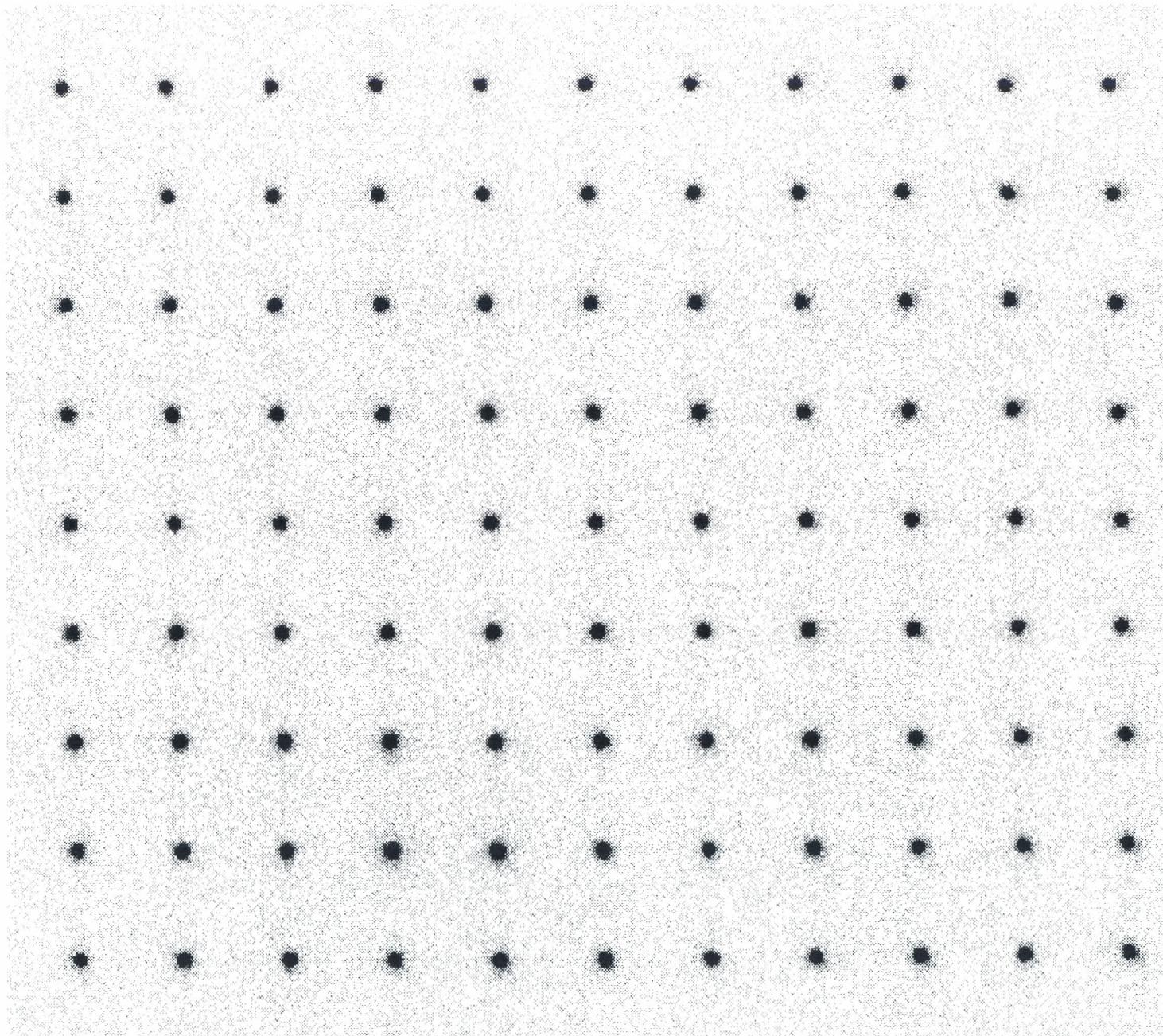


Schematic Structure of Detector Head

Fig. 1-1.



Pinhole array
image for
resolution
test at visual
wavelengths

13H 17M 44S
DEP#22 Res Blue

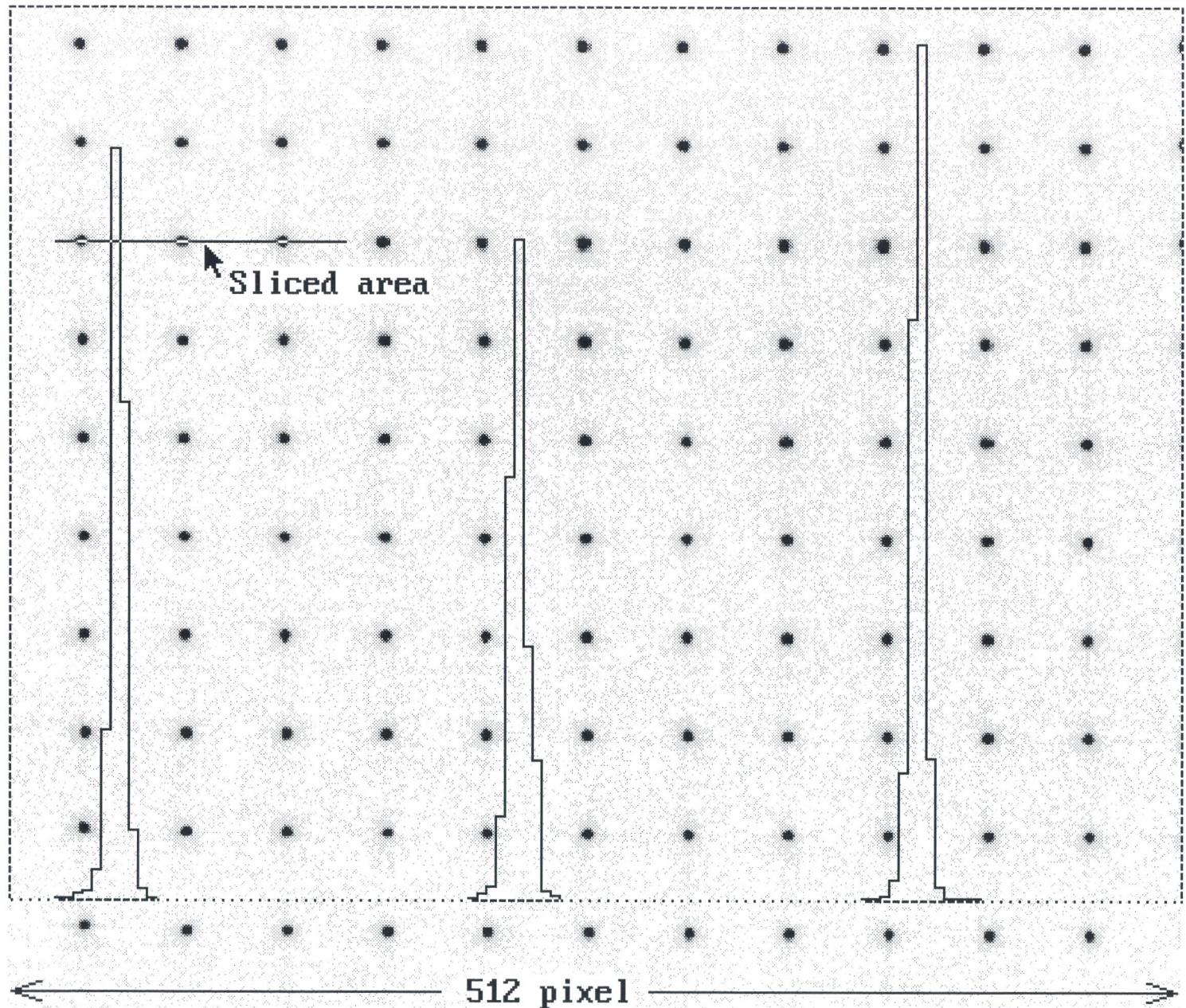
13H 34M 24S
1000S CCD=(65,17) (1678,1039)

1998/03/17/

397-2200-4950

DEP #1 tube

Fig. 2_1



1800 count

Pinhole array
image with
blue LED

V_c=400V

Nikon 50mm lens

12H 46M 09S
DEP119 Res 460nm

12H 56M 09S
0600S

1998/07/01/
400-2390-5220
DEP-6

Fig. Z_1B

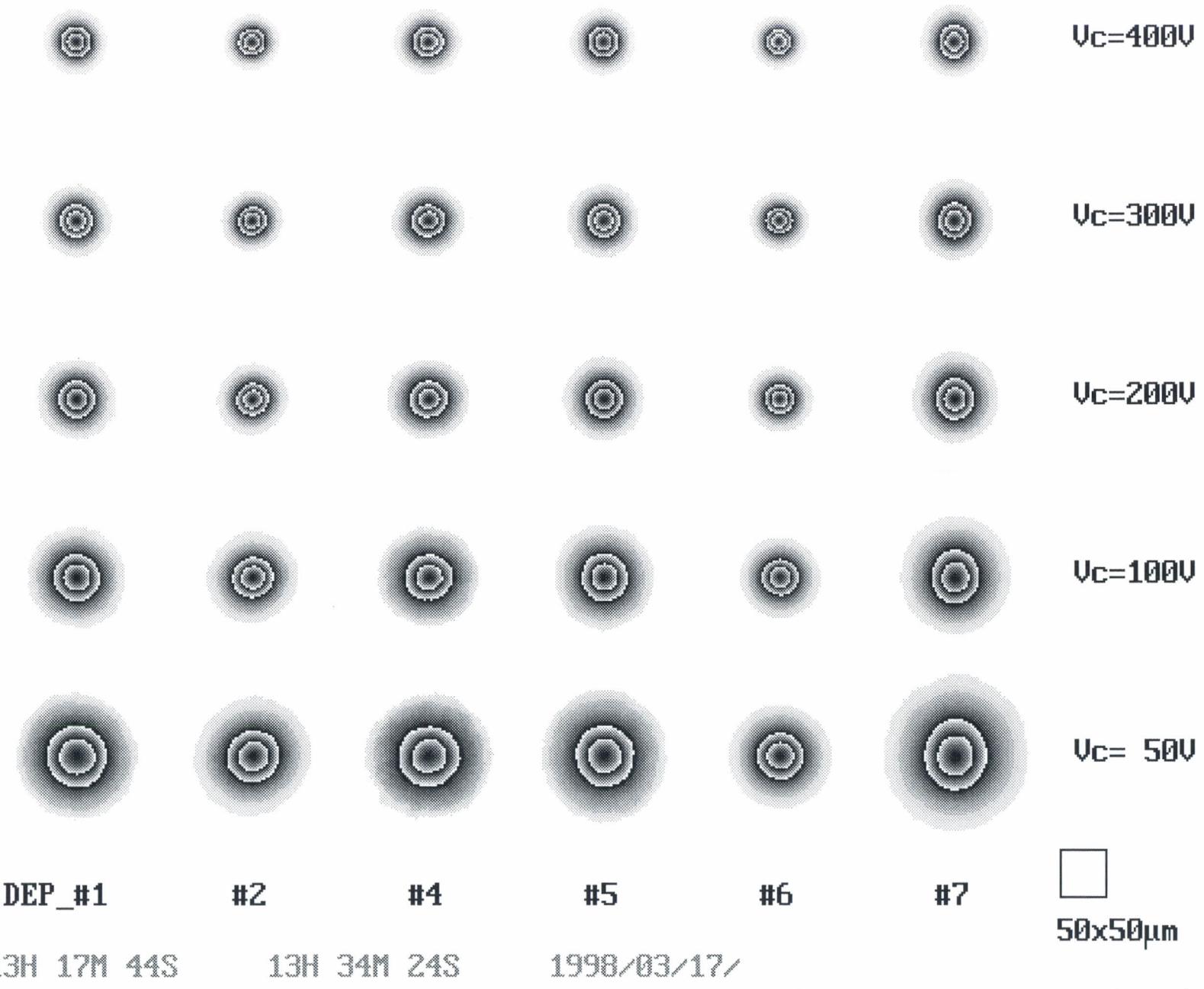


Fig. 2_2



V_c=400V



V_c=300V



V_c=200V



V_c=100V



V_c=50V

DEP_#1

#2

#4

#5

#6

#7



50x50μm

15H 11M 02S

16H 10M 13S

1998/03/17/

RES030 Pinhole standard profile with Red LED

(gray scale contour)

Fig. 2_3

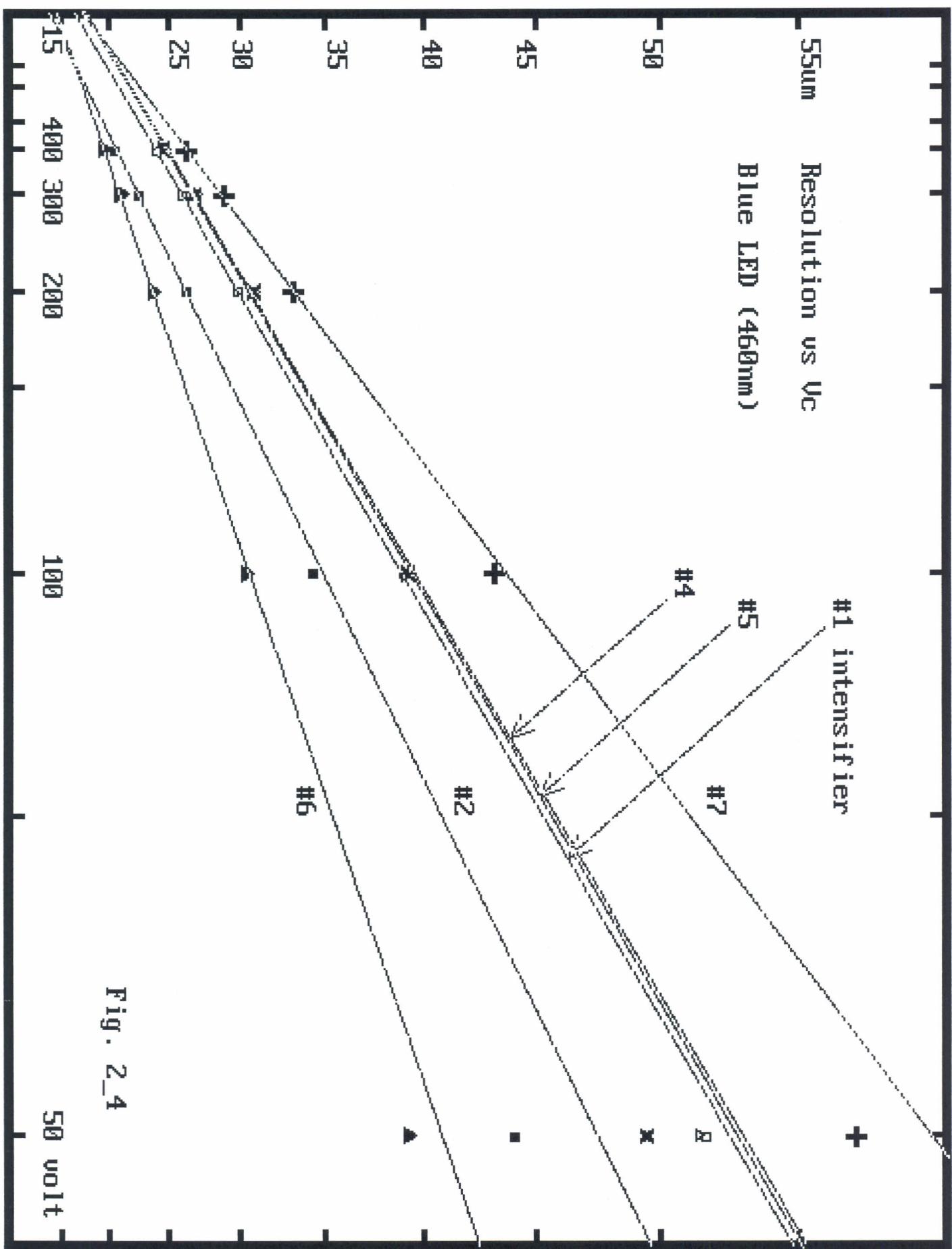
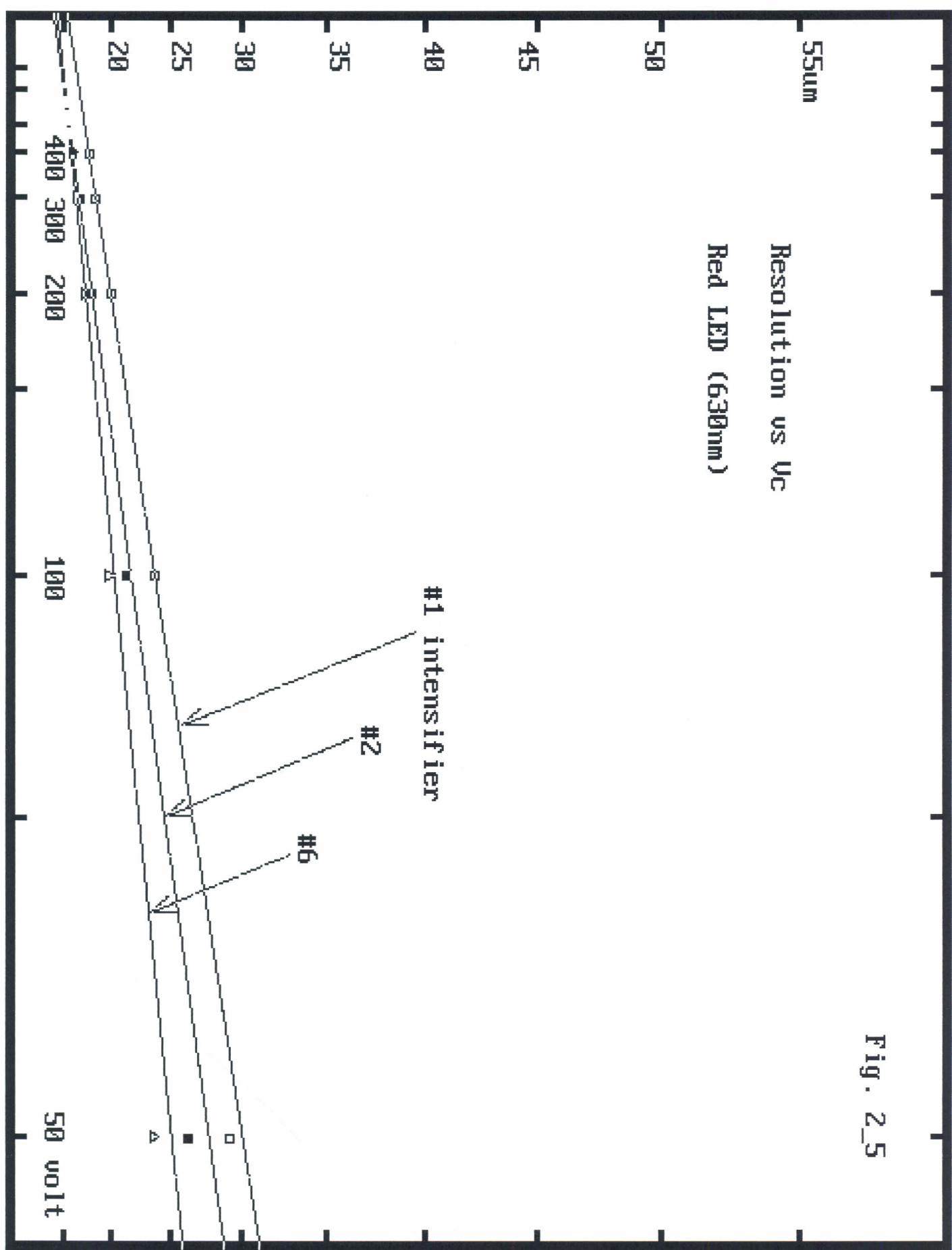
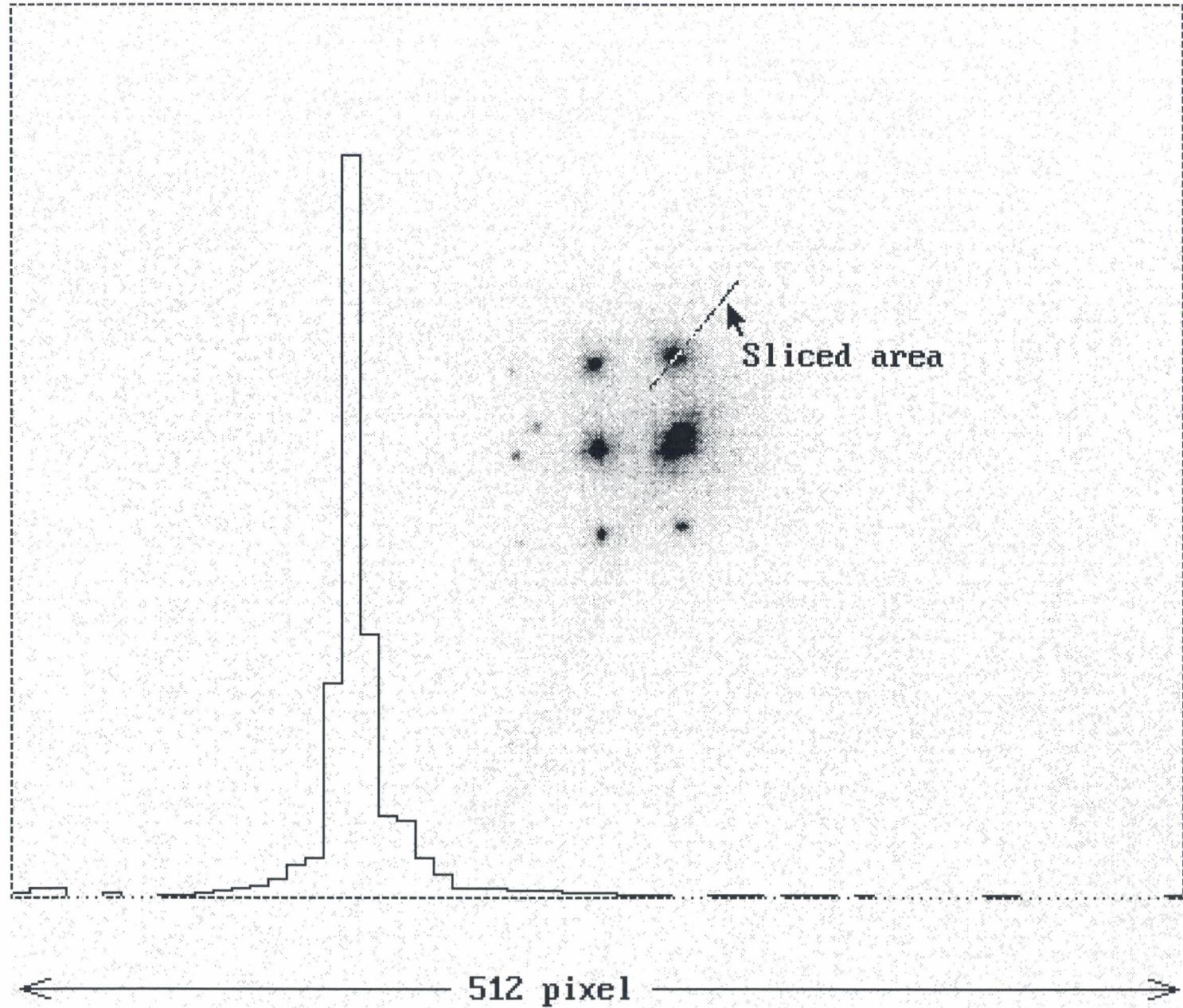


Fig. 2_4

Fig. 2_5





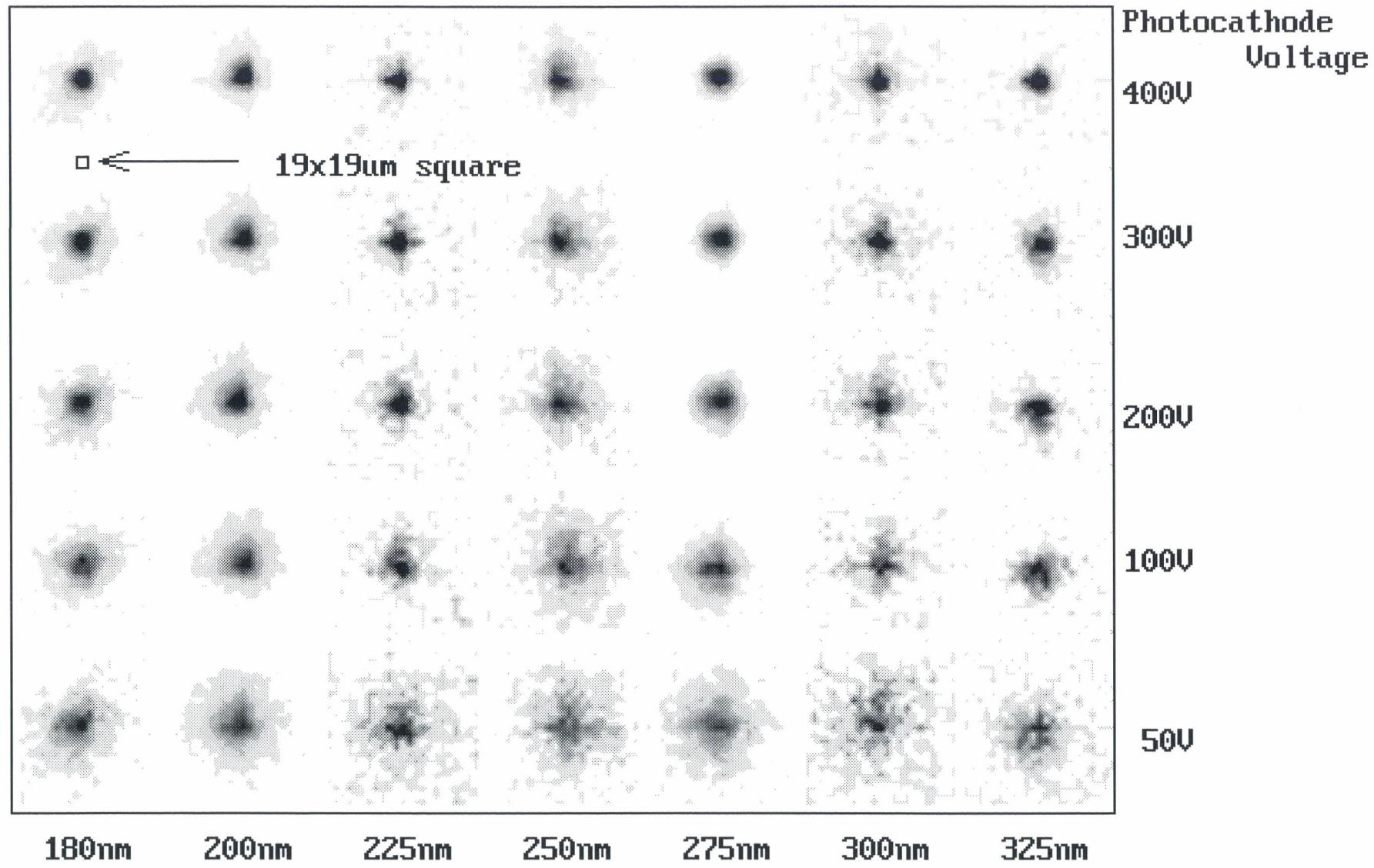
Pinhole image
at 200nm with
monochromator

only 3 pinholes
were used for
the resolution
test, because
illumination
was not uniform

DEP #6 Tube

15H 16M 30S 15H 36M 30S 1998/07/08/
DEP142 Res 200nm 1200S 399-2400-5220 DEP-6 SLITS 3.5 3.5 FuSi F=7.2

Fig. 2_6

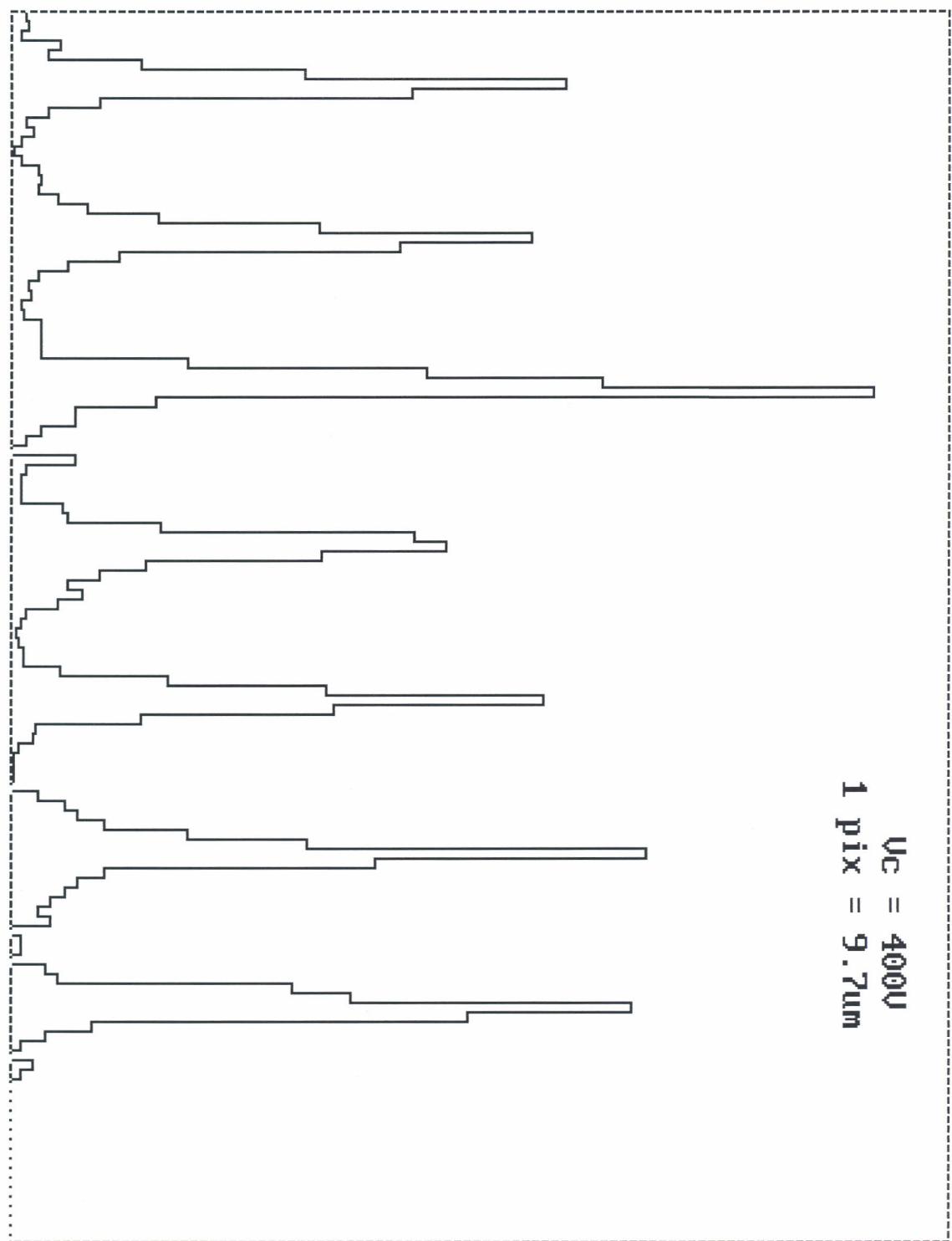


Spot profile v.s. wavelength and photocathode voltage. DEP #6 tube

Original image was magnified by x3 with dithering

Fig. 2-7

$U_C = 4000$
1 pix = 9.7 μm



Sliced profiles of spots at various wavelengths. DEP #6 tube

Fig. 2_8

DEP #2 tube average of X,Y-widths

200, 250, 300nm
180, 350

250nm

300nm

70um

60um

50um

300 200

100

50 volt

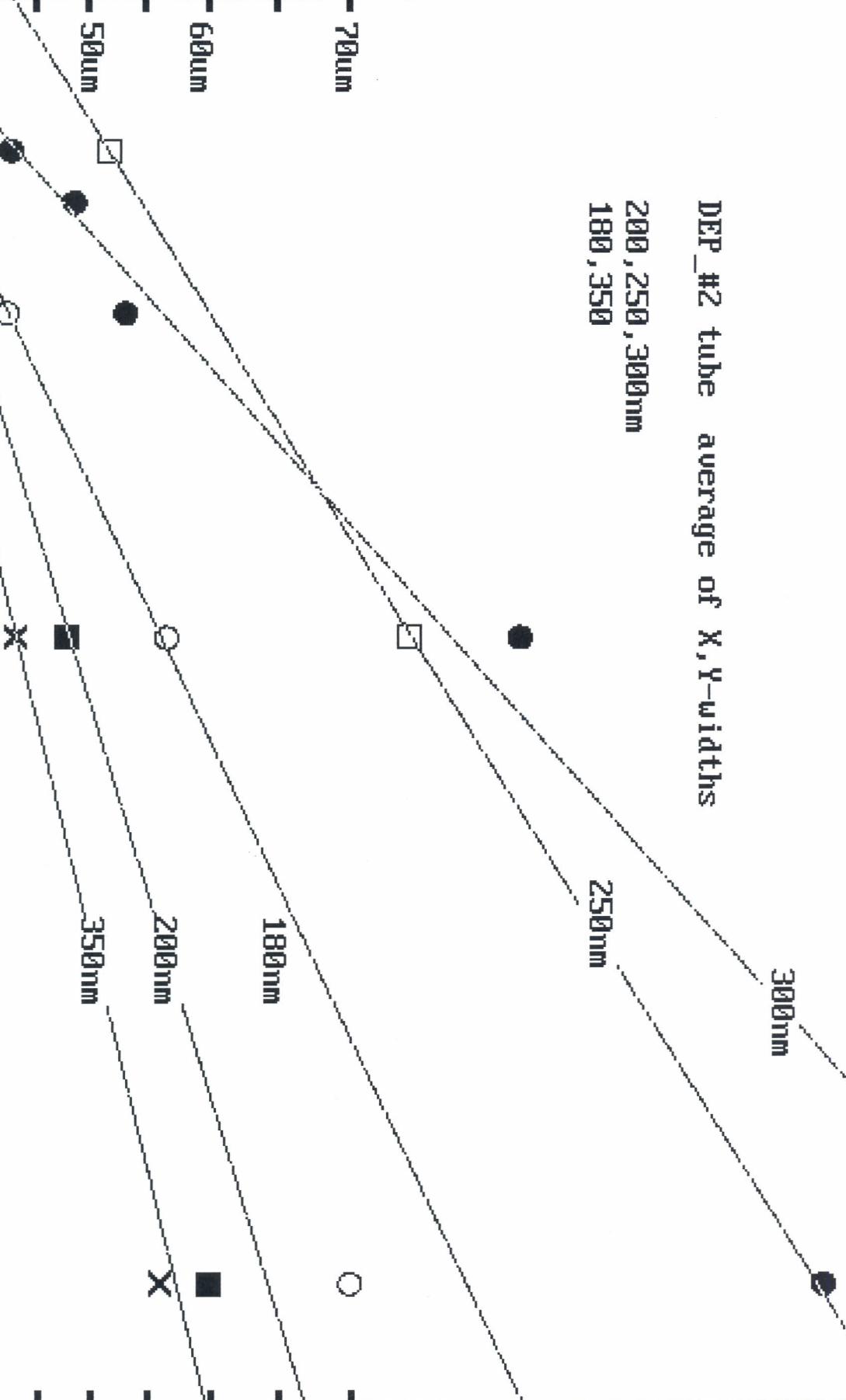


Fig. 2_9

DEP_#6 tube average of X- and Y-widths

200, 250, 300

180, 225, 275, 325nm

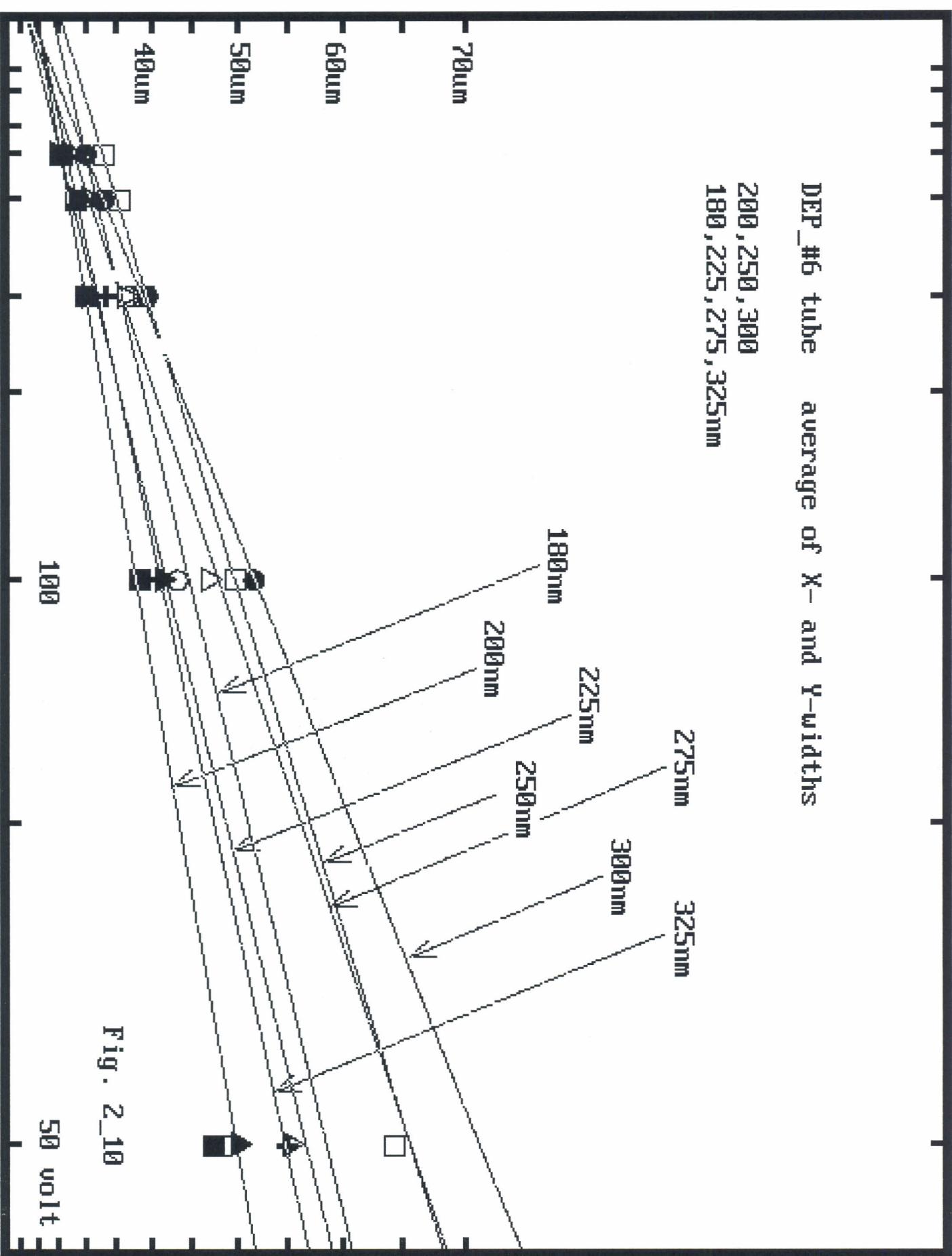


Fig. 2_10

50 volt

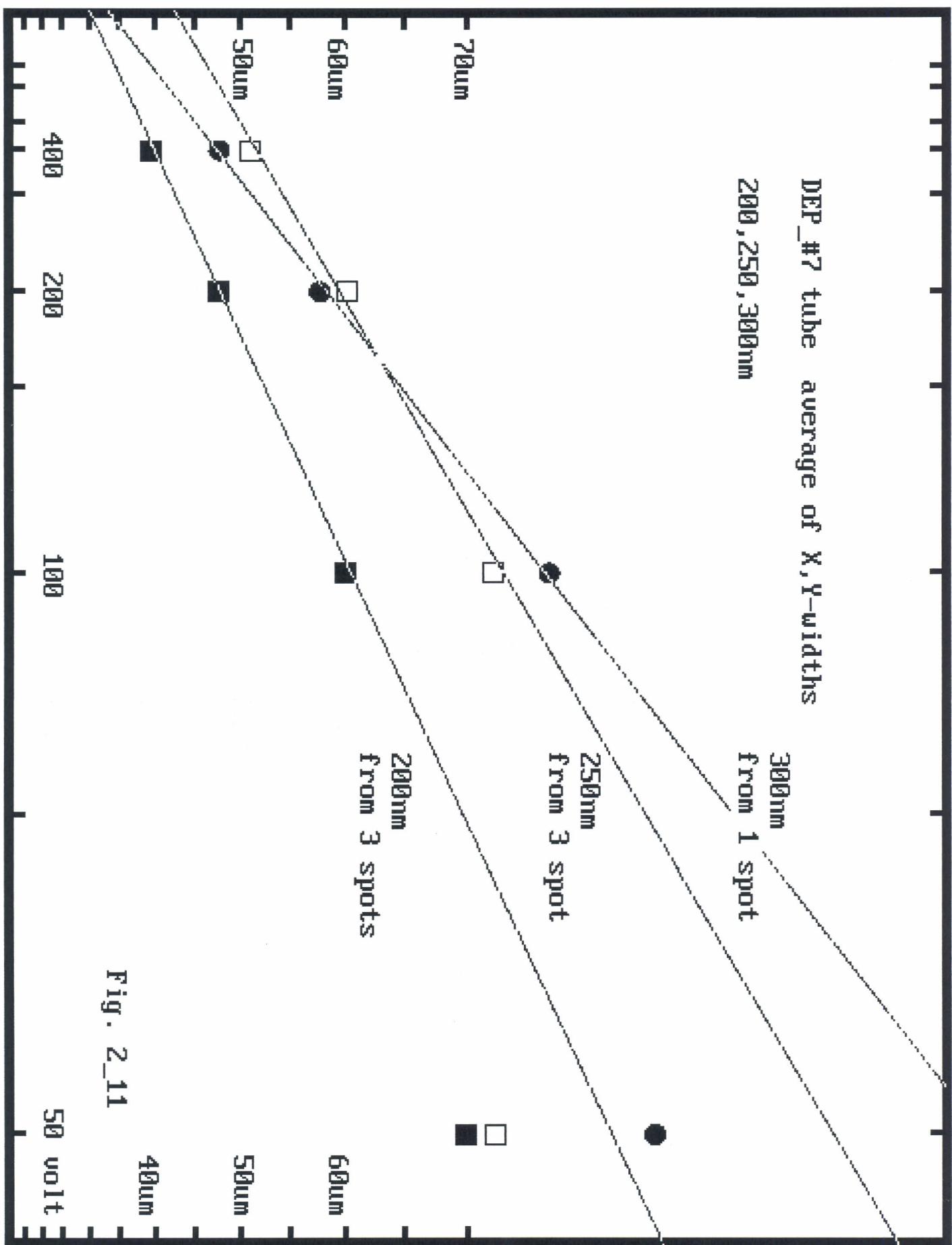
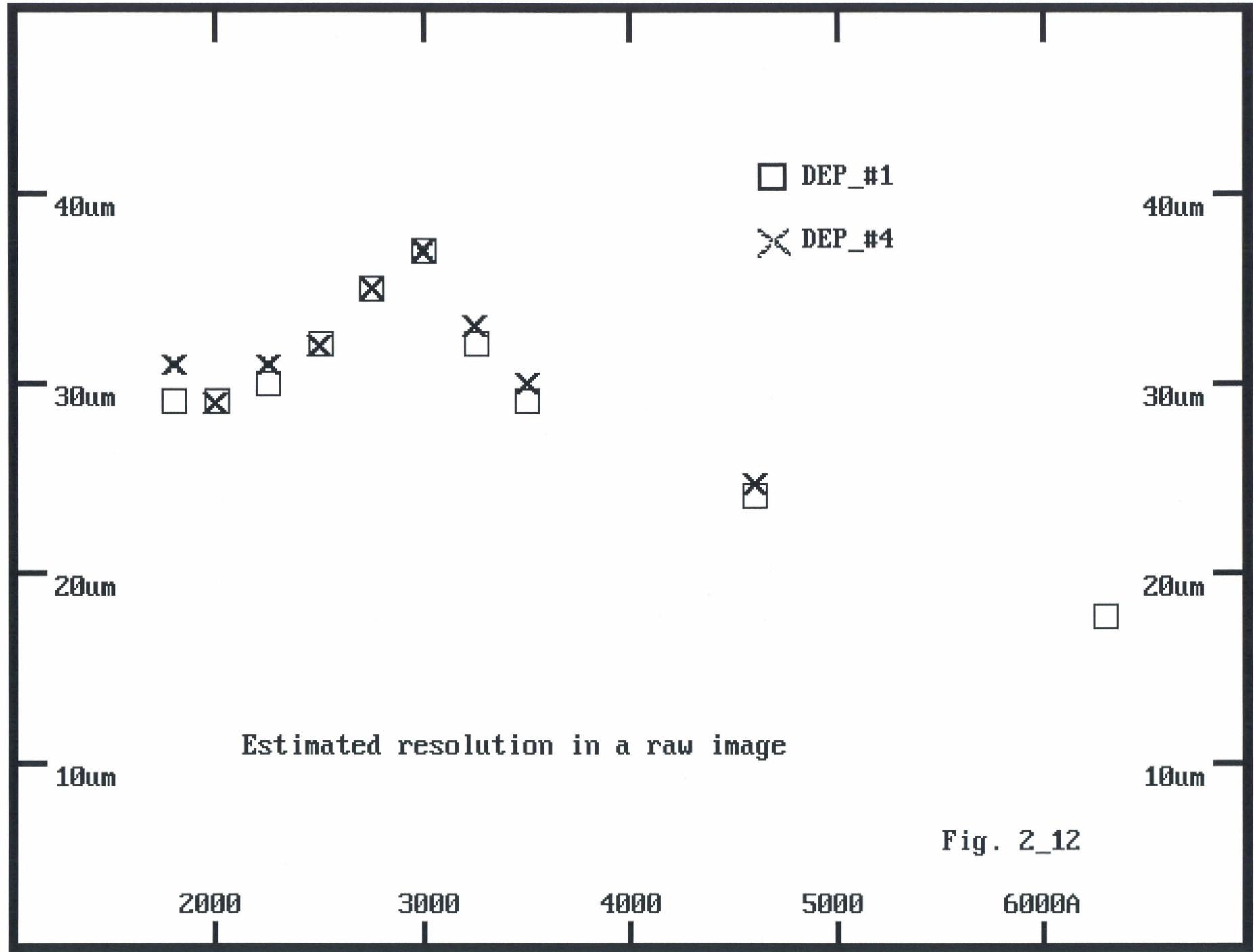
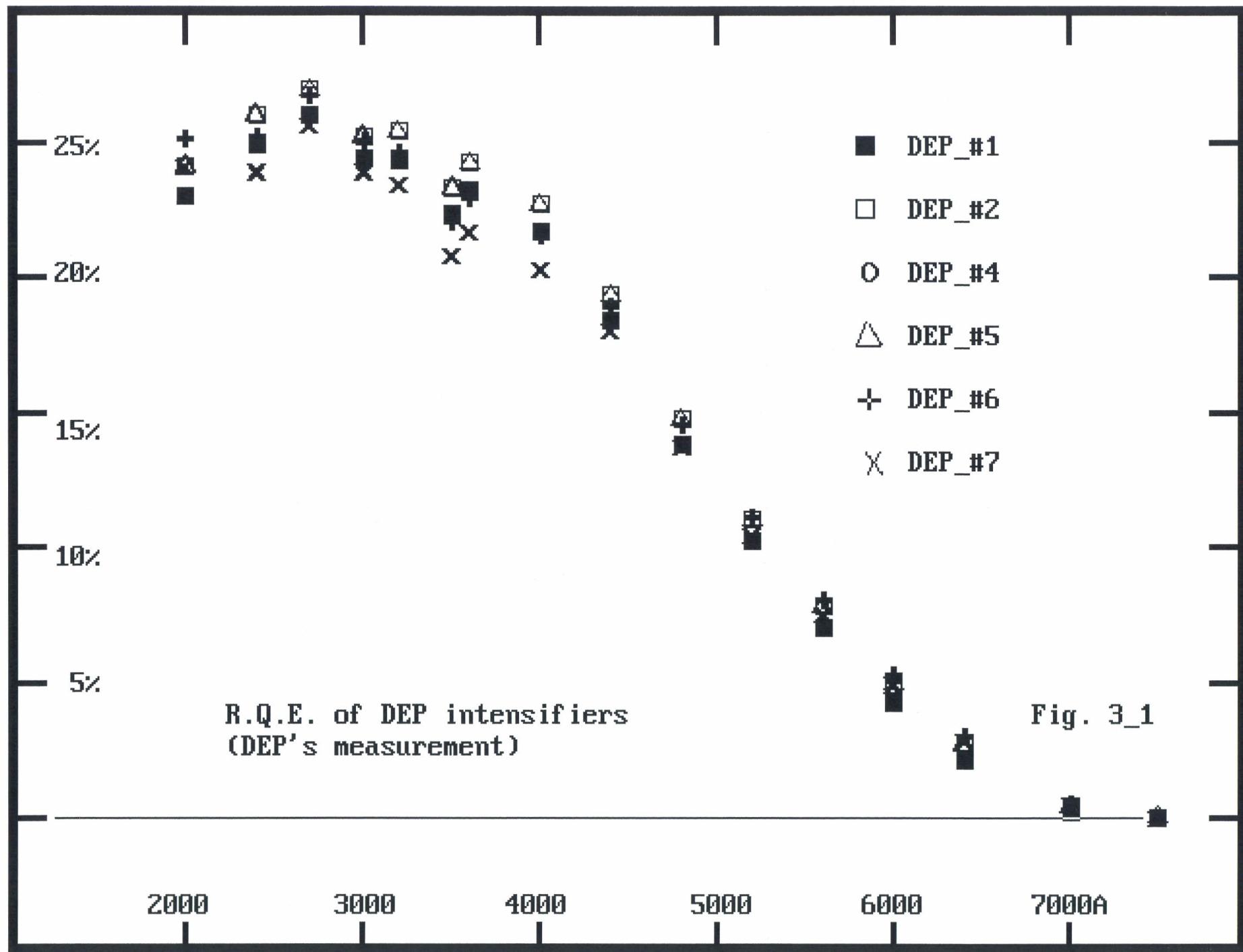
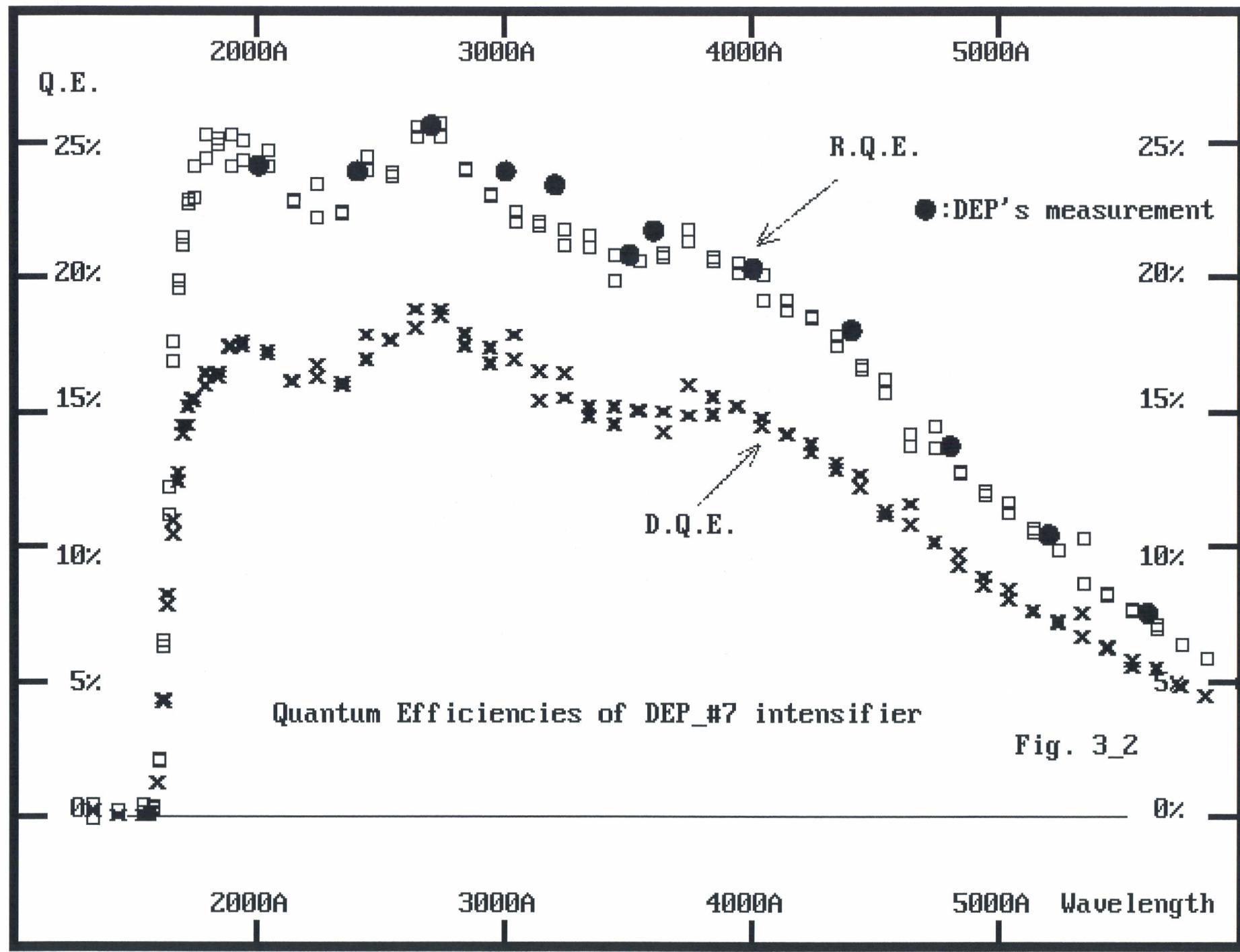
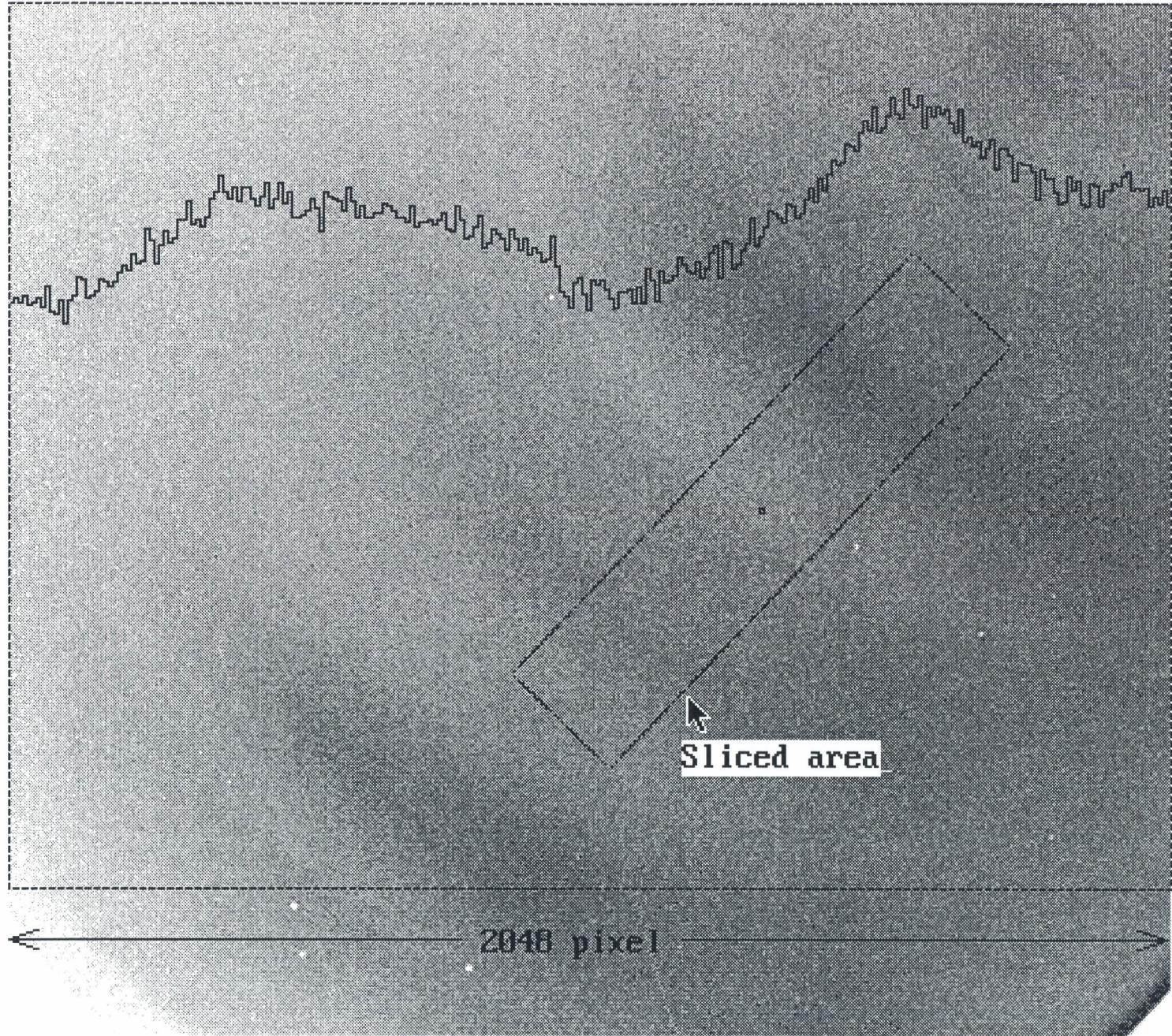


Fig. 2_11









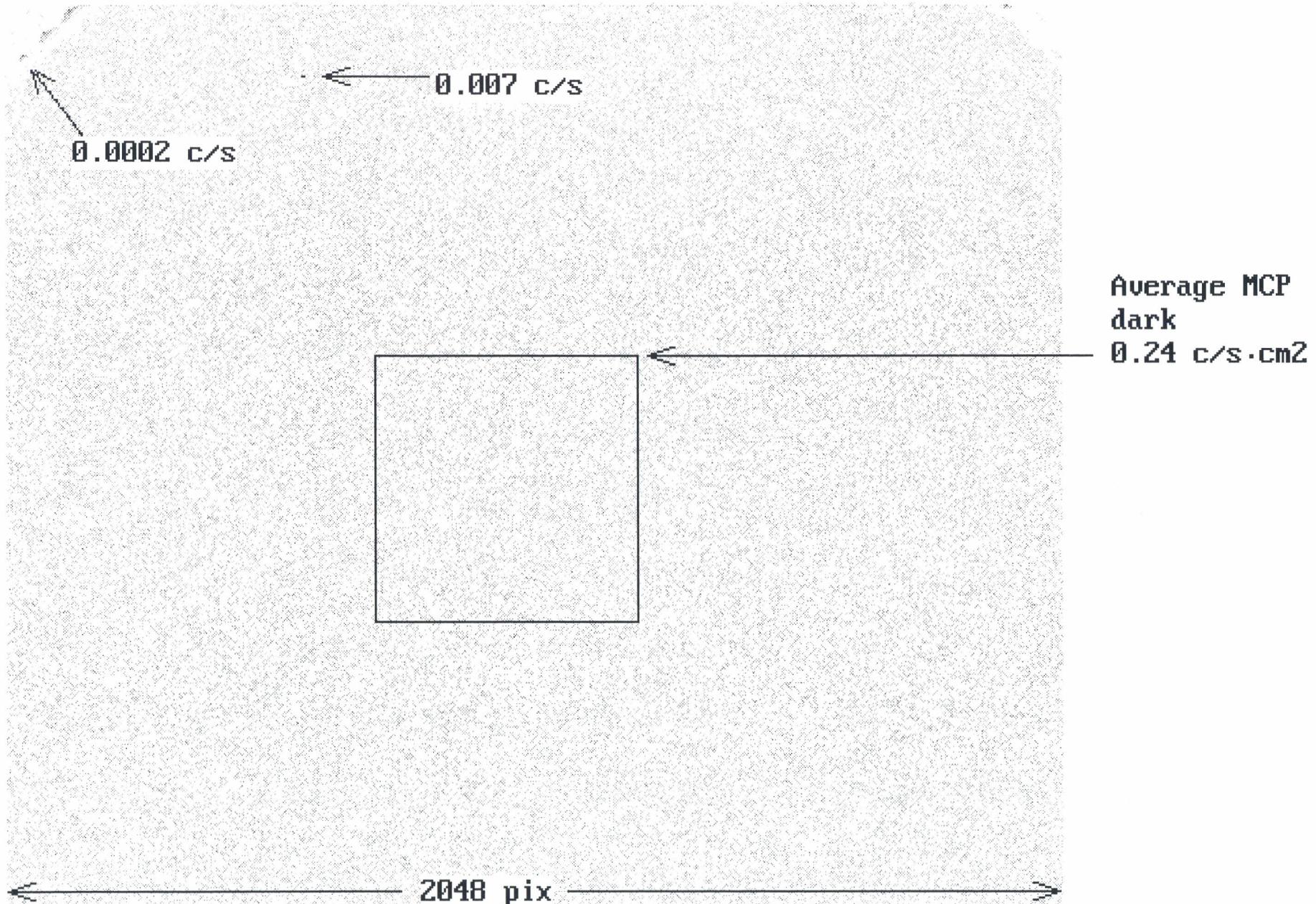
01H 38M 16S
DRK035 Dark

09H 38M 16S
28800S T=23 deg 4x4Bin 398-2200-4950

1998/03/18/

DEP #1 tube

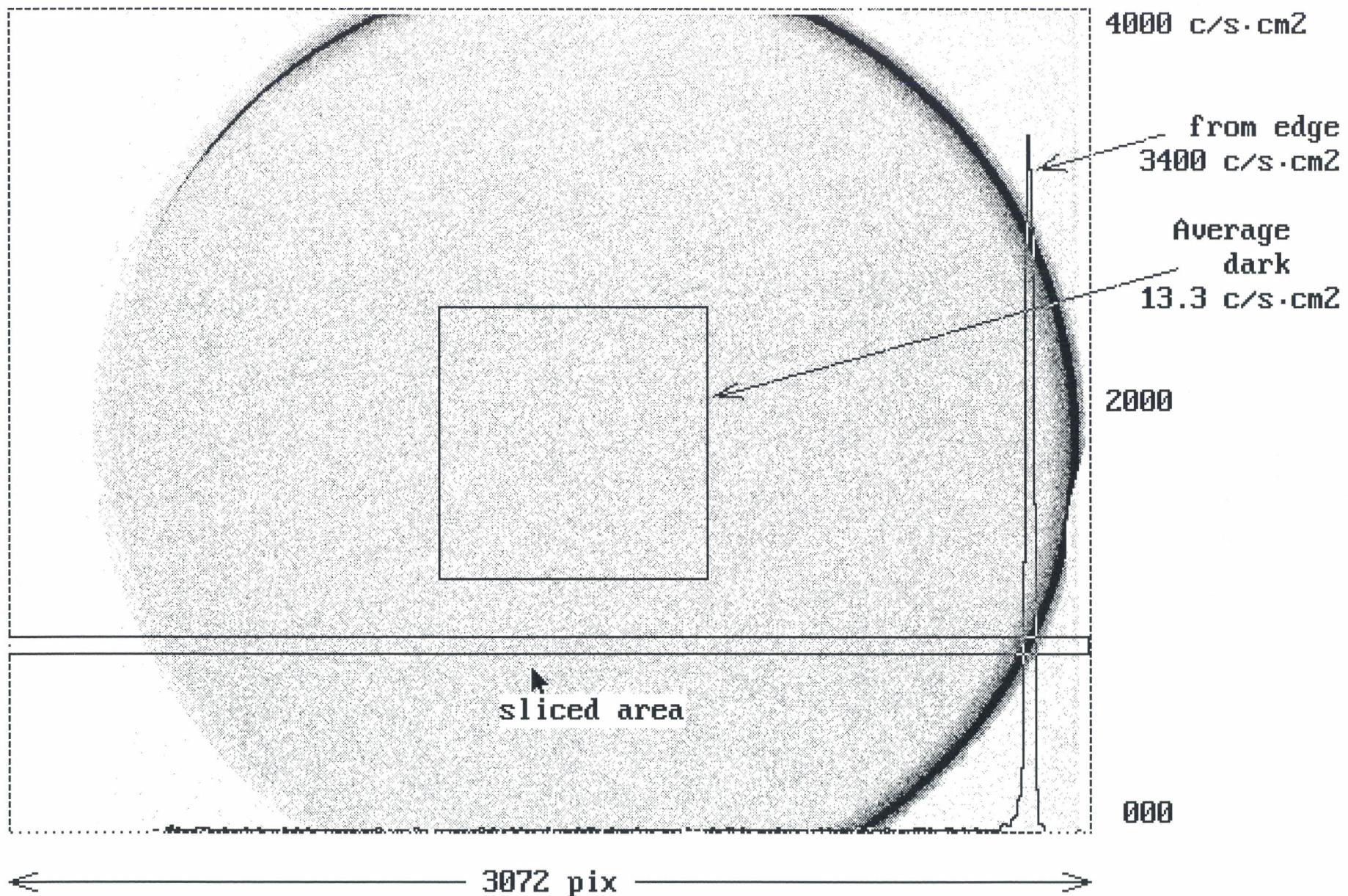
Fig. 4_1a



21H 12M 47S 11H 34M 27S 1998/03/16/
DRK820 Sw-on Channel 54000S 4x4Bim

00-Z200-5100

Fig. 4_1b
DEP #1



16H 10M 31S
DP4013 Dark

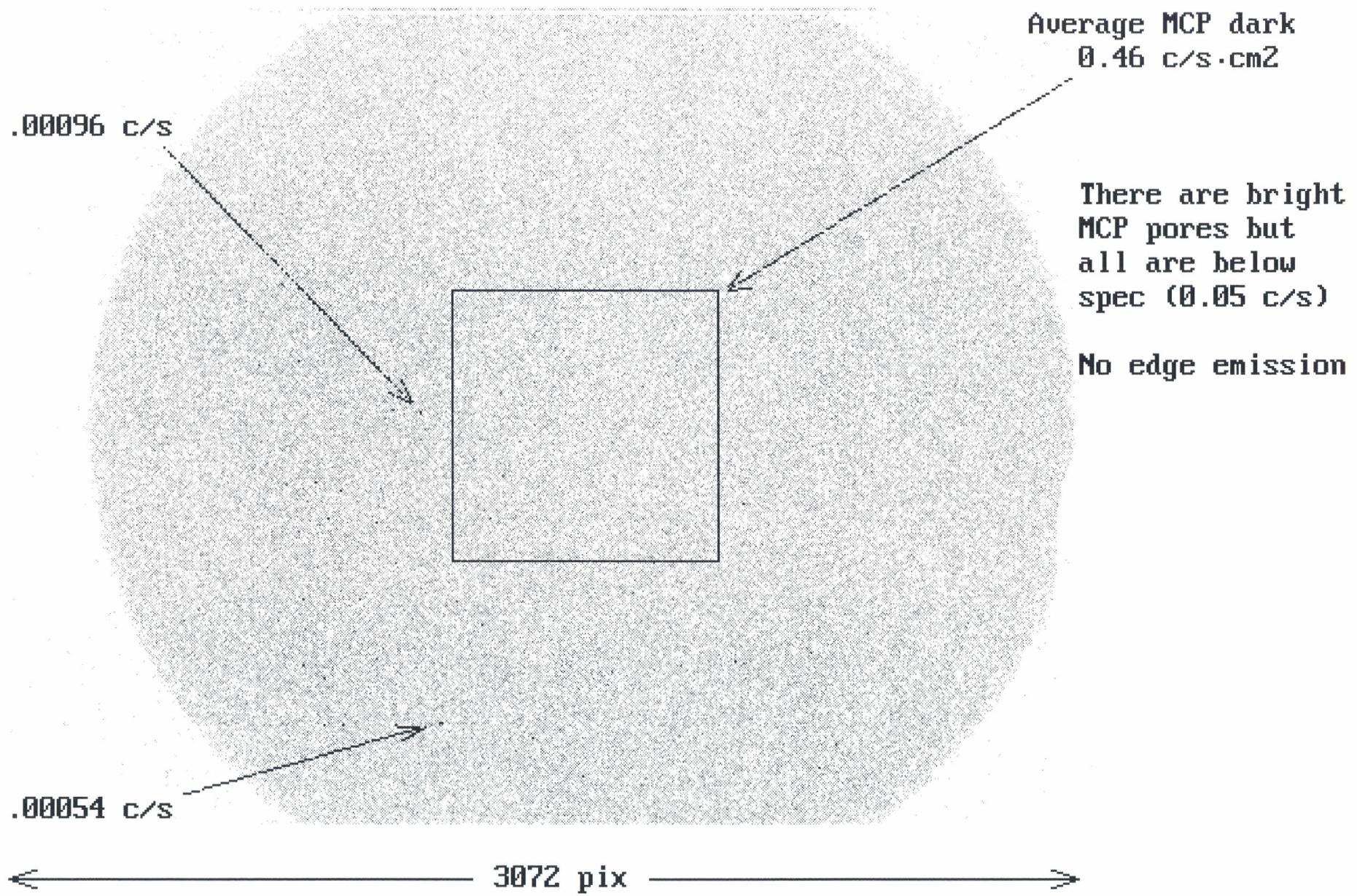
16H 40M 31S
01800S

1998/04/26/
450-2300-5070

6x6Bin 3072x2304

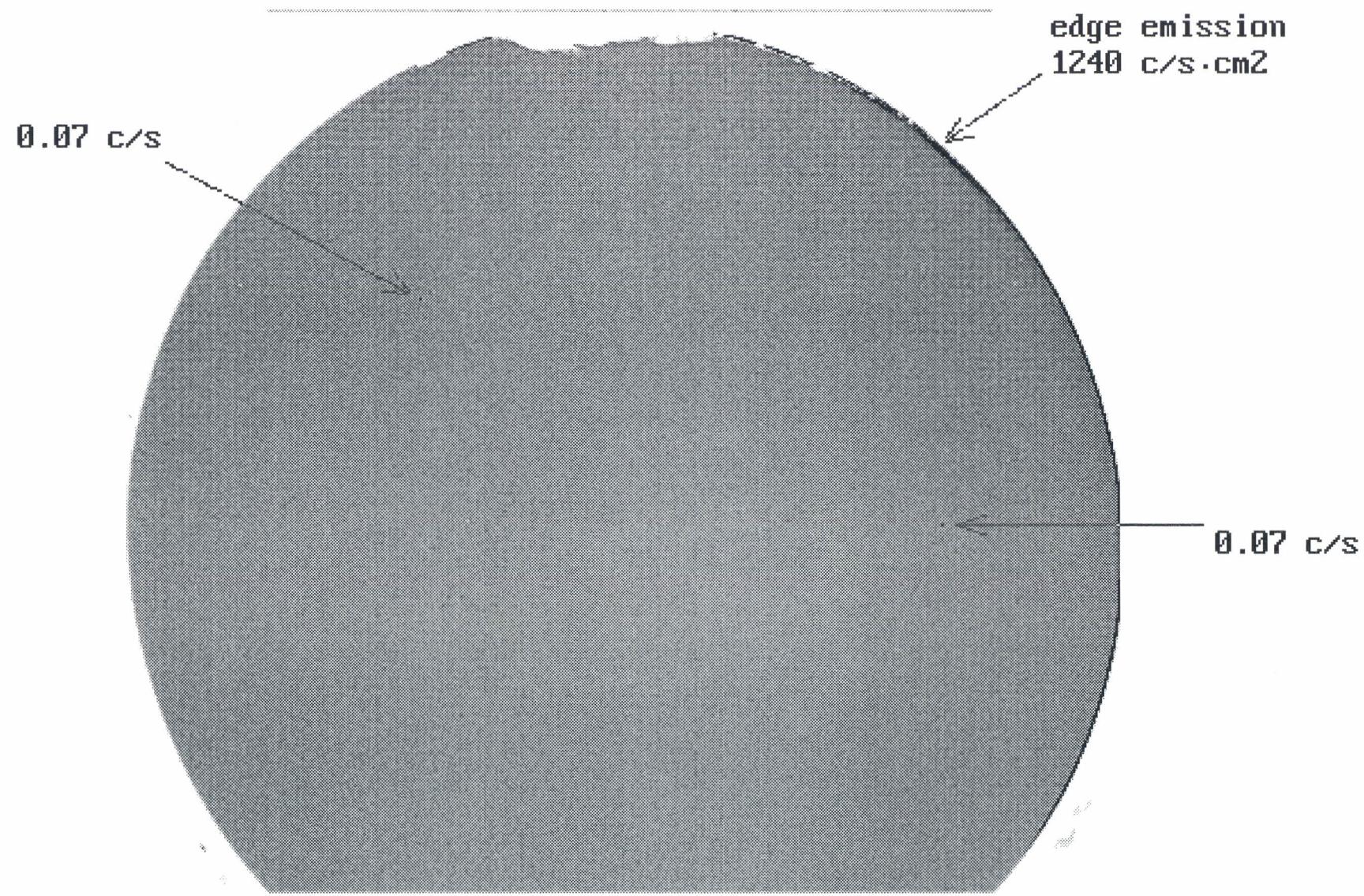
DEP_#4

Fig. 4_Za



15H 56M 00S 11H 28M 09S 1998/04/26/
DP4010 SW-on 73929S 0-2270-5090 6x6Bin 3072x2304

Fig. 4_2b
DEP #4



Faint F-F illumination (as alternative Dark frame)

10H 10M 20S
DP5006 F-F

11H 40M 20S
05400S

1998/05/10/

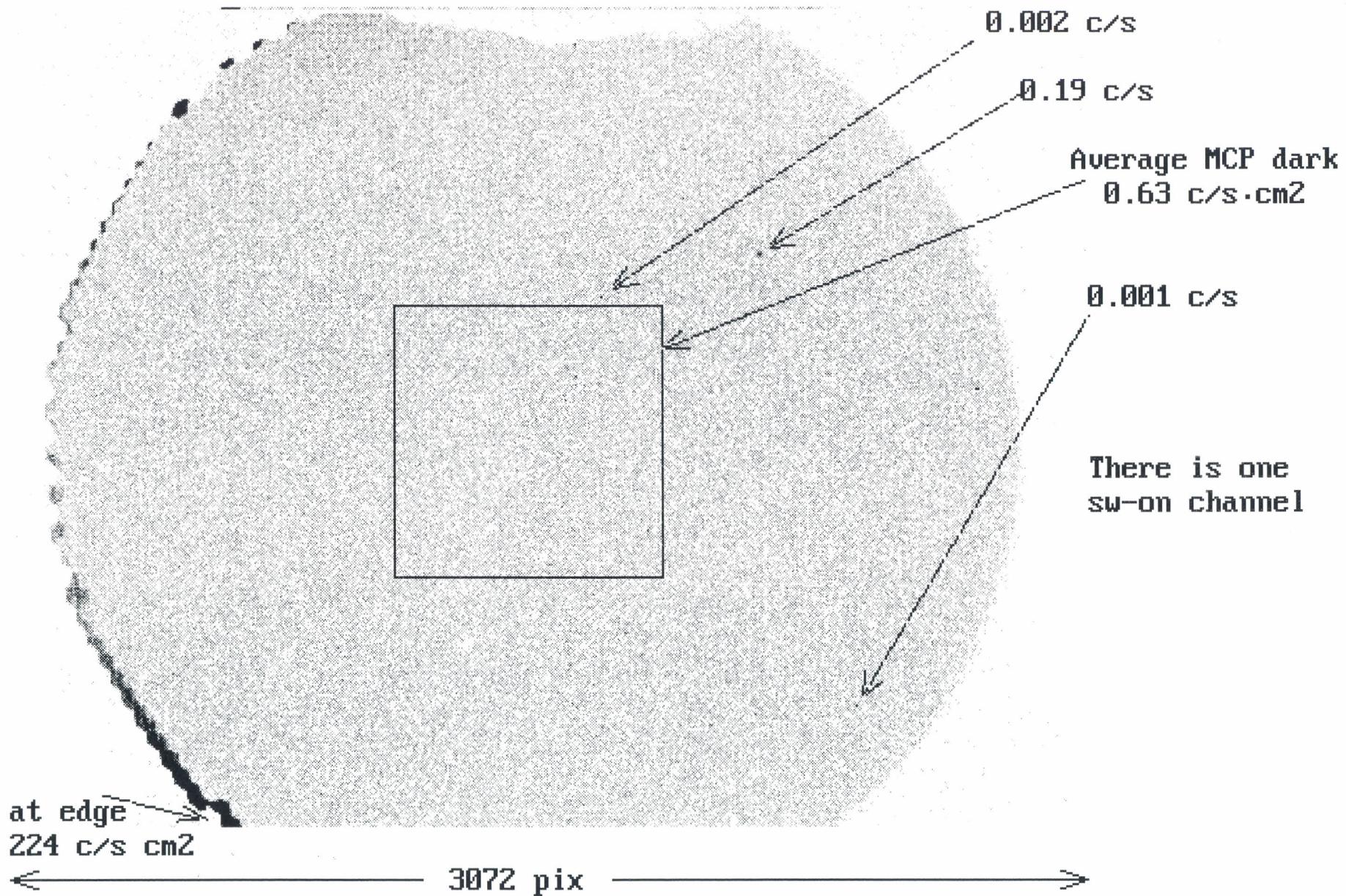
log <-- full

447-2360

6x6Bin

3072x2304 DEP_#5

Fig. 4_3a



18H 03M 50S
DP5814 SW-on

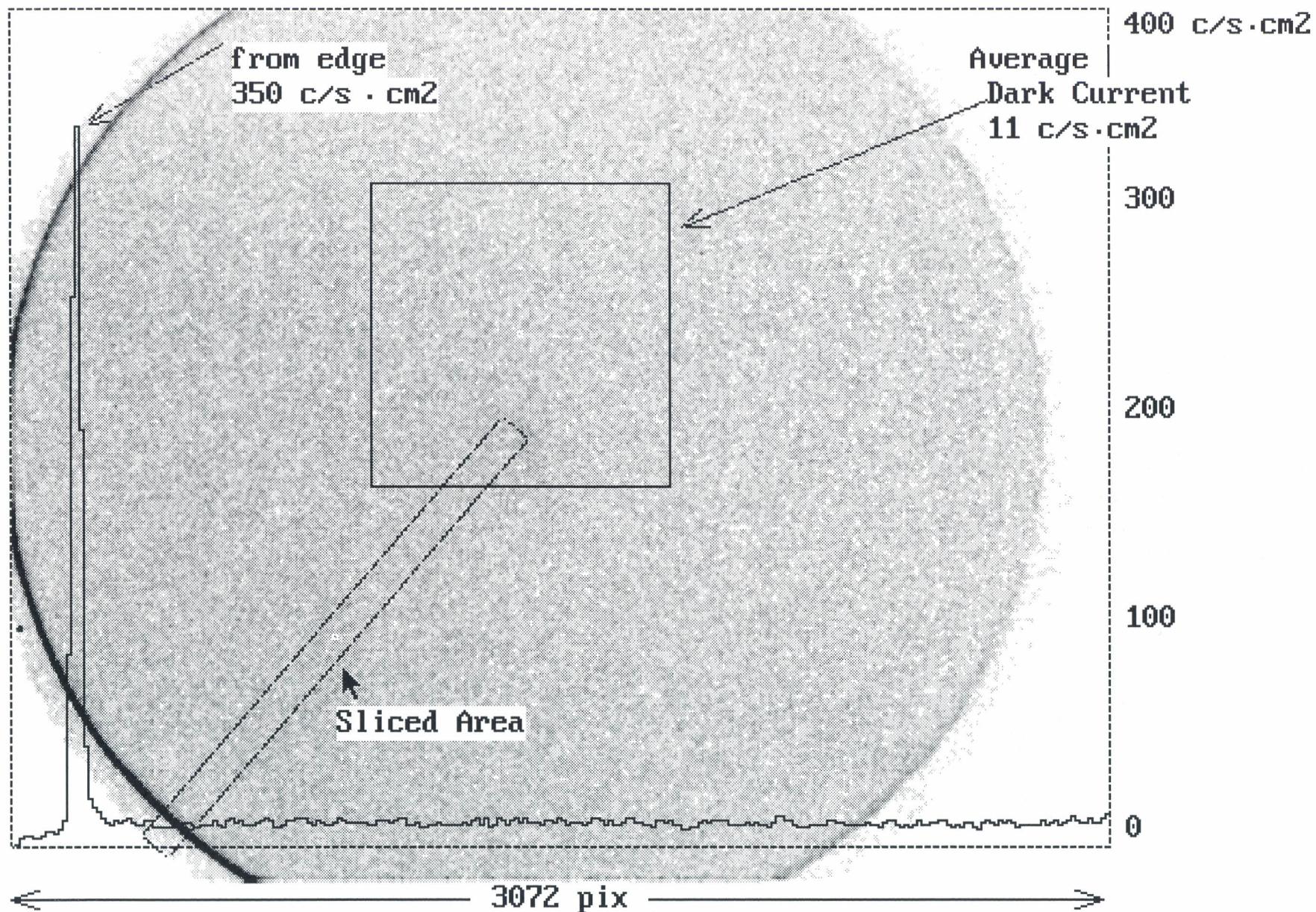
19H 33M 50S
54000S +90

1998/05/11/
log 0-2350-5440

6x6Bin 3072x2304

DEP_#5

Fig. 4_3b



11H 58M 15S
Dark 7200sec

13H 58M 15S
450-2410-5200

1998/06/25/
DEP #6 tube shows low dark and edge emission

Fig. 4_4a

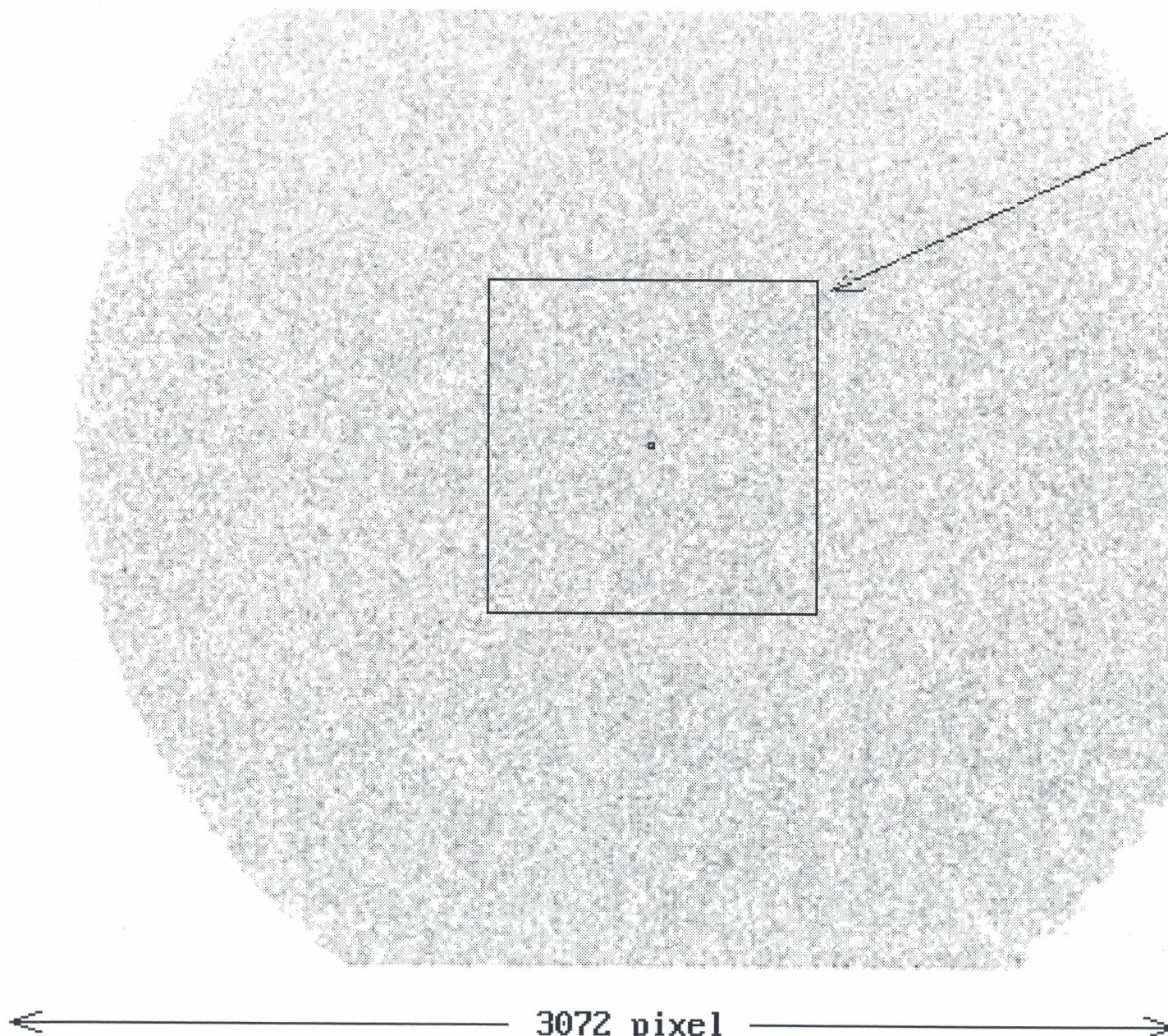
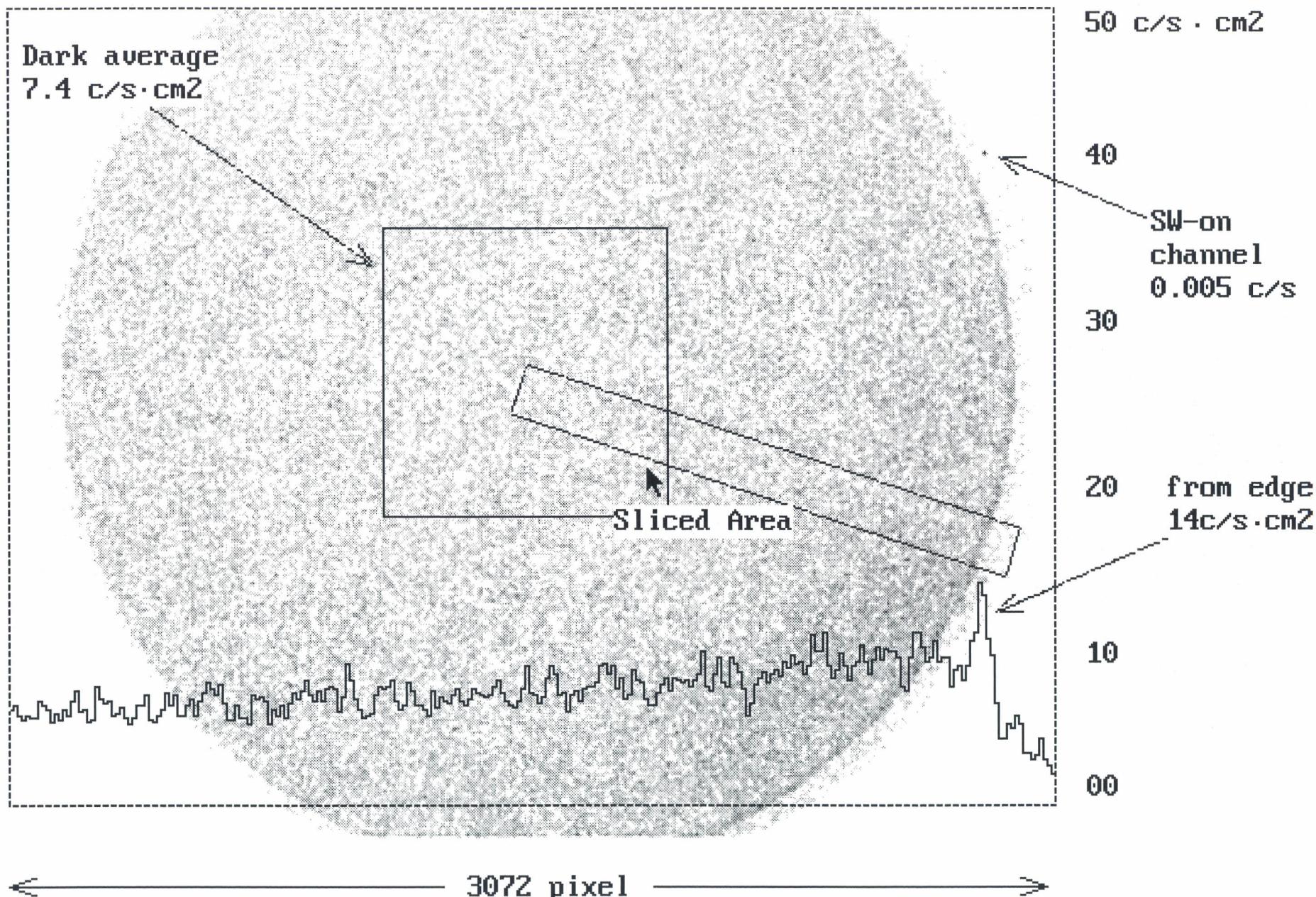


Fig. 4_4b

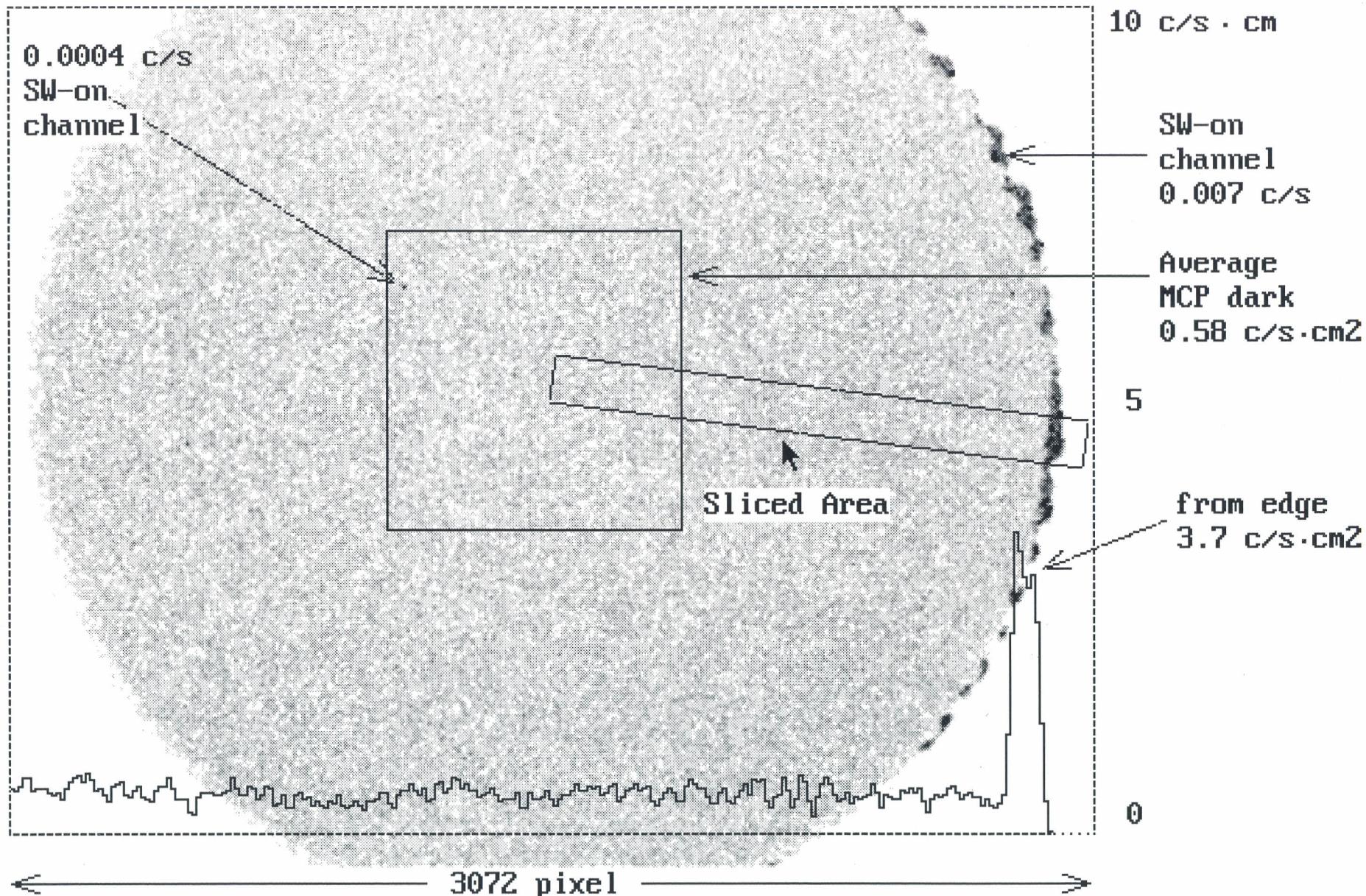


15H 50M 09S
Dark 7200sec

17H 50M 09S
448-2450-5200

1998/06/28/
DEP#7 tube shows excellent dark current

Fig. 4_5a



18H 28M 36S
SW-on channel

09H 28M 36S
54000sec

1998/06/28/
0-2440-5210

DEP #7 shows weak edge emission

Fig. 4_5b

Most of black
spots are
due to CCD

Flat Field
of DEP_#1 tube

Fig. 5_1a

20H 22M 42S 11H 22M 42S 1998/03/14/
Bin008 F-F 14kh 54000S CCD=(65,17) 4x4Bin

398-2200-4950

DEP_#1

80%
F-F divided by
other F-F
rotating CCD
by 90 degrees

83%
79%
35%
46%
20%
79%
85%
27%
38%

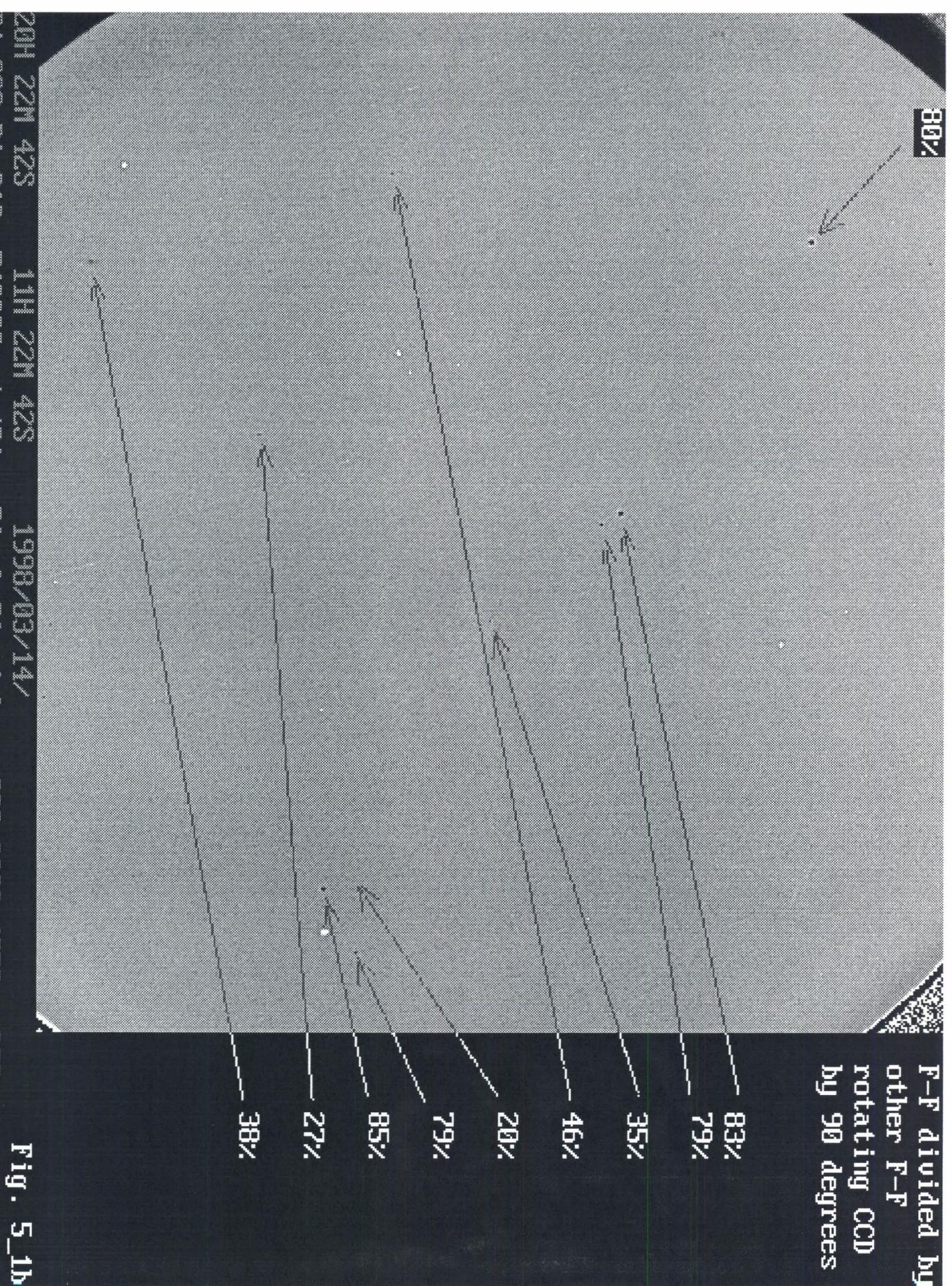


Fig. 5_1b

raw F-F

DEP #2 tube

upper area

There are
4 strong
SW-on channels

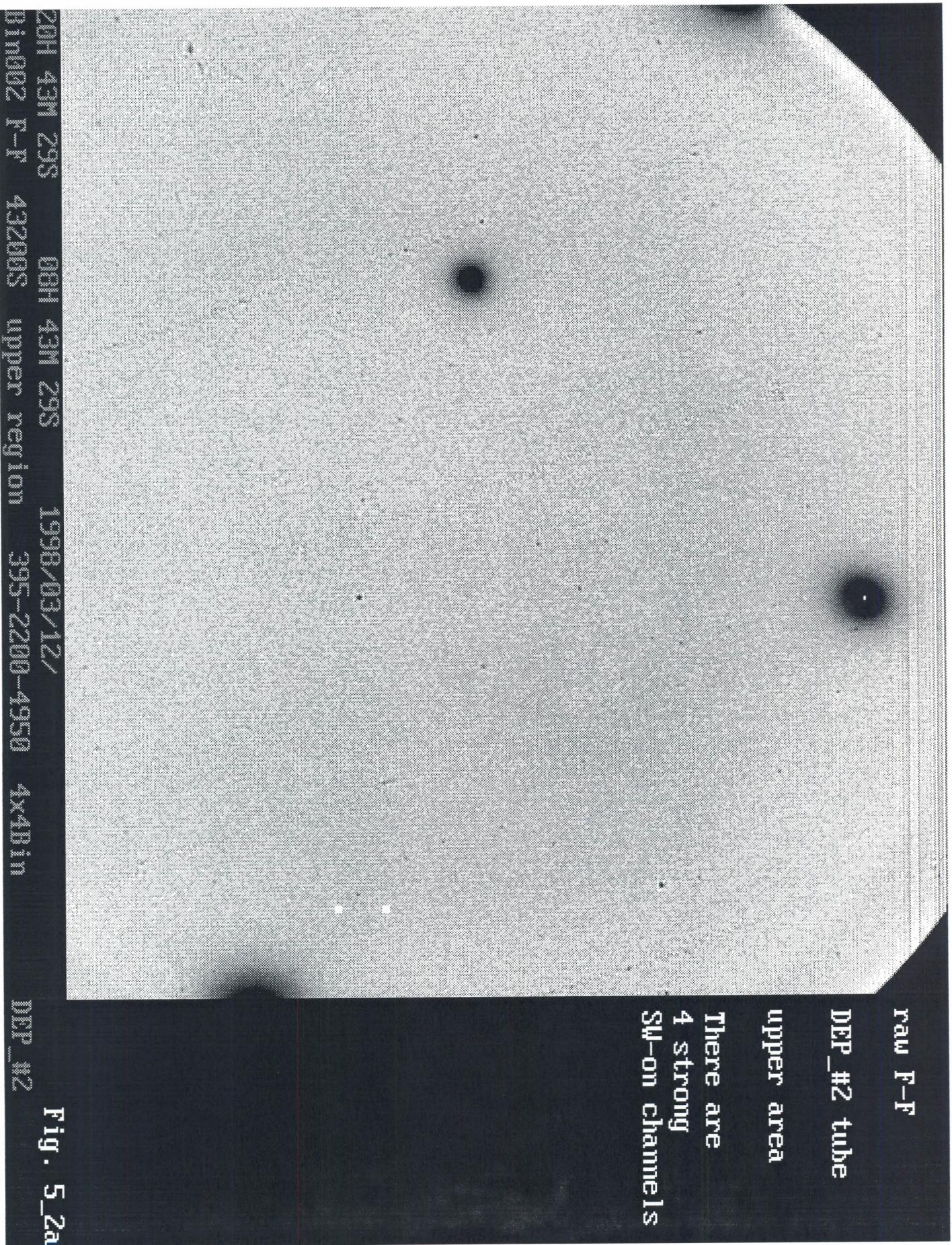
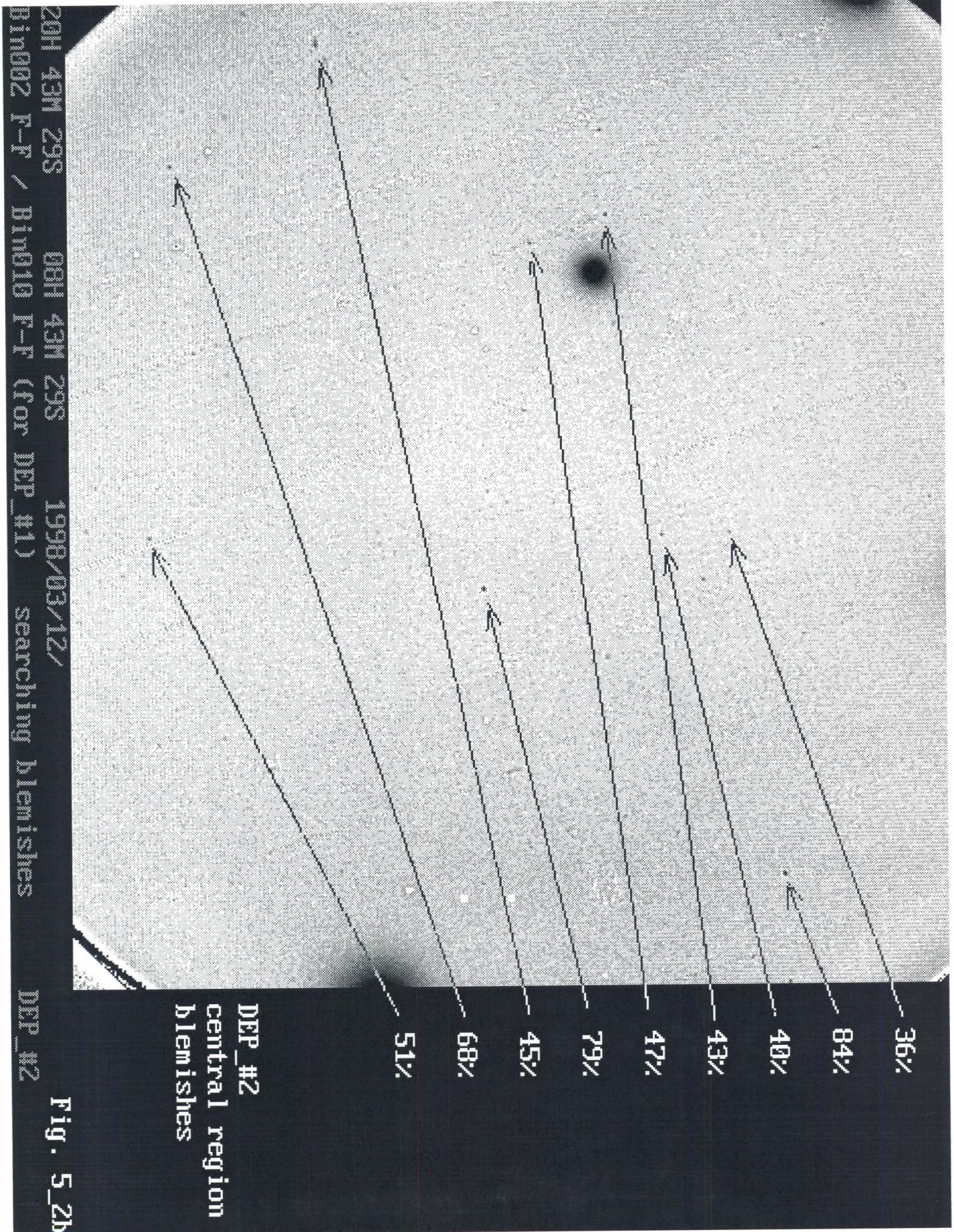
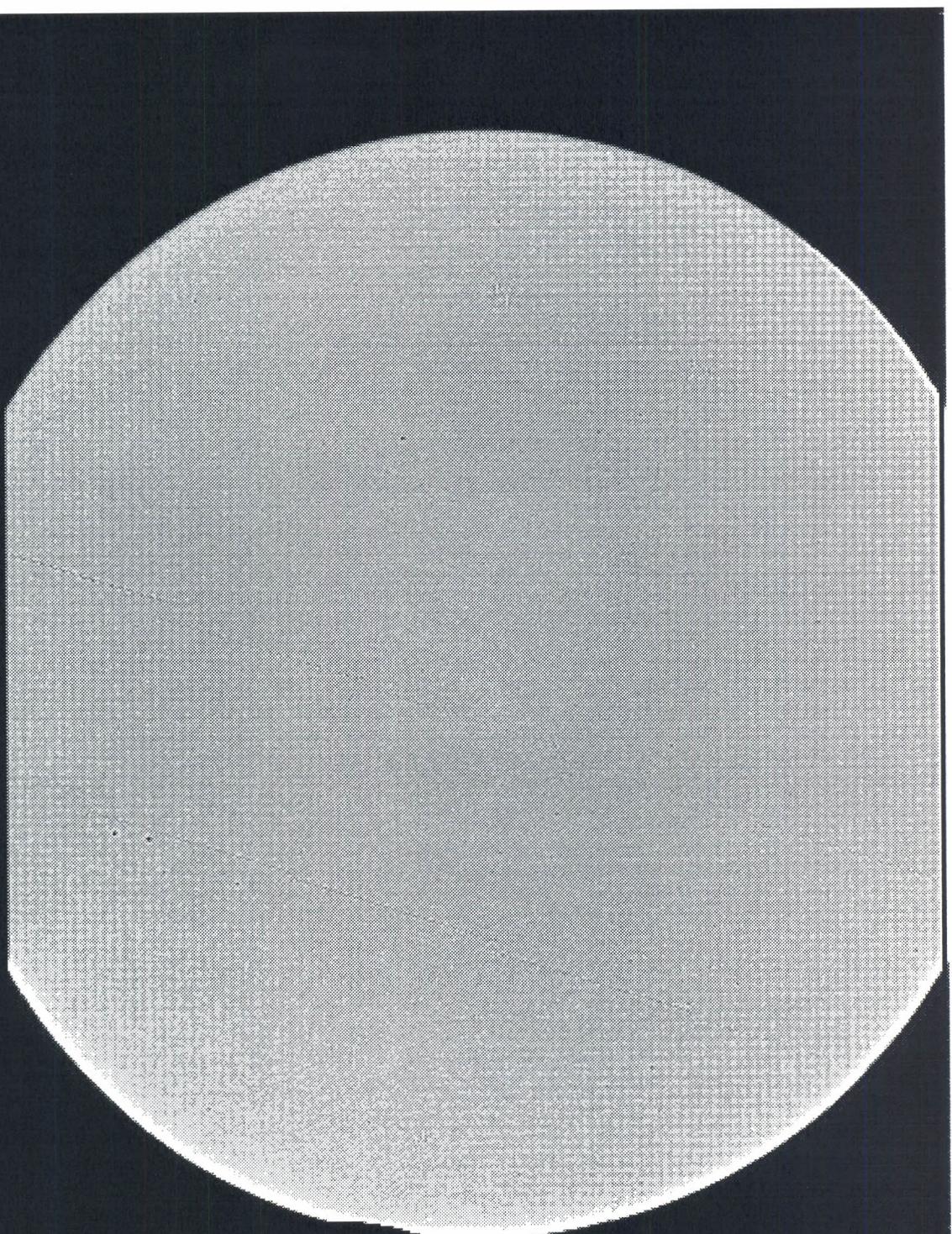


Fig. 5_2a

20H 43M 29S 03H 43M 29S 1998/03/12/
Bind02 F-F 43200S upper region 395-2200-4950 4x4B in



Raw Flat Field
DEP_#4 tube



3072 pix

Fig. 5_3a

21H 16M 54S 06H 10M 14S 1993/04/30/
DP4025 R-F 3200s 450-3200-5060 6x6Bin 3072x2304

Flat Field
divided by
other F-F

DEP_#4 tube

searching for
blemishes

pretty clean

24%

3072 pix

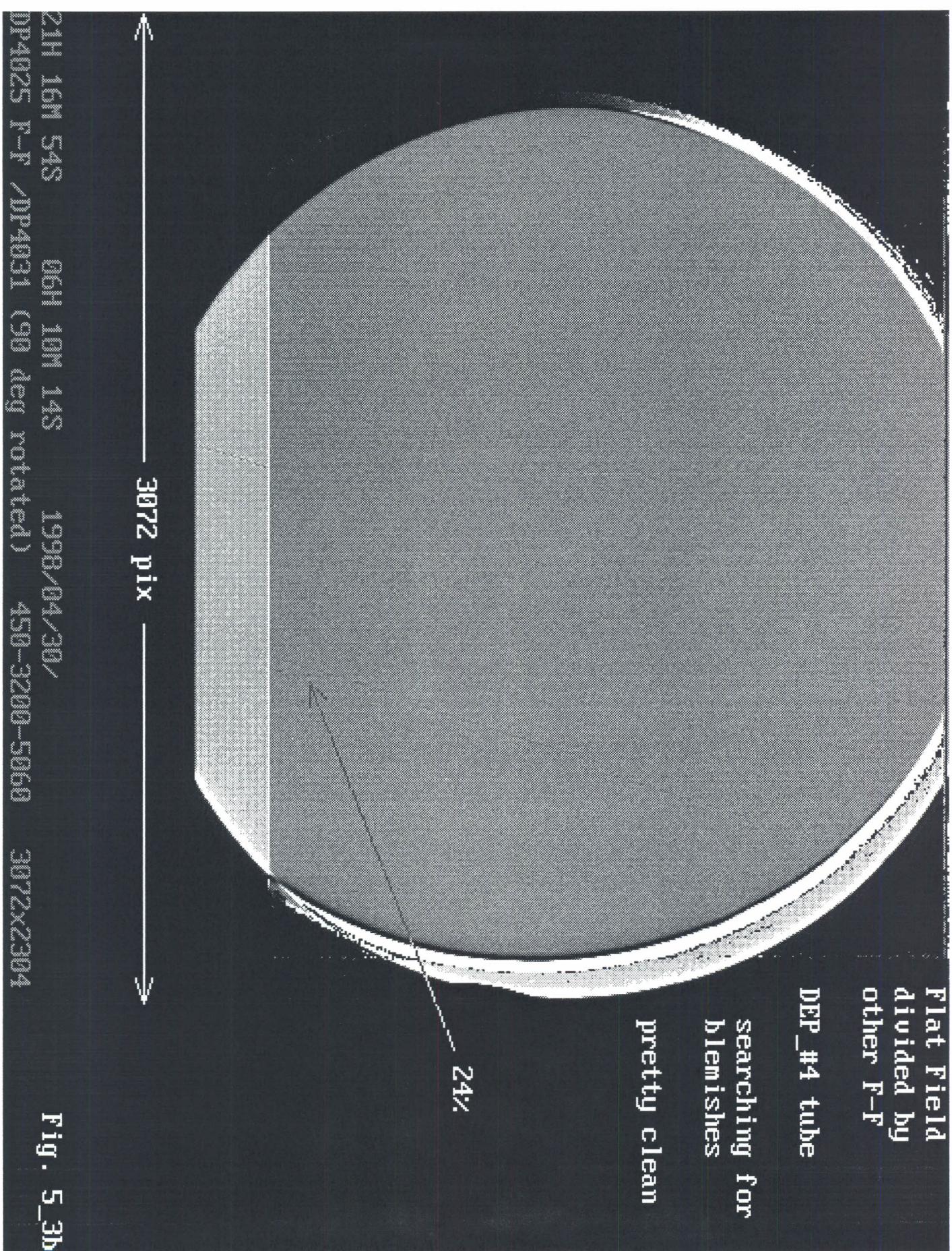


Fig. 5_3b

21H 16M 54S 06H 10M 14S 1998/04/30/
DP4025 F-F /DP4031 (90 deg rotated) 450-3200-5060 3072x2304

Raw Flat Field
DEP_#5 tube

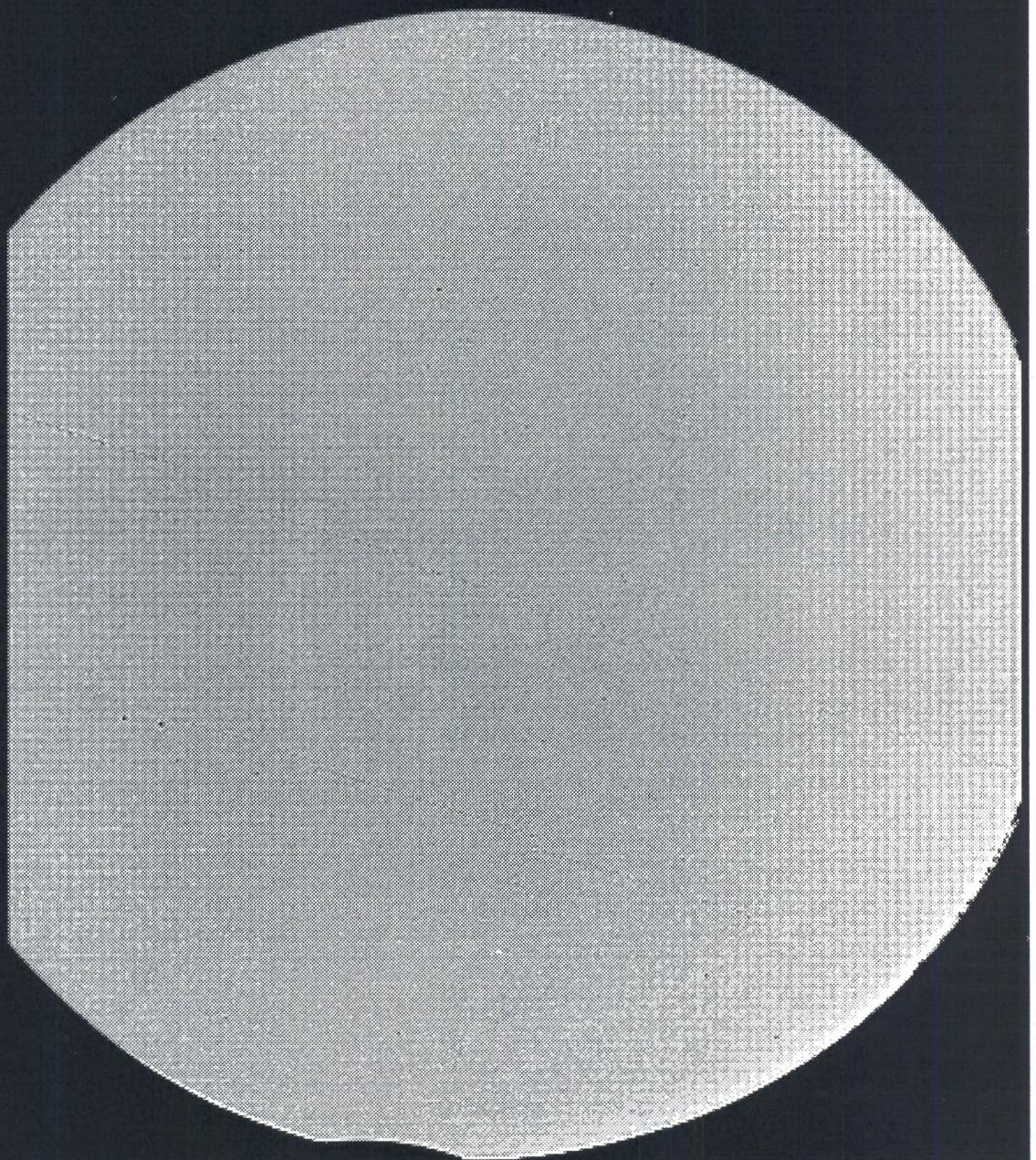


Fig. 5_4a

18H 08M 10S 18H 35M 20S 1998/05/03/
DEP5003 F-F 01620S 450-2360-5400 6x6Bin 3072x2304 DEP_#5

Flat Field
divided by
other F-F
to search
blemishes

relatively
clean

45x

DEP_#5 tube

41x

3972 pix

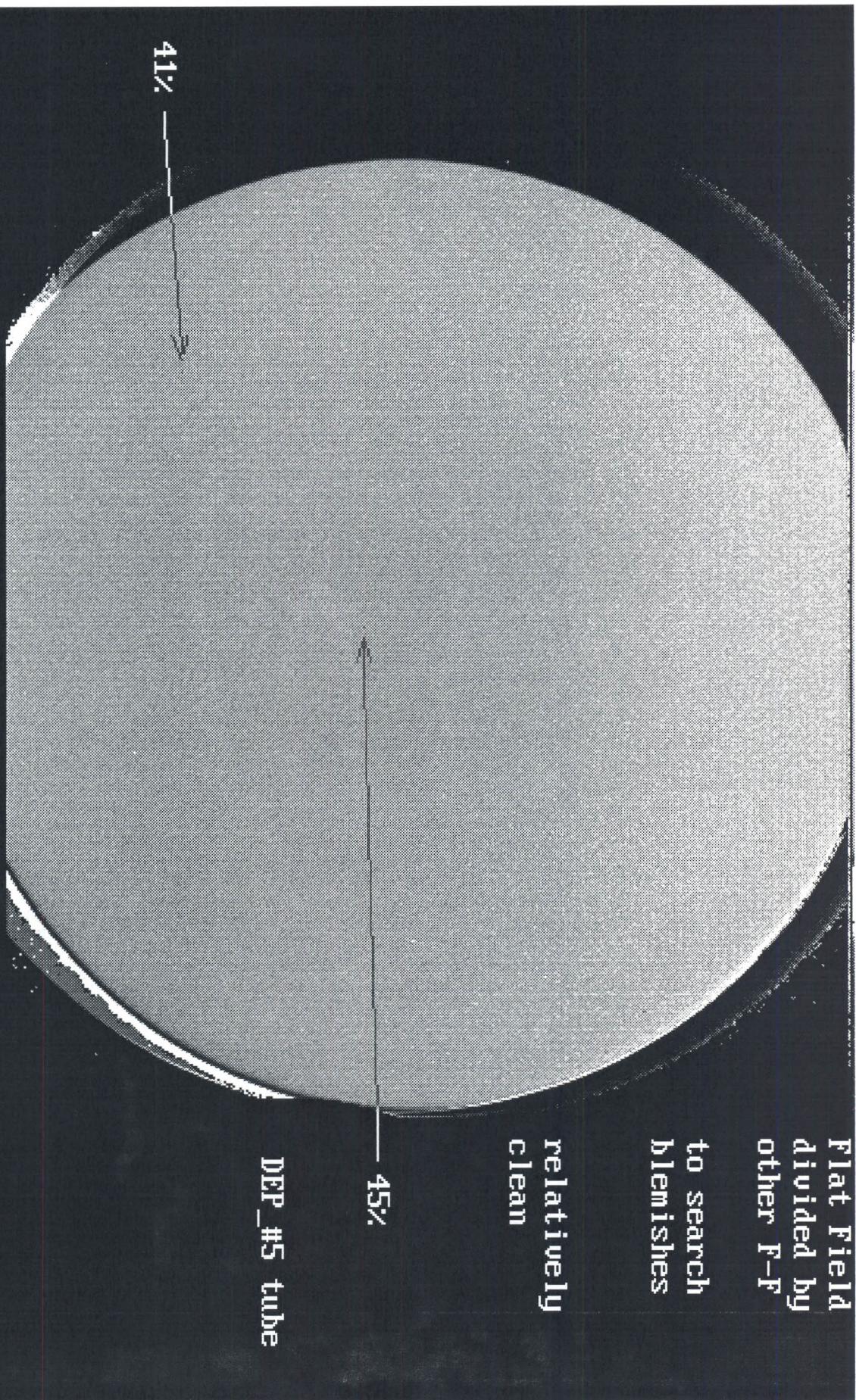


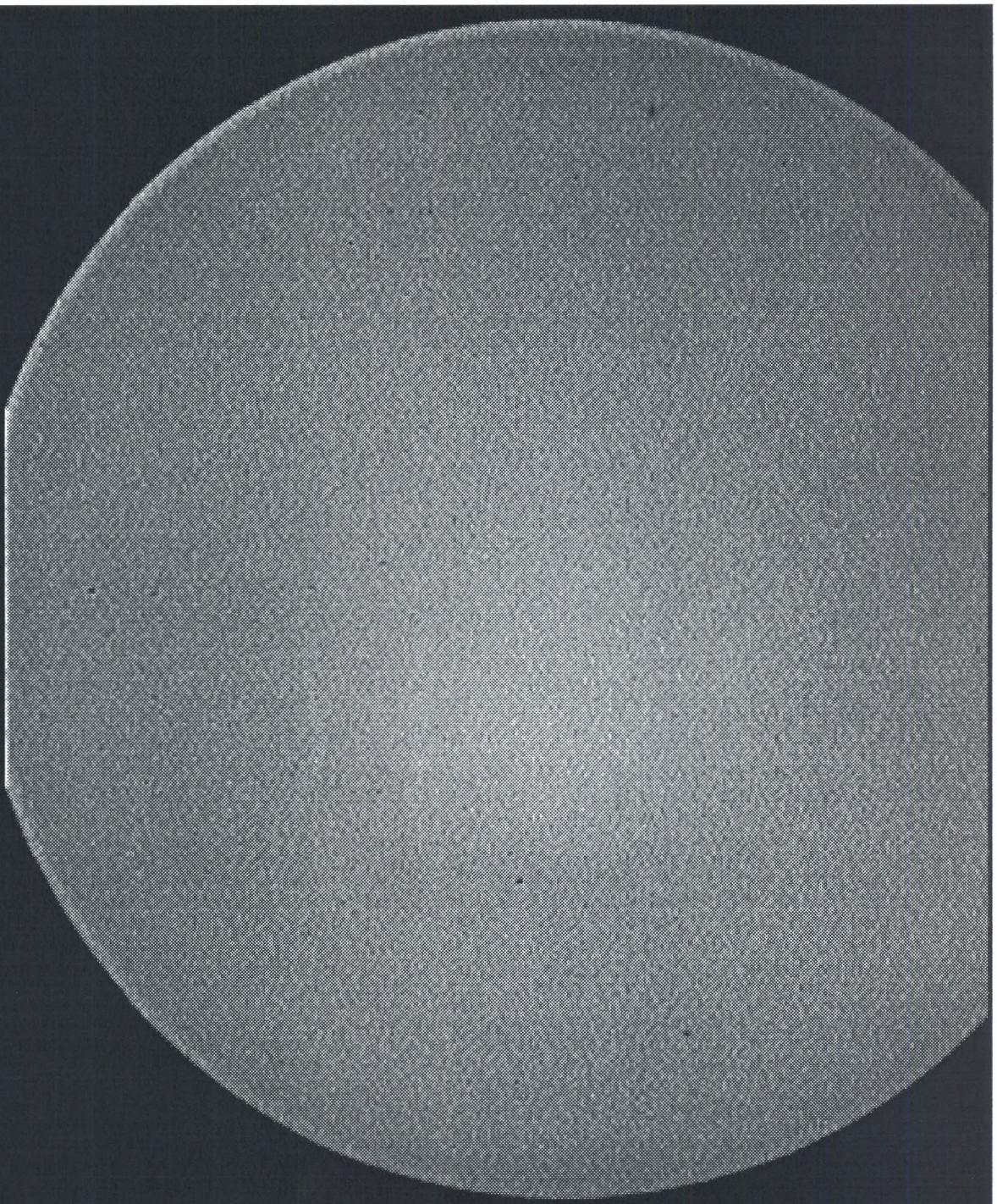
Fig. 5_4b

18H 08M 10S 18H 35M 20S 1998/05/03/
DP5003 F-F / DP4025 (#4 tube F-F)
6x6Bim 3972x2304 DEP_#5

Raw Flat Field

Some of black
spots are
originated in
Thomson CCD

DEP #6 tube



20H 24M 08S 24H 24M 08S 1998/06/23/
JLF011 F-F 14440S th=17 bias=2.4 450-2400-5210 8x8bin DEP_#6

Fig. 5_5a

24%
42%
74%
63%

Flat Field divided by
other to remove black
spots originated in
Thomson CCD

There is several
spots, but all are
located in the edge
of 2048x2048 window

32%
32%
28%

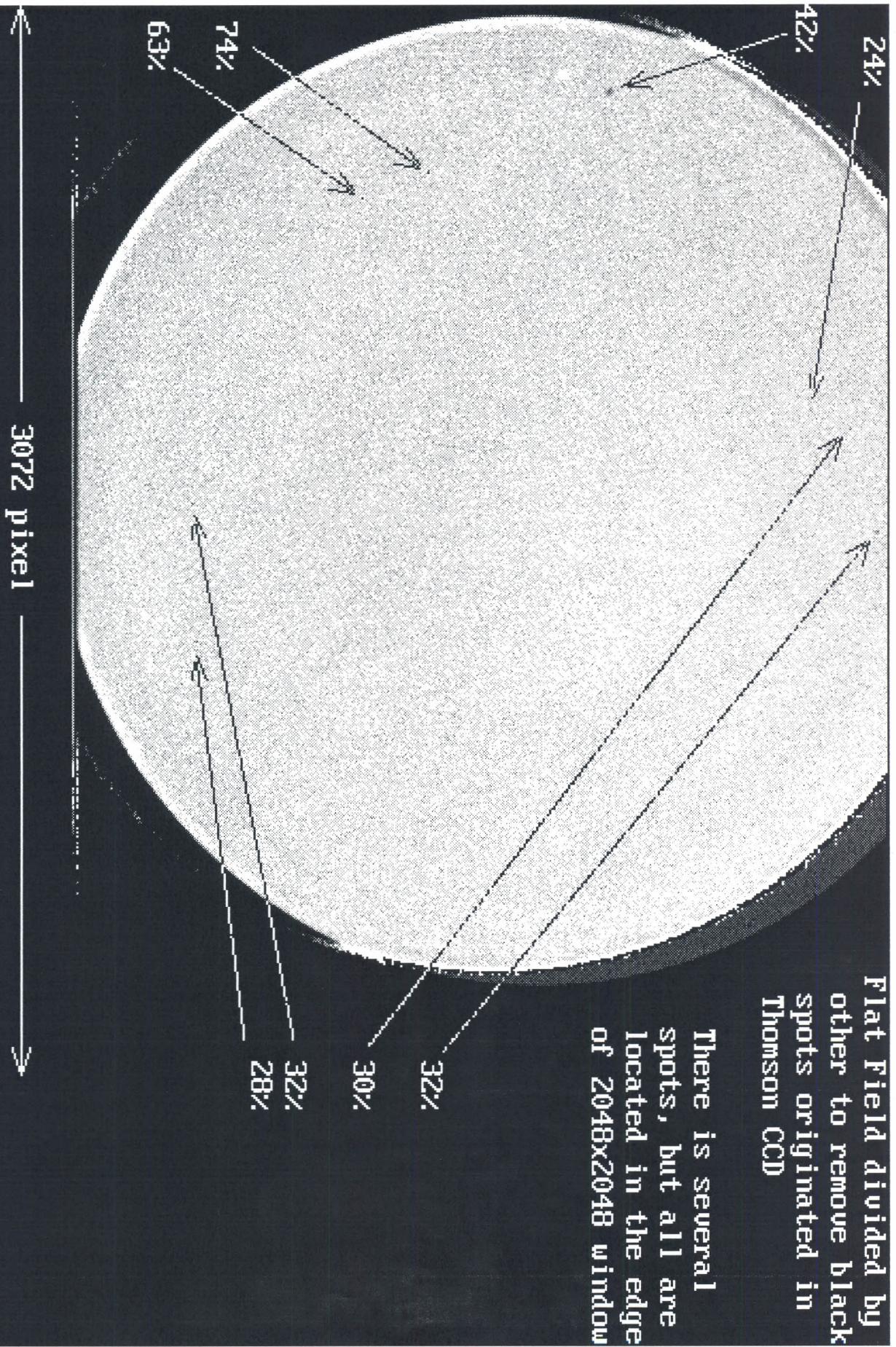


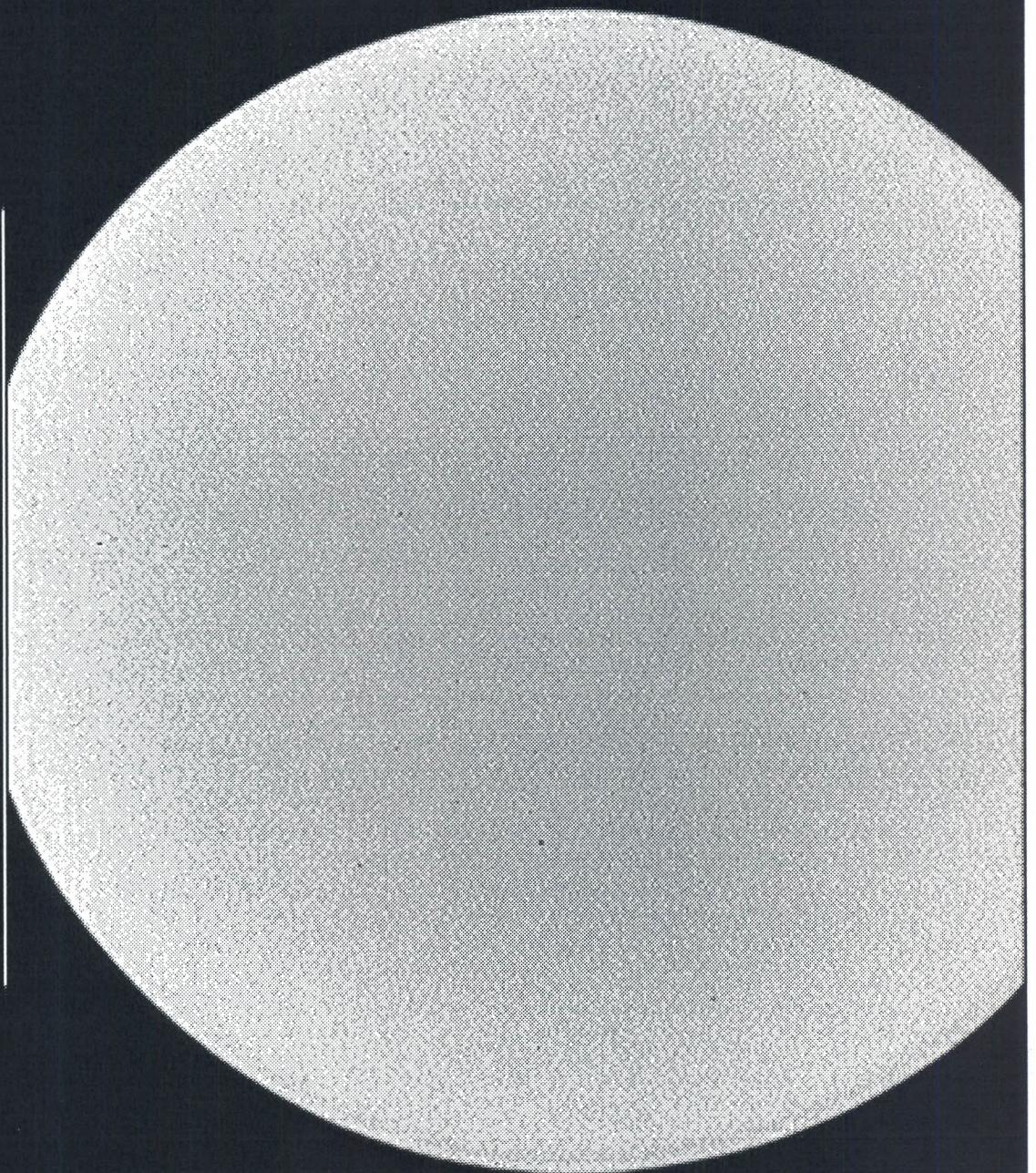
Fig. 5_5b

20H 24M 08S 24H 24M 08S 1998/06/23/
JLF014 F-F 14440S th=17 bias=2.4 450-2400-5210 6x6bin DEP_#6

Raw Flat Field

Some of black spots
are originated in
Thomson CCD

DEP #7 tube



3072 pixel

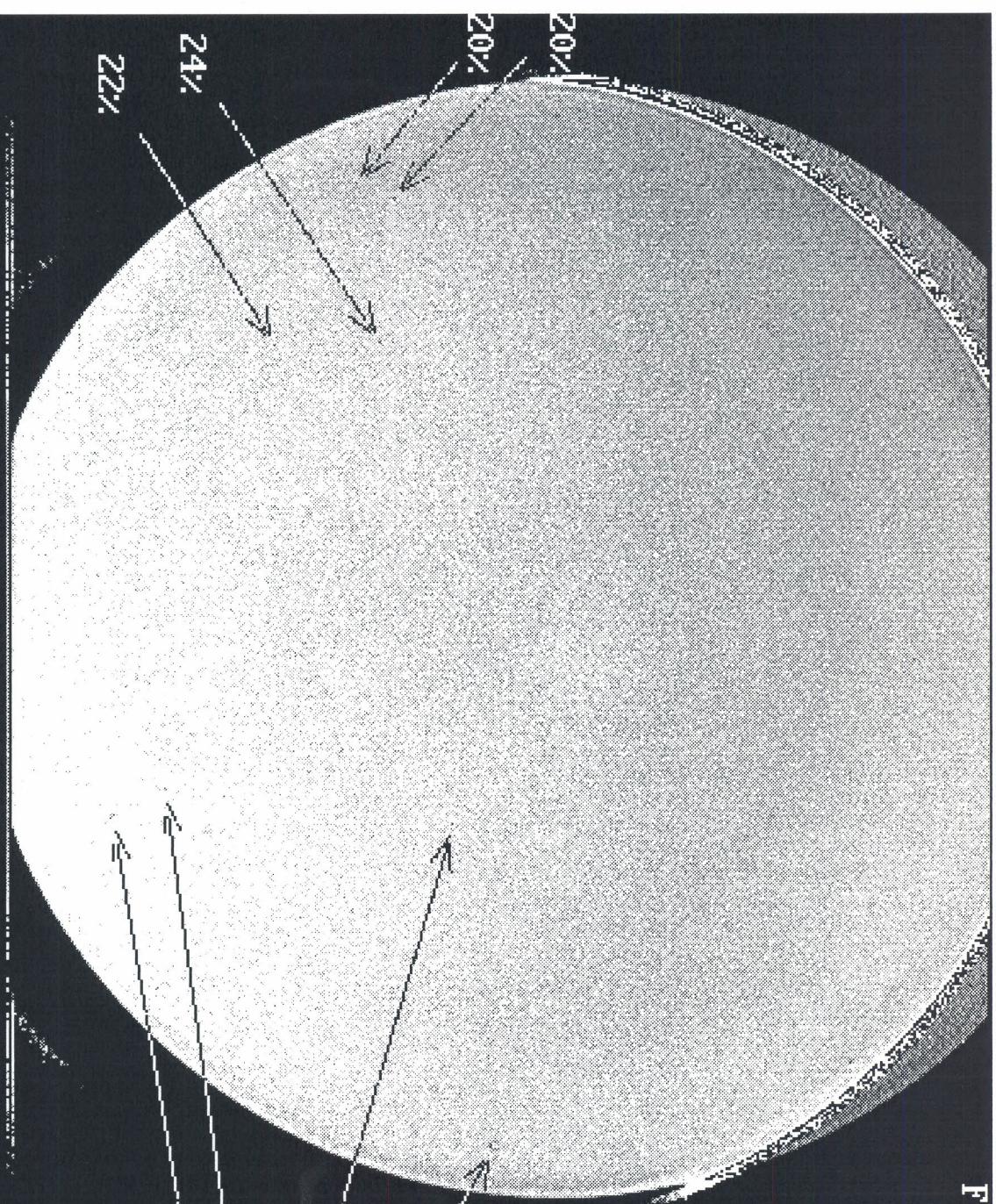
Fig. 5_6a

17H 06M 27S 04H 36M 27S 1998/06/27/
JLR016 F-F 41400S 447-2450-5200 FIX-off

6x6bin

Flat Field divided by
other to remove black
spots originated in
Thomson CCD.

A 20% spot is located
near centre.



17H 06M 27S
JLF016 F-F

04H 36M 27S 1998/06/27/
41400S 447-2450-5200 FIX-off

6x6bin DEP_#7 Fig. 5_6b