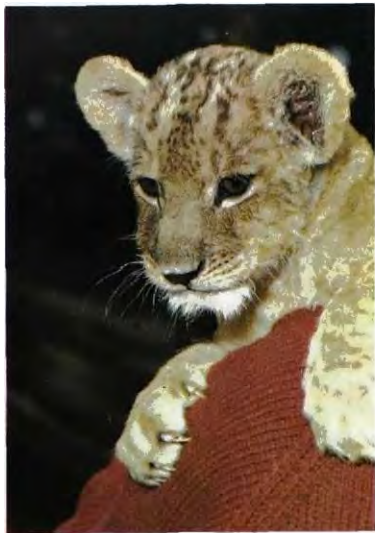
. 88.

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12-

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111.



112.



113.



114.



115.



116.



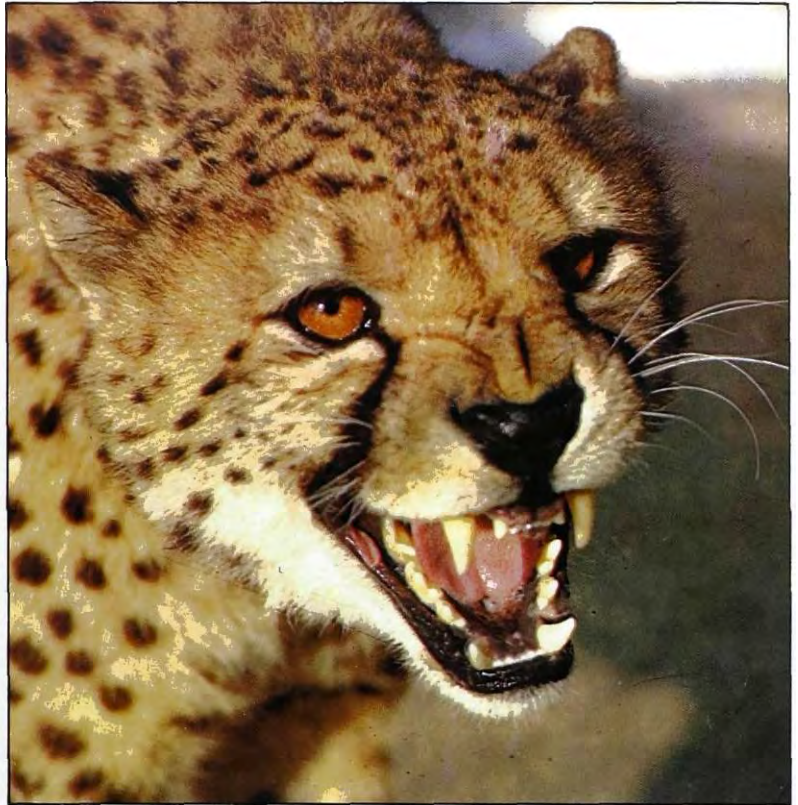
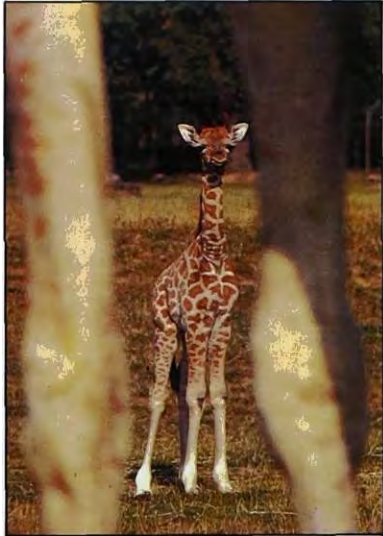
117.



118.

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119.

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120.

Amanita muscaria.

Pentax, 55-

, 1/30, 1:8,
Kodachrome 25.



121.



122.



123.

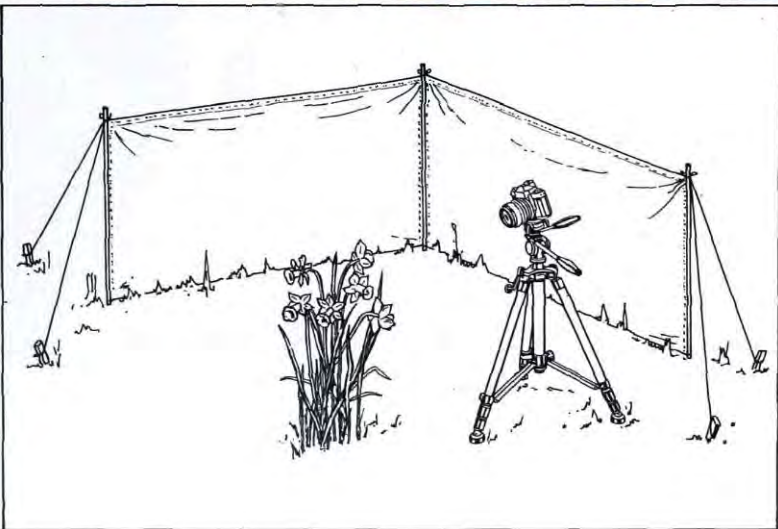
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124.



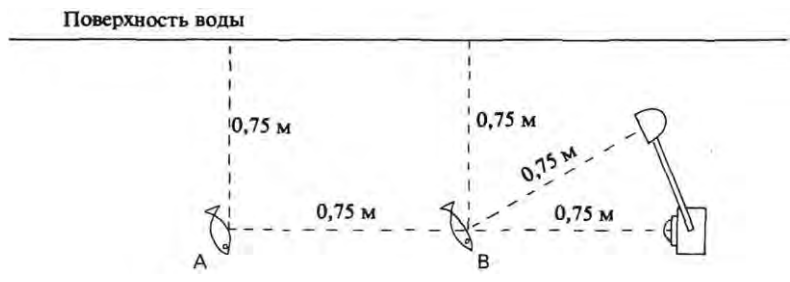
. 89.

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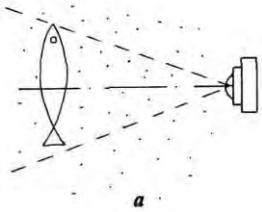
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 CC20R
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 CC30R,
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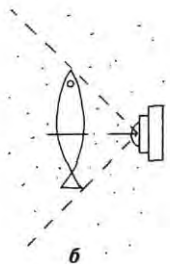


125.

Mamiya RB67,
1:22, High Speed
Ektachrome.



a



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Nikonos), (,

Ikelite Polaroid SX70. Nikonos, Nikon.

Nikonos

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126.

Nikonos

(—)

. 92. Nikonos



127.

. Mamiya RB67,
1:22, High Speed
Ektachrome.

. 93.

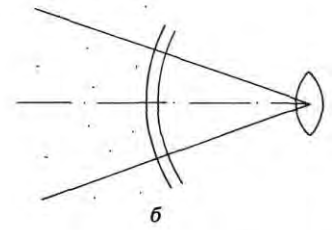
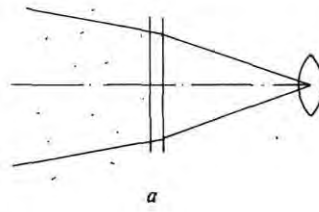
Nikon F2 Canon,



. 94.

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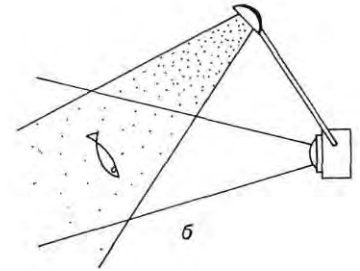
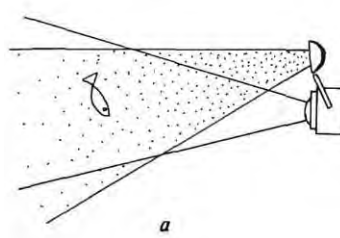
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. 95.

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Nikon Canon



128.

Nikonos

129.

Mamiya RB67, 50-

1/60 , 1:5.6, Tri-XPan.

30

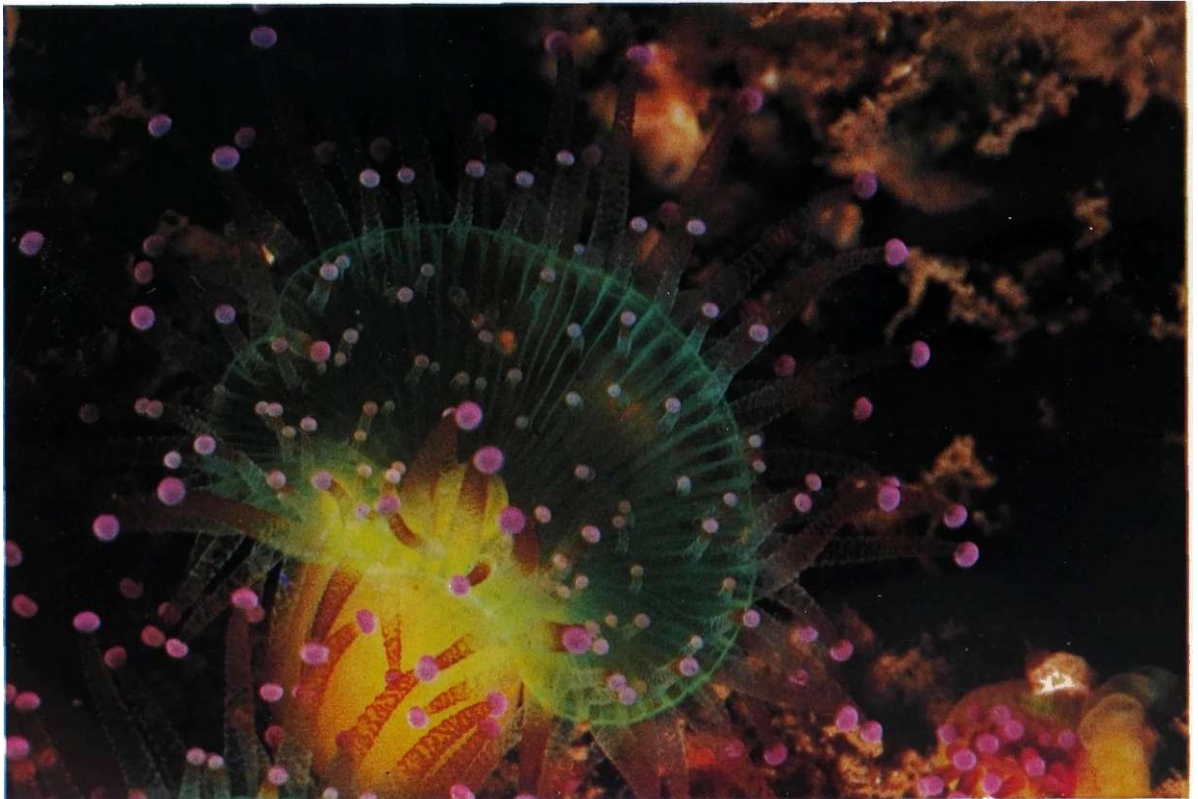


130.

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Nikonos



Products, Oceanic See and Sea. Philips Oceanic

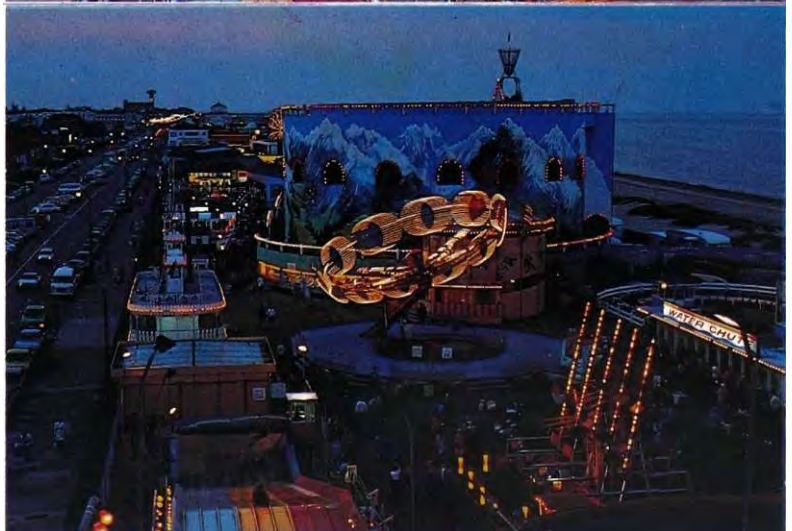
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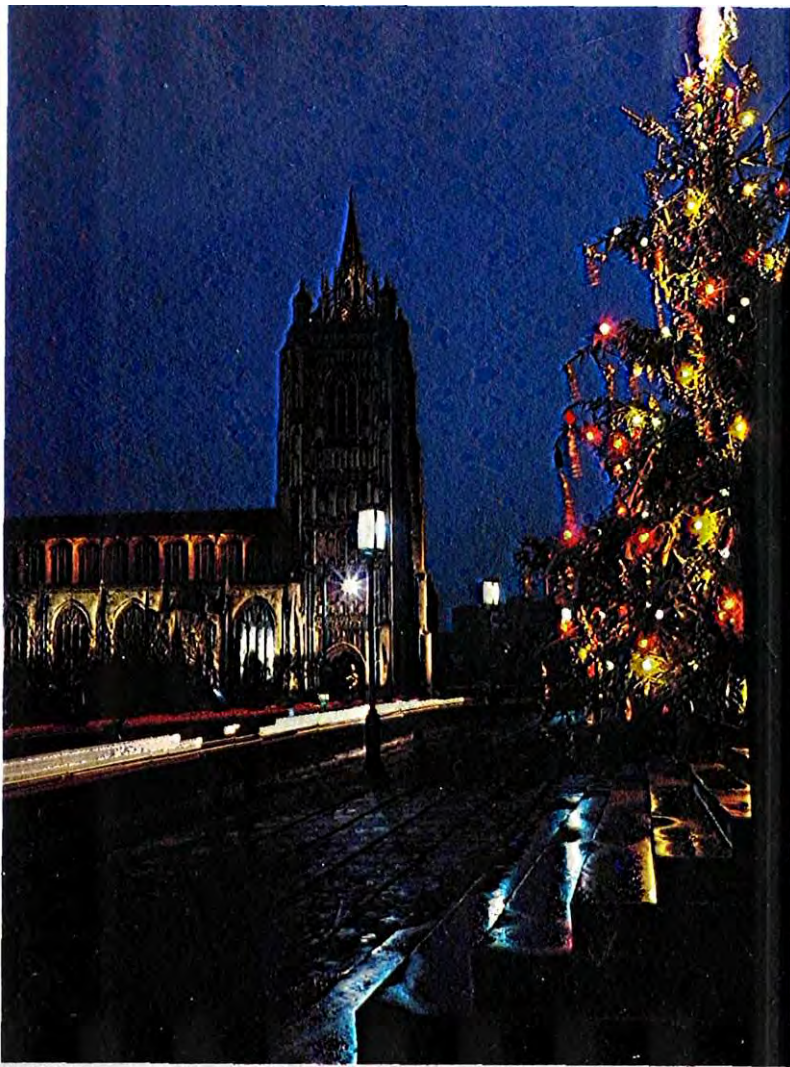
Weston;

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131.

1/250 ; — , 1:5,6,
1:4, 1/4 , . . .
100 .

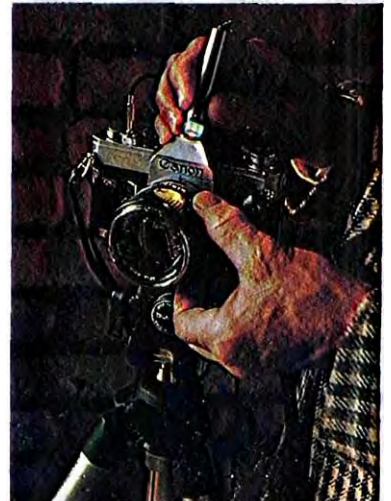
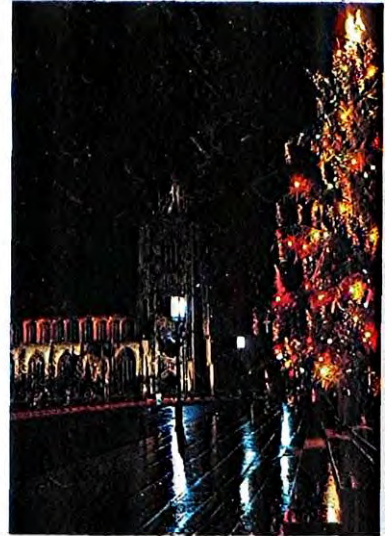


132.

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Nikkormat, 8 , 1:5,6, Kodachrome II.

133.



134.

« » ,

1/15 ,
1:5,6 Ektachrome 64.



135.

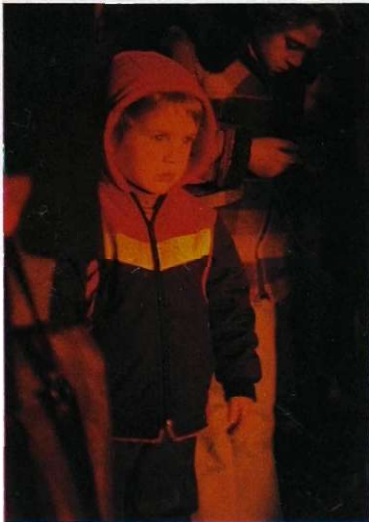
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1:8.

(1/60) .



136.

1/15 , 1:1,4, Ektachrome 200.



137.

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Wratten 80 ;
80 Wratten
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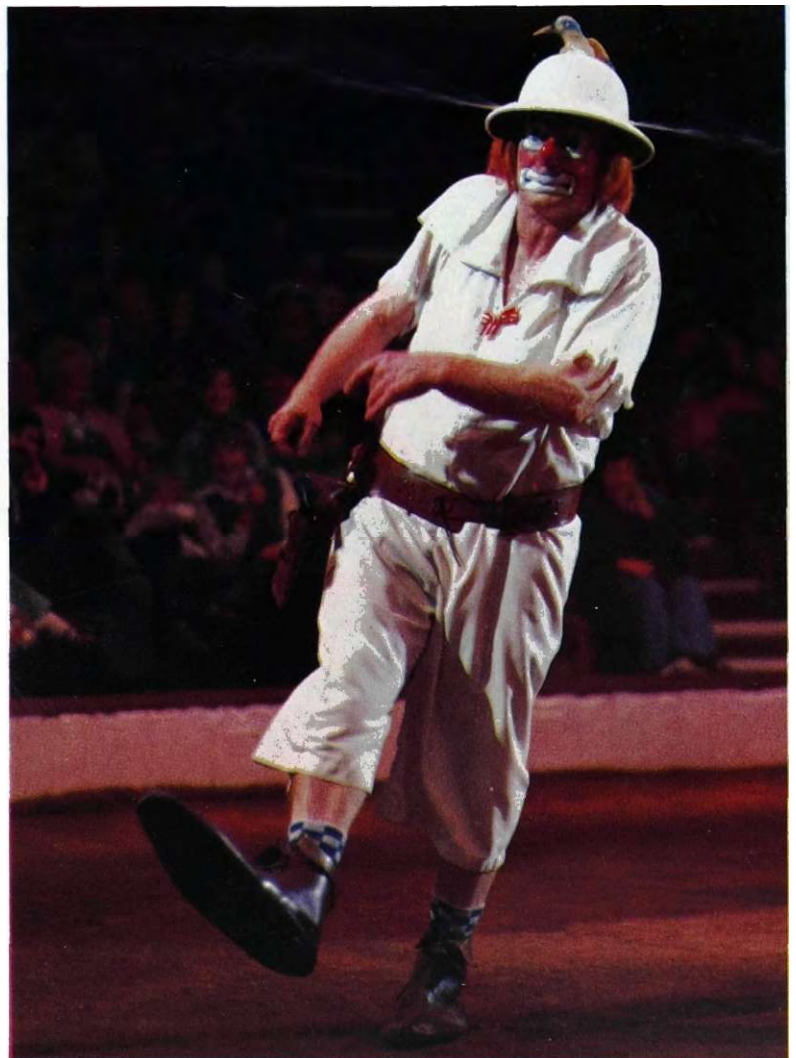


139.

Nikkormat, 85-
 1/125, 1:2, Kodak
 Ektachrome 160.

140.

Nikkormat, 85-
 1/125, 1:2, Kodak Ektachrome
 160.



138.

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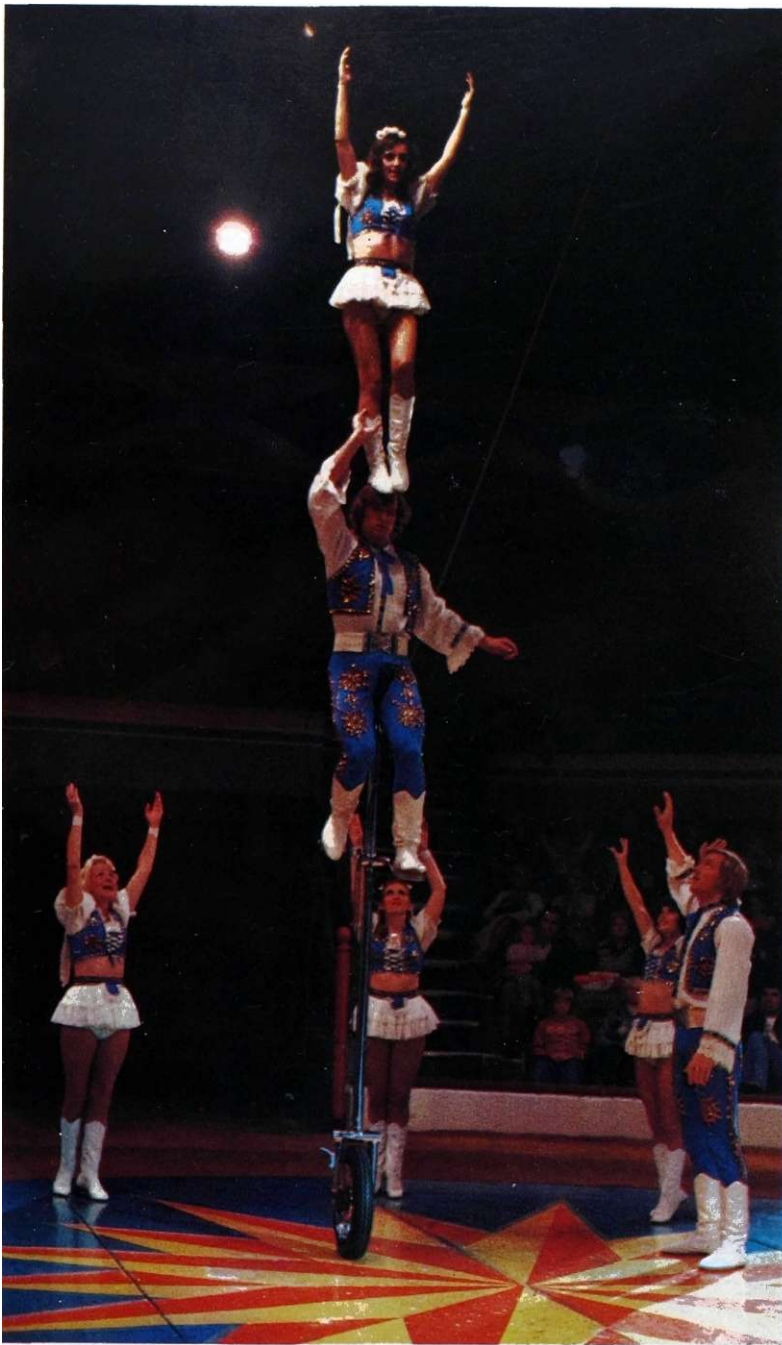
1:5,6

1/125 .

1:8

1/8 . (

Robin Smith Photography
 Limited.)



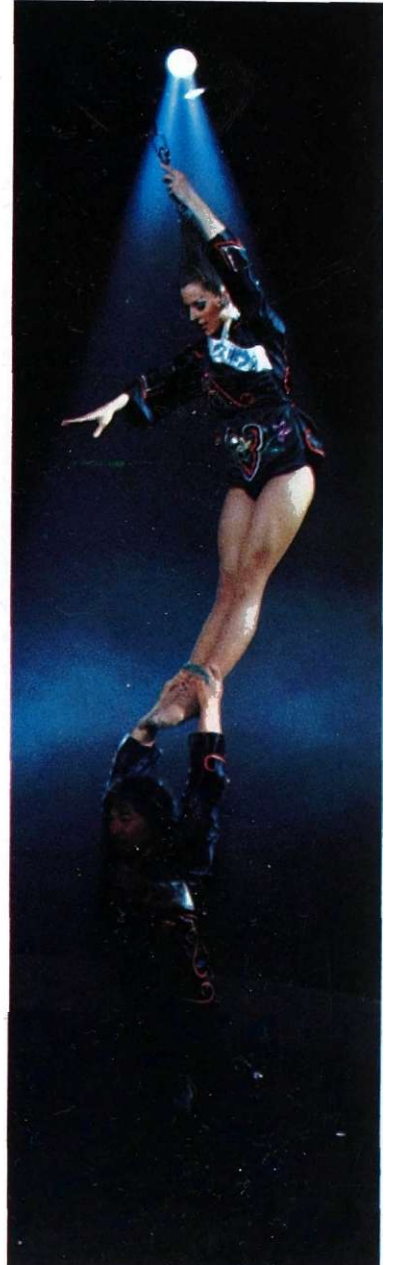
141.

160

320

Canon FTb, 50-
1/250, 1:8;
1:8.

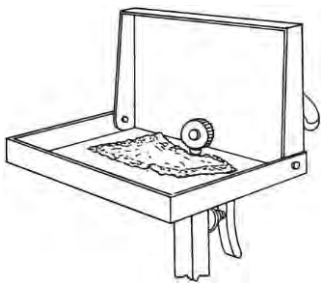
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3.

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:	1/30 . 1:2 1/60 , 1:2.8

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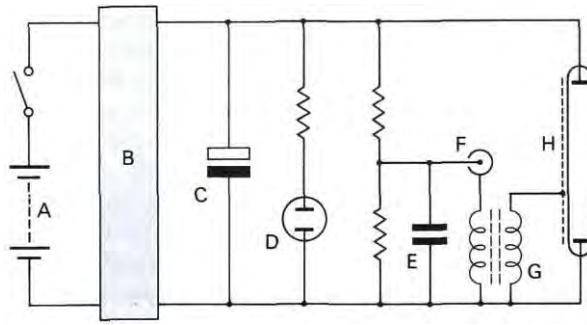


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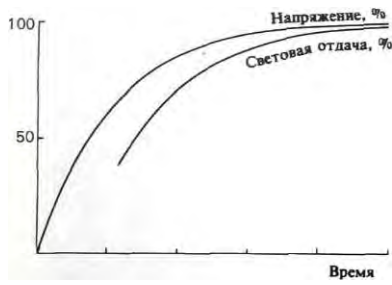
(150) F

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60%;
80%
90%.

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1/25—1/30 ,

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$$1/30 - 1/125$$

$$1/25 - 1/30$$

$$\frac{28}{10} = 1:2,8.$$

$$\frac{28}{10} = 2,8$$

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$$2^2 = 4$$

$$20 \left(\dots \right) 10$$

$$\frac{1:2,8}{10} = 20$$

$$1:1,4$$

$$28 -$$

$$\frac{28}{130} = 20, \quad 32 \cdot 65 - 28 \setminus = 14,$$



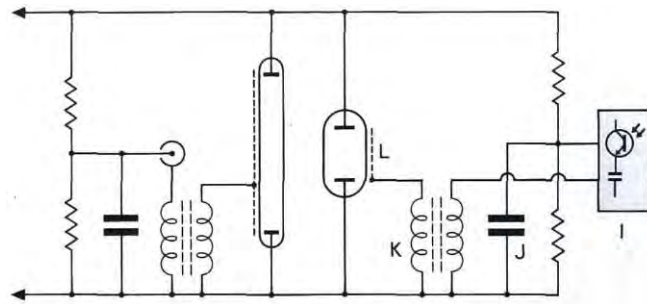
. 104.

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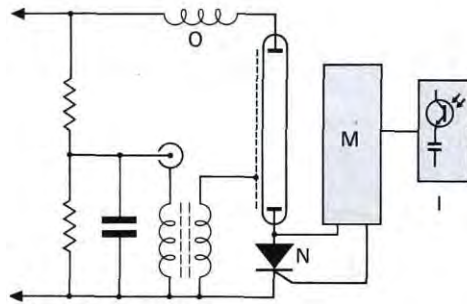
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1:5,6,

1:5,6,

1:8,

1:5,6 1:8.

(1:11),

1/128

: 1:16

1:22.

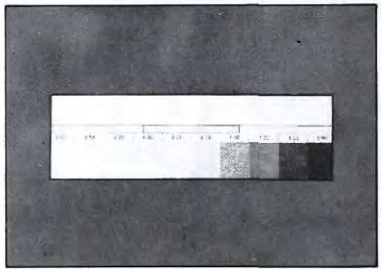
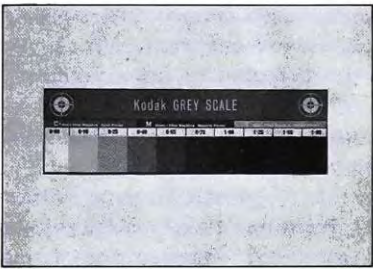
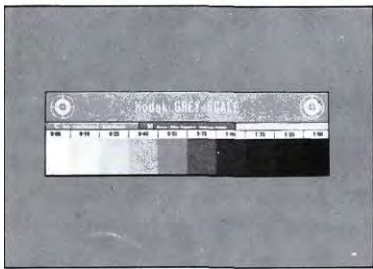
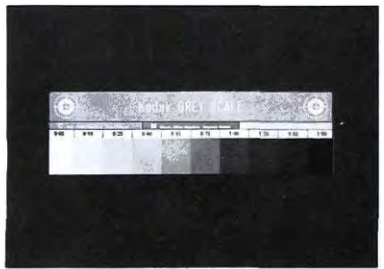
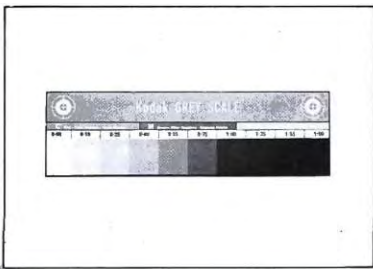
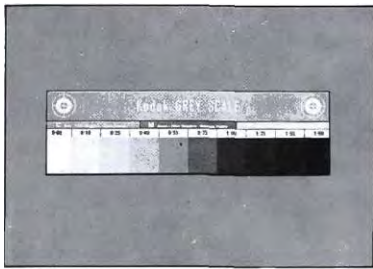
« »

0,3 (

lg2)

()

0,3.



. 108.

« »

()

0,4

()

()



143.

18%

()

$$\frac{1}{400} \quad \frac{1}{128}$$

$$\frac{1}{50}$$

144.



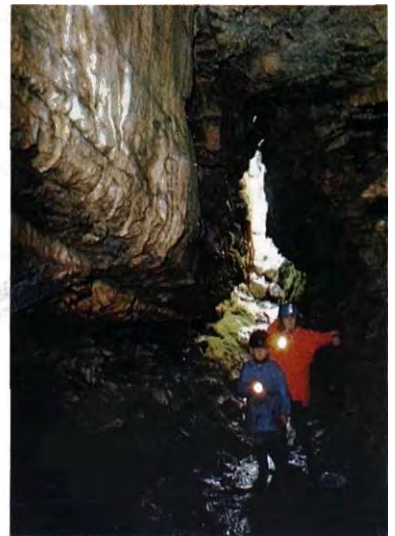
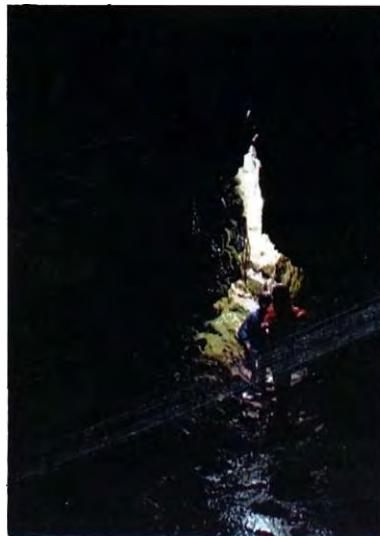
« » — , —

145.





146.



147.

(,)

1:8, 30
1/30 1:4,
1:4 1:8, . . .

(),

(. . .),



148.

40,

5

1:8.

: 1:11.

1/ 125

1/60

190



151.

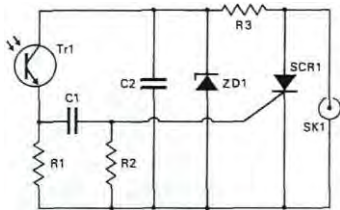
(:) —
 (—)) —
 ())

) (

, 1/8 , 1:11,

Ektachrome 64.





109.

R1 R2,

SCR1.

SK1.

R3

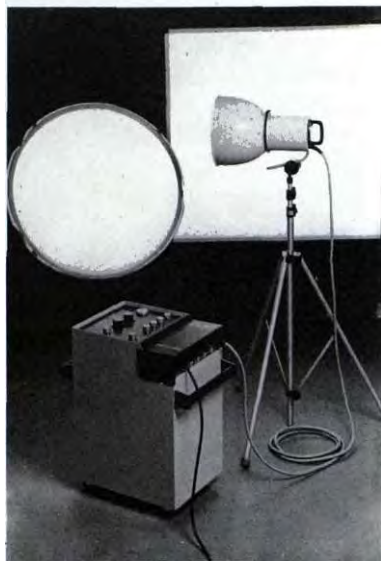
ZD1

2

SK1.

TIL78,

R2 = 10 ; R1 = 56 ;
 1 = 0,02 ; R3 = 5,6 ;
 ; 2 = 0,1 ; 1 —
 TIL78
 ; ZD1 —
 20 , 400 ; SCR1 —
 C106D - SK1 —
 3 ()



. 110.

Elektronik AG.)



. 111.

Wratten 88 ,



152.

()



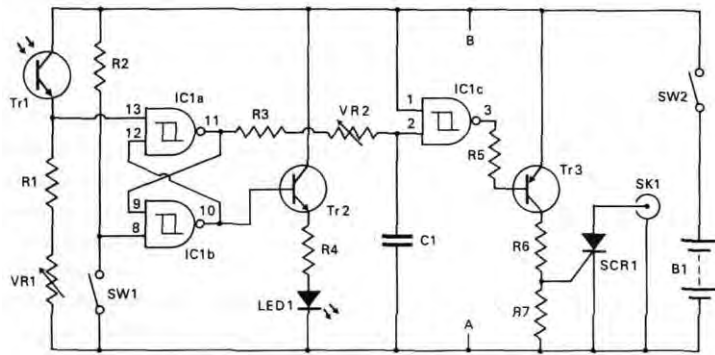
153.

). (



154.

155.



1/6400

112.

SW2 —

LED1

VR1

IC1 —
CMOS,

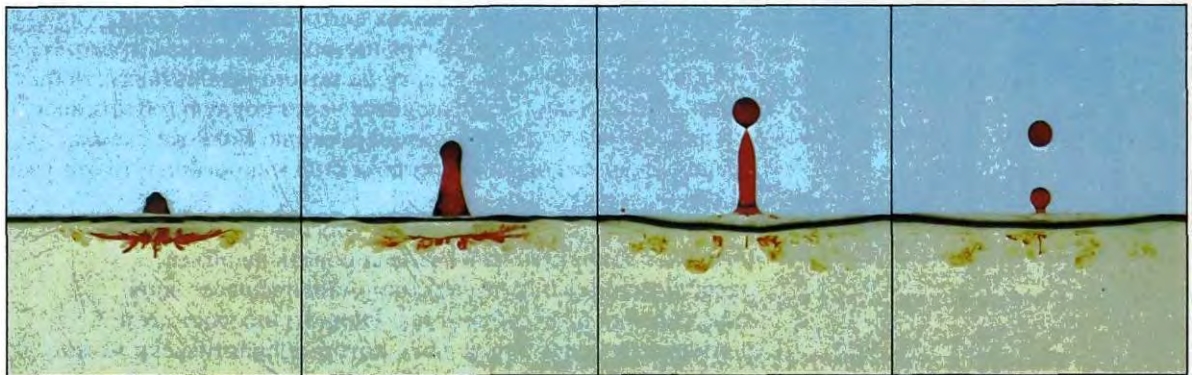
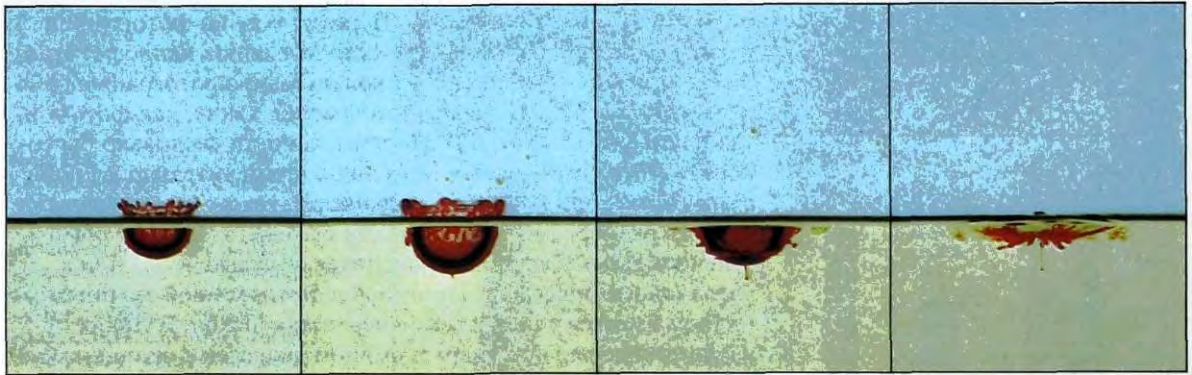
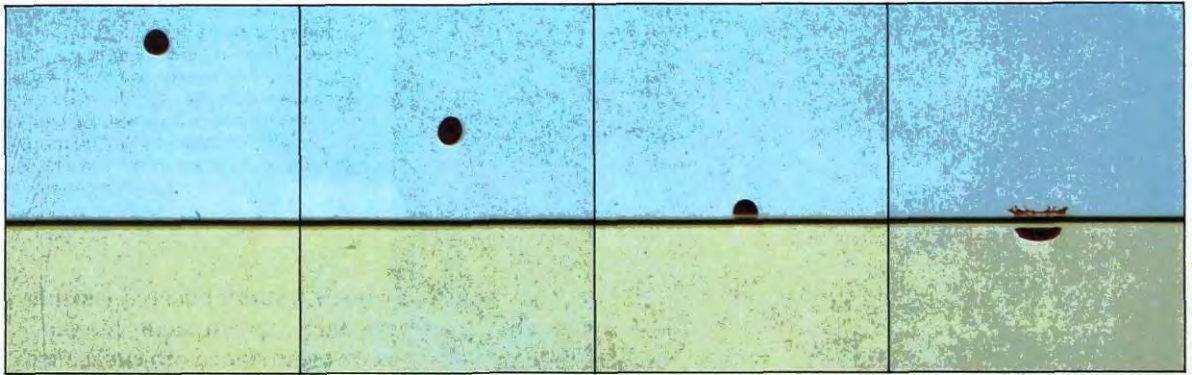
SK1

SW1;

VR2

VR2, R3 1
11 200 1

R1= 4,7 ;
R2= 100 ; R3=5,6 ;
R4= 2,2 ; R5= 22 ;
R6= 1 ; R7= 1 ; VR1 —
47 ; VR2 —
100 ; 1 —
(, 2,2 ;
TIL78)
109 ; TR2 — ; TR3 —
479 ;
; SCR1 — C106D
; LED1 —
TIL209 ; IC1 —
; SW1 — CD4093B
; SW2 —
SPST; SK1 —
0 3 ; 1 —



156.

5

112.

30

Sunpak Auto Zoom 5000;
1/32

« » . « - 10

1/12 500

« »

« »

30

150

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1X .

1:1

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157.

4-3

(1:16)



158.

+1



3 1.

1, 2

1

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1

+3 —

+2

0,3

1 ;
0,5

1

—

«+»
«-»

159.

(1,5) 35-

8-

135-

()

(1:2,8),



1 , , . 4,

4.

	+ 1	+ 2	+ 3	+ 4(1+3)	+5 (2 + 3)
<i>∞</i>	100	50	33,3	25	20
10	91	47,6	32,3	24,4	19,6
5	83,3	45,5	31,3	23,8	19,2
3	75	42,9	30	23,1	18,8
2	66,7	40	28,6	22,2	18,2
1,5	60	37,5	27,3	21,4	17,6
1,2	54,5	35,3	26,1	20,7	17,1
1	50	33,3	25	20	16,7
0.8	44,4	30,8	23,5	19	16
0,7	41,2	29,2	22,6	18,4	15,5
0,6	37,5	27,3	21,4	17,6	15

1 ,

160.

10 X 15

+ 3



+ 3

« »

yxvqmei



. 113.

, (,)

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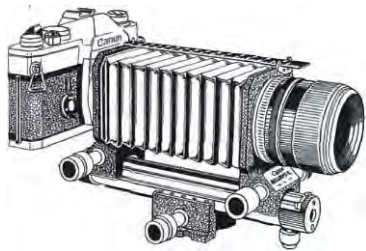
35-

12 , 20 36 .

»

«

TTL.



. 114.

150 .

()

2 ; IX ,

0,5 X .

$$\left(\begin{array}{c} 1:1 \\ 0,5- \end{array} \right) \quad 2:1, \quad - 1:2.$$

« ».

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« »,

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«V».

$$m = (V - F) / F, \quad F -$$

$$V = F.$$

V

$$: = v - F \left(\frac{V}{F} \right).$$

$$: = / F.$$

50

25

$$= 25/50 = 0,5, \dots$$

$$m = (x + \dots) / F.$$

. 5.

() .

$$+ = m * F.$$

50

$$= 0,25.$$

$$+ = 0,25 \times 50 = 12,5$$

10

$$- 12,5 - 10 = 2,5$$

. 5

5.

	24	28	35	50	85	100	135
	0	0	0	0	0	0	0
10	0,06	0,08	0,12	0,25	0,73	1,01	1,85
5	0,12	0,16	0,25	0,51	1,47	2,04	3,75
3	0,19	0,26	0,41	0,85	2,48	3,45	6,36
2	0,29	0,40	0,62	1,28	3,78	5,26	9,77
1,5	0,39	0,53	0,84	1,72	5,11	7,14	13,35
1,2	0,49	0,67	1,05	2,17	6,48	9,09	17,11
1	0,59	0,81	1,27	2,63	7,90	11,11	21,07
0,8	0,74	1,02	1,60	3,33	10,10	14,29	27,41
0,7	0,85	1,17	1,84	3,85	11,75	16,67	32,26
0,6	1	1,37	2,17	4,55	14,03	20	39,19
0,5	1,21	1,66	2,63	5,56	17,41	25	49,93

()

1 .

(. . . , ())

(,)

100 135 35-

25—40 .

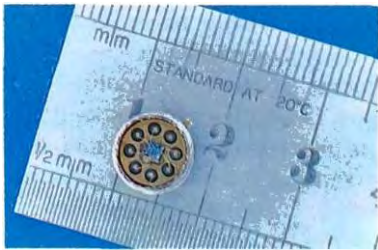
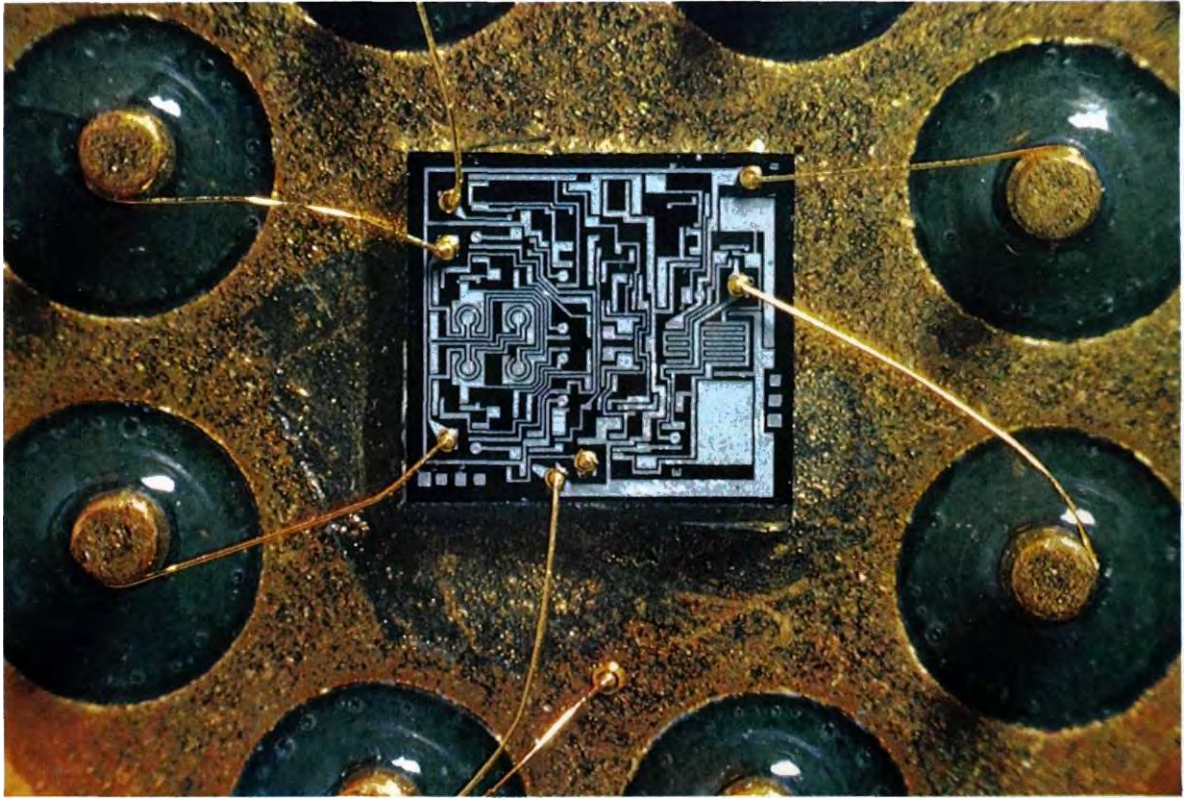
25—40 ,

« »

50-

24-

6-

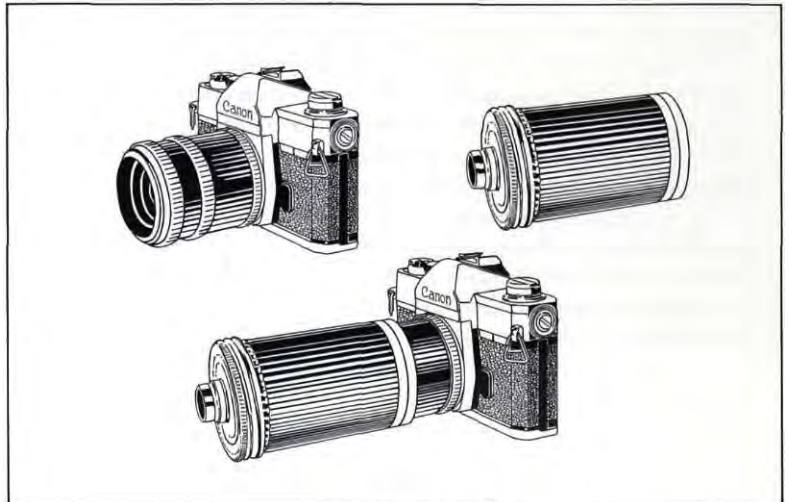


161. , 28X .

25-

. Canon FTb,
 , Kodachrome 64.

. 115.



(. . m < 1).
(. . m = 1),

(. . > 1),

m

$$m = e/F,$$

()

TTL

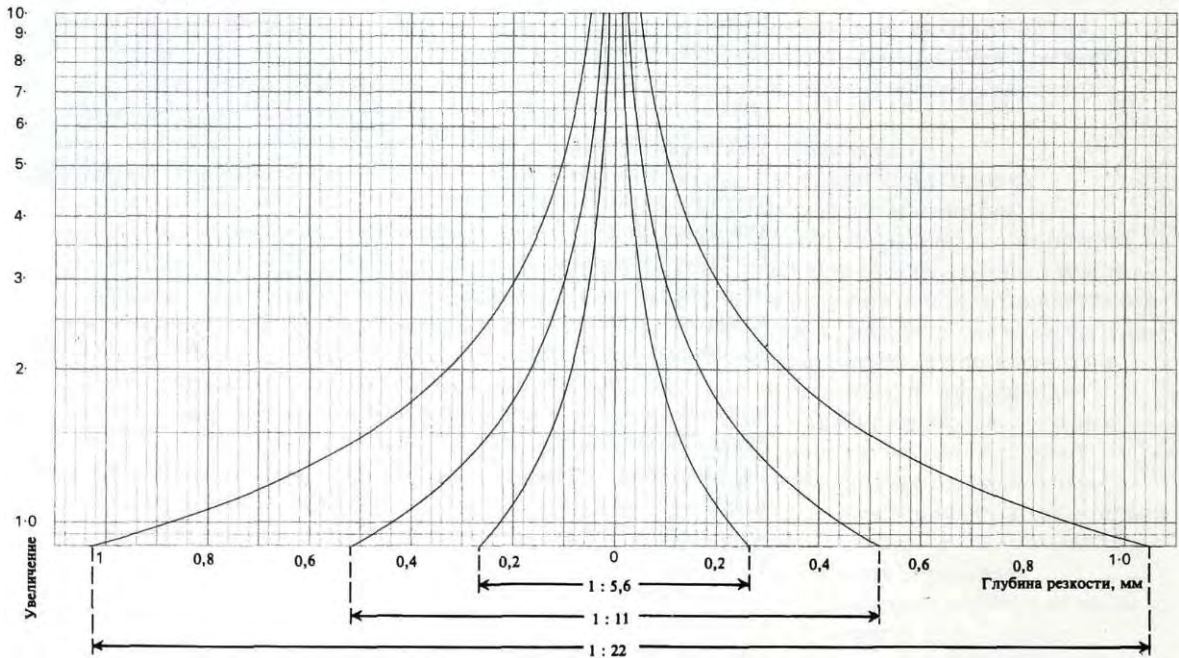
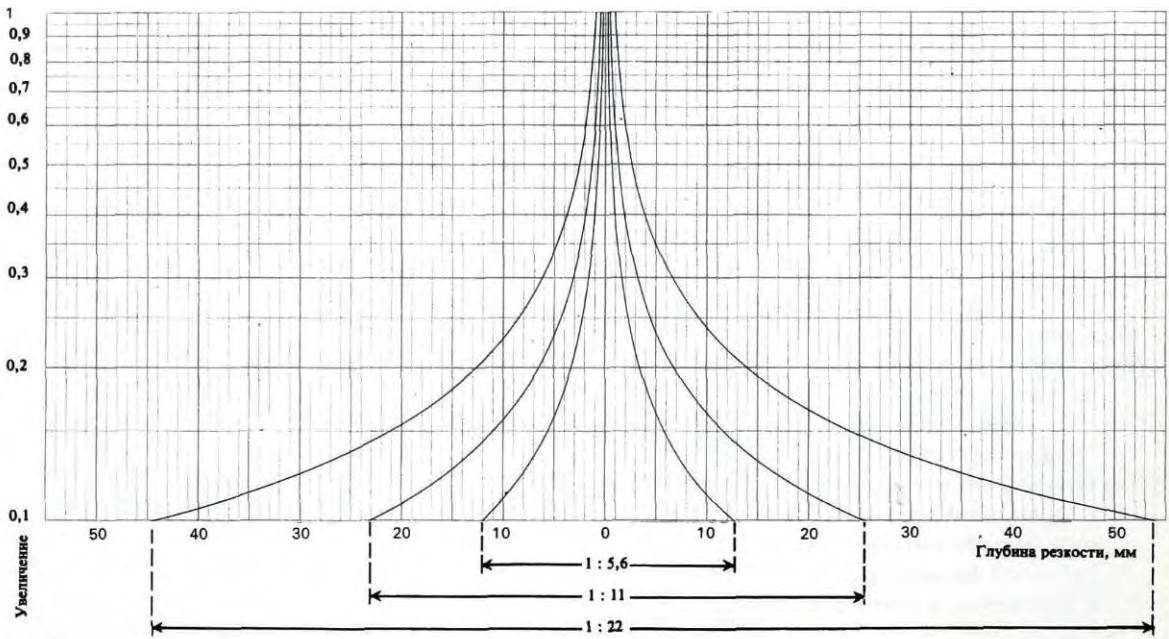
m

=

(+ 1).

IX

1:16
16 (+ 1) = 1:32.



. 116.

0,02 35-

20X 24

()

X 10

0,02

. 73.

$$u = [(1/m) + 1]F.$$



162.

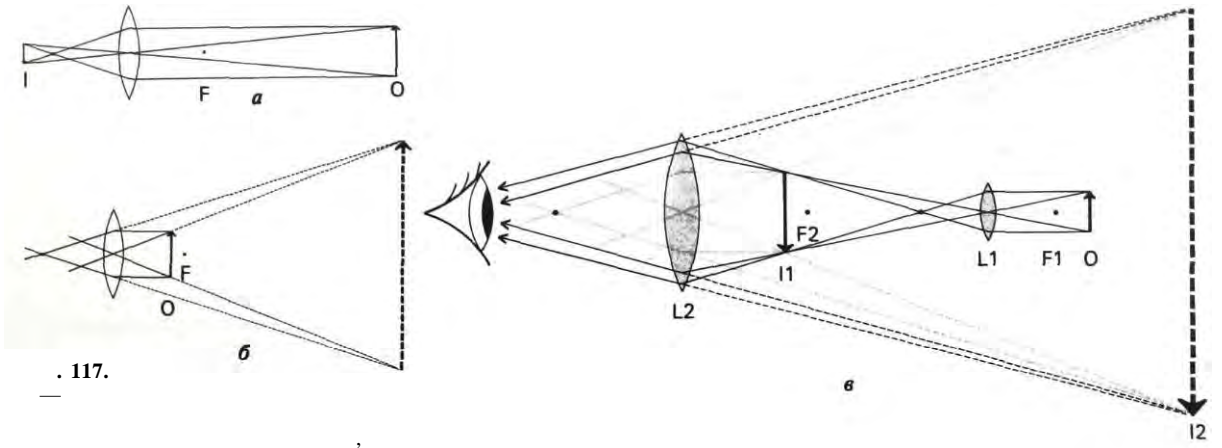
(. . = 60, — , 60 X
).

250

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(. 117).

250



. 117.

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б

12

I

250

20 1000 X.

(

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L1

II (

L2,

12

(

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4 100 X .

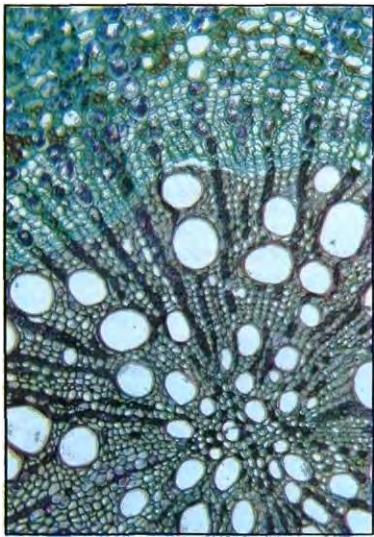
5 20 X

25 X .

200 X. 20 X -

10 X -

. 117



163.

), (= 90.



164.

165,

162—168,

165.

1—2

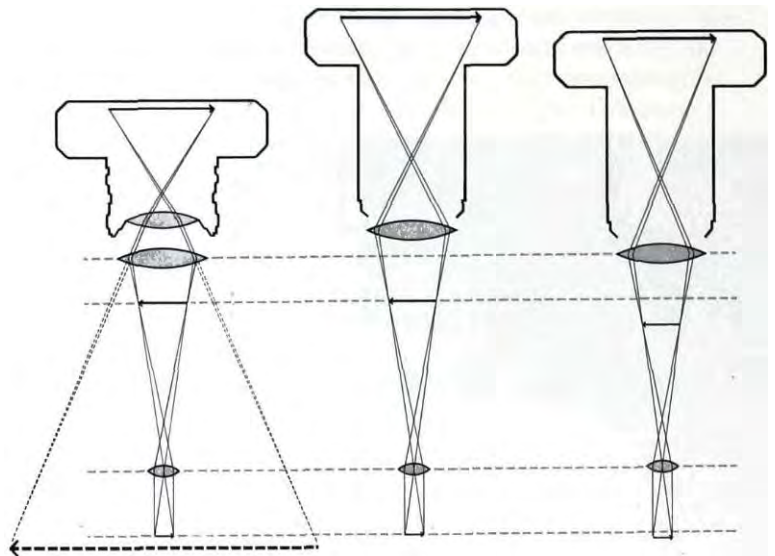
= 20.
« »

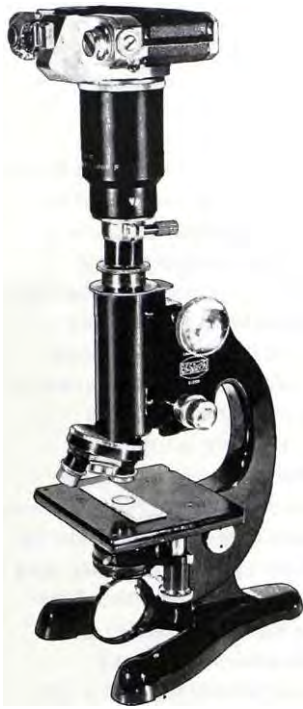


$$= (F / 250), \quad F = m$$

(. 118).

. 118.

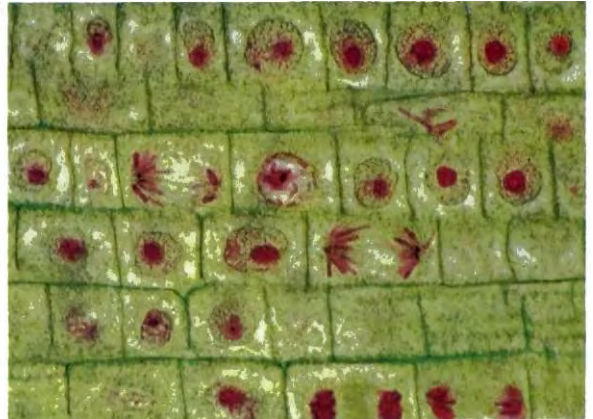
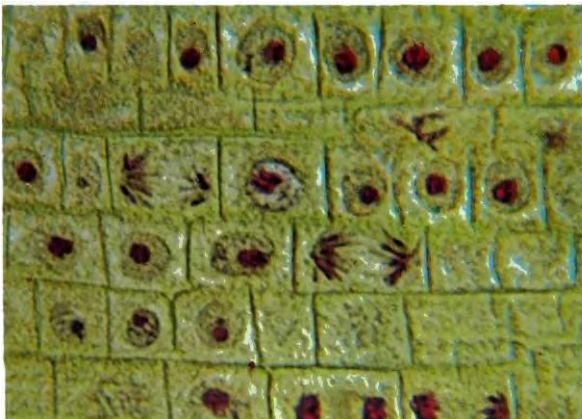




. 119.

(/ 250), — =

125 ,



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0,1,

4-

10-

0,25,

40-

— 0,65.

100X

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100X ,

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1,5, . . .

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166.

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1000.

(, .)

40-
0,65,
0,65- 1000= 650.
10-

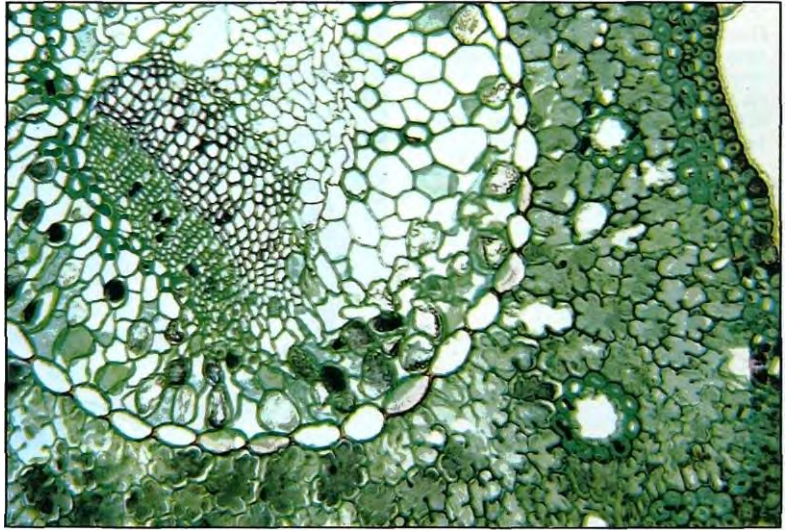
()
40- 10= 400, . .

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—
40' 10- 250/250= 400, . .
;

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400- 2= 800,
« », « », ;
—

167.

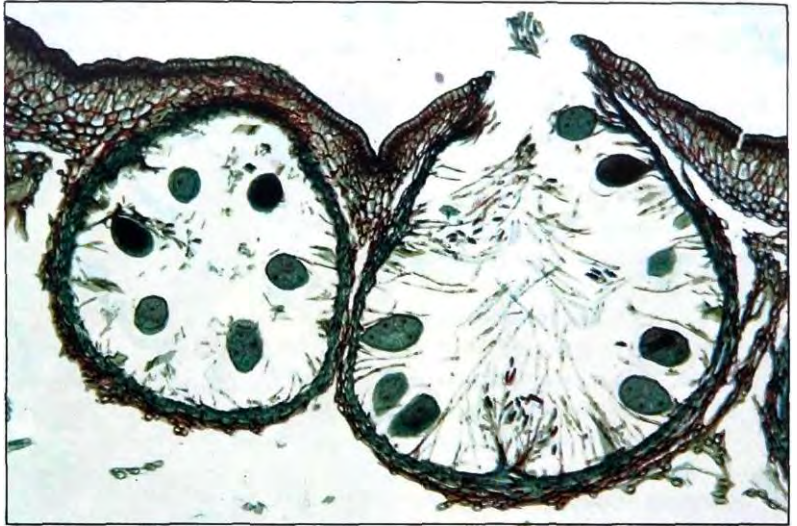
= 120.

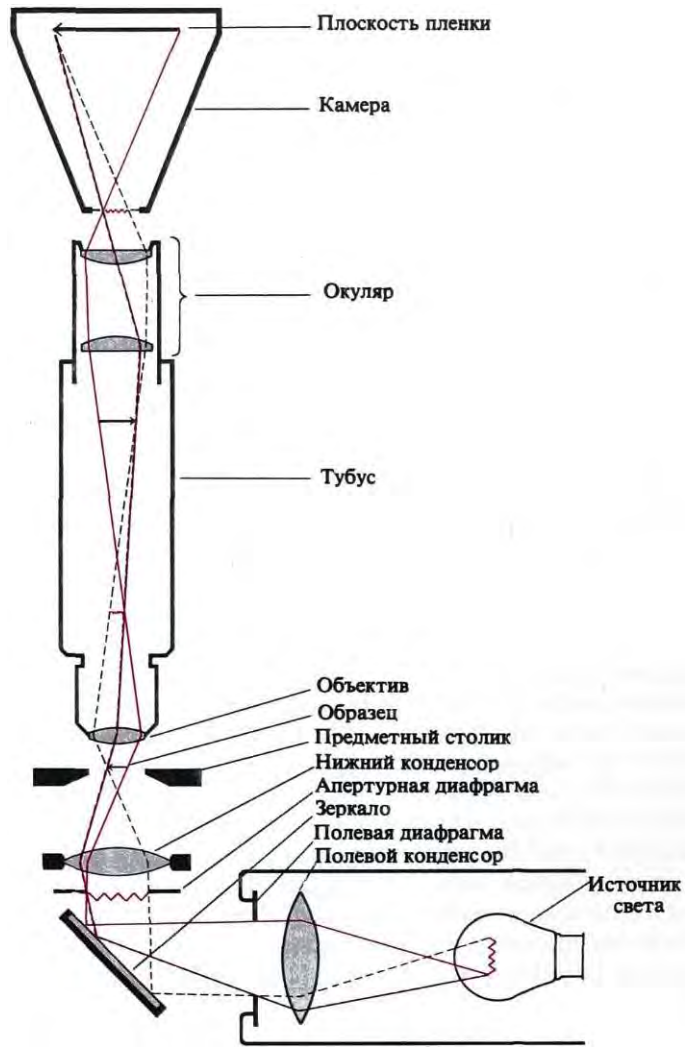


168.

Fucus.

= 60.





« »

100-
40 X

162—168,

1.

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2.

(2)

(

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3.

4.

5.

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7.

7 ()

TTL

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$$\times \left(\frac{\text{Стандартная числовая апертура}}{\text{Новая числовая апертура}} \right)^2 \times \left(\frac{\text{Новое увеличение}}{\text{Стандартное увеличение}} \right)^2$$

1.

TTL,

1/4

TTL

1/30

1/60

1/8

(Wratten 85 ,
).

$$(1 = 1/1000^3).$$

1000,

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« », « » (, . . .)¹.

1

169.

(. 121),





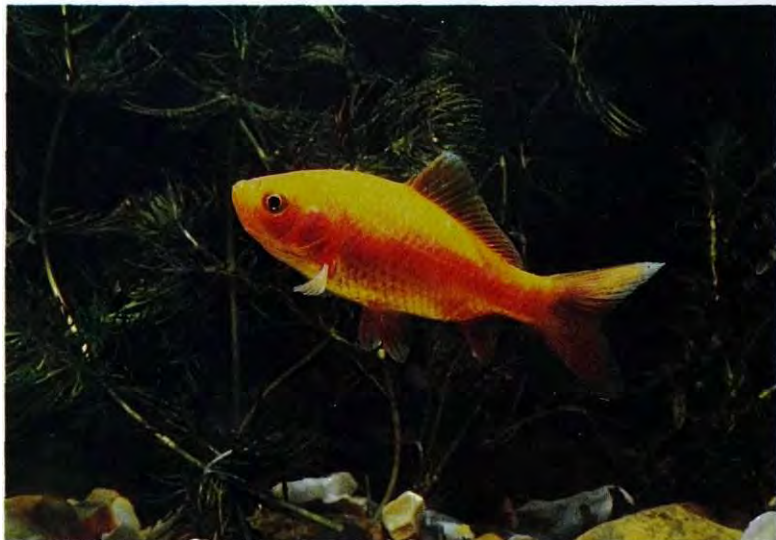
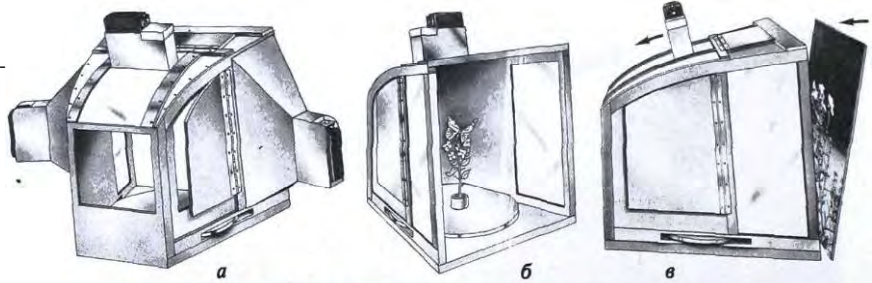
. 121.

170—173 . 123—125.

« »

. 122.

176;



170.

123.

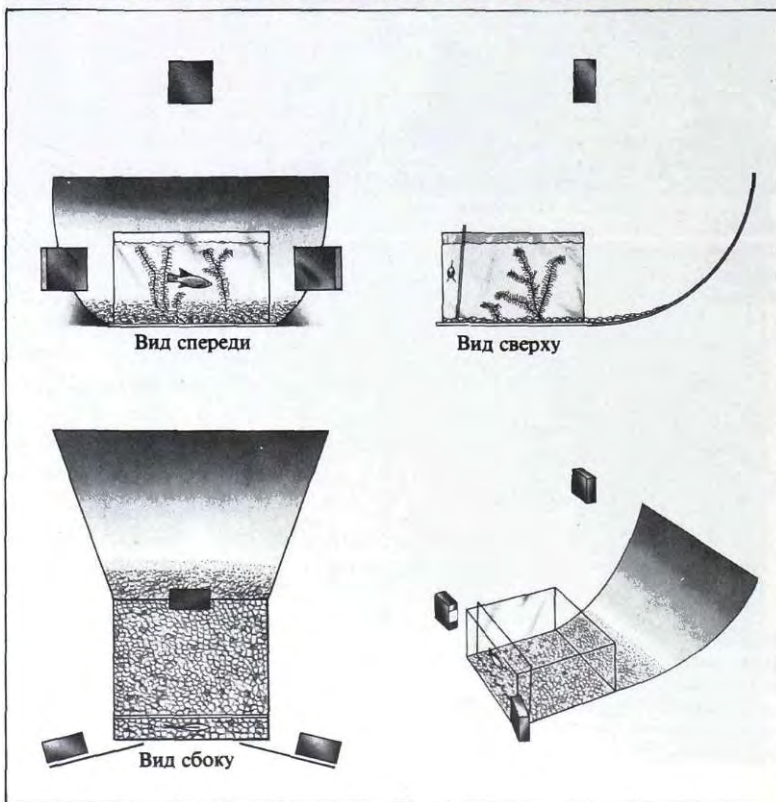


123.

(171).

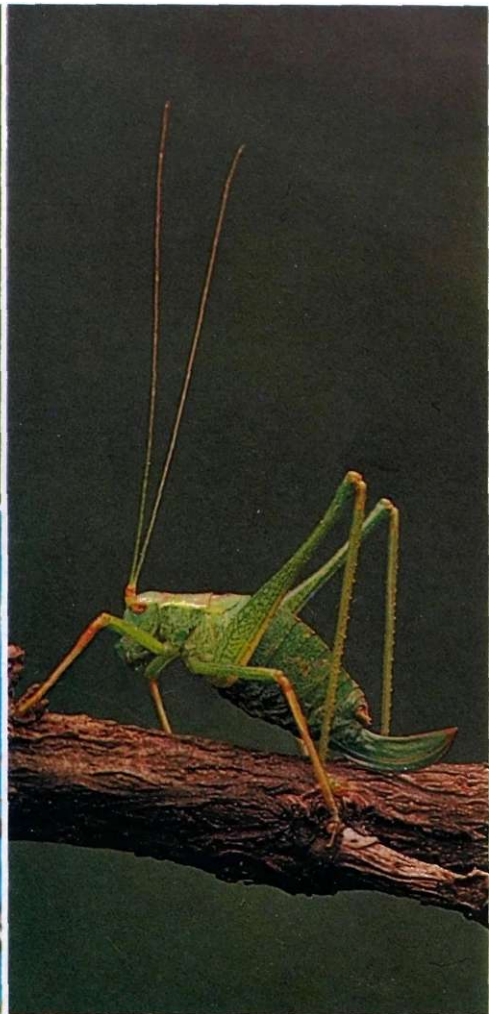
124.

123.



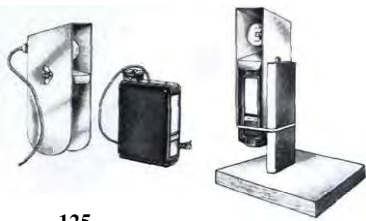


171.



122.

45°



125.

(: ()
(,) . ()

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173. — *Coenagrion*, 4X.



Culex, 6 X .



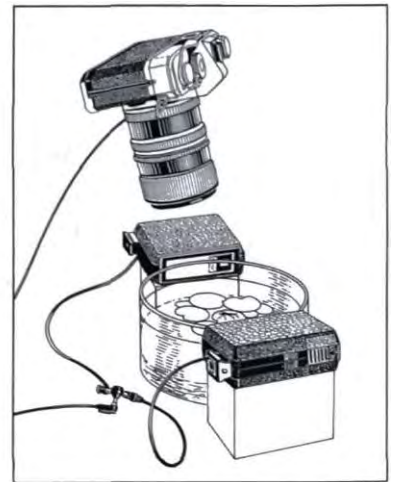
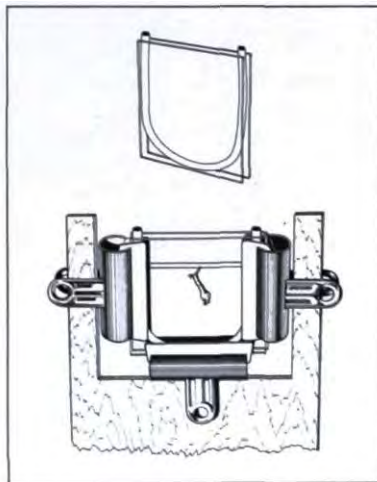
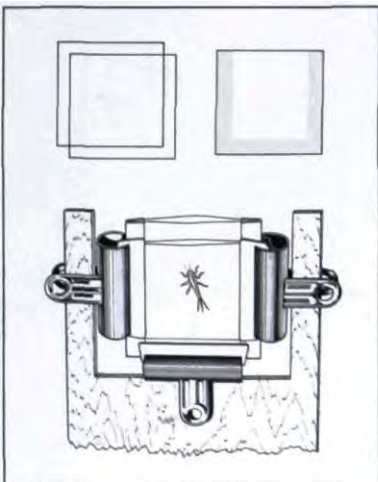
(7,5 ²),

U-

Canon F1, 50-
Kodachrome 25. , 1:22,

— *Canon F1*, 50-
3,1 , 1:16,
Kodachrome 64. —

Carton F1, 50-
8,3 , 1:16,
Kodachrome 64. — *Gerris*,



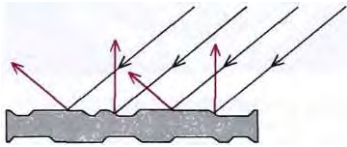


(TTL),

. 126.

(177)

177,



. 127.

(174).

174.

175.





176.

30

30

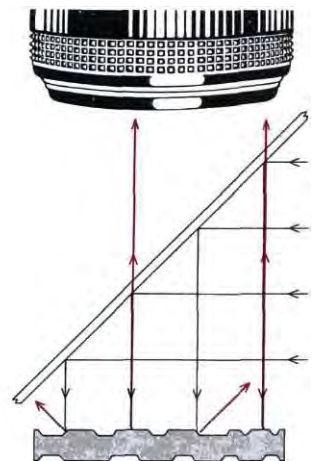
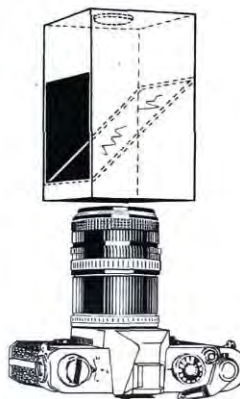
TTL.

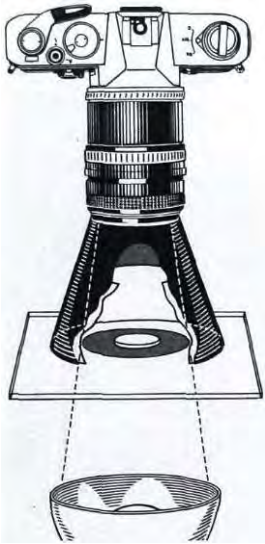
« ».

. 128.

176:

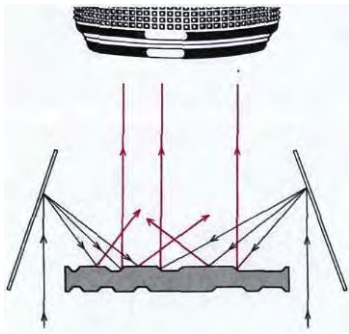
().





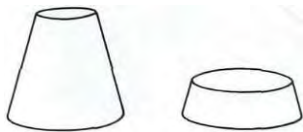
. 129.

177.



. 130.

() .



.131.

177.

« 180 181 »

177.

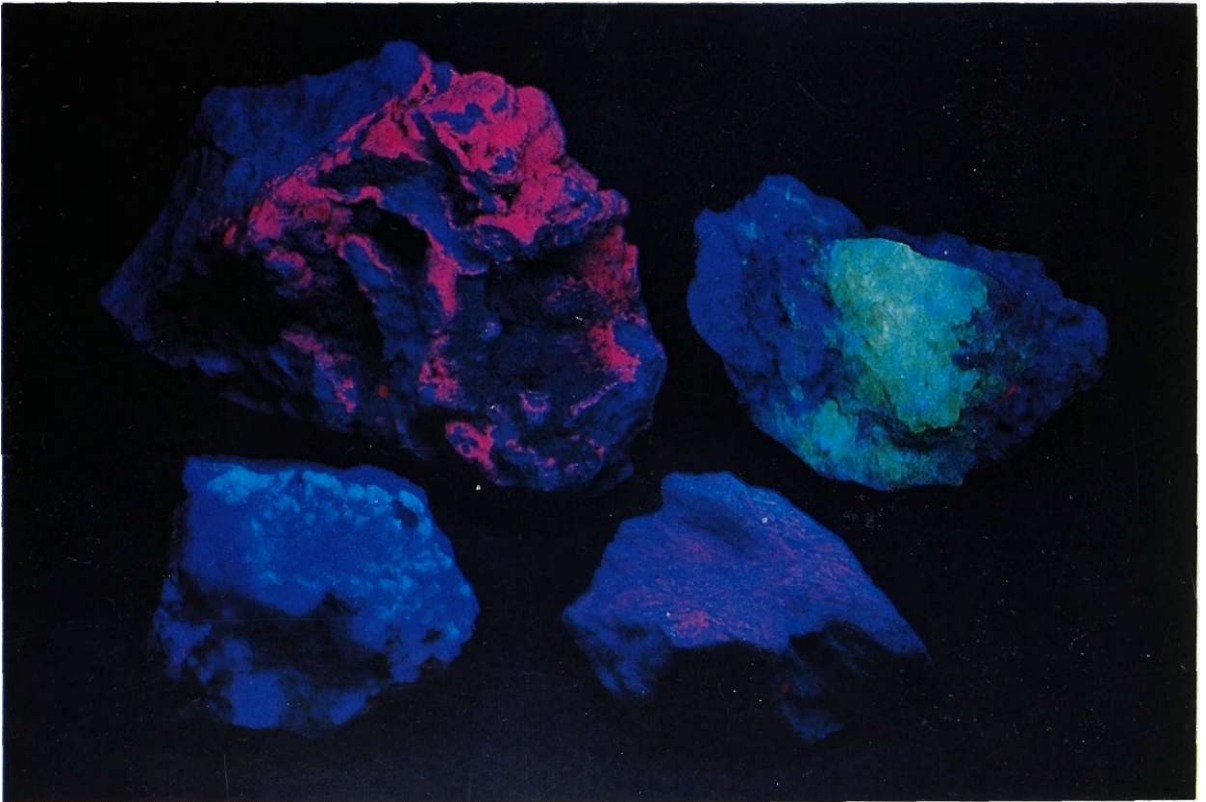
()
()

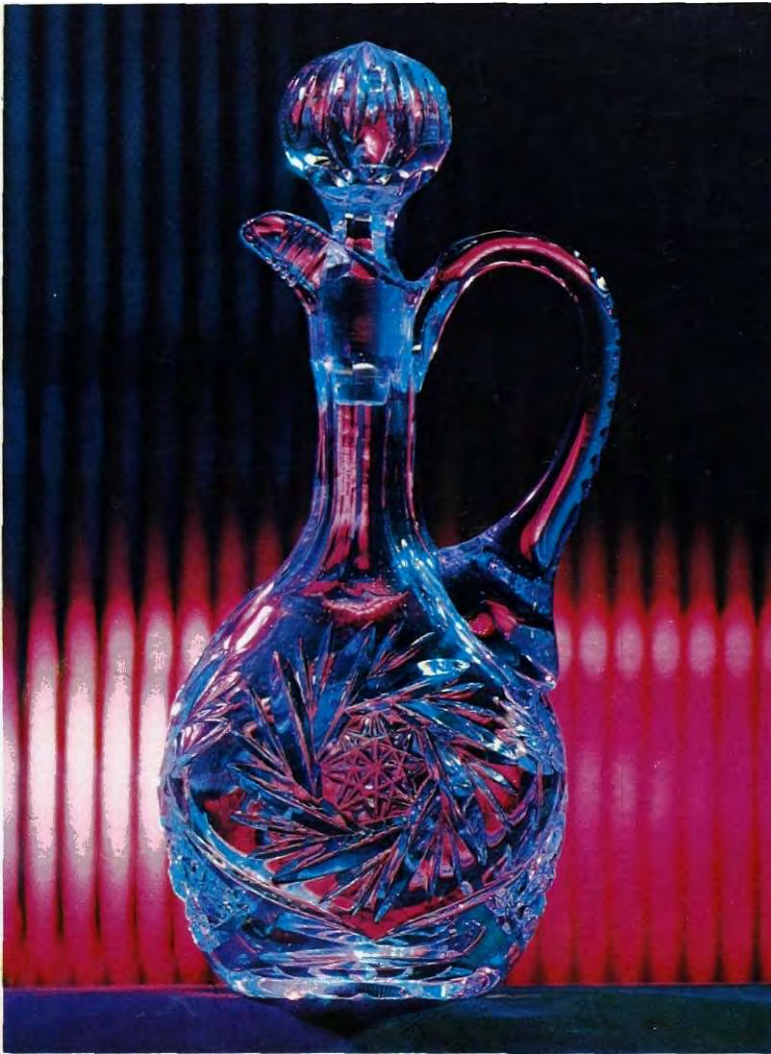


178.

« »

Wratten 2 .
16 , 1:22, Kodachrome 64,
Blacklight
Blue 8 Bt 15





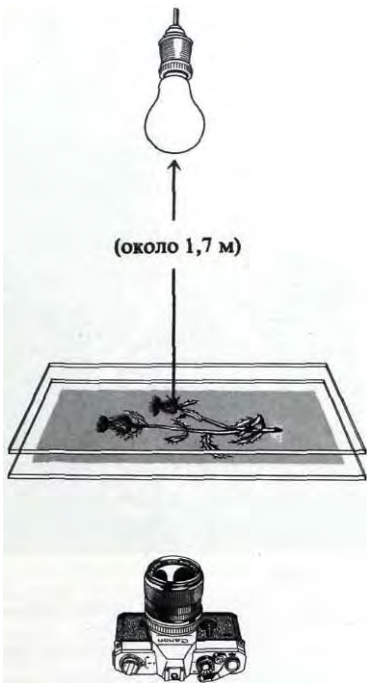
179.

25. , 1/15 , 1:8, Kodachrome
25'

« »
. Canon FTb, 1/8 , 1:11,
Ektachrome 50.

182 183

« »



. 132.

181. 180

1,7 (1
Photoflood)

180.

. 132.

« » ,
« », « »
« »
35-
« »
« »
182 183
35-
6





Фото 181.

Фотосъемка производилась
способом, схематически
изображенным на рис. 132.

Papaver rhoeas



182.

. 133.



. 133.

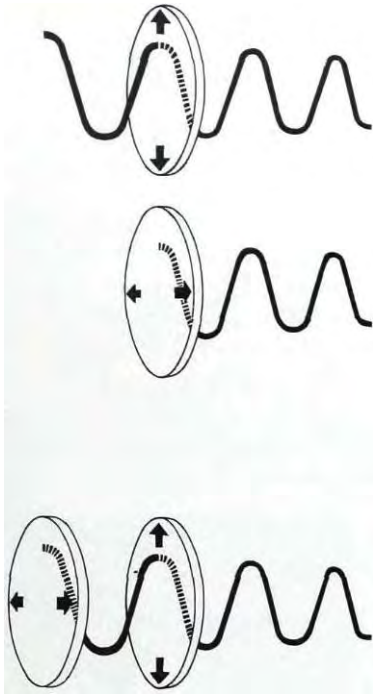
« »
« » .« »

(. 134).

183.

133,





. 134.



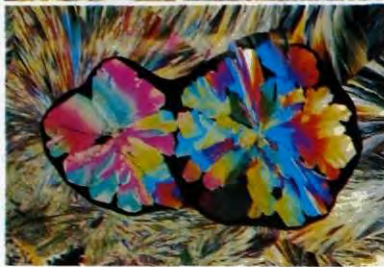
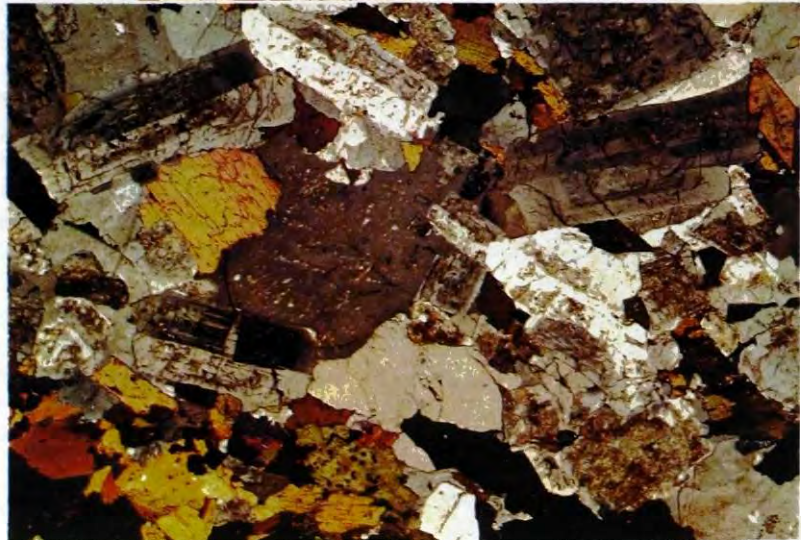
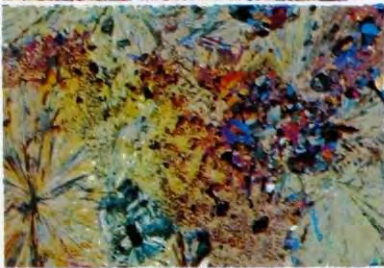
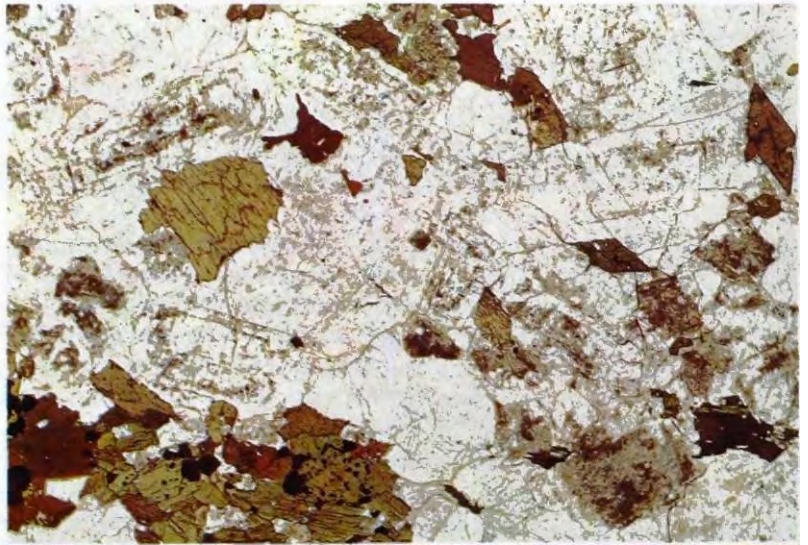
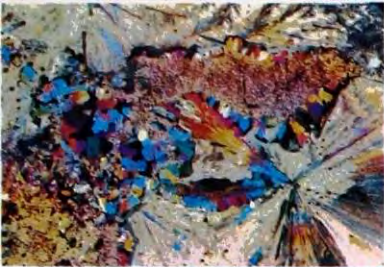
184.

45°
90°
TTL
« »



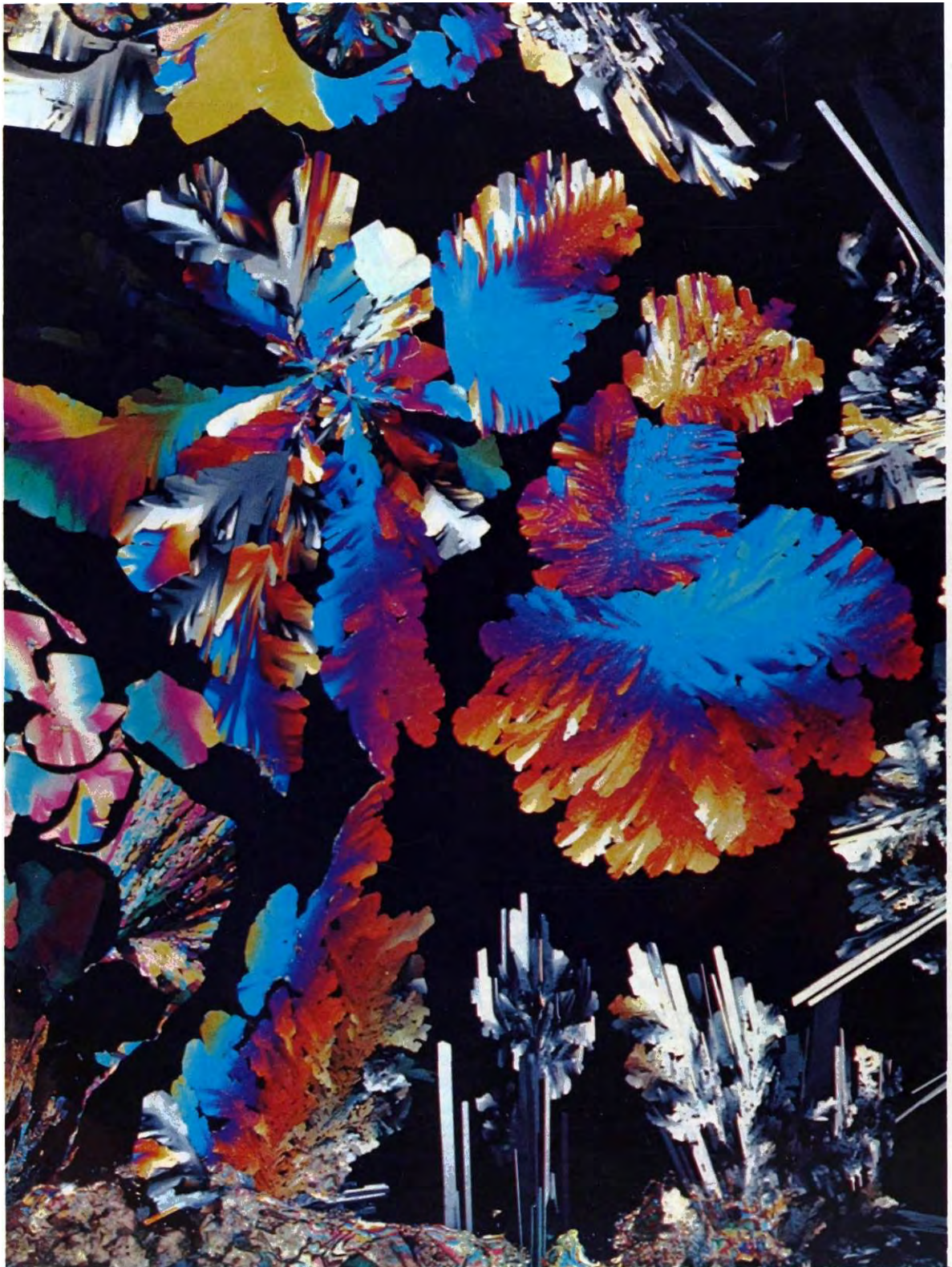
186.

—
4
, 4 ; —
7
, 10 X .

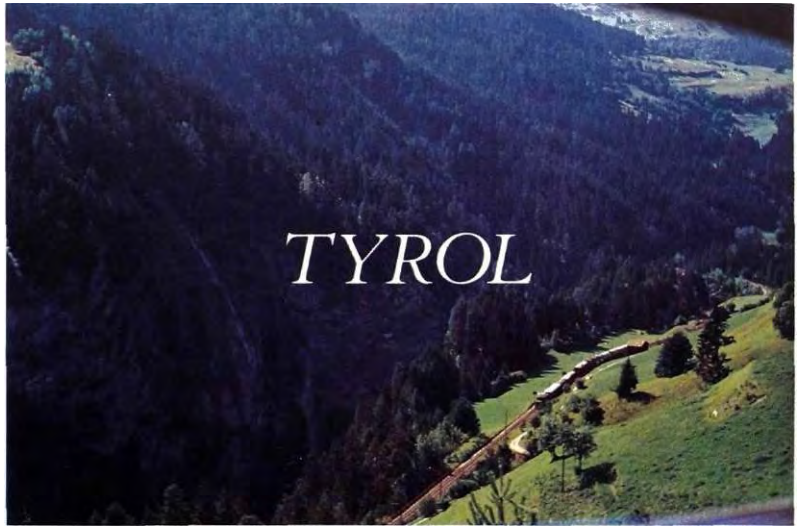


185.

187.



188.



189.

Close-up lens data

Close-Up Lens	Focus Setting in Feet	Lens-to-Subject Distance in Inches	Approximate Field Size for Picture Area in 2 x 2-inch Slide	
			44 to 46mm Lens	50mm Lens
1+	Inf	39	21 × 30	18 × 26½
	15	32½	17½ × 24½	14½ × 22
	3½	20½	10½ × 15	9 × 13½
2+	Inf	19½	10½ × 15	9 × 13½
	15	17½	9½ × 13½	8 × 12
	3½	13½	6½ × 9½	6½ × 9
3+	Inf	13	6½ × 10	6 × 8½
	15	12½	6½ × 9½	5½ × 8½
	3½	9½	4½ × 7½	4½ × 6½
3+ plus 3+	Inf	6½	3½ × 5½	3½ × 4½
	15	6½	3½ × 4½	2½ × 4½
	3½	5½	2½ × 4½	2½ × 3½

Close-up lens data (50mm lens set for 3½ feet)

Close-up lens	Lens-subject (inches)	Field size (inches)
1+	20½	9 × 13¼
2+	13⅛	6⅛ × 9
3+	9¾	4½ × 6¾
3+ Plus 3+	5¾	2⅝ × 3⅙

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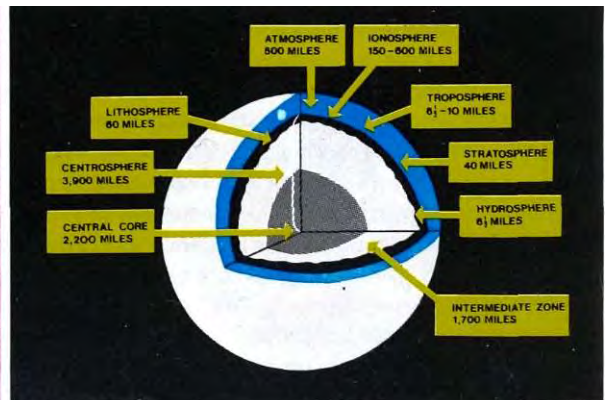
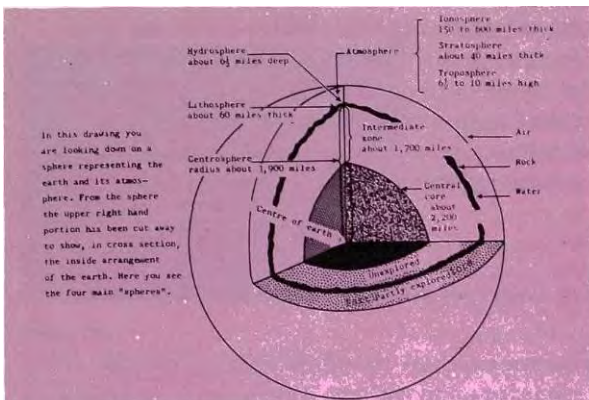
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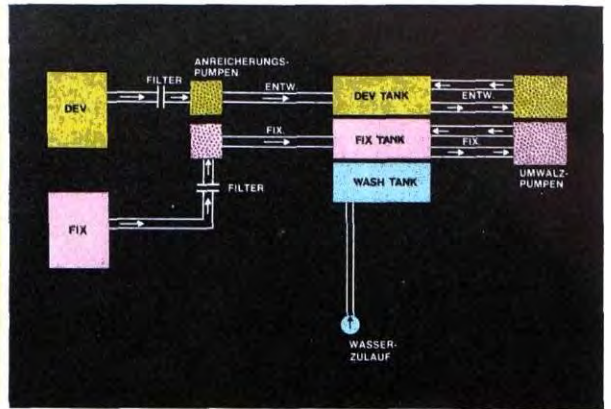
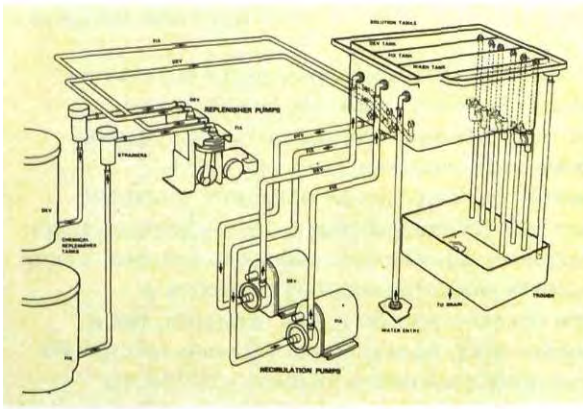


Letraset.

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Если напечатанный текст сфотографировать так, чтобы
окаймляющая его рамка полностью заполнила весь
35-мм кадр, то текст будет легко читаемым для всей
аудитории.

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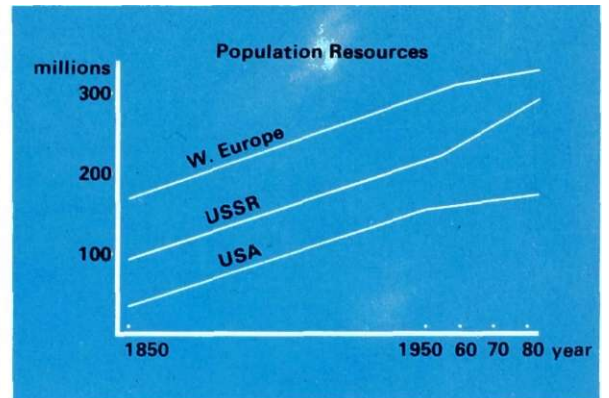
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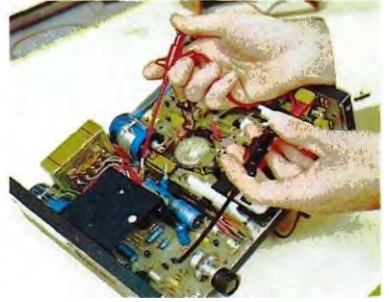
POPULATION RESOURCES COMPARED

Year	Western Europe (millions)	USSR (millions)	USA (millions)
1850	175	90	40
1950	300	180	110
1960	305	200	120
1970	310	205	125



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Acknowledgements

Unless otherwise indicated below, the text and captions for this book were written and researched by Andrew Hawkins, and the diagrams and artwork were drawn by Dennis Avon.

Natural History: section dealing with the photography of wild birds and animals — text and diagrams by **Tony Tilford**.

Underwater Photography: text and diagrams by **Peter Scoones**.

Photographs by Andrew Hawkins and Dennis Avon with the exception of the following:

photo 178, **Michael Allman**; photo 84, 95, **Jennifer Carter**; photo 61, 62, **Keith Chant**; photo 115—117, by courtesy of **The Chipperfield Organisation**; photo 154, **A.E. and Sons Limited**; photo 38, 88, **Colour Center**; photo 36, 64—66, **Mike Cox**; photo 43 top, 54—56, 06, **Roger Gamble**; photo 33, **Bill Goodchild**; photo 43 bottom, 60, **Susan Hind**; photo 2, 34 top, 42 right, 48, 49, 75, 81, 103, 122, 124, 157, 160, **Jarrold, Norwich**; photo 43 center (2 pictures), 52 top, 67, 68, **Neil Jinkerson**; photo 9, 40, 189—193, by courtesy of **Kodak Limited**; photo 72—74, 83 **Jack Oakley**; photo 58, **Andrew T. Paton**; photo 71, **Ted Rule**; photo 125—130, **Peter Scoones/Seaphot**; photo 89, 91, 96, **Ian Shaw**; photo 138, **Robin Smith Photography Limited**; photo 69, **Richard Tilbrook**; photo 159 **Tony Tilford**; photo 97, **Geoffrey Unwin**; photo 31, 91, **Patrick Walmsley**; photo 44, 90, 94, **John Ward**.

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