Seismic Risk in the Assam Gap, Eastern Himalaya

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SUMMARY

SEISMIC RISK IN THE ASSAM GAP

K.N. KHATTRI[1] and M. WYSS[2]

The Himalaya form a clearly defined arcuate zone of plate consumption along which the Indian and Asian Plates collide at a rate of about 5 cm/year. In the eastern part of this plate boundary a 500 km segment, lying between the epicenters of the great 1897 and 1950 earthquakes, is considered to be a seismic gap. A three station seismograph network with a diameter of about 100 km was operated in the western part of the Assam gap for 5 months during 1979. The main purpose of this pilot program was to determine whether high quality seismograms for earthquake prediction research could be obtained in this area.

It was found that the general area is seismically fairly active. On the average, 20 local earthquakes per day were recorded. Their coda duration times varied between 5 and 200 seconds, with most events having a signal duration length of around 80 seconds. Approximately 25% of these events could be located within the three-station network. The seismograph data from Shillong turned out to be of limited use, because few of these events are recorded there, due to the relatively low frequency (1 cps) response of the WWSSN seismographs.

Out of 425 station-days recording time 87 station-days were lost due to various reasons. This shows that seismic networks can be operated in the Assam area with a down-time of about 20%. With a ten station network, one would thus expect 8 stations to run coincidentally. To date, 124 earthquakes have been located. Several hundred events are in the process of being analysed.

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At present a six station network is being installed in the Assam area under a contract funded by the U.S. Geological Survey to continue the work reported here. Several other Indian institutions carry out geophysical research in the area as an integral part of a national effort to evaluate the seismic risk in the region. It is concluded that the U.S.G.S. funded study of the seismicity and physics of the earthquake source properties and other factors, which would make a fundamental contribution to the assessment of the earthquake risk in the Assam gap, can be carried out successfully and that this will consitute an important part of the larger overall project.

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4. Mobilization Phase II: Installation of seismographs in the field and continuous operation of the network.
5. Data Analysis.

B. DISCUSSION

1. Premobilization Phase I

The study of the historic seismicity in the Assam area has been completed. A publication on that subject by the principal investigators appeared in the November issue of Geology (Appendix D).

2. Premobilization Phase II

The purchase and field testing of the seismographs has been completed. Funds from other sources were acquired to ship the instruments to Iceland for the testing.

3. Mobilization Phase I

Funds were obtained from the Smithsonian Institution for travel to India by M. Wyss in order to examine local environmental conditions and logistic support needed for the project as well as to determine when approval for the project by the Indian government could be expected.

4. Mobilization Phase II: Field operations.

(4a.) Introduction

The Assam seismic gap extending for over 500 km. in a roughly NE-WSW direction lies between the epicenters of the two great Assam Earthquakes: that of 1897 in the west and that of 1950 which occurred at the North Eastern syntaxial bend of the Himalayan Arc. The 1897 earthquake occurred in an area known as the Meghalaya (formerly Shillong) plateau which is formed of ancient complex Archean metamorphics. This plateau rises almost abruptly against the Bangla Desh plains in the form of an elevated horst and is apparently a detached part of the Indian shield. It is delineated on its southern margin by a long E-W trending normal fault called the Dauki fault. At its eastern edge this fault joins the NW-SE striking belt of schuppen which parallel the Burmese Arc to the west. The northern edge of the plateau is separated from the Himalayan arc by the Brahmputra Valley. In the wedge between the Himalayan and the Burmese arc and further north east of the Meghalay plateau are exposed a series of similar hills, notably the Mikir hills and the Mishmi hills. They are, however, detached from the Meghalaya plateau by alluvium filling in deep narrow grabens. This northeastern region of the India subcontinent is a part of the alpide Himalayan belt and is seismically one of the most active regions of the country. As a result of a complex convergence of the northward moving Indian plate towards the Eurasian plate along the Himalayan-Burmese arc the investigated area is probably one of high tectonic stress.

The seismicity of the area exhibits some diagnostic anomalous features. Major earthquakes are found to be preceded by a premonitory decrease in seismicity extending over periods commensurate with that suggested by the magnitude precursory time scale. This observation appears to feature consistently in respect to several $M \geq 6.7$ events in the Assam gap including the Meghalay plateau. The region is thus a most promising site for the study of the physics of the crustal processes preparatory to great earthquakes. Furthermore, the occurrence of crystalline rocks in the area offer an advantage for recording high frequency seismic signals quite clearly.

The objective of the present investigation was to monitor micro-earthquake activity with a view (i) to establishing the feasibility of such investigations from the logistics point of view (ii) to determining the level of small earthquake activity and (iii) to delineating the nature and extents of active zones and their relationship with the tectonics of the area.

Accordingly, a network of 3 microearthquake stations was set up in the region in May 1979 which operated up to the end of October 1979. The locations of these stations are shown in Figure 1 and given in Table 1.

Name	Latitude (N)	Longitude (E)	Elevation
Raliang	25°28'03"	92°25'34"	1500 m
Borjori	26°23'52"	92°56'19"	100 m
Burnihat	26°03'34"	91°53'19"	100 m

Table 1: Locations of portable seismographs operating during May-Oct 1979

(4b.) Field Operations (Logistics)

The Meghalaya plateau constitutes the State of Meghalaya of the Republic of India. It covers an area of approximately 23,000 km^2 at elevations ranging from 150 to 950 meters. To its north lies the state of Assam and to the south and southwest lies Bangladesh. The smooth rolling hills formed by the weathering of ancient metamorphics and its verdant cover nourished by abundant rain make for a picturesque landscape. The capital of the state is Shillong. The mean temperatures range from 5°C in winter to 25°C in summer. The region is characterised by tropical monsoon climate with an average annual rainfall of 205 cm.

The three station sites were selected after an analysis of the local geology and also to take advantage of the WWSSN observatory operating at Shillong. The sites were chosen at Borjori, Burnihat and Raliang. Together with Shillong they form a 4 station network. The diameter of the three MEQ station network is about 100 km. and that of the four station network including Shillong about 150 km. (Figure 1).

The stations are connected by roads. They were each manned with a technician whose duty was to maintain the instruments, change the record each day, impinge the radio time signals on the seismograms and prepare the initial station bulletins. The seismograms were collected by a supervisor going round these stations by jeep about once a month. The trip was also used to replenish stocks and supplies. This arrangement was found to be quite satisfactory for operations in India, for qualified manpower is available economically. Moreover, as the journey between stations by jeep usually takes about 8 hours and petrol costs are high, one observer going round to all the stations daily to change seismograms was not an economical mode of operation.

The signals broadcast by the National Physical Laboratory, although quite weak in the area, could however be satisfactorily used to synchronize the internal clocks of the MEQ recorders. This was done once every day. Use of selective receivers especially designed for the purpose, when made available, would greatly facilitate this task. The clock drift per day was found to be less than 100 ms.

The three instruments used were the Teledyne Geotech Portacorder Model RV-320, and portable short-period geophones model S-13 working at 1 hz natural frequency. This system has the following operating characteristics.

Recording media:	smoked paper
Record size:	400 x 600 mm
Record format:	Rectilinear
Pendeflection (max):	selectable 7,14,28 mm, p-p
Sensitivity	15 - 2.5 mm/ V, midband, maximum gain
Drum rotation rates:	30,60,120 mm/min switch selectable
Translation rates:	1,2,4,8 mm/rev - do -
Programmable timing system:	Stabilit , 50 ms/24 hrs.

Recordings were made of the vertical components at all the stations at a drum rotation rate of 60 mm/min and translation rate of 2 mm/rev. In order to examine the improvement in resolution of data that might result from recording at a faster rate of drum rotation, the speed was increased to 120 mm/min in the 3rd week of September. After a week however, difficult logistics problems involved in changing the smoked paper twice daily forced a return to the slower rate of drum rotation adopted earlier.

The signal to noise ratio was good at two of these sites: Borjori and Burnihat and satisfactory at Raliang.

The local logistic support for field work was provided by the Geophysics Division of the Geological Survey of India, Shillong who also provided scientists to maintain one of the stations.

In this pilot program it was important to determine how much down time we had to expect in this area which was considered mistakenly as inaccessible by some. We found that the three station array was operated with a 20% down time. This was calculated in the following manner: All days for which each instrument was in the field were summed. This sum of 425 days is called the number of station-recording days. Then we summed all days during which an instrument was not operative, regardless of the reason for failure. If during the same day two stations were out of operation 2 down-days were counted. The total number of down-days was 87. The number of down-days and their distribution can be estimated from Fig. 2. In this histogram of recorded microearthquakes the days with zero records are generally those when the instrument was down. The seismicity was so high that there were almost no days where no earthquakes occurred.

The experience gained in the five and a half month continuous operations in the area has confirmed our earlier conviction that such networks can be established and operated successfully in this area.

Furthermore, the prolific seismic activity monitored here suggests that much can be learned about the physics of earthquake processes in this area.

Finally, it may be added here that the North Eastern Council, which is a body responsible for planning the overall development of the region and its environment, has recently formed a Committee for the Earthquake Risk Evaluation of the area with the specific objective of advising the states' Civil Administration as to how to effectively use the results of various scientific activities in the region, connected with earthquake prediction towards the design of appropriate precautionary systems so as to minimize the hazards that the region may suffer due to a large earthquake.

(4c.) Research Programs Conducted by other Agencies

A most welcome outcome of the presently funded research project has been the formulation and initiation of a wide-ranging prediction and risk evaluation program in the Assam region by Indian scientists. For, whilst the seismic susceptibility of the area has long been recognized leading to considerable geological and geophysical investigations, the current intensity and mobilization of these efforts within the country can be traced to the appearance of our paper drawing attention to the seismic gap in Assam and exposing the rationale for the project under discussion.

The Indian program envisages a multi-institutional coordinated effort towards monitoring the microearthquake activity, ground deformations and anomalous changes, if any, in the gravity and magnetic fields as well as variations in resistivity, seismic wave velocities, radon content and well water levels. These are briefly outlined below.

i) <u>Microearthquake studies</u>

The various Indian organizations involved in monitoring the microearthquake activity in the northeastern region have agreed to concentrate their efforts in its different sectors with the provision of making conjunctive use of their data through exchange of information. These are as follows:

a) Department of Earth Sciences University of Roorkee and the Geological Survey of India N.E. Division	Meghalaya Plateau and Mikir Hills.
b) India Meteorological Dept., Department of Earthquake Engineering University of Roorkee and the Central Water Commission	The area covered by the Bramhaputra Valley.
c) The National Geophysical Research Institute, Hyderabad and the Regional Research Laboratory Jorhat	Naga thrust, the south and the southeastern part.

ii) <u>Levelling</u>

The Survey of India carried out high precision levelling surveys along an almost N-S profile traversing the Meghalaya Plateau from Gauhati to Silchar over a decade ago. According to the integrated plan coordinated by the Geological Survey, they propose to reoccupy this profile and also carry out a similar survey along an E-W profile beginning from Tura at the western edge of the plateau to Garampani at its eastern flank. Additionally, they would provide high precision location coordinates for gravity and magnetic profiles to be carried out by the Geological Survey along these two intersecting profiles and elsewhere.

iii) Radon measurements, resistivity, gravity, magnetic and refraction seismics for monitoring velocity variations

The Geophysics Division of the North Eastern Division of the Geological Survey of India would be carrying out these surveys at anomalous sites delineated on the basis of seismic activity.

iv) The North Eastern Hill University which is located at Shillong is also in the process of formulating a few research programs to involve its faculty in this venture, particularly in studying anomalous magnetic variations, premonitory animal behaviour, and social aspects of earthquake prediction.

The project funded by the U.S.G.S. is an integral part of the above outlined multi-institutional program. We expect that our project will be one of the leading elements in the large co-operative project, providing stimulation to some of the tasks executed by others.

5. Data Analysis

Examples of seismograms are shown in Appendix A. The selection of these examples was made at random with the constraint that all three instruments had to have produced a record. Most of the seismograms in Appendix A show 24 hour periods. Even though the Xerox copies of the mostly black appearing photographs are poor copies, it is clear from Appendix A that a large number of earthquakes were recorded. Tickmarks on the seismogram traces appear every 10 sec. Most of the signals lasted for several 10's of seconds, many up to 100 seconds. This shows that the magnitudes of these events are fairly large.

For a general measure of the seismicity rate which one can record in this area we compiled histograms for the three stations. Figure 2 shows the daily number of local earthquakes recorded by the three stations. BOR was installed first, Burnihat last. BUR showed the largest seismicity rate. This was probably due both to its good signal to noise ratio as well as to its proximity to an active area. The station RAL with the poorest signal to noise ratio recorded the least number of events. However, at all three stations very large numbers of shocks were recorded. On the average the rate was approximately 20 events per day.

Arrival times were read for earthquakes with S-P times of generally less than 40 sec. That is, sources with distances of more than about 300 km. from the array were excluded from the analysis. Preliminary readings of P-arrival times, S-arrival times, maximum amplitude and signal duration are tabulated in Appendix B. The analysis of this data set is not terminated; it continues under the current U.S.G.S. contract to study Seismic Risk in the Assam area. The bulletin-data in Appendix B are not yet completely purged of errors. We are now in the process of final data revision for this first set of approximately 400 events. This preliminary bulletin only covers the period mid-June to mid-August. The arrival times for events which occurred during mid-August through October are being read now.

In its present preliminary form the bulletin contains almost no Shillong readings. Because of its lower frequency response characteristics SHI does not record many of the local signals clearly measurable at the portable seismographs. Nevertheless we will examine the SHI records for reading arrival times for the larger events and for those which occurred close to Shillong.

In addition we hope that complementary data from microearthquake arrays operated by other Indian institutions during the fall of 1979 may become available. If this should be the case many of the events which now cannot be located may become locatable by joining data from different networks.

Preliminary locations have been computed for some of the better recorded earthquakes. These data are summarized in Appendix C. However, we must emphasize that these are only approximate and preliminary locations. Improved locations will be calculated when (a) more arrival times become available for these events (from SHI and possibly other portable stations), and (b) when we know the crustal velocity structure better. Since we have no specific information on the local velocity structure we have used the model below which is appropriate for the Swiss Alps and therefore can be expected to be close to structure in the Assam area.

LAYER	VELOCITY KM/SEC	DEPTH KM	THICKNESS KM
1	4.0	0.0	1.0
2	6.0	1.0	24.0
3	6.7	25.0	20.0
4	8.1	45.0	1000.0

In order to estimate where the main centers of seismic activity are located we included in the analysis epicenters outside the array. We realize that locations outside of a tripartite network are very inaccurate and calculated depths nearly meaningless. Nevertheless we can say from which general areas many signals come, an important piece of information to plan the continuation of this program with a larger array. The hypocenters (Appendix C, Figure 1) were computed with the HYPOELIPSE program. The quality of location is generally poor because only three stations were recording, and the arrival times were read mostly to the nearest 0.5 seconds only. A few of the solutions are of C - quality. With the expected additional data from SHI some solutions will be improved.

The centers of activity are within our array near BOR, near Tezpur north of the array, and along the Burmese thrusts SE of the network. NE in the rest of the Assam gap very few earthquakes occurred. This agrees with the observation of Khattri and Wyss (Appendix D) who pointed out that the eastern part of the Assam gap appears to have conspicuously low seismicity.

Even though the teleseismic locations are even less accurate than the ones by tripartite array, it appears that the presently active volumes correspond to the locations of past larger earthquakes. In order to better locate the strong activity near BOR and north of it we will need to place a station at a location north of the word Tezpur on the map (Figure 1). This is especially necessary because some of the sources around Tezpur appear to be located at depths below the crust. With an expanded array (as funded by the U.S.G.S.) we will be able to locate a fairly large number of earthquakes within the array and obtain reliable depths and composite focal mechanisms for them.

The contrast between the high and low level of seismicity in the western and eastern part of the Assam gap (Figures 1 and 3) may be interpreted as pointing to a high stress asperity adjoining to a volume of seismic quiescence. Such a pattern was found in the detailed study of the Hawaii earthquake, and the same pattern is suggested by the Kurile island seismicity (for both these cases see our report on the U.S.G.S. sponsored study of "Seismicity Patterns Before Large Earthquakes"). In the Meghalaya area the observation period is much too short as yet to allow any firm conclusions, but the continuation of this study will be important to establish background seismicity and to delineate seismicity anomalies.

6. Conclusions and Recommendations

1. Seismic quiescence appears to precede earthquakes of magnitude larger than 6.7 in the Assam area.

2. Seismograph arrays can be operated on the Meghalaya hills, and this is best done by employing an operator for each station.

3. The seismicity is high in the general area of the Himalayan arc, the Burmese arc and in between. On the average 20 earthquakes per day were recorded within about 400 km from the center of our tripartite array. With this array we were able to locate about 25 events per month within the area which will be covered by the permanent network starting spring 1980. In addition many events were recorded which could not be located. We expect that with the larger network we will locate approximately 2 events per day within the array, and about an equal number in the vicinity of the array.

4. The low seismicity rate in the eastern part of the Assam gap provides a remarkable contrast to the rate in the western part.

5. A comprehensive Indian program of earthquake prediction research in the area was launched.

6. We recommend that U.S.G.S. support for the Meghalaya seismic array and for the seismicity analysis of the area be continued. The capabilities of this network will be improved in the 1980 study phase so that precision timing of phase arrivals to less than 0.1 seconds will be possible, and so that focal mechanism solutions can be obtained. The support of this project is very important, because we still believe that a large to great earthquake may

occur here during the lifetime of the array, and because this project is the leading component in a large integrated program.

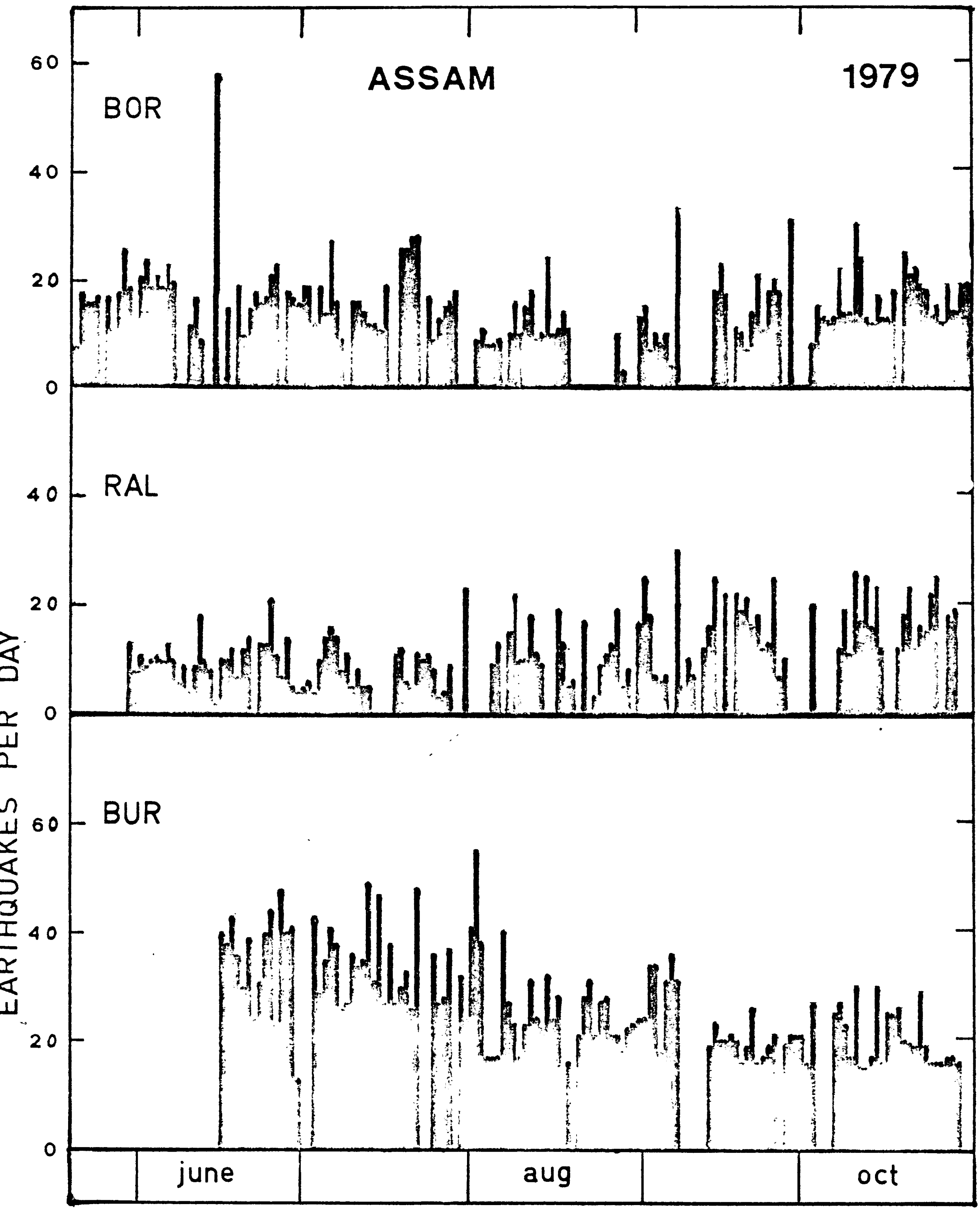
Financial Statement

	Budget	Actual	Balance <Deficit>
Salary	$ 2370	$ 2633	$ <263>
Fringe Benefits	298	331	<33>
Operating Expenses	4627	2875	1752
Travel	1900	1954	<54>
Permanent Equipment	21545	22701	<1156>
Indirect Costs	780	869	<89>
TOTAL	$31500	$31363	$ 157

Figure 1: Map of Northeastern India showing major thrust zones and the outlines of the metamorphic shield fragments of the study area. Open circles mark historic earthquakes, solid dots show preliminary locations obtained in this study. Seismograph stations are shown by ★.

Figure 2: Histogram of all earthquakes recorded at the three portable field seismographs with position given in Figure 1 and Table 1. Days of no records are those where the instruments were not operating.

Figure 3: Epicenter map including 122 of the 124 events for which preliminary locations have been computed, including those events too far from the network to fit on Figure 1. Small differences in locations here and on Figure 1 are due to changed weights for the phase in the location program. The Assam gap and the great thrusts of the Himalaya and of Burma are sketched in schematically. Seismograph locations are marked by stars.



ASSAM
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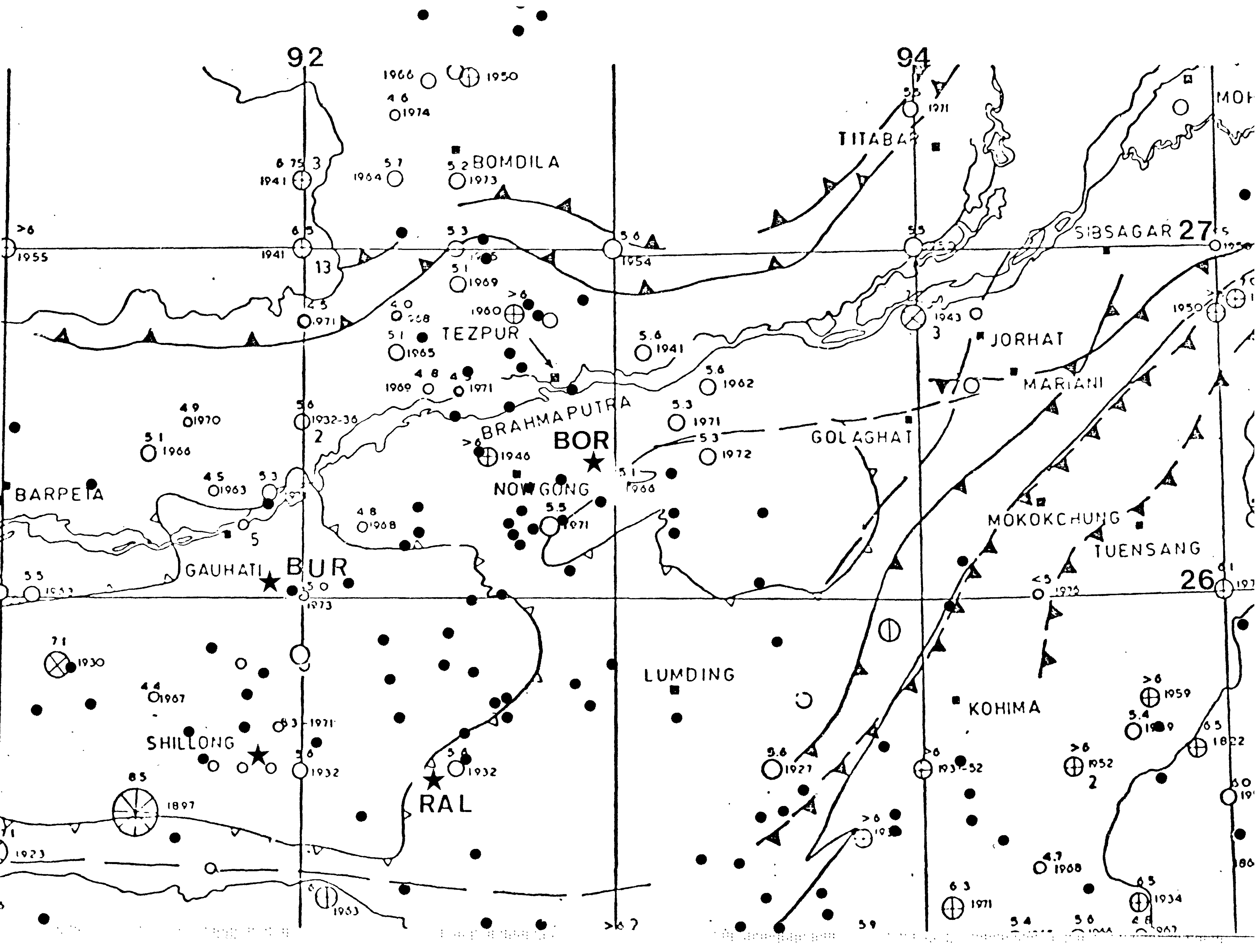
Fig. 1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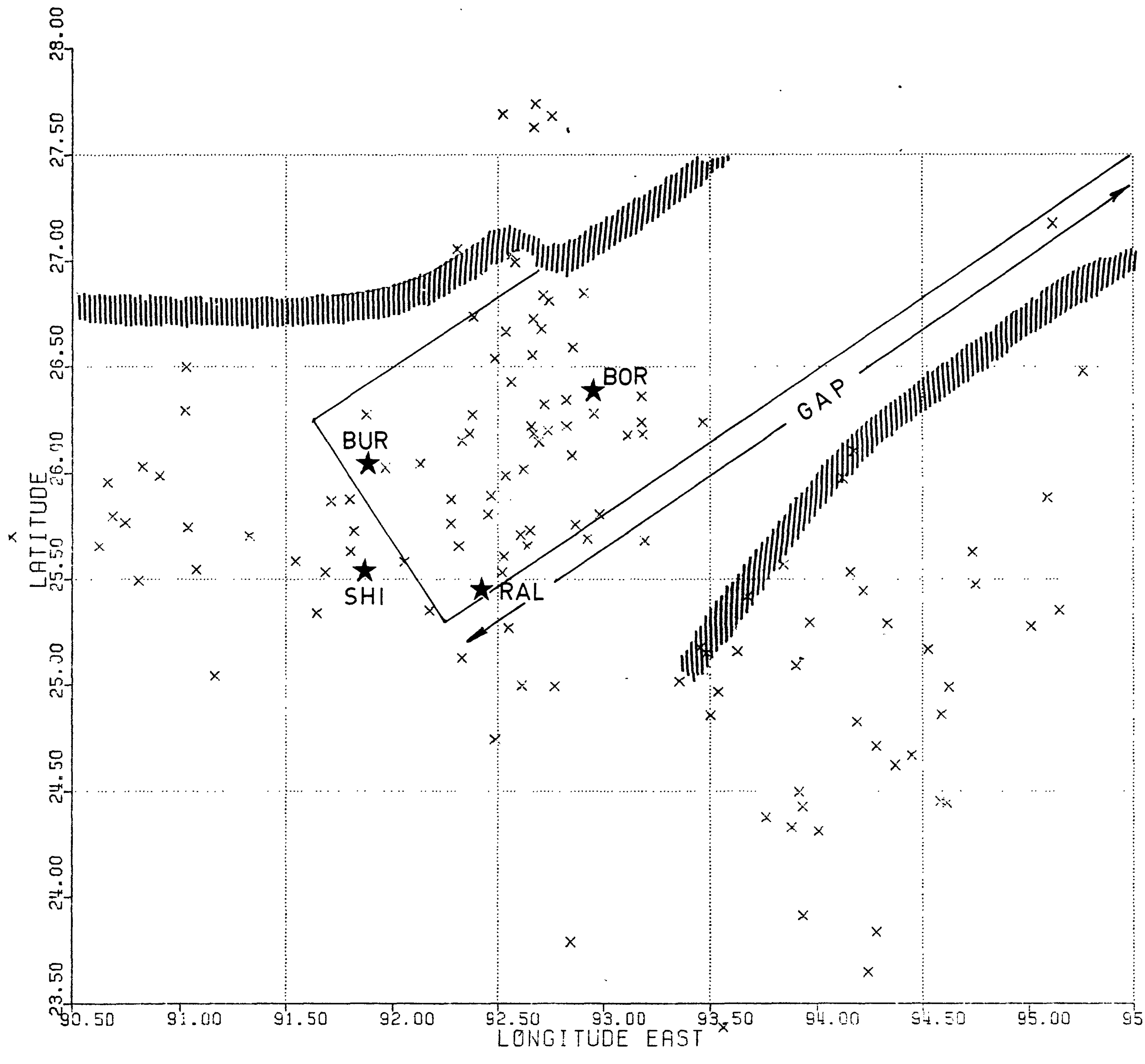
RAL

INDIA



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95
LONGITUDE EAST
BOR
BUR
SHI
RAL
GAP

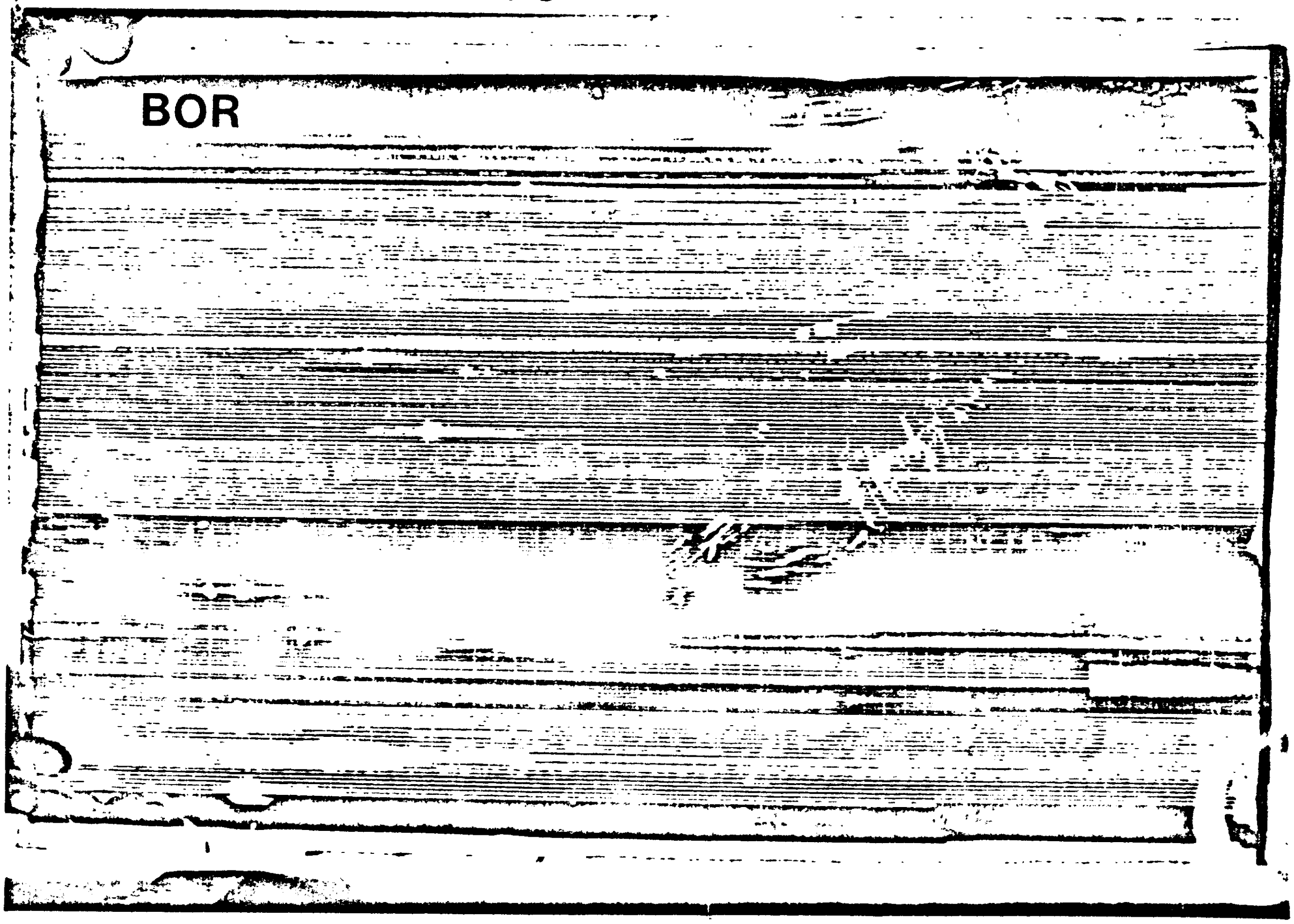
Fig. 3

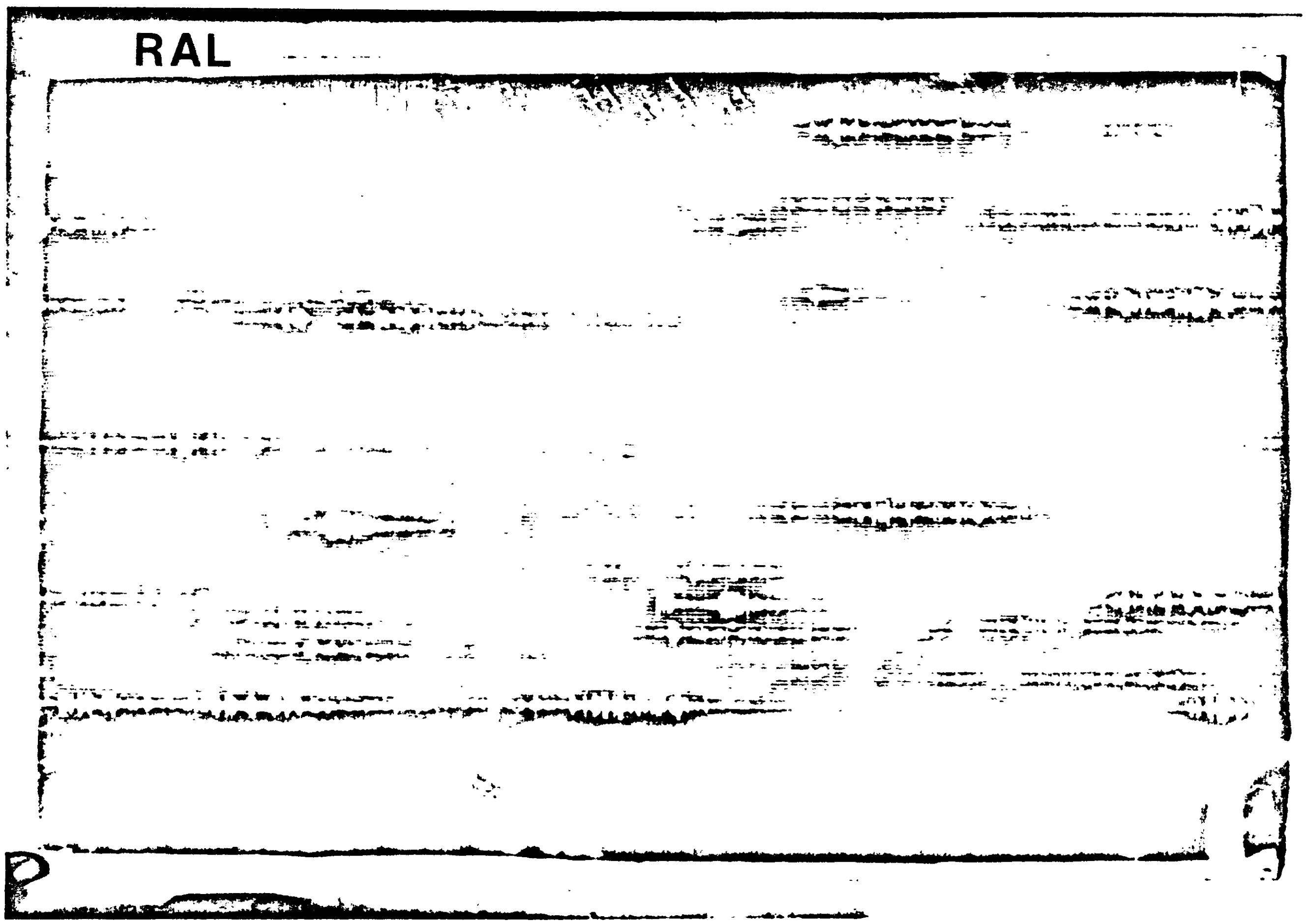
APPENDIX A

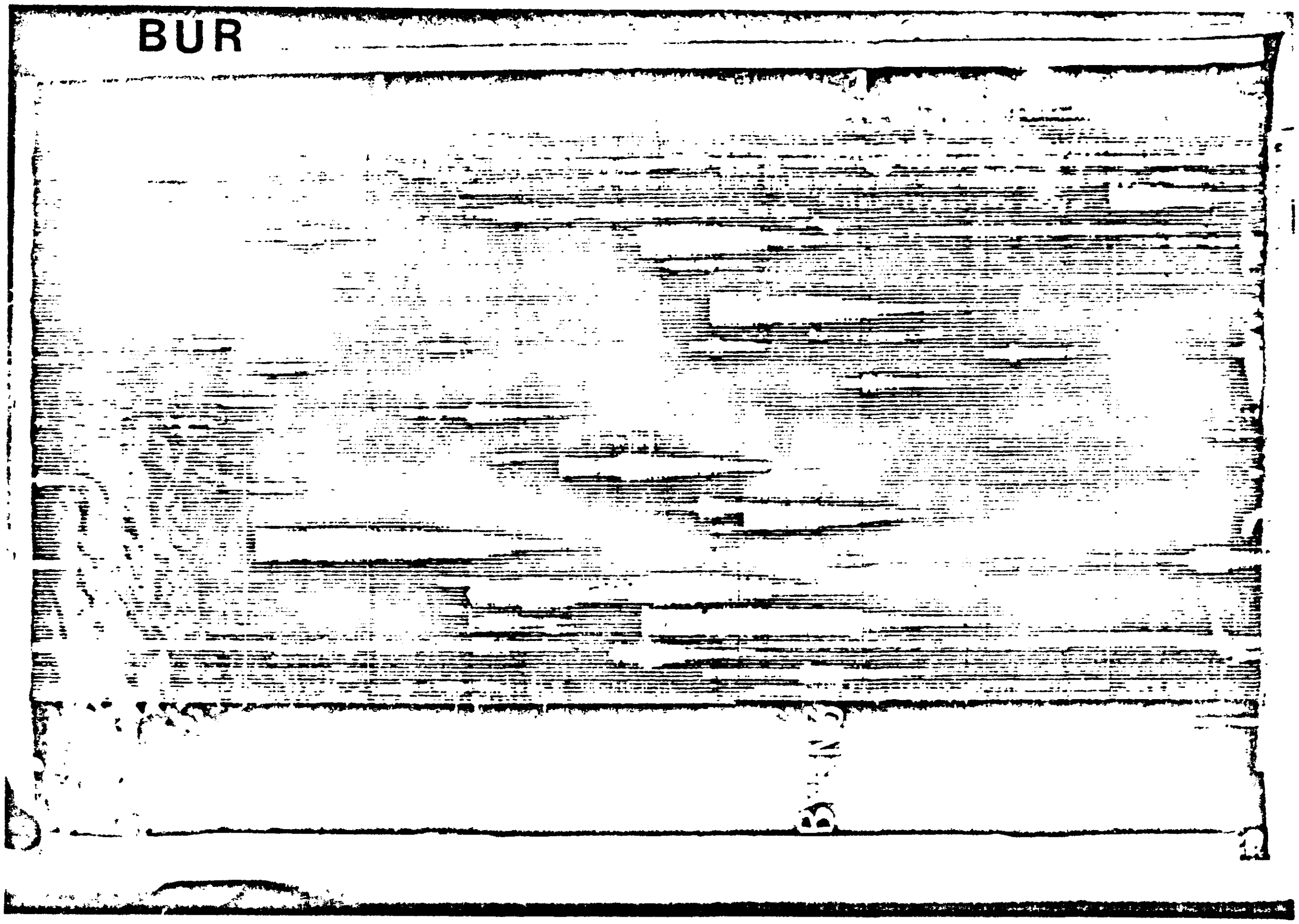
14 pages

Examples of seismograms at the three stations BOR, RAL and BUR for 9 arbitrarily selected days of fall 1979. The dates which appear as headings give day, month and year.

11 7 79







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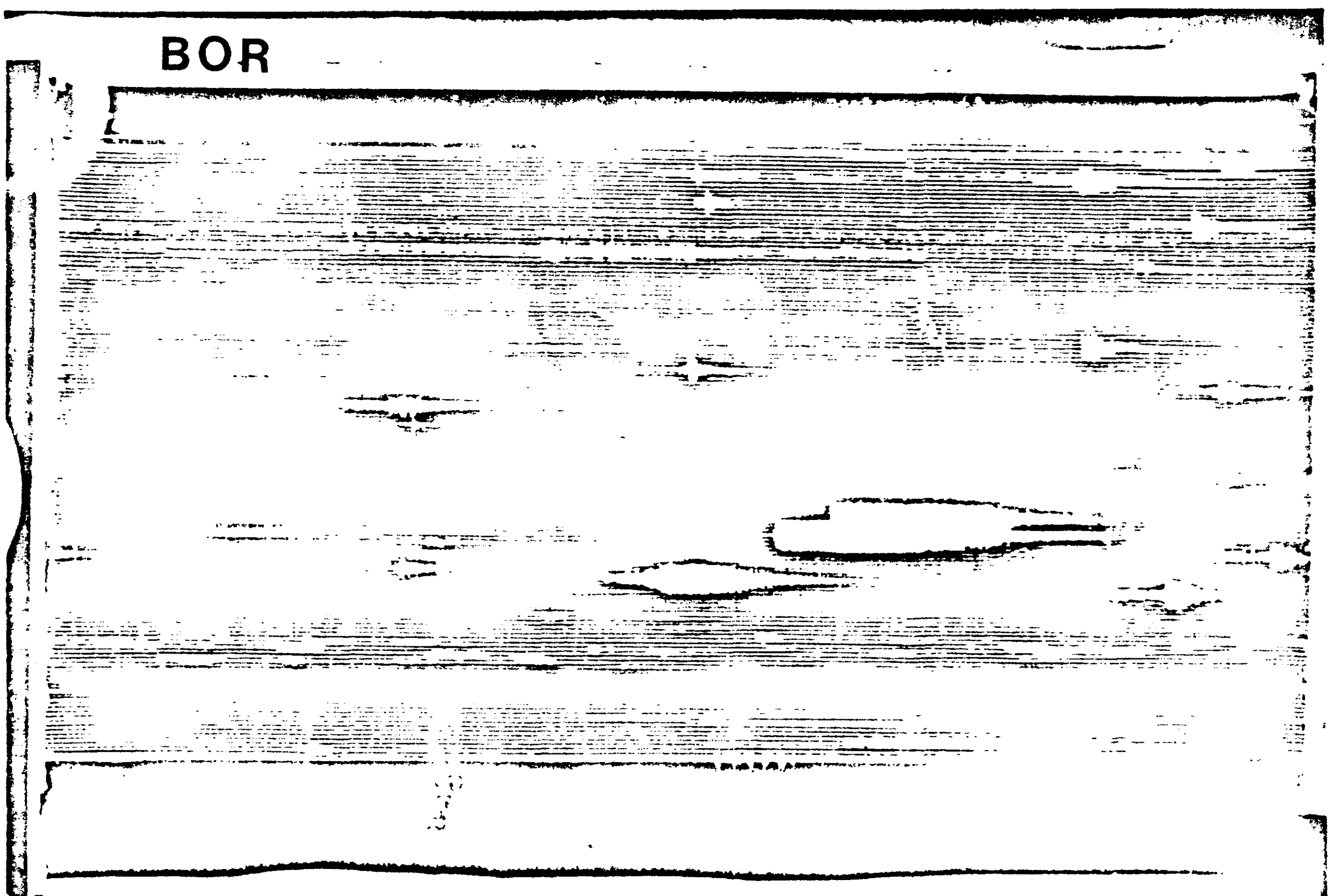

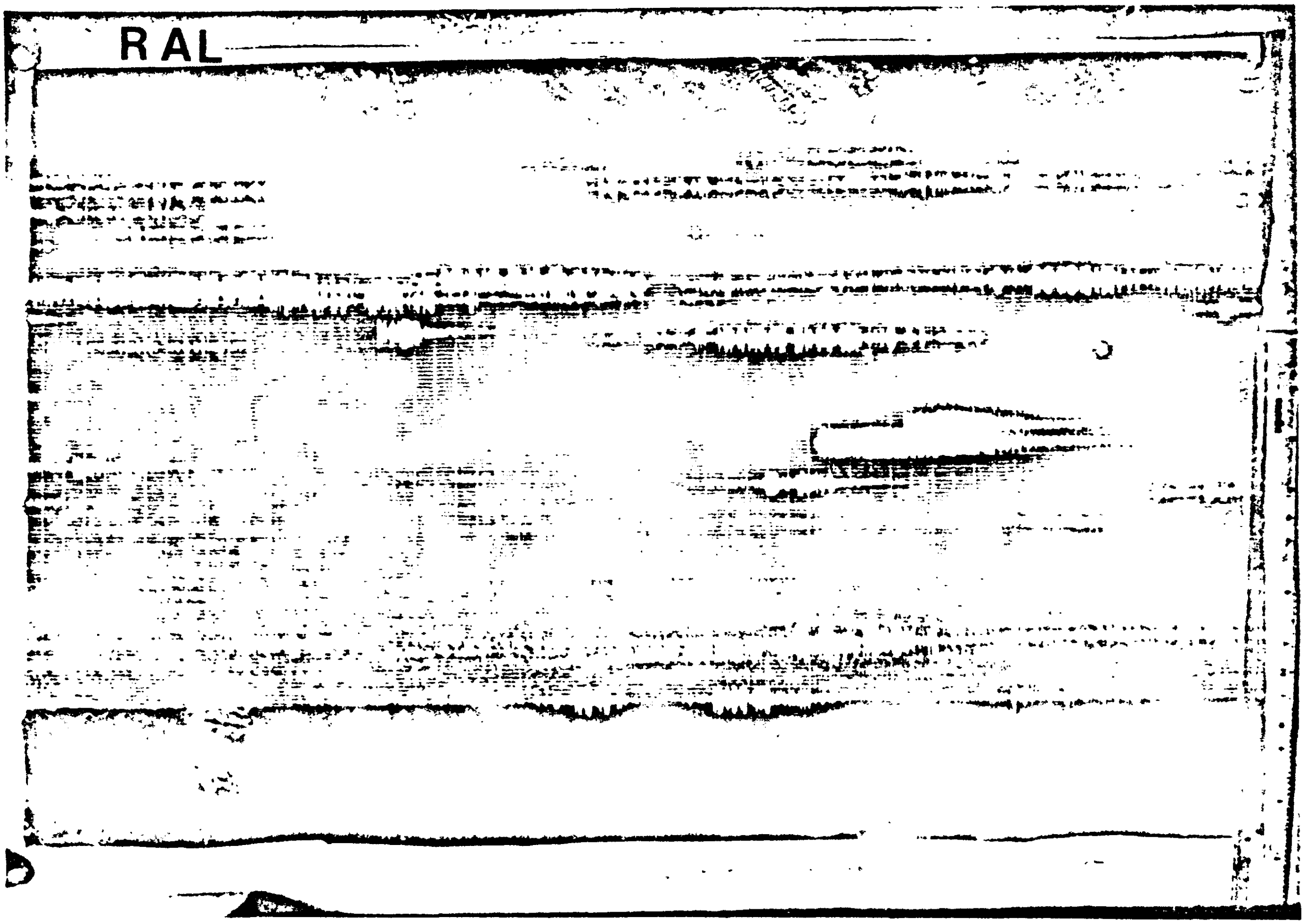
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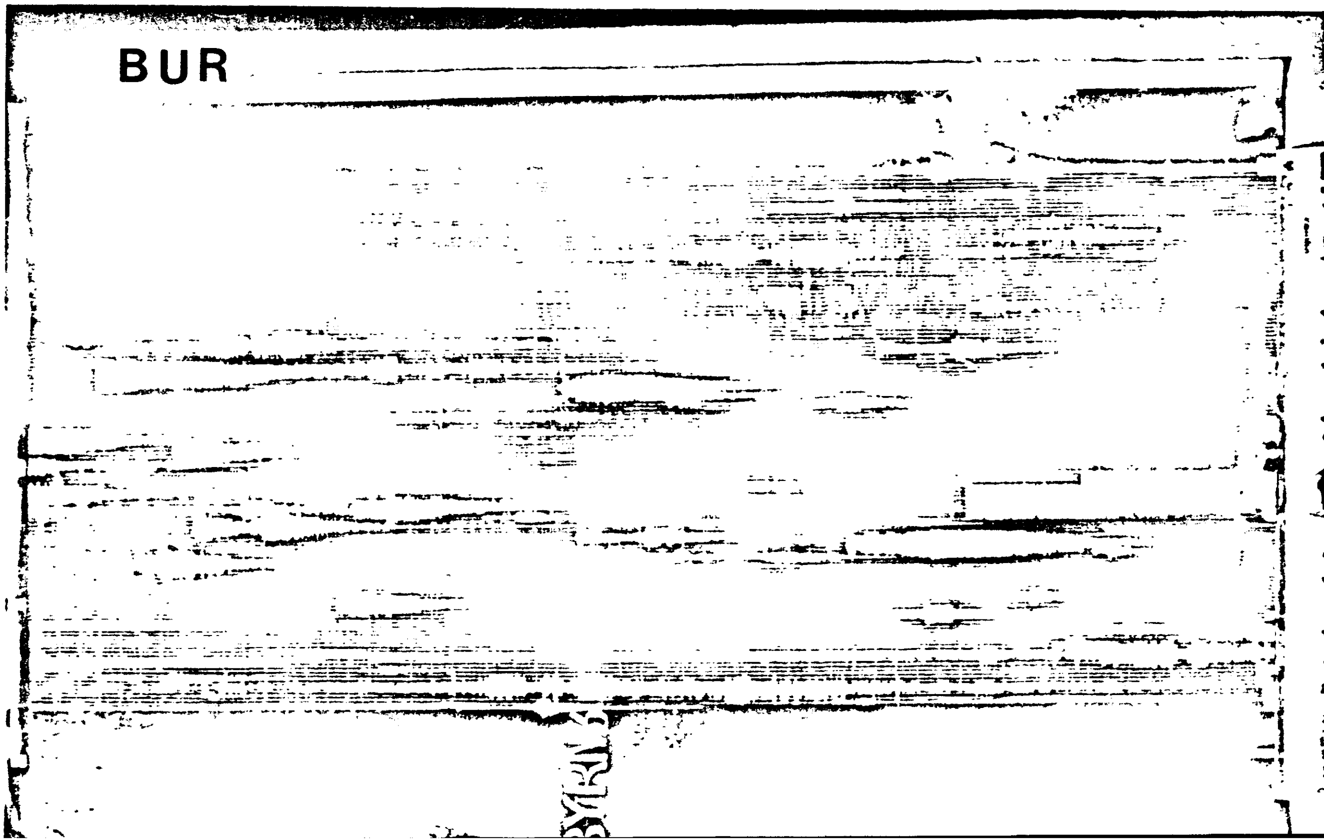
BUR

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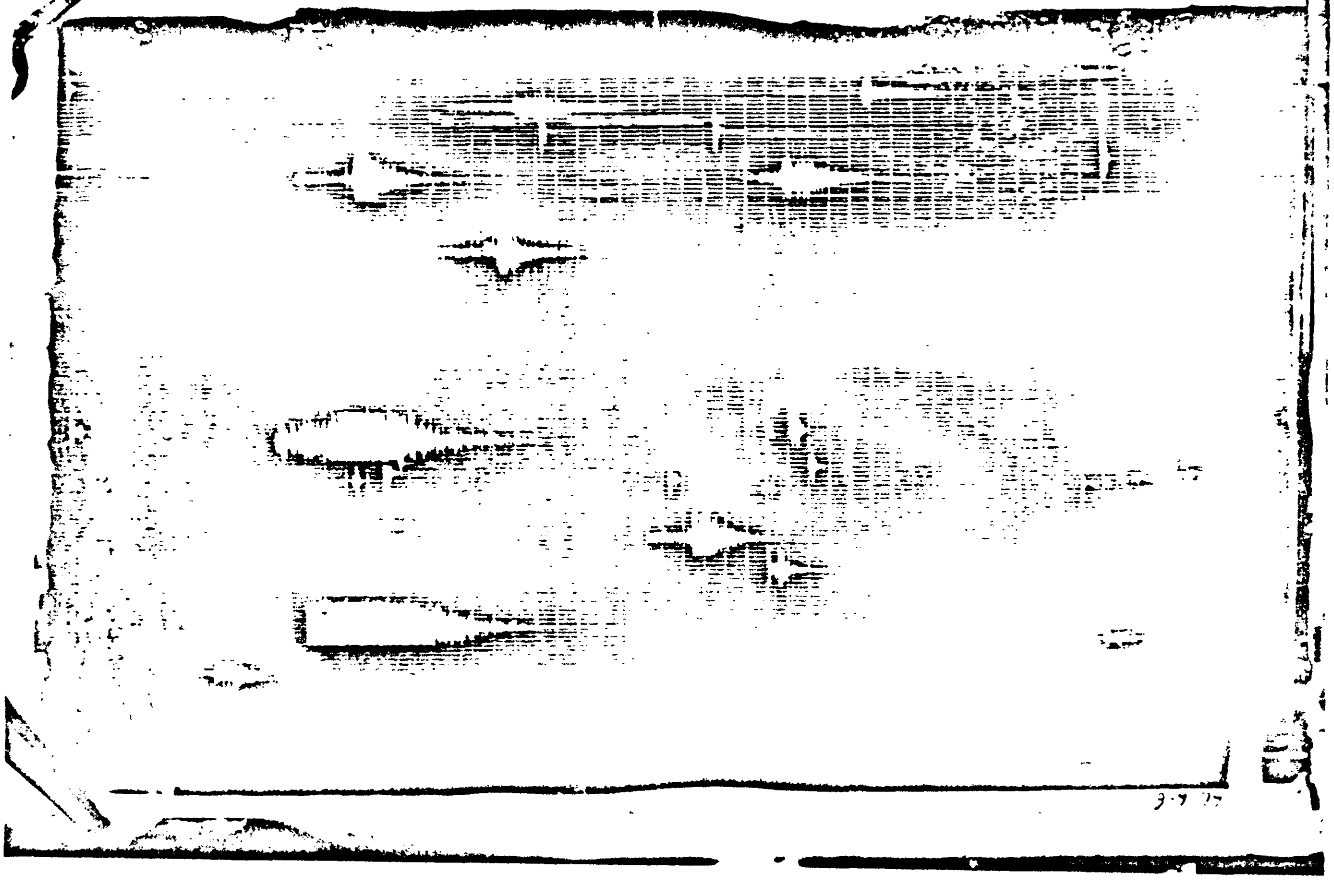
BOR



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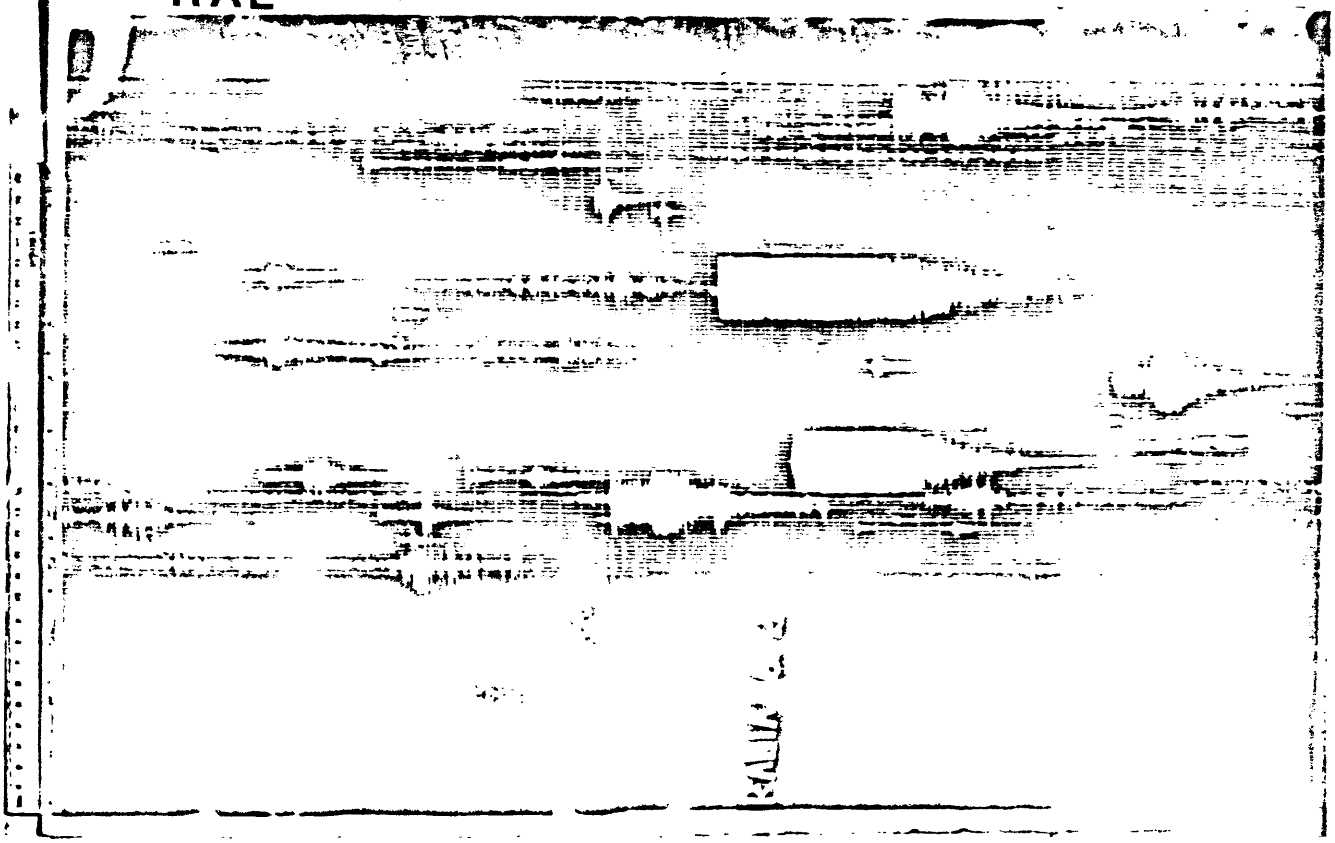

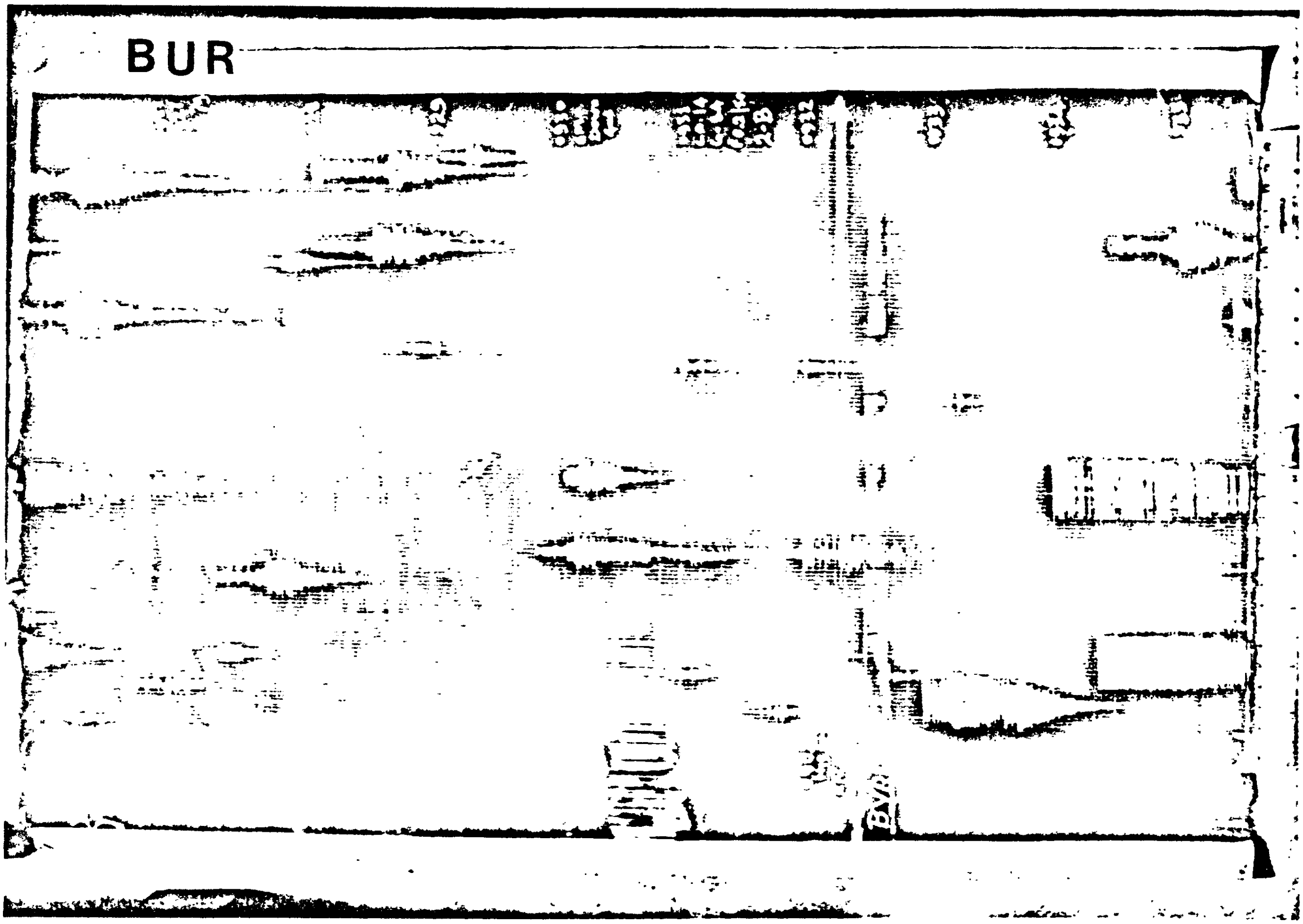

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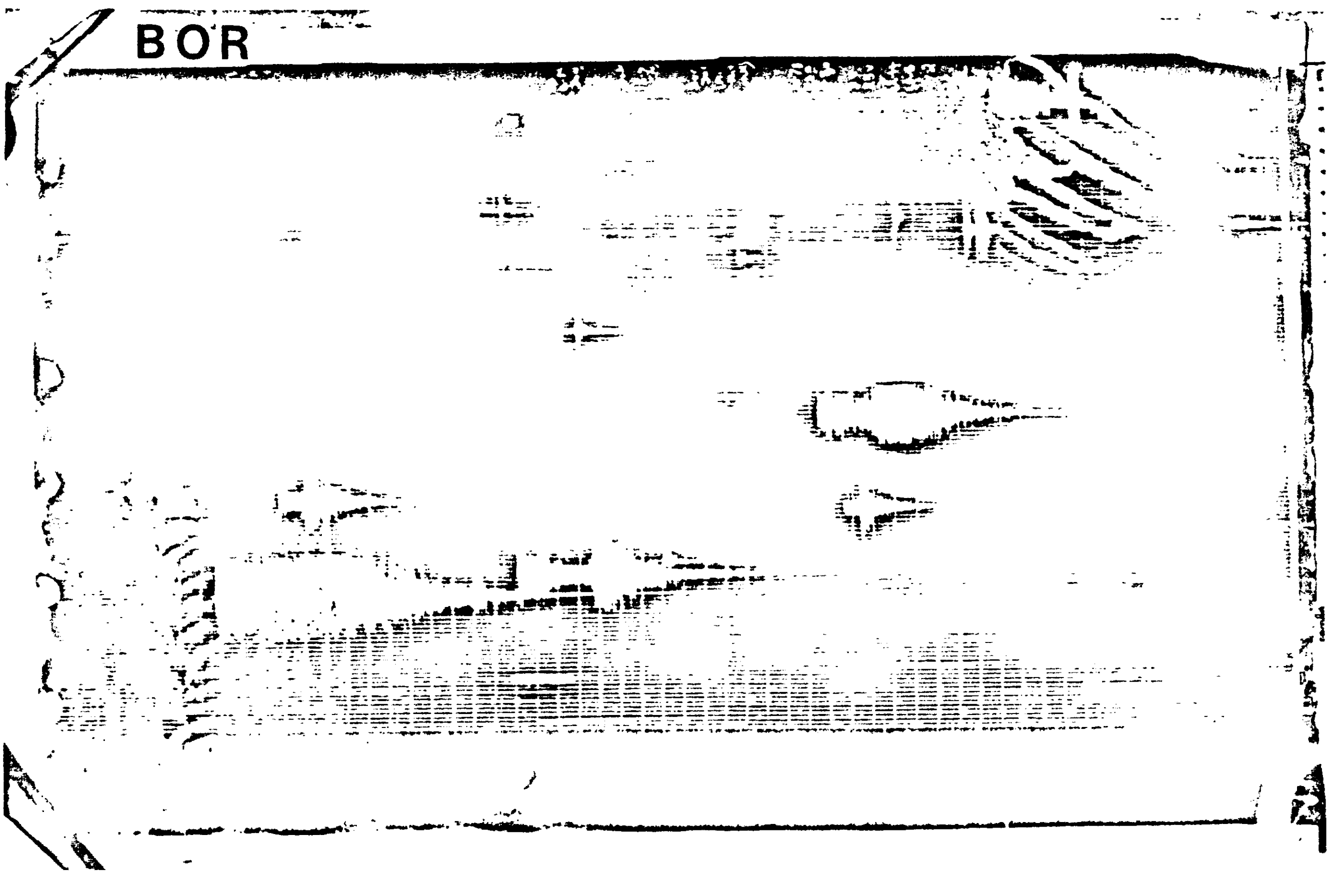

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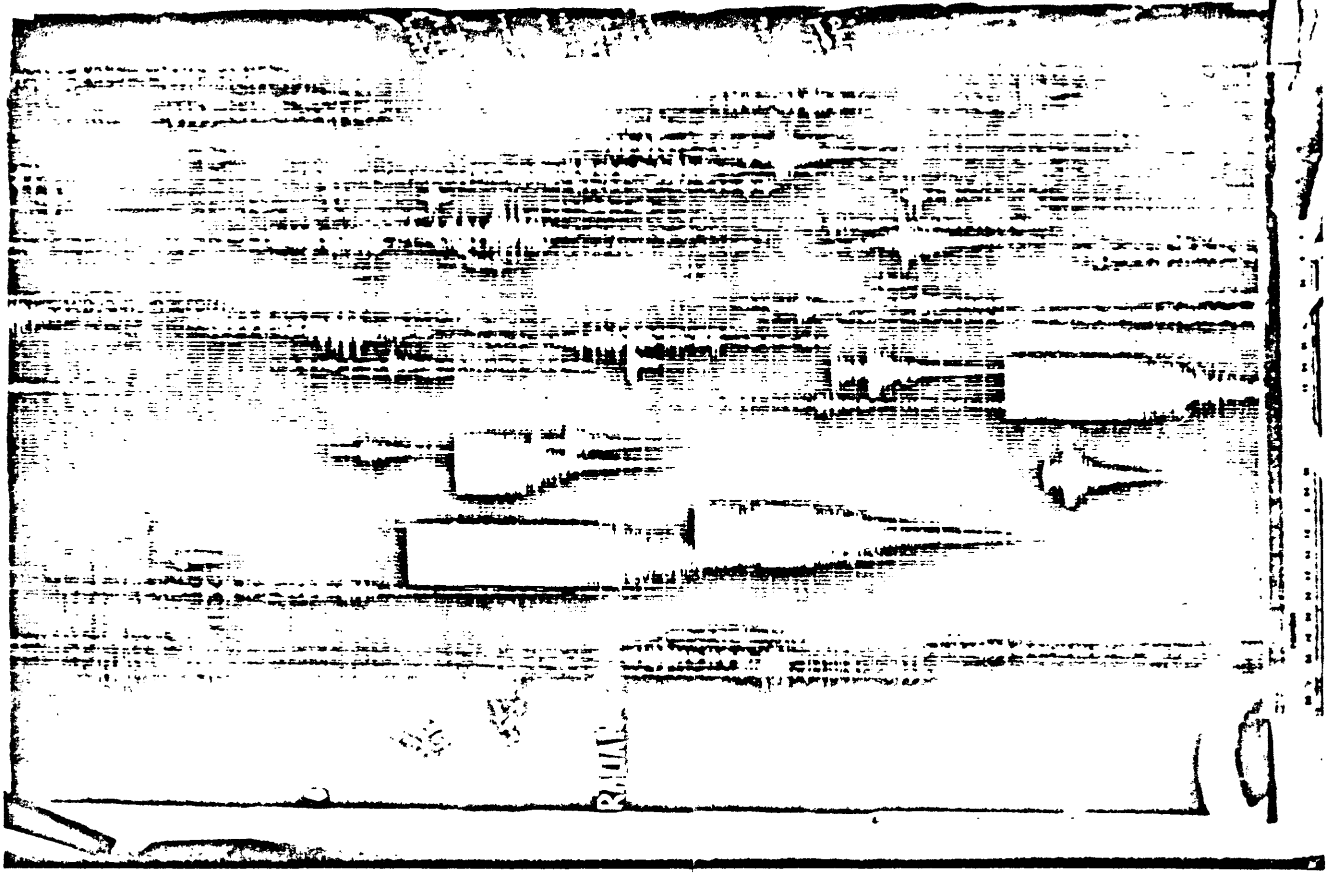

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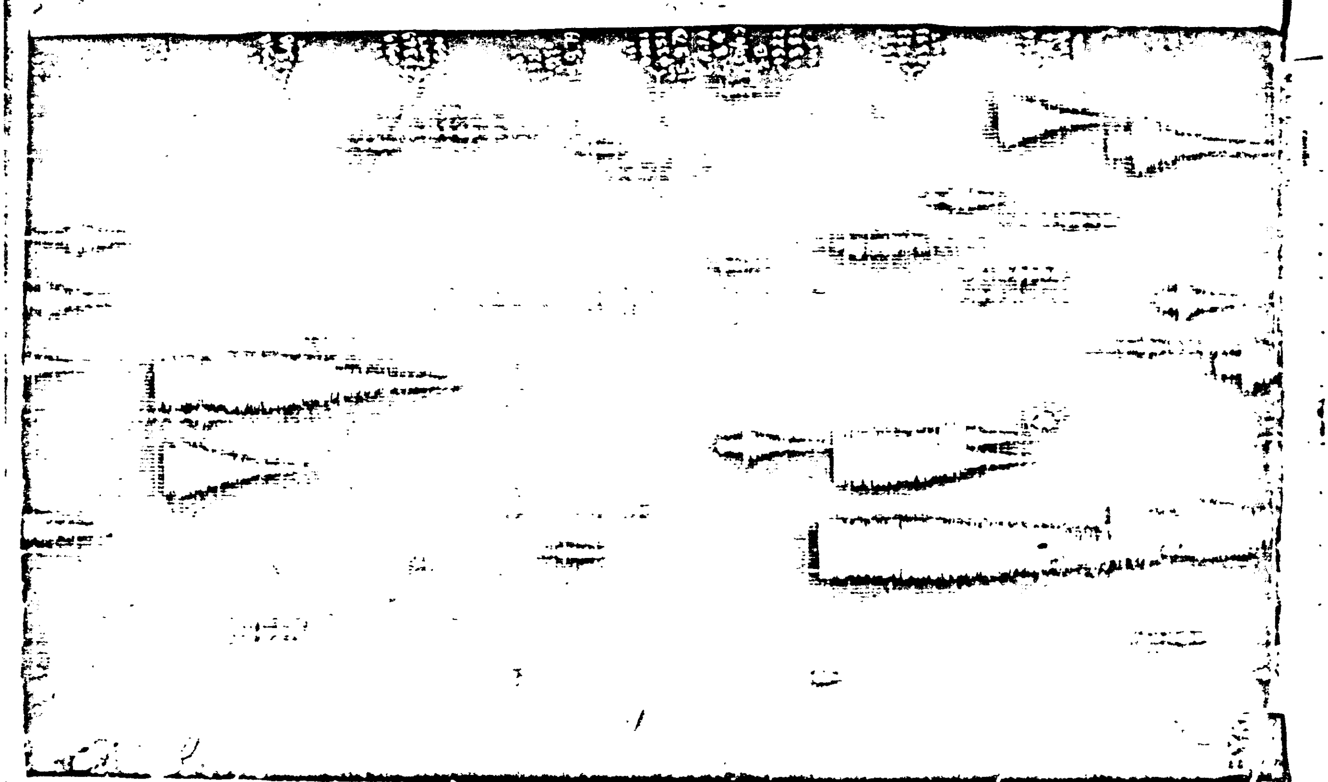

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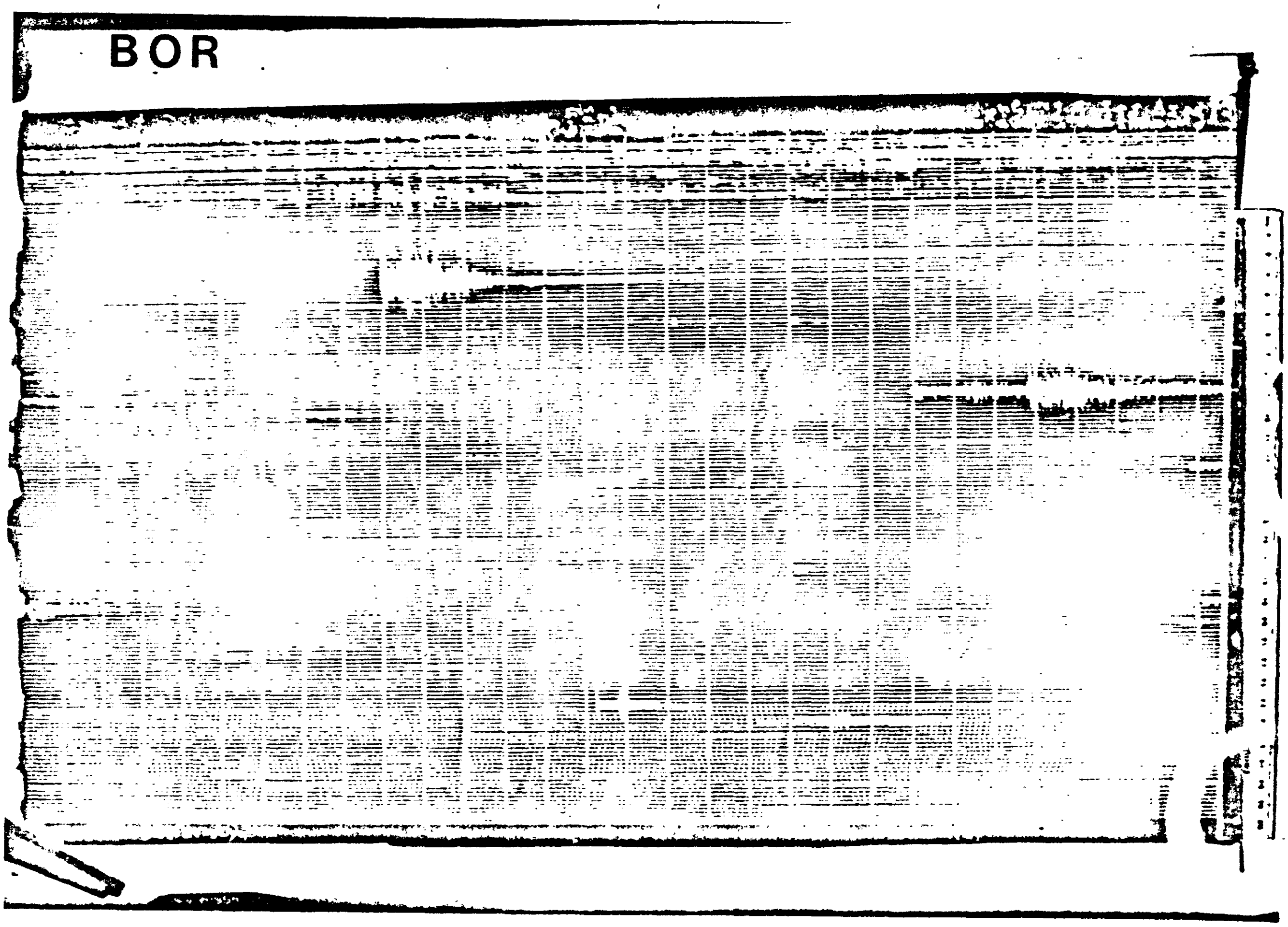

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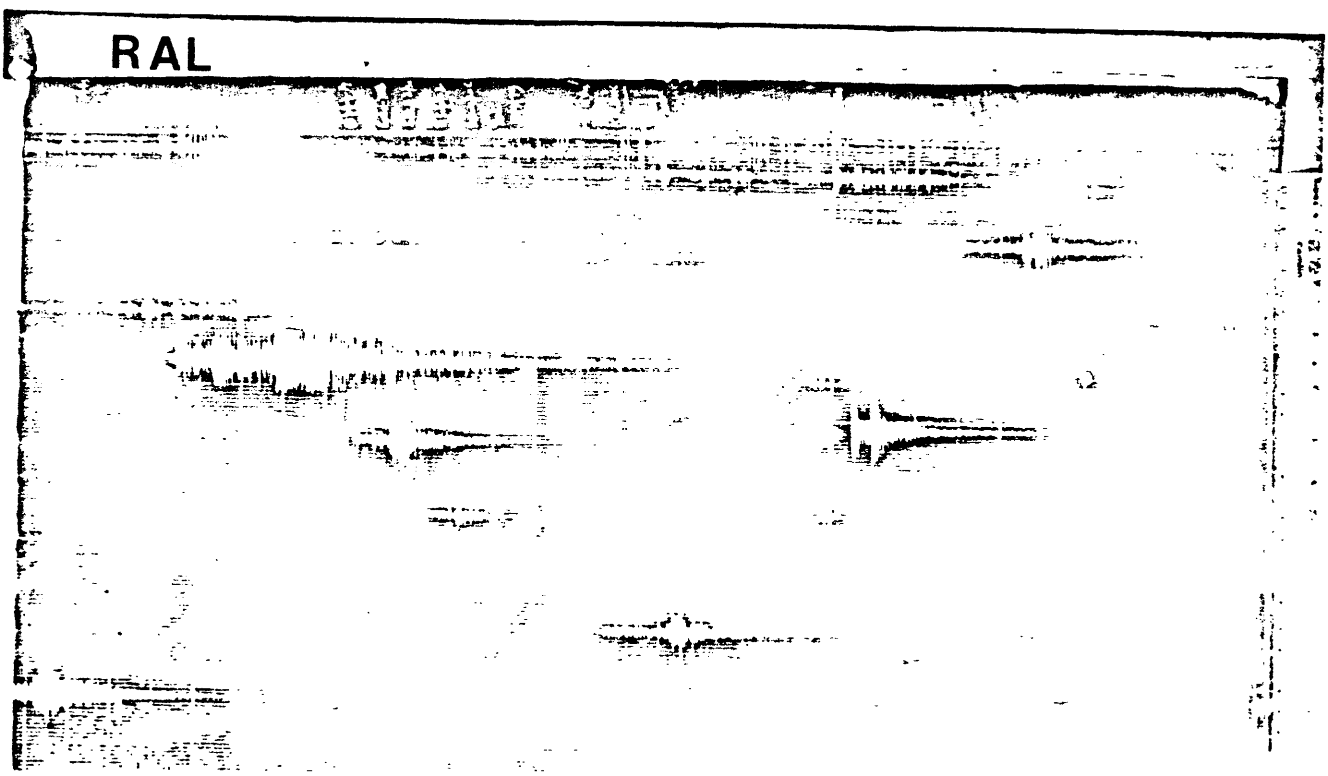

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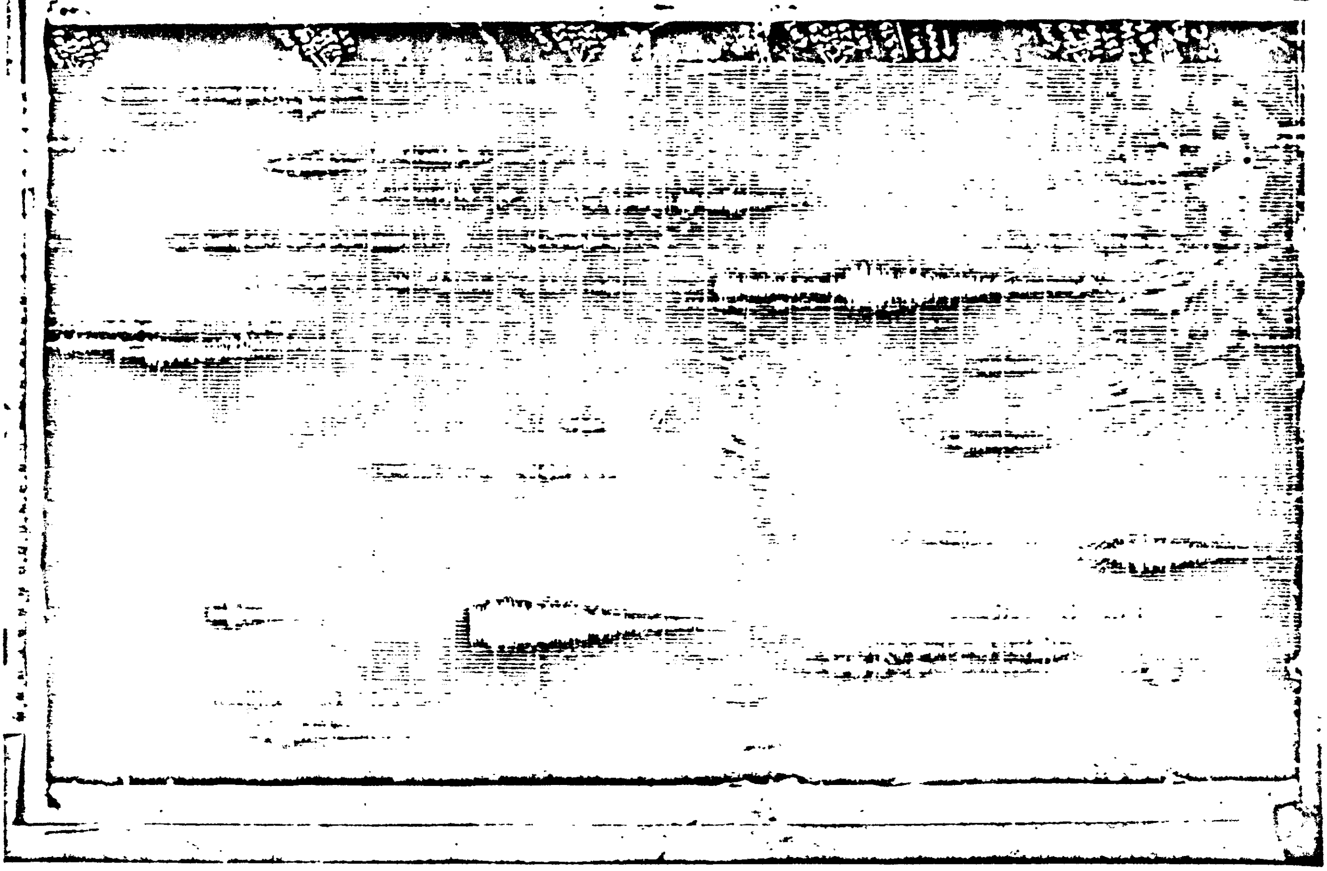

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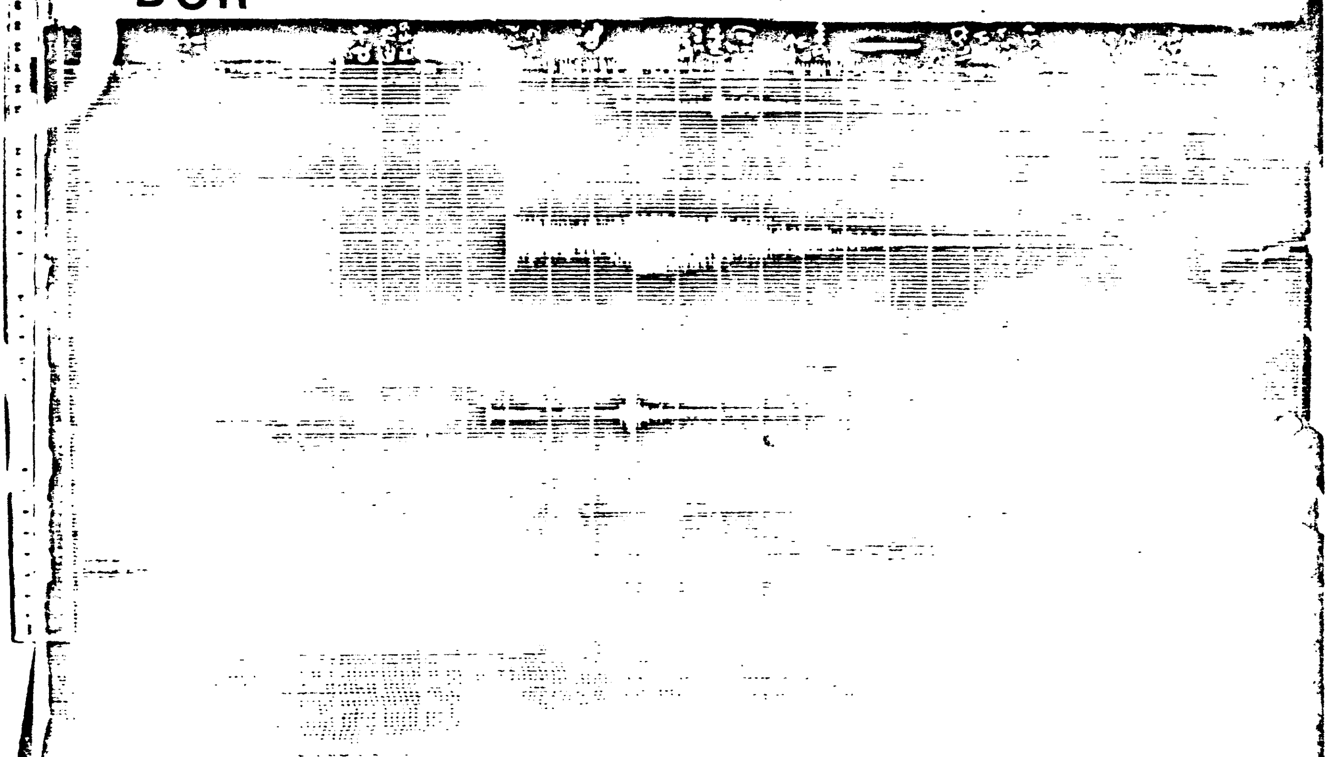
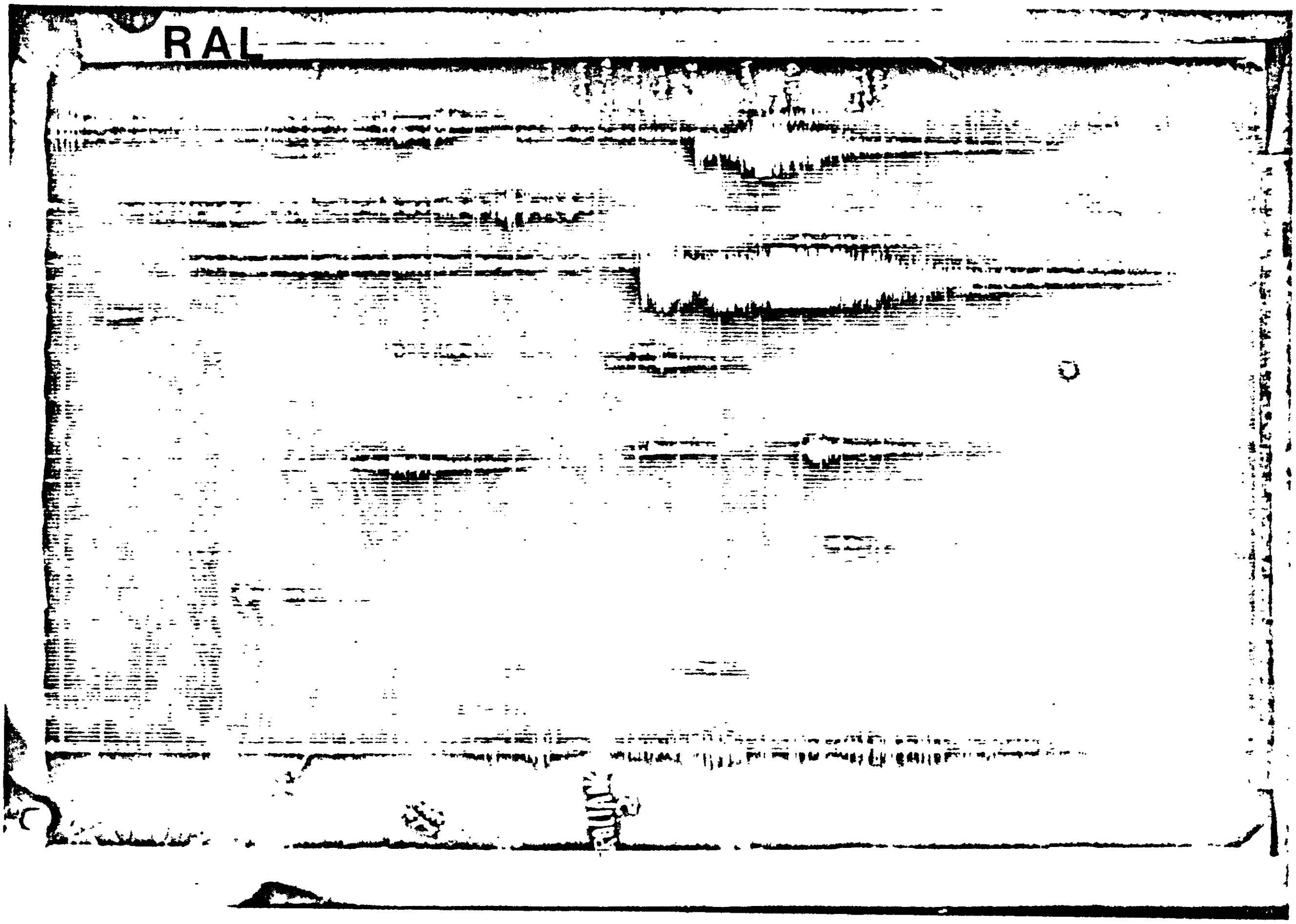
BOR

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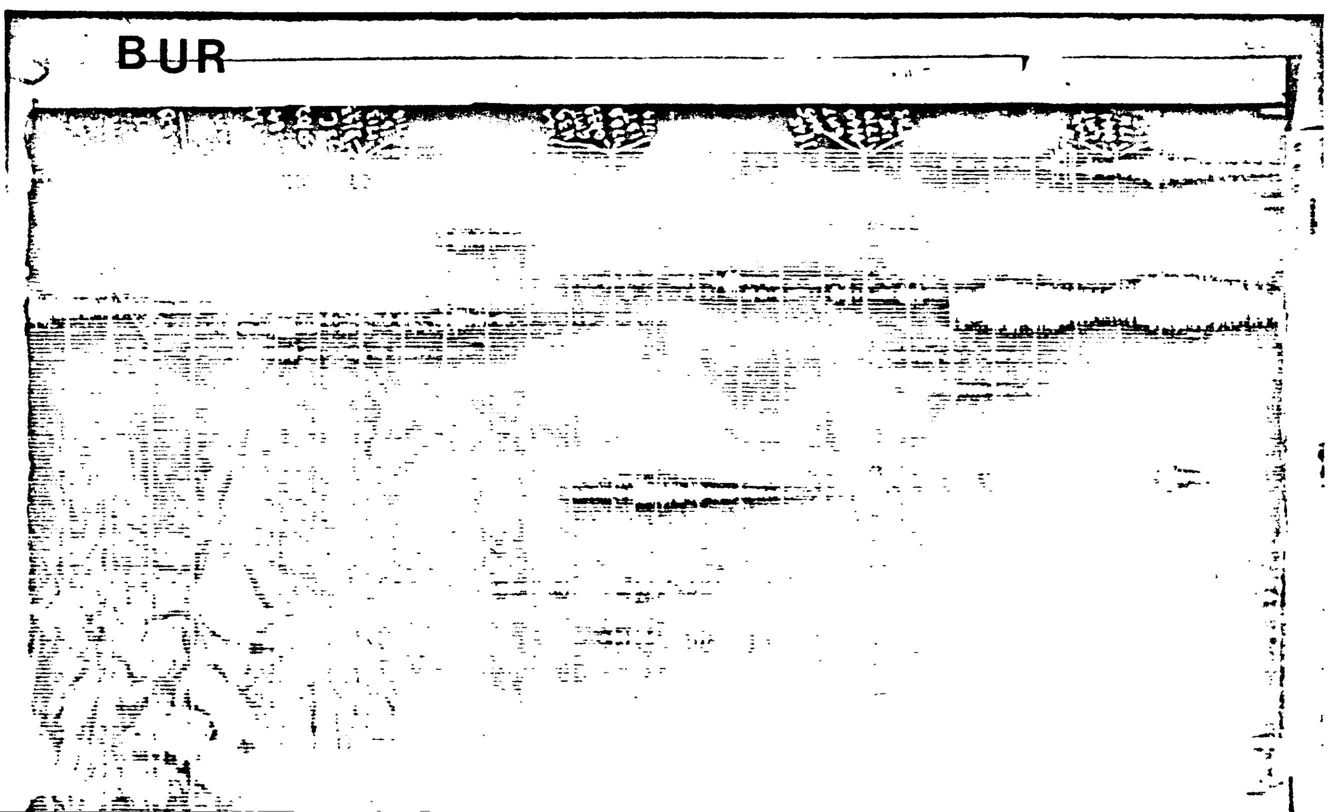
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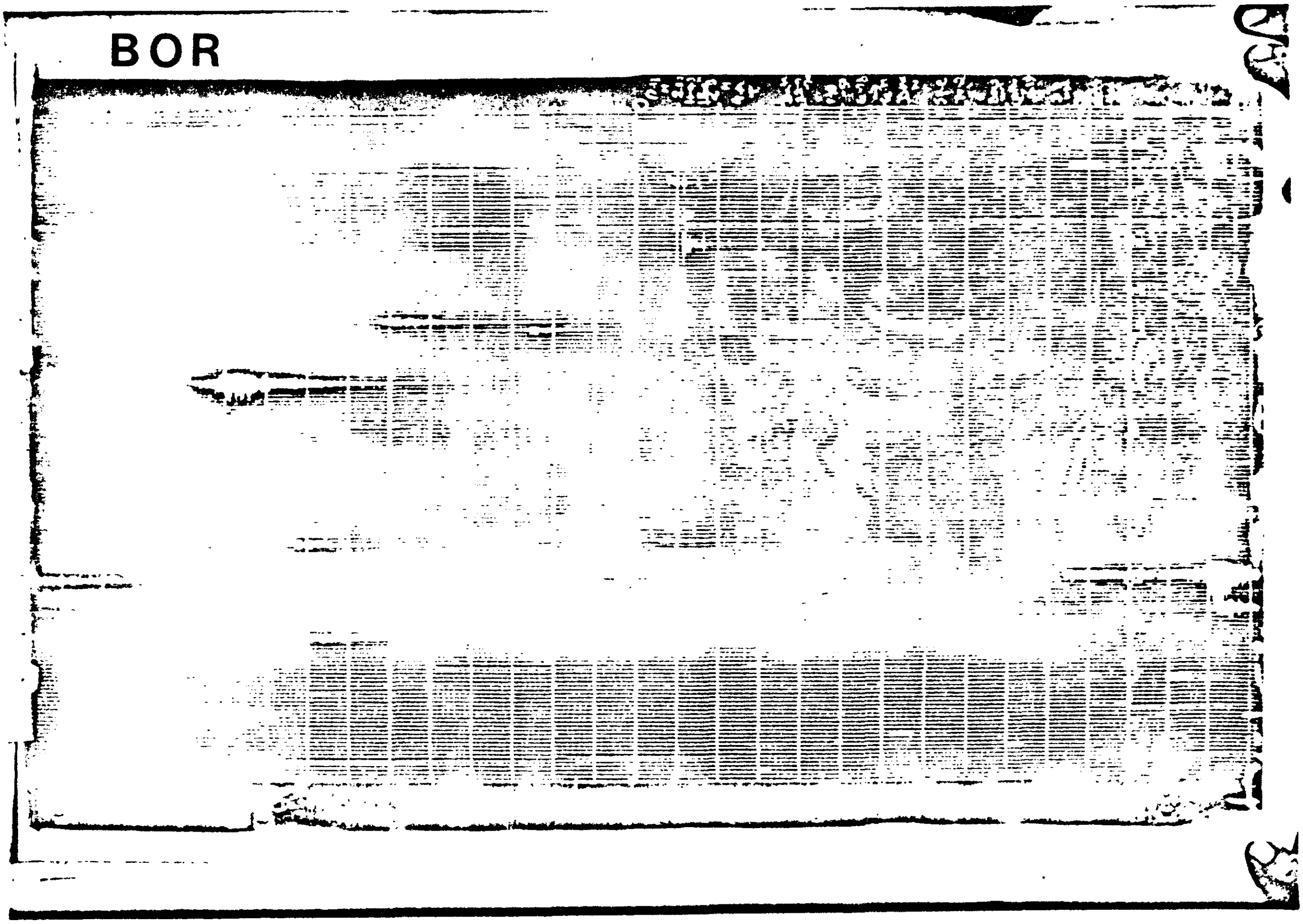
21 9 79

BOR



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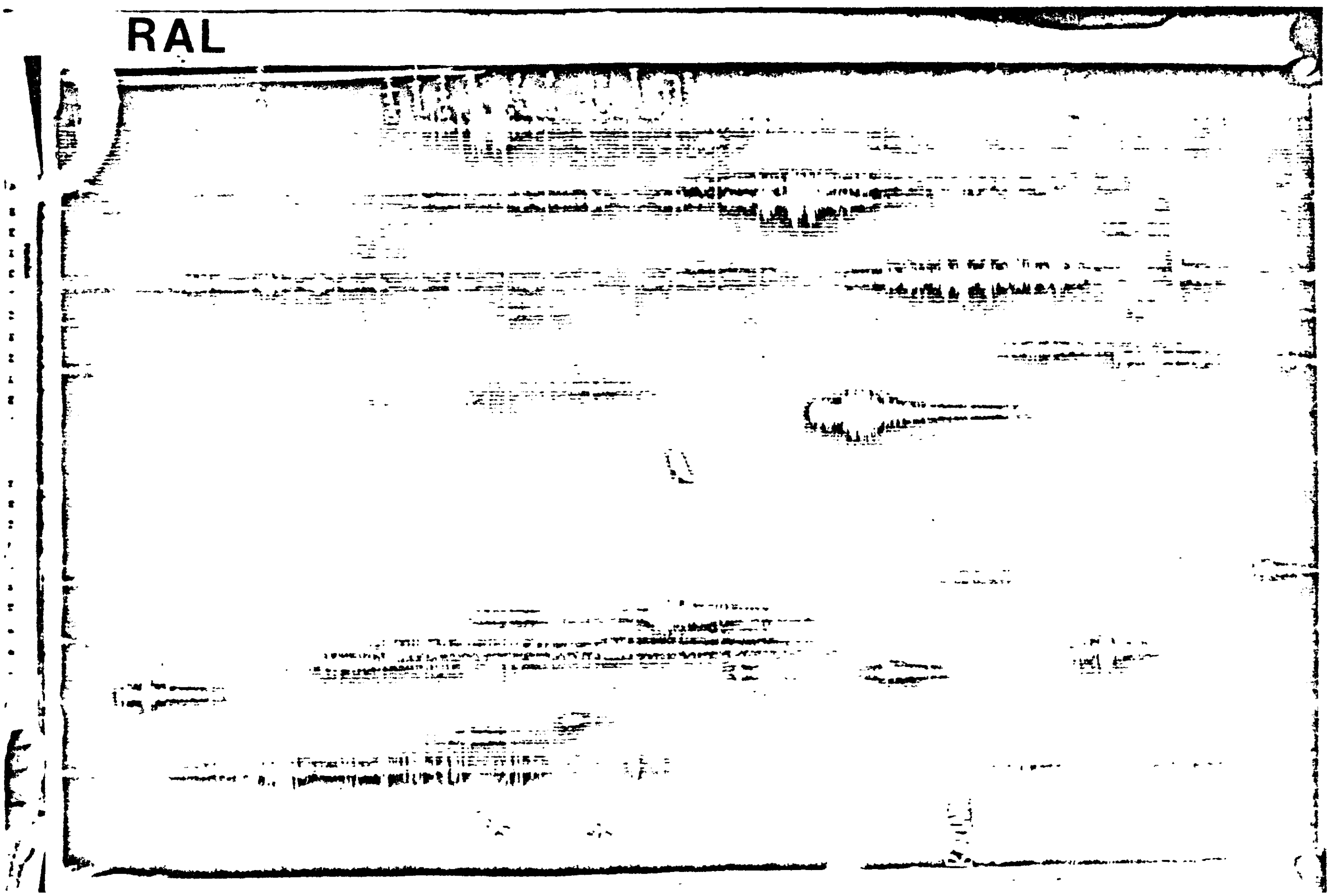

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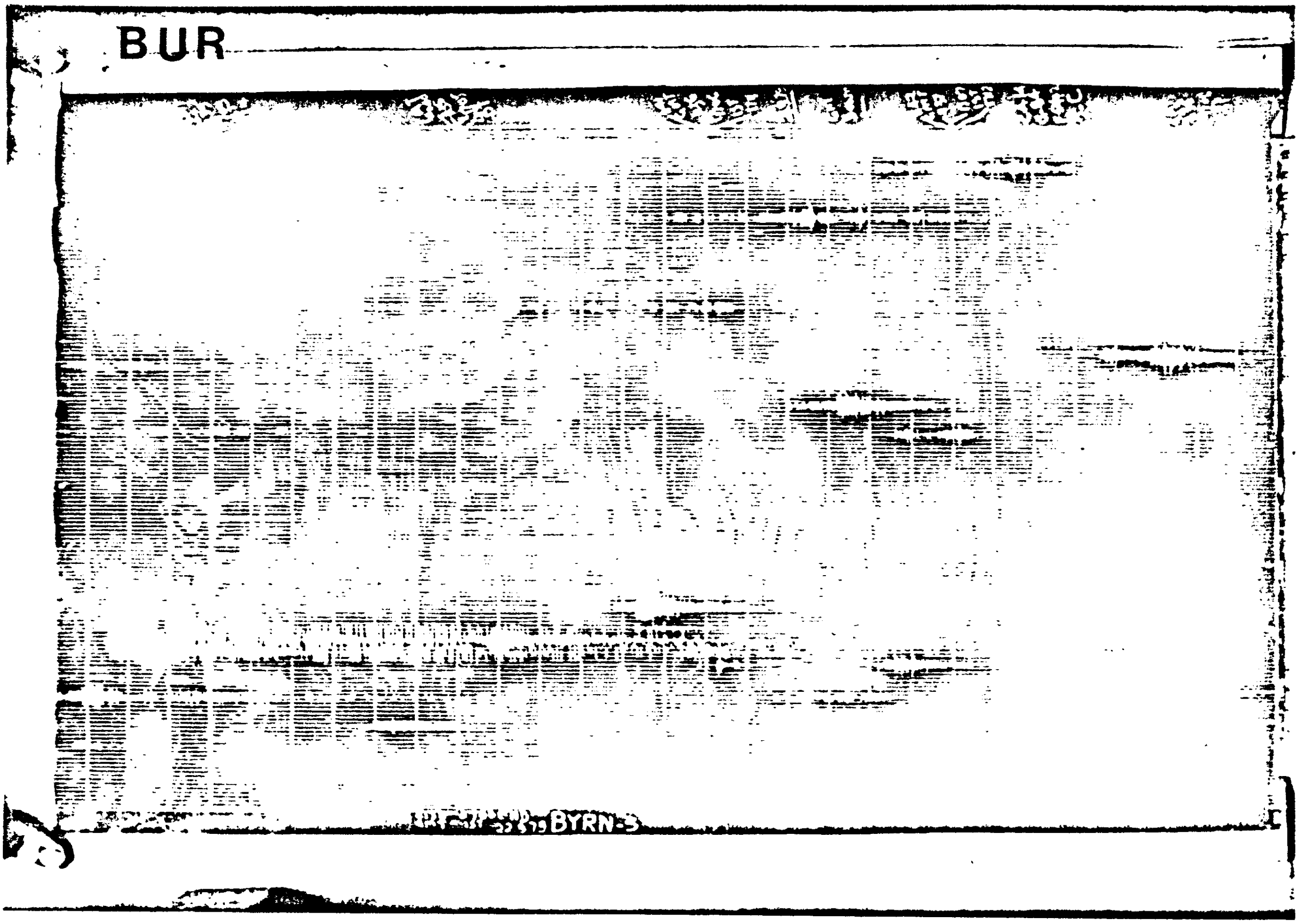

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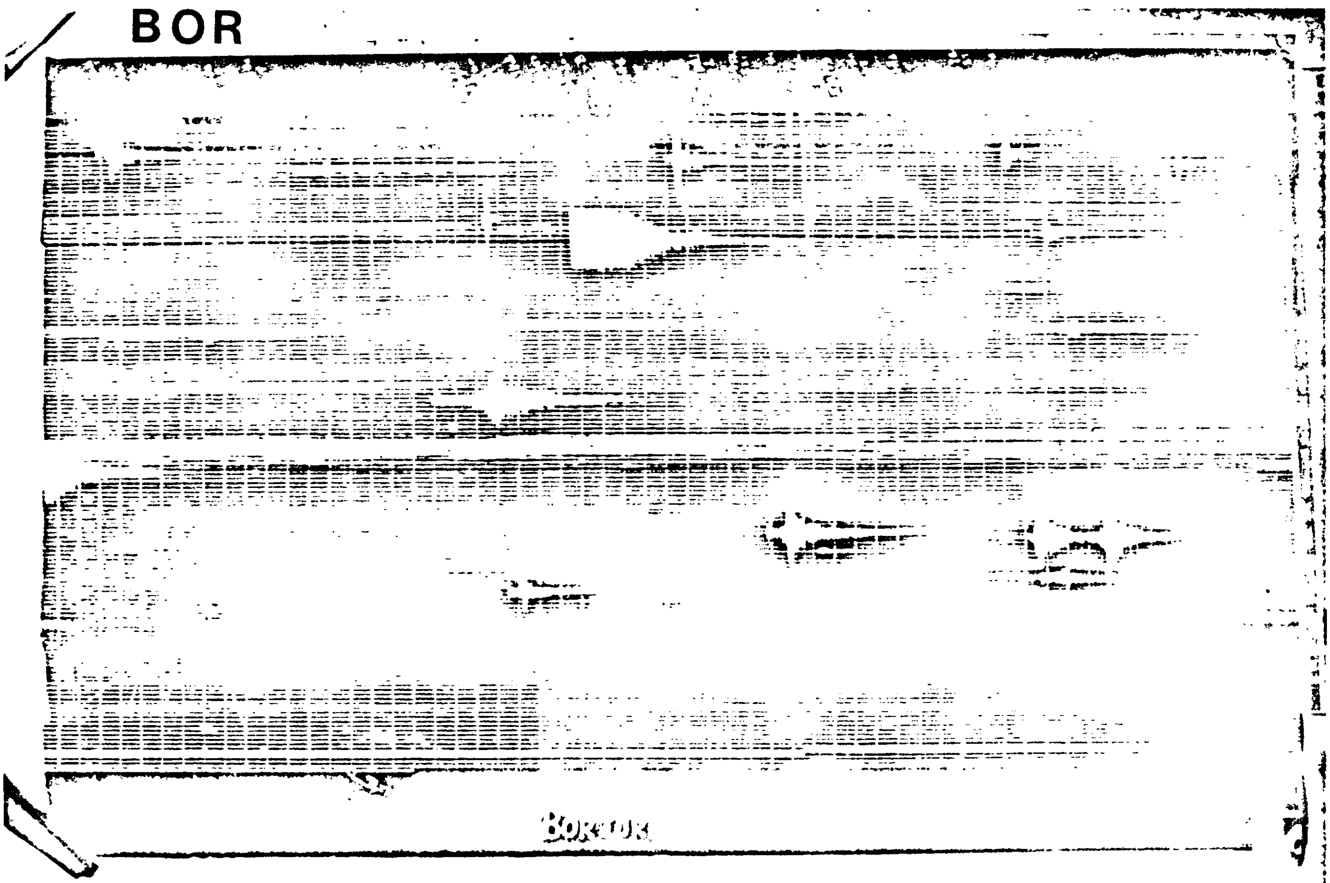

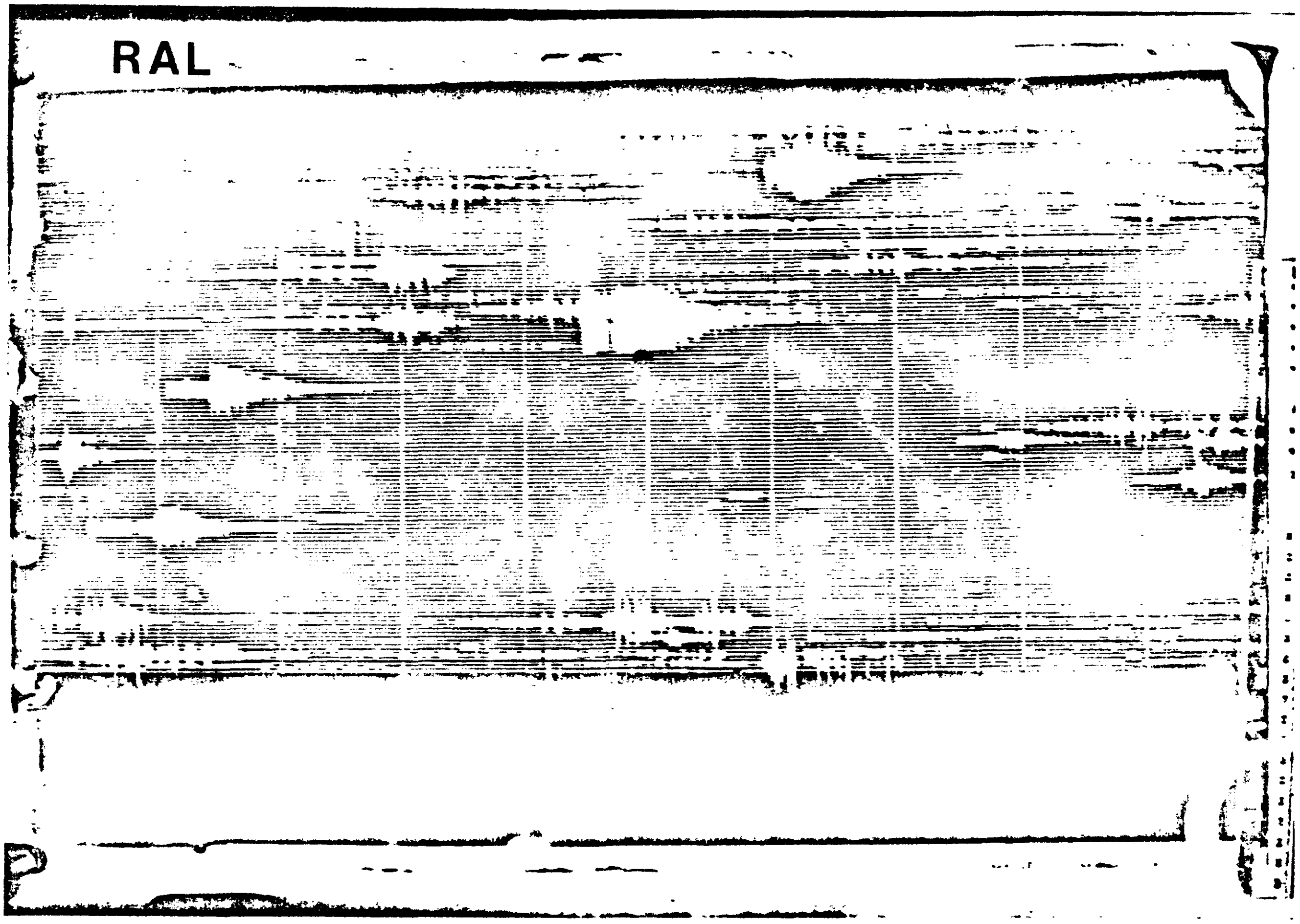
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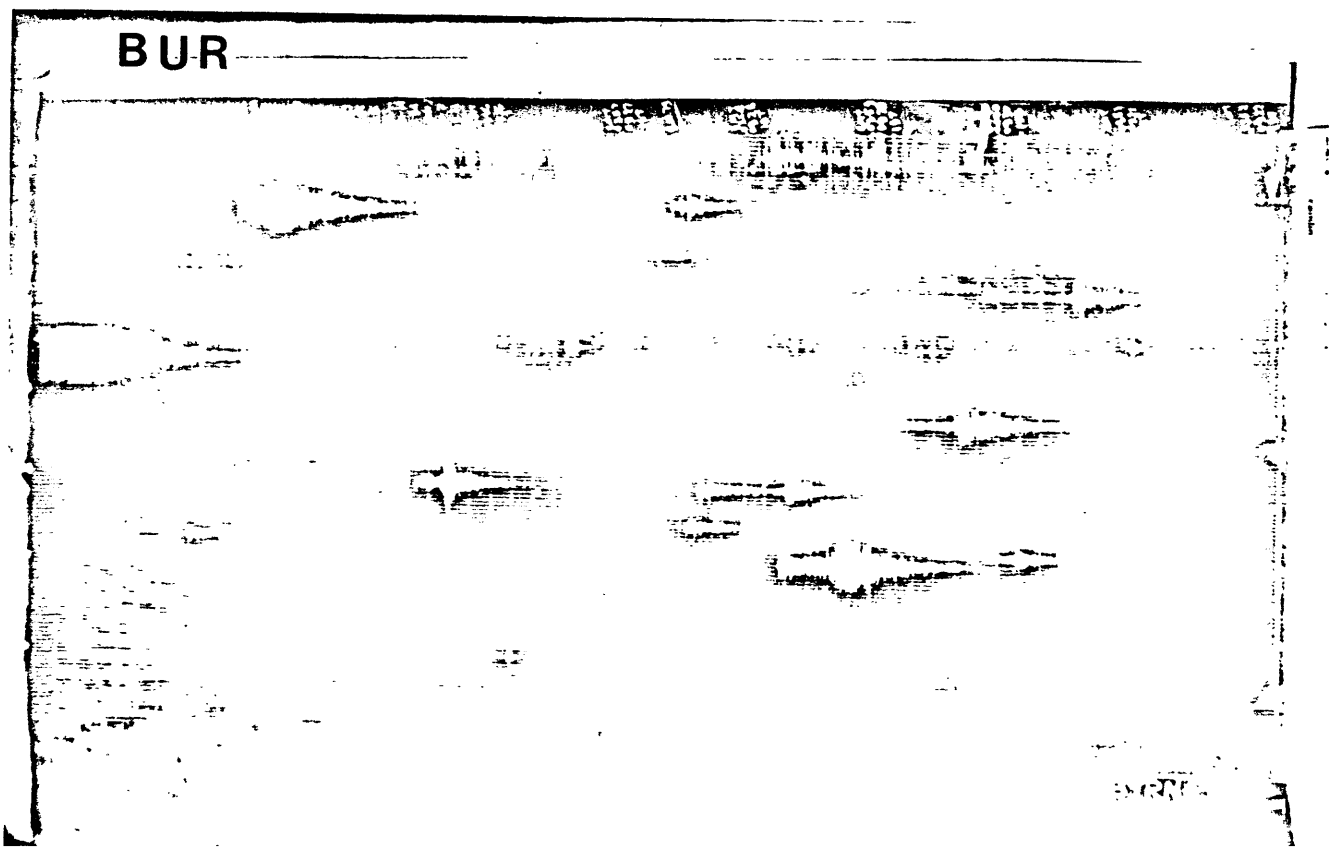
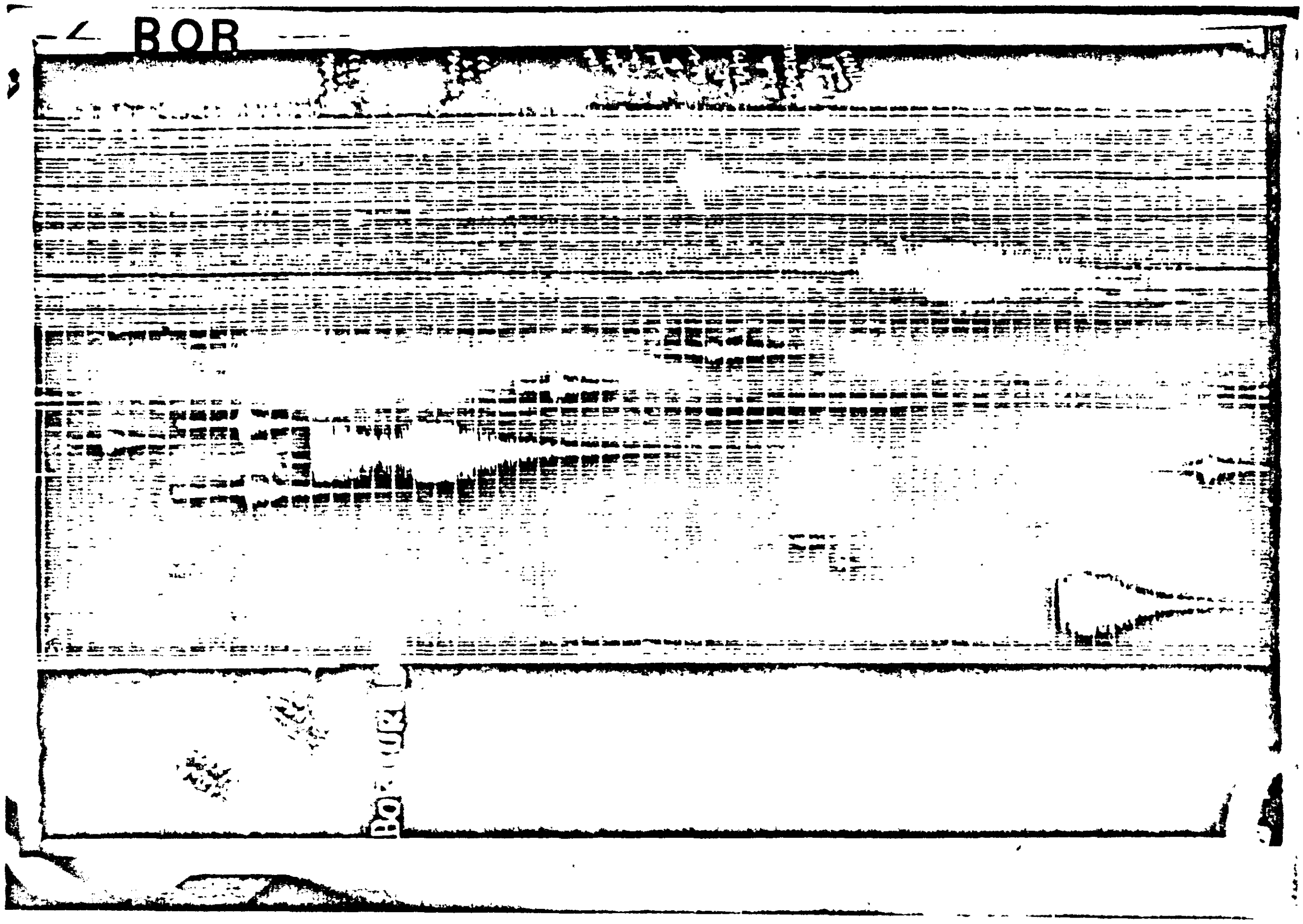

BUR

17 10 79

BOR



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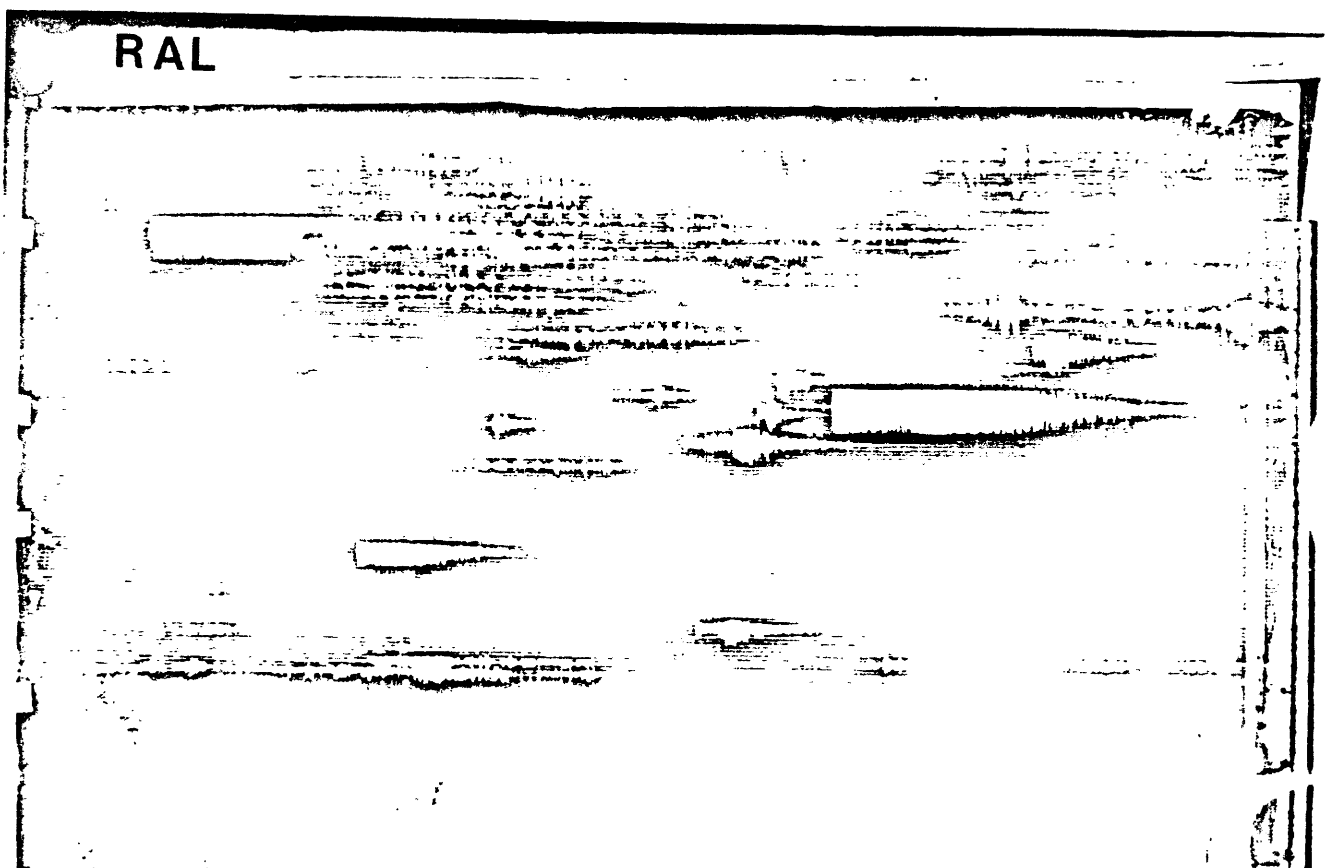

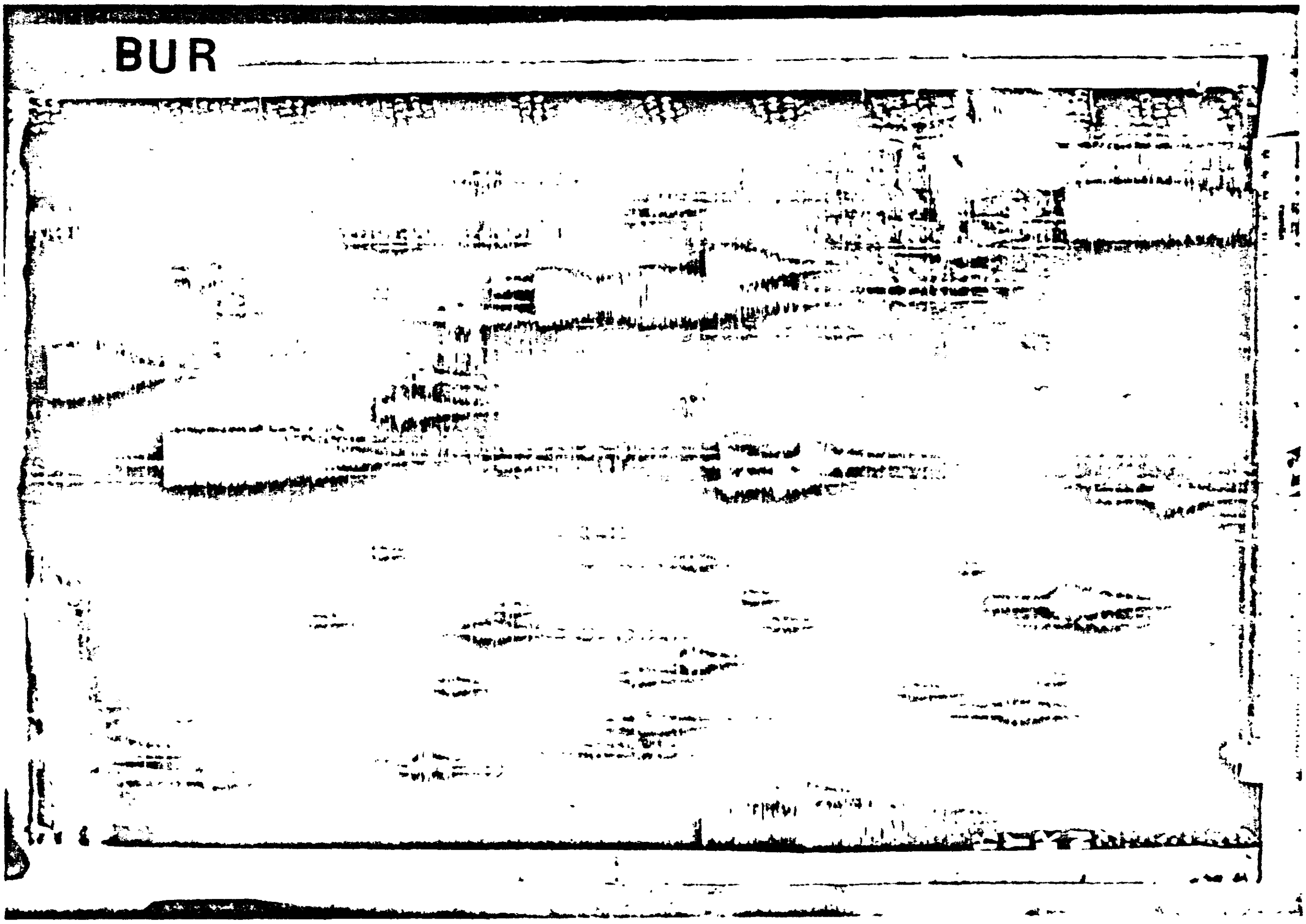
BUR

APPENDIX B

28 pages

Preliminary Phase Data for Assam 1979

These data have not been double checked for errors yet. The analysis is still in progress. For the larger events the Shillong arrival times will be added in the future. The information contained in the different columns is:

1st column	line number
2nd "	station name
3rd "	year
4th "	month, day, hour, minute
5th "	P-wave arrival time, seconds
6th "	P-wave arrival time, seconds
7th "	maximal amplitude, mm
8th "	signal duration, seconds

```
INDIA  T=ØØØØ4 IS ON CR CR   USING ØØ513 BLKS R=ØØØØ

PRELIMINARY PHASE DATA FOR ASSAM 1979

BUR        79 6162Ø39 51.Ø         6Ø.Ø                                    1
RAL        79 6182Ø39 41.5         46.5                                    1
BOR        79 6182Ø39 57.5         75.5                                    1
                  1
BUR        79 6182253 35.Ø         59.5                                    2
RAL        79 6182253 26.Ø         47.Ø                                    2
BOR        79 6182253 28.Ø         48.Ø                                    2
                  1
BUR        79 61ØØ2Ø6 13.4         73.Ø                                    3
RAL        79 61ØØ2Ø6 31.Ø         68.Ø                                    3
BOR        79 61ØØ2Ø6 3Ø.Ø         69.2                                    3
                  1
SHI        79 62ØØ839 15.5                                                 4
BUR        79 62ØØ839 14.Ø                                                 4
RAL        79 62ØØ839 2Ø.Ø                                                 4
BOR        79 62ØØ839 19.2                                                 4
                  1
SHI        79 626Ø939 22.2         34.3                                    5
BUR        79 626Ø939 2Ø.Ø                                                 5
RAL        79 626Ø939 13.Ø                                                 5
BOR        79 626Ø939 16.5                                                 5
                  1
SHI        79 62615Ø7 13.2         62.Ø                                    6
BUR        79 62615Ø7 Ø8.Ø                                                 6
RAL        79 62615Ø7 16.Ø         63.Ø                                    6
BOR        79 62615Ø7 16.Ø                                                 6
                  1
BUR        79 62619Ø9 43.Ø         98.9                                    7
RAL        79 62619Ø9 33.5         82.5                                    7
BOR        79 62619Ø9 43.5         97.5                                    7
                  1
SHI        79 627Ø42Ø 11.5         36.Ø                                    8
BUR        79 627Ø42Ø Ø2.Ø         3Ø.Ø                                    8
RAL        79 627Ø42Ø Ø8.Ø                                                 8
BOR        79 627Ø419 57.Ø                                                 8
                  1
BUR        79 627195Ø Ø7.Ø         46.Ø                                    9
RAL        79 6271949 58.5         93.7                                    9
BOR        79 627195Ø Ø5.7         45.5                                    9
                  1
SHI        79 628Ø82Ø Ø1.Ø                                                 1Ø
BUR        79 628Ø82Ø Ø2.2                                                 1Ø
BOR        79 628Ø82Ø 24.2                                                 1Ø
                  1
BUR        79 628112Ø [illegible]  52.5                                    11
BOR        79 [illegible] [illegible] 4Ø.Ø                                 11
                  1
BUR        79 62814Ø9 23.5                                                 12
RAL        79 62814Ø9 35.2         57.5                                    12
BOR        79 62814Ø9 45.2         62.7                                    12
                  1
BUR        79 62815ØØ Ø1.Ø         31.Ø                                    13
BOR        79 628145Ø 53.5         78.5                                    13
                  1
BUR        79 [illegible] 15.Ø     4Ø.[illegible]                          14
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ØØ61	RAL	79	6282312	Ø6.Ø	31.7	15
ØØ62	BOR	79	6282311	53.7	73.7	15
ØØ63			1			
ØØ64	BUR	79	6282311	33.5		16
ØØ65	RAL	79	6282312	Ø5.Ø	18.Ø	16
ØØ66	BOR	79	6282312	15.6	32.Ø	16
ØØ67			1			
ØØ68	BUR	79	628232Ø	07.5	35.Ø	17
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ØØ7Ø	BOR	79	6282319	55.5	85.Ø	17
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ØØ73	BOR	79	6282344	44.Ø	49.5	18
ØØ74			1			
ØØ75	RAL	79	629ØØ22	18.7	29.Ø	19
ØØ76	BOR	79	629ØØ22	14.Ø	21.Ø	19
ØØ77			1			
ØØ78	RAL	79	629ØØ47	29.5	39.5	2Ø
ØØ79	BOR	79	629ØØ47	45.7	65.7	2Ø
ØØ8Ø			1			
ØØ81	RAL	79	629Ø2Ø7	1Ø.Ø	29.6	21
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ØØ83			1			
ØØ84	RAL	79	629Ø826	Ø1.5	32.5	22
ØØ85	BOR	79	629Ø825	55.Ø	77.5	22
ØØ86			1			
ØØ87	RAL	79	6291144	40.Ø	53.Ø	23
ØØ88	BOR	79	6291144	56.Ø	65.5	23
ØØ89			1			
ØØ9Ø	BOR	79	6291422	24.Ø	47.Ø	24
ØØ91			1			
ØØ92	BUR	79	618204Ø	Ø1.Ø	Ø9.Ø	25
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ØØ94	BOR	79	618ØØ39	53.Ø	77.Ø	25
ØØ95			1			
ØØ96	BUR	79	618211Ø	4Ø.Ø	72.Ø	26
ØØ97	RAL	79	618211Ø	3Ø.Ø	61.Ø	26
ØØ98	BOR	79	618211Ø	39.Ø	77.Ø	26
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Ø1Ø2	BOR	79	6182253	28.Ø	48.Ø	27
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Ø1Ø4	BUR	79	619Ø2Ø6	39.Ø	56.Ø	28
Ø1Ø5	RAL	79	619Ø2Ø6	31.Ø	57.Ø	28
Ø1Ø6	BOR	79	619Ø2Ø5	3Ø.Ø	38.Ø	28
Ø1Ø7			1			
Ø1Ø8	BUR	79	619Ø433	Ø2.Ø	26.Ø	29
Ø1Ø9	RAL	79	619Ø433	54.Ø	74.Ø	29
Ø11Ø	BOR	79	619Ø433	55.Ø	73.Ø	29
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Ø28Ø			1			
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Ø283	BOR	79	626Ø219	Ø6.5	48.Ø	79
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Ø287	BOR	79	[illegible]	43.Ø	67.Ø	8Ø
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Ø317	BUR	79	627Ø323	38.Ø	54.5	89
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Ø369              1
Ø37Ø  BUR   79 6281128 Ø2.5   49.Ø           1Ø4
Ø371  BOR   79 6281128 15.5   37.5           1Ø4
Ø372              1
Ø373  BUR   79 62815ØØ ØØ.Ø   3Ø.Ø           1Ø5
Ø374  BOR   79 6281459 54.Ø   77.Ø           1Ø5
Ø375              1
Ø376  BUR   79 6281917 15.Ø   5Ø.Ø           1Ø6
Ø377  BOR   79 6281917 Ø7.5   53.Ø           1Ø6
Ø378              1
Ø379  BUR   79 6282312 Ø4.Ø   27.Ø           1Ø7
Ø38Ø  BOR   79 6282311 52.5   77.Ø           1Ø7
Ø381              1
Ø382  BUR   79 6282344 36.5   73.Ø           1Ø8
Ø383  RAL   79 6282344 54.Ø   6Ø.Ø           1Ø8
Ø384  BOR   79 6282344 43.5   52.Ø           1Ø8
Ø385              1
Ø386  BUR   79 6282422 13.Ø   26.Ø           1Ø9
Ø387  RAL   79 6282422 18.5   29.5           1Ø9
Ø388  BOR   79 6282422 13.2   21.Ø           1Ø9
Ø389              1
Ø39Ø  BUR   79 629Ø225 41.Ø   96.Ø           11Ø
Ø391  RAL   79 629Ø225 32.5   74.Ø           11Ø
Ø392  BOR   79 629Ø225 41.Ø   96.Ø           11Ø
Ø393              1
Ø394  BUR   79 629Ø255 37.5   1Ø.5           111
Ø395  RAL   79 629Ø255 3Ø.Ø   4[illegible].5           111
Ø396  BOR   79 629Ø255 31.Ø   4[illegible].5           111
Ø397              1
Ø398  BUR   79 629Ø4Ø2 5Ø.Ø   61.5           112
Ø399  BOR   79 629Ø4Ø2 41.Ø   45.Ø           112
Ø4ØØ              1
Ø4Ø1  BUR   79 629Ø437 47.Ø   52.Ø           113
Ø4Ø2  RAL   79 629Ø437 4[illegible].Ø   5Ø.Ø           113
Ø4Ø3  BOR   79 629Ø438 Ø1.5   3Ø.5           113
Ø4Ø4              1
Ø4Ø5  BUR   79 629Ø638 56.Ø   84.5           114
Ø4Ø6  BOR   79 629Ø639 Ø7.5   29.5           114
Ø4Ø7              1
Ø4Ø8  BUR   79 6291144 56.Ø   67.Ø           115
Ø4Ø9  RAL   79 6291144 4Ø.Ø   53.Ø           115
Ø41Ø  BOR   79 6291144 56.Ø   67.Ø           115
Ø411              1
```

Ø412	BUR	79	6291422	27.Ø	53.Ø			116
Ø413	BOR	79	6291422	23.5	45.5			116
Ø414			1					
Ø415	BUR	79	6291449	18.Ø				117
Ø416	BOR	79	6291449	1Ø.Ø				117
Ø417			1					
Ø418	BUR	79	6291747	1[illegible].5				118
Ø419	BAL	79	6291747	Ø5.5	45.Ø			118
Ø42Ø	BOR	79	6291747	Ø2.Ø				118
Ø421			1					
Ø422	BUR	79	6292342	58.Ø				119
Ø423	BAL	79	6292343	11.Ø				119
Ø424	BOR	79	6292343	12.Ø	74.5			119
Ø425			1					
Ø426	BUR	79	6292349	23.Ø	33.Ø			12Ø
Ø427	BOR	79	6292349	12.Ø	16.5			12Ø
Ø428			1					
Ø429	BUR	79	629244Ø	16.Ø	52.Ø			121
Ø43Ø	BOR	79	629244Ø	Ø8.5	57.5			121
Ø431			1					
Ø432	BUR	79	629Ø229	[illegible]	81.Ø			122
Ø433	BOR	79	629Ø229	33.Ø	84.Ø			122
Ø434			1					
Ø435	BUR	79	629Ø254	1Ø.Ø	16.5			123
Ø436	BOR	79	629Ø254	1Ø.Ø	17.5			123
Ø437			1					
Ø438	BUR	79	629Ø555	[illegible]	72.5			124
Ø439	BOR	79	629Ø555	[illegible].5	64.Ø			124
Ø44Ø			1					
Ø441	BUR	79	63Ø1Ø22	Ø4.5	25.5			125
Ø442	BOR	79	63Ø1Ø22	ØØ.Ø	17.5			125
Ø443			1					
Ø444	BUR	79	63Ø1539	57.5	85.Ø			126
Ø445	BOR	79	63Ø1539	51.Ø	74.Ø			126
Ø446			1					
Ø447	BUR	79	63Ø1958	51.Ø	67.Ø			127
Ø448	BOR	79	63Ø1958	53.5	75.5			127
Ø449			1					
Ø45Ø	BUR	79	63Ø21Ø2	18.5				128
Ø451	BOR	79	63Ø21Ø2	12.Ø				128
Ø452			1					
Ø453	BUR	79	63Ø2438	13.5	38.5			129
Ø454	BOR	79	63Ø2438	1Ø.Ø	33.Ø			129
Ø455			1					
Ø456	BUR	79	63Ø2455	52.Ø	98.Ø			13Ø
Ø457	BOR	79	63Ø2455	52.Ø	98.5			13Ø
Ø458			1					
Ø459	BUR	79	63ØØ[illegible]5	[illegible]	[illegible].5			131
Ø46Ø	BOR	79	[illegible]	[illegible]	76.5			131
Ø461								
Ø462	BUR	79	7Ø[illegible]2Ø[illegible]	13.Ø	28.Ø	9999	14.Ø	132
Ø463	BAL	79	7Ø[illegible]2Ø[illegible]	11.Ø	25.Ø	12	5.8	132
Ø464	BOR	79	7Ø[illegible]2Ø2Ø	Ø.7		9999	13.Ø	132
Ø465			1					
Ø466	BUR	79	7Ø3Ø29	1Ø.Ø	24.5	14		133
Ø467	BOR	79	7Ø[illegible]2Ø29	[illegible]	28.Ø	5		133
Ø468			1					
Ø469	BUR	79	7Ø2224[illegible]	27.Ø	46.Ø	12	12.5	134

ØA71	FU[illegible]	[illegible]	[illegible]Ø224[illegible]	[illegible]	[illegible]	3	1Ø.Ø	124
Ø472			1					
Ø473	BUR	79	7Ø42409	47.5	7Ø.5	1Ø	12.4	125
Ø474	BOR	79	7Ø42409	47.Ø	83.Ø	12	1Ø.3	125
Ø475			1					
Ø476	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9999	11.Ø	126
Ø477	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	Ø4.8	126
Ø478	[illegible]	79	7Ø4Ø325	31.5	[illegible]	11	Ø8.8	126
Ø479	CHA	79	7Ø4Ø325	31.[illegible]				126
Ø480			1					
Ø481	BUR	79	7Ø4Ø516	14.5	27.Ø			138
Ø482	CAL	79	7Ø4Ø516	[illegible]	[illegible]			138
Ø483			1					
Ø484	BUR	79	7Ø4Ø926	[illegible]	45.Ø			139
Ø485	CAL	79	7Ø4Ø926	49.Ø	58.Ø			139
Ø486	BOR	79	7Ø4Ø926	35.Ø	41.2			139
Ø487			1					
Ø488	BUR	79	7Ø41Ø11	41.Ø	65.5			14Ø
Ø489	CAL	79	7Ø41Ø11	37.Ø	87.Ø			14Ø
Ø490	BOR	79	7Ø41Ø11	[illegible]	46.Ø			14Ø
Ø491			1					
Ø492	BUR	79	7Ø414Ø1	12.Ø	78.Ø			141
Ø493	CAL	79	7Ø414Ø1	[illegible]	65.2			141
Ø494	BOR	79	7Ø414Ø1	38.6	71.5			141
Ø495			1					
Ø496	BUR	79	7Ø42102	4Ø.Ø	75.5			142
Ø497	BOR	79	7Ø42102	[illegible]	72.Ø			142
Ø498			1					
Ø499	BUR	79	7Ø42109	57.5	6Ø.5	15	Ø5.4	143
Ø500	CAL	79	7Ø42109	32.Ø	[illegible]	7	Ø3.8	143
Ø501	BOR	79	7Ø42109	58.5	66.5	13	Ø6.1	143
Ø502			1					
Ø503	BUR	79	7Ø42212	34.5	75.5		1Ø.6	145
Ø504	BOR	79	7Ø42212	3Ø.Ø	73.Ø	7	Ø8.Ø	145
Ø505			1					
Ø506	BUR	79	7Ø42312	36.5	47.5	16	1Ø.3	146
Ø507	CAL	79	7Ø42312	35.Ø	62.5	1Ø	Ø4.5	146
Ø508	BOR	79	7Ø42312	32.5	41.Ø	14	Ø8.8	146
Ø509			1					
Ø510	BUR	79	7Ø5Ø34Ø	1[illegible].5				147
Ø511	CAL	79	7Ø5Ø34Ø	43.5	1Ø1.Ø	13	1Ø.6	147
Ø512	BOR	79	7Ø5Ø34Ø	46.5	71.5	13	12.Ø	147
Ø513			1					
Ø514	BUR	79	7Ø51121	Ø5.Ø	2Ø.5		24.2	148
Ø515	CAL	79	7Ø51121	16.5	[illegible]			148
Ø516	BOR	79	7Ø51121	Ø8.5	6Ø.Ø	12	21.8	148
Ø517			1					
Ø518	[illegible]	79	[illegible]	11.2				149
Ø519	[illegible]	[illegible]	[illegible]	[illegible]				149
Ø520	[illegible]	[illegible]	[illegible]					149
Ø521	BO[illegible]	79	[illegible]	[illegible].6	36.5			149
Ø522			1					
Ø523	BUR	79	[illegible]	[illegible].5	47.Ø	12	Ø6.Ø	15Ø
Ø524	CAL	79	[illegible]	21.Ø	39.Ø			15Ø
Ø525	BOR	79	[illegible]	[illegible].5	51.Ø	1Ø	Ø5.4	15Ø
Ø526			1					
Ø527	BUR	79	[illegible]	[illegible]	[illegible]	12	1Ø.5	152
Ø528	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Ø530			1					
Ø531	SH7	79	7Ø6Ø236	34.4				154
Ø532	DUR	79	7Ø6Ø236	33.[illegible]				154
Ø533	BAL	[illegible]	7Ø6Ø236	[illegible]	47.5			154
Ø534	BOR	[illegible]	7Ø6Ø236	24.[illegible]				154
Ø535			1					
Ø536	DUR	[illegible]	[illegible]	[illegible]	[illegible]			155
Ø537	BAL	[illegible]	7Ø[illegible]239	16.7	[illegible]			155
Ø538			1					
Ø539	DUR	[illegible]	7Ø6Ø24Ø	[illegible]1.Ø	78.[illegible]			156
Ø540	BAL	[illegible]	7Ø6Ø24Ø	[illegible]	62.[illegible]			156
Ø541	BOR	[illegible]	7Ø6Ø24Ø	38.5	[illegible]			156
Ø542			1					
Ø543	DUR	79	[illegible]	41.Ø	76.Ø	11	Ø9.8	157
Ø544	BAL	[illegible]	[illegible]	35.5	[illegible].Ø	5	Ø5.7	157
Ø545	BOR	7[illegible]	[illegible]	18.5	73.Ø	1Ø	Ø8.Ø	157
Ø546			1					
Ø547	DUR	[illegible]9	7[illegible]6Ø46	41.Ø				158
Ø548	BAL	79	[illegible]246	44.5	62.5			158
Ø549	BOR	[illegible]	7Ø6Ø246	31.2				158
Ø55Ø			1					
Ø551	DUR	79	7Ø[illegible]	1Ø.Ø	23.Ø	9999		159
Ø552	BAL	79	7Ø6[illegible]	[illegible]5.5	31.Ø	13	Ø8.5	159
Ø553	BOR	79	7[illegible]	Ø1.[illegible]	Ø4.5	9999	13.Ø	159
Ø554			1					
Ø555	DUR	79	7Ø621Ø4	43.Ø	69.Ø	9999	13.5	16Ø
Ø556	BAL	79	7Ø621Ø4	39.[illegible]	[illegible]	9999	11.5	16Ø
Ø557	BOR	79	7Ø621Ø4	36.Ø	59.Ø	13	1Ø.5	16Ø
Ø558			1					
Ø559	DUR	79	7Ø62339	ØØ.Ø	25.Ø	8		161
Ø560	BAL	79	7Ø62338	55.Ø	73.Ø	12		161
Ø561	BOR	79	7Ø62338	5Ø.5	69.5	12	Ø8.1	161
Ø562			1					
Ø563	DUR	79	7Ø62349	42.Ø	71.Ø	13	13.2	162
Ø564	BAL	79	7Ø62349	31.5	59.5	1Ø	Ø8.5	162
Ø565	BOR	79	7Ø62349	4Ø.Ø	68.Ø	8	1Ø.5	162
Ø566			1					
Ø567	DUR	79	7Ø62354	18.5	4Ø.5	12	Ø9.5	163
Ø568	BAL	79	7Ø62354	1Ø.5	28.5	1Ø	Ø7.Ø	163
Ø569	BOR	79	7Ø62354	Ø8.Ø	23.5	13	Ø9.Ø	163
Ø57Ø			1					
Ø571	DUR	79	7Ø7Ø538	23.Ø		9999	21.5	164
Ø572	BAL	79	7Ø7Ø538	41.Ø		9999	15.5	164
Ø573	BOR	79	7Ø7Ø538	13.Ø		9999	16.2	164
Ø574			1					
Ø575	DUR	79	7Ø71839	39.Ø	7Ø.Ø	13	13.2	165
Ø576	BAL	79	7Ø71839	32.Ø	55.Ø	4	Ø8.2	165
Ø577	BOR	79	7Ø71839	ØØ.Ø	[illegible]	13	Ø7.5	165
Ø578			1					
Ø579	[illegible]	79	[illegible]	[illegible]	[illegible]	13	Ø6.Ø	166
Ø580	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9999	14.5	166
Ø581	[illegible]	79	7Ø71[illegible]	27.Ø	4Ø.Ø			166
Ø582			1					
Ø583	DUR	79	7Ø71755	46.Ø	56.5	9999	14.5	167
Ø584	BAL	79	[illegible]	6Ø.Ø	67.5		Ø9.9	167
Ø585	BOR	79	[illegible]	[illegible]	[illegible]		1Ø.2	167
Ø586			1					
Ø587	DUR	79	7Ø72Ø5Ø	55.Ø	[illegible]	9999	15.2	168
Ø588	BAL	79	7Ø72Ø5Ø	41.Ø	57.5	9999	15.Ø	168

Ø589	BOR	79	7Ø72Ø5Ø	56.Ø	73.Ø	9999	13.Ø	168
Ø59Ø			1					
Ø591	BUR	79	7Ø72346	39.Ø		9999	11.4	169
Ø592	RAL	79	7Ø72346	37.Ø	41.5	13	Ø7.4	169
Ø593	BOR	79	7Ø72346	51.Ø	65.5	12	Ø7.2	169
Ø594			1					
Ø595	BUR	79	7Ø8Ø334	13.5	47.5	13	Ø9.Ø	17Ø
Ø596	RAL	79	7Ø8Ø334	15.Ø	46.Ø	5	Ø3.5	17Ø
Ø597	BOR	79	7Ø8Ø334	1Ø.5	32.Ø	9999		17Ø
Ø598			1					
Ø599	BUR	79	7Ø8Ø6Ø8	1Ø.Ø	38.5	9999	Ø8.5	171
Ø6ØØ	RAL	79	7Ø8Ø6Ø8	14.Ø	35.Ø	12	Ø8.6	171
Ø6Ø1	BOR	79	7Ø8Ø6Ø8	43.Ø	6Ø.Ø	12	1Ø.5	171
Ø6Ø2			1					
Ø6Ø3	BUR	79	7Ø8Ø938	51.Ø	67.Ø	9999	12.Ø	172
Ø6Ø4	RAL	79	7Ø8Ø938	54.5	64.Ø	9999		172
Ø6Ø5	BOR	79	7Ø8Ø938	51.5		9999	11.5	172
Ø6Ø6			1					
Ø6Ø7	BUR	79	7Ø817Ø8	46.Ø	6Ø.Ø		5.8	173
Ø6Ø8	RAL	79	7Ø817Ø8	34.Ø	47.Ø		13.2	173
Ø6Ø9			1					
Ø61Ø	BUR	79	7Ø81839	Ø5.5	36.Ø	9999	18.2	174
Ø611	RAL	79	7Ø81839	Ø2.Ø	15.5	9999	21.Ø	174
Ø612	BOR	79	7Ø81839	Ø8.Ø	46.5	12	17.7	174
Ø613			1					
Ø614	BUR	79	7Ø82218	2Ø.5	54.Ø	12	Ø8.3	175
Ø615	RAL	79	7Ø82218	13.Ø	4Ø.Ø	3	Ø6.Ø	175
Ø616	BOR	79	7Ø82218	14.5	41.Ø			175
Ø617			1					
Ø618	BUR	79	7Ø9Ø113	33.Ø	54.Ø	9999	21.6	176
Ø619	RAL	79	7Ø9Ø113	27.Ø	43.Ø	9999		176
Ø62Ø	BOR	79	7Ø9Ø113	34.5	68.Ø	9999	15.6	176
Ø621			1					
Ø622	BUR	79	71Ø1356	17.Ø	6Ø.Ø	9999	23.2	178
Ø623	RAL	79	71Ø1356	Ø2.Ø	56.Ø	9999		178
Ø624	BOR	79	71Ø1356	11.Ø	12.8	9999	14.9	178
Ø625			1					
Ø626	BUR	79	71Ø18Ø7	25.Ø	49.Ø	9999	18.5	179
Ø627	RAL	79	71Ø18Ø7	15.Ø	4Ø.Ø	9999		179
Ø628	BOR	79	71Ø18Ø7	23.Ø	49.Ø	9999	16.4	179
Ø629			1					
Ø63Ø	BUR	79	711Ø2Ø3	35.Ø	42.5	13	Ø9.4	18Ø
Ø631	RAL	79	711Ø2Ø3	17.Ø	3Ø.Ø	9999	1Ø.3	18Ø
Ø632	BOR	79	711Ø2Ø3	31.Ø	5Ø.7	5	Ø7.5	18Ø
Ø633			1					
Ø634	BUR	79	711Ø2Ø3	25.Ø	46.Ø			181
Ø635	RAL	79	711Ø2Ø3	11.Ø	3Ø.Ø			181
Ø636	BOR	79	711Ø2Ø3	3Ø.5	52.5			181
Ø637			1					
Ø638	BUR	79	711Ø342	Ø4.Ø	[illegible]	13	11.4	182
Ø639	RAL	79	711Ø341	39.Ø	56.5	7	12.Ø	182
Ø64Ø	BOR	79	711Ø342	Ø5.Ø	53.Ø	6	Ø8.7	182
Ø641			1					
Ø642	BUR	79	711Ø342	Ø4.5	51.Ø			183
Ø643	RAL	79	711Ø341	59.Ø	1ØØ.Ø			183
Ø644	BOR	79	711Ø342	Ø6.Ø	53.Ø			183
Ø645			1					
Ø646	BUR	79	71115Ø4	13.5	31.Ø	9999	15.5	184

Ø648	BOR	79	71115Ø4	33.Ø	59.Ø	9	Ø7.5	184
Ø649			1					
Ø65Ø	BUR	79	7111754	47.Ø	67.Ø	9999	14.8	186
Ø651	RAL	79	7111754	59.Ø	89.Ø	1Ø	Ø7.Ø	186
Ø652	BOR	79	7111755	Ø4.7	31.5	11	Ø8.2	186
Ø653			1					
Ø654	BUR	79	7111754	47.Ø				187
Ø655	RAL	79	7111755	ØØ.Ø	2Ø.Ø			187
Ø656	BOR	79	7111755	Ø4.5	31.5			187
Ø657			1					
Ø658	BUR	79	7112413	33.Ø	55.Ø	14	12.5	188
Ø659	RAL	79	7112413	33.Ø	49.5	4	Ø4.Ø	188
Ø66Ø	BOR	79	7112413	33.Ø	62.Ø	11	1Ø.3	188
Ø661			1					
Ø662	BUR	79	712Ø321	Ø5.5	3Ø.Ø	9999	17.8	189
Ø663	RAL	79	712Ø32Ø	59.Ø	83.Ø	9999	13.Ø	189
Ø664	BOR	79	712Ø32Ø	5Ø.Ø	81.5	9999		189
Ø665			1					
Ø666	BUR	79	712Ø321	Ø5.5				19Ø
Ø667	RAL	79	712Ø32Ø	52.Ø	84.5			19Ø
Ø668	BOR	79	712Ø321	ØØ.Ø				19Ø
Ø669			1					
Ø67Ø	RAL	79	712Ø513	33.5	81.Ø	12	14.7	191
Ø671	BOR	79	712Ø513	21.Ø	6Ø.Ø	9999	11.7	191
Ø672			1					
Ø673	BUR	79	712Ø634	13.Ø	43.Ø	9999	12.3	192
Ø674	RAL	79	712Ø634	Ø6.Ø	29.Ø	9999	17.5	192
Ø675	BOR	79	712Ø634	11.Ø	41.Ø			192
Ø676			1					
Ø677	BUR	79	71216Ø6	24.5				194
Ø678	RAL	79	71216Ø6	3Ø.Ø	46.Ø			194
Ø679	BOR	79	71216Ø6	39.5	65.5			194
Ø68Ø			1					
Ø681	BUR	79	7132ØØ7	26.Ø	63.Ø	12	15.2	195
Ø682	RAL	79	7132ØØ7	19.Ø	41.Ø	9999		195
Ø683	BOR	79	7132ØØ7	25.5	7Ø.Ø	13	12.9	195
Ø684			1					
Ø685	BUR	79	714Ø535	25.5		9999	15.6	196
Ø686	RAL	79	714Ø535	23.5	47.5	9999		196
Ø687	BOR	79	714Ø535	13.Ø		9999	12.7	196
Ø688			1					
Ø689	BUR	79	714Ø535	25.5				197
Ø69Ø	RAL	79	714Ø535	Ø9.Ø	31.5			197
Ø691	BOR	79	714Ø535	13.Ø				197
Ø692			1					
Ø693	RAL	79	7141355	29.Ø	37.5			198
Ø694			1					
Ø695	BUR	79	71416Ø1	57.5	96.Ø	9999	15.Ø	199
Ø696	BOR	79	71416Ø1	5Ø.Ø	77.7	9999	12.1	199
Ø697			1					
Ø698	BUR	79	7141926	Ø.Ø	16.Ø	7	Ø7.5	2ØØ
Ø699	BOR	79	7141926	Ø1.Ø	16.Ø	3		2ØØ
Ø7ØØ			1					
Ø7Ø1	BUR	79	7141939	Ø8.Ø	47.Ø	13		2Ø1
Ø7Ø2	BOR	79	7141939	Ø7.Ø	43.5		Ø8.6	2Ø1
Ø7Ø3			1					
Ø7Ø4	BUR	79	7141951	[illegible]		9999	24.7	2Ø2
Ø7Ø5	BOR	79	7141951	27.Ø		9999	22.Ø	2Ø2
Ø7Ø6			1					

0707	BUR	79	7142154	51.0	56.0	9999	10.1	203
0708	BOR	79	7142154	52.0	59.5	9999	07.5	203
0709			1					
0710	BUR	79	7142251	09.5	16.5	14	09.6	204
0711	BOR	79	7142251	22.5	50.7	1	08.3	204
0712			1					
0713	BUR	79	7150133	04.5	34.5	9	09.5	205
0714	BOR	79	7150132	55.5	76.5	3	07.3	205
0715			1					
0716	BUR	79	7150223	29.5	34.5	9999	11.5	206
0717	BOR	79	715			2	03.5	206
0718			1					
0719	BUR	79	7150242	08.0	20.0	9	07.5	207
0720	BOR	79	7150242	02.0	08.0	13	05.2	207
0721			1					
0722	BUR	79	7150341	21.0	45.0	4	06.5	208
0723	BOR	79	7150341	22.5	32.5	5	04.7	208
0724			1					
0725	BUR	79	7150825	19.5		9999	15.0	209
0726	BOR	79	7150825	18.5	46.0	9999		209
0727			1					
0728	BUR	79	7151507	35.0	55.5	13	15.5	210
0729	BOR	79	7151507	29.0	48.0		12.8	210
0730			1					
0731	BUR	79	7151825	05.5	24.5	9999	12.0	211
0732	BOR	79	7151825	00.5	26.0	9999	11.4	211
0733			1					
0734	BUR	79	7151901	35.0	61.0	3	08.0	212
0735	BOR	79	7151901	25.0	35.5	7	08.3	212
0736			1					
0737	BUR	79	7151923	53.0	63.0	9999	15.0	213
0738	BOR	79	7151923	43.7	64.0	9999	13.6	213
0739			1					
0740	BUR	79	7152007	23.0	53.0	13	15.5	214
0741	BOR	79	7152007	23.0	73.5	9999	13.0	214
0742								
0743	BUR	79	7161159	24.5	55.5	9999		215
0744	BOR	79	7161159	23.0	55.5	9999	13.0	215
0745			1					
0746	BUR	79	7161723	48.5	67.0	12	13.0	216
0747	BOR	79	7161723	44.7	64.0	9999	11.7	216
0748			1					
0749	BUR	79	7161737	57.0	75.0	9	10.0	217
0750	BOR	79	7161737	55.0	65.0	8	06.2	217
0751			1					
0752	BUR	79	7161910	13.0	22.5	9999	07.5	218
0753	BOR	79	7161910	03.0	07.0	13	07.6	218
0754			1					
0755	BUR	79	7162038	15.0	47.0	4	08.4	219
0756	BOR	79	7162038	03.0	35.7	2	05.8	219
0757			1					
0758	BUR	79	7162148	03.0	50.0	12	12.6	220
0759	BOR	79	7162148	51.7	53.0	13	12.5	220
0760			1					
0761	BUR	79	7162316	04.5	23.5	9999	17.5	221
0762	BOR	79	7162316	04.0	22.5	9999	14.3	221
0763			1					
0764	BUR	79	7162338	48.5	68.5	3	08.0	222
0765	BOR	79	7162338	47.5	86.0	3	06.4	222

Ø766			1						
Ø767	BUR	79	7162341	32.5	53.Ø				223
Ø768	BOR	79	7162341	38.5	59.Ø	4			223
Ø769			1						
Ø77Ø	BUR	79	7162412	Ø3.Ø		9999		15.Ø	224
Ø771	BOR	79	7162412	13.Ø	23.Ø	9999		13.8	224
Ø772			1						
Ø773	BUR	79	717Ø116	51.Ø	96.Ø	1Ø		1Ø.Ø	225
Ø774	BOR	79	717Ø116	38.Ø	75.Ø	8		12.Ø	225
Ø775			1						
Ø776	BUR	79	717Ø14Ø	41.Ø	53.5	9999		2Ø.Ø	226
Ø777	BOR	79	717Ø14Ø	5Ø.Ø	62.5	9999		13.Ø	226
Ø778			1						
Ø779	BUR	79	717Ø215	Ø7.Ø	24.Ø	9		Ø8.2	227
Ø78Ø	BOR	79	717Ø215	Ø5.Ø	2Ø.Ø	3		Ø8.5	227
Ø781			1						
Ø782	BUR	79	717Ø239	42.5	55.5	9999		11.5	228
Ø783	BOR	79	717Ø239	57.Ø	73.Ø	6		Ø8.Ø	228
Ø784			1						
Ø785	BUR	79	717Ø326	Ø2.Ø	32.Ø	11		11.5	229
Ø786	BOR	79	717Ø326	ØØ.Ø	25.Ø	11		11.Ø	229
Ø787			1						
Ø788	BUR	79	717Ø338	57.Ø	71.5	11		12.7	23Ø
Ø789	BOR	79	717Ø339	ØØ.Ø	17.Ø	12		13.Ø	23Ø
Ø79Ø			1						
Ø791	BUR	79	7182235	52.Ø	62.Ø	9999		Ø2.5	231
Ø792	RAL	79	7182235	ØØ.4	14.Ø	12		Ø[illegible].2	231
Ø793			1						
Ø794	BUR	79	71824Ø7	[illegible]	14.Ø	11		Ø8.2	232
Ø795	RAL	79	71824Ø7	Ø4.7	Ø8.5	6		Ø2.2	232
Ø796			1						
Ø797	BUR	79	7182446	4Ø.Ø	57.Ø	9		Ø5.6	233
Ø798	RAL	79	7182446	33.Ø	45.Ø	7		Ø2.9	233
Ø799			1						
Ø8ØØ	BUR	79	719Ø1Ø7	46.Ø	73.Ø	9999		21.5	234
Ø8Ø1	RAL	79	719Ø1Ø7	55.Ø	79.5	9999		17.4	234
Ø8Ø2			1						
Ø8Ø3	BUR	79	719Ø236	51.Ø	6Ø.Ø	7		Ø5.1	235
Ø8Ø4	RAL	79	719Ø236	37.7	46.Ø	3		Ø2.Ø	235
Ø8Ø5			1						
Ø8Ø6	BUR	79	719Ø3Ø2	26.5	56.5	9999		16.4	236
Ø8Ø7	RAL	79	719Ø3Ø2	19.Ø	45.Ø	13		11.4	236
Ø8Ø8	BOR	79	719Ø3Ø2	26.5	5Ø.Ø				236
Ø8Ø9			1						
Ø81Ø	BUR	79	719Ø3Ø2	26.5					237
Ø811	RAL	79	719Ø3Ø2	19.Ø	44.5				237
Ø812	BOR	79	719Ø3Ø2	26.5					237
Ø813			1						
Ø814	BUR	79	719Ø519	56.Ø	82.Ø	9999		18.5	238
Ø815	RAL	79	[illegible]	Ø1.Ø	[illegible].5	9999		11.3	238
Ø816	BOR	79	719Ø519	55.5					238
Ø817			1						
Ø818	BUR	79	719Ø618	ØØ.Ø	[illegible]	1Ø		11.Ø	239
Ø819	RAL	79	719Ø617	54.Ø	71.5	9999		11.4	239
Ø82Ø	BOR	79	719Ø614	55.Ø	77.Ø	12		Ø6.5	239
Ø821			1						
Ø822	BUR	79	[illegible]	[illegible]	[illegible]	9999		12.5	24Ø
Ø823	BOR	79	719Ø722	[illegible]	67.5	[illegible]2		Ø9.2	24Ø
Ø824			1						

0825	BUR	79	7191008	67.0	22.0	9999	11.5	241
0826	BOR	79	7191007	58.0	70.5	9999	07.0	241
0827			1					
0828	BUR	79	7191727	27.5	83.0	9999		242
0829	RAL	79	7191727	26.0	86.5			242
0830	BOR	79	7191727	23.5	44.7	8		242
0831			1					
0832	BUR	79	7191819	29.0	44.0	12		243
0833	RAL	79	7191819	22.0	47.0	9999	10.2	243
0834	BOR	79	7191819	25.0	48.5	9999	12.5	243
0835			1					
0836	BUR	79	7192021	39.0	74.0	12	14.0	244
0837	RAL	79	7192021	34.7	71.0		07.6	244
0838	BOR	79	7192021	28.0	64.0	9999	12.5	244
0839			1					
0840	BUR	79	7192129	49.0	63.0			245
0841	BOR	79	7192129	48.0	74.5	7	07.5	245
0842			1					
0843	BUR	79	7192201	30.0	55.0	12	12.7	246
0844	RAL	79	7192201	30.0	45.0	5	05.0	246
0845	BOR	79	7192201	29.0	55.0	13	10.5	246
0846			1					
0847	BUR	79	7192403	19.5	46.5	8	10.5	247
0848	BOR	79	7192403	15.0	26.0	10	07.5	247
0849			1					
0850	BUR	79	7200105	47.0	58.0	9999	18.5	248
0851	RAL	79	7200105	36.0	50.0	9999	12.7	248
0852	BOR	79	7200105	43.0	66.0	9999	16.5	248
0853			1					
0854	BUR	79	7200337	47.0	54.0	9999	12.5	249
0855	RAL	79	7200337	32.0	73.5	7	06.8	249
0856	BOR	79	7200337	59.0	83.0	5	09.5	249
0857			1					
0858	BUR	79	7200639	41.0	62.0	12	12.0	250
0859	RAL	79	7200639	33.0	62.0	9		250
0860	BOR	79	7200639	34.0	60.0	13	08.0	250
0861			1					
0862	BUR	79	7200712	42.0	70.0	9999	12.5	251
0863	RAL	79	7200712	41.0	45.0	9999	06.0	251
0864	BOR	79	7200712	55.0	61.0	12	06.3	251
0865			1					
0866	RAL	79	7201838	15.5	44.5	4	04.6	252
0867	BOR	79	7201838	19.0	51.0	9	07.0	252
0868			1					
0869	BUR	79	7202016	27.0	52.0	8	08.5	253
0870	RAL	79	7202016	21.0	48.0	2	03.6	253
0871	BOR	79	7202016	25.0	42.0	10	05.7	253
0872			1					
0873	RAL	79	7202235	05.5	[illegible]	9999	04.8	254
0874	BOR	79	7202235	16.0	34.0	7	06.5	254
0875			1					
0876	BUR	79	7202353	32.0	57.0	8	10.5	255
0877	BOR	79	7202353	26.5	51.5	5	11.5	255
0878			1					
0879	BUR	79	7210139	57.0	69.0		10.5	256
0880	RAL	79	7210145	02.0	23.5	1		256
0881	BOR	79	7210139	46.0	52.0	9999	08.5	256
0882			1					
0883	BUR	79	7210217	42.5	66.0	9999	14.5	257

Ø884	RAL	79	721Ø217	36.Ø	74.Ø	4	Ø8.4	257
Ø885	BOR	79	721Ø217	44.Ø	87.Ø	12	14.5	257
Ø886			1					
Ø887	BUR	79	721Ø346	58.Ø	65.Ø	13	1Ø.5	258
Ø888	RAL	79	721Ø346	Ø4.5	17.Ø	6	Ø4.4	258
Ø889	BOR	79	721Ø346	15.Ø	37.5	5	Ø8.5	258
Ø89Ø			1					
Ø891	BUR	79	721Ø4Ø1	37.Ø	66.Ø		12.5	259
Ø892	RAL	79	721Ø4Ø1	27.Ø	54.5	8	Ø9.2	259
Ø893	BOR	79	721Ø4Ø1	3Ø.5	57.5	12	Ø8.Ø	259
Ø894			1					
Ø895	BUR	79	721Ø5Ø9	ØØ.Ø	21.Ø	5		26Ø
Ø896	BOR	79	721Ø5Ø8	54.Ø	62.5			26Ø
Ø897			1					
Ø898	BUR	79	721Ø749	5Ø.Ø	74.Ø	9999	14.5	261
Ø899	RAL	79	721Ø749	42.7	67.Ø	13	Ø8.6	261
Ø9ØØ	BOR	79	721Ø749	43.Ø	71.Ø	9999	1Ø.7	261
Ø9Ø1			1					
Ø9Ø2	BUR	79	721Ø9Ø7	46.Ø	93.5			262
Ø9Ø3	RAL	79	721Ø9Ø7	44.7	81.Ø	5		262
Ø9Ø4	BOR	79	721Ø9Ø7	33.5	6Ø.Ø	11	1Ø.5	262
Ø9Ø5			1					
Ø9Ø6	BUR	79	721121Ø	1Ø.5	37.5	6	Ø7.5	263
Ø9Ø7	BOR	79	721121Ø	Ø7.5	32.5	3	Ø5.5	263
Ø9Ø8			1					
Ø9Ø9	BUR	79	7211918	12.Ø	46.Ø	9999		264
Ø91Ø	RAL	79	7211918	11.Ø	36.5	13		264
Ø911	LOF	79	7211918	Ø1.Ø	29.Ø	9999	13.7	264
Ø912			1					
Ø913	RAL	79	7212345	25.5	59.Ø	7		265
Ø914	BOR	79	7212345	12.5	46.Ø	5	1Ø.Ø	265
Ø915			1					
Ø916	BUR	79	722Ø215	22.Ø	35.Ø	13	Ø9.5	266
Ø917	RAL	79	722Ø215	24.Ø	33.Ø	3		266
Ø918	BOR	79	722Ø215	38.Ø	57.5	2	Ø5.Ø	266
Ø919			1					
Ø92Ø	BUR	79	722Ø244	4Ø.Ø	47.5	5	Ø4.5	267
Ø921	BOR	79	722Ø244	31.Ø	34.5	11	Ø3.Ø	267
Ø922			1					
Ø923	BUR	79	722Ø6ØØ	43.Ø	53.5	12	Ø9.5	268
Ø924	RAL	79	722Ø6ØØ	54.Ø	71.5	3	Ø4.2	268
Ø925			1					
Ø926	BUR	79	722Ø942	39.Ø	51.Ø	9999	Ø8.5	269
Ø927	RAL	79	722Ø942	34.5	45.5	9999	Ø6.4	269
Ø928			1					
Ø929	RAL	79	722Ø955	27.Ø	61.5	9999	Ø9.8	27Ø
Ø93Ø	BOR	79	722Ø955	33.5	68.5	9999	Ø8.7	27Ø
Ø931			1					
Ø932	BUR	79	7221Ø31	45.Ø	52.Ø	13		271
Ø933	BOR	79	7221Ø31	4Ø.Ø	5Ø.Ø		Ø5.Ø	271
Ø934			1					
Ø935	BUR	79	7221131	Ø3.Ø	32.5	7		272
Ø936	BOR	79	7221131	58.5	64.Ø	9999	Ø5.Ø	272
Ø937			1					
Ø938	BUR	79	7221215	33.Ø	5Ø.Ø		12.Ø	273
Ø939	RAL	79	7221215	25.Ø	55.Ø	8	Ø4.6	273
Ø94Ø	BOR	79	7221215	2Ø.5	58.Ø	9999		273
Ø941			1					
Ø942	BUR	79	7221345	ØØ.Ø	45.Ø	11	Ø6.5	274

Ø943	BOR	79	7221345	31.Ø	35.5	8	Ø4.Ø	274
Ø944			1					
Ø945	BUR	79	7221645	11.Ø	30.5	13	Ø7.5	275
Ø946	RAL	79	7221645	12.Ø	38.Ø		Ø8.Ø	275
Ø947	BOR	79	7221645	Ø6.Ø	15.5	9999	Ø7.5	275
Ø948			1					
Ø949	BUR	79	7221741	41.Ø	71.Ø	11	Ø9.5	276
Ø95Ø	RAL	79	7221741	36.Ø	68.5	5	Ø5.Ø	276
Ø951	BOR	79	7221741	29.5	56.5	9999	Ø8.Ø	276
Ø952			1					
Ø953	BUR	79	7221825	28.Ø	49.5	9999		277
Ø954	RAL	79	7221825	36.Ø	52.Ø	12	Ø8.2	277
Ø955	BOR	79	7221825	47.Ø	73.Ø	11	13.5	277
Ø956			1					
Ø957	BUR	79	72219Ø9	1Ø.5	18.Ø	9999	1Ø.5	278
Ø958	RAL	79	72219Ø9	Ø2.2	13.Ø	9999	Ø6.3	278
Ø959	BOR	79	72219Ø9	14.5	34.5	13	Ø7.5	278
Ø96Ø			1					
Ø961	BUR	79	72221Ø4	35.5	43.Ø	9999	Ø3.Ø	279
Ø962	RAL	79	72221Ø4	46.7	67.5	6	Ø6.Ø	279
Ø963	BOR	79	72221Ø4	3Ø.Ø	77.5	2	11.Ø	279
Ø964			1					
Ø965	BUR	79	7222136	Ø6.Ø	1Ø.5		Ø8.Ø	28Ø
Ø966	RAL	79	7222136	Ø3.Ø	Ø7.Ø	9999	Ø2.3	28Ø
Ø967	BOR	79	7222136	13.Ø	24.[illegible]	3	Ø6.Ø	28Ø
Ø968			1					
Ø969	BUR	79	7222313	17.Ø				281
Ø97Ø	RAL	79	7222313	16.2	31.Ø	9999	12.4	281
Ø971	BOR	79	7222313	Ø5.Ø		9999	21.5	281
Ø972			1					
Ø973	BUR	79	7222352	22.Ø		9999		282
Ø974	RAL	79	7222352	33.Ø		9999	22.Ø	282
Ø975	BOR	79	7222352	37.5		9999		282
Ø976			1					
Ø977	BUR	79	7222436	13.5	41.5		12.5	283
Ø978	RAL	79	7222436	Ø8.2	38.7	12	1Ø.7	283
Ø979	BOR	79	7222436	1Ø.Ø	36.5			283
Ø98Ø			1					
Ø981	BUR	79	723Ø1Ø9	19.Ø	44.Ø	12	Ø9.5	284
Ø982	RAL	79	723Ø1Ø9	11.Ø	36.5	4	Ø6.3	284
Ø983	BOR	79	723Ø1Ø9	13.Ø	41.5	12	Ø6.Ø	284
Ø984			1					
Ø985	BUR	79	723Ø131	27.5	45.Ø	9999	17.5	285
Ø986	RAL	79	723Ø131	3Ø.5	68.Ø	12	12.5	285
Ø987	BOR	79	723Ø131	17.Ø	35.Ø	9999	16.5	285
Ø988			1					
Ø989	BUR	79	723Ø2Ø5	24.5	55.5	9999	12.Ø	286
Ø99Ø	RAL	79	723Ø2Ø5	17.Ø	22.[illegible]	12	11.Ø	286
Ø991	BOR	79	723Ø2Ø5	19.Ø	47.5	9999	Ø9.Ø	286
Ø992			1					
Ø993	RAL	79	7242427	31.Ø	68.5	12	Ø9.8	287
Ø994	BOR	79	7242427	38.Ø	85.1	12	Ø7.2	287
Ø995			1					
Ø996	RAL	79	725Ø3Ø4	47.5	64.Ø	9999	17.5	288
Ø997	BOR	79	725Ø3Ø4	Ø4.1		9999	Ø8.5	288
Ø998			1					
Ø999	RAL	79	725Ø42Ø	21.5	57.5		Ø9.5	289
1ØØØ	BOR	79	725Ø42Ø	29.Ø	73.Ø		Ø9.5	289
1ØØ1			1					

1ØØ2	RAL	79	725Ø45Ø	11.Ø	38.Ø	13	1Ø.3	29Ø
1ØØ3	BOR	79	725Ø45Ø	18.1	45.1	13	1Ø.Ø	29Ø
1ØØ4			1					
1ØØ5			1					
1ØØ6	RAL	79	725Ø552	41.Ø	77.5	9999	17.7	292
1ØØ7	BOR	79	725Ø552	48.1	98.1	9999		292
1ØØ8			1					
1ØØ9	RAL	79	725Ø624	39.Ø	61.Ø	9999	13.7	293
1Ø1Ø	BOR	79	725Ø624	28.1	45.Ø	9999	14.Ø	293
1Ø11			1					
1Ø12	RAL	79	725Ø628	57.5	6Ø.5	9999	13.Ø	294
1Ø13	BOR	79	725Ø628	47.1		9999		294
1Ø14			1					
1Ø15	BUR	79	7251257	ØØ.5	13.5	9999	1Ø.5	295
1Ø16	RAL	79	7251255	4Ø.Ø	56.5			295
1Ø17			1					
1Ø18	BUR	79	7251958	47.5	56.5	9999		296
1Ø19	RAL	79	7251958	47.5		9999	16.Ø	296
1Ø2Ø	BOR	79	7251958	39.1	62.5	9999	16.5	296
1Ø21			1					
1Ø22	BUR	79	7252ØØ1	46.5	55.5	13		297
1Ø23	RAL	79	7252ØØ1	47.Ø	59.5	5	Ø2.5	297
1Ø24	BOR	79	7252ØØ1	39.6		9999	Ø4.5	297
1Ø25			1					
1Ø26	BUR	79	7252Ø13	46.Ø	56.Ø	9999	15.2	298
1Ø27	RAL	79	7252Ø13	46.Ø	56.Ø	9999	Ø9.9	298
1Ø28	BOR	79	7252Ø13	38.5		9999	15.Ø	298
1Ø29			1					
1Ø3Ø	BUR	79	7252141	32.5	55.Ø	9999	17.Ø	299
1Ø31	RAL	79	7252141	24.5	51.6	9999	1Ø.4	299
1Ø32	BOR	79	7252141	3Ø.1		9999		299
1Ø33			1					
1Ø34	BUR	79	7252251	42.Ø	57.Ø	12	Ø9.5	3ØØ
1Ø35	RAL	79	7252251	34.5	45.Ø	1Ø	Ø3.5	3ØØ
1Ø36			1					
1Ø37	BUR	79	726Ø447	26.Ø	4Ø.5	9999	17.7	3Ø1
1Ø38	RAL	79	726Ø447	31.5	72.5	9999	14.Ø	3Ø1
1Ø39	BOR	79	726Ø447	16.1	51.1	9999	12.4	3Ø1
1Ø4Ø			1					
1Ø41	BUR	79	7261247	Ø2.5		9999	26.5	3Ø2
1Ø42	RAL	79	7261247	13.5	3Ø.5		14.5	3Ø2
1Ø43	BOR	79	7261247	15.1	43.1	9999	16.5	3Ø2
1Ø44			1					
1Ø45	BUR	79	7261ØØØ	46.Ø	62.Ø	9999		3Ø3
1Ø46	BOR	79	7261ØØØ	37.1	57.1	9999		3Ø3
1Ø47			1					
1Ø48	BUR	79	7262236	26.5	[illegible]		Ø8.5	3Ø4
1Ø49	BOR	79	7262236	18.7	[illegible]	9999	Ø4.Ø	3Ø4
1Ø5Ø			1					
1Ø51	BUR	79	7262318	56.5	65.5	9999	13.4	3Ø5
1Ø52	BOR	79	7262318	38.1	79.6	13	Ø9.5	3Ø5
1Ø53			1					
1Ø54	BUR	79	727Ø213	12.5	51.Ø	9999	2Ø.2	3Ø6
1Ø55	RAL	79	727Ø213	22.5	26.5	9	15.5	3Ø6
1Ø56	BOR	79	727Ø213	22.1	16.1	9999	15.7	3Ø6
1Ø57			1					
1Ø58	BUR	79	727Ø3Ø9	35.5	72.Ø	13	11.5	3Ø7
1Ø59	BOR	79	727Ø3Ø9	33.6	73.6	11	Ø8.5	3Ø7
1Ø6Ø			1					

1Ø61	BUR	79	727Ø7Ø3	23.Ø	32.Ø	12	Ø9.6	3Ø8
1Ø62	RAL	79	727Ø7Ø3	23.Ø	34.Ø	2	Ø2.5	3Ø8
1Ø63	BOR	79	727Ø7Ø3	16.1	2Ø.1	9999	Ø3.5	3Ø8
1Ø64			1					
1Ø65	BUR	79	727Ø726	49.5	51.5		11.4	3Ø9
1Ø66	BOR	79	727Ø726	43.6	1Ø.1	13	Ø8.5	3Ø9
1Ø67			1					
1Ø68	BUR	79	727Ø942	28.5	39.5	9999	15.Ø	31Ø
1Ø69	RAL	79	727Ø942	28.Ø	42.5	9999	Ø3.4	31Ø
1Ø7Ø	BOR	79	727Ø942	17.1		9999	12.2	31Ø
1Ø71			1					
1Ø72	BUR	79	7271123	31.Ø	64.Ø	11	1Ø.2	311
1Ø73	BOR	79	7271123	19.9	47.6	1Ø	1Ø.Ø	311
1Ø74			1					
1Ø75	BUR	79	727132Ø	32.5	7Ø.Ø	11	11.Ø	312
1Ø76	BOR	79	727132Ø	17.1	48.1	1Ø	Ø7.Ø	312
1Ø77			1					
1Ø78	BUR	79	7271854	Ø7.Ø	47.Ø		Ø9.5	313
1Ø79	BOR	79	7271853	57.1	88.1	11	Ø6.5	313
1Ø8Ø			1					
1Ø81	BUR	79	7271959	12.5	36.5	9999	17.Ø	314
1Ø82	RAL	79	7271959	Ø4.5	34.5	13	1Ø.2	314
1Ø83	BOR	79	7271959	11.1	4Ø.1	9999	12.Ø	314
1Ø84			1					
1Ø85	BUR	79	7272158	17.Ø	39.Ø	13	13.4	315
1Ø86	RAL	79	7272158	14.5	31.5	3	Ø5.Ø	315
1Ø87	BOR	79	7272158	Ø8.1	28.1	12	Ø9.5	315
1Ø88			1					
1Ø89	BUR	79	728Ø241	41.Ø	81.Ø	12	11.4	316
1Ø9Ø	BOR	79	728Ø241	42.5	84.5	7	Ø5.Ø	316
1Ø91			1					
1Ø92	BUR	79	7281619	3Ø.5	42.Ø	9999	13.2	317
1Ø93	RAL	79	7281619	39.Ø	61.5	9	Ø6.8	317
1Ø94	BOR	79	7281619	24.Ø	37.5	9999	14.Ø	317
1Ø95			1					
1Ø96	BUR	79	7281748	Ø9.5	37.5		1Ø.5	318
1Ø97	RAL	79	7281748	2Ø.Ø	66.5	4	Ø7.5	318
1Ø98	BOR	79	7281748	28.Ø	6Ø.Ø	2	Ø9.5	318
1Ø99			1					
11ØØ	BUR	79	72819Ø1	Ø9.Ø	59.Ø	3	Ø5.5	319
11Ø1	RAL	79	72819Ø1	59.Ø	1Ø7.Ø	2	Ø7.8	319
11Ø2	BOR	79	72819Ø1	Ø7.5	57.5	3	11.Ø	319
11Ø3			1					
11Ø4	BUR	79	7281755	Ø8.9	41.Ø		1Ø.5	32Ø
11Ø5	BOR	79	7281755	Ø9.Ø	46.Ø	1Ø	13.Ø	32Ø
11Ø6			1					
11Ø7	BUR	79	729Ø231	1Ø.Ø	32.Ø	2	Ø6.5	321
11Ø8	RAL	79	729Ø231	Ø2.5	17.5	3	Ø3.6	321
11Ø9	BOR	79	729Ø231	Ø7.Ø	26.Ø	3	Ø7.5	321
111Ø			1					
1111	BUR	79	729Ø4Ø3	37.Ø	46.Ø	6	16.Ø	322
1112	RAL	79	729Ø4Ø3	4Ø.Ø	55.5	3	Ø3.6	322
1113	BOR	79	729Ø4Ø3	32.Ø	41.Ø	9999	Ø8.Ø	322
1114			1					
1115	BUR	79	729Ø456	3Ø.5	64.Ø	28	14.5	323
1116	RAL	79	729Ø456	25.Ø	58.Ø	9999	13.2	323
1117	BOR	79	729Ø456	13.Ø	35.5	9999		323
1118			1					
1119	BUR	79	729Ø535	23.Ø	62.Ø	13	Ø8.6	324

112Ø	RAL	79	729Ø535	14.5	49.Ø	9	Ø5.9	324
1121	BOR	79	729Ø535	22.Ø	6Ø.5	9		324
1122			1					
1123	BUR	79	729Ø733	44.Ø	49.Ø	9999	Ø7.5	325
1124	BOR	79	729Ø733	23.Ø	31.5	9999	Ø4.5	325
1125			1					
1126	BUR	79	7291411	23.Ø	38.Ø	9999	Ø9.5	326
1127	RAL	79	7291411	27.5	39.Ø		Ø5.8	326
1128	BOR	79	7291411	19.5		9999	1Ø.Ø	326
1129			1					
113Ø	BUR	79	7311621	27.Ø	51.Ø	23	11.5	327
1131	RAL	79	7311621	19.5	43.Ø	1Ø	Ø6.8	327
1132			1					
1133	BUR	79	7311648	31.Ø	74.Ø	27		328
1134	RAL	79	7311648	4Ø.5	92.Ø	13	16.6	328
1135			1					
1136	BUR	79	7311845	19.Ø	51.Ø		1Ø.5	329
1137	RAL	79	7311845	11.Ø	37.5		Ø8.Ø	329
1138			1					
1139	BUR	79	7312Ø27	23.Ø	83.Ø	28	18.Ø	33Ø
114Ø	RAL	79	7312Ø27	5Ø.Ø	65.Ø	9999	18.Ø	33Ø
1141			1					
1142	BUR	79	7312113	26.Ø	51.Ø	26	13.5	331
1143	RAL	79	7312113	35.5	49.5	9999	Ø9.6	331
1144			1					
1145	BUR	79	73123Ø6	52.Ø	78.Ø	27	14.5	332
1146	RAL	79	73123Ø6	42.5	77.Ø	9999	11.6	332
1147			1					
1148	BUR	79	8Ø1Ø322	51.Ø	7Ø.5	12	Ø9.2	333
1149	RAL	79	8Ø1Ø322	45.5	56.Ø	5	Ø4.7	333
115Ø			1					
1151	BUR	79	8Ø1Ø351	4Ø.5	6Ø.5	22	1Ø.5	334
1152	RAL	79	8Ø1Ø351	23.Ø	52.5	9	Ø5.5	334
1153			1					
1154	BUR	79	8Ø1Ø432	59.Ø	83.Ø	24	11.2	335
1155	RAL	79	8Ø1Ø432	53.Ø	77.Ø	8	Ø5.6	335
1156			1					
1157	BUR	79	8Ø11114	57.Ø	76.Ø	27	12.5	336
1158	RAL	79	8Ø11114	56.Ø	69.Ø	9999		336
1159			1					
116Ø	BUR	79	8Ø11429	15.Ø	52.Ø	9999	28.Ø	337
1161	RAL	79	8Ø11429	Ø9.5	18.5	9999	33.Ø	337
1162			1					
1163	BUR	79	8Ø11951	Ø9.Ø	36.Ø		15.3	338
1164	RAL	79	8Ø11951	Ø1.5	28.5	9999	1Ø.2	338
1165			1					
1166	BUR	79	8Ø12236	55.Ø	52.5		Ø9.Ø	339
1167	RAL	79	8Ø12236	27.5	45.5	9999	Ø6.9	339
1168			1					
1169	BUR	79	8Ø12445	22.Ø	35.5	9999	Ø8.5	34Ø
117Ø	RAL	79	8Ø12445	3Ø.Ø	39.Ø	6	Ø4.4	34Ø
1171			1					
1172	BUR	79	8Ø2Ø247	24.5	32.5	9999	1Ø.4	341
1173	RAL	79	8Ø2Ø247	35.Ø	58.5	5	Ø6.2	341
1174			1					
1175	BUR	79	8Ø2Ø642	15.Ø	31.Ø	27	12.3	342
1176	RAL	79	8Ø2Ø642	27.5	48.Ø	5	Ø7.3	342
1177			1					
1178	BUR	79	8Ø2Ø856	24.Ø	35.Ø	26	Ø9.5	343

1179	RAL	79	8Ø2Ø865	32.Ø	51.Ø	5	Ø5.Ø	343
118Ø			1					
1181	BUR	79	8Ø21113	ØØ.Ø	14.Ø	1Ø	Ø6.2	344
1182	RAL	79	8Ø21112	48.Ø	59.Ø		Ø2.6	344
1183			1					
1184	BUR	79	8Ø21218	43.Ø	53.4	27	13.5	345
1185	RAL	79	8Ø21218	51.Ø	64.5		Ø7.3	345
1186			1					
1187	BUR	79	8Ø219Ø8	Ø7.Ø	24.Ø			346
1188	RAL	79	8Ø219Ø8	Ø2.5	20.Ø	13	Ø7.7	346
1189			1					
119Ø	BUR	79	8Ø313Ø1	Ø3.5	27.5	26	13.Ø	347
1191	BOR	79	8Ø313Ø1	Ø5.Ø	34.Ø	23	11.Ø	347
1192			1					
1193	BUR	79	8Ø31325	Ø3.Ø	25.Ø	9999	18.Ø	348
1194	BOR	79	8Ø31325	Ø2.Ø	13.Ø	9999	14.5	348
1195			1					
1196	BUR	79	8Ø31543	39.Ø	67.Ø		1Ø.2	349
1197	BOR	79	8Ø31543	33.Ø	55.Ø	24	Ø7.8	349
1198			1					
1199	BUR	79	8Ø319Ø6	45.Ø	73.5	27	16.5	35Ø
12ØØ	BOR	79	8Ø319Ø6	41.Ø	64.Ø	9999	16.Ø	35Ø
12Ø1			1					
12Ø2	BUR	79	8Ø32ØØØ	34.Ø	42.Ø	26	Ø8.5	351
12Ø3	BOR	79	8Ø32ØØØ	3Ø.Ø	34.Ø	9999	Ø7.Ø	351
12Ø4			1					
12Ø5	BUR	79	8Ø32422	4Ø.Ø	44.Ø	2	Ø3.Ø	352
12Ø6	BOR	79	8Ø32422	22.Ø	25.5	18	Ø2.8	352
12Ø7			1					
12Ø8	BUR	79	8Ø4Ø133	13.Ø	44.Ø	19	11.5	353
12Ø9	BOR	79	8Ø4Ø133	23.Ø	63.Ø	21	1Ø.8	353
121Ø			1					
1211	BUR	79	8Ø42135	21.5	62.5	9999	17.Ø	354
1212	BOR	79	8Ø42135	1Ø.1	58.Ø	9999	28.9	354
1213			1					
1214	BUR	79	8Ø513ØØ	35.5	51.5	13	11.3	355
1215	BOR	79	8Ø513ØØ	37.Ø	64.Ø	13	12.2	355
1216			1					
1217	BUR	79	8Ø51541	28.5	47.Ø	12	11.Ø	356
1218	BOR	79	8Ø51541	21.Ø	37.Ø	11	Ø8.1	356
1219			1					
122Ø	BUR	79	8Ø521Ø7	21.Ø	57.Ø	9999	17.2	357
1221	BOR	79	8Ø521Ø7	15.Ø	36.Ø	9999	15.5	357
1222			1					
1223	BUR	79	8Ø6Ø1Ø7	1Ø.Ø	6Ø.Ø	9999	13.5	358
1224	RAL	79	8Ø6Ø1Ø7	31.5	43.Ø	9999	14.6	358
1225	BOR	79	8Ø6Ø1Ø7	33.5	52.Ø	9999	Ø6.5	358
1226			1					
1227	BUR	79	8Ø6Ø322	15.5	45.5	9999	13.2	359
1228	RAL	79	8Ø6Ø322	ØØ.Ø	16.5	9999	17.2	359
1229	BOR	79	8Ø6Ø322	1Ø.1	31.5	9999	12.Ø	359
123Ø			1					
1231	BUR	79	8Ø6Ø823	21.Ø	27.5	9999	Ø5.9	36Ø
1232	BOR	79	8Ø6Ø823	Ø9.5	15.Ø	12	Ø4.6	36Ø
1233			1					
1234	BUR	79	8Ø6Ø9Ø2	Ø4.5	43.Ø	12	11.6	361
1235	BOR	79	8Ø6Ø9Ø2	Ø3.5	45.Ø	5	Ø8.Ø	361
1236			1					
1237	BUR	79	8Ø621ØØ	51.Ø	71.Ø	24	1Ø.5	362

1238	RAL	79	8Ø6212Ø	41.Ø	52.Ø	9999	15.Ø	362
1239			1					
124Ø	BUR	79	8Ø62126	Ø4.5	15.5	25	Ø7.5	363
1241	RAL	79	8Ø62126	12.Ø	28.Ø	18	Ø8.8	363
1242			1					
1243	BUR	79	8Ø62137	52.Ø	64.Ø	26	Ø9.Ø	364
1244	RAL	79	8Ø62138	ØØ.Ø	15.Ø	24	Ø8.Ø	364
1245			1					
1246	BUR	79	8Ø62243	23.Ø	31.Ø	27	12.5	365
1247	RAL	79	8Ø62243	27.5	28.Ø	9999	13.Ø	365
1248			1					
1249	BUR	79	8Ø62337	26.Ø	32.5	17	Ø4.4	366
125Ø	RAL	79	8Ø62337	26.Ø	31.5	13	ØØ.4	366
1251			1					
1252	BUR	79	8Ø7Ø152	42.5	78.Ø	24	Ø9.5	367
1253	RAL	79	8Ø7Ø152	34.Ø	66.Ø	22	11.2	367
1254			1					
1255	BUR	79	8Ø7Ø447	21.Ø	55.Ø	11	Ø7.5	368
1256	RAL	79	8Ø7Ø447	Ø3.Ø	38.Ø	7	Ø7.Ø	368
1257			1					
1258	BUR	79	8Ø81415	Ø5.Ø	31.Ø	27	16.5	369
1259	RAL	79	8Ø81415	11.Ø	26.Ø	9999		369
126Ø			1					
1261	BUR	79	8Ø8152Ø	3Ø.Ø	66.Ø	26	11.5	37Ø
1262	RAL	79	8Ø8152Ø	29.Ø	5Ø.5	2Ø	Ø8.Ø	37Ø
1263	BOR	79	8Ø8152Ø	33.Ø	61.5	9999	Ø8.8	37Ø
1264			1					
1265	BUR	79	8Ø81545	49.5	84.Ø	27	16.5	371
1266	RAL	79	8Ø81545	49.5	68.Ø		17.Ø	371
1267	BOR	79	8Ø81545	55.Ø	79.Ø	9999	13.Ø	371
1268			1					
1269	BUR	79	8Ø81744	57.Ø	91.5	7	Ø8.5	372
127Ø	RAL	79	8Ø81744	48.5	8Ø.Ø	4	Ø6.Ø	372
1271	BOR	79	8Ø81744	47.Ø	77.Ø	26	Ø7.Ø	372
1272			1					
1273	BUR	79	8Ø822Ø2	Ø3.Ø	41.Ø	1Ø	Ø6.5	373
1274	BOR	79	8Ø822Ø2	14.Ø	17.5	25	Ø8.4	373
1275			1					
1276	BUR	79	8Ø91Ø17	5Ø.Ø	8Ø.Ø		14.Ø	374
1277	BOR	79	8Ø91Ø17	47.Ø	8Ø.Ø	9999	14.2	374
1278			1					
1279	BUR	79	8Ø912Ø4	Ø3.Ø	31.Ø	26		375
128Ø	RAL	79	8Ø912Ø3	53.Ø	79.Ø		Ø8.5	375
1281	BOR	79	8Ø912Ø4	Ø1.Ø	34.Ø	14	22.Ø	375
1282			1					
1283	BUR	79	8Ø92ØØ8	46.5	59.Ø	2Ø	Ø9.Ø	376
1284	RAL	79	8Ø92ØØ8	45.5	58.5	13	Ø6.Ø	376
1285	BOR	79	8Ø92ØØ8	36.Ø	39.5	9999	Ø6.8	376
1286			1					
1287	BUR	79	8Ø92143	2Ø.Ø	47.Ø	25	1Ø.Ø	377
1288	RAL	79	8Ø92143	ØØ.9	11.Ø	23	1Ø.5	377
1289	BOR	79	8Ø92143	16.Ø	41.5	24	11.Ø	377
129Ø			1					
1291	BUR	79	8Ø92152	34.Ø	53.5	2Ø		378
1292	RAL	79	8Ø92152	33.Ø	36.5	27	Ø6.5	378
1293	BOR	79	8Ø92152	27.Ø	44.5	1Ø		378
1294			1					
1295	BUR	79	8Ø92421	1Ø.Ø	4Ø.Ø	2Ø	12.2	379
1296	RAL	79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1297	BOR	79	8Ø92421	12.Ø	44.5	13	1Ø.8	379
1298			1					
1299	BUR	79	8Ø92435	ØØ.5	37.Ø	21	11.2	38Ø
13ØØ	RAL	79	8Ø92434	5Ø.2	79.Ø	21	1Ø.3	38Ø
13Ø1	BOR	79	8Ø92434	59.Ø	87.Ø	8	Ø9.2	38Ø
13Ø2			1					
13Ø3	BUR	79	81ØØ149	22.Ø	64.5			381
13Ø4	RAL	79	81ØØ149	22.9	48.Ø			381
13Ø5	BOR	79	81ØØ149	27.5	62.5	9999	14.Ø	381
13Ø6			1					
13Ø7	BUR	79	81ØØ313	Ø8.7	14.5		1Ø.7	382
13Ø8	RAL	79	81ØØ313	14.Ø	22.5	9999		382
13Ø9	BOR	79	81ØØ313	26.3	48.Ø	21		382
131Ø			1					
1311	BUR	79	81ØØ414	26.Ø	44.Ø	1	Ø5.2	383
1312	RAL	79	81ØØ414	2Ø.Ø	32.Ø	2Ø	Ø2.Ø	383
1313	BOR	79	81ØØ414	23.Ø	3Ø.5			383
1314			1					
1315	BUR	79	81ØØ536	29.Ø	46.Ø	24	Ø8.7	384
1316	RAL	79	81ØØ536	25.Ø	42.Ø	9999	Ø7.2	384
1317	BOR	79	81ØØ536	15.Ø	23.Ø	9999		384
1318			1					
1319	BUR	79	81Ø1751	34.Ø	68.Ø	9999	1Ø.6	385
132Ø	RAL	79	81Ø1751	25.Ø	55.Ø	9999	1Ø.Ø	385
1321	BOR	79	81Ø1751	25.Ø	53.Ø	9999	Ø9.5	385
1322			1					
1323			1					
1324	BUR	79	81Ø1844	55.Ø	86.Ø	19	11.5	387
1325	RAL	79	81Ø1844	45.5	7Ø.Ø	14	Ø8.5	387
1326	BOR	79	81Ø1844	5Ø.Ø	75.5	18	Ø9.9	387
1327			1					
1328	BUR	79	81Ø19Ø2	24.Ø	4Ø.Ø	11	Ø6.5	388
1329	RAL	79	81Ø19Ø2	24.Ø	41.Ø	7	Ø5.7	388
133Ø	BOR	79	81Ø19Ø2	37.Ø	63.Ø	2	Ø6.3	388
1331			1					
1332	BUR	79	811Ø2Ø3	34.Ø	46.Ø	2Ø	Ø5.5	389
1333	RAL	79	811Ø2Ø3	31.5	42.Ø	7	Ø3.6	389
1334	BOR	79	811Ø2Ø3	24.5	29.Ø	26	Ø7.1	389
1335			1					
1336	BUR	79	811Ø519	29.8	43.Ø	2	Ø6.Ø	39Ø
1337	RAL	79	811Ø519	18.Ø	22.5	9999	Ø6.1	39Ø
1338	BOR	79	811Ø519	32.5	48.7	1Ø	27.4	39Ø
1339			1					
134Ø	BUR	79	8111113	35.3	49.5	9999	19.5	391
1341	RAL	79	8111113	38.Ø	55.Ø	9999	1Ø.2	391
1342	BOR	79	8111113	24.Ø	27.2	27	17.7	391
1343			1					
1344	RAL	79	81112Ø4	11.Ø	47.Ø	5	Ø6.Ø	392
1345	BOR	79	81112Ø4	Ø3.Ø	35.Ø	9	Ø6.5	392
1346			1					
1347	BUR	79	8111314	31.Ø	45.5			393
1348	RAL	79	8111314	35.Ø	51.Ø	1Ø	Ø4.Ø	393
1349	BOR	79	8111314	43.5	74.5	4	Ø7.6	393
135Ø			1					
1351	BUR	79	8111652	ØØ.Ø	12.Ø	9999	15.Ø	394
1352	RAL	79	8111652	Ø1.Ø	21.Ø	9999	1Ø.5	394
1353	BOR	79	8111651	56.Ø	64.Ø	9999	Ø9.5	394
1354			1					
1355	BUR	79	811173Ø	4Ø.7	86.2	2Ø		395

1356	RAL	79	811173Ø	42.Ø	89.Ø			395
1357	BOR	79	811179Ø	29.Ø	69.2	13	13.1	395
1358			1					
1359	BUR	79	8112Ø28	45.Ø	62.Ø	2	Ø4.2	396
136Ø	RAL	79	8112Ø28	33.Ø	42.Ø	1	Ø5.7	396
1361	BOR	79	8112Ø28	46.Ø	64.Ø	9999	Ø5.Ø	396
1362			1					
1363	BUR	79	8112317	43.Ø	53.Ø	25	1Ø.1	397
1364	RAL	79	8112317	35.Ø	4Ø.Ø	9999	Ø7.1	397
1365	BOR	79	8112317	41.5	51.8	26	Ø8.3	397
1366			1					
1367	BUR	79	812Ø2Ø2	57.Ø		9999		398
1368	RAL	79	812Ø2Ø2	48.Ø				398
1369	BOR	79	812Ø2Ø2	51.5		9999	34.2	398
137Ø			1					
1371	BUR	79	812Ø6Ø5	Ø2.Ø				399
1372	RAL	79	812Ø6Ø5	Ø6.Ø				399
1373			1					
1374	BUR	79	812Ø658	28.Ø	32.Ø	2Ø	13.Ø	4ØØ
1375	RAL	79	812Ø658	17.Ø	17.Ø			4ØØ
1376	BOR	79	812Ø658	25.5	32.Ø	5	14.Ø	4ØØ
1377			1					
1378	BUR	79	8121353	Ø1.Ø	Ø8.5	9999	13.Ø	4Ø1
1379	RAL	79	8121352	12.Ø	27.Ø		Ø9.Ø	4Ø1
138Ø	BOR	79	8121352	13.Ø	21.Ø	9999	1Ø.7	4Ø1
1381			1					
1382	BUR	79	8121356	Ø4.Ø	16.Ø	9999	11.5	4Ø2
1383	RAL	79	8121356	Ø6.8	18.8	9999	11.Ø	4Ø2
1384	BOR	79	8121355	56.Ø	6Ø.Ø	9999	13.3	4Ø2
1385			1					
1386	BUR	79	812141Ø	43.Ø	59.Ø	13	Ø6.2	4Ø3
1387	RAL	79	812141Ø	45.Ø	59.Ø	4	Ø6.5	4Ø3
1388	BOR	79	812141Ø	37.5	71.5			4Ø3
1389			1					
139Ø	BUR	79	81221Ø4	14.5	38.5	27	12.6	4Ø4
1391	RAL	79	81221Ø4	2Ø.Ø	4Ø.Ø	24	1Ø.Ø	4Ø4
1392	BOR	79	81221Ø4	Ø8.Ø	26.Ø	9999		4Ø4
1393			1					
1394	BUR	79	8122113	1Ø.5	24.Ø	24	Ø7.Ø	4Ø5
1395	RAL	79	8122113	14.Ø	32.Ø	1	Ø5.2	4Ø5
1396	BOR	79	8122113	Ø2.Ø	1Ø.Ø	25		4Ø5
1397			1					
1398	BUR	79	8122121	15.5	28.8	1Ø	Ø5.3	4Ø6
1399	RAL	79	8122121	22.Ø	36.Ø	5	Ø3.Ø	4Ø6
14ØØ			1					
14Ø1	BUR	79	8122332	46.5	68.5	8	Ø6.7	4Ø8
14Ø2	RAL	79	8122332	53.Ø	81.Ø			4Ø8
14Ø3	BOR	79	8122332	38.5	56.Ø			4Ø8
14Ø4			1					
14Ø5	BUR	79	8122343	53.Ø	75.5	9999	14.5	4Ø7
14Ø6	RAL	79	8122343	57.Ø	87.5	9999		4Ø7
14Ø7	BOR	79	8122343	45.5	62.Ø	9999		4Ø7
14Ø8			1					
14Ø9	BUR	79	813Ø115	Ø7.9		9999	18.8	4Ø9
141Ø	RAL	79	813Ø114	58.Ø		9999		4Ø9
1411	BOR	79	813Ø115	1Ø.5		9999	19.5	4Ø9
1412			1					
1413	BUR	79	813Ø118	47.Ø	68.5	21	Ø8.Ø	41Ø
1414	RAL	79	813Ø118	51.5	81.Ø	14	Ø7.Ø	41Ø

1415	BOR	79	813Ø118	38.5	57.5	21	1Ø.1	41Ø
1416			1					
1417	BUR	79	813Ø23Ø	35.Ø	41.Ø	4	Ø4.2	411
1418	RAL	79	813Ø23Ø	19.9	22.Ø	27	Ø2.Ø	411
1419	BOR	79	813Ø23Ø	33.Ø	46.5			411
142Ø			1					
1421	BUR	79	813Ø331	2Ø.Ø	54.Ø	17	11.Ø	412
1422	RAL	79	813Ø331	1Ø.5	39.5	9999	Ø9.Ø	412
1423	BOR	79	813Ø331	14.Ø	44.Ø	18	Ø5.6	412
1424			1					
1425	BUR	79	813Ø4Ø6	33.Ø	44.Ø	6	Ø6.Ø	413
1426	BOR	79	813Ø4Ø6	16.8	21.Ø	27	Ø6.2	413
1427			1					
1428	BUR	79	813Ø521	45.Ø	63.5	9999	14.5	414
1429	RAL	79	813Ø521	5Ø.Ø	76.Ø	9999		414
143Ø	BOR	79	813Ø521	59.8	86.Ø	23	13.8	414
1431			1					
1432	BUR	79	8131Ø37	4Ø.2	93.Ø	6	Ø9.Ø	415
1433	RAL	79	8131Ø37	41.Ø	82.Ø	1Ø	Ø8.Ø	415
1434	BOR	79	8131Ø37	33.6	7Ø.Ø	19	Ø7.Ø	415
1435			1					
1436	BUR	79	8131929	26.Ø	42.Ø	16	Ø8.3	416
1437	RAL	79	8131929	24.Ø	37.Ø	8	Ø5.9	416
1438	BOR	79	8131929	12.8	19.Ø	9999	Ø8.7	416
1439			1					
144Ø	BUR	79	8132Ø17	49.5	54.Ø	21	10.6	417
1441	RAL	79	8132Ø17	4Ø.Ø	92.Ø	2Ø		417
1442	BOR	79	8132Ø17	48.Ø	1Ø7.8	1Ø	12.5	417
1443			1					
1444	BUR	79	8132Ø43	[illegible]	19.5	15	48.5	418
1445	RAL	79	8132Ø43	54.Ø	66.Ø	25	Ø4.5	418
1446			1					
1447	BUR	79	8132355	43.2	77.Ø	8	Ø9.7	419
1448	RAL	79	8132355	27.Ø	56.Ø	9999	15.5	419
1449	BOR	79	8132355	35.5	61.Ø		Ø8.9	419
145Ø			1					
1451	BUR	79	814142Ø	52.5	66.5	23	Ø9.Ø	42Ø
1452	RAL	79	814142Ø	42.5	5Ø.Ø	9999	Ø8.Ø	42Ø
1453			1					
1454	BUR	79	8141651	Ø9.5	21.5	9999	11.Ø	421
1455	RAL	79	8141651	Ø7.Ø	38.5	27	Ø8.5	421
1456			1					
1457	BUR	79	8141958	58.Ø				422
1458	RAL	79	8141958	Ø4.Ø				422
1459			1					
146Ø	BUR	79	81421Ø3	51.5	57.Ø	27	Ø5.7	423
1461	RAL	79	81421Ø3	56.Ø	66.5	5	Ø3.4	423
1462	BOR	79	81421Ø3	54.8	63.Ø	13	14.9	423
1463			1					
1464	BUR	79	8151Ø51	54.Ø	9Ø.Ø	1Ø	Ø8.5	424
1465	BOR	79	8151Ø51	43.5	7Ø.8	27	Ø3.4	424
1466			1					
1467	BUR	79	8151517	Ø5.Ø	16.5	9	Ø5.2	425
1468	BOR	79	8151517	ØØ.8	Ø5.5	11	Ø4.8	425
1469			1					
147Ø	BUR	79	8151713	57.5	94.5	9999		426
1471	BOR	79	8151713	53.Ø	84.8		15.2	426
1472			1					
1473	BUR	79	[illegible]	[illegible]	[illegible]	6	Ø5.7	427

1474	BOR	79	8151846	2Ø.1	33.Ø	2	Ø7.Ø	427
1475			1					
1476	BUR	79	81519Ø4	Ø6.5	4Ø.Ø		14.7	428
1477	BOR	79	81519Ø3	57.Ø	84.Ø	9999	13.3	428
1478			1					
1479	BUR	79	8152Ø12	Ø4.8	28.5			429
148Ø	BOR	79	8152Ø11	57.Ø	74.Ø	27		429
1481			1					
1482	BUR	79	8152Ø31	Ø2.5	25.Ø	1Ø	1Ø.5	43Ø
1483	BOR	79	8152Ø3Ø	54.5	7Ø.Ø		Ø7.5	43Ø
1484			1					
1485	BUR	79	8152Ø18	Ø4.5	26.5	6	Ø7.2	431
1486	BOR	79	8152Ø17	56.Ø	72.5	2	Ø5.4	431
1487			1					
1488	BUR	79	8152132	23.5	6Ø.Ø	8	1Ø.5	432
1489	BOR	79	8152132	17.Ø	48.5	18	Ø8.9	432
149Ø			1					
1491	BUR	79	81522ØØ	23.5	45.5	9999	14.Ø	433
1492	BOR	79	81522ØØ	15.5	32.8	26	13.9	433
1493			1					
1494	BUR	79	816ØØ26	52.5		9999	22.5	434
1495	BOR	79	816ØØ26	58.9		9999	21.1	434
1496			1					
1497	BUR	79	816ØØ4Ø	54.Ø	93.Ø	1Ø	Ø8.5	435
1498	BOR	79	816ØØ4Ø	5Ø.8	85.5	1	Ø6.5	435
1499			1					
15ØØ	BUR	79	816Ø23Ø	23.Ø		9999	12.5	436
15Ø1	BOR	79	815Ø23Ø	38.5	55.5	21	1Ø.7	436
15Ø2			1					
15Ø3	BUR	79	8161337	11.Ø	31.Ø	1Ø	Ø5.Ø	437
15Ø4	BOR	79	8161337	Ø3.Ø	33.5	3	Ø5.5	437
15Ø5			1					
15Ø6	BUR	79	81616Ø3	12.Ø	17.Ø	9999	17.8	438
15Ø7	BOR	79	81616Ø3	14.2	26.5	27	16.Ø	438
15Ø8			1					
15Ø9	BUR	79	8161709	Ø8.Ø	3Ø.Ø	1	Ø4.Ø	439
151Ø	BOR	79	8161709	Ø1.Ø	17.5	1	Ø5.5	439
1511			1					
1512	BUR	79	8162229	Ø1.5	13.Ø	22	Ø7.5	44Ø
1513	BOR	79	8162228	57.5	65.5	25	Ø6.Ø	44Ø
1514			1					
1515	BUR	79	817ØØ32	Ø7.5	59.5	11	Ø8.Ø	441
1516	BOR	79	817ØØ32	15.5	57.Ø	2	Ø8.Ø	441
1517			1					
1518	BUR	79	817Ø75Ø	41.Ø	73.Ø	2Ø	11.Ø	442
1519	BOR	79	817Ø75Ø	38.Ø	77.Ø	9999	Ø9.4	442
152Ø			1					
1521	BUR	79	817165Ø	19.5	[illegible]	26	Ø9.5	443
1522	RAL	79	817165Ø	23.5	[illegible]	13	11.5	443
1523	BOR	79	817165Ø	1Ø.5	27.Ø	24	Ø5.9	443
1524			1					
1525	BUR	79	81718Ø3	45.Ø	76.Ø	9999	16.Ø	444
1526	RAL	79	81718Ø3	36.6	61.Ø	24	13.5	444
1527	BOR	79	81718Ø3	39.2	[illegible]	9999	Ø9.5	444
1528			1					
1529	BUR	79	8172Ø54	Ø5.5	[illegible]	28	14.8	445
153Ø	RAL	79	8172Ø53	57.Ø	72.Ø	9999	12.6	445
1531	BOR	79	8172Ø53	59.Ø	72.2	27	15.2	445
1532			1					

1533	BUR	79	8172233	14.Ø	29.Ø	23	Ø9.5	446
1534	RAL	79	8172233	15.5	27.Ø	4	Ø5.5	446
1535	BOR	79	8172233	Ø2.5	Ø6.5	9999	Ø9.3	446
1536			1					
1537	BUR	79	8172331	5Ø.2	65.Ø	8	Ø7.5	447
1538	RAL	79	8172331	55.Ø	75.8	3	Ø3.2	447
1539	BOR	79	8172331	42.8	71.Ø	2	Ø7.5	447
154Ø			1					
1541	BUR	79	8172334	4Ø.2	54.5	16	Ø8.5	448
1542	RAL	79	8172334	33.5	39.5	15	Ø5.Ø	448
1543	BOR	79	8172334	45.2	63.2	2	Ø7.2	448
1544			1					
1545	BUR	79	818Ø124	ØØ.5	14.Ø	7	Ø7.Ø	449
1546	RAL	79	818Ø124	Ø6.5	24.5	2	Ø4.8	449
1547			1					
1548	BUR	79	818Ø711	27.5	43.Ø	16	Ø7.5	45Ø
1549	RAL	79	818Ø711	35.5	53.Ø	4	Ø5.Ø	45Ø
155Ø			1					
1551	BUR	79	818Ø743	52.5	9Ø.5	24	Ø9.8	451
1552	RAL	79	818Ø743	42.5	74.Ø	21	Ø5.6	451
1553	BOR	79	818Ø743	5Ø.2	86.Ø			451
1554			1					
1555	BUR	79	818Ø858	28.8	68.Ø	9999	12.5	452
1556	RAL	79	818Ø858	2Ø.Ø	51.8	1Ø	1Ø.Ø	452
1557	BOR	79	818Ø858	27.5	55.8	19	Ø8.4	452
1558			1					
1559	RAL	79	8182ØØ2	Ø2.5	Ø9.Ø	9999	Ø3.Ø	453
156Ø	BOR	79	8182ØØ2	Ø6.5	15.5	26	Ø2.Ø	453
1561			1					
1562	RAL	79	8182ØØ9	29.Ø	55.Ø	9999	12.Ø	454
1563	BOR	79	8182ØØ9	41.5	58.5	26	11.5	454
1564			1					
1565	RAL	79	8182316	52.Ø	96.Ø	9999		455
1566	BOR	79	8182317	ØØ.2	51.Ø	2	Ø8.7	455
1567			1					
1568	RAL	79	8182328	Ø2.Ø	28.Ø	7	Ø8.Ø	456
1569	BOR	79	8182327	59.5	64.5	23	Ø9.4	456
157Ø			1					
1571	BUR	79	819211Ø	41.8	75.Ø	9	11.Ø	457
1572	BOR	79	819211Ø	33.Ø	58.Ø	13	Ø8.5	457
1573			1					
1574	BUR	79	82ØØ2Ø2	13.Ø	58.Ø	9999	17.5	458
1575	RAL	79	82ØØ2Ø2	52.5	74.Ø	22	Ø2.Ø	458
1576	BOR	79	82ØØ2Ø2	59.Ø	88.Ø	2Ø	11.Ø	458
1577			1					
1578	BUR	79	822Ø231	38.Ø	53.6	2Ø	Ø8.2	459
1579	RAL	79	822Ø231	51.5	66.Ø	12	27.Ø	459
158Ø			1					
1581	BUR	79	82222Ø9	Ø1.5	17.5	9999	Ø9.8	46Ø
1582	RAL	79	82222Ø9	13.Ø	34.Ø	14	Ø9.5	46Ø
1583			1					
1584	BUR	79	8222227	38.Ø	67.Ø	12	Ø8.2	461
1585	RAL	79	8222227	44.Ø	68.Ø	12	Ø7.5	461
1586			1					
1587	BUR	79	8222414	13.8	21.5	25	Ø4.7	462
1588	RAL	79	8222414	34.Ø	45.Ø	3	Ø4.Ø	462
1589			1					
159Ø	BUR	79	823Ø114	Ø1.5	27.5		Ø5.8	463

		1						
BUR	79	823Ø232	44.5	58.Ø	9	Ø5.6	464
RAL	79	823Ø233	Ø6.Ø	22.Ø	1Ø	Ø5.Ø	464
		1					
BUR	79	823Ø524	55.Ø	9Ø.Ø	14	Ø9.5	465
RAL	79	823Ø525	Ø2.Ø	34.Ø	12	Ø8.5	465
		1					
BUR	79	823Ø651	18.5	39.Ø	5	Ø6.7	466
RAL	79	823Ø651	24.Ø	39.5	1Ø	Ø4.5	466
		1					
BUR	79	8231552	26.5	57.Ø	9999	16.9	467
RAL	79	8231552	16.5	36.Ø	9999		467
		1					
BUR	79	8231754	48.5		9999	16.1	468
RAL	79	8231754	39.Ø		9999		468
		1					
BUR	79	8242227	49.2	59.Ø	9999	11.Ø	469
RAL	79	8242227	5Ø.Ø	62.Ø	9999	Ø9.Ø	469
		1					
BUR	79	825Ø156	47.Ø		27	11.3	47Ø
RAL	79	825Ø157	37.Ø	43.Ø	9999	Ø9.3	47Ø
		1					
BUR	79	8251ØØØ	1Ø.5	5Ø.5	9999	15.Ø	471
RAL	79	8251ØØØ	Ø1.Ø	37.Ø	9999		471
		1					
BUR	79	8252Ø54	46.5	8Ø.Ø	1Ø	Ø8.Ø	472
RAL	79	8252Ø54	37.Ø	63.Ø	8	Ø6.3	472
		1					
BUR	79	826ØØ55	35.3	45.Ø	3	Ø3.2	473
RAL	79	826ØØ54	25.Ø	28.Ø	9999	Ø2.2	473
		1					
BUR	79	826Ø335	51.5	9Ø.Ø	14	1Ø.5	474
RAL	79	826Ø335	32.Ø	45.5	9999	Ø8.Ø	474
		1					
BUR	79	8261834	27.5	4Ø.5	9999	13.Ø	475
RAL	79	8261834	31.Ø	41.Ø	9999	11.9	475
		1					
BUR	79	826194Ø	Ø9.5	23.5	23	Ø7.6	476
RAL	79	826194Ø	18.Ø	33.Ø	3	Ø5.5	476
		1					
BUR	79	8262Ø52	45.Ø	57.5	9999	Ø9.6	477
RAL	79	8262Ø52	33.Ø	38.Ø	9999	1Ø.Ø	477
		1					
BUR	79	82623Ø9	4Ø.Ø	46.5	7	Ø4.7	478
RAL	79	82623Ø9	33.Ø	46.Ø	8	Ø4.7	478
		1					
BUR	79	8262323	43.Ø		9999	15.5	479
RAL	79	8262323	53.Ø		9999	14.7	479
		1					
BUR	79	827Ø445	43.5	64.5	4	Ø5.2	48Ø
RAL	79	827Ø445	34.Ø	49.Ø	8	Ø5.5	48Ø
		1					
BUR	79	827Ø638	41.Ø	53.5	1Ø	Ø5.9	481
RAL	79	827Ø638	29.Ø	35.Ø	12	Ø3.Ø	481
		1					
BUR	79	827Ø824	35.Ø	73.5	24	12.5	482
RAL	79	827Ø824	26.Ø	58.Ø			482
		1					
1							

APPENDIX C

3 pages

List of Preliminary Hypocenters

0002	DATE	ORIGIN		LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	QS
0003	790618	2009	35.38	25N21.10	92E10.58	22.27		6	277	138.8	.63	25.3	12.7	D
0004	790626	838	59.17	26N15.49	91E52.85	99.69		4	263	104.8	.48	36.0	54.5	D
0005	790626	938	3.63	25N45.62	92E51.78	19.37		5	227	100.6	.85	5.8	27.1	D
0006	790627	1949	21.41	23N54.81	93E55.96	5.00		4	338	314.8	1.13	99.0	99.0	D
0007	790628	819	51.93	25N42.34	91E19.76	10.00		3	310	178.3	1.80	99.0	99.0	D
0008	790628	14 9	8.20	26N17.60	91E 1.48	9.74		5	323	191.5	.27	8.3	4.7	D
0009	790628	2311	54.92	25N52.70	91E48.18	.98		5	257	127.4	.16	8.8	9.0	C
0010	790618	2253	3.64	25N 9.41	93E37.72	22.18		5	313	201.4	.86	11.9	10.3	D
0011	790619	2 5	57.32	25N10.12	94E31.56	13.09		6	328	282.7	1.91	99.0	99.0	D
0012	790620	1951	48.24	25N43.48	92E50.80	31.56		6	239	112.9	.20	6.5	20.1	D
0013	790620	2130	49.12	25N45.97	90E44.72	1.25		6	331	230.3	.91	24.1	16.8	D
0014	790621	2356	15.94	25N28.50	94E44.88	32.60		6	330	294.0	.92	99.0	99.0	D
0015	790622	139	54.40	24N25.47	93E55.67	15.17		6	332	274.2	1.19	99.0	99.0	D
0016	790623	23 9	4.80	26N25.67	92E33.81	39.97		5	216	107.3	.23	10.7	7.1	D
0017	790623	343	43.54	25N59.34	92E32.16	1.24		6	149	65.3	.27	3.6	99.0	C
0018	790624	12 7	58.34	25N39.31	90E37.32	[illegible].97		5	334	246.1	.05	7.9	4.4	D
0019	790624	13 5	43.13	25N48.34	92E27.36	10.00		3	148	81.5	.01	99.0	99.0	D
0020	790625	2129	9.00	25N43.65	91E49.34	5.26		6	255	134.1	.53	10.9	83.4	D
0021	790625	2231	19.14	24N19.70	93E52.[illegible]	30.0[illegible]		6	333	277.6	.82	99.0	99.0	D
0022	790626	045	37.81	24N13.64	94E .47	10.00		6	334	288.3	1.73	99.0	99.0	D
0023	790626	446	15.15	24N44.57	92E29.[illegible]	100.71		6	324	188.9	1.17	60.8	64.5	D
0024	790626	1711	18.75	25N21.18	95E 6.95	10.00		6	335	336.5	.77	99.0	99.0	D
0025	790627	1153	1.77	25N39.51	92E18.90	10.30		6	164	103.0	.83	18.5	96.0	C
0026	790627	2319	13.75	24N27.11	94E35.02	10.00		6	335	324.6	.53	99.0	99.0	D
0027	790627	2311	53.06	25N52.16	91E43.79	4.23		5	278	135.9	.32	4.5	47.5	D
0028	790628	345	54.41	25N42.64	92E36.49	10.00		6	191	83.0	1.16	16.2	99.0	D
0029	790628	2422	2.68	26N16.40	92E22.72	25.44		6	192	89.4	.16	3.9	57.5	D
0030	790629	437	38.33	25N38.09	91E48.39	5.42		6	263	141.4	.41	11.9	99.0	D
0031	790629	1144	41.00	25N39.53	92E38.28	25.97		6	205	87.2	.03	1.1	2.6	C
0032	790629	2342	41.16	26N29.94	91E 1.76	15.97		4	324	190.8	.01	12.2	5.0	D
0033	790703	2009	52.13	26N14.22	93E10.62	44.04		5	275	130.4	.07	11.2	7.4	D
0034	790704	325	26.07	25N31.98	91E41.15	18.5[illegible]		7	284	74.8	.42	11.7	7.7	D
0035	790704	1311	8.79	25N58.50	94E 7.55	33.08		6	320	223.5	.60	20.1	14.5	D
0036	790704	2139	48.25	26N11.16	92E21.99	5.00		6	174	79.8	.38	6.4	99.0	C
0037	790704	2312	21.10	26N44.15	92E23.10	12.55		6	271	140.6	.06	2.1	11.5	C
0038	790705	1721	5.00	26N 2.69	92E 8.02	10.00		5	150	70.4	2.25	5.7	34.8	D
0039	790705	1852	9.15	24N59.97	92E36.80	44.02		6	316	158.3	.24	10.4	4.1	D
0040	790705	22 0	43.21	26N28.75	95E15.78	10.00		6	341	340.2	.55	99.0	99.0	D
0041	790706	339	51.96	23N50.05	94E16.77	10.00		6	339	345.1	.56	99.0	99.0	D
0042	790706	346	19.84	26N50.77	92E54.18	54.83		4	307	160.0	.00	13.1	19.8	D
0043	790706	1358	54.62	26N33.34	92E39.80	13.27		6	248	122.9	.55	16.5	57.0	D
0044	790706	21 4	10.63	25N26.64	94E12.97	25.78		6	321	243.2	2.42	99.0	99.0	D
0045	790706	2338	27.20	25N31.89	94E 9.41	42.06		6	319	234.9	.83	99.0	99.0	D
0046	790706	2349	2.87	24N22.63	93E45.60	10.00		6	332	265.2	1.09	45.5	38.[illegible]	D
0047	790706	2358	47.05	25N34.24	93E50.51	27.73		6	310	203.2	.40	10.3	8.5	D
0048	790707	538	32.54	23N53.63	93E28.10	10.00		3	145	73.0	.00	99.0	99.0	D
0049	790707	1839	59.00	25N17.54	94E19.88	2.94		6	325	259.5	.37	12.1	11.7	D
0050	790707	1755	26.60	26N40.85	92E42.33	7.44		6	274	137.3	.88	26.8	99.0	D
0051	790707	2346	29.68	25N34.98	92E 3.40	5.00		5	233	126.3	.21	4.0	54.8	D
0052	790708	333	41.13	25N37.93	94E44.10	44.96		6	330	289.4	1.08	37.6	53.7	D
0053	790708	938	35.28	26N 1.16	92E37.24	103.67		5	161	73.4	1.43	5.3	9.3	D
0054	790708	2217	36.72	24N51.90	94E35.29	10.00		6	331	301.9	.55	99.0	99.0	D
0055	790711	15 3	53.83	25N29.53	90E48.62	1.06		6	329	235.6	.89	30.0	26.2	D
0056	790711	1754	29.94	26N 2.02	90E49.54	5.00		5	328	215.0	.76	11.1	5.5	D
0057	790712	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		5	[illegible]	[illegible].5	.65	11.[illegible]	[illegible]	D

0058	790712	16 6	9.27	25N44.60	91E 2.39	24.03	5	325203.3	1.21	12.8	10.0	D
0059	790719	172[illegible]	18.14	25N52.56	92E16.66	37.04	4	136 87.8	.00	3.5	20.[illegible]	D
0060	790719	2020	52.55	25N53.2[illegible]	95E 5.46	10.00	5	335321.2	.41	99.0	99.0	D
0061	790720	337	25.50	25N59.22	90E54.43	13.16	6	327208.1	.59	22.7	14.[illegible]	D
0062	790721	139	38.33	26N43.75	92E40.02	12.41	6	277141.8	.51	10.0	42.[illegible]	D
0063	790721	4 0	52.35	24N37.36	94E22.08	10.00	6	332296.1	1.23	99.0	99.0	D
0064	790721	749	17.71	25N17.81	93E58.03	39.09	4	317225.1	.50	93.4	99.[illegible]	D
0065	790721	9 6	55.46	27N10.56	95E 7.12	10.00	6	346344.7	.32	99.0	99.[illegible]	D
0066	790722	215	9.05	25N20.44	91E36.82	21.29	6	297174.6	.89	34.0	16.5	D
0067	790722	1825	12.47	25N32.78	91E 4.58	5.00	5	321209.0	.81	8.0	3.8	D
0068	790722	2135	56.27	25N45.86	92E16.77	5.00	6	154 96.3	.63	5.3	92.6	C
0069	790722	2312	55.93	26N21.79	93E10.55	53.40	4	298133.0	.00	13.6	[illegible]	D
0070	790722	2352	19.67	26N 1.50	91E58.13	10.00	3	152105.4	.01	99.0	99.[illegible]	[illegible]
0071	790722	2435	35.99	24N40.25	94E26.77	44.85	5	332299.8	.82	99.0	99.0	D
0072	790723	1 8	46.33	25N 5.56	93E54.03	39.22	4	319228.7	.34	99.0	99.0	D
0073	790725	1956	32.84	26N 8.69	92E41.48	18.32	4	158 80.8	.68	5.0	28.[illegible]	D
0074	790725	20 1	32.13	26N13.22	92E39.42	22.96	5	158 86.6	.42	80.1	99.0	D
0075	790725	2013	32.20	26N 3.87	92E41.76	2.72	5	159 81.4	.03	2.3	99.[illegible]	D
0076	790725	2141	3.10	24N51.61	93E30.33	44.65	4	320209.9	.68	99.0	99.0	D
0077	790726	447	6.11	26N50.40	92E42.94	21.29	4	292154.8	.01	11.0	10.[illegible]	D
0078	790726	1246	43.61	25N57.43	90E39.80	[illegible]	5	331232.6	1.60	99.0	99.0	D
0079	790727	7 3	8.95	25N11.15	92E40.11	10.54	6	149 83.2	.32	6.0	52.4	C
0080	790727	942	10.78	26N20.66	92E49.[illegible]	[illegible]	5	172104.9	.61	3.9	9.9	D
0081	790727	1958	46.60	25N 1.10	93E21.35	44.88	4	313187.2	1.32	99.0	99.0	D
0082	790727	2157	58.28	26N10.53	93E 6.75	39.93	5	256123.1	1.58	9.5	4.[illegible]	D
0083	790728	1619	9.09	27N 3.33	92E18.61	5.00	6	299176.3	1.09	41.7	99.0	D
0084	790729	230	41.26	24N58.07	93E32.25	43.67	6	317205.2	.91	99.0	99.0	D
0085	790729	4 3	21.02	26N32.37	92E[illegible]	53.06	6	241118.9	.67	26.6	[illegible]	[illegible]
0086	790729	1411	12.68	26N[illegible]	92E[illegible]	24.72	5	159 86.6	.33	40.3	[illegible]	[illegible]
0087	790806	1 7	11.00	25N10.58	93E[illegible]	41.48	6	308185.3	.82	99.0	99.[illegible]	[illegible]
0088	790808	1519	57.41	24N29.74	93E54.85	11.20	6	331267.6	.94	76.9	66.[illegible]	[illegible]
0089	790808	1744	9.66	25N16.71	95E .74	10.00	6	334325.2	1.27	99.0	99.0	D
0090	790809	20 8	30.67	25N13.28	92E49.33	15.60	6	175 95.1	.36	8.1	30.[illegible]	C
0091	790809	2152	4.68	25N 9.04	93E20.55	44.43	6	310189.3	.69	99.0	99.0	D
0092	790809	2420	20.93	23N47.35	92E50.42	10.67	6	337289.1	.16	99.0	99.0	D
0093	790809	2434	10.02	23N29.12	93E33.71	10.00	6	341341.2	.38	99.0	99.0	D
0094	790810	312	57.85	25N33.30	91E32.75	10.00	6	295165.8	1.49	17.9	14.[illegible]	D
0095	790810	414	5.88	25N40.86	93E11.49	50.07	6	271137.1	1.27	56.0	99.0	D
0096	790810	536	3.81	26N14.35	93E27.99	40.75	6	302159.1	.42	24.9	14.4	D
0097	790810	1750	49.16	24N59.47	94E37.30	5.00	6	331299.2	1.21	99.0	99.0	D
0098	790810	1844	14.25	21N49.68	94E11.18	8.42	6	328268.5	.72	99.0	99.0	D
0099	790810	19 2	1.39	25N 2.59	91E 9.91	19.74	6	323232.8	.15	7.4	10.0	C
0100	790811	2 3	17.65	25N 3.06	92E50.88	15.18	6	197 96.0	.13	3.0	14.1	C
0101	790811	519	11.24	25N16.25	92E32.99	28.42	6	305130.8	.18	7.0	5.6	D
0102	790811	1113	16.71	26N35.62	92E50.95	30.33	6	279131.8	.54	19.3	24.4	D
0103	790811	1651	43.10	25N39.99	92E32.34	66.31	6	263133.3	.46	19.7	27.0	D
0104	790811	2028	21.25	24N59.68	92E46.01	35.25	6	317156.4	.11	4.8	2.5	C
0105	790811	2317	28.27	25N43.35	92E39.[illegible]	10.24	6	197 84.7	.20	4.6	32.9	D
0106	790812	2 2	39.21	25N41.63	92E55.[illegible]	10.00	3	242111.1	.02	99.0	99.0	D
0107	790812	1355	49.48	26N19.38	92E43.01	28.37	6	179 99.1	.35	11.6	27.6	C
0108	790812	21 3	53.83	27N 1.77	92E33.80	42.55	4	300173.6	.29	23.2	14.0	D
0109	790812	2112	50.76	26N48.76	92E44.33	51.71	6	291152.3	.29	12.9	22.0	D
0110	790812	2332	14.19	27N41.39	92E31.45	9.63	6	325246.4	.53	58.6	31.7	D
0111	790812	2343	21.03	27N40.82	92E[illegible].23	18.30	6	327247.3	.76	99.0	99.0	D
0112	790813	114	54.10	25N36.62	92E31.74	10.00	3	188 96.4	.04	99.0	99.0	D
0113	790813	118	1[illegible].19	27N44.33	92E40.65	20.18	6	327252.9	.71	99.0	99.0	D
0114	790813	230	15.11	25N31.99	92E31.24	2[illegible].26	6	209104.5	.40	21.3	21.[illegible]	D
0115	790813	330	31.81	24N25.69	94E36.96	10.00	6	335327.8	.49	99.0	99.0	D
0116	790813	521	17.53	25N42.04	90E12.70	34.96	6	338283.7	.88	99.0	99.0	D

Ø117	79Ø813	1929	4.85	26N1Ø.89	93E1Ø.37	36.18	6	26913Ø.Ø	.24	12.2	5.2	D
Ø118	79Ø814	21 3	43.Ø3	26N 9.1Ø	92E19.8Ø	16.3Ø	6	169 75.4	.27	4.8	3Ø.6	C
Ø119	79Ø817	1649	46.77	27N37.59	92E4Ø.13	9.9Ø	6	32524Ø.4	.5Ø	5Ø.2	26.7	D
Ø12Ø	79Ø817	18 3	2.89	24N42.89	94E16.78	1Ø.ØØ	6	33Ø283.Ø	.41	99.Ø	99.Ø	D
Ø121	79Ø817	2Ø53	37.24	25N25.Ø8	93E4Ø.34	44.95	6	3Ø7192.6	.8Ø	99.Ø	99.Ø	D
Ø122	79Ø817	2232	56.73	26N16.69	92E57.Ø8	31.45	6	2161Ø8.9	.67	22.2	32.2	D
Ø123	79Ø817	2331	29.39	26N59.7Ø	92E34.6Ø	33.66	5	29[illegible]169.9	.12	7.[illegible]	3.[illegible]	D
Ø124	79Ø817	2334	22.14	25N 7.66	92E19.93	52.19	6	3[illegible]3163.3	.57	26.[illegible]	[illegible]	D
Ø125	79Ø818	743	1.42	23N38.87	94E14.41	1Ø.ØØ	6	341[illegible]57.5	.37	99.[illegible]	99.[illegible]	D
Ø126	79Ø82Ø	2 2	21.96	25N47.79	9ØE41.Ø9	1.87	6	332235.1	.39	15.[illegible]	12.[illegible]	D

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APPENDIX D

Publication in Geology by Khattri and Wyss

Precursory variation of seismicity rate in the Assam area, India

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ABSTRACT

The seismicity data from 1825 to the present for the Assam (northeastern India) region show that seismicity rates there deviate from normal before and after major earthquakes. Along this 1,000-km-long section of a plate boundary, all shocks with magnitude $M > 6.6$ were preceded and sometimes followed by periods of significant seismic quiescence. No major earthquakes occurred without an associated seismic quiescence, and no such quiescence occurred at times other than before or after a major event. The most remarkable periods of quiescence lasted about 28 and 30 yr before the two great ($M = 8.7$) Assam earthquakes of 1897 and 1950. Other periods of anomalously low seismicity preceded main shocks of magnitudes 6.7 (in 1950 and 1975), 7.8 (in 1869), and 7.7 (in 1947), with durations of 6, 8, 23, and 17 yr, respectively. These durations fit (with approximately the scatter of the original data) a published relation between precursor time and magnitude.

Since these changes of seismicity rate were observed at the edges of and within the Assam gap, defined by the 1897 and 1950 great earthquakes, it is likely that a future major or great earthquake in this gap will be preceded by seismic quiescence. Whether a preparatory phase for an earthquake has begun in the Assam gap cannot be stated for certain because of the changing earthquake-detection capability in the area and because of poor location accuracy.

INTRODUCTION

The seismicity pattern in space and time was probably the most important factor that led to the successful prediction of the Haicheng earthquake (Anonymous, 1976). In that case, the migration of medium-magnitude events toward Haicheng alerted local researchers to monitor the area, and the immediate foreshocks indicated that an earthquake warning should be issued.

The idea of seismic gaps has been successfully used to identify areas of increased earthquake risk and to estimate approximate source dimensions of the expected ruptures (Fedotov, 1967; Mogi, 1969; Sykes, 1971; Kelleher and others, 1973). Seismic gaps are sections of plate boundaries where no large earthquakes have occurred for a duration comparable with the recurrence time. Even after numerous small- and medium-magnitude earthquakes occur in a gap, it must still be considered a place of high stress concentration, because small earthquakes, unless associated with additional seismic creep, do not relieve a significant amount of tectonic strain compared to large ones [a fact that can be checked by summing the seismic moments of the square root of energy released by earthquakes in a given area (Benioff, 1951; Brune, 1968)]. For this reason, seismic gaps can be defined successfully using the large earthquakes only. However, it may be that the smaller "background" earthquakes hold the key to the third element necessary for successful prediction: the time of occurrence. This may be determinable once the relation of the main shocks and their precursory seismicity fluctuations (Nersesov and others, 1973; Brady, 1974, 1976, 1977; Ishida and Kanamori, 1977; Evison, 1977; McNally, 1977) is understood. In addition to these long-term seismicity patterns, Jones and Molnar (1976) found that about 40% of large earthquakes have foreshocks that occur hours and days before the main event.

The area of interest in this paper is the Assam region (inset in Figs. 1, 4). In this northeasternmost part of India, two great earthquakes of magnitude 8.7 have occurred in the past 80 yr, leaving a seismic gap between them, which we will call the Assam gap. In this area the Himalaya are interpreted to form a clearly defined arcuate zone of plate consumption, along which the Indian and Asian plates collide at a rate of about 5 cm/yr. Since the Assam gap is one of very few clearly defined thrust gaps on land, it is one of the few locations where the Earth's behavior precursory to a great thrust earthquake may be monitored in detail. As a first step we have examined the seismicity record of the Assam region for the past 150 yr.

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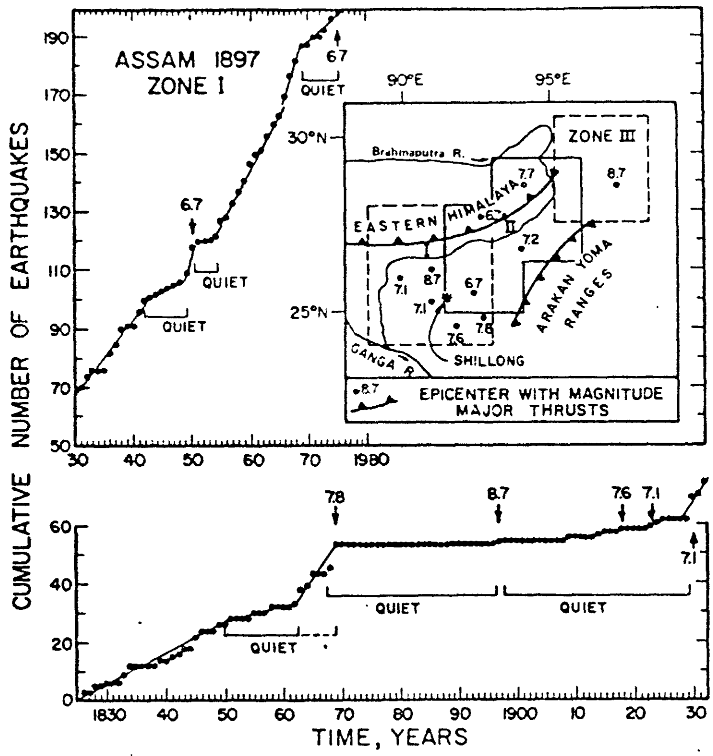

Figure 1. Cumulative number of earthquakes in zone I of the Assam area covering the extent of the great 1897 earthquake (M = 8.7). The inset shows a map of eastern India with the zones of study. The resolution (lowest magnitudes, M_{min}, at which all occurring earthquakes are reported) is estimated from the frequency magnitude relation of the data as follows: for 1816 to 1909, M_{min} = 7.0; for 1910 to 1930, M_{min} = 6.8; for 1931 to 1950, M_{min} = 6.2; for 1951 to 1962, M_{min} = 5.8; and for 1963 to 1976, M_{min} = 4.8. This inhomogeneity will not pose a problem for our study, because we are searching for anomalous *decreases* of seismic activity, which is opposite to the trend of generally increasing reports with time.

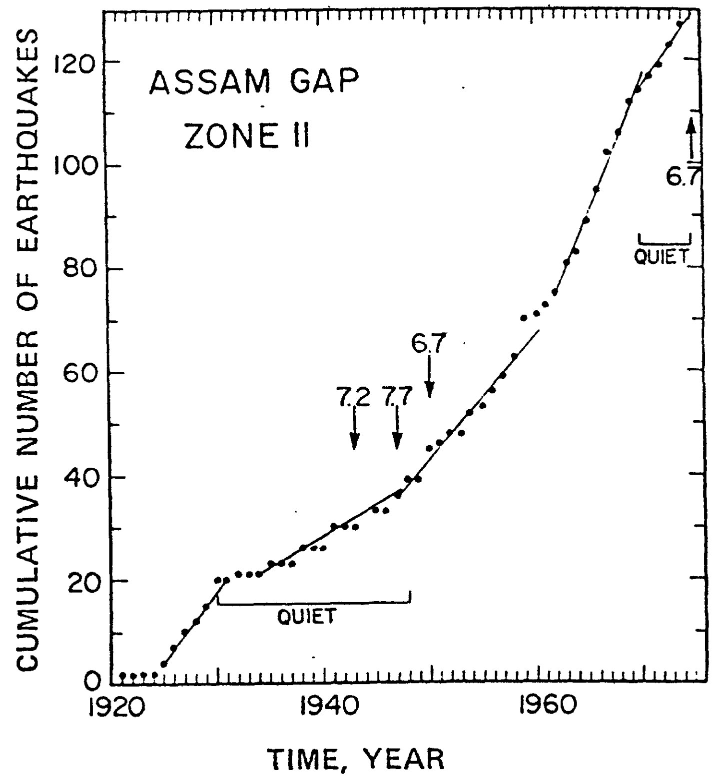

Figure 2. Cumulative number of earthquakes located in zone II, the area of the Assam gap, a region located between two great historic earthquakes but within which no great quake has been recorded.

The tectonic regime of the Assam region can be summarized as a south-directed overthrusting from the north and a northwest-directed overthrusting from the southeast in the Shillong Plateau area that result from the collison of India with Asia (see Tapponnier and Molnar, 1977). Farther to the northeast the direction of compression from the north turns around to align in a northwest-southeast direction. The seismicity appears to be somewhat diffused, which may in part be due to imprecise location of earthquake epicenters. Even so, the epicenters seem to outline some of the major tectonic lineaments. The earthquakes are generally confined to the upper 80 km except in the Arakan Yoma ranges to the southeast, where hypocenters as deep as 250 km have been reported. The northeasternmost part of the area, the locale of the 1950 great earthquake, is the site of the eastern syntaxis in the Himalayan chain.

DATA

In order to investigate seismicity, the 1,000-km segment of the plate boundary in Assam was divided into three somewhat overlapping zones: zone I enclosing roughly the mezoseismal area of the great earthquake of 1897, zone II defining the gap between the two great earthquakes of 1897 and 1950, and zone III covering the seismic activity associated with the great 1950 earthquake (inset in Fig. 1). The overlap was considered desirable to achieve some continuity in the data analysis.

Aftershocks must be excluded in seismicity studies like the present one because we consider the main shock–aftershock sequence as one event only, and because an overestimate of the background activity would result if aftershocks are not excluded. However, in our case, aftershocks in the data set do not pose a problem, because we consider a time scale with 1 yr as the smallest unit and 5 yr as the minimum for defining local seismicity trends. Furthermore, for main shocks before 1925, where the seismicity is obtained from felt reports, the aftershocks were not counted or reported. For these reasons it is sufficient to make only one fairly crude adjustment of the data: we assumed that all earthquakes reported in zone III from 1950 through 1951 were aftershocks of the great 1950 main event, and we omitted these quakes from Figure 3.

The source of seismicity data back to 1900 is the data file of NOAA's National Geophysical and Solar Terrestrial Data Center. The seismicity data for the period before 1900 are from the catalogue compiled by Roorkee University (unpublished), which is the most complete set of historical seismicity data for this area.

The cumulative number of the earthquakes reported are plotted for the three regions in Figures 1, 2, and 3, respectively. Approximate seismicity trends that seemed to be constant over several years are indicated by fine lines, which were fitted by eye through the data. The occurrence time of all the reported earthquakes with $M \geq 6.7$ is indicated by arrows for the time after 1940. For the earlier period, only outstandingly large quakes (usually > 7.5) were marked.

The most important result becomes immediately obvious. Each large earthquake in any of the three regions was preceded by a period of low seismicity. These periods are very pronounced, with their lengths apparently a function of magnitude. A period of "significant quiescence" will be defined as one in

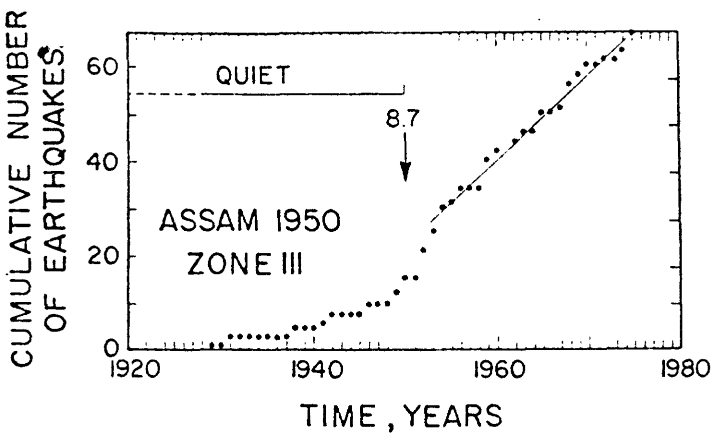

Figure 3. Cumulative number of earthquakes located in zone III, the area of the great 1950 Assam earthquake (M = 8.7).

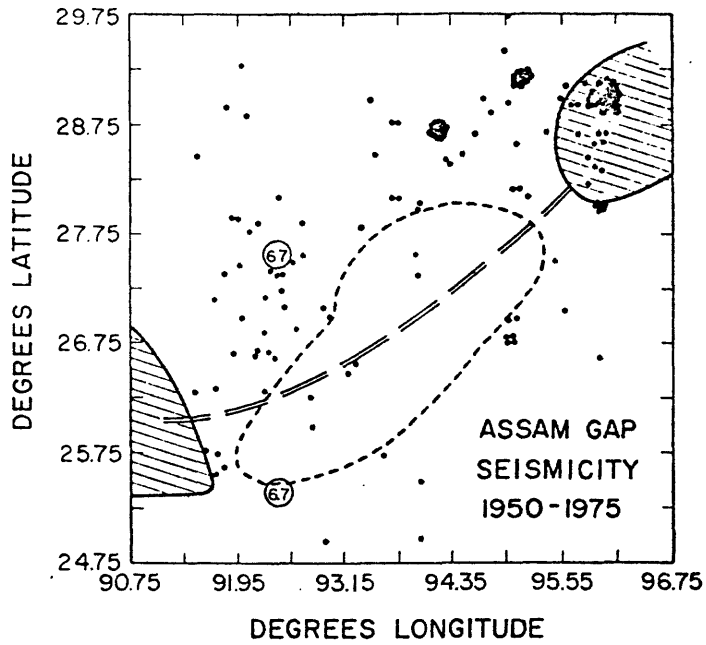

Figure 4. Map of epicenters in the Assam gap from 1950 to 1975. Aftershock areas of great earthquakes are shaded. The area of low seismicity outlined by dashes may be the most likely place for one or two future large earthquakes.

which during more than 3 yr the seismicity rate was less than 0.6 the rate defined by the 5 to 10 yr preceding it. The periods that thus qualify as "quiet" are labeled in Figures 2 and 3.

Zone I was chosen to include the great Assam earthquake of 1897. It is remarkable that not a single event was reported in that area during the 28 yr before this great earthquake. For comparison, during the 28 yr preceding this period of quiescence, 38 earthquakes were reported. Just as outstanding is the remarkable period of quiescence from 1899 to 1930 that was terminated by the sequence of a magnitude 7.6 and two 7.1 earthquakes. After these events, the background level of seismicity sharply increased.

The more recent seismicity data for the area (upper curve in Fig. 1) define very clearly an 8-yr and a 6-yr period of relative quiescence before the magnitude 6.7 events in 1950 and 1975, respectively, and a 4-yr period of quiescence immediately following the 1950 earthquake. These fluctuations could not have been due to a change in detection capability, because starting in 1963 the World Wide Seismograph Network provided uniform coverage of the area, and because world-wide seismicity coverage during the 1940s was better than in the 1930s.

Anomalously low seismicity before the 1869 magnitude 7.8 earthquake is less well defined. It appears that a period of relatively low seismicity may have started in 1848, with a small peak of activity in 1863 to 1865. Because of the low resolution during this early historic period and because of our ignorance of magnitudes involved, we only consider a period significantly quiescent if the decreased rate lasted for 8 yr, double the requirement of more modern data. We suggest that a quiet period of about 23 yr may have preceded this earthquake.

Zone II defines the Assam gap. Zones II and III are more remote than zone I; therefore, we have to rely on instrumentally recorded seismicity for which catalogues start around 1920. Two earthquakes with magnitudes 7.2 and 7.7 occurred in zone II in 1943 and 1947, respectively. They were preceded by a period of quiescence that started in 1930 (Fig. 2), 13 to 17 yr before these shocks. The larger of these two quakes was located north of the Himalaya thrust, that is, outside of the Assam area. An earthquake that occurred in 1975 in the common region of zones I and II may also have been associated with a small decrease in activity before it. The period of quiescence before 1925 is interpreted as being due to the large quakes in the neighboring zone I during the period 1918 to 1930, because modern data show that large quakes can decrease local seismicity out to distances of 2 or 3 source dimensions (Habermann and Wyss, 1977).

Zone III includes the area of the great 1950 earthquake. The seismicity in zone III (Fig. 3) is remarkable for its low level between 1920 and 1950. Unfortunately, the seismicity level cannot be estimated before 1920 because the area is too remote. However, the rate of activity between 1920 and 1950 is lower than in either of the two other zones during the same time. We therefore conclude that this was a period of quiescence, but we give the observation a low quality rating of C (Table 1). After 1953, seismic activity was constant. As a minor point, one may note that our scheme of excluding aftershocks did not remove all such events. Two to four years after the main shock the activity still was higher than the background has been ever since.

DISCUSSION

The data shown in Figures 1, 2, and 3 demonstrate that pronounced reduction in seismicity rate preceded the larger

TABLE 1. DURATIONS OF SEISMIC QUIESCENCE BEFORE ASSAM EARTHQUAKES

Area	Earthquake Date	Earthquake M	Duration of quiescence (yr)	Approx. quality of observation
Zone I	1869	7.8	23	C
	1897	8.7	28	B
	1918	7.6	19*	C
	1922	7.1	5*	C
	1950	6.7	8	A
	1975	6.7	6	A
Zone II	1947	7.7	17	A
Zone III	1950	8.7	>30	C

*Beginning of quiescence (decrease in seismic activity) assumed to be date of preceding large quake.

earthquakes in the Assam area since 1800. Significantly, there were no periods of anomalously low seismicity rate for several years that did not either immediately precede or follow one of the large earthquakes. The facts that the above data cover more than 100 yr, that each large earthquake was preceded by quiescence, and that only one quiescent period (the one after the 1950 earthquake in zone I) was not followed by a major earthquake suggest that there is a causal connection between periods of quiescence and large earthquakes. We will therefore consider low seismicity periods in this area to be precursory anomalies indicative of major earthquakes to follow.

It is surprising that the two 6.7 magnitude quakes (Fig. 1) are preceded by a significant decrease in seismicity even though a very large area is considered. A possible reason for this observation is that most of the recent seismicity occurs along the margins of zone I, with little activity at the center of the source area of the magnitude 8.7 great earthquake. For the 1975 magnitude 6.7 event we found that between 1963 and 1975 about half of the events plotted in Figure 1 occurred within approximately 100 km from that event and that the seismicity within this radius mirrored the pattern shown in Figure 1.

Heightened precursory activity (clusters) on the time scale of days and months is not defined by the data here as it apparently is in underground mines (Brady, 1974) and before some other earthquakes (Brady, 1976; Habermann and Wyss, 1977; McNally, 1977). We cannot say for sure that such precursory clusters do not exist here, because owing to their relatively small magnitude, they may simply not have been recorded for this region. In the absence of pronounced clusters, we define the precursor time as the duration from the beginning of the seismicity decrease to the large earthquake terminating the anomalously quiescent period (Table 1). On the plot of precursor time versus earthquake magnitude these values agree approximately with the curve originally proposed by Scholz and others (1973). Some of the precursor times reported here are among the longest ones observed to date, and they are for the largest earthquakes for which precursors have been noted.

It would be of great value if future earthquakes could be anticipated on the basis of the patterns observed before past earthquakes. One difficulty in this is the fact that with time more small earthquakes are being located with improving station coverage. This resolution increase is reflected by an increase in slope (Fig. 1, 3), so we do not know what amount of activity during the quiescent periods before the $M = 8.7$ earthquakes would have been resolved with today's capabilities.

The epicenters of earthquakes that occurred since 1950 in the gap are shown in Figure 4, which exhibits a rather well-defined area of quiescence. With a curve through the past great earthquakes and parallel to the Himalaya mountain ranges (double dashed in Fig. 4), we suggest a zone for the likely locations of future great earthquakes. This curve runs through the area of quiescence. One possible explanation of this observation is that the instrumental epicenter locations may be biased toward the concave side of the plate boundary, as is commonly the case in subduction zones. The areas of the great earthquakes, on the other hand, are known from the local shaking effects. If the small earthquakes are mislocated by 50 km, it could be that the apparently quiet part of the gap is not quiet at all. Alternatively, it is possible that there really exists a quiet part of the gap. The data available do not warrant an earthquake prediction. Perhaps detailed field studies in the area of the Assam gap could help to better assess the earthquake risk there.

REFERENCES CITED

Anonymous, 1976, A brief summary of the work of premonitory observation, prediction and precautionary measures before the Haicheng earthquake, Liaoning province, of magnitude 7.3: Scientia Geologica Sinica, no. 2, p. 120.

Benioff, H., 1951, Global strain accumulation and release as revealed by great earthquakes: Seismological Society of America Bulletin, v. 62, p. 331.

Brady, B. T., 1974, Seismic precursors before rock failures in mines: Nature, v. 252, p. 5483.

——— 1976, Theory of earthquakes IV. General implications of earthquake prediction: Pure and Applied Geophysics, v. 114, p. 1031.

——— 1977, Anomalous seismicity prior to rock bursts: Implications for earthquake prediction: Pure and Applied Geophysics, v. 115, p. 357.

Brune, J. N., 1968, Seismic moment, seismicity and rate of slip along major fault zones: Journal of Geophysical Research, v. 73, p. 777.

Evison, F. F., 1977, Fluctuations of seismicity before major earthquakes: Nature, v. 266, p. 710.

Fedotov, S. A., 1967, Long range seismic forecasting for the Kurile-Kamchatka zone: Transactions of Meeting of Far East Earth-Science Division, Academy of Sciences USSR, Moscow.

Habermann, R. E., and Wyss, M., 1977, Seismicity patterns before five major earthquakes: EOS (American Geophysical Union Transactions), v. 58, p. 1194.

Ishida, M., and Kanamori, H., 1977, The spatio-temporal variation of seismicity before the 1971 San Fernando earthquake, California: Geophysical Research Letters, v. 4, p. 345.

Jones, L., and Molnar, P., 1976, Frequency of foreshocks: Nature, v. 262, p. 677.

Kelleher, J., Sykes, L., and Oliver, J., 1973, Possible criteria for predicting earthquake locations and their application to major plate boundaries of the Pacific and the Caribbean: Journal of Geophysical Research, v. 78, p. 2547.

McNally, K., 1977, Patterns of earthquake clustering preceding moderate earthquakes, central and southern California: EOS (American Geophysical Union Transactions), v. 58, p. 1195.

Mogi, K., 1969, Some features of recent seismic activity in and near Japan, 2, Activity before and after great earthquakes: Tokyo University, Earthquake Research Institute Bulletin, v. 47, p. 395.

Nersesov, I. L., and others, 1973, Possibilities of earthquake prediction, exemplified by the Garm area of the Tadzhik SSR, *in* Sadovsky, M. A., and others, eds., Earthquake precursors: Academy of Sciences USSR, p. 72.

Scholz, C. H., Sykes, L. R., and Aggarwal, Y.P.A., 1973, Earthquake prediction: A physical basis: Science, v. 181, p. 803.

Sykes, L. R., 1971, Aftershock zones of great earthquakes, seismicity gaps, and earthquake prediction for Alaska and the Aleutians: Journal of Geophysical Research, v. 76, p. 8021.

Tapponnier, P., and Molnar, P., 1977, Active faulting and tectonics in China: Journal of Geophysical Research, v. 82, p. 2905.

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