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THE LONG SHOT EXPERIMENT. VOLUME I. BASIC OBSERVATIONS AND MEASUREMENTS

D. G. Lambert, et al

Teledyne Industries, Incorporated
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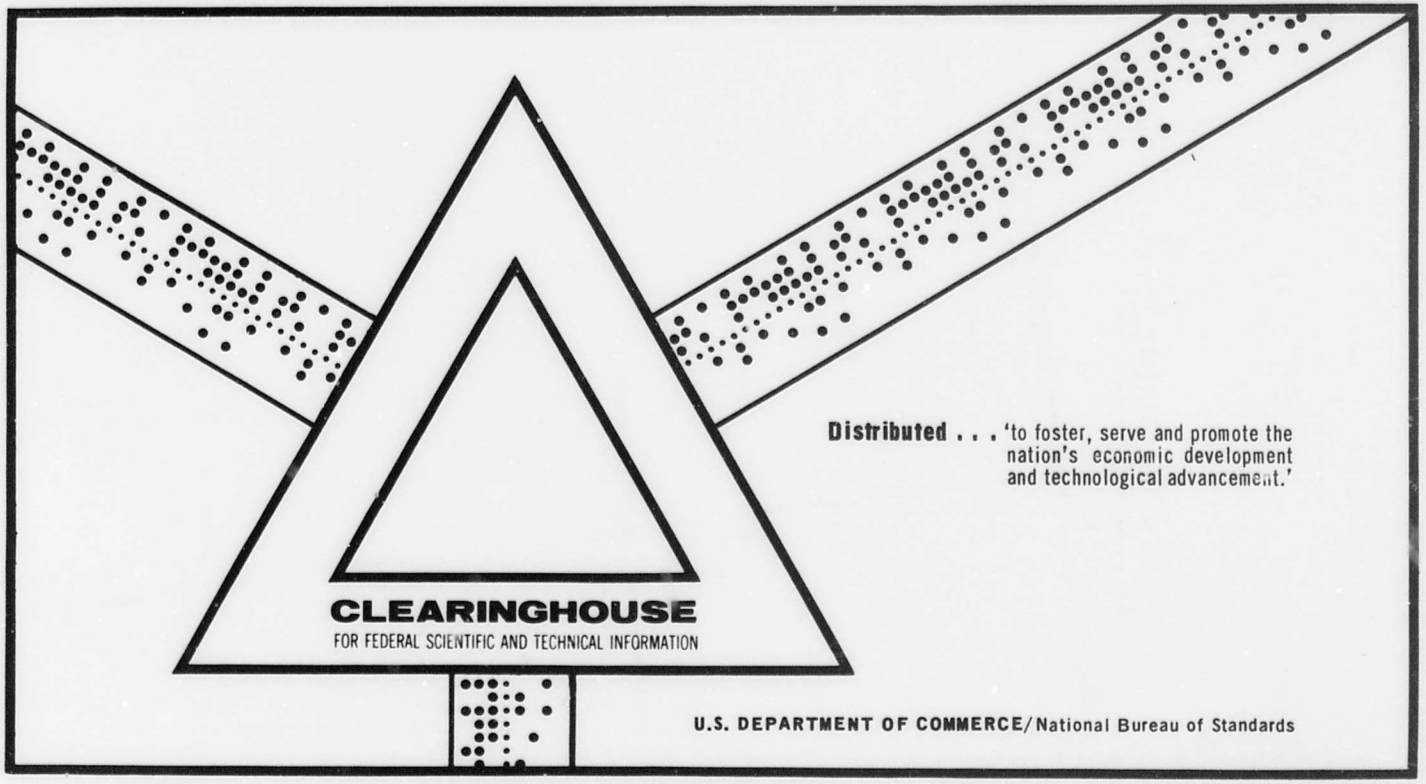

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THE LONG SHOT EXPERIMENT

VOLUME I

BASIC OBSERVATIONS AND MEASUREMENTS

SEISMIC DATA LABORATORY REPORT NO. 234

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We wish to acknowledge the aid and cooperation of the United States Coast and Geodetic Survey (USC&GS) personnel, especially Messrs. James Jordan, Ken Bayer, and Robert McCarthy, in preparing this report. Mr. Jordan's perseverance in undertaking to obtain recordings of LONG SHOT from many stations throughout the world contributed greatly to the abundance of data available for this report. Mr. Bayer supervised the visual analysis of LONG SHOT recordings at the USC&GS and kindly supplied the SDL with analysis sheets on about 300 stations. Mr. McCarthy allowed us to use viewing facilities at the USC&GS and aided in obtaining 35 mm film chips from WWSSS stations for LONG SHOT and the two other events analyzed in this study.

INTRODUCTION

One of the very important research and development efforts of the United States Governement in recent years has been concerned with the detection, location, and identification of underground nuclear explosions. Such a capability is important to the security of the United States both in terms of accurately documenting the nuclear weapons testing programs of foreign powers and in monitoring any test ban treaty which would prohibit the detonation of underground nuclear devices. The responsibility for this effort is vested in the Advanced Research Projects Agency of the United States Government which has sponsored a vigorous technical program (project VELA-Uniform) directed toward developing the desired detection and identification capability.

One of the major experiments in this program was Project LONG SHOT in which an underground nuclear explosion was set off on Amchitka Island in the Aleutians. The overall purpose of LONG SHOT was to test and improve our ability to locate and identify seismic events from observations at large distances. This was an important experiment because most of our previous experience had been with explosions at the Nevada Test Site recorded primarily at regional distances (<3000 km) within the United States and Canada. As a result we needed a quantitative test of our ability to locate and identify distant events occurring in a geological and tectonic setting different from that at the Nevada Test Site.

Some of the reasons for selecting the Aleutian Island Arc as the test area for LONG SHOT were.

(1) it provided a favorable distribution of recording stations in both azimuth and distance especially from the

higher-quality stations in the U.S.

(2) it is a tectonically active region that provides earthquakes for direct comparison with LONG SHOT

(3) it resembles the Kuril Arc and Kamchatka where more than 60% of all earthquakes in the Soviet Union occur.

(4) it is in a continental margin area where many of the earthquakes occur under the ocean. Calibration furnished by LONG SHOT would assist in developing reliable means of determining whether or not an event occurred on land (The events occurring on land are of most interest since completely contained underwater explosions in the open ocean can be detected and identified as explosions from the characteristic hydroacoustic signals they produce)

(5) it is in an area with different geological structure than NTS so that location and identification procedures previously developed could be rigorously tested.

(6) the area is remote and yet accessible so that the necessary geophysical and geological surveys of the area surrounding the test site and the detonation itself could be carried out without disrupting any local domestic activities.

The LONG SHOT explosion took place on Amchitka Island in the Aleutians on 29 October 1965. The event was sufficiently large (80 kilotons equivalent TNT with a P wave magnitude of 5.85) to be recorded clearly at a large number of receiving stations around the world. The excellent data provided by this experiment have been analyzed intensively and numerous publications relevant to various aspects of the problem of distinguishing explosions from earthquakes have resulted. However, to date there has not been an integrated study

which brings together the salient information gained from LONG SHOT.

The purpose of the present study is to document in a single comprehensive report the important results relating to the location and identification of underground nuclear explosions obtained from the LONG SHOT experiment. This synthesis has involved not only the collection of basic observations from LONG SHOT and critical review of previous work based on LONG SHOT data, but also considerable additional data analysis to aid in the overall interpretation of LONG SHOT results.

The report is contained in two volumes. Volume One presents the basic observational data obtained for all the available stations which recorded the LONG SHOT event. To illustrate the quality of seismic recordings from LONG SHOT obtained throughout the world, reproductions of a large number of seismograms are included. In addition, Volume One contains a complete bibliography of publications which deal with LONG SHOT.

Volume Two presents a comprehensive analysis of the LONG SHOT explosion including both near-source and far-field observations. It is written and illustrated such that reference to Volume One is not required. Included are discussions of the physical setting of LONG SHOT, near-source behavior, and location and magnitude estimates. We have also applied the principal identification criteria to LONG SHOT in an effort to assess the effectiveness of each diagnostic for this source region. In addition we compare LONG SHOT directly with equivalent magnitude earthquakes from the same source region to elucidate their differences and similarities.

It is hoped that this comprehensive report will serve as a point of departure for future work both on LONG SHOT and the Aleutian Arc source region and that it will aid in evaluating any future experiments in other localities.

BASIC OBSERVATIONS AND MEASUREMENTS

1. Tabulated Data

Epicenter data for the nuclear event LONG SHOT are given in Table 1. This event was recorded in all quadrants at epicentral distances from 2° to 161°. Data for 371 stations are presented in Tables 2 and 3. These include travel times for observed short-period phases; travel-time residuals for P, PKP, and PcP phases with respect to Jeffreys-Bullen (JB) and the new Herrin (H68) surface-focus times; periods and maximum zero-to-peak amplitudes (A/T) of short-period and long-period phases; and unified body-wave (m_b) magnitudes and surface-wave (M_s) magnitudes at those stations for which they could be computed.

The stations listed include the Long Range Seismic Measurements (LRSM) stations; the VELA observatories, the World-Wide Standard Seismograph Station (WWSSS) network of the United States Coast and Geodetic Survey (USC&GS); the British Atomic Weapons Research Establishment (AWRE) arrays; the Berkeley, Pasadena, Hawaiian, Canadian, and Alpens networks; many independent stations throughout the world; and several temporary stations which were set up specifically to record LONG SHOT. The stations are listed alphabetically according to the three-letter station identification code as used by the USC&GS or the five-letter code as used by the LRSM program. The geographic coordinates and elevations of the 371 stations are given in Appendix I together with a map showing their locations in Appendix II.

Table 2 comprises those stations (265) for which records were obtained for analysis by the Seismic Data Laboratory. Arrival times, periods, and amplitudes were measured visually by analysts for all identifiable phases on all records.

Tabulated measurements for the LRSM and VELA stations have previously been given by Clark ("Long Range Seismic Measurements - LONG SHOT", Earth Sciences Division, Teledyne Industries, Inc., Seismic Data Laboratory Report No. 133, 1966) and data from his report were used as a guide in reviewing records from these stations. The majority of the remaining stations had been previously read by personnel of the USC&GS, and their analysis sheets were used as references by the SDL personnel in making the final readings. Therefore, the measurements listed in Table 2 for the most part represent the concurrence of two or more observers. Table 2 includes several stations which were not previously read by the USC&GS and also data for many later phases (e.g., PKKP and PKPPKP) which had not been reported by the USC&GS. Table 3 comprises those stations (106) for which records were unobtainable for analysis. Data for these stations were received by the USC&GS via telephone, telegram, and letter, or it was copied from published reports. In most cases only the arrival time and amplitude of the first arrival were communicated. Although the data from Table 3 are considered somewhat dubious, they have been plotted in the subsequent figures along with data from Table 2.

The absence of shear arrivals in the tabulated data is not by design. There were only three shear phases observed on the records obtained for LONG SHOT by the SDL - ScP at stations HL2ID (Hailey, Idaho) and YR-CL (Yreka, California) and S at station SHL (Shillong, India). (The ScP phase may in fact be PcS and therefore not attributable to shear energy released at the source.) P-phase signal-to-noise ratios at these three stations exceeded 250. The direct shear (S) phase was unobservable at many other stations which had P-phase signal-to-noise ratios of at least 100; e.g., GOL (Golden, Colorado), JCT (Junction City, Texas), OXF (Oxford,

Mississippi), KN-UT (Kanab, Utah). Love waves were not positively identified at any station. However, the closest long-period instruments to LONG SHOT excluding AD-IS (Adak Island, Alaska, Δ = 2.6°), were those at COL (College, Alaska, Δ = 21.7°).

All of the data tabulated in Tables 2 and 3 regarding the major phases (Pn and P, PcP, PKP, and LR) are preserved on digital magnetic tapes at the SDL for future study.

2. Instrumentation

The LRSM and VELA observatories, with some exceptions, consist of three-component short-period and long-period systems. Pertinent recording information for these stations is given in Appendix III. The WWSSS network consists of stations identically equipped with a three-component Benioff short-period system and a three-component Sprengnether long-period system. The British AWRE arrays consist of vertical short-period Wilmore Mark II seismometers. Relative magnification curves for all these stations are given in Appendix IV. Curves are not shown for the remaining networks and stations because the system response varies from station to station. However, the varying instrument responses were taken into account for these stations in the data analysis.

3. T .vel Time Residuals

Figure 1a is a plot of the Pn and P travel-time residual for LONG SHOT with respect to the Jeffreys-Bullen (JB) surface-focus times. Figures 2a and 3a are similar plots of the PKP and PcP travel-time residuals. Figure 1b shows Pn and P travel-time residuals with respect to the recently published tables (H68) of the committee headed by E. Herrin

(Bulletin of the Seismological Society of America, Vol. 58, No. 4, 1968). Figures 2b and 3b are similar plots of H68 residuals for the PKP phase and the PcP phase respectively. Ellipticity, but not elevation, corrections have been applied to all these residuals.

4. Amplitudes

Figures 4 through 7 are plots of maximum amplitude (zero-to-peak A/T) of P (including Pn), PKP, PcP, and LR phases. For the short-period phases, the maximum peak-to-peak excursion within the first few cycles of motion of the phase was measured, halved, and divided by the period of the measured amplitude cycle to obtain zero-to-peak A/T. For the long-period LR phase, the maximum peak-to-peak excursion on the record in the period range 16-24 seconds was measured, halved, and divided by the period to again obtain a zero-to-peak A/T value.

5. Magnitudes

Unified body-wave magnitude for stations in the distance range 2°-100° was computed by the formula:

$$m_b = \log_{10}(A/T) + B$$

where

A = maximum zero-to-peak ground motion (millimicrons) of the Pn or P phase within the first three or four cycles,

T = period of maximum ground motion (seconds),

B = distance correction factor.

The distance correction factors from 16° to 100° were taken from Gutenberg and Richter (1956); they were extrapolated back to 2° by assuming an inverse-cube relation for the amplitude decay of the Pn wave. These factors are listed in Appendix V. The unified body-wave magnitudes for 281 stations are plotted in Figure 8. The mean body-wave magnitude, computed by averaging the indiviudal station magnitudes, is 5.85 for LONG SHOT. The standard deviation of the individual magnitudes is 0.45.

Surface-wave magnitude was computed by the formula:

$$M_s = \log_{10}(A/T) + 1.66 (\log \Delta) - 0.18$$

where

A = maximum peak-to-peak ground motion (millimicrons) of the Rayleigh wave in the period range 16 to 24 seconds,

T = period of maximum ground motion (seconds),

Δ = epicentral distance in degrees.

The Rayleigh-wave magnitudes are plotted in Figure 9. The mean Rayleigh-wave magnitude (the average of the individual station magnitudes) is 4.06 for LONG SHOT. The standard deviation of the surface-wave magnitudes is 0.22.

6. Reproduced Recordings

Appendix VI contains the reproductions of all the recorded phases listed in Table 2 except those from LRSM and VELA stations, which are contained in Appendix VII. The quality of the pictures in Appendix VI varies according to the type of record available for reproduction; these ranged

from original film and paper recordings to photocopies of seismograms. Some of the measurements made on the original records may be difficult or even impossible to make on the reproductions included here. No standard horizontal time scale could be adopted; however, the scale in each case can be determined by noting the time mark on the picture and referring back to travel times in Table 2. The trace magnifications given are those of the actual pictures shown here. Unless otherwise stated, short-period static magnifications are for 1.0 cps and long-period static magnifications for 0.05 cps. The pictures are arranged alphabetically according to the station code except for the stations of the Berkeley telemeter network and the USC&GS Quadripartite Array in Hawaii which are shown last since each group is recorded on a single Develocorder film.

For the LRSM and VELA stations, reproductions were made from magnetic tape playouts and are displayed in Appendix VII However, some pictures of film are also contained in this appendix either because the magnetic tape was unavailable or because it was unusable. Trace magnifications given are at 1.0 cps for short-period instruments and 0.04 cps for long-period instruments.

DISCUSSION OF BIBLIOGRAPHY

The bibliography contained in this volume includes papers directly relating to the study of the LONG SHOT experiment and papers which have employed LONG SHOT data to make a significant seismological contribution. Papers only casually referring to LONG SHOT, its data and results, are not included.

SUMMARY

Basic recorded data for 371 stations have been presented for LONG SHOT. Of these stations, 265 have been re-evaluated at the Seismic Data Laboratory. The primary compressional (P) wave was observed at 339 stations, and the core reflection (PcP) was observed at 154 stations. Other compressional phases were observed less frequently, and it is noteworthy that shear phases were observed at only 3 stations. Surface waves of the fundamental Rayleigh mode were recorded at 55 stations. No Love waves were distinguishable on the long-period records.

Both body-wave and surface-wave magnitudes have been computed by averaging the individual station magnitudes (281 body-wave and 55 surface-wave measurements). The mean body-wave magnitude for LONG SHOT is 5.85 (standard deviation = $\pm$ 0.45), and the mean surface-wave magnitude is 4.06 (standard deviation = $\pm$ 0.22).

Reproductions of recorded phases at 265 stations have been made and are included in an appendix.

The data for LONG SHOT tabulated in this report is the most extensive listing of basic data for a seismological event to date. A noticeable deficiency is the absence of data from the U.S.S.R. and the Chinese mainland. These data were not available at the time of writing of this report. Additional observations from Japan will be forthcoming in a paper by Hiroo Kanamori (see Bibliography).

The bibliography includes only those papers pertinent to LONG SHOT, its data and results.

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See Also

Abstracts, "Symposium on the LONG SHOT nuclear event", Trans. Am. Geophys. Union, 47, 164-166, 1966.

TABLE I

Event Description

Date:	29 October 1965
Time of Origin:	21:00:00.00Z
Magnitude:	5.8 with std. dev. of ± 0.4 (281 stations)
Location:	Amchitka Island, Aleutian Islands
Coordinates:	
Latitude:	51°26'17"N
Longitude:	179°10'57"E
Environment:	
Geologic Medium:	Andesite Sill
Surface Elevation:	130 feet above mean sea level
Shot Elevation:	2164 feet below mean sea level
Shot Depth:	2303 feet below surface

TABLE 2. Data From Stations Analyzed by SDL

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
AA6		Ann Arbor, Michigan (Temporary)	6,926	62.3	56	SPZ	P	10	21.0	-4.9	(0.8)	(321)	(6.48)
AAE	W	Addis Ababa, Ethiopia	12,319	110.8	318	SPZ	PKP	18	(30.6)	-4.6	(1.2)	(2.6)	
						SPZ	(PP)	19	0.86		1.2	7.7	
AAM	W	Ann Arbor, Michigan	6,926	62.3	56	SPZ	P	10	21.0	-4.9	0.75	162	618
						SPZ	PcP	11	03.3	-2.5	0.7	46.5	
ABC		Abeche, Chad	12,490	112.3	337	SPZ	PKP	18	35.5	-2.4	(0.8)	*	
						SPZ	(PP)	19	20.0		1.2	*	
						SPZ	$PKKP_1$	29	27.3		1.0	*	
						SPZ	$PKKP_2$	29	36.1		1.0	*	
AD-IS	L	Adak Island, Alaska	291	2.6	79	SPZ	(Pn)	00	42.5	-1.7	(0.5)	(25,400)	(6.91)
						LPZ	LR				13	1,620	
ADE	W	Adelaide, Australia	10,351	93.1	212	SPZ	P	13	14.7	-1.9	0.75	45.0	5.84
						SPZ	PcP	13	16.9	-0.5	0.9	32.6	
AFI	W		7,288	65.5	170	SPZ	P	10	45.6	-2.0	0.9	29.8	5.47
AKU	W		6,945	62.5	8	SPZ	P	10	23.4	-3.2	1.2	92.2	5.91
ALE	C	Alert, Northwest Territories, Canada	4,757	42.8	10	SPZ	P	07	57.5	-2.7	(0.8)	(41.9)	(5.12)
						SPZ	PcP	09	47.2	-5.1	0.9	12.6	
						SPZ	(PP)	09	40.2		0.8	12.9	
						LPZ	LR				(16)	(23.4)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
ALQ	W	Albuquerque, New Mexico	6,040	54.3	77	SPZ	P	09	26.4	-4.1	1.0	211	6.12
						SPZ	PcP	10	30.9	-3.2	0.9	46.5	
AN6		Anaktuvuk, Alaska	2,433	21.9	29	SPZ	P	04	54.5	-1.4	(1.2)	(1120)	(6.24)
ANP	W	Anpu, Taiwan	5,636	50.7	261	SPZ	P	09	00.3	-3.0	0.9	104	5.72
AT6		Attu Island, Alaska	441	4.0	293	SPZ	(Pn)	01	00.9	-2.5	0.5	(4600)	(6.76)
ATL	W	Atlanta, Georgia	7,602	68.4	63	SPZ	P	11	00.3	-4.8	0.8	134	6.13
						SPZ	PcP	11	29.6	-1.3	0.8	20.0	
AV6		Artic Village, Alaska	2,653	23.9	32	SPZ	P	05	13.8	-1.6	0.5	(332)	(5.82)
BA6		Beale AFB,California	4,726	42.5	83	SPZ	P	07	55.7	-2.7	0.9	(152)	(5.68)
						SPZ	PcP	09	(47.8)	-4.0	1.0	(34.8)	
BAG	W	Baguio, Philippines	6,434	57.9	255	SPZ	P	09	51.4	-4.7	0.8	66.7	5.62
						SPZ	PcP	10	(43.9)	-5.0	0.9	65.1	
BAH	Q	Barrette, Hawaii	3,879	34.9	141	SPZ	P	06	54.2	-0.9	0.8	301	6.18
BAR	P	Barrett, California	5,506	49.5	86	SPZ	P	08	51.4	-2.7	0.9	80.4	5.66
						SPZ	PcP	10	(13.6)	-2.8	0.9	5.8	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGRESS)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
BC6		Brooks Camp, Alaska	1,775	16.0	54	SPZ	P	03	45.2	-2.1	0.9	104	
						SPZ	Pmax	03	(52.2)		(1.0)	(683)	(5.73)
						SPZ	PcP	08	41.9	-3.5	0.8	59.0	
BCN		Boulder City,Nevada	5,402	48.6	82	SPZ	P	08	43.6	-2.6	0.8	225	6.19
						SPZ	PcP	10	09.5	-3.8	0.9	(55.6)	
BE-FL	L	Belleview, Florida	8,123	73.1	65	SPZ	P	11	29.8	-3.7	0.9	93.2	5.87
						SPZ	PcP	11	45.3	-6.1	0.8	33.0	
						LPZ	LR				(18)	(7.61)	
BEC	W	Bermuda-Columbia, Bermuda	8,840	79.5	51	SPZ	P	12	(05.7)	-4.0	0.8	116	5.81
BET		Bethel, Alaska	1,569	14.1	41	SPZ	(Pn)	03	21.5	-1.8	(0.4)	(7.4)	
						SPZ	Pmax	03	24.4		1.0	(136)	(5.70)
						SPZ	e	03	26.7		0.9	86.0	
						SPZ	e	03	29.6		1.0	(470)	
BH-YK	L	Burwash Landing, Yukon	2,745	24.7	50	SPZ	P	05	19.9	-3.5	0.7	198	5.74
						SPZ	PcP	08	58.0	-3.8	0.6	53.4	
						LPZ	LR				(17)	(33.9)	
BHP	W	Balboa Heights, Panama	10,008	90.0	76	SPZ	P	12	59.6	-3.1	(0.8)	(35.6)	(5.55)
						SPZ	(PcP)	13	(00.4)	-3.9	1.0	80.0	
BKS	W	Byerly, California	4,747	42.7	85	SPZ	P	07	57.7	-2.3	0.9	(260)	(5.91)
						SPZ	PcP	09	49.2	-3.4	(0.7)	(83.7)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
BLA	W	Blacksburg, Virginia	7,528	67.7	58	SPZ	P	10	56.2	-4.8	(0.7)	(135)	(6.13)
						SPZ	PcP	11	24.4	-3.3	0.8	35.6	
BLC	C	Baker Lake, Northwest Territories	4,824	43.4	39	SPZ	P	08	01.3	-3.9	-	-	
						SPZ	(PP)	09	(49.4)		(1.0)	(62.5)	
						SPZ	(PcP)	09	(52.4)	-2.1	(0.7)	(50.0)	
						LPZ	LR				(16)	(29.7)	
BLO		Bloomington, Indiana	7,004	63.0	60	SPZ	P	10	25.6	-4.9	0.7	163	6.11
BMO	L	Blue Mountains,Oregon	4,636	41.7	73	SPZ-3	P	07	48.6	-3.3	0.9	137	5.63
						SPZ-3	PcP	09	(45.1)	-3.7	0.7	40.0	
						LPZ	LR				16	8.90	
BOZ		Bozeman, Montana	4,963	44.6	69	SPZ	P	08	11.9	-3.9	(0.9)	(240)	(6.00)
						SPZ	PcP	09	55.5	-3.6	0.9	37.2	
BR6		Black Rapids, Alaska	2,448	22.0	43	SPZ	P	04	53.6	-3.7	0.7	*	
						SPZ	PcP	08	52.7	-3.6	0.5	*	
BRK	B	Berkeley, California	4,746	42.7	85	SPZ	P	07	(57.6)	-2.2	0.9	89.3	5.45
						SPZ	PcP	09	(50.1)	-2.5	(0.8)	(14.4)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
BRW		Barrow, Alaska	2,509	22.6	20	SPZ	P	05	01.6	-2.4	0.7	(19.1)	
						SPZ	Pmax	05	03.9		1.0	73.4	5.13
						SPZ	PP	05	(28.2)		0.85	(23.5)	
						SPZ	PcP	08	54.0	-3.4	(1.1)	(3.3)	
BUL	W	Bulawayo, Rhodesia	15,699	141.2	313	SPZ	PKP	19	(23.9)	-8.8	(0.8)	(11.1)	
						SPZ	(PP)	22	(16.9)		1.0	(18.8)	
BUT		Butte, Montana	4,878	43.9	69	SPZ	P	08	05.4	-4.3	0.9	(133)	(5.63)
						SPZ	P'P'	39	(52.6)		0.9	75.7	
CAR	W	Caracas, Venezuela	10,697	96.2	65	SPZ	P	13	(27.7)	-3.7	0.9	51.2	6.03
CBA		Cold Bay, Alaska	1,272	11.4	64	SPZ	Pm	02	47.8	+0.2	0.8	(870)	(7.10)
CGM		Cape Girardeau, Missouri	6,965	62.6	64	SPZ	P	10	22.7	-5.5	0.8	74.3	5.81
CH-MT	L	Fort Churchill, Manitoba	5,229	47.0	46	SPZ	P	08	30.9	-3.5	0.8	574	6.64
						LPZ	LR				(20)	(26.6)	
CH6		Cholame, California	5,021	45.2	86	SPZ	P	08	17.4	-2.5	0.95	85.1	5.64
						SPZ	PcP	09	57.7	-3.6	1.0	24.9	
CLC	P	China Lake, California	5,213	46.9	84	SPZ	P	08	31.1	-2.6	-	-	
						SPZ	PcP	10	03.9	-3.6	1.0	(70.0)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
CLE		Cleveland, Ohio	7,113	64.0	56	SPZ	P	10	32.0	-5.0	0.7	32.1	5.51
CLV		Cleve, Australia	10,307	92.7	214	SPZ	P	13	12.0	-2.7	(0.8)	(11.4)	(5.23)
						SPZ	(PcP)	13	13.0	-2.7	(0.8)	(34.1)	
CMC	W	Coppermine,Northwest Territories	3,892	35.0	37	SPZ	P	06	52.5	-3.1	(1.0)	(120)	(5.78)
						SPZ	PcP	09	23.3	-4.9	0.9	20.9	
						LPZ	LR				(18)	(38.4)	
CMC	C	Coppermine,Northwest Territories	3,892	35.0	37	SPZ	P	06	52.5	-3.1	(1.0)	(197)	(5.99)
						SPZ	PcP	09	23.3	-4.9	1.0	28.6	
						LPZ	LR				(16)	(33.5)	
CNZ		Chateau,New Zealand	10,043	90.3	183	SPZ	P	12	59.7	-4.0	(1.0)	*	
COL	W	College Outpost, Alaska	2,412	21.7	39	SPZ	P	04	49.9	-4.1	0.8	(423)	(5.76)
						SPZ	PcP	08	49.0	-5.8	0.9	29.1	
						LPZ	LR				(14)	(54.9)	
COR	W	Corvallis, Oregon	4,248	38.2	77	SPZ	P	07	(21.5)	-1.3	-	-	
						SPZ	PcP	09	35.9	-2.4	1.0	60.0	
CP-CL	L	Campo, California	5,523	49.7	86	SPZ	P	08	52.5	-2.9	0.8	(201)	(6.11)
						SPZ	PcP	10	14.2	-2.8	0.8	25.3	
						LPZ	LR				(20)	(6.56)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
CPO	L	Cumberland Plateau, Tennessee	7,349	66.1	63	SPZ-8L	P	10	45.7	-5.1	0.7	156	6.19
						SPZ-8L	(PcP)	11	(13.1)	-8.2	0.6	27.4	
						SPZ-8L	PP	13	(14.9)		0.8	15.0	
CPR		Cape Romanzoff,Alaska	1,464	13.2	32	SPZ	P	03	08.5	-2.3	1.5	45.9	5.58
						SPZ	e	03	19.6		0.8	(175)	
						SPZ	(PcP)	08	(39.0)	-2.8	(1.2)	(18.0)	
CR-NB	L	Crete, Nebraska	6,249	56.2	66	SPZ	P	09	(38.2)	-5.6	(0.7)	(507)	(6.50)
						LPZ	LR				(17)	(17.3)	
CSC		Columbia, South Carolina	7,758	69.8	61	SPZ	P	11	(08.5)	-5.3	(0.9)	(167)	(6.14)
CTA	W	Charters Towers, Australia	8,545	76.8	212	SPZ	P	11	52.7	-2.7	0.9	146	6.06
CWC	P	Cottonwood,California	5,135	46.2	83	SPZ	P	No Timing			1.0	320	6.14
						SPZ	PcP				1.1	(30.9)	
DAL	W	Dallas, Texas	6,849	61.6	72	SPZ	P	10	(17.5)	-3.8	0.9	(232)	6.33
						SPZ	PcP	10	59.3	-4.0	(0.9)	(195)	
DAV	W	Davao, Philippines	6,932	62.3	244	SPZ	P	1-	(23.4)	-3.2	(1.0)	(56.0)	(5.72)
						SPZ	PcP	11	03.7	-2.9	0.9	260	
DBQ		Dubuque, Iowa	6,494	58.4	60	SPZ	P	09	53.9	-5.4	0.9	463	6.47

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
DH-NY	L	Delhi, New York	7,422	66.7	51	SPZ	P	10	49.8	-5.1	0.8	239	6.38
						SPZ	Pc^{p}	11	22.1	-1.5	0.8	36.3	
						LPZ	LR				19	20.0	
DOU		Dourbes, Belgium	8,756	78.7	356	SPZ	P	12	(03.1)	-2.1	(1.1)	*	
						SPZ	PcP	12	(07.5)	-6.9	0.9	*	
DR-CO		Durango, Colorado	5,765	51.8	75	SPZ	P	09	09.0	-3.1	0.8	(45.6)	(5.36)
DUG	W	Dugway, Utah	5,236	47.1	76	SPZ	P	08	32.5	-2.8	-	-	
EDM	C	Edmonton, Alberta	4,434	39.9	60	SPZ	P	07	32.4	-4.3	(0.7)	(232)	(5.77)
						SPZ	PcP	09	(39.8)	-3.4	(0.8)	(20.3)	
EKA		Eskdalemuir Array, Scotland	8,182	72.6	1	SPZ-R2	P	11	32.2	-4.0	0.9	257	6.25
EN-MO	L	Ellsinore, Missouri	6,933	62.3	65	SPZ	P	10	20.6	-5.8	0.6	202	6.28
						SPZ	PcP	11	02.9	-3.1	0.7	49.4	
EPT		El Paso, Texas	6,276	56.4	80	SPZ	P	09	44.8	-1.0	0.9	80.3	5.70
ESK	W	Eskdalemuir, Scotland	8.183	73.6	1	SPZ	P	11	32.3	-3.8	0.8	142	5.99

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
EUR		Eureka, Nevada	5,070	45.6	79	SPZ	P	08	21.1	-2.5	-	-	
						SPZ	PcP	09	58.9	-3.7	(1.0)	(160)	
FBC	C	Frobisher Bay, Northwest Territories	5,966	53.7	31	SPZ	P	09	19.9	-4.9	(0.9)	(284)	(6.22)
						LPZ	LR				(16)	(15.6)	
FFC	C	Flin Flon, Manitoba	5,021	45.2	53	SPZ	P	08	14.4	-5.2	0.7	22.3	5.07
						SPZ	PcP	09	56.1	-5.0	0.8	31.3	
						LPZ	LR				(20)	(13.6)	
FL-BC	L	Fort Nelson, British Columbia	3,668	33.0	54	SPZ	P	06	34.2	-4.2	0.8	87.9	5.64
						SPZ	(PP)	07	52.1		0.8	31.9	
						SPZ	PcP	09	18.1	-4.3	0.8	46.3	
						LPZ	LR				22	18.3	
FLO	W	Florissant, Missouri	6,797	61.1	63	SPZ	P	1-	13.1	-5.0	-	-	
FN-WV	L	Franklin, West Virginia	7,471	67.2	57	SPZ	P	10	52.8	-4.9	0.9	72.2	5.86
						SPZ	PcP	11	22.1	-3.5	0.7	15.1	
						LPZ	LR				(20)	(6.37)	
FQ6		Fibron Quarry, Michigan	6,536	58.8	54	SPZ	P	09	(57.4)	-4.5	-	-	
FSJ	C	Fort St. James, British Columbia	3,718	33.4	62	SPZ	P	06	38.9	-3.4	(1.0)	(25.9)	(5.11)
FTC	P	Fort Tejon, California	5,190	46.7	86	SPZ	P	08	29.0	-3.1	-	*	
						SPZ	PcP	10	02.9	-3.8	0.7	*	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
GBA		Gauribidanur, India	9,636	86.7	288	SPZ-B1	P	12	43.3	-3.4	0.9	331	6.49
GCC	B	Granite Creek, California	4,822	43.4	86	SPZ	P	08	02.9	-2.6	0.9	133	5.62
						SPZ	PcP	09	(51.4)	-3.7	(0.7)	*	
GDH	W	Godhavn, Greenland	5,959	53.6	21	SPZ	P	09	(20.1)	-4.2	1.0	100	5.76
GEO	W	Georgetown, Washington, D.C.	7,581	68.2	55	SPZ	P	10	58.9	-5.0	(0.8)	(26.7)	(5.42)
GOL	W	Golden, Colorado	5,767	51.9	72	SPZ	P	09	08.6	-3.6	0.8	(131)	(5.82)
						SPZ	PcP	10	21.4	-4.0	0.9	34.9	
GRF		Grafenberg, Germany	8,754	78.7	352	SPZ-3	P	12	01.9	-3.3	0.7	77.5	5.76
GSC	W	Goldstone, California	5,304	47.7	84	SPZ	P	08	37.0	-3.2	-	-	
						SPZ	PcP	10	06.6	-3.4	1.0	75.0	
GUA	W	Guam, Mariana Islands	5,205	46.8	229	SPZ	P	08	28.6	-4.6	0.8	178	6.13
GV-TX	L	Grapevine, Texas	6,832	61.4	72	SPZ	P	10	16.7	-3.6	0.8	223	6.29
						SPZ	PcP	10	58.9	-3.6	0.65	119	
						LPZ	LR				(20)	(7.86)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
GWC	C	Great Whale Lake, Quebec	6,230	56.0	42	SPZ	P	09	37.0	-5.3	1.0	(714)	(6.65)
						SPZ	PcP	10	(34.8)	-5.7	0.6	29.8	
HAL	C	Halifax, Nova Scotia	7,785	70.0	42	SPZ	P	11	10.5	-4.5	(0.8)	(62.5)	(5.70)
HAY	P	Hayfield, California	5,501	49.5	84	SPZ	P	08	49.9	-3.9	0.8	50.0	5.45
						SPZ	PcP	10	13.2	-3.2	0.8	22.5	
HHM		Hungry Horse, Montana	4,647	41.8	67	SPZ	P	07	49.6	-3.0	1.0	79.6	5.40
						SPZ	PcP	09	46.2	-2.8	0.8	(52.1)	
HKC	W	Hong Kong, Hong Kong	6,380	57.4	265	SPZ	P	09	49.5	-2.8	1.0	160	6.00
						SPZ	PcP	10	43.5	-3.3	1.0	(32.0)	
HL2ID	L	Hailey, Idaho	4,908	44.1	73	SPZ	P	08	08.8	-3.3	1.0	280	5.97
						SPZ	PcP	09	54.5	-2.6	0.8	43.4	
						SPZ	(ScP)	13	45.8		0.8	3.70	
						LPZ	LR				22	7.44	
HN-ME	L	Houlton, Maine	7,442	66.9	44	SPZ	P	10	50.5	-5.4	1.0	295	6.47
						SPZ	PcP	11	20.5	-3.8	0.85	22.8	
						LPZ	LR				18	14.4	
HNR	W	Honiara, Solomon Islands	6,990	62.9	201	SPZ	P	10	27.1	-2.9	0.9	167	6.13
HON		Honolulu, Hawaii	3,884	34.9	141	SPZ	P	06	(54.6)	-0.8	0.9	185	5.97
						SPZ	PcP	09	(25.6)	-3.3	0.8	(62.5)	

TABLE 2 Data from stations developed by LDG (cont'd.)

[illegible]	Net	Station	Distance (km)	Distance (degrees)	Azimuth (degrees)	Phase	Observed Travel Time (min)	Observed Travel Time (sec)	O-C Res (sec)	Period (sec)	Maximum Amplitude A/T	Magnitude (m_b)
[illegible]		[illegible] Hot Springs, Alaska	2,571	23.1	28	LRZ	P	05	03.1	-1.0	1.0	12.1	
						LRZ	Pdiff	11	13.0		1.0	230	5.08
						LRZ	PcP	08	03.7	-0.6	1.0	160	
[illegible]		Bellotta, Australia	10,127	91.0	213	LRZ	P	13	20.1	-1.0	1.0	120	6.18
[illegible]		Hughes, Alaska	2,259	19.9	33	LRZ	P	04	02.7	-1.0	1.0	216	4.23
						LRZ	S	04	05.0		1.0	610	
[illegible]		Havre, Montana	5,913	53.2	53	LRZ	P	09	07.1	-0.7	1.1	102	5.11
						LRZ	(PP)	09	11.0		1.0	27.1	
						LRZ	PcP	09	13.0	-0.1	1.0	36.2	
						LRZ	LR				10	13.6	
[illegible]		Iron Mountain, Michigan	6,824	57.6	56	LRZ	P	09	08.0	-0.7	1.0	(200)	(6.60)
[illegible]	P	Isabella, California	1,164	06.6	05	LRZ	P	00	27.0	-2.0	(1.0)	(250)	(6.26)
						LRZ	PcP	10	(32.0)	-2.1	1.0	20.0	
[illegible]	E	Istanbul, Turkey	9,278	06.3	330	LRZ	P	12	(30.1)	-0.6	1.0	12.0	5.00
JAS	E	Jamestown, California	6,067	63.0	03	LRZ	P	09	07.0	-1.0	1.0	(97.5)	(5.00)
						LRZ	PcP	09	(53.2)	-2.9	0.9	(9.70)	
JCT	E	Junction City, Texas	6,833	61.6	76	LRZ	P	10	10.6	-0.0	(0.0)	(301)	(6.42)
						LRZ	PcP	11	(00.0)	-1.7	0.0	110	
						LRZ	PP	12	(39.0)		1.0	46.2	
						LRZ	P'P'	39	32.0		1.2	8.00	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
JER	W	Jerusalem, Israel	10,152	91.3	330	SPZ	P	13	(04.4)	-4.1	0.9	9.30	5.07
JP-AT	L	Jasper, Alberta	4,161	37.4	62	SPZ	P	07	12.7	-3.6	0.9	75.1	5.38
						SPZ	PcP	09	31.5	-3.9	0.8	26.1	
						LPZ	LR				17	20.9	
KAS		Kastam nu, Turkey	9,205	82.8	334	SPZ	P	12	24.5	-2.3	0.8	32.1	5.49
KC-MO	L	Kansas City,Missouri	6,485	58.3	65	SPZ	P	09	53.8	-5.0	0.8	465	6.47
						LPZ	LR				17	10.4	
KDC		Kodiak, Alaska	1,946	17.5	58	SPZ	P	04	01.4	-5.3	0.8	(640)	(5.71)
						SPZ	PcP	08	(44.2)	-4.2	0.8	(110)	
KEV	W	Kevo, Finland	6,385	57.4	349	SPZ	P	09	(48.4)	-3.7	(0.8)	(23.1)	(5.16)
KIP	W	Kipapa, Hawaii	3,873	34.8	141	SPZ	P	06	53.7	-0.9	0.9	484	6.38
						SPZ	PcP	09	(25.9)	-2.7	0.8	57.0	
KTP		Kiruna, Sweden	6,670	60.0	351	SPZ	P	10	04.3	-5.6	(1.0)	(96.1)	(5.78)
KJN		Kajaani, Finland	6,970	62.7	346	SPZ	P	10	(22.6)	-5.5	0.8	29.2	5.39
						SPZ	PcP	11	(02.8)	-4.3	0.8	16.7	
KN-UT	L	Kanab, Utah	5,455	49.1	79	SPZ	P	08	48.7	-2.3	0.8	111	5.84
						SPZ	PcP	10	12.1	-3.3	0.6	75.8	
						LPZ	LR				19	8.58	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
KOD	W	Kodaikanal, India	9,926	89.3	285	SPZ	P	12	56.7	-3.0	0.9	90.7	5.96
						SPZ	PKKP	30	(33.9)		0.8	4.50	
KON	W	Kongsberg, Norway	7,667	68.9	354	SPZ	P	11	(03.8)	-4.5	0.9	(205)	(6.31)
KPH	Q	Kaena Point, Hawaii	3,847	34.6	141	SPZ	P	06	51.7	-0.9	0.9	451	6.35
KRC	P	King Ranch, California	5,099	45.9	86	SPZ	P	08	23.8	-1.7	1.0	30.0	5.27
						SPZ	PcP	10	(00.5)	-3.1	1.0	10.0	
KTG	W	Kap Tobin, Greenland	6,393	57.5	8	SPZ	P	09	(47.9)	-4.6	1.1	61.0	5.59
KV-AT	L	Keg River, Alberta	4,046	36.4	56	SPZ	P	07	02.9	-4.6	0.7	113	5.63
						SPZ	(PP)	08	36.7		0.8	37.6	
						SPZ	(PcP)	09	27.9	-4.8	0.6	32.9	
						LPZ	LR				(17)	(27.2)	
LAH	W	Lahore, Pakistan	8,271	74.4	301	SPZ	P	11	37.9	-3.3	0.9	558	6.55
LAO	L	LASA, AO-10	5,243	47.1	65	SPZ-AO-10	P	08	31.5	-4.1	0.8	189	6.18
						SPZ-AO-10	PcP	10	03.7	-4.3	1.0	120	
LAR		Laramie, Wyoming	5,640	50.7	70	SPZ	P	08	(59.7)	-3.5	-	-	
						SPZ	PcP	10	(17.6)	-6.3	(0.8)	(70.8)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
LC-NM	L	Las Cruces, New Mexico	6,221	56.0	79	SPZ	P	09	39.0	-3.3	0.9	86.0	5.73
						SPZ	PcP	10	35.9	-5.1	0.7	16.2	
						SPZ	PP	11	39.7		0.7	5.90	
						LPZ	LR				16	8.12	
LD6		Leduc, Alberta	4,434	39.9	60	SPZ	P	07	32.6	-4.1	0.8	370	5.97
						SPZ	PcP	09	(41.6)	-1.6	0.8	44.4	
LHN		Lillehammer, Norway	7,503	67.5	354	SPZ-3	P	10	54.0	-5.1	0.5	28.9	5.46
						SPZ-3	(P'P')	39	(14.1)		1.0	8.00	
LLA	B	Llanada, California	4,924	44.3	85	SPZ	P	08	10.9	-2.0	0.8	223	5.91
						SPZ	PcP	09	(54.7)	-3.4	0.8	38.1	
LND	C	London, Ontario	7,008	63.0	54	SPZ	P	10	26.5	-4.2	(0.7)	(145)	(6.06)
						SPZ	PcP	11	(03.9)	-4.8	0.8	55.8	
LON	W	Longmire, Washington	4,227	38.0	73	SPZ	P	07	18.2	-3.1	0.9	67.4	5.33
						SPZ	PcP	09	33.9	-3.8	0.8	36.7	
						SPN	(ScP)	13	(23.5)		1.0	(2.80)	
LRA		Little Rock, Arkansas	6,985	62.8	68	SPZ	P	10	24.8	-4.7	(1.0)	(440)	(6.56)
						SPZ	PcP	11	(02.8)	-5.3	0.8	(188)	
LUB	W	Lubbock, Texas	6,451	58.0	75	SPZ	P	09	(52.5)	-4.2	1.0	(340)	(6.33)
						SPZ	PcP	10	(45.6)	-3.5	1.0	(130)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
LZ-BV		LaPaz, Bolivia	12,949	116.5	83	SPZ-4	PKP	18	(44.2)	-2.3	(1.0)	(4.80)	
						SPZ-4	PKKP	29	(11.2)		1.8	48.9	
MAL	W	Malaga, Spain	10,247	92.2	3	SPZ	P	13	(08.2)	-4.0	0.9	18.6	5.39
MAN	W	Manila, Philippines	6,549	58.9	254	SPZ	P	10	(00.6)	-2.5	(1.0)	(360)	(6.36)
						SPZ	PcP	10	(46.8)	-6.1	0.9	(55.8)	
MAT	W	Matsushiro, Japan	3,620	32.6	259	SPZ	P	06	32.7	-2.1	1.0	263	6.12
						SPZ	(PP)	07	44.9		1.1	31.1	
						SPZ	PcP	09	(18.4)	-3.3	0.8	44.5	
						LPZ	LR				(16)	(14.5)	
MBC	C	Mould Bay, Northwest Territories	3,784	34.0	22	SPZ	P	06	44.3	-2.8	-	-	
						SPZ	PcP	09	19.9	-5.3	0.75	28.9	
						LPZ	LR				(18)	(19.0)	
MDS	W	Madison, Wisconsin	6,485	58.3	59	SPZ	P	09	53.4	-5.3	(0.9)	(247)	(6.19)
						SPZ	(PP)	12	(08.9)		1.3	27.0	
MHC	B	Mount Hamilton, California	4,825	43.4	85	SPZ	P	08	03.6	-2.3	0.9	(95.7)	(5.48)
						SPZ	PcP	09	51.9	-3.2	0.6	*	
MHT		Manhattan, Kansas	6,375	57.3	67	SPZ	P	09	46.6	-5.3	0.8	200	6.10
						SPZ	PcP	10	(41.8)	-4.3	0.7	55.0	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
MJZ		Mount John, New Zealand	10,601	95.3	186	SPZ	P	13	23.2	-3.6	0.8	10.7	5.26
MLF		Milford, Ohio	7,142	64.2	59	SPZ	P	10	33.7	-5.0	0.8	(533)	(6.73)
						SPZ	PcP	11	(06.6)	-7.0	0.8	75.7	
MMC		Mount McKinley, Alaska	2,310	20.8	41	SPZ	P	04	41.0	-3.7	0.9	*	
						SPZ	PcP	08	49.3	-4.6	1.0	*	
MN-NV	L	Mina, Nevada	4,991	44.9	81	SPZ	P	08	15.7	-2.2	0.75	192	5.96
						SPZ	[illegible]	09	55.4	-4.9	0.8	25.2	
						SPZ	PP	10	02.5		1.3	34.3	
						SPZ	(P'P')	39	34.9		0.9	2.10	
						LPZ	LR				(21)	(7.34)	
MNT	C	Montreal, Quebec	7,216	64.9	48	SPZ	P	10	(36.9)	-6.0	(1.0)	(18.8)	(5.27)
						LPZ	LR				(20)	(17.8)	
MOK	Q	Mokapu, Hawaii	3,882	34.9	140	SPZ	P	06	54.2	-0.9	0.9	267	6.13
MSH	W	Meshed, Iran	8,659	77.9	314	SPZ	P	11	(58.5)	-2.4	1.0	70.0	5.75
						SPZ	PP	14	(52.0)		0.8	35.6	
MTJ		Mount Tsukuba, Japan	3,514	31.6	257	SPZ	P	06	23.4	-3.1	0.9	139	5.84
						SPZ	PcP	09	(14.9)	-4.2	0.9	23.2	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-ST AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
MWC	P	Mount Wilson, California	5,296	47.6	86	SPZ	P	08	36.7	-3.0	0.9	156	6.09
						SPZ	PcP	10	(07.0)	-2.7	0.9	13.3	
NAI	W	Nairobi, Kenya	13,439	120.9	315	SPZ	PKP	18	54.4	-0.4	0.9	51.2	
						SPZ	(PP)	20	(20.4)		1.0	11.0	
NAT	W	Natal, Brazil	13,987	125.8	44	SPZ	PKP	19	02.3	-1.7	0.8	44.5	
NDI	W	New Delhi, India	8,342	75.0	297	SPZ	P	11	41.2	-3.7	0.8	147	5.97
NHA	W	Nhatrang, South Vietnam	7,569	68.1	262	SPZ	P	11	00.4	-3.1	1.2	(76.8)	(5.89)
						SPZ	PcP	11	(27.3)	-7.5	0.9	27.9	
NIK		Nikolski, Alaska	835	7.5	74	SPZ	(Pn)	01	51.8	-1.6	(0.3)	(1600)	(7.10)
NOM		Nome, Alaska	1,713	15.4	24	SPZ	P	03	(41.0)	+0.6	(1.0)	(18.0)	
						SPZ	Pmax	03	43.6		0.8	972	6.13
						SPZ	PcP	08	(41.9)	-2.8	0.8	(180)	
NOR	W	Nord, Greenland	5,218	46.9	3	SPZ	P	08	29.8	-3.6	0.9	18.6	5.16
NP-MT	L	Mould Bay, Northwest Territories	3,783	34.0	22	SPZ-1	P	06	44.1	-3.0	(0.7)	272	6.13
						SPZ-1	PcP	09	20.2	-5.0	0.9	50.3	
						LPZ	LR				(20)	(23.8)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
NRR		Napier, New Zealand	4,798	43.1	81	SPZ	P	08	01.9	-1.8	0.7	(150)	(5.68)
						SPZ	PcP	09	51.1	-3.0	0.9	48.6	
NUR	W	Nurmijarvi, Finland	7,399	66.5	347	SPZ	P	10	(48.3)	-4.9	1.1	56.6	5.75
OGD	W	Ogdensburg, New Jersey	7,535	67.8	52	SPZ	P	10	55.9	-5.3	0.9	74.4	5.87
OO-NW		Oslo Array, Norway	7,503	67.5	354	SPZ-2	P	10	55.0	-4.1	0.8	41.0	5.61
ORV		Oroville, California	4,685	42.1	82	SPZ	P	07	52.9	-2.5	0.8	172	5.74
						SPZ	PcP	09	46.7	-3.4	1.0	30.0	
OTT	C	Ottawa, Ontario	7,116	64.0	49	SPZ	P	10	30.4	-6.6	(0.7)	(35.7)	(5.55)
						LPZ	LR				(22)	(18.0)	
OXF	W	Oxford, Mississippi	7,196	64.7	66	SPZ	P	10	(37.9)	-4.0	0.8	(765)	6.88
PA6		Golden, Colorado("Papa")	5,761	51.8	72	SPZ	P	09	08.5	-2.9	0.6	(60.0)	(5.48)
						SPZ	PcP	10	21.8	-3.2	(0.8)	(9.80)	
PAL		Palisades, New York	7,580	68.2	51	SPZ	P	10	(58.8)	-4.9	(0.9)	(237)	(6.37)
						SPZ	PcP	11	(27.5)	-2.3	(0.5)	*	
						LPZ	LP				(18)	(20.9)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
PAS	P	Pasadena, California	5,293	47.6	86	SPZ	P	08	36.0	-3.3	(0.8)	(34.0)	(5.43)
						SPZ	PcP	10	05.0	-4.6	1.2	21.8	
PCC	B	Pilarcitos Creek, California	4,762	42.8	85	SPZ	P	07	58.4	-2.7	0.9	107	5.53
						SPZ	PcP	09	(49.5)	-2.8	0.75	33.3	
PDA	W	Ponta Delgada, Azores Islands	9,848	88.6	19	SPZ	P	12	53.3	-2.2	1.0	120	6.12
PEL	W	Peldhue, Chile	14,148	127.2	98	SPZ	PKP	19	04.9	-1.4	1.1	28.2	
PG-BC	L	Prince George, British Columbia	3,842	34.5	62	SPZ	P	06	47.3	-4.5	0.9	11.1	4.75
						SPZ	PP	08	14.7		0.8	10.5	
						SPZ	PcP	09	23.5	-3.5	0.8	105	
						LPZ	LR				22	12.0	
PHA		Port Heiden, Alaska	1,563	14.1	58	SPZ	(P)	03	22.5	-0.1	0.4	(793)	6.47
						SPZ	(Pn)	03	25.0		-	-	
PHC	C	Port Hardy, British Columbia	3,661	32.9	70	SPZ	P	06	(36.6)	-1.2	(1.0)	(17.9)	(4.95)
						SPZ	PcP	09	(18.5)	-3.8	0.9	30.9	
PI6		Paris, Idaho	5,182	46.6	73	SPZ	P	08	28.5	-2.8	-	-	
						SPZ	PcP	10	05.5	-0.7	0.7	18.5	
PL6		Point Lay, Alaska	2,243	20.2	18	SPZ	P	04	36.7	-1.8	0.6	(623)	(5.81)

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
PLM	P	Palomar, California	5,443	48.9	86	SPZ	P	08	46.7	-3.2	(0.8)	(247)	(6.20)
						SPZ	PcP	10	10.7	-3.8	1.0	20.0	
PMG	W	Port Moresby, New Guinea	7,407	66.6	214	SPZ	P	10	51.4	-2.9	1.0	40.0	5.60
						SPZ	PcP	11	(20.0)	-3.7	1.0	32.5	
PNT	C	Penticton, British Columbia	4,235	38.1	68	SPZ	P	07	18.9	-3.0	0.8	(213)	(5.82)
						SPZ	PcP	09	34.1	-3.8	0.8	166	
POO	W	Poona, India	9,436	84.9	293	SPZ	P	12	35.1	-2.7	0.9	316	6.50
						SPZ	(PcP)	12	(39.7)	-2.2	0.8	107	
PRE	W	Pretoria, South Africa	16,250	146.1	308	SPZ	PKP_1	19	40.2	-0.9	-	-	
						SPZ	PKP_2	19	40.9		0.9	804	
PRI	B	Priest, California	4,977	44.8	86	SPZ	P	08	14.9	-2.0	1.0	66.7	5.48
						SPZ	PcP	09	(56.9)	-3.1	1.0	27.1	
PRS	B	Paraiso, California	4,915	44.2	86	SPZ	P	08	10.0	-2.2	0.9	395	6.14
						SPZ	PcP	09	54.4	-3.3	1.0	28.2	
PTO	W	Porto, Portugal	9,736	87.6	6	SPZ	P	12	(46.4)	-4.2	1.0	40.0	5.66
PUP	Q	Pupukea, Hawaii	3,850	34.6	141	SPZ	P	06	52.3	-0.6	0.8	434	6.34
PX6		Paxson, Alaska	2,449	22.0	45	SPZ	P	04	53.7	-3.7	0.8	48.2	
						SPZ	Pmax	04	57.4		0.8	625	6.00
						SPZ	PcP	08	(52.0)	-4.3	0.9	27.8	

TABLE 2. Data From Stations Analyzed by SDL (Cont d.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
QUE	W	Quetta, Pakistan	8,821	79.3	305	SPZ	P	12	06.9	-2.2	(1.0)	(291)	(6.23)
						SPZ	(PP)	15	(04.9)		0.95	7.20	
						SPZ	(P'P')	38	56.8		1.2	2.40	
						LPZ	LR				17	7.89	
RAB	W	Rabaul, New Britain	6,675	60.0	211	SPZ	P	10	(07.4)	-3.6	1.0	140	5.95
RAR	W	Raratonga, Cook Islands	8,303	74.7	160	SPZ	P	11	(38.5)	-3.5	(1.2)	(76.8)	(5.69)
						SPZ	(PcP)	11	(52.5)	-5.5	(1.2)	(87.1)	
RCD	W	Rapid City, South Dakota	5,605	50.4	66	SPZ	P	08	56.5	-4.6	1.0	250	6.10
						SPZ	PcP	10	(15.7)	-3.6	(0.8)	(62.3)	
RES	C	Resolute, Northwest Territories	4,471	40.2	24	SPZ	P	09	36.0	-3.2	0.9	212	5.75
						LPZ	LR				(20)	(38.7)	
REY		Reykjavik, Iceland	7,702	63.6	10	SPZ	P	10	30.2	-3.9	0.9	714	6.81
RG-SD	L	Redig, South Dakota	5,507	49.6	65	SPZ	P	08	48.9	-5.1	(0.8)	(245)	(6.26)
						SPZ	PcP	10	12.5	-3.5	0.8	66.7	
						LPZ	LR				(21)	(5.75)	
RIV	W	Riverview, Australia	9,830	88.4	203	SPZ	P	12	(53.6)	-1.2	0.8	134	6.19
						SPZ	PcP	12	(55.6)	-1.3	0.8	116	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
RR-ON	L	Red Lake, Ontario	5,724	51.5	54	SPZ	P	09	03.6	-5.2	0.8	290	6.16
						SPZ	PcP	10	19.5	-4.2	0.8	19.8	
						SPZ	PP	11	03.9		0.8	15.2	
						LPZ	LR				23	12.3	
RMO		Rocky Mountain House, Alberta	4,377	39.4	62	SPZ	P	07	28.3	-3.8	0.9	158	5.60
						SPZ	PcP	09	40.4	-1.6	0.9	107	
SOL		Solis, Missouri	6,772	60.9	65	SPZ	P	10	10.5	-5.1	-	-	
						SPZ	PcP	10	57.5	-2.9	0.7	(102)	
RIV	P	Riverside, California	5,360	48.2	85	SPZ	P	08	40.8	-3.1	0.9	11.8	4.95
						SPZ	PcP	10	(09.4)	-2.3	0.9	1.70	
SAE		Golden Colorado ("Sierra")	5,768	51.9	72	SPZ	P	09	(08.9)	-3.0	0.6	62.2	5.49
						SPZ	PcP	10	(21.7)	-3.7	0.8	36.0	
SBA	P	Scott Base, Antarctica	14,372	129.2	183	SPZ	PKP	19	(07.6)	-1.3	(1.2)	(23.0)	
SBC	P	Santa Barbara, California	5,165	46.4	87	SPZ	P	08	28.1	-2.1	0.8	57.5	5.60
						SPZ	(PcP)	10	(02.0)	-3.5	(1.0)	•	
SCM	C	Schefferville, Quebec	6,757	60.8	37	SPZ	P	10	10.7	-4.7	0.9	310	6.37
						SPZ	(PP)	12	(21.7)		0.9	23.8	
						LPZ	LR				(18)	(15.4)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
SCP	W	State College, Pennsylvania	7,379	66.4	54	SPZ	P	10	47.4	-5.0	0.75	202	6.31
						SPZ	PcP	11	(18.2)	-4.2	0.8	26.7	
SDB	W	Sa/da/Bandeira, Angola	15,766	141.8	337	SPZ	PKP_1	19	(26.5)	-7.4	(0.6)	(5.30)	
						SPZ	PKP_2	19	(28.7)		(0.8)	(33.4)	
SEO	W	Seoul, Korea	4,324	38.9	270	SPZ	P	07	27.0	-1.7	0.9	363	5.97
						SPZ	PcP	09	(36.5)	-4.1	0.9	55.8	
SFA	C	Seven Falls, Quebec	7,22	64.9	45	SPZ	P	10	37.0	-6.2	(0.8)	(111)	(6.05)
SFO		Sterling Forest, New York	7,544	67.8	51	SPZ	P	10	51.5	-7.2	0.8	,227)	(6.36)
						SPZ	PcP	11	(21.6)	-6.4	0.7	(134)	
SH6		Schurtz, Nevada	4,910	44.2	65	SPZ	P	08	10.3	-1.5	0.8	•	
						SPZ	PcP	09	(55.1)	-2.5	(0.9)	•	
SHF	C	Shawinigan Falls, Quebec	7,172	64.5	47	SPZ	P	10	34.1	-6.2	(1.0)	(187)	(6.27)
SHI	W	Shiraz, Iran	9,603	86.4	315	SPZ	P	12	42.7	-2.6	0.9	(205)	(6.25)
						SPZ	PKKP	30	(37.8)		0.9	7.00	
SHK		Shiraki, Japan	4,144	37.3	261	SPZ	P	07	(12.6)	-2.5	0.9	20.7	4.82
						SPZ	PcP	09	(31.8)	-4.0	0.9	11.1	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
SHL	W	Shillong, India	7,650	68.8	285	SPZ	P	11	04.5	-3.7	(0.6)	(140)	(6.15)
						SPZ	S	20	(09.0)		1.3	10.6	
						SPZ	P'P'	39	(14.1)		1.2	16.0	
SI-BC	L	Smithers, British Columbia	3,533	31.8	63	SPZ	P	06	26.7	-4.1	1.0	17.7	4.95
						SPZ	PcP	09	15.4	-4.7	0.8	42.5	
						LPZ	LR				(22)	(14.4)	
SIC	C	Seven Islands, Quebec	7,154	64.3	41	SPZ	P	10	33.9	-5.3	-	-	
SJ-TX	L	San Jose, Texas	7,162	64.4	77	SPZ	P	10	37.9	-2.1	0.7	445	6.65
						SPZ	PcP	11	11.2	-3.4	0.7	41.8	
						LPZ	LR				18	10.6	
SJG	W	San Juan,Puerto Rico	10,055	90.4	60	SPZ	P	13	(01.3)	-3.4	0.9	116	6.10
SLC		Salt Lake City, Utah	5,262	47.3	75	SPZ	P	08	33.9	-3.3	1.3	208	6.22
SMY		Shemya, Alaska	376	3.4	294	SPZ	(Pn)	00	52.1	-2.9	(0.3)	(9200)	(6.82)
SNA	W	Sanae, Antartica	17,908	161.0	178	SPZ	PKP_1	19	(58.5)	-1.8	0.9	23.3	
						SPZ	PKP_2	20	(42.8)		1.0	120	
SOD		Sodankyla, Finland	6,641	59.7	348	SPZ	P	10	(03.1)	-5.0	1.0	23.3	5.17
SPA	W	South Pole, Antartica	15,706	141.2	270	SPZ	PKP_1	19	(22.9)	-8.4	(0.8)	(8.90)	
						SPZ	PKP_2	19	(25.2)		0.9	58.1	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
SPI		St. Paul Island, Alaska	938	8.4	43	SPZ	Pn	02	(03.4)	-2.9	0.4	(72.0)	(5.94)
						SPZ	e	02	(06.8)		C.5	(263)	
STJ	C	St. John's, Newfoundland	7,983	71.8	34	SPZ	P	11	(21.2)	-4.5	0.9	(205)	(6.21)
						SPZ	(PcP)	11	(36.7)	-8.2	0.9	(51.2)	
STU	W	Stuttgart, Germany	8,873	79.8	353	SPZ	P	12	(07.0)	-4.0	0.7	27.9	5.17
SV3QB	L	Schefferville, Quebec	6,758	60.8	37	SPZ	P	10	10.7	-4.8	0.7	265	6.30
						SPZ	PcP	10	55.3	-4.4	0.8	38.4	
						LPZ	LR				19	20.8	
SW-MA	L	Sweetgrass, Montana	4,744	42.7	65	SPZ	P	07	(55.9)	-3.8	0.7	(200)	(5.80)
						SPZ	PcP	09	48.2	-4.2	1.0	86.0	
						LPZ	LR				16	14.9	
TA6		Golden, Colorado ("Tango")	5,765	51.8	72	SPZ	P	09	(08.5)	-3.2	0.6	80.0	5.60
						SPZ	PcP	10	21.7	-3.3	0.7	22.5	
TAB	W	Tabriz, Iran	9,095	81.8	324	SPZ	P	12	(19.4)	-2.5	(0.8)	(26.7)	(5.31)
TAU	W	Tasmanian University, Tasmania	10,892	98.0	203	SPZ	P	13	(37.8)	-0.7	(0.8)	(10.7)	(5.53)
TE-GL	L	Thule, Greenland	5,046	45.4	18	SPZ	P	08	17.5	-3.7	0.8	170	5.97
						SPZ	PP	10	04.9		0.8	30.9	
						LPZ	LR				(23)	(9.94)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
TF-CL	L	Taft, California	5,095	45.8	86	SPZ	P	08	22.9	-2.4	0.8	112	5.83
						SPZ	PcP	09	59.9	-3.4	0.8	32.7	
						LPZ	LR				(20)	(9.01)	
TFO	L	Tonto Forest, Arizona	5,760	51.8	81	SPZ-1	P	09	09.1	-2.6	-	-	
						SPZ-1	PcP	10	21.9	-3.2	0.95	22.8	
						SPZ-1	(PP)	11	02.9		1.2	16.4	
						LPZ-44		LR			18	8.76	
TIN	P	Tinemaha, California	5,081	45.7	83	SPZ	P	08	22.6	-1.8	0.8	(136)	(5.90)
						SPZ	PcP	10	(00.0)	-3.0	1.0	(24.0)	
TN6		Tanana, Alaska	2,254	20.3	40	SPZ	P	04	37.9	-1.6	1.0	*	
						SPZ	PcP	08	49.9	-3.0	(0.8)	*	
TOL	W	Toledo, Spain	9,898	89.0	2	SPZ	P	12	(53.4)	-4.2	0.9	20.9	5.32
						SPZ	PcP	12	(54.7)	-5.1	1.0	45.0	
TR6		Trinidad, Colorado	5,991	53.9	74	SPZ	P	09	24.4	-2.5	0.8	*	
						SPZ	PcP	10	30.5	-2.0	0.9	*	
TRI	W	Trieste, Italy	9,165	82.4	350	SPZ	P	12	20.5	-4.3	0.8	5.30	4.66
TRN	W	Trinidad, West Indies	11,024	99.1	60	SPZ	P	13	40.2	-4.3	0.9	37.2	6.06
TRO		Tromsoe, Norway	6,492	58.4	352	SPZ	P	09	54.4	-4.4	0.8	(125)	(5.90)

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
TTL		Tatalina, Alaska	1,951	17.6	40	SPZ	P	04	05.9	-1.5	(1.0)	(7.10)	
						SPZ	Pmax	04	08.2		1.0	(550)	(5.64)
						SPZ	PcP	08	44.8	-3.7	0.9	(46.0)	
TUC	W	Tucson, Arizona	5,941	53.4	82	SPZ	P	09	20.7	-3.1	(1.0)	(188)	(6.01)
						SPZ	PcP	10	(28.4)	-2.2	1.0	20.0	
TUM		Tumwater, Washington	4,139	37.2	73	SPZ	P	07	(13.7)	-0.9	-	*	
						SPZ	PcP	09	(34.2)	-1.1	(0.9)	*	
UBO	L	Uinta Basin, Utah	5,445	49.0	74	SPV	P	08	46.9	-3.1	1.0	568	6.55
						SPV	PcP	10	10.9	-3.9	0.6	89.7	
						SPZ-10	(PP)	10	52.9		1.0	30.9	
						LPZ	LR				(23)	(8.40)	
UKI		Ukiah, California	4,595	41.3	84	SPZ	P	07	44.3	-4.4	1.2	58.3	5.27
UM6		Umiat, Alaska	2,503	22.5	26	SPZ	P	04	59.4	-2.7	(0.8)	(455)	(5.91)
UME		Umea, Sweden	7,107	63.9	350	SPZ	P	10	32.6	-3.6	1.0	34.0	5.52
UN6		Unalaska, Alaska	1,005	9.0	69	SPZ	Pn	02	12.4	-2.3	0.5	(1720)	(7.44)
UPP		Uppsala, Sweden	7,568	68.1	350	SPZ	P	10	(58.0)	-4.7	(0.9)	(246)	(6.39)
UVN		Unionville, Nevada	4,856	43.7	79	SPZ	P	08	06.2	-2.0	(0.8)	(91.0)	(5.46)
						SPZ	PcP	09	52.8	-3.1	(0.7)	(20.2)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	O-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
VAL	W	Valentia, Ireland	8,527	76.7	6	SPZ	P	11	51.1	-2.8	1.0	130	6.02
VHM		Vista Hermosa, Mexico	8,128	73.1	84	SPZ	P	11	(32.2)	-2.1	1.0	119	5.97
VIC	C	Victoria, British Columbia	4,028	36.2	71	SPZ	P	07	03.6	-2.6	(1.0)	(83.3)	(5.50)
						SPZ	PcP	09	28.3	-3.9	0.8	53.8	
WDY	P	Woody, California	5,124	46.2	85	SPZ	P	08	25.2	-2.8	-	-	
WES	W	Weston,Massachusetts	7,600	68.3	49	SPZ	P	10	59.7	-5.1	0.7	163	6.21
						LPZ	LR				(16)	(19.7)	
WH-YK	L	Whitehorse, Yukon	2,958	26.6	52	SPZ	P	05	37.9	-3.5	0.8	26.1	4.88
						SPZ	PP	06	19.4		0.8	92.2	
						SPZ	PcP	09	01.9	-4.3	0.8	40.1	
						LPZ	LR				16	40.5	
WIN	W	Windhock, South Africa	16,458	148.0	328	SPZ	PKP_1	19	(42.7)	-.16	1.0	17.5	
						SPZ	PKP_2	19	45.7		0.8	89.0	
						SPZ	PP	23	(18.4)		(1.2)	(7.70)	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
WL-YK	L	Watson Lake, Yukon	3,313	29.8	53	SPZ	P	06	07.1	-3.2	0.8	(67.3)	(5.43)
						SPZ	PP	07	00.8		0.8	21.7	
						SPZ	PcP	09	09.0	-7.8	0.6	13.5	
						LPZ	LR				18	31.5	
WMO	L	Wichita Mountains, Oklahoma	6,584	59.2	72	SPZ-6	P	10	01.0	-4.1	0.9	(71.4)	(5.65)
						SPZ-6	PcP	10	49.8	-3.9	0.9	(51.5)	
						SPZ-6	PP	12	13.9		1.0	16.7	
						LPZ	LR				18	7.30	
WN-SD	L	Winner, South Dakota	5,852	52.6	65	SPZ	P	09	13.3	-4.3	0.8	373	6.27
						SPZ	PcP	10	23.9	-3.6	0.8	152	
						LPZ	LR				18	13.5	
WRA		Warramunga, Australia	9,028	81.2	222	SPZ-R4	P	12	14.8	-4.1	0.8	212	6.15
WRM		Warmifontaine, Belgium	8,781	79.0	356	SPZ	P	12	(04.4)	-2.1	(1.0)	*	
WS-AT	L	Waterways, Alberta	4,399	39.6	54	SPZ	P	07	(30.5)	-3.6	(0.5)	(332)	(5.92)
						LPZ	LR				(23)	(23.0)	
WU6		Wendover, Utah	5,120	46.0	76	SPZ	P	08	25.0	-1.9	-	-	
						SPZ	PcP	10	(01.8)	-2.0	0.9	86.1	

TABLE 2. Data From Stations Analyzed by SDL (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
WW6		Wawa, Ontario	6,387	57.4	52	SPZ	P	09	47.7	-4.8	0.8	(750)	(6.68)
						SPZ	PcP	10	42.3	-3.9	0.8	548	
YKA		Yellowknife Array, Northwest Territories	4,014	36.1	46	SPZ-B4	P	07	01.2	-3.8	0.9	338	6.12
						SPZ-B4	PcP	09	27.1	-4.6	(0.9)	(38.7)	
YKC	C	Yellowknife, Northwest Territories	4,022	36.2	46	SPZ	P	07	01.6	-3.9	(0.8)	(166)	(5.80)
						SPZ	PcP	09	(26.9)	-5.1	0.8	22.6	
						LPZ	LR				(19)	(49.9)	
YR-CL	L	Yreka, California	4,464	40.1	81	SPZ	P	07	37.9	-1.3	1.0	180	5.86
						SPZ	PP	09	13.2		1.3	29.9	
						SPZ	PcP	09	41.1	-3.0	0.7	33.7	
						SPZ	(ScP)	13	31.9		0.8	2.80	
						LPZ	LR				(24)	(13.2)	
Zxx		Caracas, Venezuela (Experimental)	10,697	96.2	65	SPZ	P	13	27.7	-3.7	(0.7)	(46.1)	(5.98)
						SPZ	(PcP)	13	28.5	-3.6	(0.7)	(69.1)	

Network Code

L - LRSM
C - Canadian
P - Pasadena
W - WWSSS
B - Berkeley
Q - Quadripartite Array

*** Magnification unknown**
- Unmeasurable

TABLE 3. Data From Additional Stations

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
ABU		Abuyama, Japan	3,922	35.3	259	SPZ	P	06	56.6	-1.7	1.0	214	6.00
AHA	H	Ahua, Hawaii	4,202	37.8	138	SPZ	P	07	18.3	-1.4	1.0	181	5.76
AIA		Argentine Island, Antartica	16,191	145.6	138	SPZ	PKP	19	38.9	+0.2			
AMU		Anchorage, Alaska	2,178	19.6	48	SPZ	P	04	28.5	-3.4	1.0	310	5.49
						SPZ	PcP	08	47.0	-4.6	1.0	60.0	
ANK		Ankara, Turkey	9,384	84.4	335	SPZ	P	12	32.4	-2.6	1.0	25.0	5.40
AVO		Avon, Australia	9,903	89.1	203	SPZ	P	12	57.0	-1.0			
BHA		Broken Hill, Rhodesia	15,149	136.3	317	SPZ	PKP	19	21.9	-2.0			
BNG		Bangui, Central Africa	13,563	122.0	337	SPZ	PKP	18	53.7	-3.0	1.0	48.0	
BNH		Berlin, New Hampshire	7,415	66.7	47	SPZ	P	10	48.9	-5.5			
BNS		Bensberg, Germany	8,646	77.8	355	SPZ	P	11	54.9	-4.9	1.0	40.0	5.50
BRS		Brisbane, Australia	9,102	81.9	204	SPZ	P	12	20.7	-1.7	0.9	60.1	5.59
CAB		Cabramurra, Australia	10,128	91.1	205	SPZ	P	13	06.0	-1.3			
CAN		Canberra, Australia	10,048	90.4	204	SPZ	P	13	02.8	-1.3			

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
CBM		Caribou Island, Maine	7,369	66.3	44	SPZ	P	10	46.4	-5.3			
CDF	A	Camp du Fue, France	8,930	80.3	355	SPZ	P	12	10.4	-3.5	1.0	73.0	5.59
CED		Cedar Springs, California	5,342	48.0	85	SPZ	P	08	40.2	-2.6	0.9	256	6.31
CLL		Collmberg, Germany	8,558	77.0	351	SPZ	P	11	53.2	-2.2	0.8	20.9	5.02
CMF	A	Cannet de Mau, France	9,494	85.4	355	SPZ	P	12	36.7	-3.1			
CMF	A	Cerre les Noroy, France	9,026	81.2	355	SPZ	P	12	13.4	-4.9	1.0	47.0	5.49
COO		College Outpost, Alaska	2,410	21.7	39	SPZ	P	04	49.5	-4.4	0.8	539	5.90
CP6		"Mercury", Nevada	5,240	47.1	82	SPZ	P	08	32.7	-3.0	0.9	253	6.30
DAR		Darwin, Australia	8,463	76.1	229	SPN	P	11	48.9	-2.4			
DES	H	Desert, Hawaii	4,120	37.7	139	SPZ	P	07	18.2	-1.4	1.0	206	5.81
DRV		Dumont d'Urville, Antartica	13,506	121.4	197	SPZ	PKP	18	51.9	-2.1			
EMM		East Machias, Maine	7,590	68.3	45	SPZ	P	10	59.1	-5.1			
FAY		Fayetteville, Arkansas	6,766	60.8	68	SPZ	P	10	15.9	-0.4	1.0	144	6.04

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
FEL		Feldberg, Germany	8,983	80.8	354	SPZ	P	12	12.1	-4.3	0.8	141	5.93
FGU		Flaming Gorge, Utah	5,416	48.7	73	SPZ	P	08	43.4	-4.6			
						SPZ	PcP	10	09.4	-4.2			
FLN	A	Foliniere, France	8,916	80.2	360	SPZ	P	12	09.2	-3.9	1.0	100	5.72
FOR		Fordham, New York	7,593	68.3	51	SPZ	P	10	59.9	-4.6			
GBF	A	Grand Ballon, France	8,991	80.9	355	SPZ	P	12	13.7	-3.1	1.0	51.0	5.50
GCA		Glen Canyon, Arizona	5,543	49.8	78	SPZ	P	08	53.4	-3.4	0.8	288	6.18
						SPZ	PcP	10	14.4	-2.9			
GEE		Geehi, Australia	10,187	91.6	205	SPZ	P	13	08.3	-1.4			
GRR	A	Gorron, France	8,958	80.6	360	SPZ	P	12	11.2	-3.9	1.0	66.0	5.58
HAU	A	Haudompre, France	8,979	80.7	355	SPZ	P	12	13.2	-2.9	1.0	50.0	5.47
HIL	H	Hilo, Hawaii	4,176	37.6	138	SPZ	P	07	16.6	-1.0	0.8	154	5.69
						SPZ	PcP	09	34.1	-2.9			
HLE		Halle, Germany	8,547	76.9	352	SPZ	P	11	50.9	-4.5			
HLK	H	Haleakala, Hawaii	4,017	36.1	139	SPZ	P	07	04.8	-1.1	0.8	154	5.78

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	(m_b)
IFR		Ifrane, Morocco	10,599	95.3	4	SPZ	P	13	22.4	-4.7	0.7	67.9	6.06
IRF		"St.George," Utah	5,402	48.6	79	SPZ	P	08	44.6	-2.3			
						SPZ	PcP	10	09.4	-3.9			
IRH		"Tonopah", Nevada	5,080	45.7	81	SPZ	P	08	22.0	-2.1			
						SPZ	PcP	09	59.5	-3.4			
IRI		"Darwin", California	5,178	46.6	83	SPZ	P	08	28.9	-2.2			
ISO		Isola, France	9,398	84.5	354	SPZ	P	12	32.7	-3.0			
JIN		Jindabyne, Australia	10,177	91.5	204	SPZ	P	13	08.0	-1.3			
JNL		Jenolan, Australia	9,861	88.7	204	SPZ	P	12	55.3	-1.0			
JOE		Joensuu, Finland	7,086	63.7	345	SPZ	P	10	29.3	-5.7			
KHC		Kasperske, Czechoslovakia	8,791	79.1	350	SPZ	P	12	03.4	-3.7	1.0	10.0	4.79
KLG		Kalgoorlie, Australia	10,706	96.3	227	SPZ	P	13	27.3	-4.0	1.0	11.8	5.40
KLK	H	Keala kekua, Hawaii	4,157	37.4	139	SPZ	P	07	14.8	-1.5	0.8	116	5.56
KOU		Koumac, New Caledonia	8,103	72.9	195	SPZ	P	11	31.1	-1.4			

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (M.N)	OBSERVED TRAVEL TIME (SEC)	O-C RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
KRB		Karibe, Rhodesia	15,338	137.9	315	SPZ	PKP	19	26.9	0.0			
KRL		Karlsruhe, Germany	8,854	79.6	354	SPZ	P	12	07.0	-3.0	0.8	150	5.92
LAW		Lawrence, Kansas	6,478	58.3	66	SPZ	P	09	52.4	-3.0			
LBF	A	Les Buteaux, France	9,104	81.9	357	SPZ	P	12	18.4	-3.6	1.0	21.0	5.21
LEM		Lembang, Java	9,341	84.0	251	SPZ	P	12	31.4	-2.3			
LIC	A	Lamto, Ivory Coast	13,616	122.5	5	SPZ	PKP	18	51.2	-6.4			
LMP	A	Lamourre, France	9,493	85.4	355	SPZ	P	12	3e.4	-3.4	1.0	68.0	5.79
LNM		Leon, Mexico	7,459	67.1	85	SPZ	P	10	56.9	-0.6	1.0	111	6.05
LNS		Lanslevielaro, France	9,277	83.4	355	SPZ	P	12	27.2	-3.0			
LOR	A	Lormes, France	9,073	81.6	357	SPZ	P	12	16.9	-3.7			
LRG	A	Lourges, France	9,483	85.3	355	SPZ	P	12	35.9	-3.5	1.0	60.0	5.75
LUG		Luganville, New Hebrides	7,505	67.5	193	SPZ	P	10	57.9	-2.0			
LWI		Lwiro, Congo	13,902	125.0	323	SPZ	PKP	19	01.8	-1.1			

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
MIM		Milo, Maine	7,470	67.2	45	SPZ	P	10	52.2	-5.3			
MKA	H	Makaopuhi, Hawaii	4,203	37.8	138	SPZ	P	07	18.8	-1.0	1.0	445	6.15
MLH	H	Mauna Loa, Hawaii	4,184	37.6	138	SPZ	P	07	17.2	-1.3	0.75	3.73	6.07
MOX		Moxa, Germany	8,645	77.7	352	SPZ	P	11	55.4	-4.4			
MRG		Morgantown, West Virginia	7,356	66.2	56	SPZ	P	10	46.9	-4.2			
MSS		Messstetten, Germany	8,941	80.4	353	SPZ	P	12	10.7	-3.7	0.8	21.9	5.08
NAA	H	Naalehu, Hawaii	4,218	37.9	139	SPZ	P	07	19.5	-1.3	1.0	123	5.59
NOU		Noumea,New Caledonia	8,259	74.3	192	SPZ	P	11	39.4	-1.3			
NPH	H	North Pit, Hawaii	4,196	37.7	138	SPZ	P	07	17.8	-1.5	0.9	244	5.89
PAH	H	Pahoa, Hawaii	4,205	37.8	138	SPZ	P	07	18.8	-1.0	0.8	76.6	5.38
						SPZ	PcP	09	35.0	-2.6			
PBJ		Presa Benito, Mexico	8,283	74.5	83	SPZ	P	11	40.2	-1.9	0.9	285	6.25
PNS		Penas, Bolivia	12,951	116.5	83	SPZ	PKP	18	45.1	-1.4			
PPA		Pie de Palo Argentina	14,193	127.6	95	SPZ	PKP	19	05.5	-1.6	0.8	62.5	

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
PPT		Papeete, Tahiti	8,22	73.9	149	SPZ	P	11	37.4	-1.5			
PRK		Paraskevi, Greece	9,334	86.6	339	SPZ	P	12	40.8	-5.4	0.8	16.0	5.16
PRU		Pruhonice, Czechoslvakia	8,686	78.1	350	SPZ	P	11	57.5	-4.3			
PSM	B	Priest, California	4,977	44.8	86	SPZ	P	08	15.0	-1.7			
RAM		Raman, Turkey	9,321	83.8	328	SPZ	P	12	23.9	-8.4			
RAV		Ravensberg, Germany	8,979	80.7	353	SPZ	P	12	12.3	-3.8	0.8	163	5.98
ROU	A	Rougiers, France	9,492	85.4	355	SPZ	P	12	36.9	-3.0	1.0	109	6.00
RSL		Roseland, France	9,234	83.0	355	SPZ	P	12	24.2	-4.0	0.9	11.1	5.05
SE6		Whitney, Nevada	5,357	48.2	82	SPZ	P	08	42.?	-1.1	0.8	463	6.33
SPE	A	St. Paul en Foret, France	9,469	85.2	354	SPZ	P	12	35.1	-3.7	1.0	45.0	5.63
SPO		Spokane, Washington	4,468	40.2	69	SPZ	P	07	35.7	-3.6			
SSC	A	St. Sauveur, France	8,935	80.4	360	SPZ	P	12	10.0	-4.0	1.0	92.0	5.70
SSF	A	St Saulge, France	9,091	81.8	357	SPZ	P	12	18.0	-3.4	1.0	41.0	5.49
STR		Strasbourg, France	8,906	80.1	354	SPZ	P	12	09.1	-3.4			

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE (DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
TAM		Tamanrasset, Algeria	11,774	105.9	354	SPZ	P	14	10.4	*			
TCF	A	Toulx St. Croix, France	9.187	82.[illegible]	353	SPZ	P	12	22.7	-3.2			
TEH		Teheran, Iran	9,104	81.9	319	SPZ	P	12	19.9	-2.5			
TNP		Tonopah, Utah	5,080	45.7	81	SPZ	P	08	21.7	-2.6	0.8	260	6.19
						SPZ	PcP	09	59.2	-3.7			
TOO		Toolangi, Australia	10,388	93.4	206	SPZ	P	13	16.2	-1.9			
TUB		Tubingen, Germany	8,902	80.1	353	SPZ	P	12	08.6	-3.8	1.0	12.2	4.80
UDD		Uddeholm, Sweden	7,600	68.4	7	SPZ	P	10	58.8	-5.7	0.8	38.7	5.59
						SPZ	PcP	11	23.3	-7.1	0.7	26.4	
UWE	H	Uwekahuna, Hawaii	4,195	37.7	138	SPZ	P	07	18.1	-1.0	1.3	122	5.58
VAM		Vamos, Crete	10,094	90.8	340	SPZ	P	13	01.9	-4.0	0.8	19.6	5.37
VLS		Valsamata, Greece	9,876	88.8	343	SPZ	P	12	52.1	-4.6	0.8	13.6	5.15
VUN		Vunikawai, Fiji Islands	7,695	69.2	178	SPZ	P	11	08.5	-2.1			
WAM		Wambrook, Australia	10,143	91.2	204	SPZ	P	13	05.9	-1.0			

TABLE 3. Data From Additional Stations (Cont'd.)

CODE	NET	STATION	DISTANCE (KM)	DISTANCE DEGREES)	EPI-STA AZIMUTH	INST	PHASE	OBSERVED TRAVEL TIME (MIN)	OBSERVED TRAVEL TIME (SEC)	J-B RES (SEC)	PERIOD (SEC)	MAXIMUM AMPLITUDE A/T	MAGNITUDE (m_b)
WER		Werombi, Australia	9,859	88.7	203	SPZ	P	12	55.1	-1.0			
WIL		Wilkes, Antartica	14,275	128.4	209	SPZ	PKP	19	06.7	-0.6			
WPH	H	West Pit, Hawaii	4,197	37.7	138	SPZ	P	07	17.9	-1.5	0.8	201	5.80
ZON		Zonda, Argentina	14,166	127.4	95	SPZ	PKP	19	05.2	-1.5	1.0	100	

Network Code
H - Hawaiian
A - Alpens

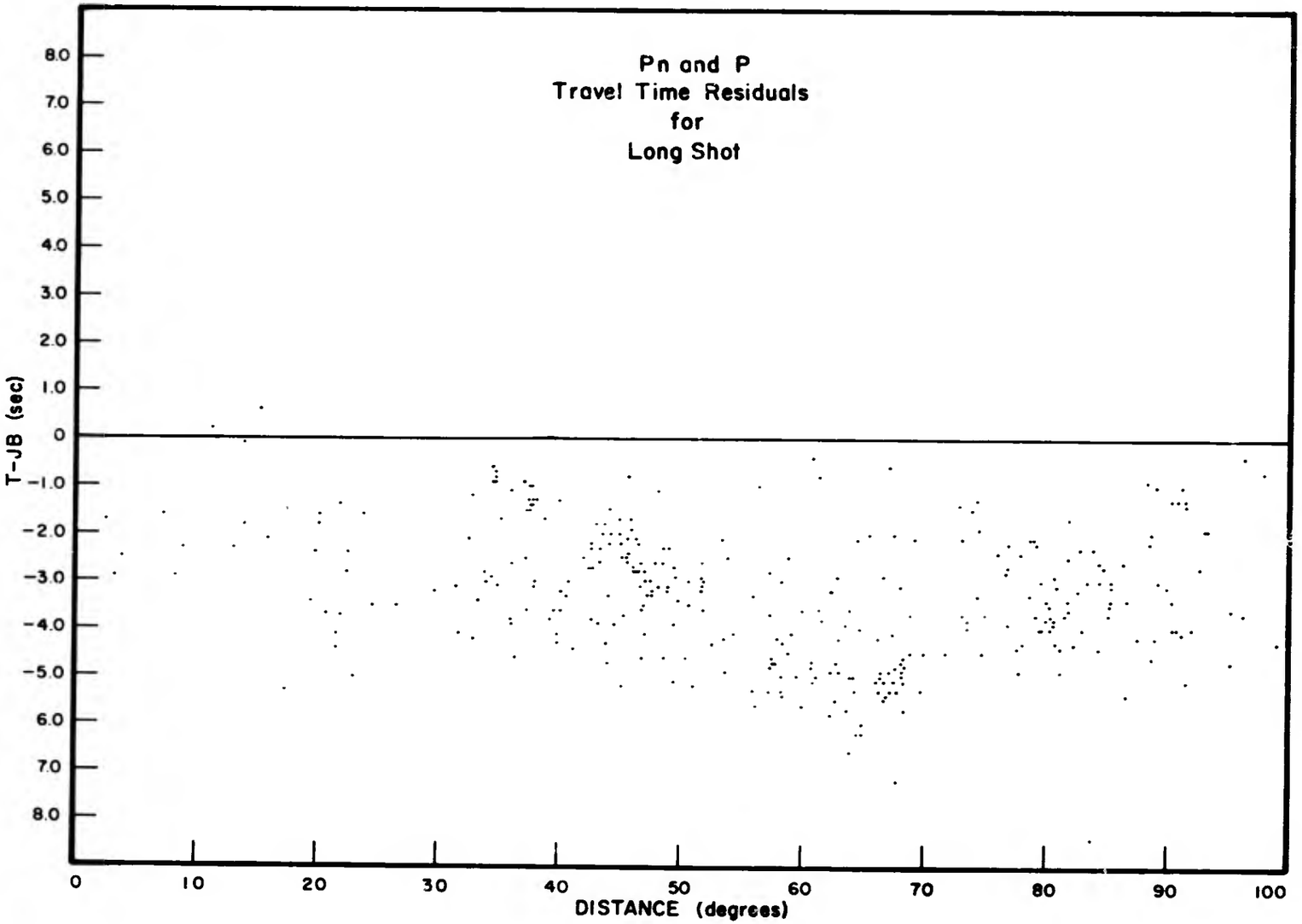


Figure 1a. Pn and P travel-time residuals (T-JB) versus distance for LONG SHOT

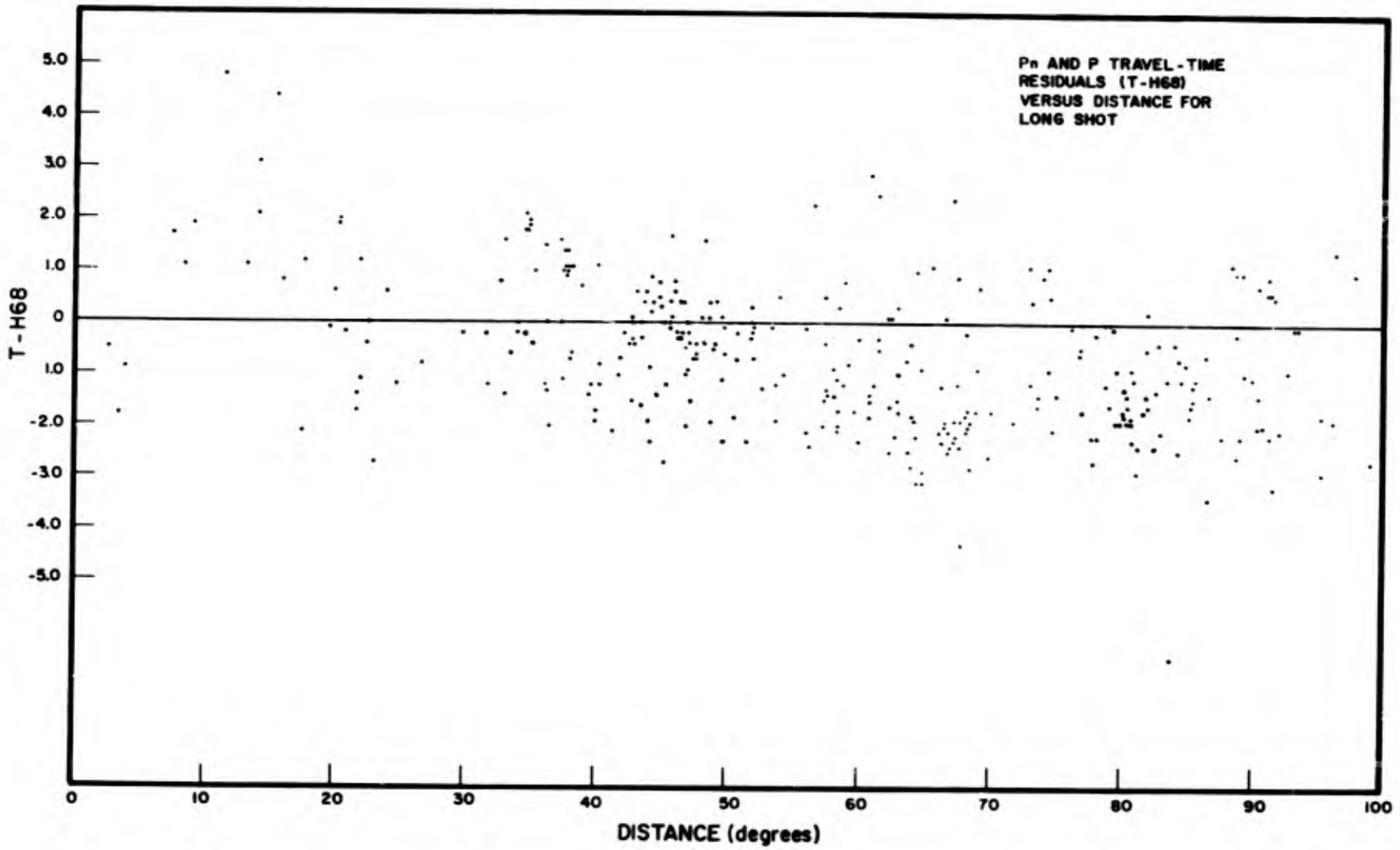


Figure 1b. Pn and P travel-time residuals (T-H68) versus distance for LONG SHOT

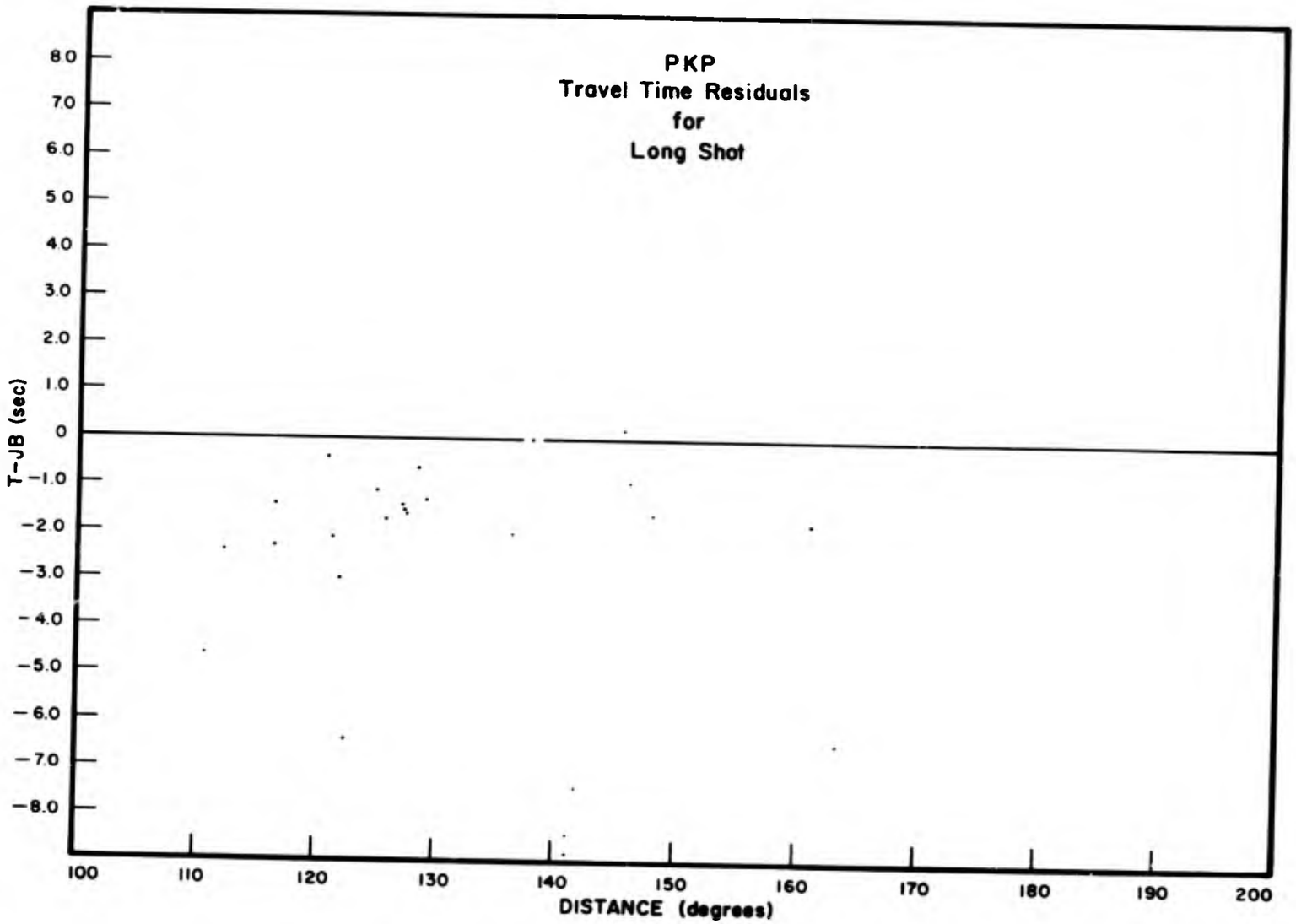


Figure 2a. PKP travel-time residuals (T-JB) versus distance for LONG SHOT

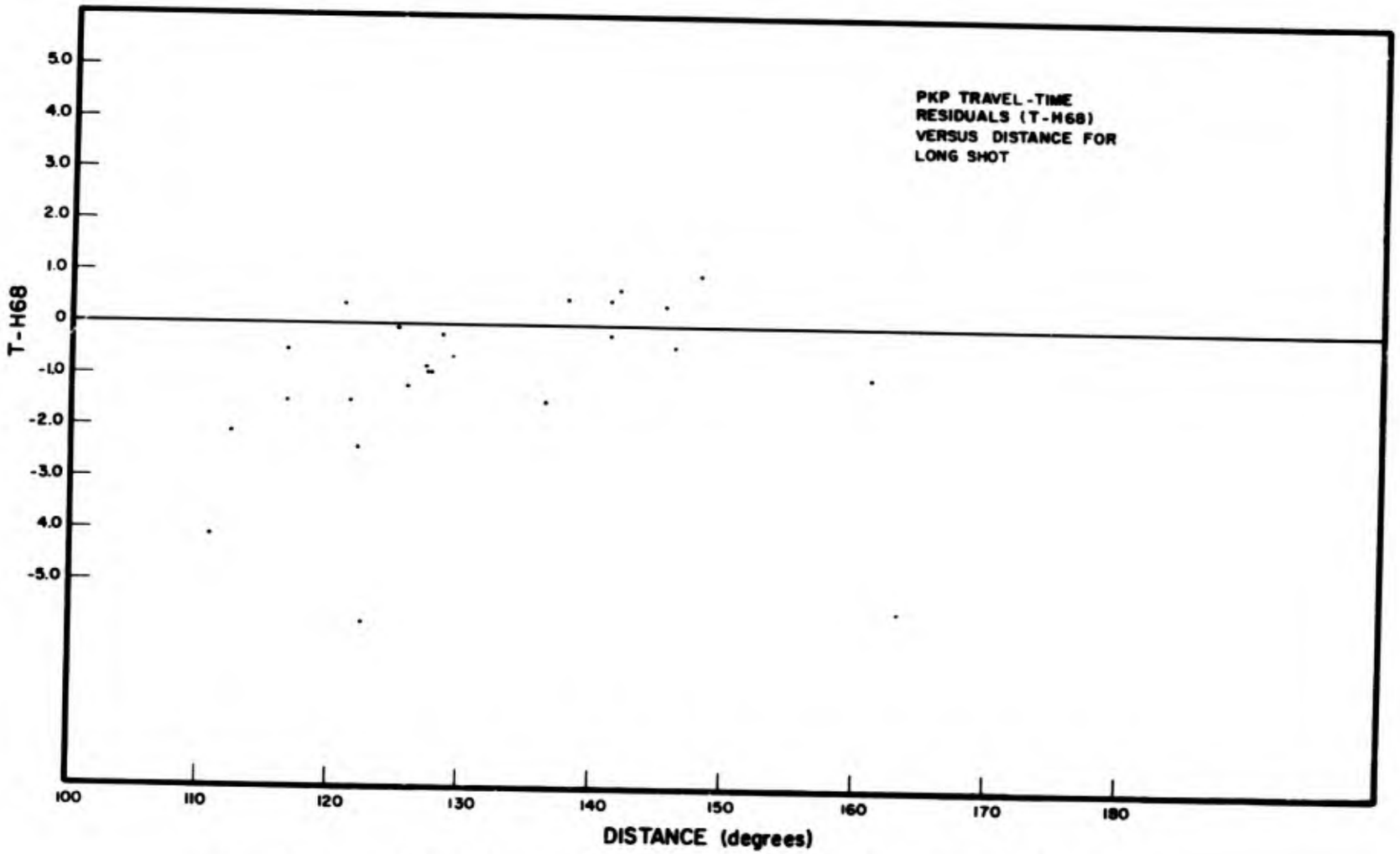


Figure 2b. PKP travel-time residuals (T-H68) versus distance for LONG SHOT

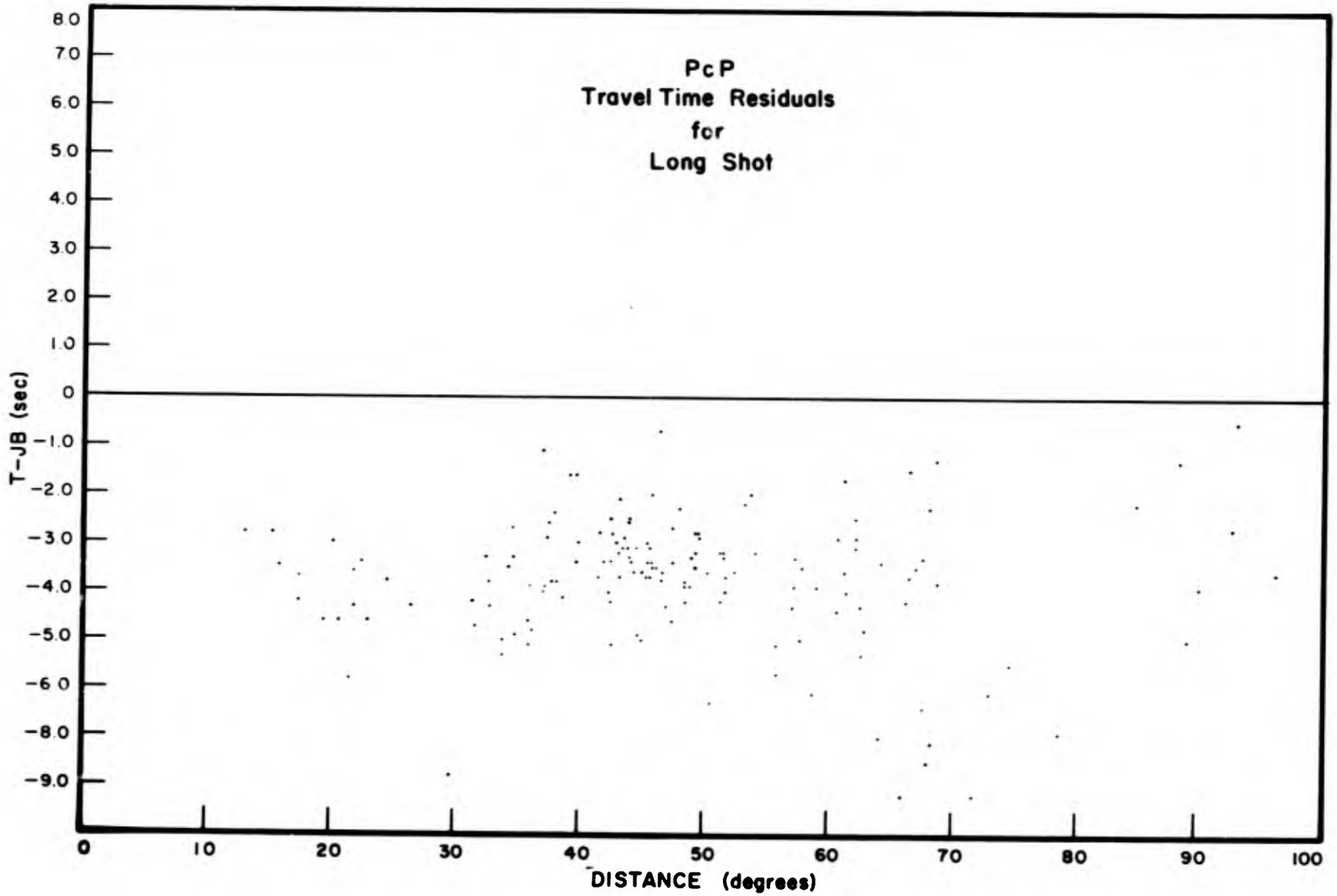


Figure 3a. PcP travel-time residuals (T-JB) versus distance for LONG SHOT

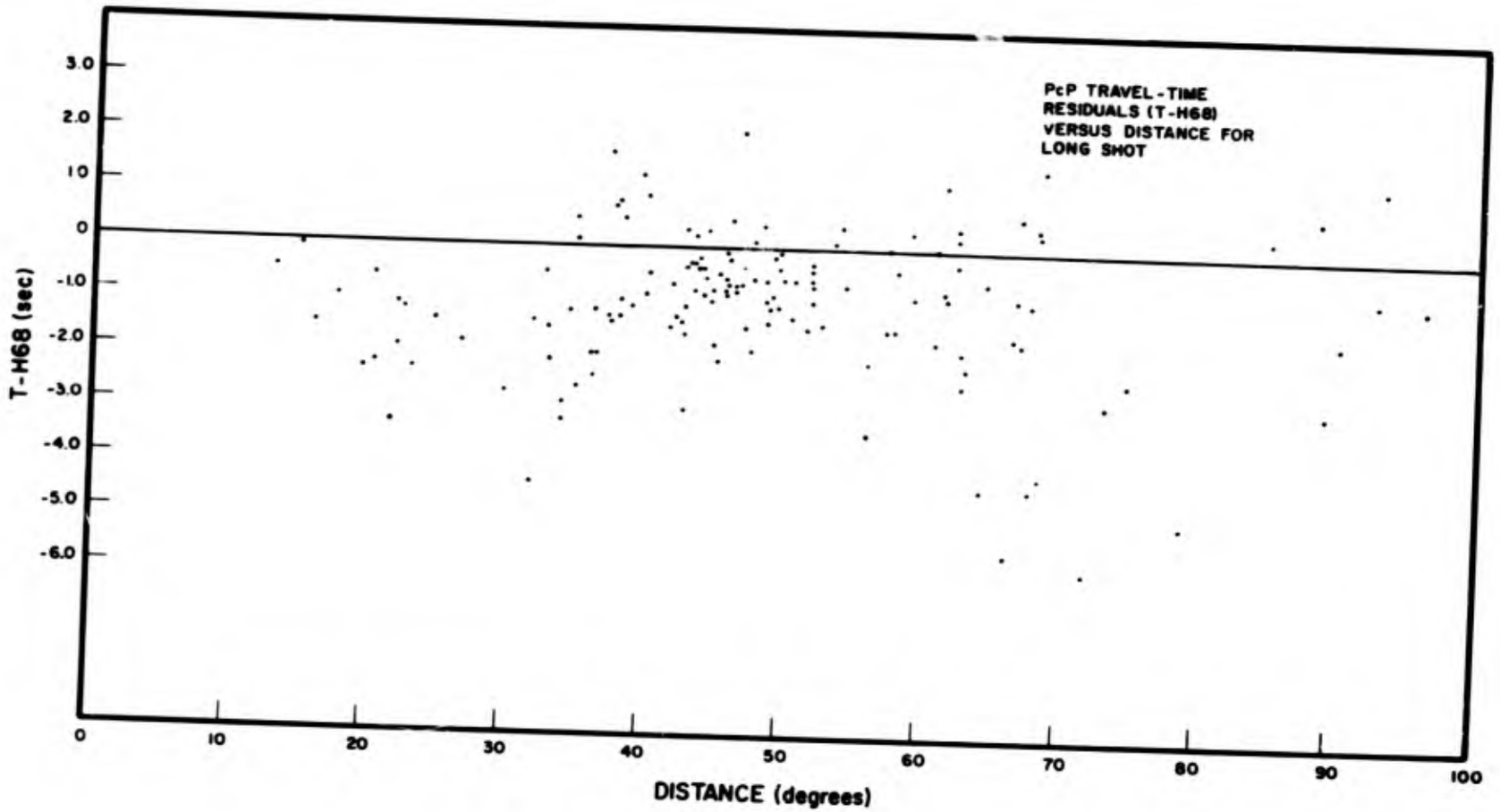


Figure 3b. PcP travel time residuals (T-H68) versus distance for LONG SHOT

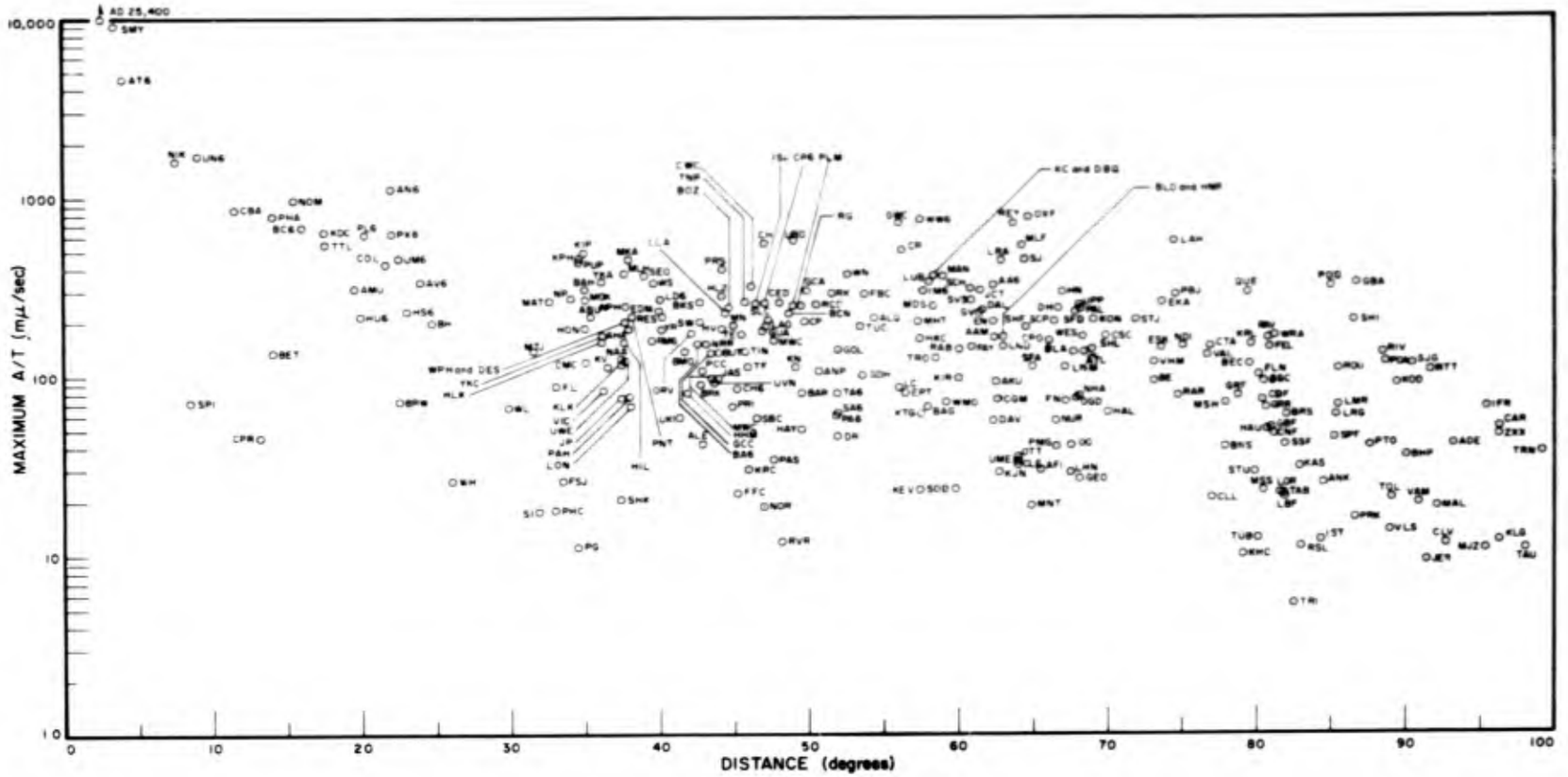


Figure 4. Amplitudes of Pn and P for LONG SHOT-maximum motion vertical component

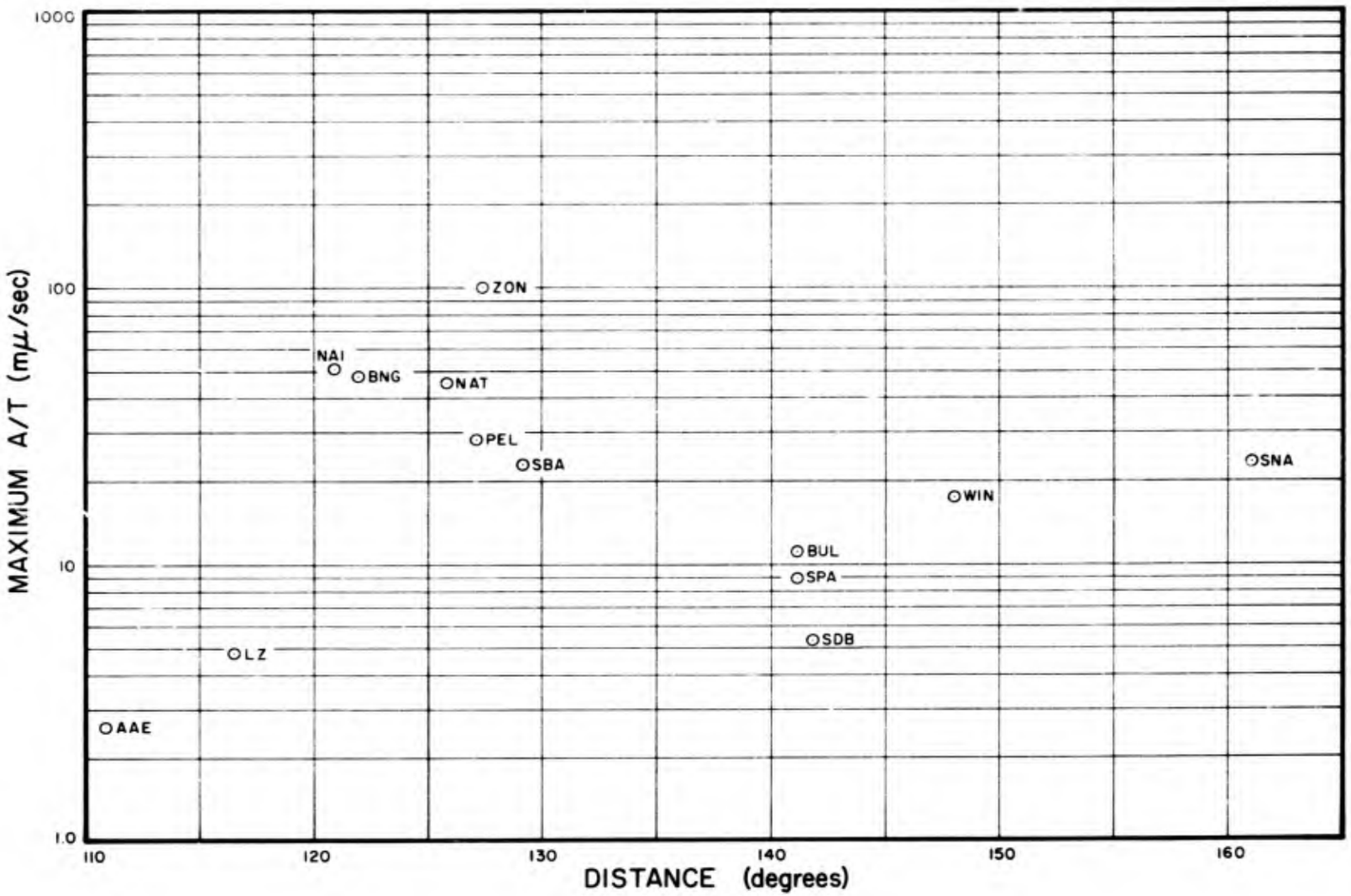


Figure 5. Amplitudes of PKP for LONG SHOT-maximum motion vertical component

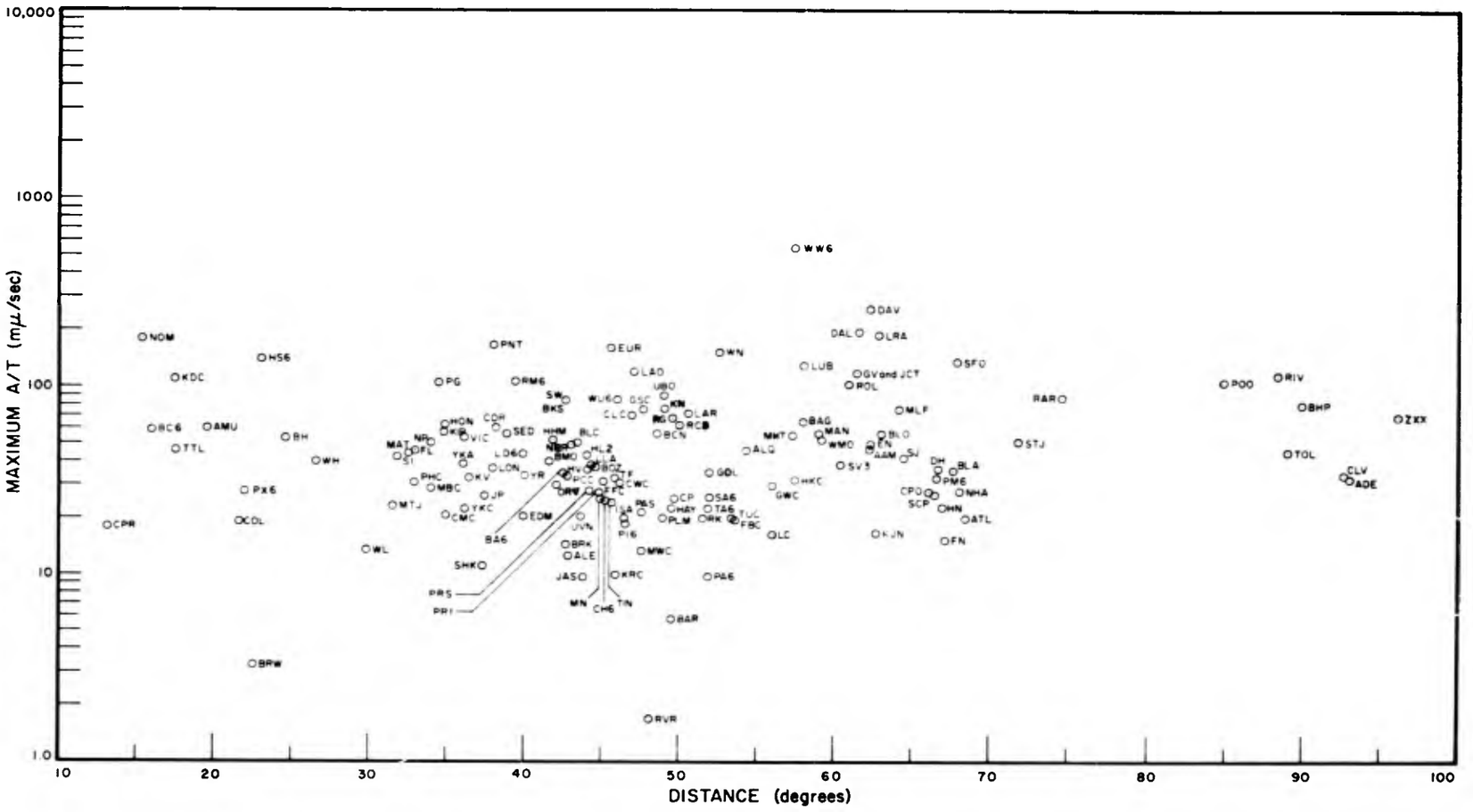


Figure 6. Amplitudes of PcP for LONG SHOT-maximum motion vertical component

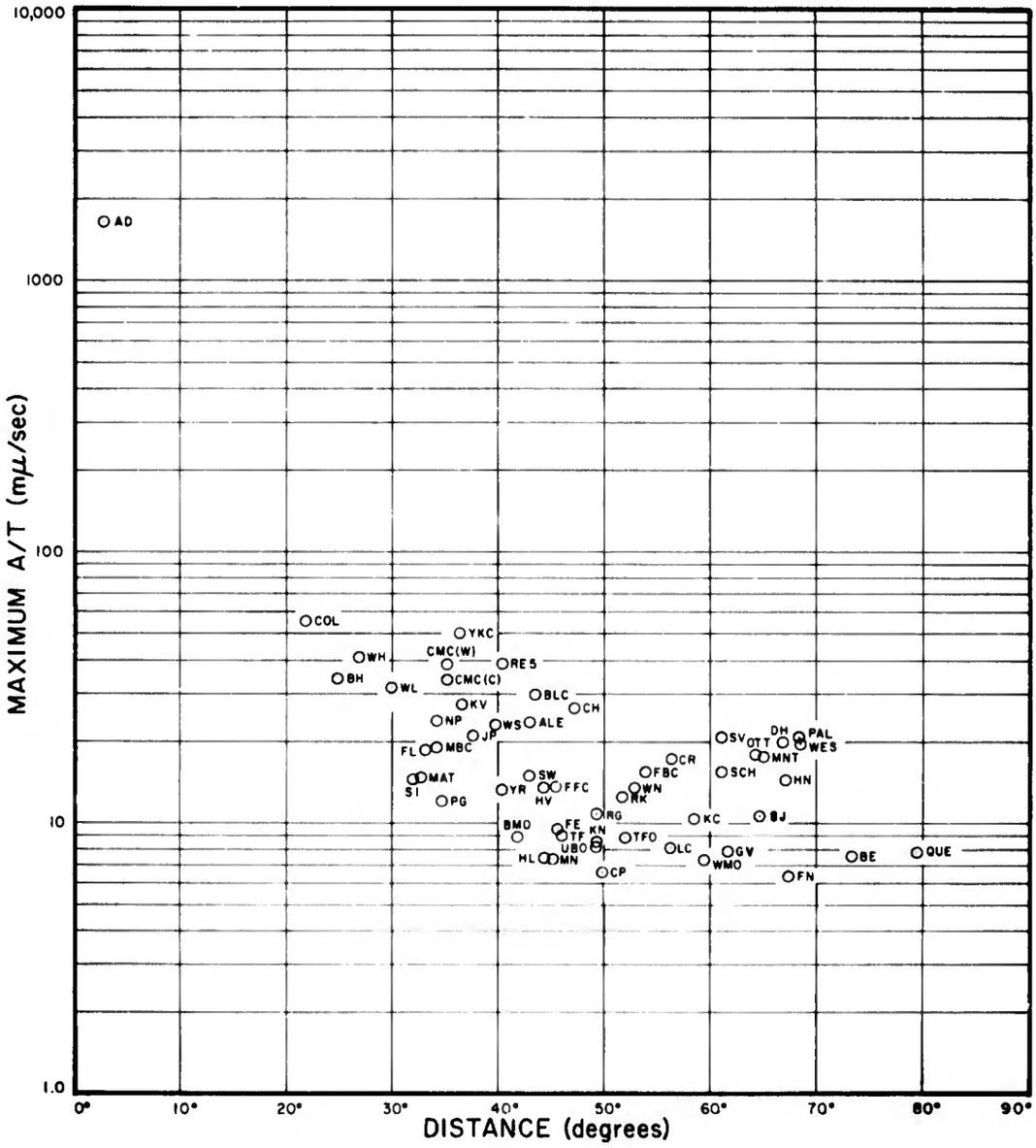


Figure 7. Amplitudes of LR for LONG SHOT-maximum motion vertical component

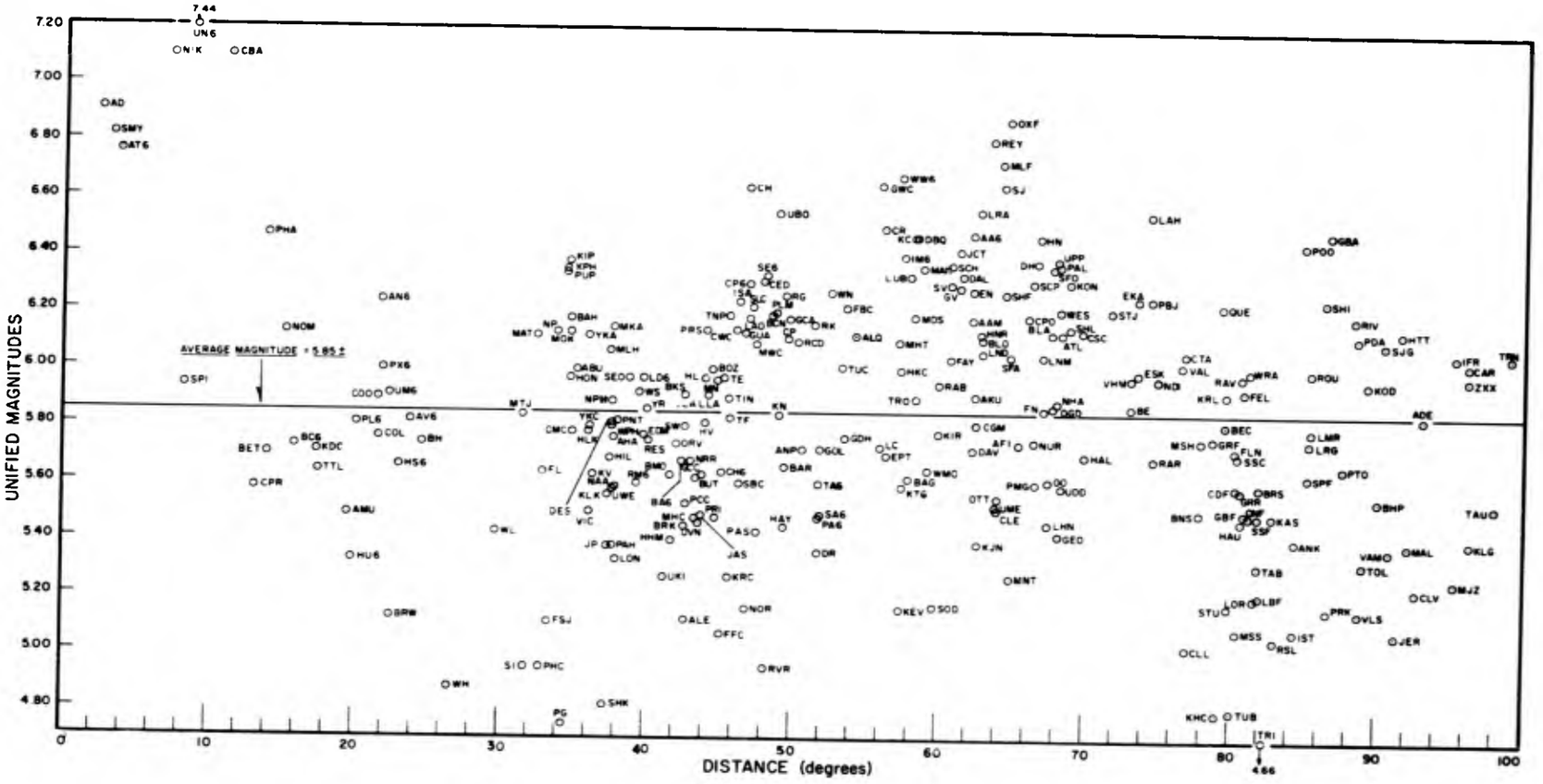


Figure 8. Unified magnitudes for LONG SHOT

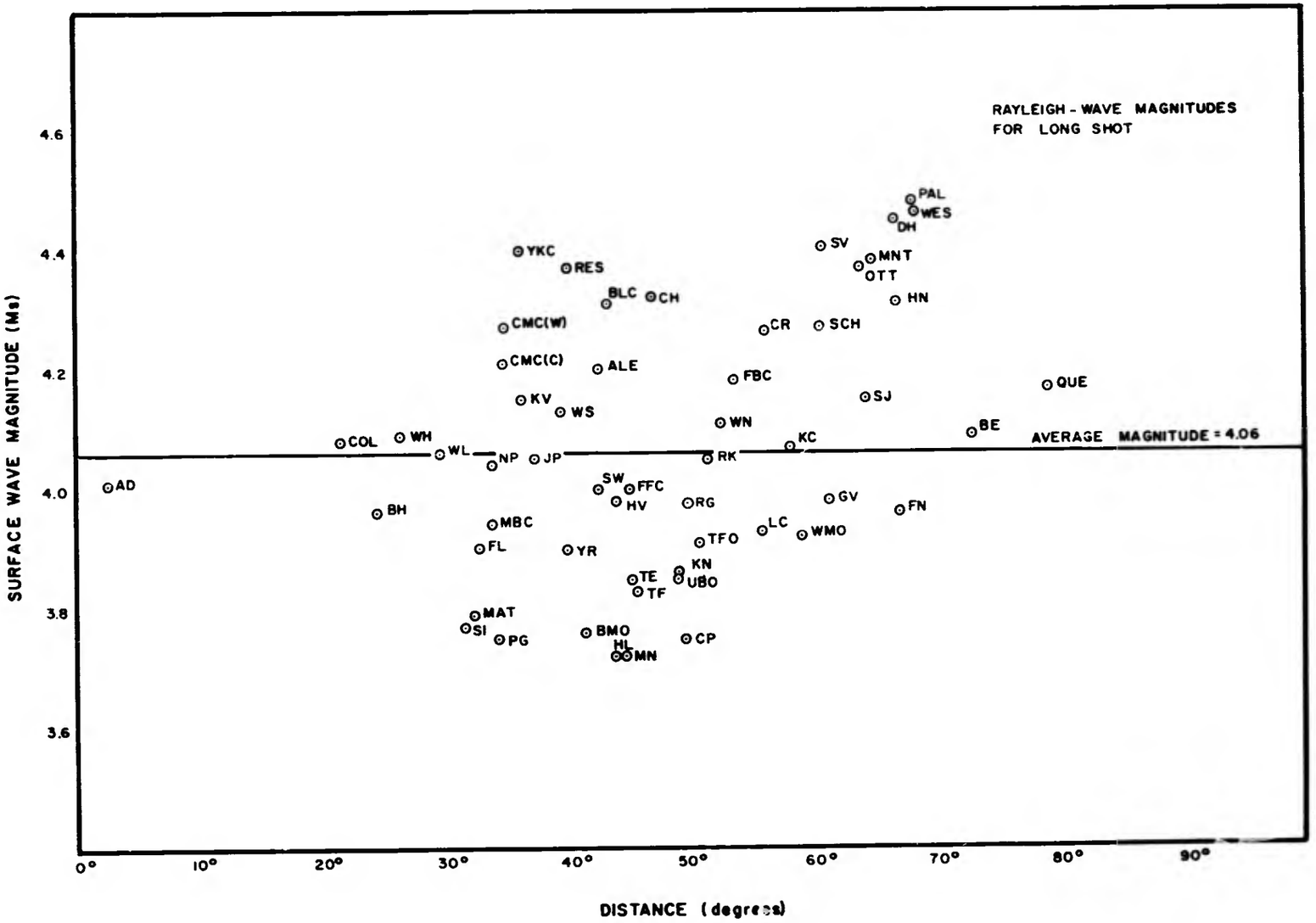


Figure 9. Rayleigh wave magnitudes for LONG SHOT

APPENDIX I

Station Location and Elevation

Station Code	Geographic Latitude Deg.	Min.	Sec.		Geographic Longitude Deg.	Min.	Sec.		Elevation Km
AA6	42	18	04	N	83	39	24	W	.254
AAE	09	01	45	N	38	45	56	E	2.442
AAM	42	17	59	N	83	39	22	W	.254
ABC	13	49	38	N	20	50	40	E	.550
ABU	34	51	25	N	135	34	22	E	.200
AD-IS	51	52	30	N	176	40	45	W	.061
ADE	34	58	01	S	138	42	32	E	.655
AFI	13	54	34	S	171	48	38	W	.706
AIA	44	01	00	N	144	17	00	E	.039
AKU	65	41	12	N	18	06	24	W	.024
ALE	82	29	00	N	62	24	00	W	.065
ALQ	34	56	30	N	106	27	30	W	1.853
AMU	61	11	30	N	149	48	18	W	.053
AN6	68	08	20	N	151	44	01	W	*
ANK	39	55	00	N	32	49	00	E	*
ANP	25	11	00	N	121	31	00	E	.836
AT6	52	51	15	N	173	10	28	E	*
ATL	33	26	00	N	84	20	15	W	.272
AV6	68	07	41	N	145	32	11	W	*
AVO	34	22	35	S	150	36	54	E	.532
BA6	39	07	45	N	121	19	30	W	*
BAG	16	24	39	N	120	34	47	E	1.507
BAH	21	20	23	N	158	04	38	N	*
BAR	32	40	48	N	116	40	18	W	.520
BC6	58	32	54	N	155	47	24	W	.020
BCN	35	58	51	N	114	50	02	W	.776
BE-FL	28	54	19	N	82	03	52	W	.021
BEC	32	22	46	N	64	40	52	W	.041

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
BET	60	48	28 N	161	46	18 W	*
BH-YK	61	22	14 N	139	08	29 W	.861
BHA	14	26	48 S	28	28	06 E	1.206
BHP	08	57	39 N	79	33	29 W	.036
BKS	37	52	36 N	122	14	06 W	.276
BLA	37	12	40 N	80	25	14 W	.634
BLC	64	19	00 N	96	01	00 W	.016
BLO	39	11	20 N	86	30	15 W	.229
BMO	44	50	56 N	117	18	20 W	1.189
BNG	04	22	00 N	18	34	00 E	*
BNH	44	35	26 N	71	15	23 W	.472
BNS	50	57	50 N	07	10	32 E	.200
BOZ	45	36	00 N	111	38	00 W	1.575
BR6	63	30	06 N	145	50	30 W	.793
BRK	37	52	24 N	122	15	36 W	.081
BRS	27	23	30 S	152	46	30 E	.525
BRW	71	18	12 N	156	44	54 W	*
BUL	20	08	36 S	28	36	48 E	1.341
BUT	46	00	48 N	112	33	48 W	1.758
CAB	35	55	36 S	148	25	59 E	*
CAN	35	19	15 S	148	59	55 E	.650
CAR	10	30	24 N	66	55	39 W	1.035
CBA	55	10	30 N	162	44	00 W	*
CBM	46	55	57 N	68	07	15 W	.250
CDF	48	23	39 N	07	16	15 E	1.098
CED	34	16	38 N	117	20	03 W	1.067
CGM	37	19	00 N	89	32	00 W	.134
CH-MT	58	36	25 N	93	49	00 W	.038

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
CH6	35	49	45 N	120	21	07 W	*
CLC	35	49	00 N	117	35	48 W	.766
CLE	41	29	28 N	81	31	52 W	.326
CLL	51	18	36 N	13	00	12 E	.230
CLV	33	41	28 S	136	29	44 E	.238
CMC	67	50	00 N	115	05	00 W	.031
CMF	43	21	26 N	06	23	22 E	.152
CNF	47	34	58 N	06	19	4 E	.305
CNZ	39	12	06 S	175	32	42 E	.500
COL	64	54	00 N	147	47	30 W	.320
COO	64	53	08 N	147	48	04 W	*
COR	44	35	09 N	125	18	12 W	.123
CP-CL	32	43	44 N	116	22	16 W	1.189
CP6	36	55	55 N	116	03	19 W	1.285
CPO	35	35	41 N	85	34	14 W	.574
CPR	61	47	24 N	165	57	18 W	*
CR-NB	40	39	52 N	92	51	15 W	.442
CSC	34	00	00 N	81	02	00 W	.094
CTA	20	05	18 S	146	15	16 E	.357
CWC	36	26	21 N	118	04	41 W	1.620
DAL	32	50	46 N	96	47	02 W	.187
DAR	12	23	00 S	130	50	00 E	.006
DAV	07	05	16 N	125	34	29 E	.085
DBQ	42	30	24 N	90	41	00 W	.200
DES	19	20	12 N	155	23	18 W	.815
DH-NY	42	14	39 N	74	53	18 W	.652
DOU	50	05	45 N	04	35	39 E	.224
DR-CO	37	27	53 N	107	47	00 W	2.225
DRV	66	39	54 S	140	00	31 E	.040

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
DUG	40	11	42 N	112	48	48 W	1.477
EDM	53	13	18 N	113	21	48 W	.730
EKA	55	19	59 N	03	09	33 W	.982
EMM	44	44	21 N	67	29	22 W	.020
EN-MO	36	52	58 N	90	35	44 W	.152
EPT	31	46	18 N	106	30	21 W	1.186
ESK	55	19	00 N	03	12	18 W	.242
EUR	39	29	00 N	115	58	12 W	2.178
FAY	36	05	28 N	94	11	28 W	.404
FBC	63	44	00 N	68	28	00 W	.045
FEL	47	52	12 N	08	01	00 E	1.485
FFC	54	43	30 N	101	56	00 W	.338
FGU	40	55	35 N	109	23	10 W	1.982
FL-BC	58	51	38 N	122	50	11 W	.655
FLN	48	45	45 N	00	28	55 W	.500
FLO	38	48	06 N	90	22	12 W	.160
FN-WV	38	32	58 N	79	30	47 W	.910
FOR	40	51	47 N	73	53	08 W	.024
FQ6	46	12	25 N	85	10	35 W	*
FSJ	54	26	00 N	124	15	00 W	.772
FTC	34	52	24 N	118	53	36 W	.990
GBA	13	36	15 N	77	26	10 E	*
GBF	47	51	09 N	07	05	56 E	1.372
GCA	36	58	25 N	111	35	35 W	1.339
GCC	37	01	48 N	121	59	48 W	.122
GDH	69	15	00 N	53	32	00 W	.023
GEE	36	25	11 S	148	10	57 E	.200
GEO	38	54	00 N	77	04	00 W	.043
GOL	39	42	01 N	105	22	16 W	2.359

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
GRF	49	41	32 N	11	12	55 E	.525
GRR	48	23	18 N	00	51	30 W	.500
GSC	35	18	06 N	116	48	17 W	.990
GUA	13	32	18 N	144	54	42 E	.230
GV-TX	32	53	09 N	96	59	54 W	.152
GWC	55	17	30 N	77	45	12 W	.008
HAL	44	38	00 N	63	36	00 W	.056
HAU	48	00	19 N	06	21	00 E	.457
HAY	33	42	24 N	115	38	12 W	.440
HHM	48	20	58 N	114	01	39 W	1.100
HIL	19	43	12 N	155	05	18 W	.020
HKC	22	18	13 N	114	10	19 E	.027
HL2ID	43	38	50 N	114	15	02 W	1.890
HLE	51	30	00 N	11	57	00 E	.092
HLK	20	46	00 N	156	15	00 W	2.090
HN-ME	46	09	43 N	67	59	09 W	.213
HNR	09	25	54 S	159	56	48 E	.085
HON	21	19	18 N	158	00	30 W	.200
HS6	65	28	48 N	144	38	18 W	.314
HTT	33	25	50 S	138	55	18 E	.200
HU6	66	02	49 N	154	15	20 W	*
HV-MA	48	25	20 N	109	49	20 W	.884
IFR	33	31	00 N	05	07	38 W	1.630
IM6	45	55	30 N	87	51	00 W	*
IRF	37	14	34 N	113	22	36 W	.400
IRH	38	04	40 N	117	13	21 W	.400
IRI	36	16	36 N	117	37	37 W	.400
ISA	35	38	36 N	118	28	36 W	.760
ISO	44	11	00 N	07	03	00 E	.870

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
IST	41	02	36 N	28	59	06 E	.065
JAS	37	56	46 N	120	26	18 W	.457
JCT	30	29	46 N	99	48	08 W	.591
JER	31	46	19 N	35	11	50 E	.770
JIN	36	26	22 S	148	35	35 E	.000
JNU	58	49	32 S	150	01	19 E	.829
JOH	62	39	06 N	29	41	42 E	.090
JP AT	52	53	50 N	110	05	25 W	1.128
KAS	41	22	18 N	33	46	00 E	.200
KC MO	39	21	21 N	94	40	17 W	.274
KDC	57	48	52 N	152	29	30 W	.000
KEV	69	45	19 N	27	00	24 E	.080
KHC	49	07	50 N	13	44	45 E	.700
KIP	21	25	28 N	158	00	54 W	.070
KIR	67	50	28 N	20	25	00 E	.390
KJN	64	05	07 N	27	42	43 E	.250
KLG	50	47	01 S	121	27	29 E	.200
KLI	19	31	11 N	155	55	18 W	.505
KN UT	37	01	22 N	112	49	39 W	1.737
KOD	10	18	00 N	77	26	00 E	2.343
KON	59	38	57 N	09	37	55 E	.200
KOU	20	33	43 S	164	16	53 E	.017
KPH	21	34	54 N	158	16	32 W	•
KRB	16	31	36 S	28	47	42 E	.805
KRC	35	19	36 N	119	44	42 W	.680
KRL	49	00	39 N	06	24	44 E	.119
KTG	70	25	00 N	21	59	00 W	.006
KV AT	56	49	49 N	117	19	26 W	.305
LAH	31	33	00 N	74	20	00 E	.210

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
LAO	46	41	19 N	106	13	20 W	.744
LAR	41	18	52 N	105	34	59 W	.200
LAW	38	57	34 N	95	15	00 W	.200
LBF	46	59	13 N	03	58	38 E	.305
LC-NM	32	24	08 N	106	35	58 W	1.585
LDb	53	13	18 N	113	21	48 W	*
LEM	06	50	00 S	107	37	00 E	.500
LHN	61	02	57 N	10	52	48 E	.505
LIC	06	13	28 N	05	01	40 W	.100
LLA	36	37	00 N	120	56	36 W	.475
LMR	43	21	48 N	06	30	25 E	*
LND	43	02	24 N	81	11	00 W	.246
LNM	21	07	00 N	101	40	03 W	1.800
LNS	45	17	20 N	06	54	53 E	1.480
LON	46	45	00 N	121	48	36 W	.854
LOR	47	16	00 N	03	51	05 E	.530
LRA	34	47	00 N	92	21	00 W	.135
LRG	43	27	15 N	06	21	38 E	*
LUB	33	35	00 N	101	52	00 W	.200
LUG	15	31	04 S	167	07	48 E	.150
LWI	02	14	18 S	28	48	00 E	1.748
LZ-BV	16	15	31 S	68	28	47 W	3.993
MAL	36	43	39 N	04	24	40 W	.060
MAN	14	40	00 N	121	05	00 E	.070
MAT	36	32	30 N	138	12	32 E	.440
MBC	76	14	00 N	119	20	00 W	.015
MDS	43	22	20 N	89	45	36 W	.278
MHC	37	20	30 N	121	38	30 W	1.282
MHT	39	11	59 N	96	34	50 W	.200

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
MIM	45	14	37 N	69	02	25 W	.500
MJZ	43	59	14 S	170	27	58 E	1.000
MKA	19	22	00 N	155	11	00 W	.200
MLF	39	08	15 N	84	16	39 W	.238
MLH	19	29	48 N	155	23	18 W	2.010
MM6	63	44	00 N	148	58	57 W	.610
MN-NV	38	26	10 N	118	08	53 W	1.524
MNT	45	30	09 N	73	37	23 W	.112
MOK	21	27	23 N	157	44	12 W	*
MOX	50	38	46 N	11	36	58 E	.450
MRG	39	37	59 N	79	57	16 W	.282
MSH	36	18	40 N	59	35	16 E	.830
MSS	48	10	45 N	08	57	58 E	.915
MTJ	36	12	39 N	140	06	36 E	.286
MWC	34	13	24 N	118	03	30 W	1.730
NAA	19	03	48 N	155	35	12 W	.205
NAI	01	16	26 S	36	48	13 E	1.692
NAT	05	07	00 S	35	02	00 W	.010
NDI	28	41	00 N	77	13	00 E	.230
NHA	12	12	36 N	109	12	42 E	.005
NIK	52	58	24 N	168	51	00 W	.152
NOM	64	30	00 N	166	25	00 W	*
NOR	81	36	00 N	16	41	00 W	.036
NOU	22	18	36 S	166	27	02 E	.105
NP-NT	76	15	08 N	119	22	18 W	.059
NPH	19	24	54 N	155	17	00 W	1.115
NRR	39	34	19 N	119	50	56 W	.200
NUR	60	30	32 N	24	39	05 E	.102
OGD	41	04	00 N	74	37	00 W	.373

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.		Geographic Longitude Deg.	Min.	Sec.		Elevation Km.
OO-NW	61	02	53	N	10	53	42	E	.555
ORV	39	33	20	N	121	30	00	W	.362
OTT	45	23	38	N	75	42	57	W	.083
OXF	34	30	43	N	89	24	33	W	.101
PA6	39	50	04	N	105	19	44	W	*
PAH	19	29	42	N	154	56	48	W	.205
PAL	41	00	25	N	73	54	31	W	.103
PAS	34	08	54	N	118	10	18	W	.295
PBJ	16	26	12	N	95	24	24	W	.213
PCC	37	30	00	N	122	22	55	W	.091
PDA	37	44	36	N	25	39	42	W	.035
PEL	33	08	37	S	70	41	07	W	.690
PG-BC	53	59	50	N	122	31	23	W	.914
PHA	56	59	18	N	158	40	30	W	*
PHC	50	42	00	N	127	26	00	W	.033
PI6	42	18	00	N	111	30	00	W	*
PL6	69	44	16	N	163	00	48	W	*
PLM	33	21	12	N	116	51	42	W	1.690
PMG	09	24	33	S	147	09	14	E	.070
PNS	16	16	03	S	68	28	00	W	3.990
PNT	49	19	00	N	119	37	00	W	.550
POO	18	32	00	N	73	51	00	E	.560
PPA	31	30	56	S	68	16	07	W	.550
PPT	17	34	08	S	149	34	32	W	.300
PRE	25	45	00	S	28	15	00	E	1.382
PRI	36	08	30	N	120	39	54	W	1.187
PRK	39	14	46	N	26	16	18	E	.100
PRS	36	19	54	N	121	22	12	W	.363
PRU	49	59	18	N	14	32	30	E	.302

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.		Geographic Longitude Deg.	Min.	Sec.		Elevation Km.
PSM	36	08	31	N	120	39	54	W	.400
PTO	41	08	19	N	08	36	08	W	.088
PUP	21	38	50	N	158	01	40	W	*
PX6	62	57	18	N	145	28	28	W	1.133
QUE	30	11	18	N	66	57	00	E	1.713
RAB	04	11	33	S	152	10	16	E	.184
RAM	37	45	57	N	41	17	33	E	1.185
RAR	21	13	00	S	159	46	24	W	*
RAV	47	47	00	N	09	33	50	E	.460
RCD	44	04	30	N	103	12	30	W	.995
RES	74	41	12	N	94	54	00	W	.015
REY	64	08	20	N	21	54	22	W	.044
RG-SD	45	12	59	N	103	32	05	W	.945
RIV	33	49	45	S	151	09	30	E	.025
RK-ON	50	50	20	N	93	40	20	W	.366
RM6	52	24	00	N	114	57	00	W	*
ROL	37	55	04	N	91	52	08	W	.200
ROU	43	24	05	N	05	50	44	E	.500
RSL	45	41	18	N	06	37	32	E	1.583
RVR	33	59	36	N	117	22	30	W	.260
SA6	39	46	23	N	105	16	58	W	*
SBA	77	51	03	S	166	45	45	E	1.015
SBC	34	26	30	N	119	42	48	W	.090
SCH	54	49	00	N	66	47	00	W	.540
SCP	40	47	42	N	77	51	54	W	.352
SDB	43	44	00	N	15	54	00	E	.200
SE6	36	09	53	N	115	08	24	W	.610
SEO	37	34	00	N	126	58	00	E	.086
SFA	47	07	24	N	70	49	36	W	.232

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.		Geographic Longitude Deg.	Min.	Sec.		Elevation Km.
SFO	41	12	30	N	74	15	00	W	.200
SH6	38	57	20	N	118	48	49	W	*
SHF	46	33	06	N	72	45	48	W	.060
SHI	29	48	39	N	52	51	34	E	1.595
SHK	34	32	00	N	132	41	00	E	.285
SHL	25	34	00	N	91	53	00	E	1.600
SI-BC	54	47	18	N	127	04	17	W	.579
SIC	50	10	30	N	66	44	30	W	.283
SJ-TX	27	36	43	N	98	18	46	W	.114
SJG	18	06	42	N	66	09	00	W	.457
SLC	40	45	55	N	111	50	54	W	1.425
SMY	52	43	18	N	174	07	12	E	.046
SNA	70	18	32	S	02	21	30	N	.052
SOD	67	22	16	N	26	37	45	E	.181
SPA	90	00	00	S	00	00	00	E	2.927
SPF	43	33	50	N	06	41	46	E	*
SPI	57	09	36	N	170	13	30	W	*
SPO	47	43	48	N	117	20	32	W	.713
SSC	48	35	03	N	00	06	27	W	.500
SSF	47	07	00	N	03	30	05	E	*
STJ	47	34	18	N	52	44	00	W	.062
STR	48	35	05	N	07	45	57	E	.135
STU	48	46	15	N	09	11	36	E	.375
SV3QB	54	48	39	N	66	45	00	W	.579
SW-MA	48	58	08	N	111	57	46	W	1.113
TA6	39	48	19	N	105	17	58	W	*
TAB	38	04	03	N	46	19	36	E	1.430
TAM	22	47	30	N	05	31	24	E	1.395
TAU	42	54	36	S	147	19	13	E	.132
TCF	46	17	17	N	02	12	50	E	.500

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
TE-GL	76	29	50 N	68	36	20 W	.213
TEH	35	44	16 N	51	23	09 E	1.360
TF-CL	35	09	49 N	119	58	03 W	.793
TFO	34	17	12 N	111	16	03 W	1.609
TIN	37	03	18 N	118	13	42 W	1.195
TN6	65	15	24 N	151	54	42 W	.503
TNP	38	04	55 N	117	13	05 W	1.932
TOL	39	52	53 N	04	02	55 W	.480
TOO	37	34	17 S	145	29	26 E	.604
TR6	37	13	02 N	104	41	47 W	*
TRI	45	42	32 N	13	45	51 E	.126
TRN	10	39	00 N	61	24	06 W	.024
TRO	69	37	57 N	18	55	41 E	.015
TTL	62	53	55 N	155	58	34 W	*
TUB	48	31	37 N	09	03	40 E	.330
TUC	32	18	35 N	110	46	56 W	.980
TUM	47	00	54 N	122	54	30 W	.200
UBO	40	19	18 N	109	34	07 W	1.596
UDD	60	05	24 N	13	36	24 W	.240
UKI	39	08	14 N	123	12	38 W	.199
UM6	69	22	38 N	152	06	49 W	.250
UME	63	48	54 N	20	14	12 E	.015
UN6	53	51	14 N	166	30	00 E	*
UPP	59	51	29 N	17	37	37 E	.014
UVN	40	26	32 N	118	09	30 W	1.926
UWE	19	25	00 N	155	18	00 W	.200
VAL	51	56	00 N	10	15	00 W	.014
VAM	35	24	26 N	24	11	59 E	.225
VHM	17	10	36 N	96	44	43 W	1.829

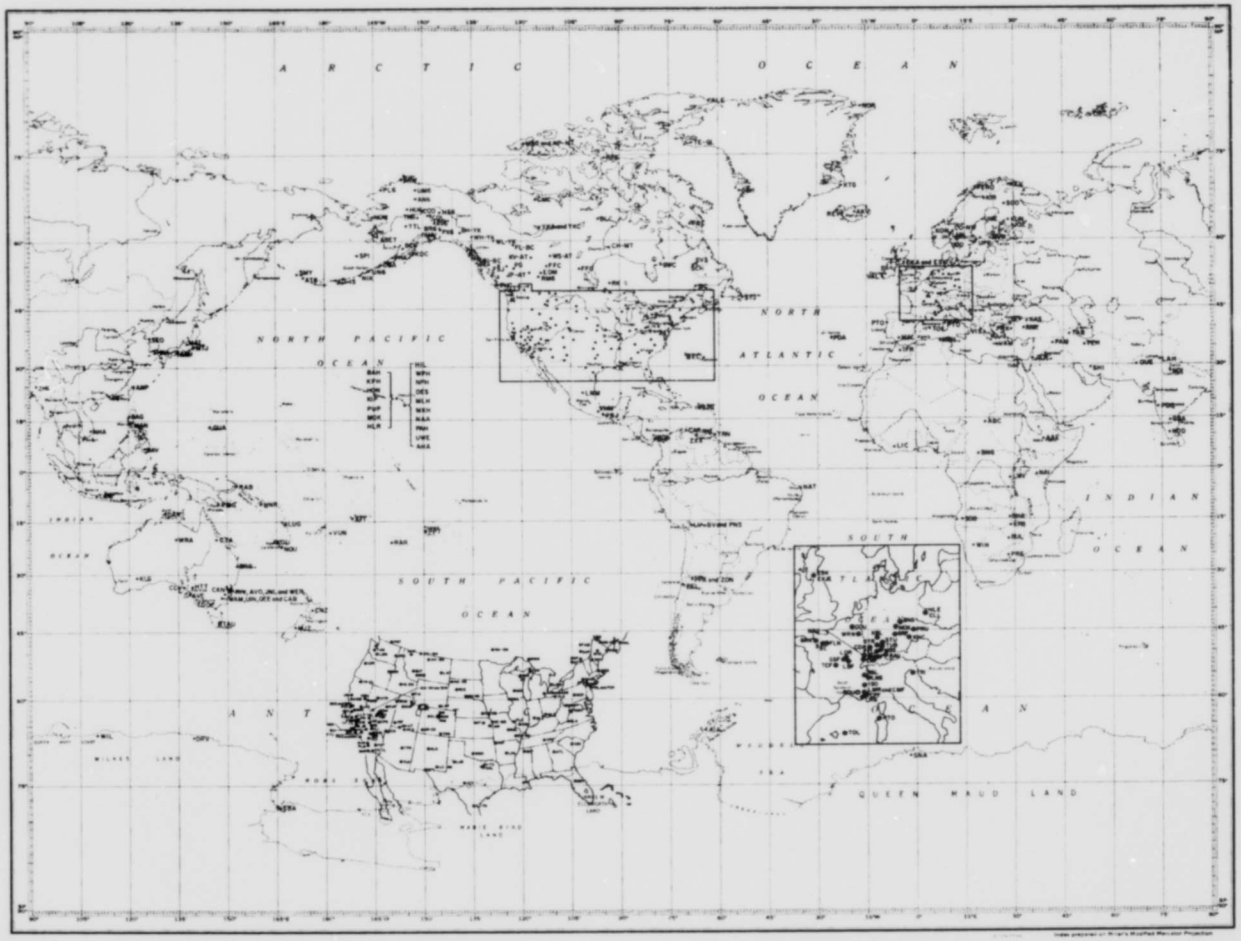
APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
VIC	48	31	10 N	123	24	55 W	.197
VLS	38	10	36 N	20	35	24 E	.405
VUN	18	02	33 S	178	27	49 W	.160
WAM	36	11	34 S	148	53	00 E	.200
WDY	35	42	00 N	118	50	48 W	.490
WER	33	57	01 S	150	34	49 E	.226
WES	42	23	05 N	71	19	19 W	.060
WH-YK	60	44	03 N	135	08	57 W	.762
WIL	66	15	33 S	110	31	38 E	.010
WIN	22	34	00 S	17	06	00 E	1.728
WL-YK	60	07	00 N	128	45	52 W	.716
WMO	34	43	05 N	98	35	21 W	.505
WN-SD	43	15	08 N	100	11	46 W	.792
WPH	19	24	47 N	155	17	30 W	1.115
WRA	19	56	52 S	134	21	03 E	.000
WRM	49	50	60 N	05	22	50 E	.242
WS-AT	56	39	34 N	111	16	07 W	.366
WU6	40	37	00 N	114	06	00 W	*
WW6	48	17	13 N	85	01	33 W	*
YKA	62	29	34 N	114	36	17 W	.250
YKC	62	28	42 N	114	28	24 W	.198
YR-CL	41	38	07 N	122	45	14 W	.914
ZON	31	32	45 S	68	40	43 W	.730
ZXX	10	30	24 N	66	55	39 W	1.035

*Elevation unknown

APPENDIX I (Contd.)

Station Code	Geographic Latitude Deg.	Min.	Sec.	Geographic Longitude Deg.	Min.	Sec.	Elevation Km.
VIC	48	31	10 N	123	24	55 W	.197
VLS	38	10	36 N	20	35	24 E	.405
VUN	18	02	33 S	178	27	49 W	.160
WAM	36	11	34 S	148	53	00 E	.200
WDY	35	42	00 N	118	50	48 W	.490
WER	33	57	01 S	150	34	45 E	.226
WES	42	23	05 N	71	19	19 W	.060
WH-YK	60	44	03 N	135	08	57 W	.762
WIL	66	15	33 S	110	31	38 E	.010
WIN	22	34	00 S	17	06	00 E	1.728
WL-YK	60	07	00 N	128	45	52 W	.716
WMO	34	43	05 N	98	35	21 W	.505
WN-SD	43	15	08 N	100	11	46 W	.792
WPH	19	24	47 N	155	17	30 W	1.115
WRA	19	56	52 S	134	21	03 E	.000
WRM	49	50	00 N	05	22	50 E	.242
WS-AT	56	39	34 N	111	16	07 W	.366
WU6	40	37	00 N	114	06	00 W	*
WW6	48	17	13 N	85	01	33 W	*
YKA	62	29	34 N	114	36	17 W	.250
YKC	62	28	42 N	114	28	24 W	.198
YR-CL	41	38	07 N	122	45	14 W	.914
ZON	31	32	45 S	68	40	43 W	.730
ZXX							



Appendix II. Map of Stations Recording LONG SHOT

APPENDIX III

LRSM SITE RECORDING INFORMATION

CODE	STATION	SHORT-PERIOD TYPE	LONG-PERIOD (SPRENGNETHER)	COMPUTED AZI. EPI. STA.	COMPUTED AZI. STA. EPI.	INSTALLED AZI. RADIAL	INSTALLED AZI. TANGENTIAL
AD-IS	Adak Island, Alaska	Large Benioff	X	79°	262°	0°	90°
BE-FL	Belleview, Florida	Small Benioff	X	65°	320°	140°	230°
BH-YK	Burwash Landing, Yukon	Geotech 18300	X	50°	265°	85°	175°
BMO	Blue Mountains Observatory, Oregon	Johnson-Matheson	X	73°	303°	90°	0°
CH-MT	Churchill, Manitoba	Geotech 18300	X	46°	301°	121°	211°
CP-CL	Campo, California	Small Benioff	X	86°	312°	132°	222°
CPO	Cumberland Plateau Observatory, Tenn.	Johnson-Matheson	X	63°	317°	90°	0°
CR-NB	Crete, Nebraska	Large Benioff	X	66°	311°	131°	221°
DH-NY	Delhi, New York	Small Benioff	X	51°	319°	95°	185°
EN-MO	Ellsinore, Missouri	Large Benioff		65°	315°	135°	225°
FL-BC	Fort Nelson, British Columbia	Large Benioff	X	54°	283°	103°	193°
FN-WV	Franklin, West Virginia	Small Benioff	X	57°	318°	99°	189°
GV-TX	Grapevine, Texas	Large Benioff	LPZ ONLY	72°	315°	111°	201°
HL2ID	Hailey, Idaho	Large Benioff	X	73°	305°	214°	124°
HN-ME	Houlton, Maine	Small Benioff	X	44°	321°	93°	183°
HV-MA	Havre, Montana	Large Benioff	X	65°	302°	122°	212°
JP-AT	Jasper, Alberta	Large Benioff	X	62°	294°	114	204°

APPENDIX III

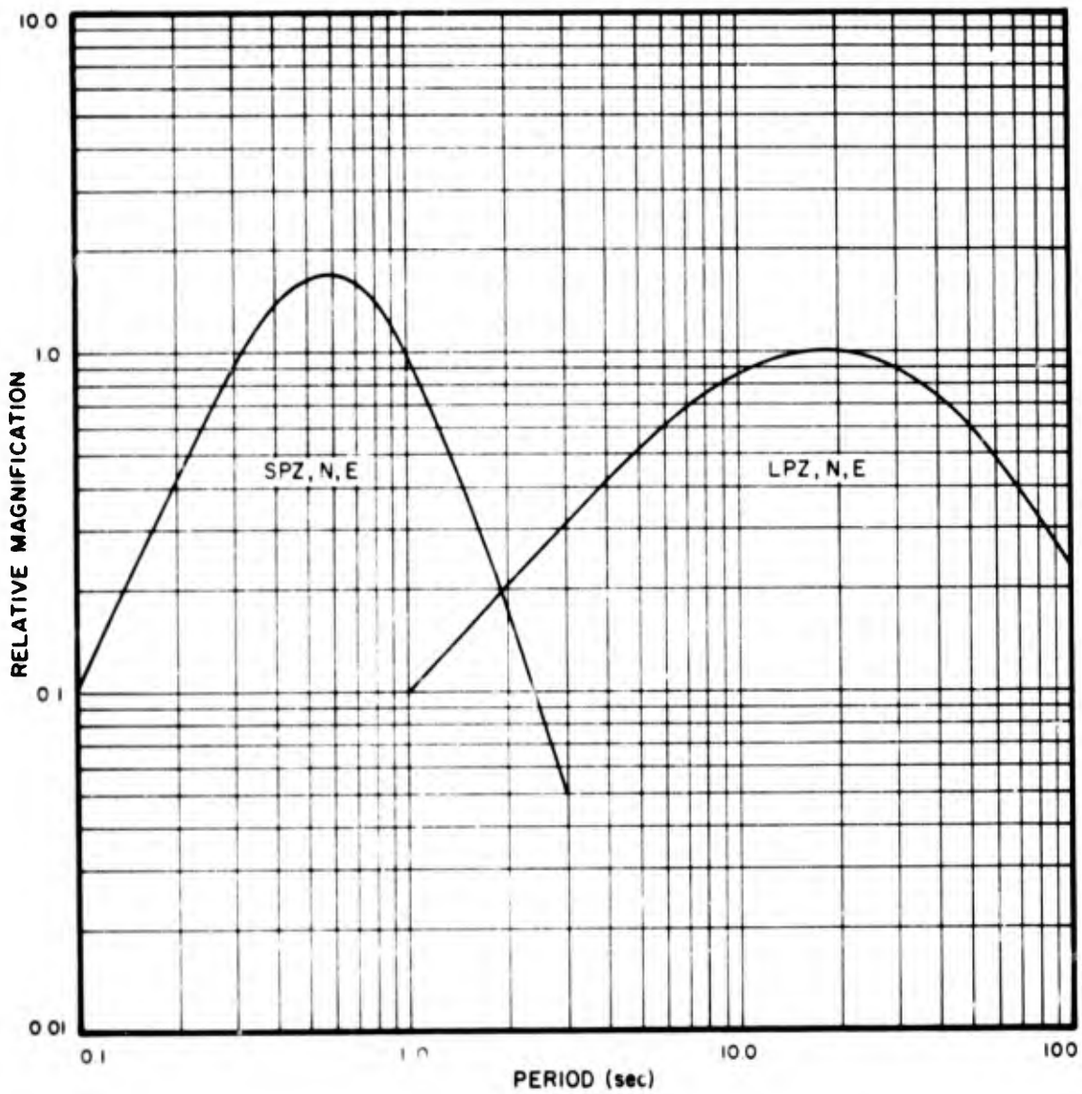
LRSM SITE RECORDING INFORMATION (CONT'D.)

CODE	STATION	SHORT-PERIOD TYPE	LONG-PERIOD (SPRENGNETHER)	COMPUTED AZI. EPI. STA.	COMPUTED AZI. STA. EPI.	INSTALLED AZI. RADIAL	INSTALLED AZI. TANGENTIAL
KC-MO	Kansas City, Missouri	Small Benioff	X	65°	313°	133°	223°
KN-UT	Kanab, Utah	Large Benioff	X	79°	310°	95°	185°
KV-AT	Keg River, Alberta	Geotech 18300	X	56°	289°	108°	198°
LAO	LASA, AO-10, Montana	Hall-Sears		65°	305°		
LC-NM	Las Cruces, New Mexico	Large Benioff	X	79°	313°	133°	223°
MN-NV	Mina, Nevada	Large Benioff	X	81°	308°	308°	38°
NP-NT	Mould Bay, Northwest Territories	Vertical-JM Horizontal-SB	X	22°	259°	356°	86°
PG-BC	Prince George, British Columbia	Large Benioff	X	62°	290°	110°	200°
RG-SD	Redig, South Dakota	Large Benioff	X	65°	307°	127°	217°
RK-ON	Red Lake, Ontario	Small Benioff	X	54°	307°	58°	148°
SI-BC	Smithers, British Columbia	Large Benioff	X	63°	287°	107°	197°
SJ-TX	San Jose, Texas	Small Benioff	X	77°	317°	136°	226°
SV3QB	Schefferville, Quebec	Small Benioff	X	37°	319°	139°	229°
SW-MA	Sweetgrass, Montana	Small Benioff	X	65°	301°	120°	210°
TE-GL	Thule, Greenland	Geotech 18300	X	18°	305°	125°	215°
TF-CL	Taft, California	Geotech 18300	X	86°	310°	130°	220°

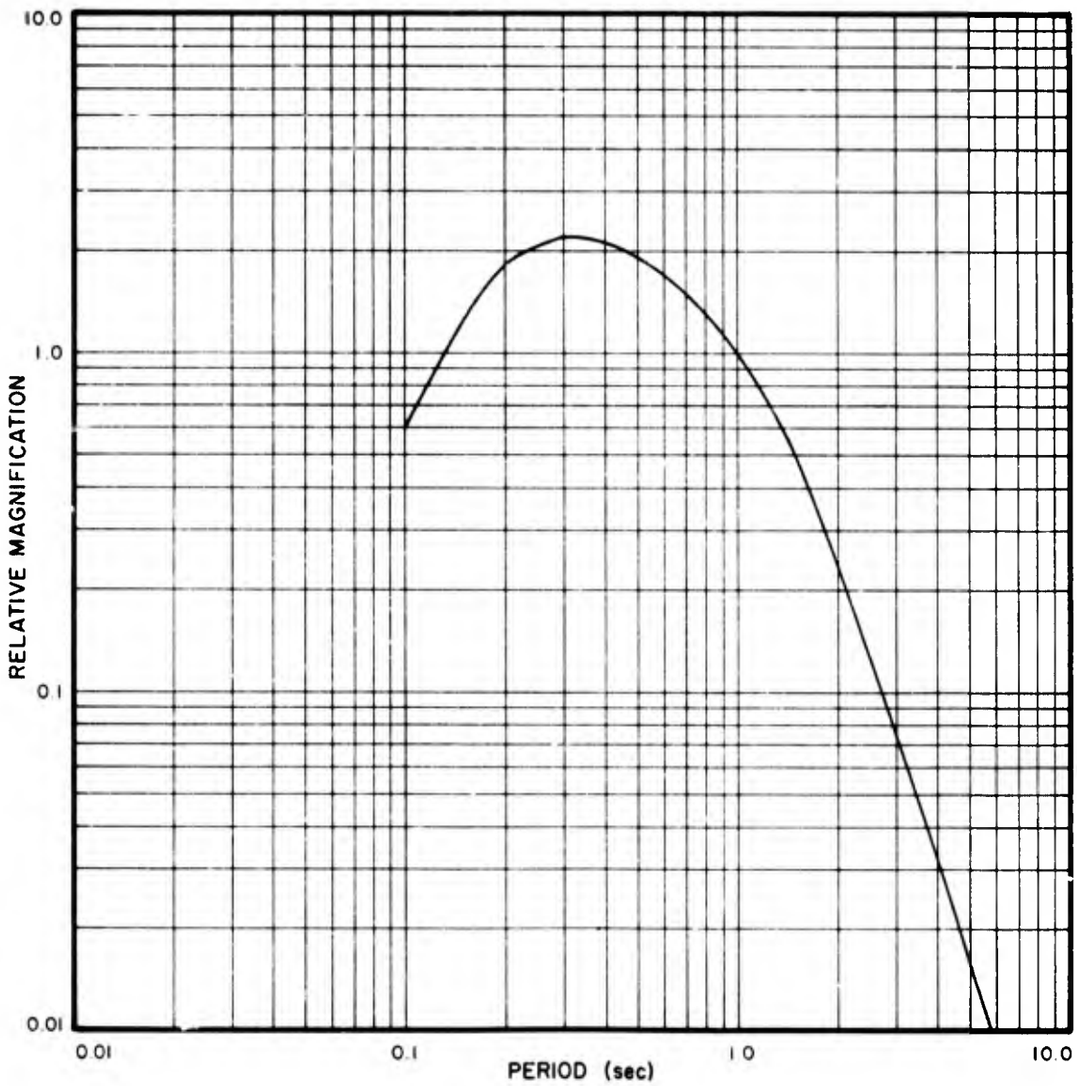
APPENDIX III

LRSM SITE RECORDING INFORMATION (CONT'D.)

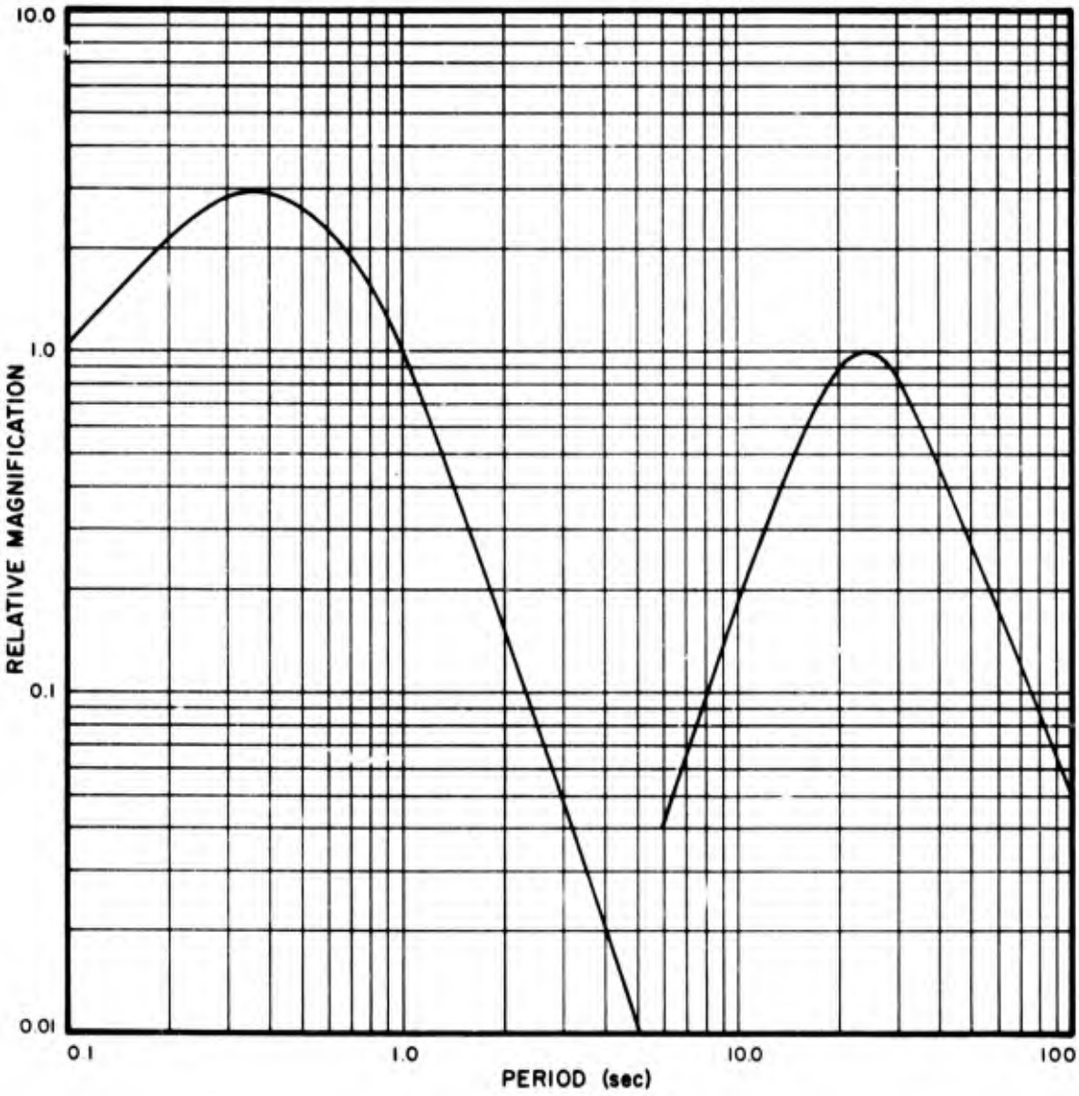
CODE	STATION	SHORT-PERIOD TYPE	LONG-PERIOD (SPRENGNETHER)	COMPUTED AZI. EPI. STA.	COMPUTED AZI. STA. EPI.	INSTALLED AZI. RADIAL	INSTALLED AZI. TANGENTIAL
TFO	Tonto Forest Observatory, Arizona	Johnson-Matheson	X	81°	312°	90°	0°
UBO	Uinta Basin Observatory, Utah	Johnson-Matheson	X	74°	308°	90°	0°
WH-YK	Whitehorse, Yukon	Geotech 18300	X	52°	270°	59°	149°
WL-YK	Watson Lake, Yukon	Large Benioff	X	53°	277°	97°	187°
WMO	Wichita Mountains Observatory, Oklahoma	Johnson-Matheson	X	72°	314°	90°	0°
WN-SD	Winner, South Dakota	Large Benioff	X	65°	309°	129°	219°
WS-AT	Waterways, Alberta	Geotech 18300	X	54°	293°	113°	203°
YR-CL	Yreka, California	Small Benioff	X	81°	305°	125°	215°



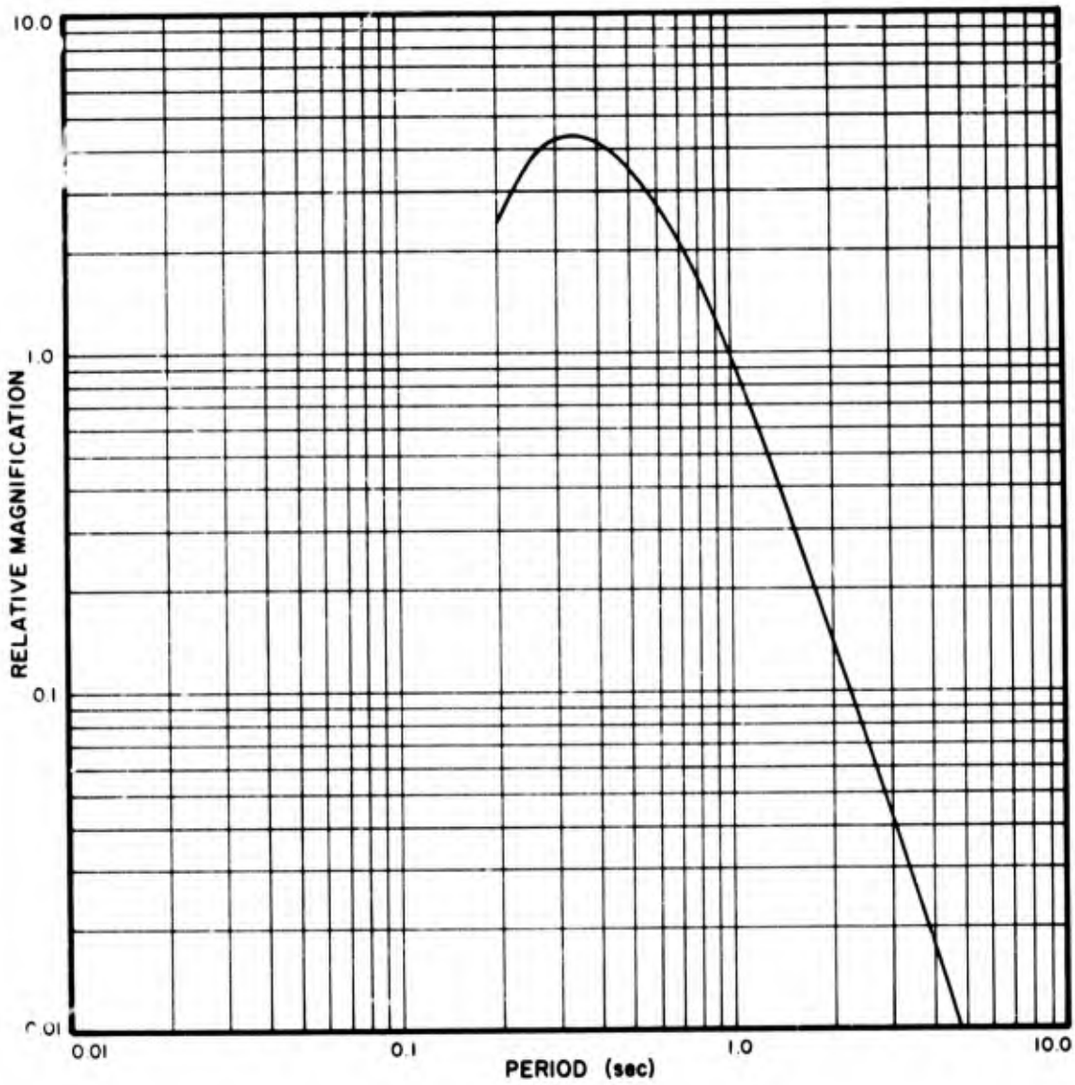
Appendix IV A. System Response Curves - WWSSS Network



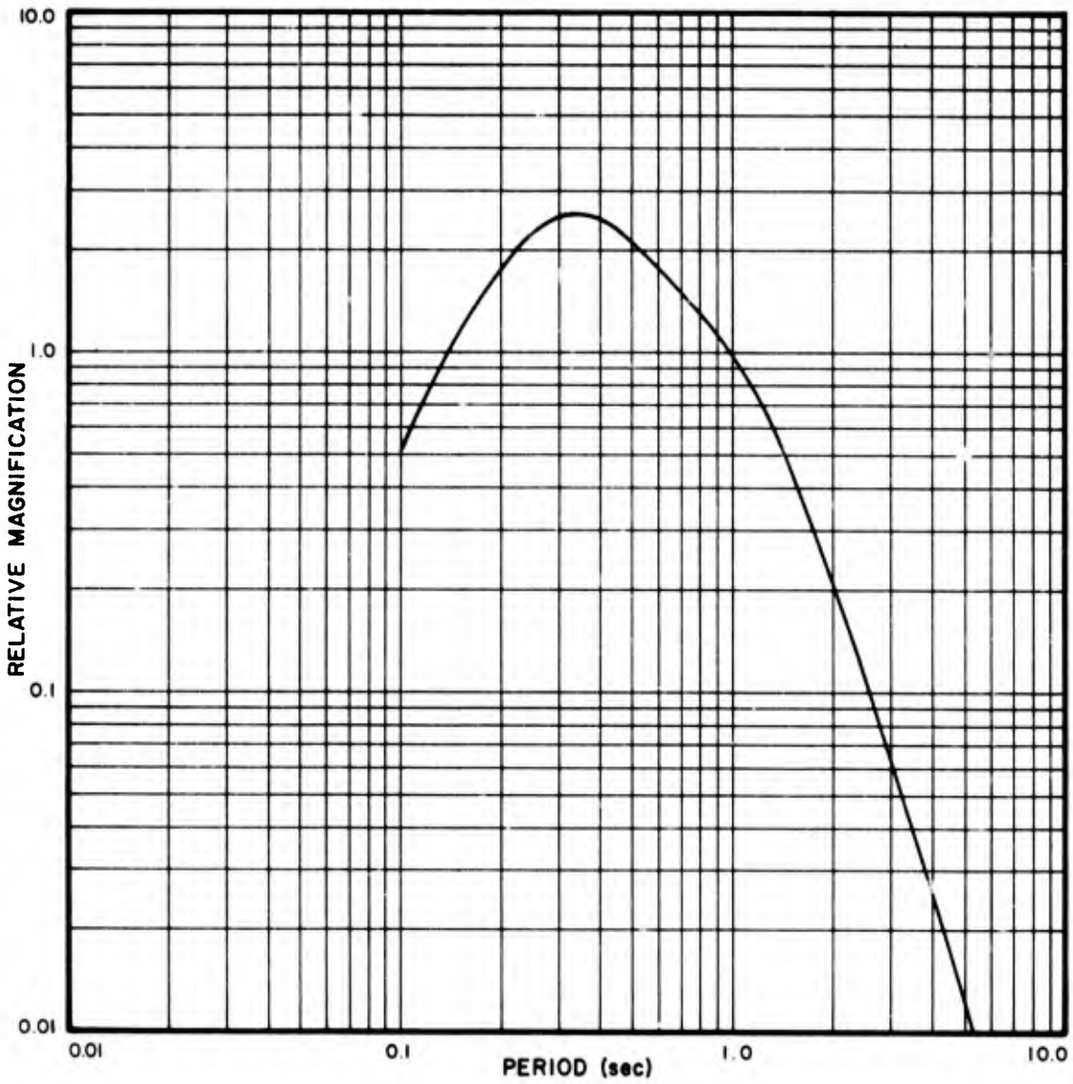
Appendix IV B. System Response Curves - AWRE Arrays



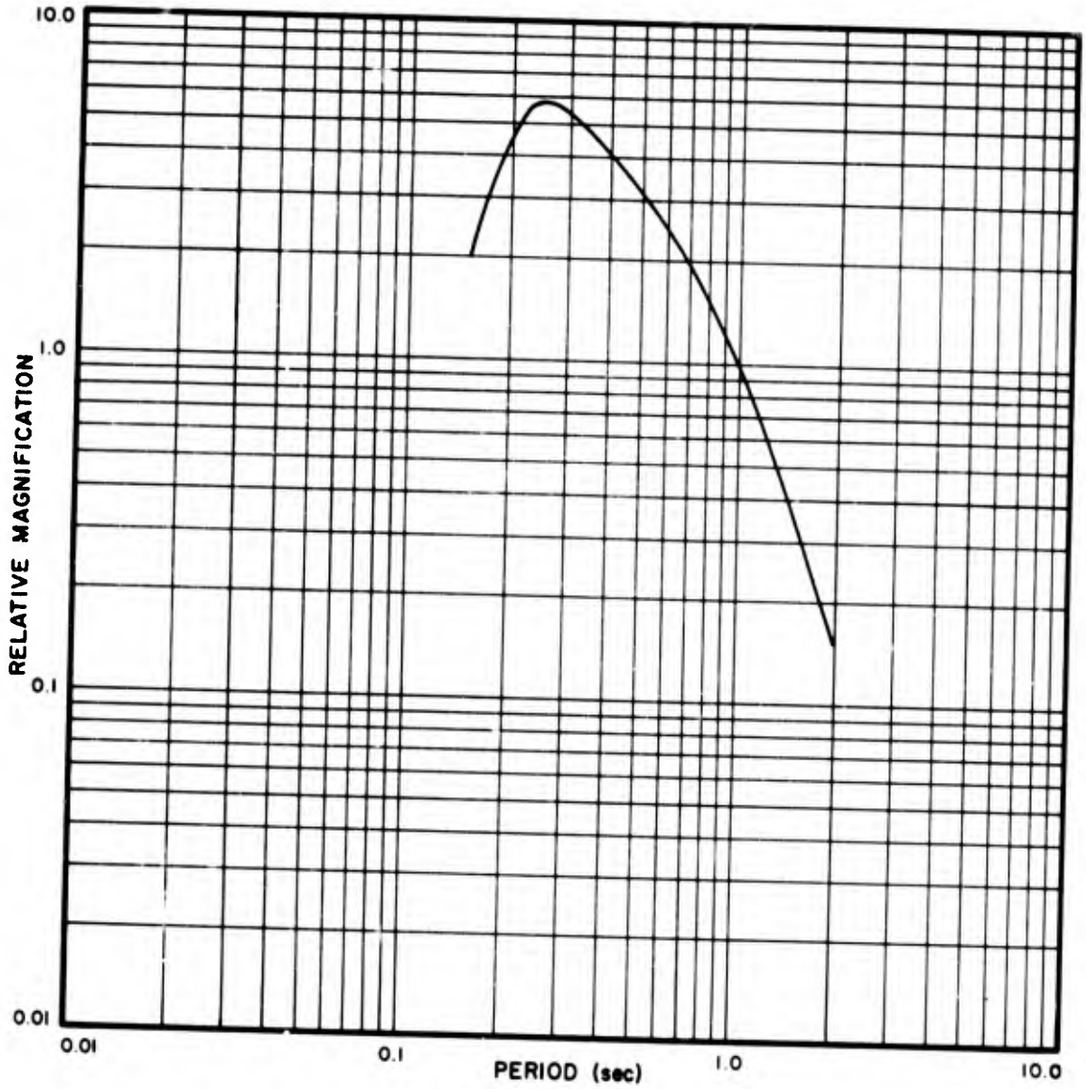
Appendix IV C. System Response Curves - LRSM Large or Small Benioff Short Period and Sprengnether Long Period



Appendix IV D. System Response Curves - LRSM Geotech 18300 Short Period



Appendix IV E. System Response Curves - VELA Johnson-Matheson Short Period



Appendix IV F. System Response Curves - LASA Hall-Sears Short Period

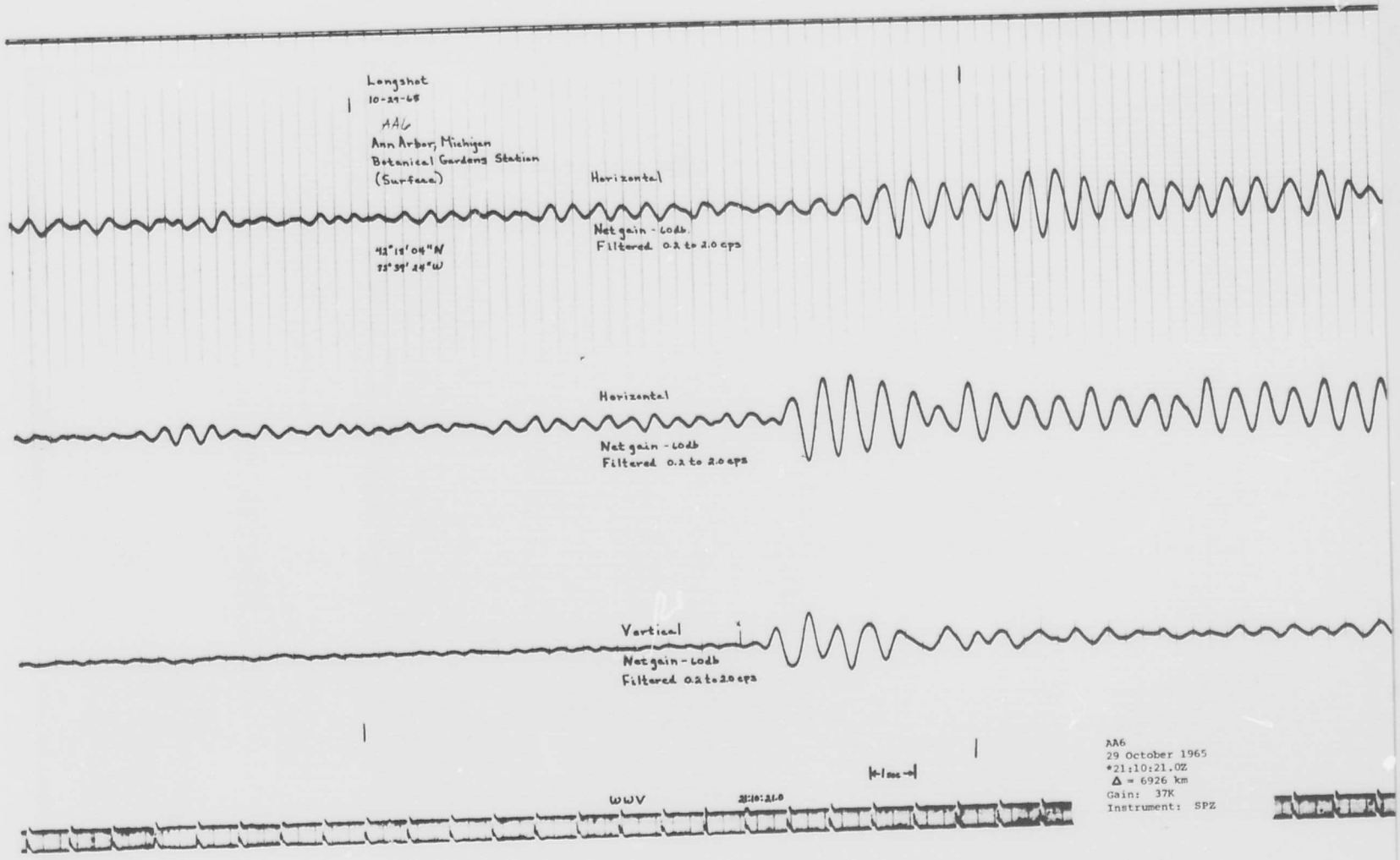
APPENDIX V

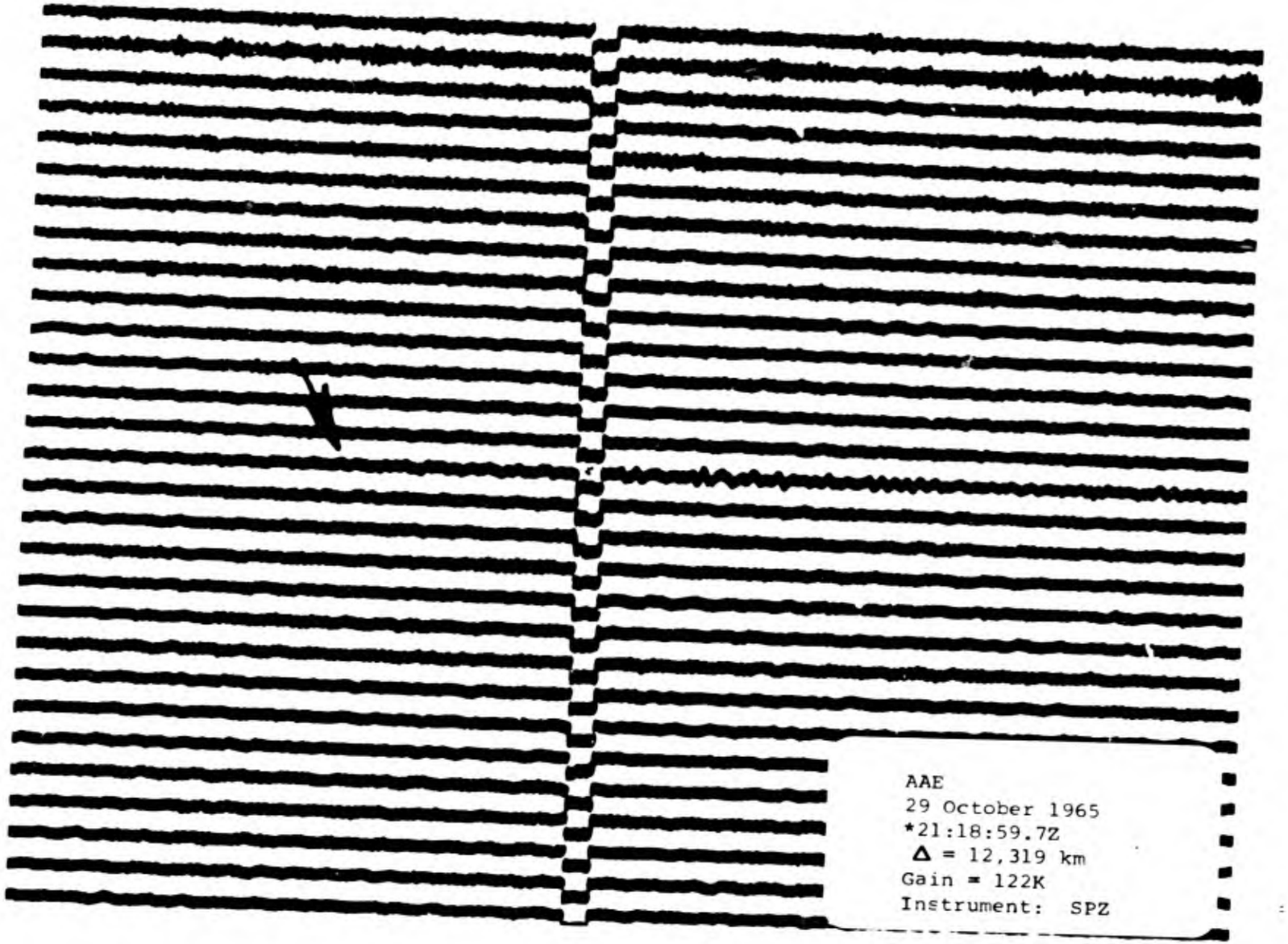
DISTANCE FACTORS (B) FOR SURFACE FOCUS

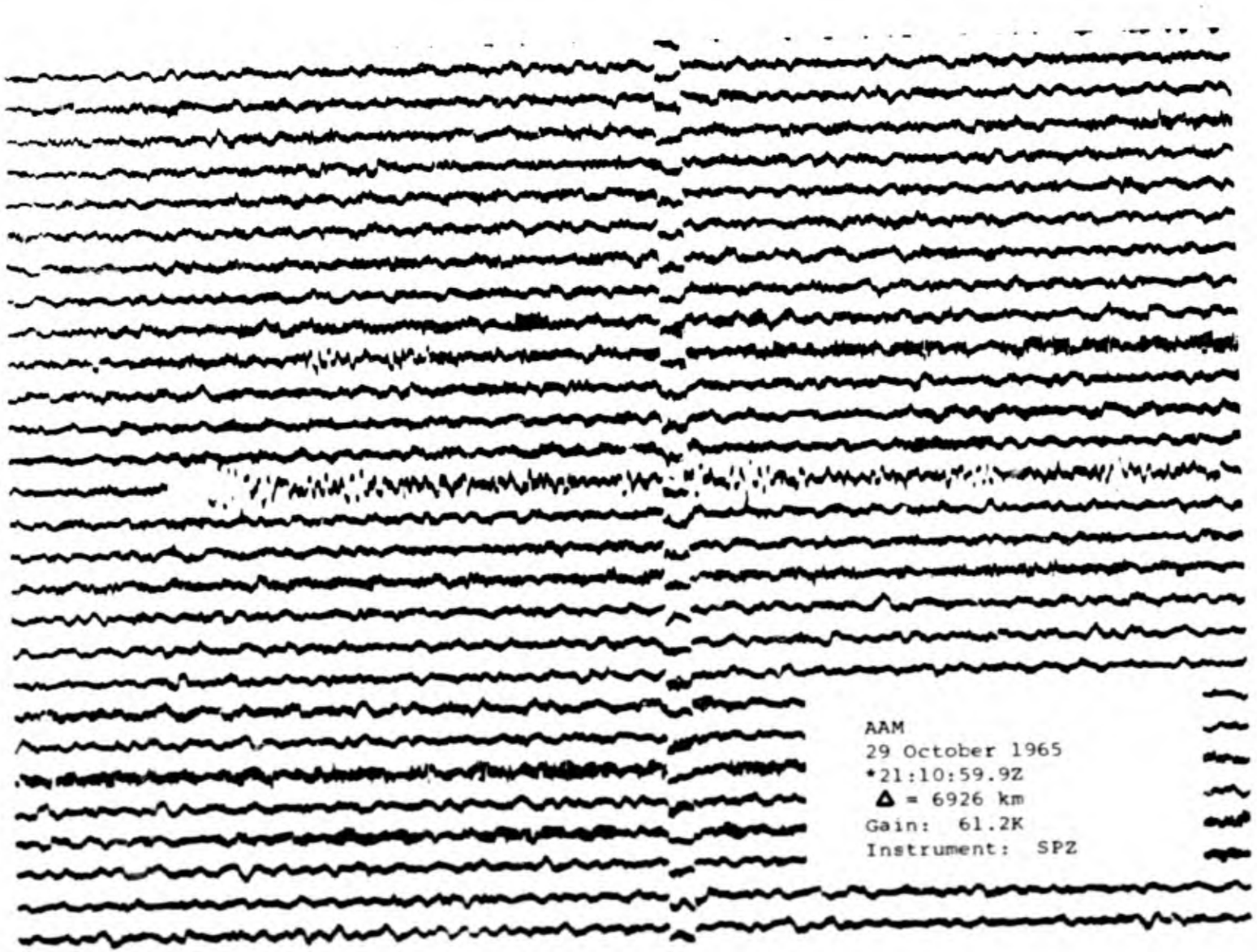
DISTANCE (DEGREES)	B	DISTANCE (DEGREES)	B	DISTANCE (DEGREES)	B	DISTANCE (DEGREES)	B
1	-	26	3.4	51	3.7	76	3.9
2	2.2	27	3.5	52	3.7	77	3.9
3	2.7	28	3.6	53	3.7	78	3.9
4	3.1	29	3.6	54	3.8	79	3.8
5	3.4	30	3.6	55	3.8	80	3.7
6	3.6	31	3.7	56	3.8	81	3.8
7	3.8	32	3.7	57	3.8	82	3.9
8	4.0	33	3.7	58	3.8	83	4.0
9	4.2	34	3.7	59	3.8	84	4.0
10	4.3	35	3.7	60	3.8	85	4.0
11	4.2	36	3.6	61	3.9	86	3.9
12	4.1	37	3.5	62	4.0	87	4.0
13	4.0	38	3.5	63	3.9	88	4.1
14	3.6	39	3.4	64	4.0	89	4.0
15	3.3	40	3.4	65	4.0	90	4.0
16	2.9	41	3.5	66	4.0	91	4.1
17	2.9	42	3.5	67	4.0	92	4.1
18	2.9	43	3.5	68	4.0	93	4.2
19	3.0	44	3.5	69	4.0	94	4.1
20	3.0	45	3.7	70	3.9	95	4.2
21	3.1	46	3.8	71	3.9	96	4.3
22	3.2	47	3.9	72	3.9	97	4.4
23	3.3	48	3.9	73	3.9	98	4.5
24	3.3	49	3.8	74	3.8	99	4.5
25	3.5	50	3.7	75	3.8	100	4.4

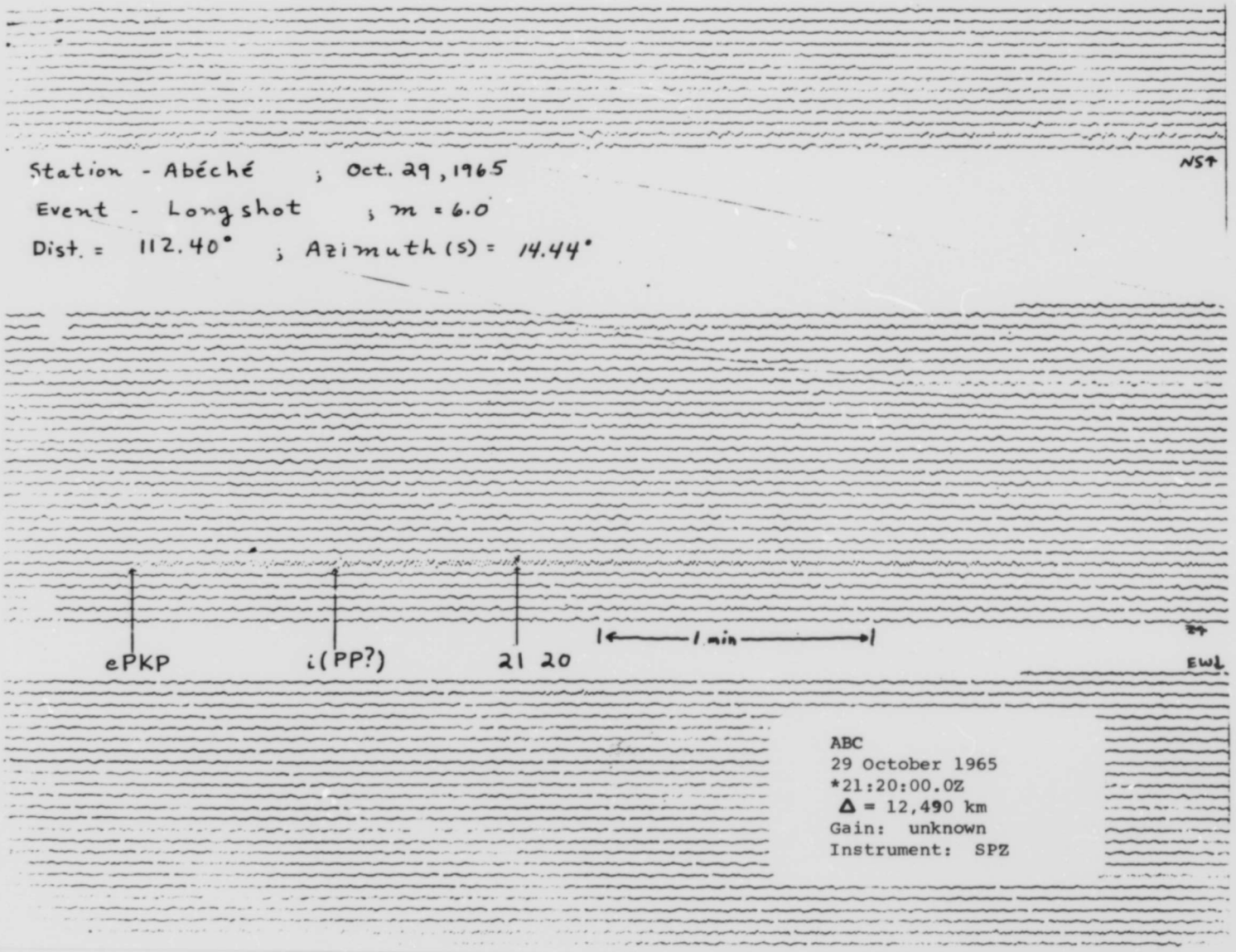
APPENDIX VI

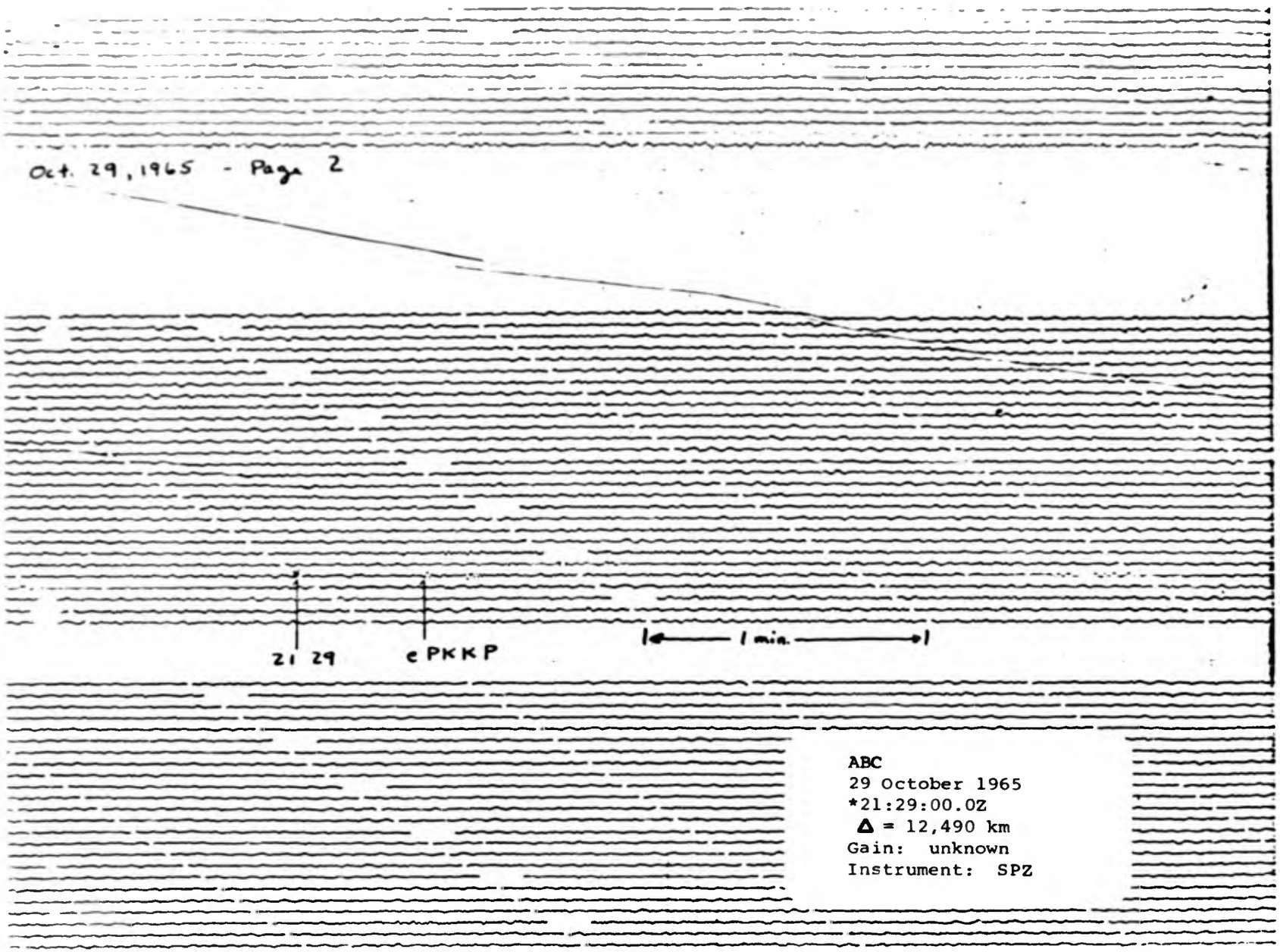
REPRODUCED SIGNALS FROM LONG SHOT - NON-LRSM AND NON-VELA

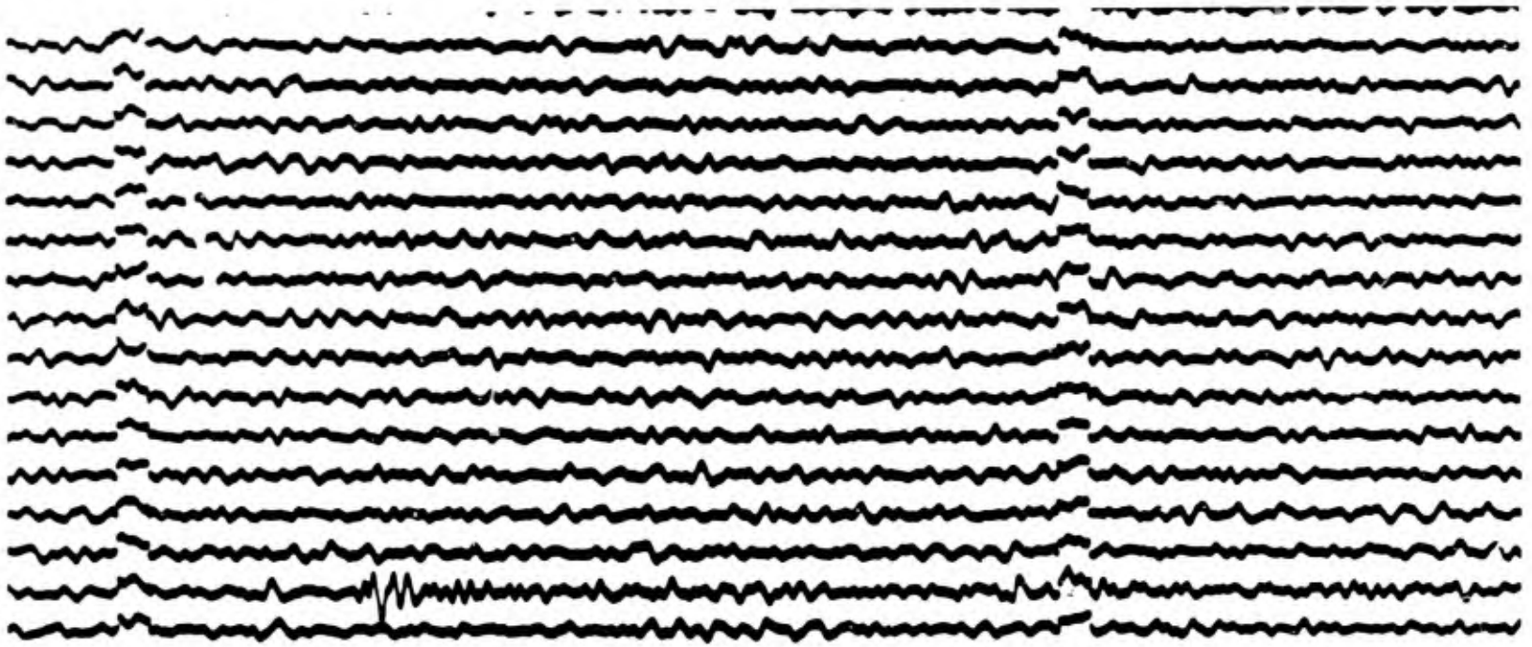

Longshot
10-29-65
AA6
Ann Arbor, Michigan
Botanical Gardens Station
(Surface)
42°15'04"N
73°39'24"W
Horizontal
Net gain - 60db
Filtered 0.2 to 2.0 cps
Horizontal
Net gain - 60db
Filtered 0.2 to 2.0 cps
Vertical
Net gain - 60db
Filtered 0.2 to 2.0 cps
WWV
21:10:21.0
AA6
29 October 1965
*21:10:21.0Z
Δ = 6926 km
Gain: 37K
Instrument: SPZ


AAE
29 October 1965
*21:18:59.7Z
Δ = 12,319 km
Gain = 122K
Instrument: SPZ

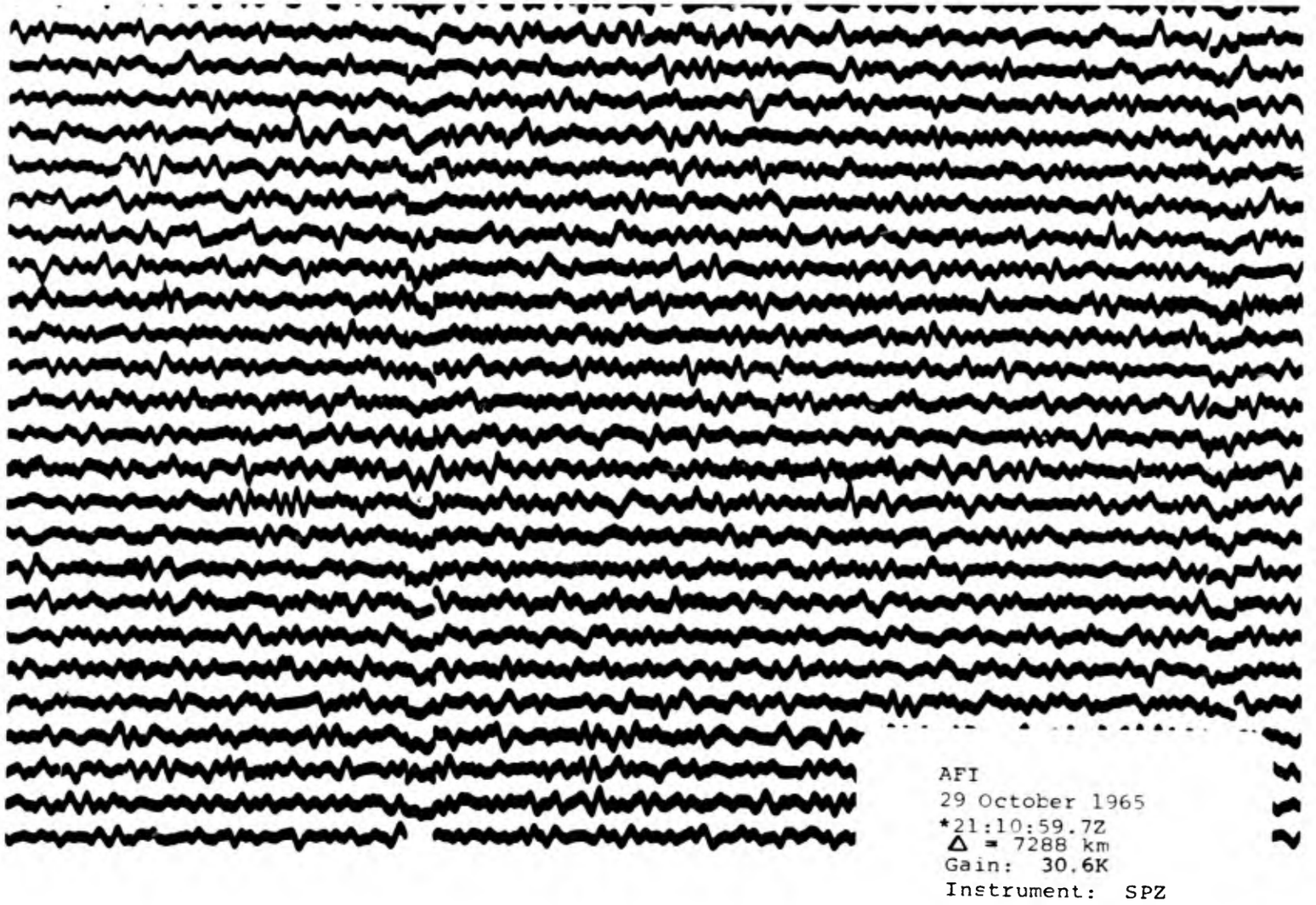

AAM
29 October 1965
*21:10:59.9Z
Δ = 6926 km
Gain: 61.2K
Instrument: SPZ

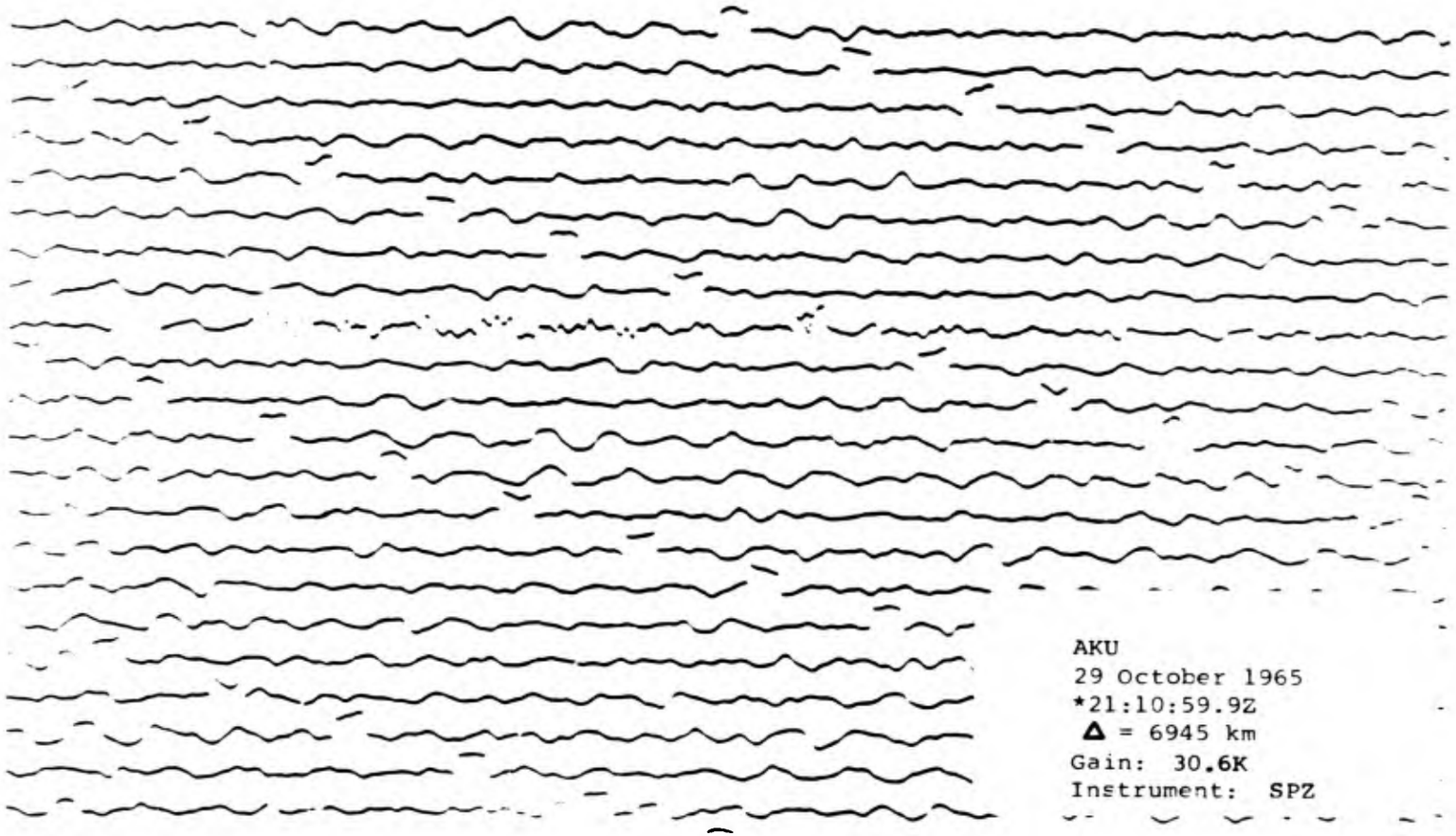

Station - Abéché ; Oct. 29, 1965
Event - Longshot ; m = 6.0
Dist. = 112.40° ; Azimuth (s) = 14.44°
NS↑
ePKP
i(PP?)
21 20
1 min
EW↓
ABC
29 October 1965
*21:20:00.0Z
Δ = 12,490 km
Gain: unknown
Instrument: SPZ

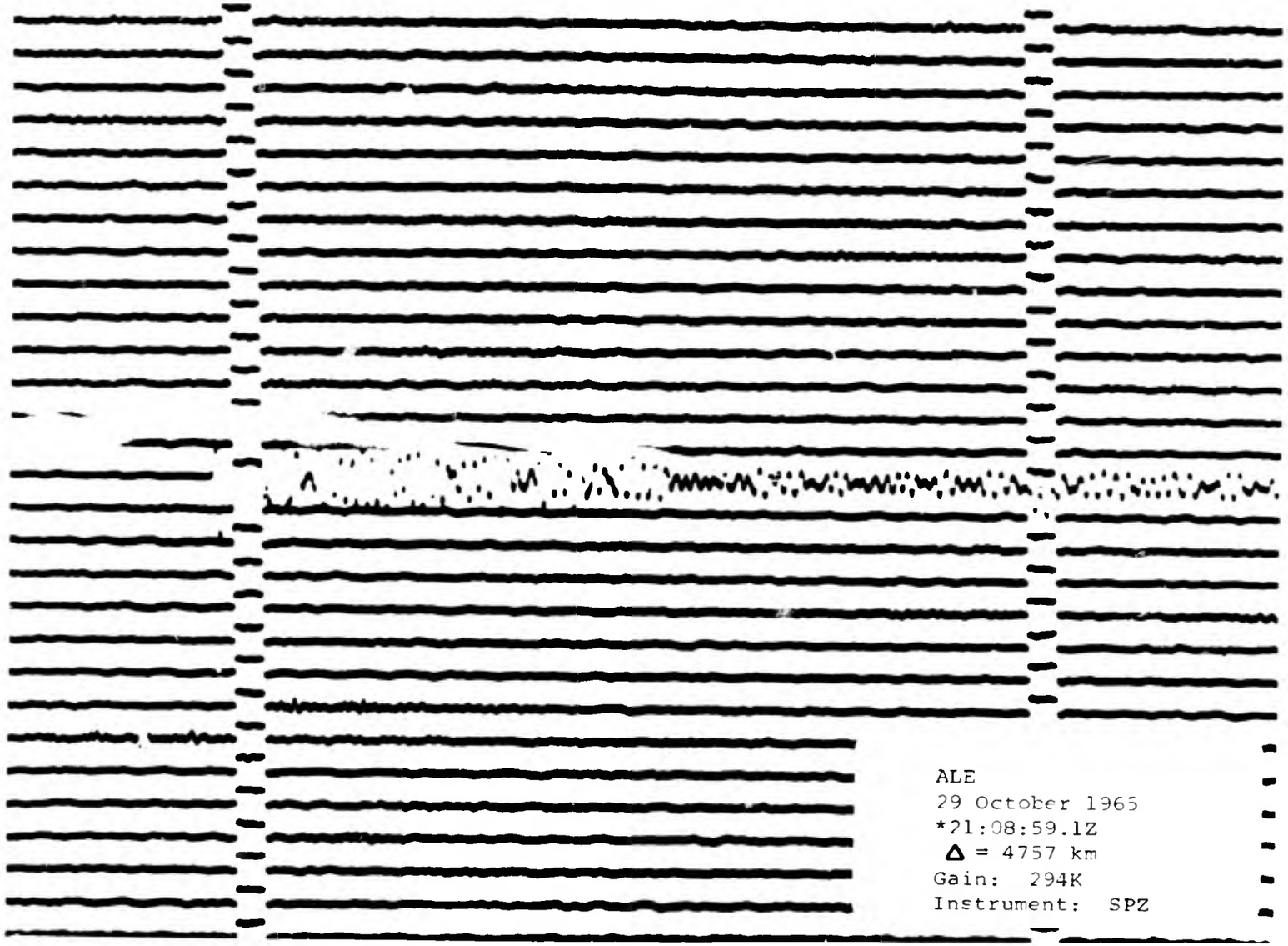

Oct. 29, 1965 - Page 2
21 29
e PKKP
1 min.
ABC
29 October 1965
*21:29:00.0Z
Δ = 12,490 km
Gain: unknown
Instrument: SPZ

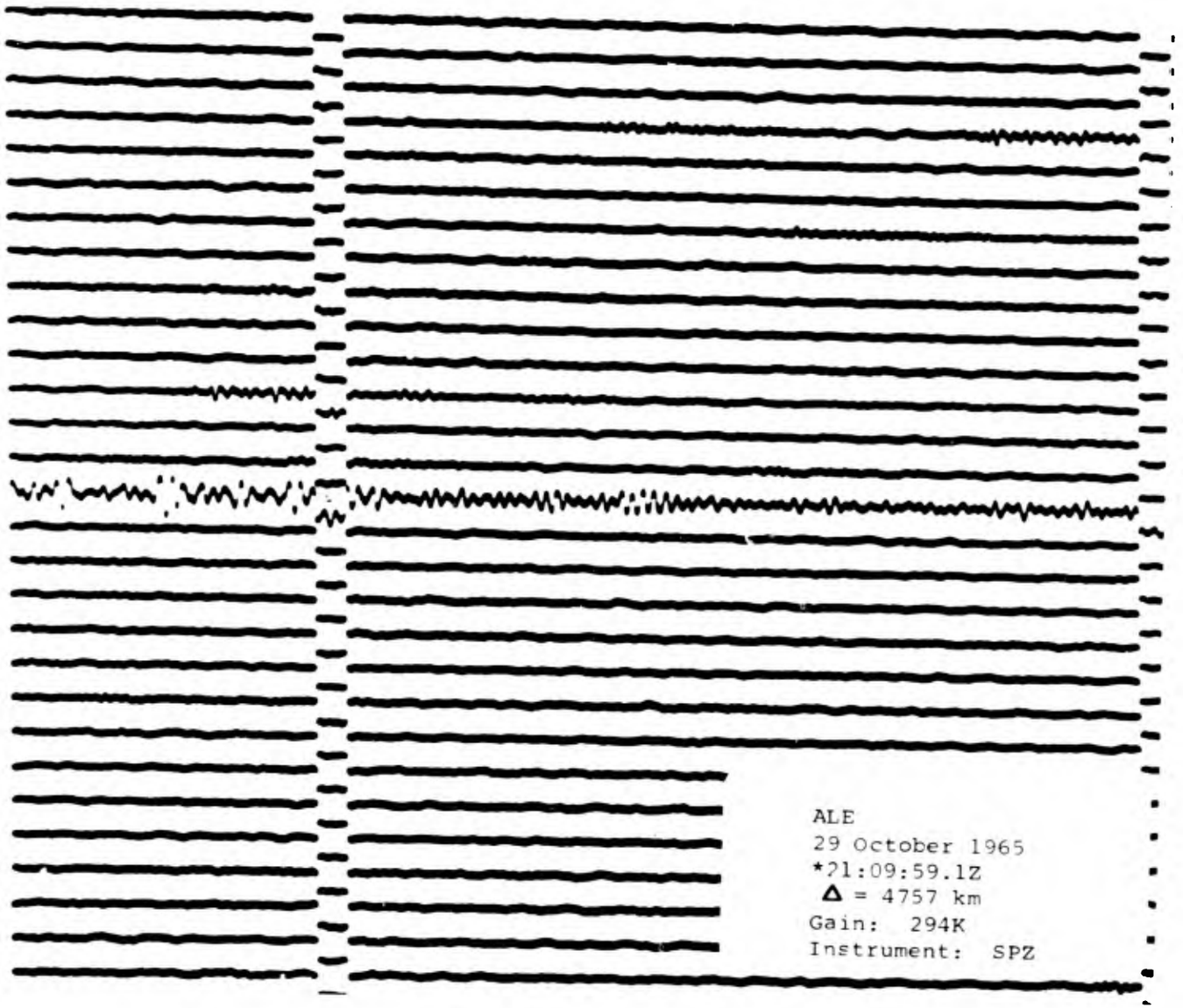


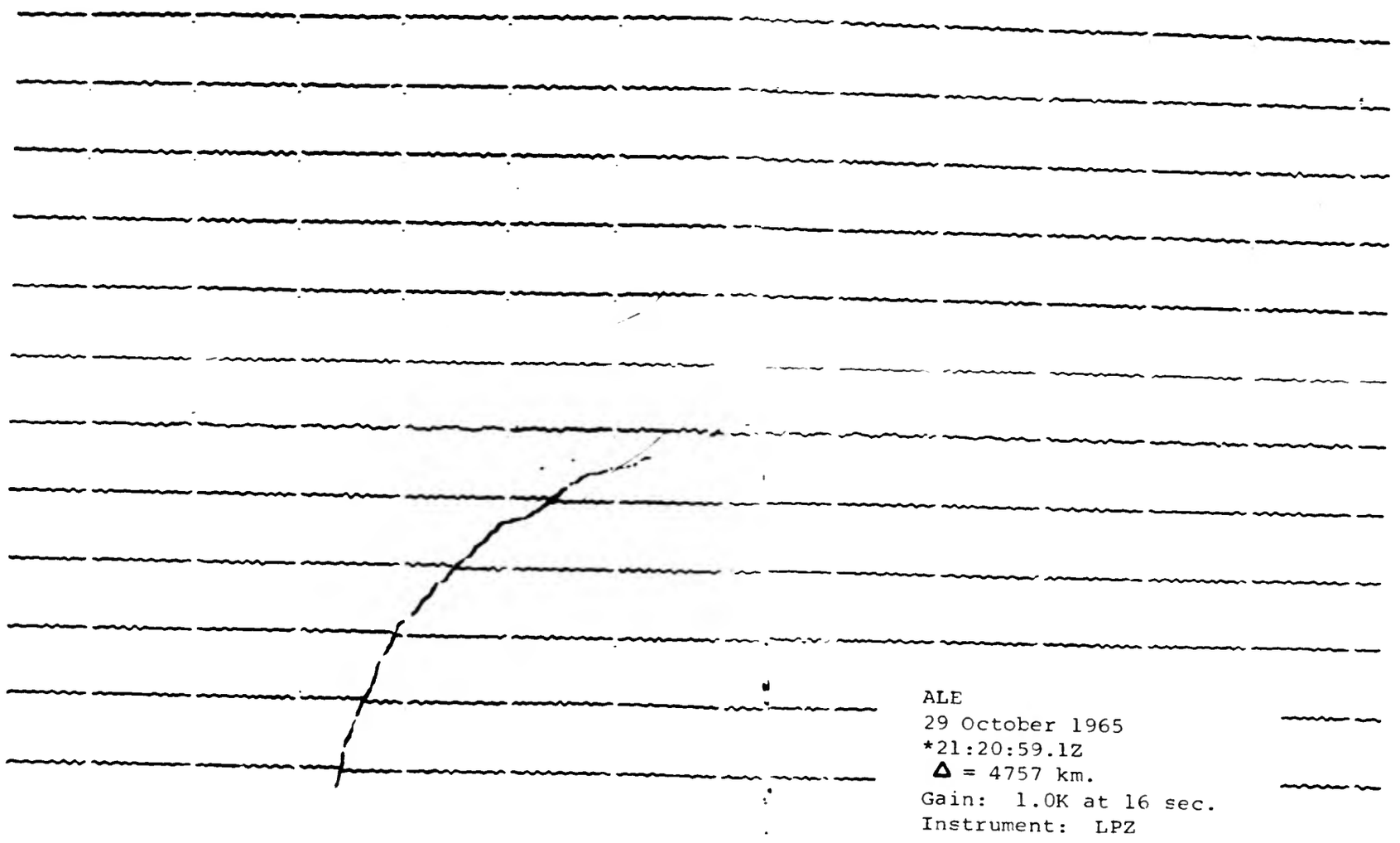
ADE
29 October 1965
*21:13:59.9Z
Δ = 10,351 km
Gain: 61.2K
Instrument: SPZ

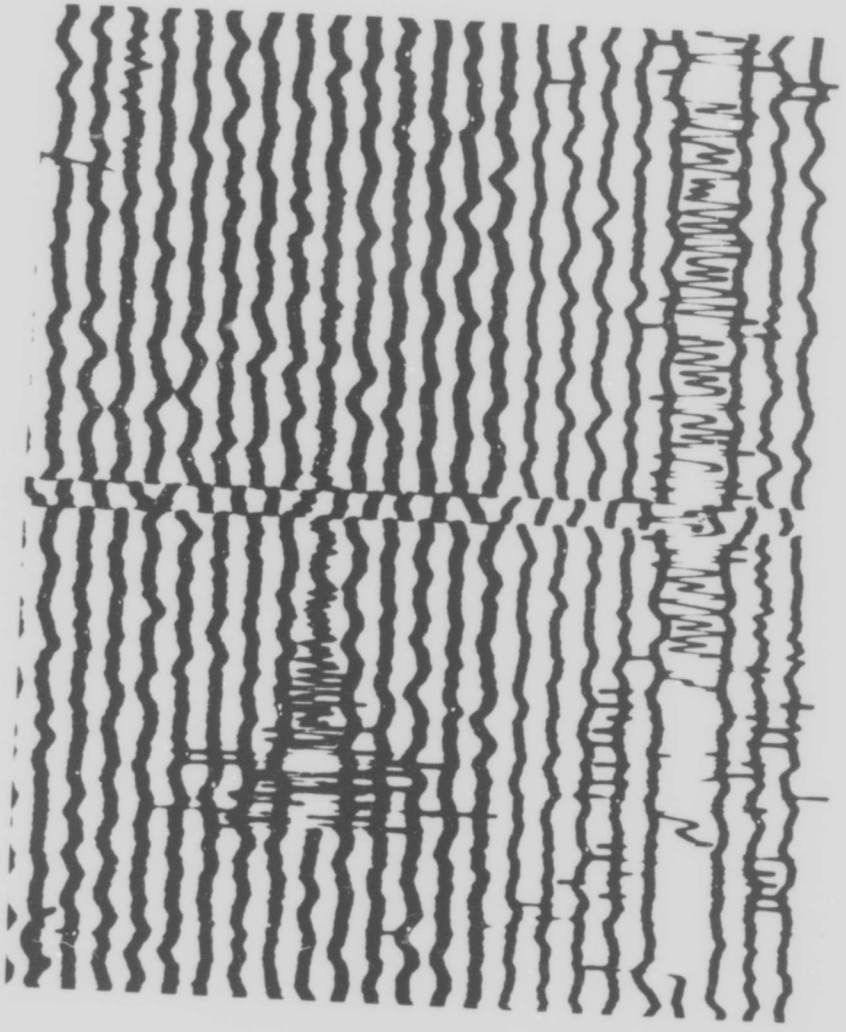

AFI
29 October 1965
*21:10:59.7Z
Δ = 7288 km
Gain: 30.6K
Instrument: SPZ


AKU
29 October 1965
*21:10:59.9Z
Δ = 6945 km
Gain: 30.6K
Instrument: SPZ

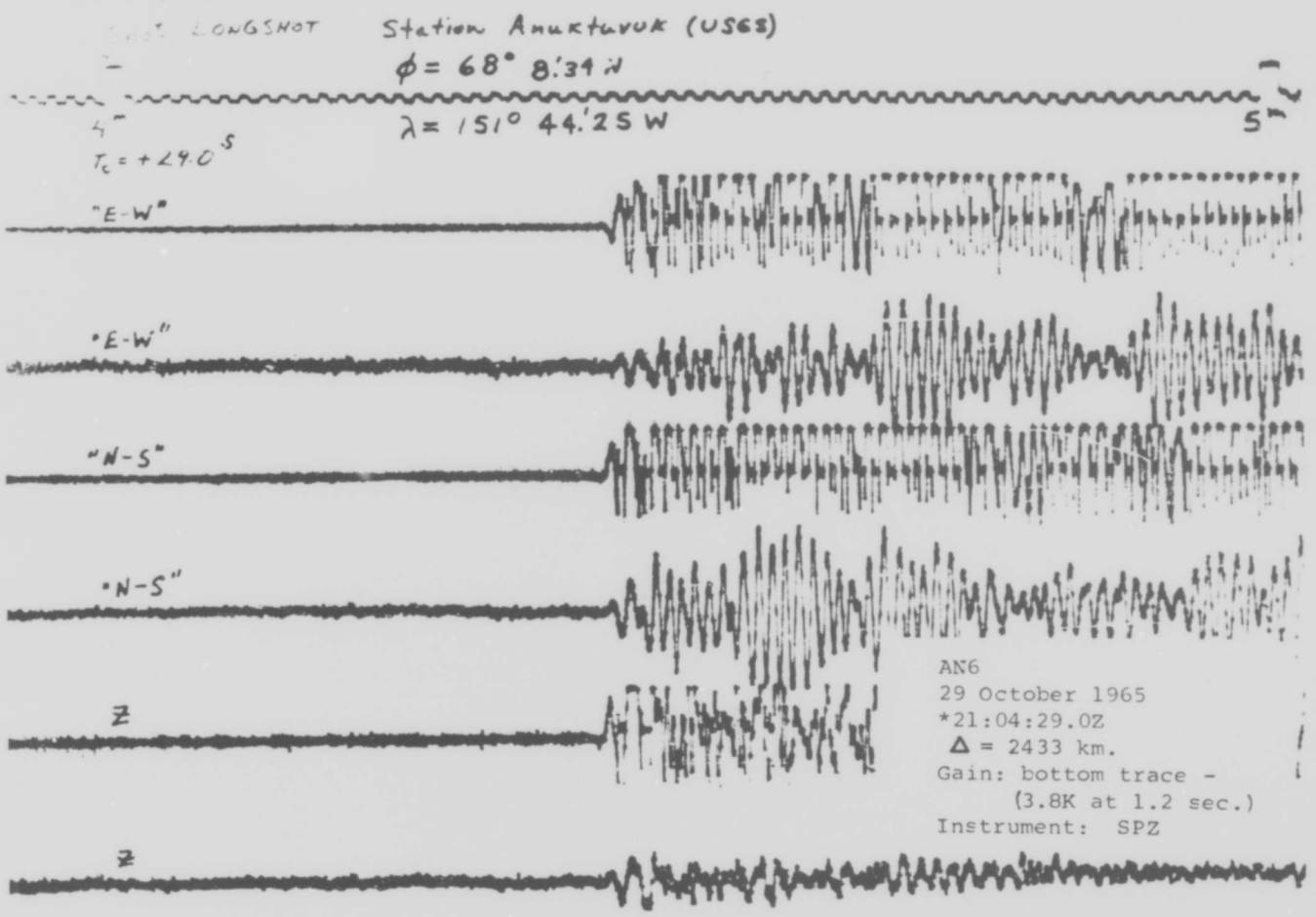

ALE
29 October 1965
*21:08:59.1Z
Δ = 4757 km
Gain: 294K
Instrument: SPZ

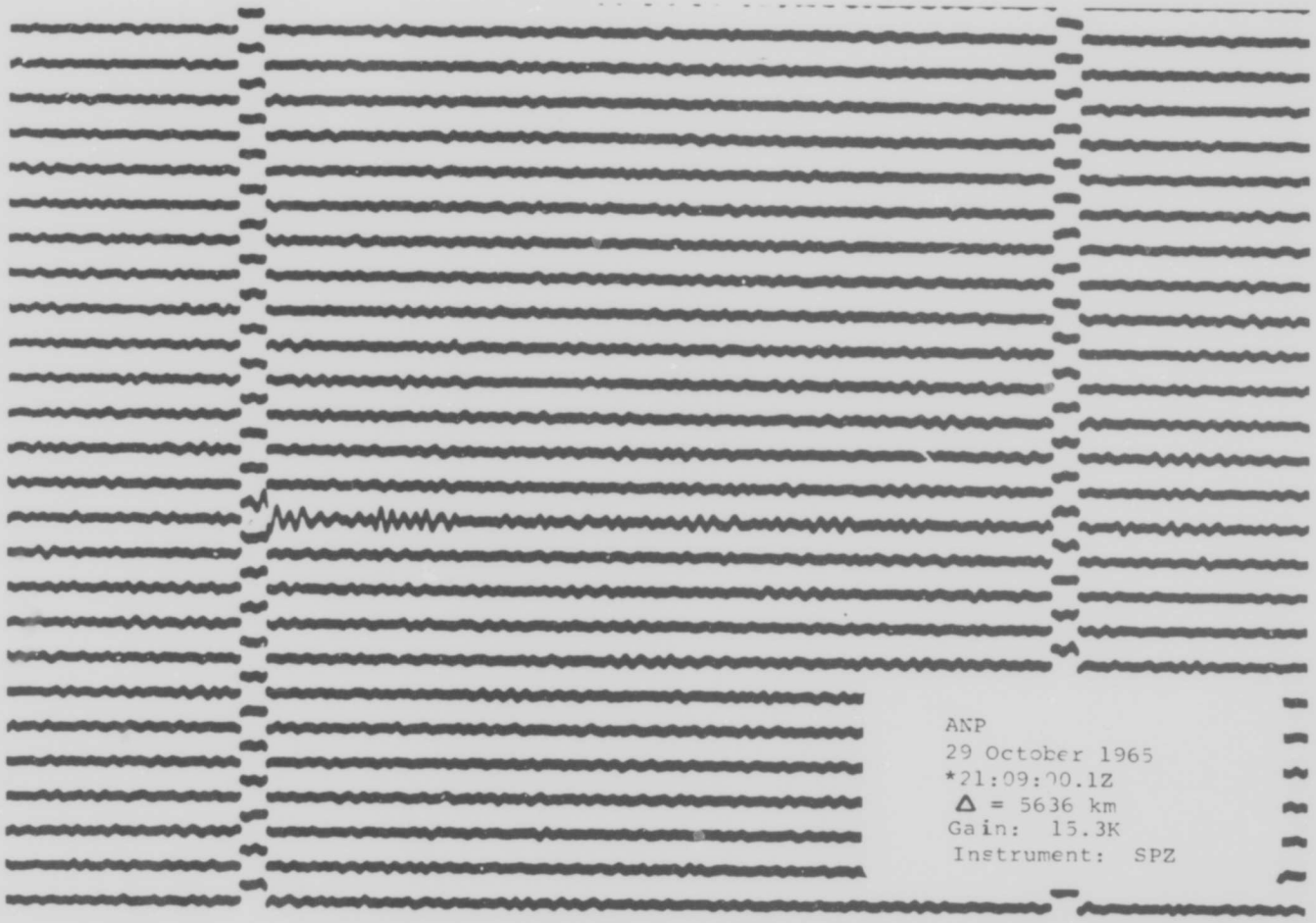

ALE
29 October 1965
*21:09:59.1Z
Δ = 4757 km
Gain: 294K
Instrument: SPZ

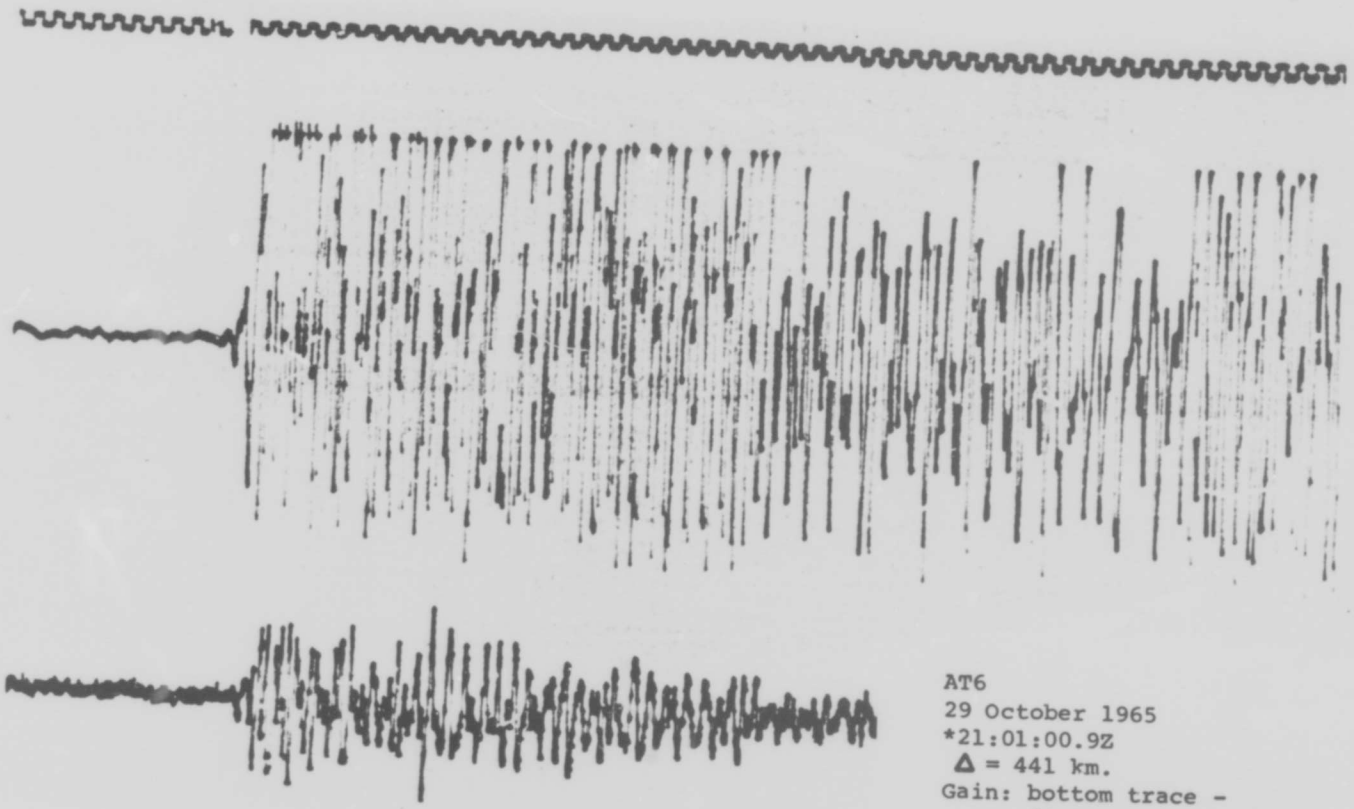

ALE
29 October 1965
*21:20:59.1Z
Δ = 4757 km.
Gain: 1.0K at 16 sec.
Instrument: LPZ



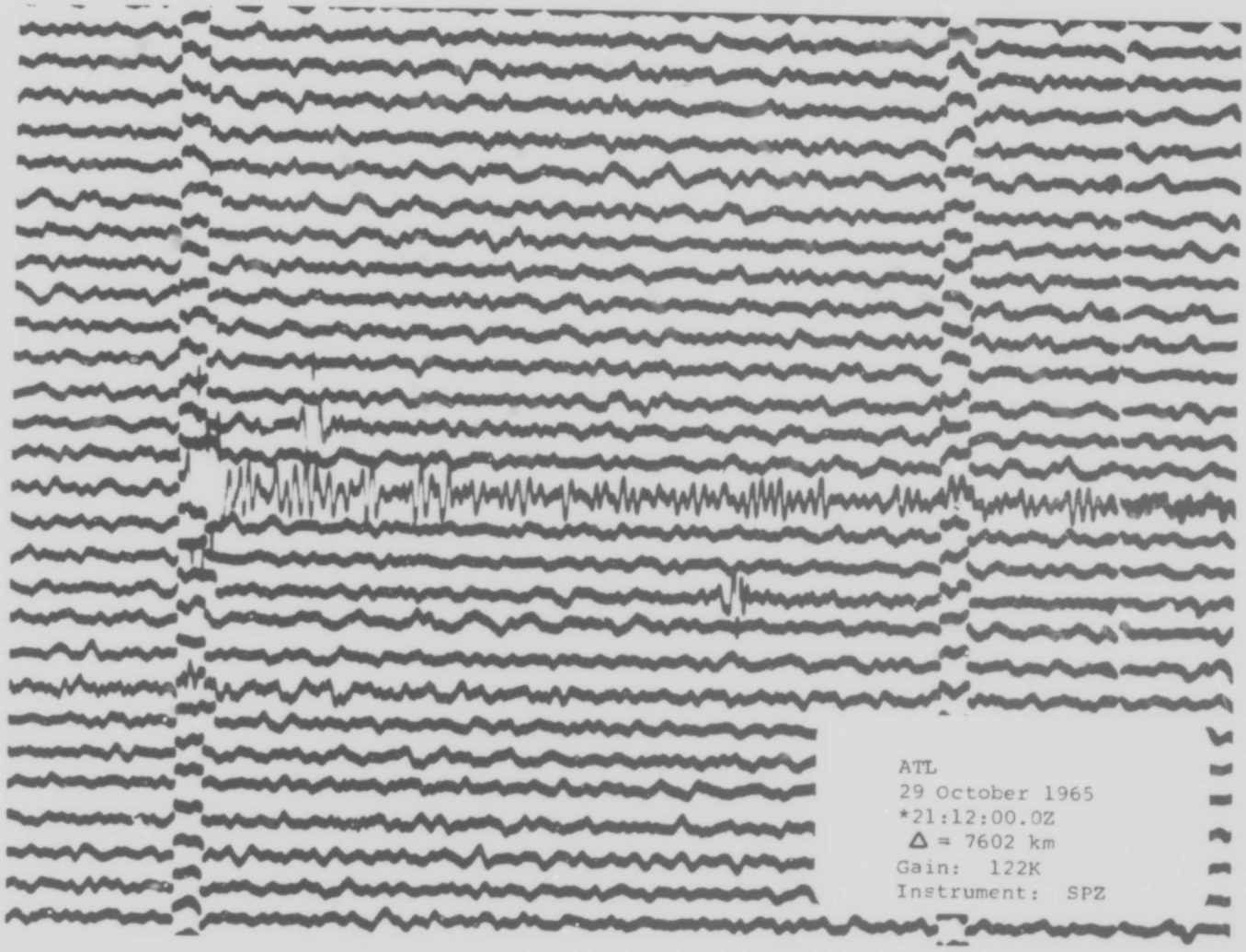
ALQ
29 October 1965
*21:10:00.0Z
△ = 6040 km
Gain: 490K
Instrument: SPZ

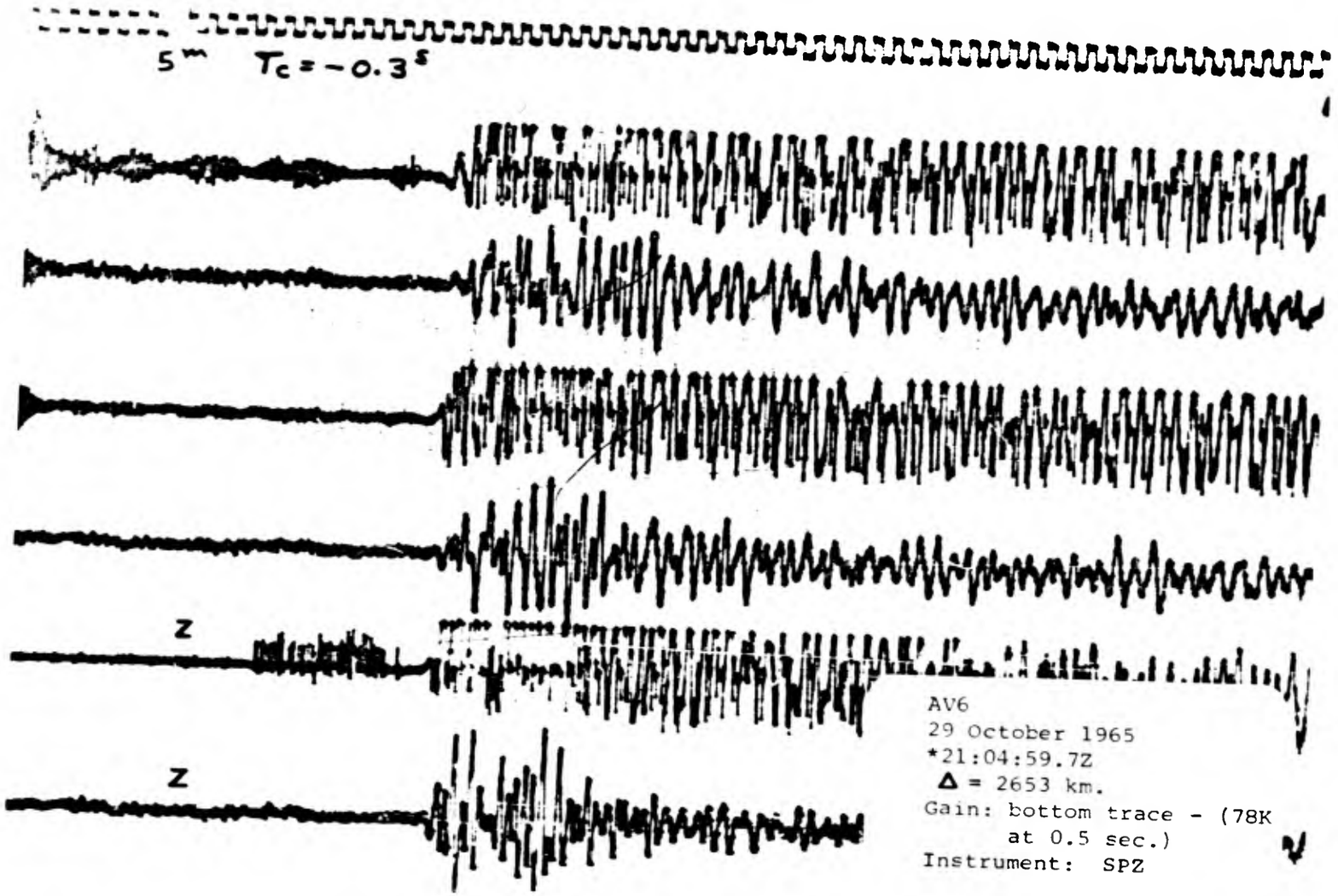

LONGSHOT
Station Anuktuvuk (USGS)
ϕ = 68° 8.'34 N
λ = 151° 44.'25 W
4"
5"
T_c = +24.0 S
"E-W"
"E-W"
"N-S"
"N-S"
Z
Z
AN6
29 October 1965
*21:04:29.0Z
Δ = 2433 km.
Gain: bottom trace -
(3.8K at 1.2 sec.)
Instrument: SPZ

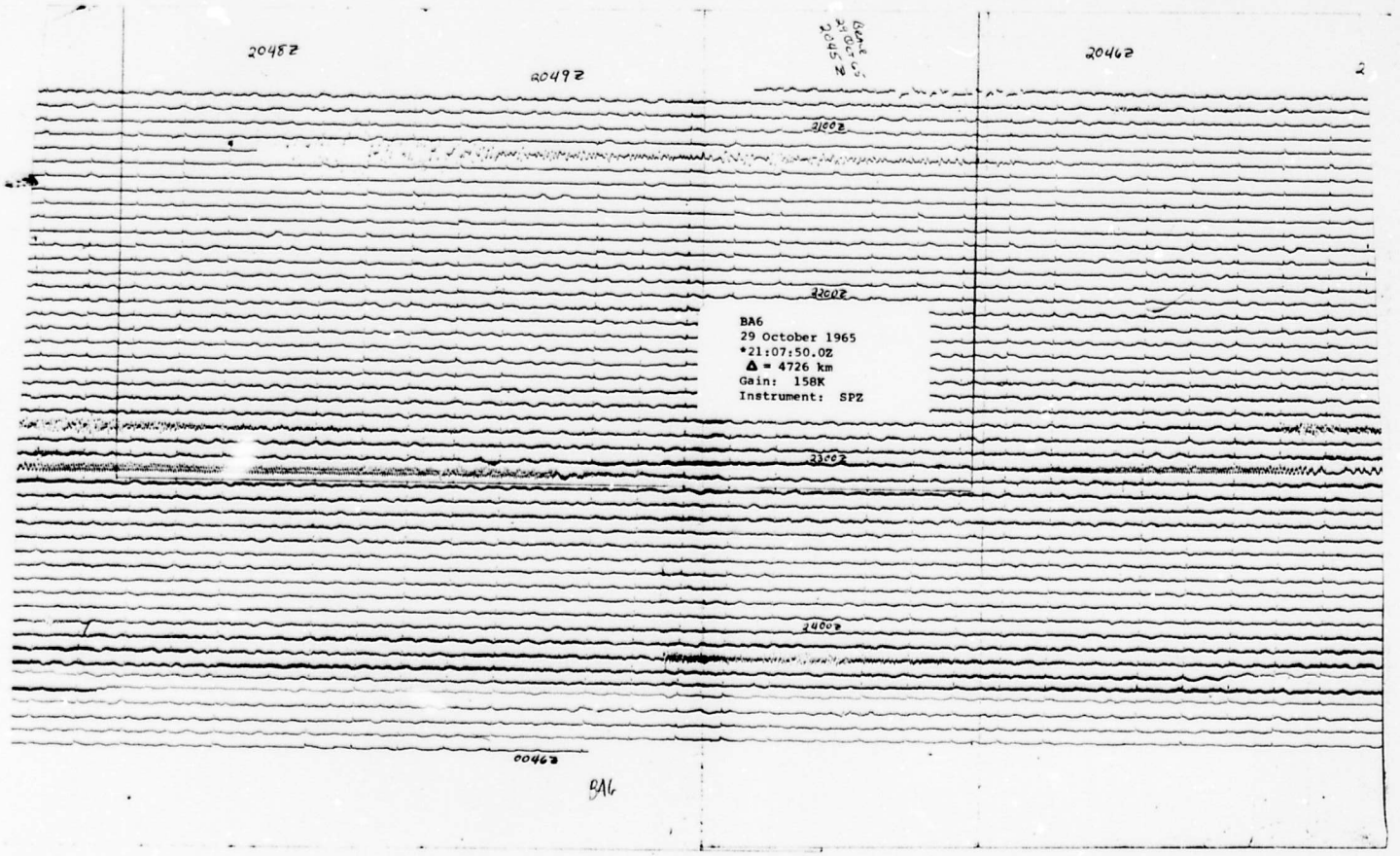

ANP
29 October 1965
*21:09:00.1Z
Δ = 5636 km
Gain: 15.3K
Instrument: SPZ

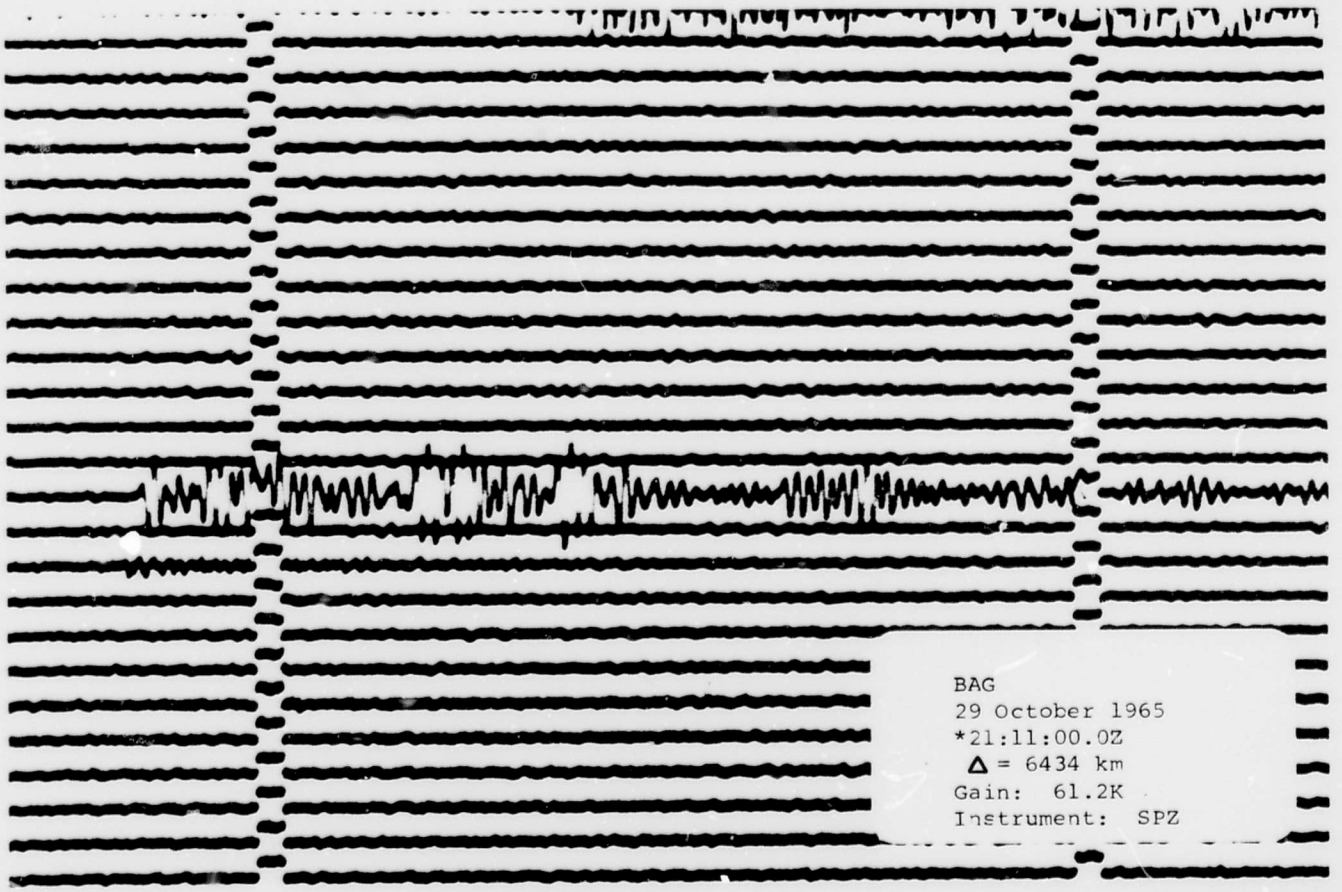


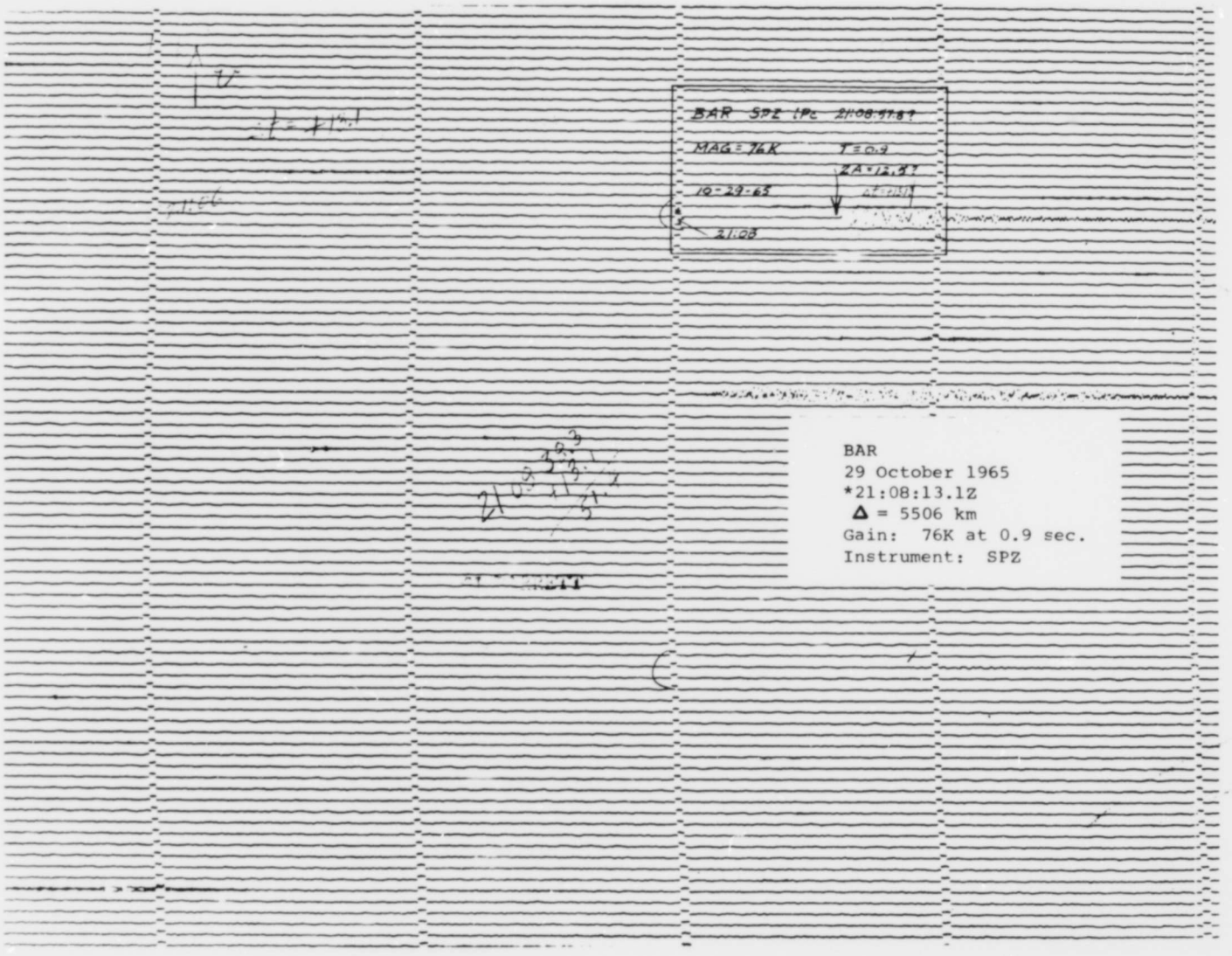
AT6
29 October 1965
*21:01:00.9Z
Δ = 441 km.
Gain: bottom trace -
(4.8K at 0.5 sec.)
Instruments: SPZ

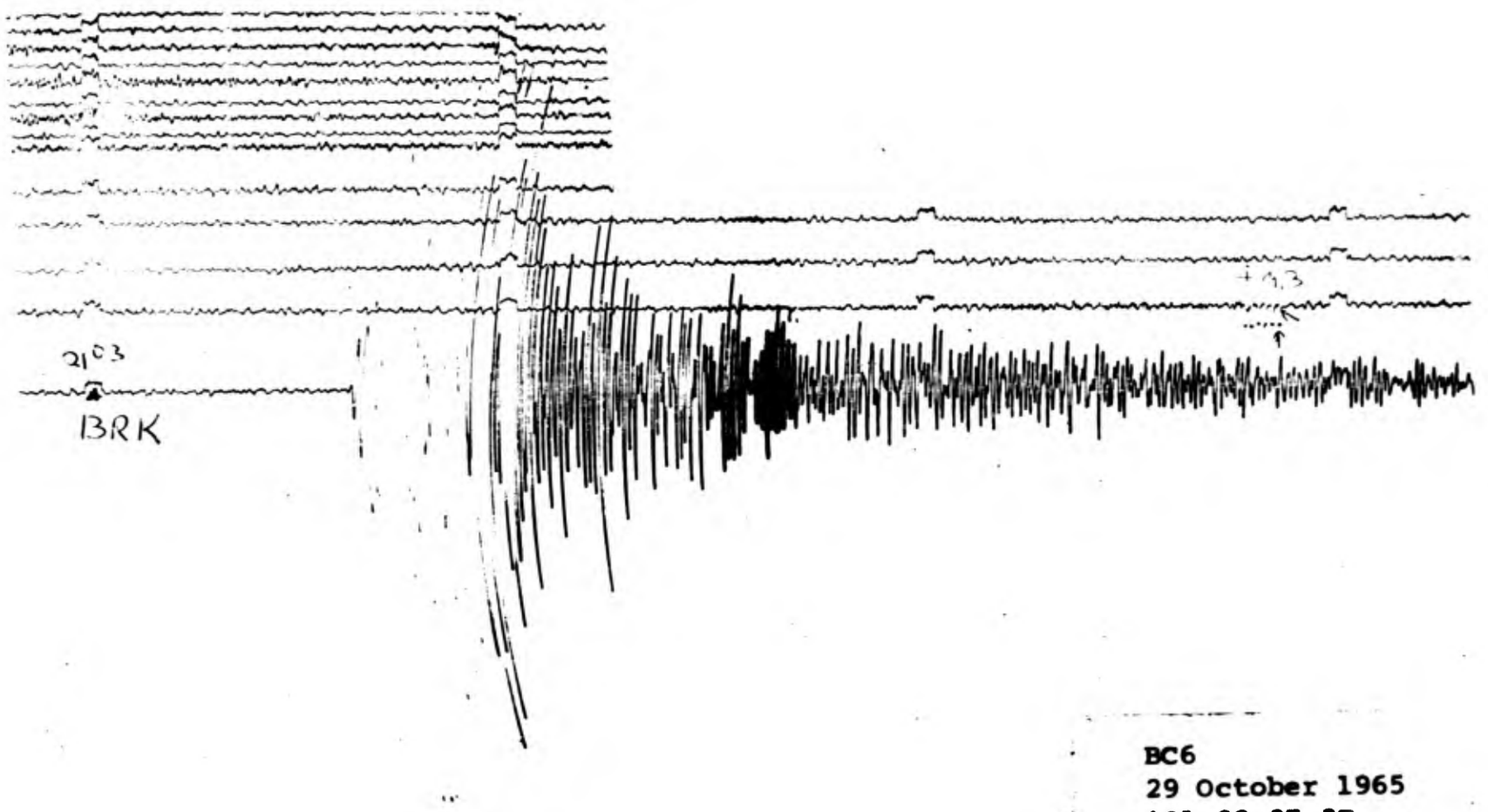

ATL
29 October 1965
*21:12:00.0Z
Δ = 7602 km
Gain: 122K
Instrument: SPZ


5m Tc = -0.3s
Z
Z
AV6
29 October 1965
*21:04:59.7Z
Δ = 2653 km.
Gain: bottom trace - (78K
at 0.5 sec.)
Instrument: SPZ

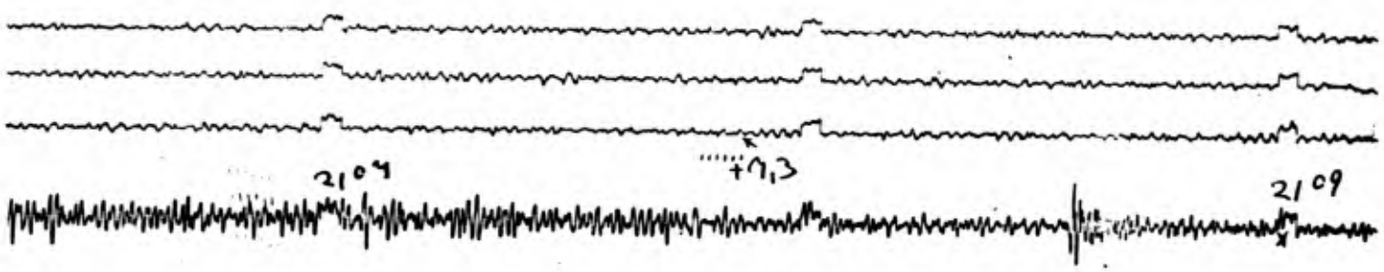

20482
20492
20462
2100Z
2200Z
2300Z
2400Z
00463
BA6
29 October 1965
*21:07:50.0Z
Δ = 4726 km
Gain: 158K
Instrument: SPZ


BAG
29 October 1965
*21:11:00.0Z
Δ = 6434 km
Gain: 61.2K
Instrument: SPZ

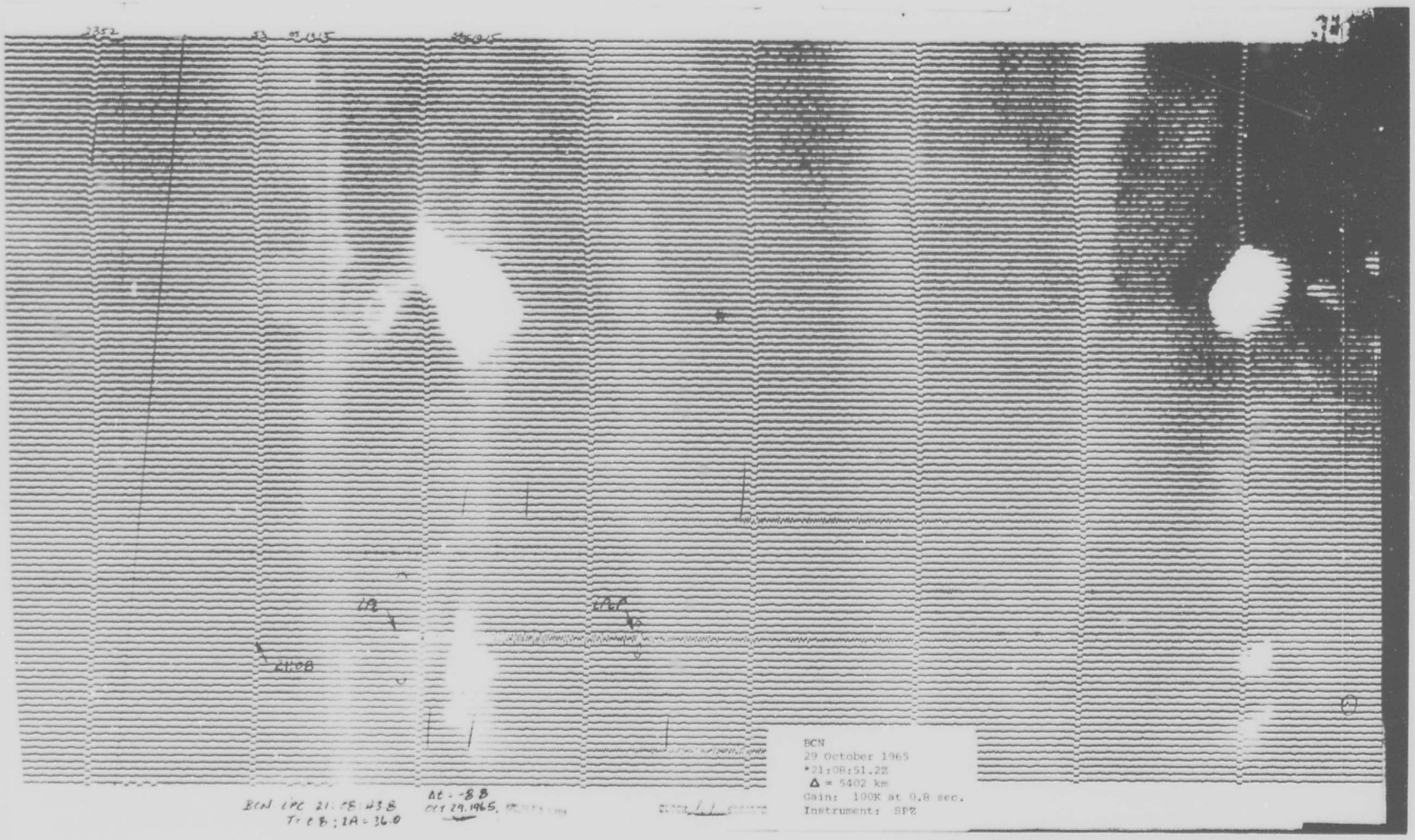

BAR SPZ tPc 21:08:47.87
MAG=76K T=0.9
ZA=12.5°
10-29-65
21:08
BAR
29 October 1965
*21:08:13.1Z
Δ = 5506 km
Gain: 76K at 0.9 sec.
Instrument: SPZ

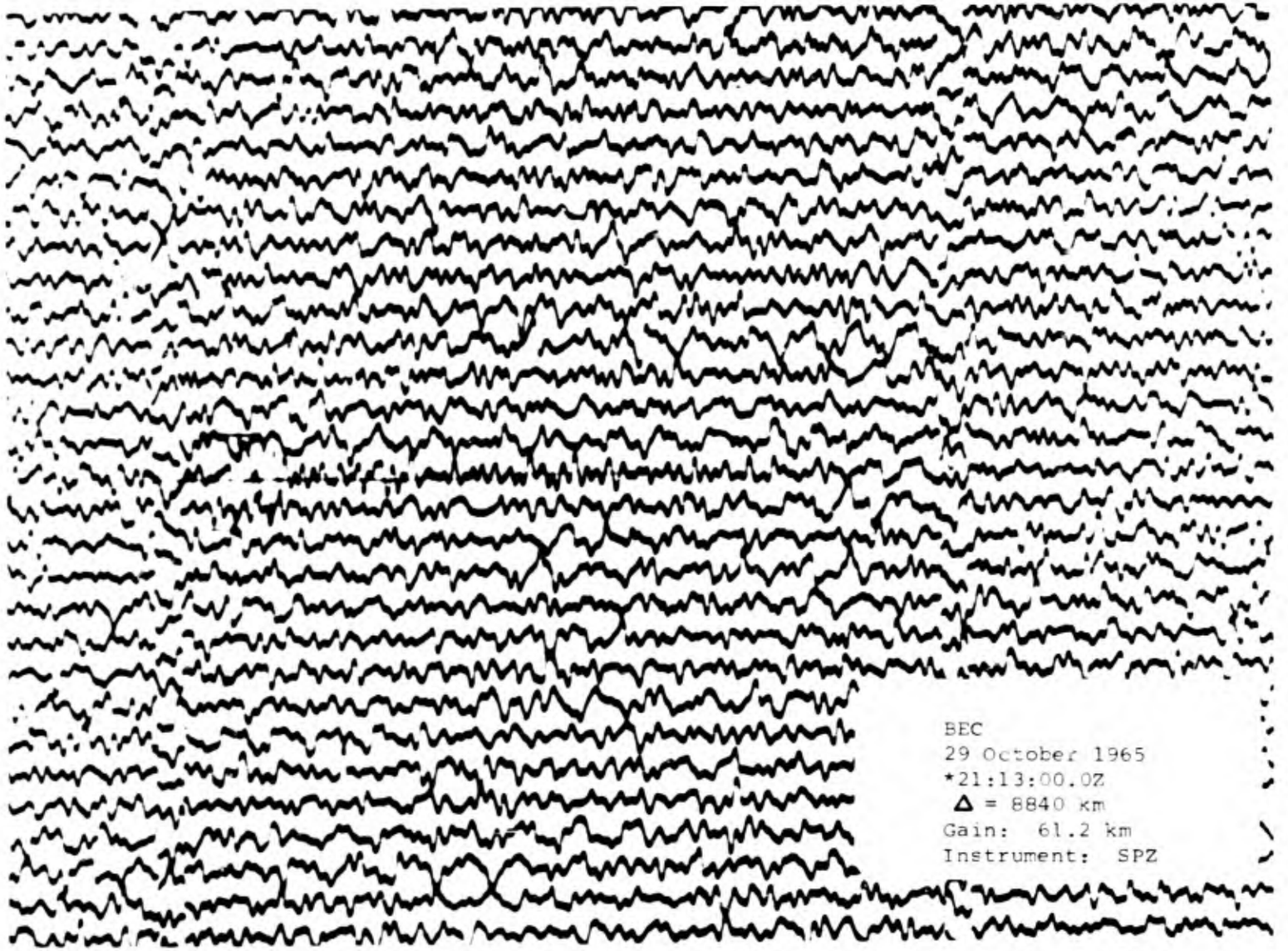


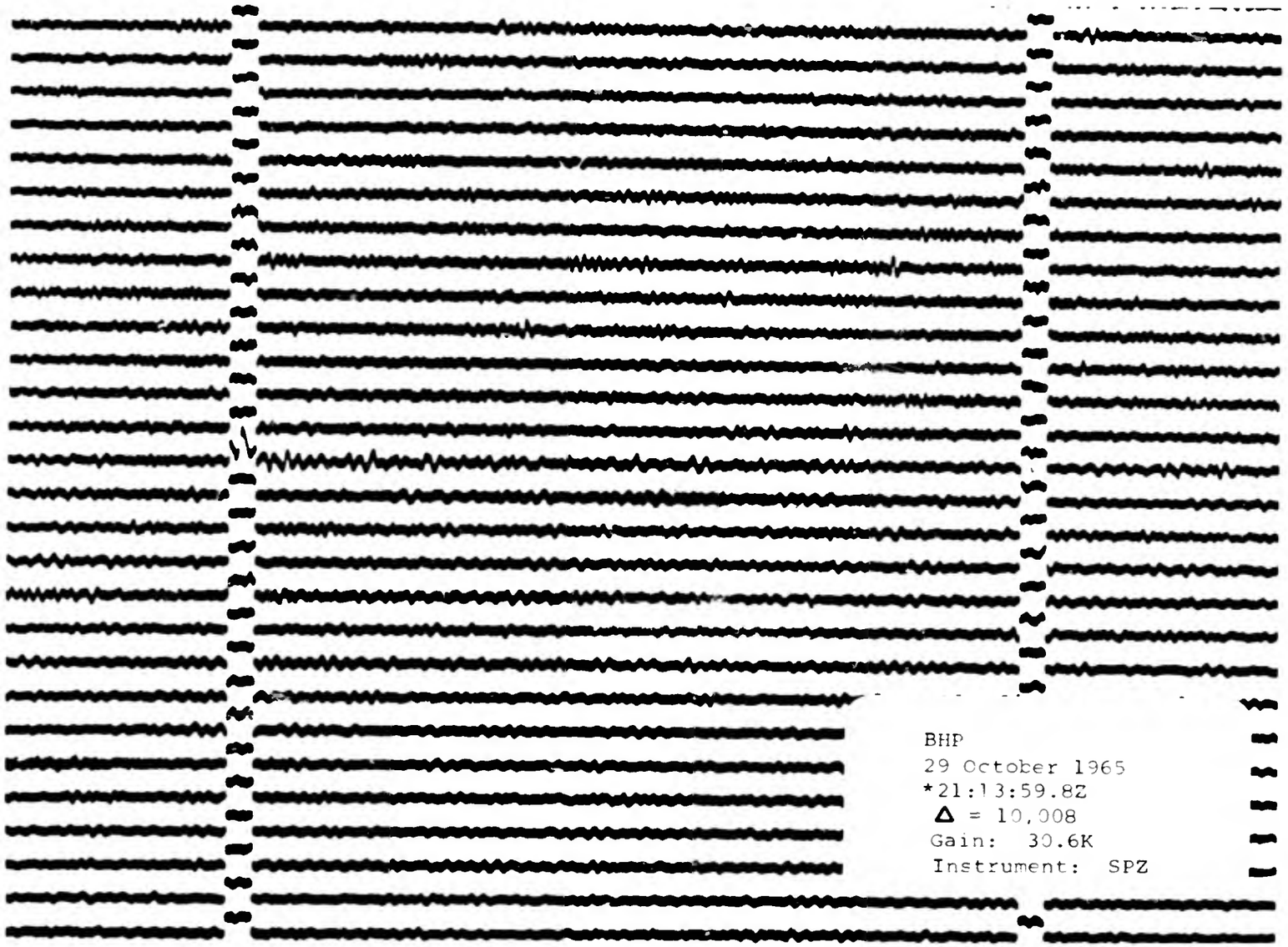
BC6
29 October 1965
*21:03:07.3Z
Δ = 1775 km
Gain: 76.9K at 0.9 sec.
Instrument: SPZ

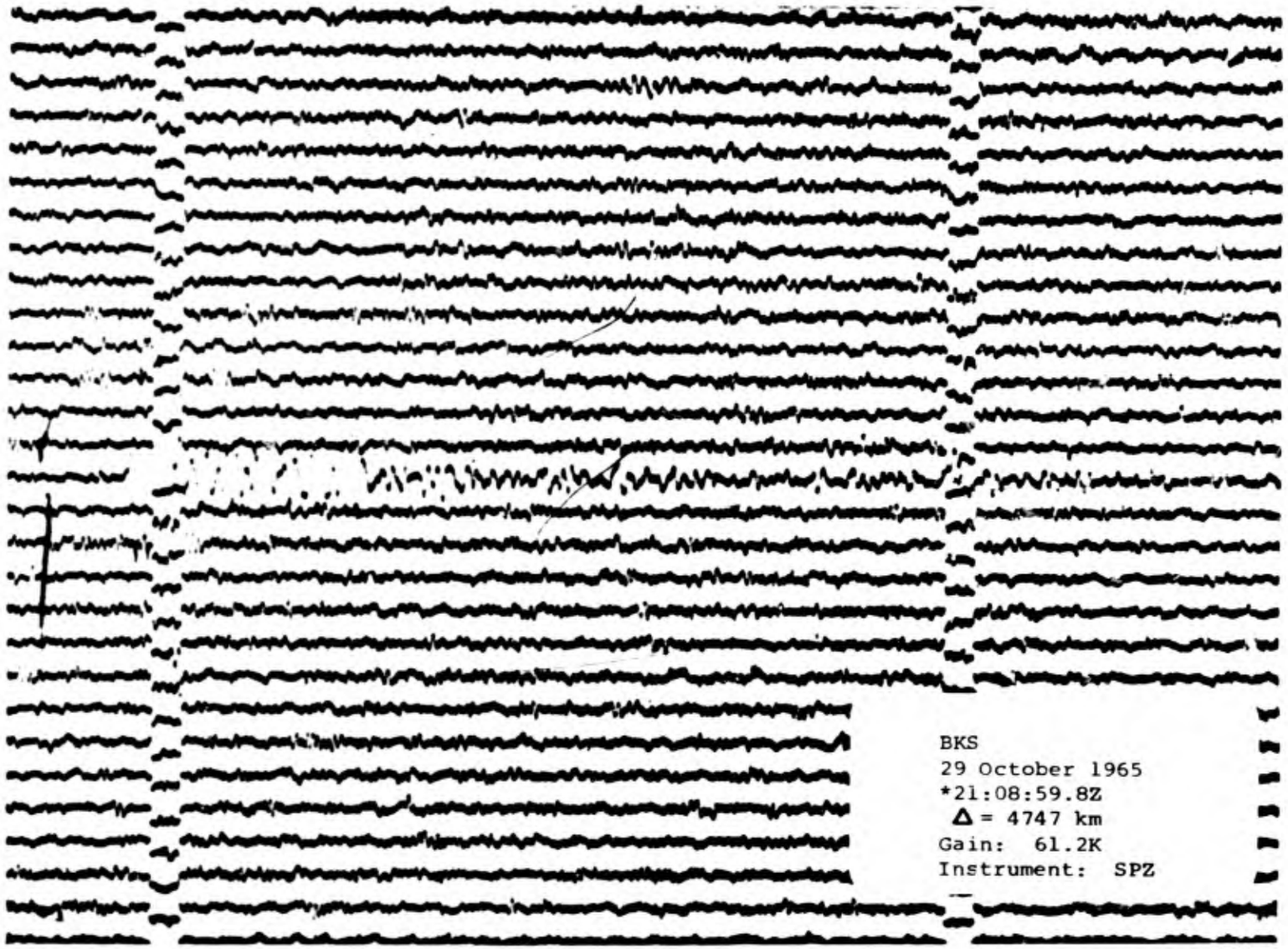


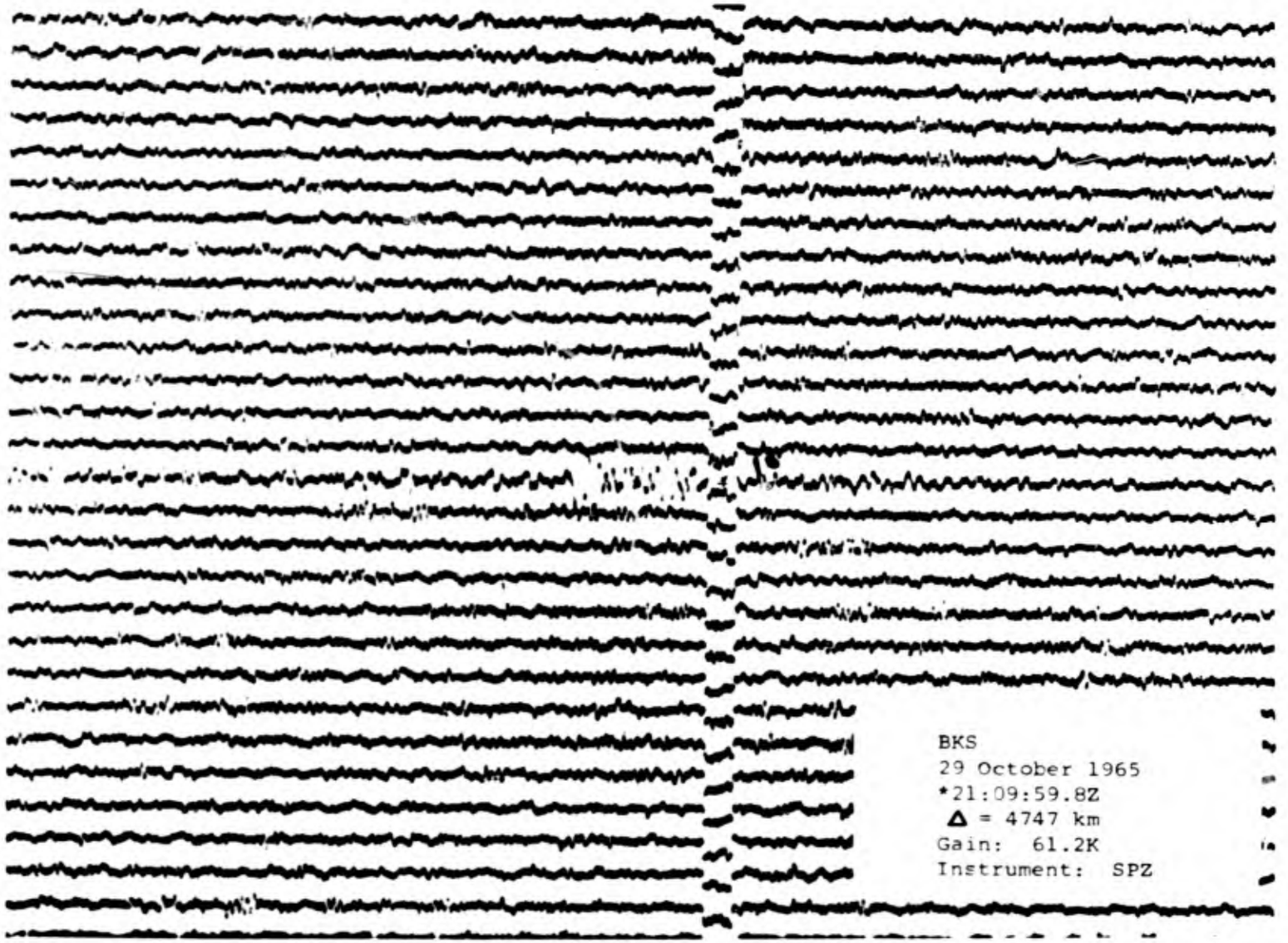
BC6
29 October 1965
*21:09:07.3Z
Δ = 1775 km
Gain: 76.9K at 0.9 sec.
Instrument: SPZ

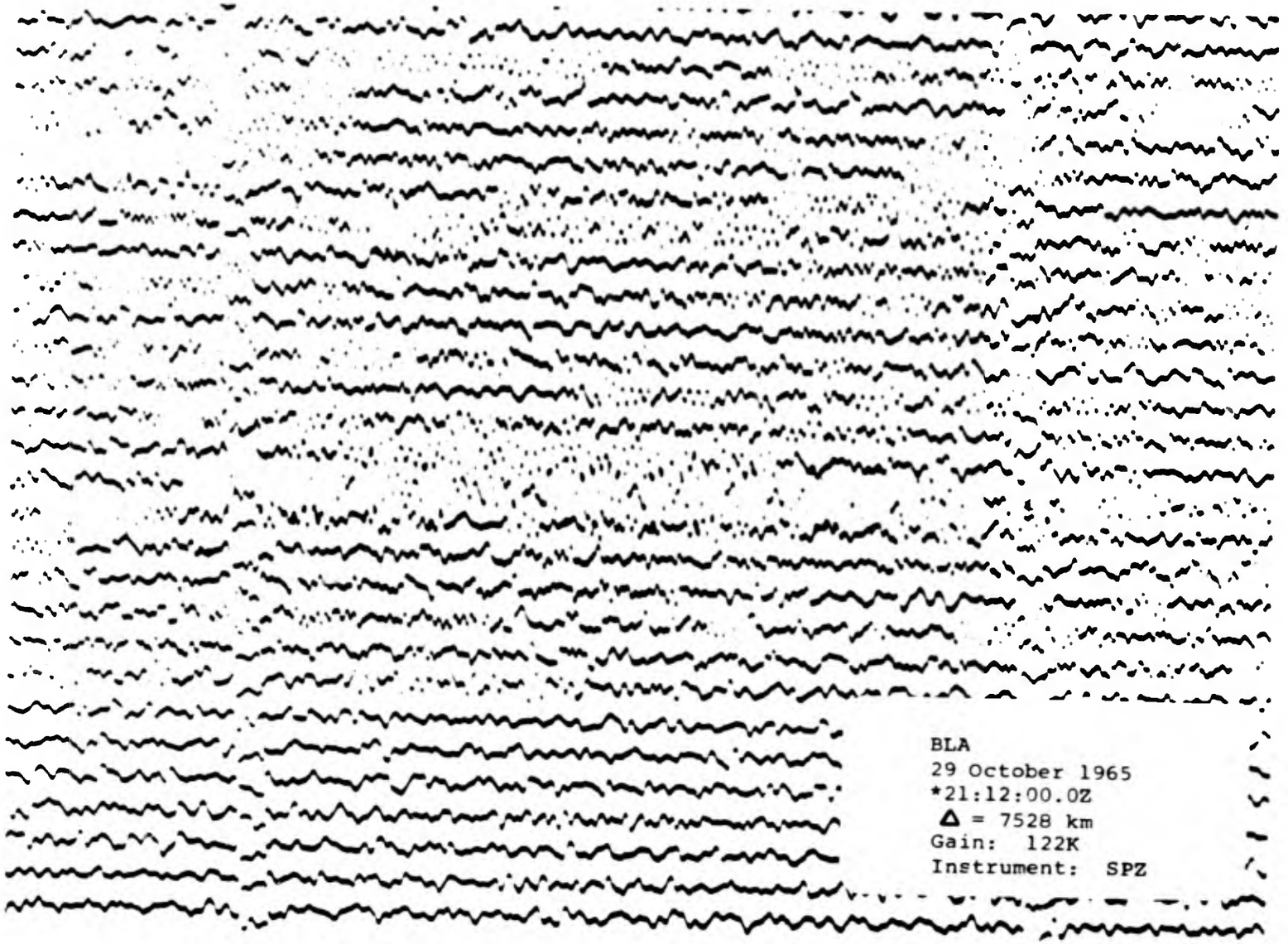

BCN
29 October 1965
*21:08:51.2Z
Δ = 5402 km
Gain: 100K at 0.8 sec.
Instrument: SPZ

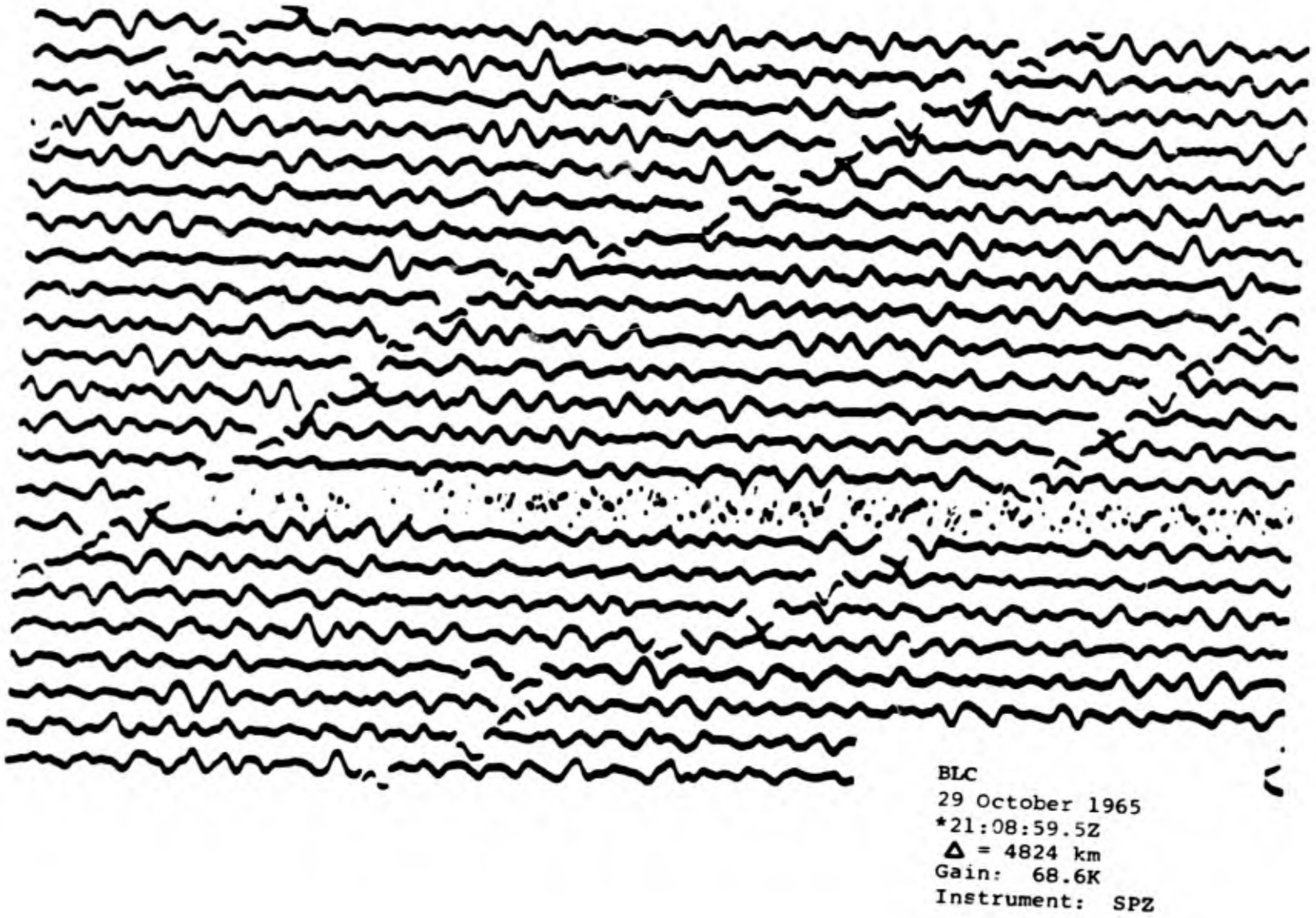

BEC
29 October 1965
*21:13:00.0Z
Δ = 8840 km
Gain: 61.2 km
Instrument: SPZ

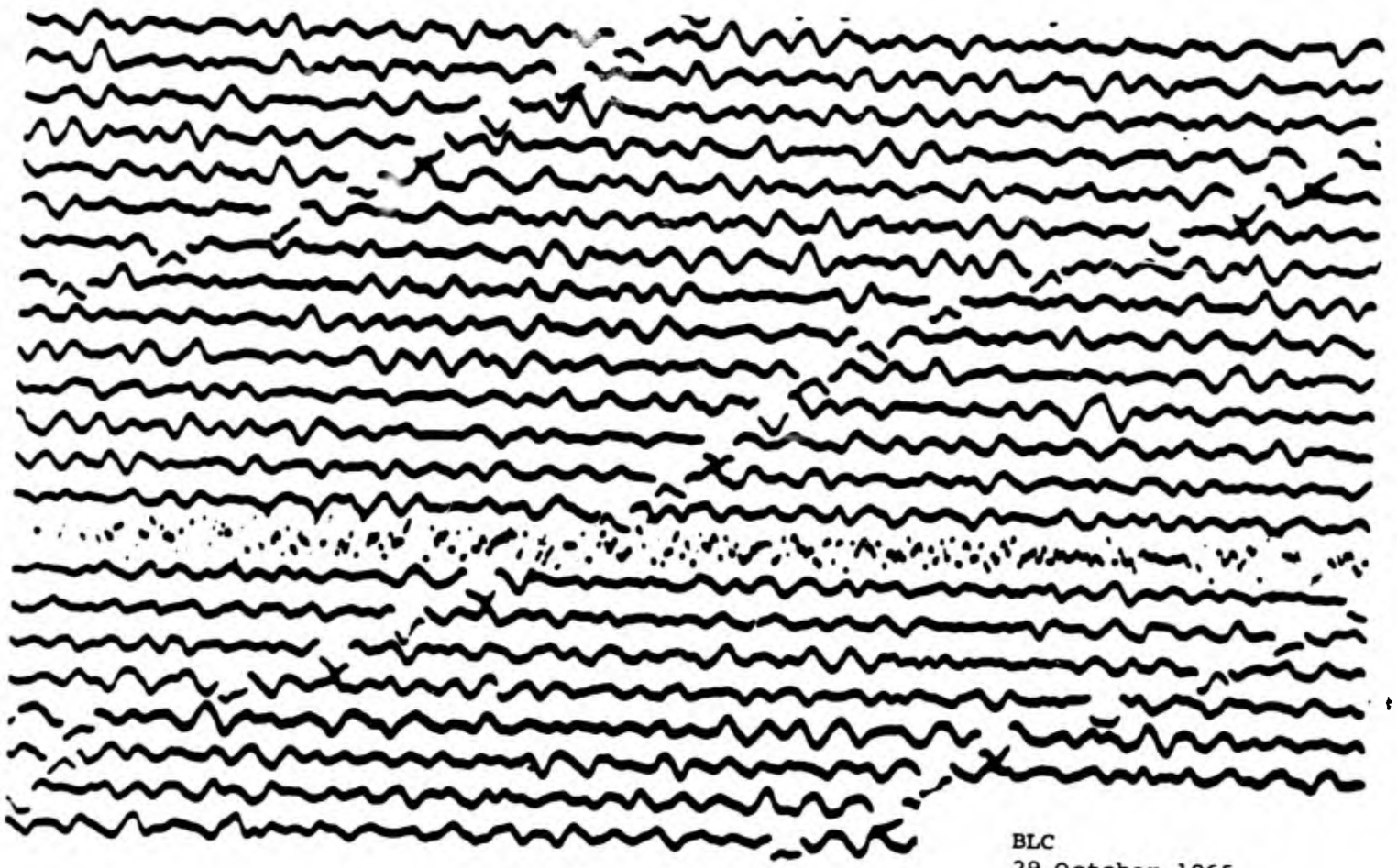

BHP
29 October 1965
*21:13:59.8Z
Δ = 10,008
Gain: 30.6K
Instrument: SPZ

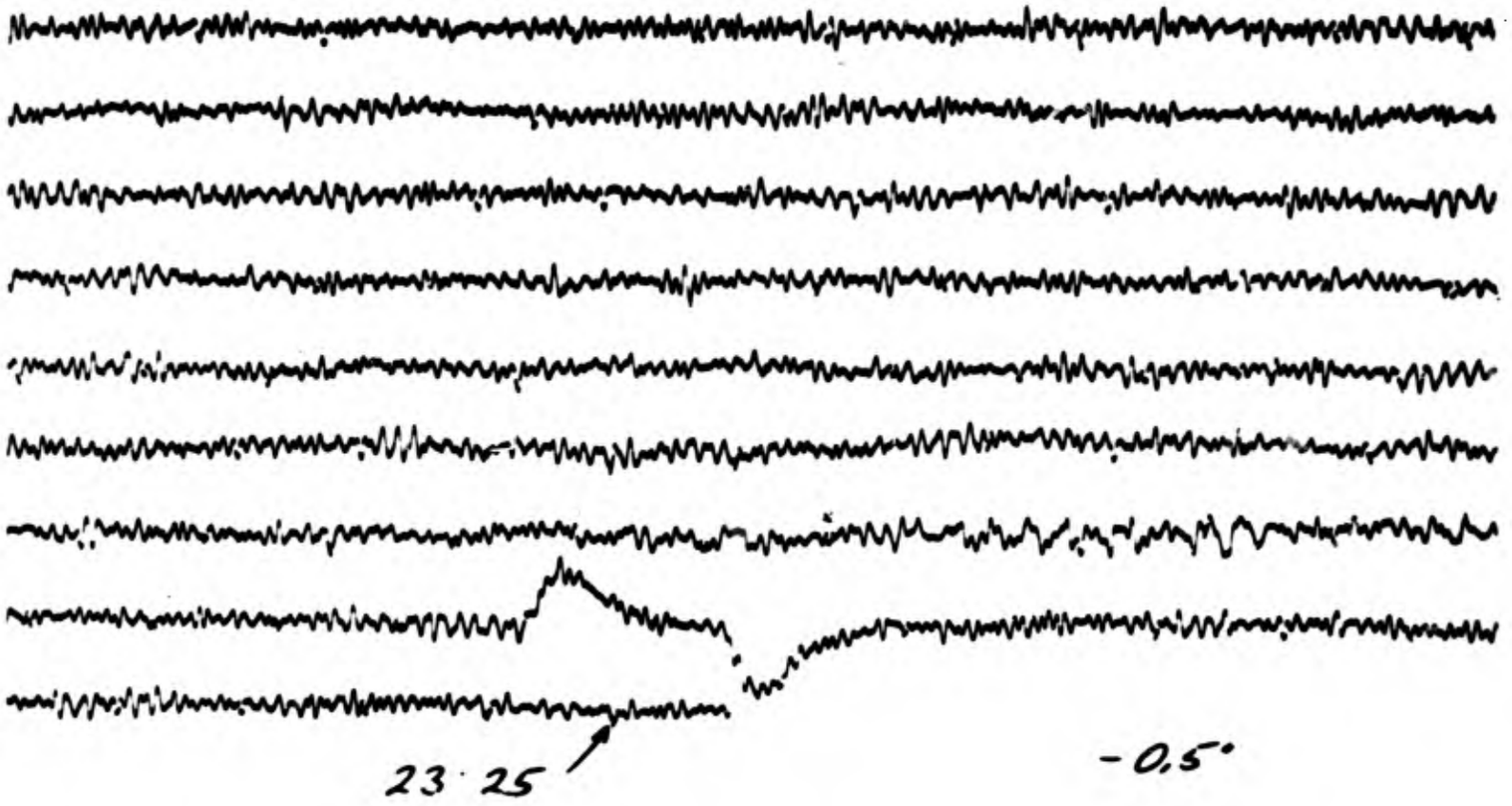

BKS
29 October 1965
*21:08:59.8Z
Δ = 4747 km
Gain: 61.2K
Instrument: SPZ


BKS
29 October 1965
*21:09:59.8Z
Δ = 4747 km
Gain: 61.2K
Instrument: SPZ

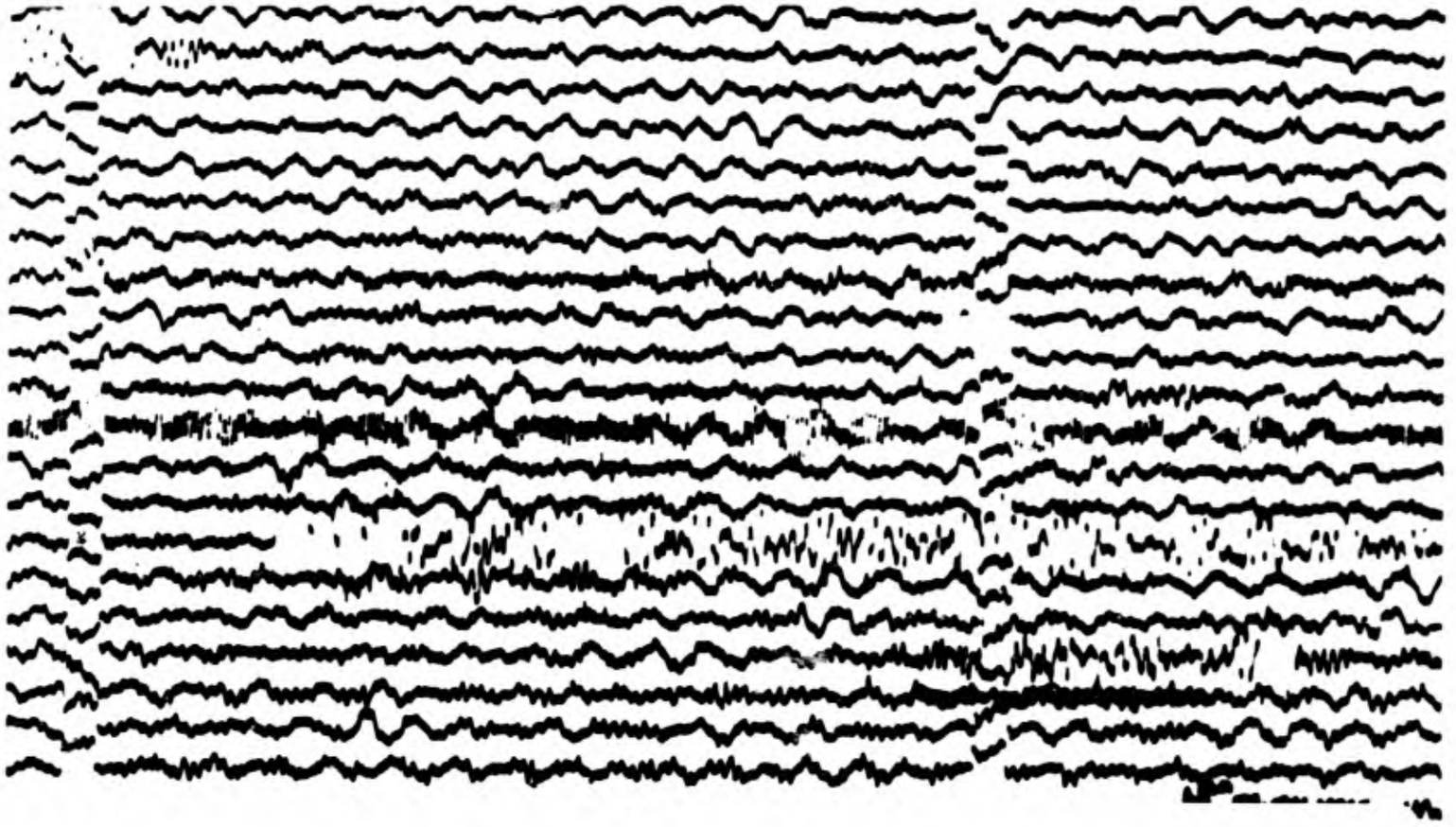

BLA
29 October 1965
*21:12:00.0Z
Δ = 7528 km
Gain: 122K
Instrument: SPZ


BLC
29 October 1965
*21:08:59.5Z
Δ = 4824 km
Gain: 68.6K
Instrument: SPZ

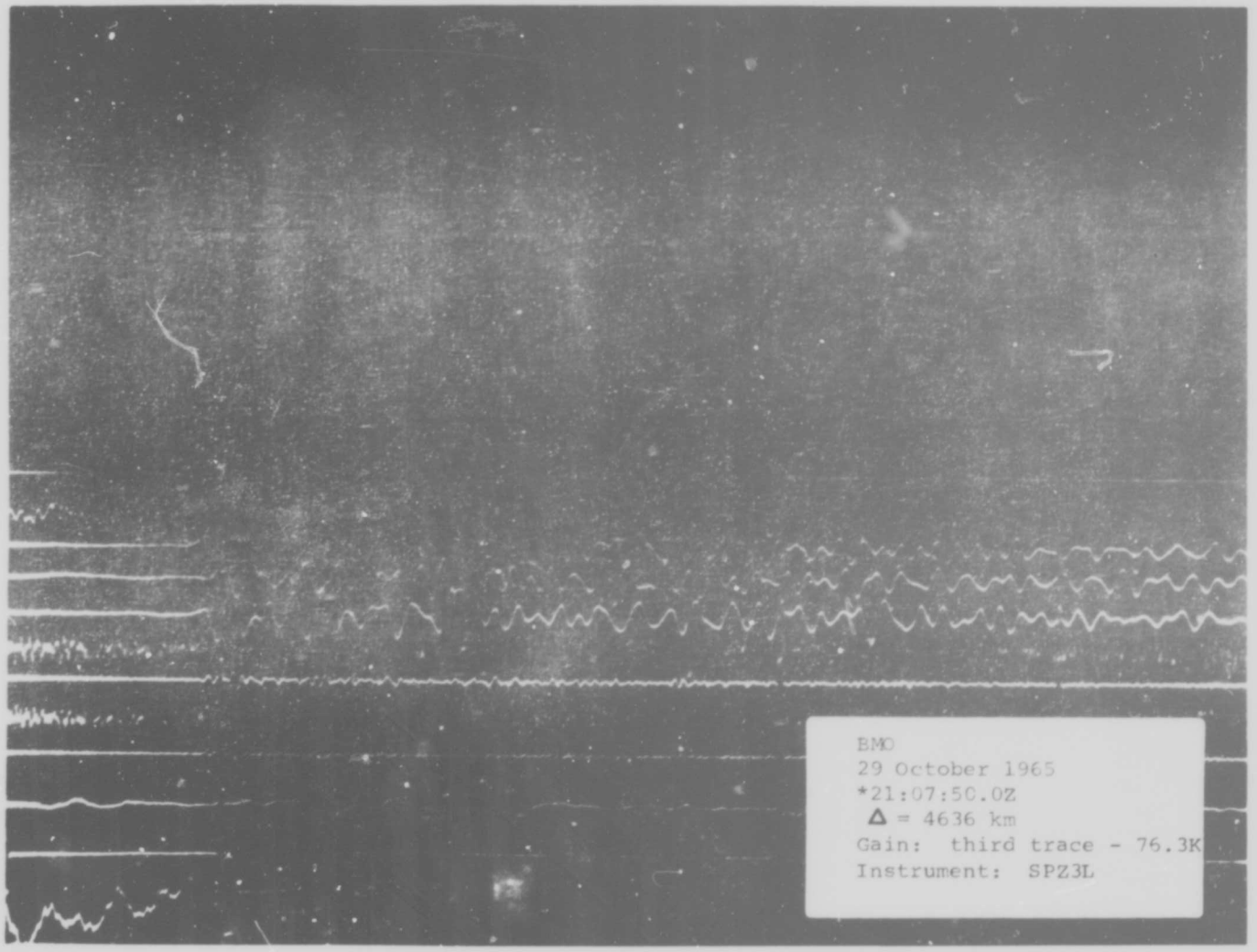

BLC
29 October 1965
*21:09:59.5Z
Δ = 4824 km
Gain: 68.6K
Instrument: SPZ

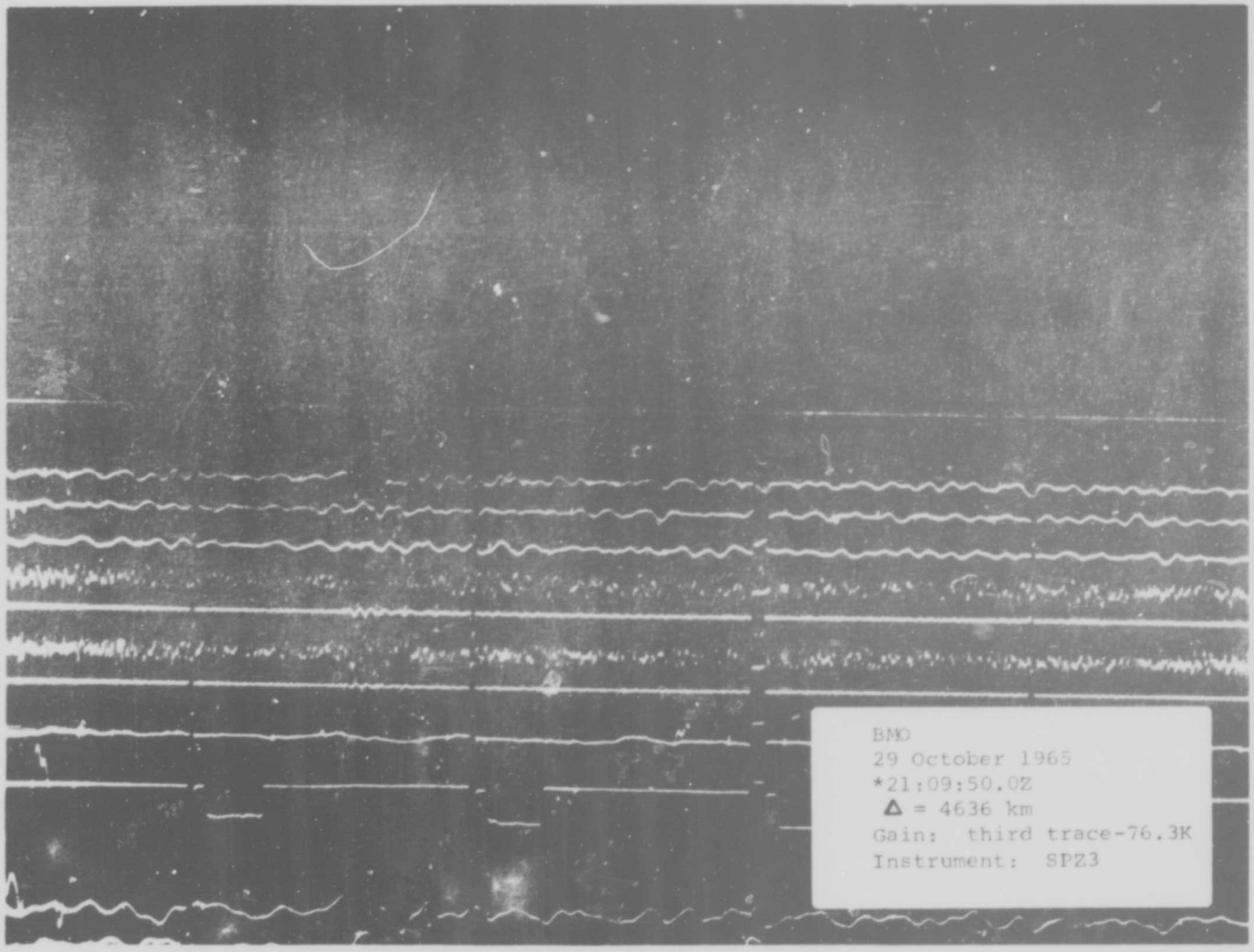


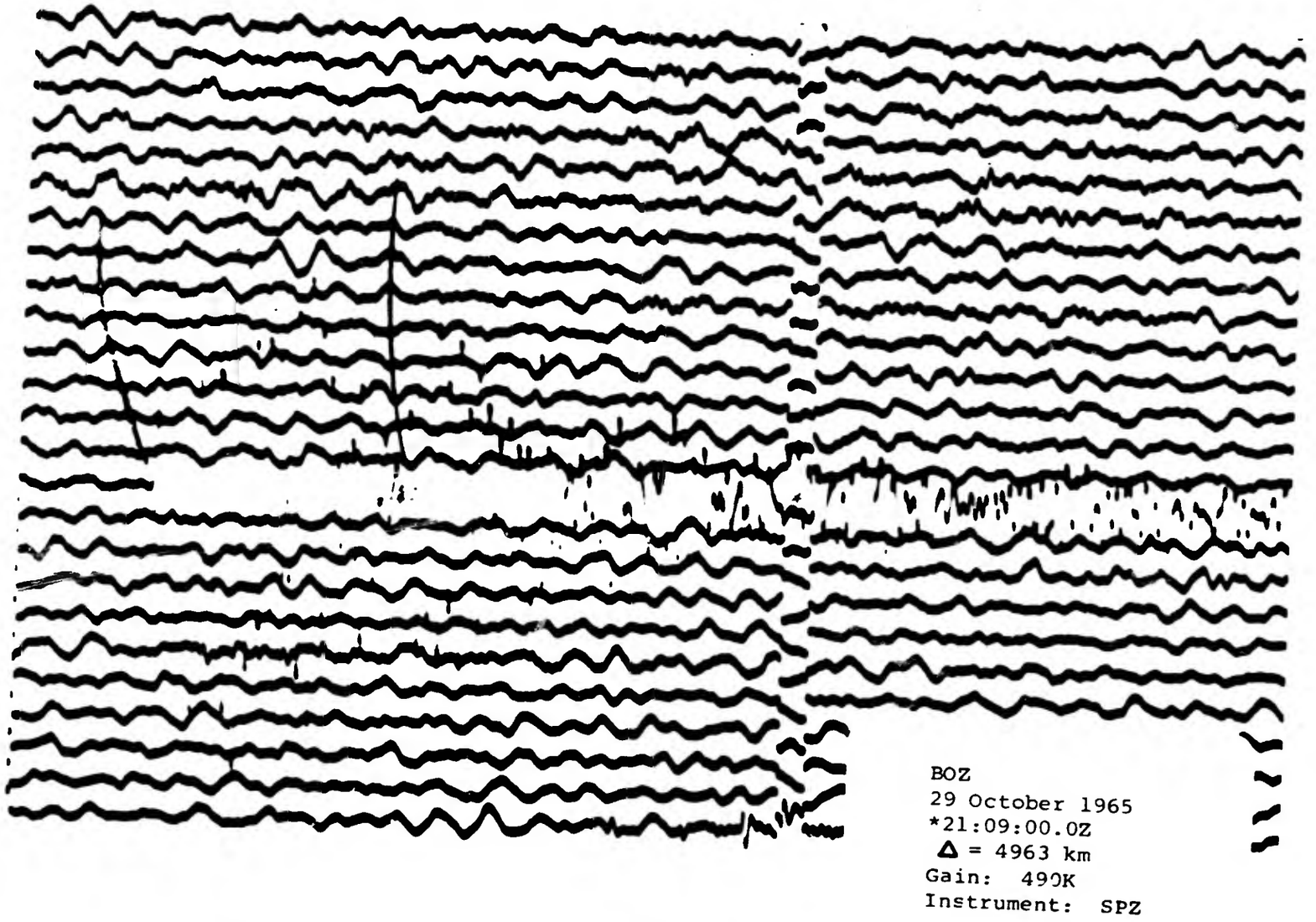
BLC
29 October 1965
*21:27:59.5Z
Δ = 4824 km
Gain: 4.9K at 13 sec.
Instrument: LPZ

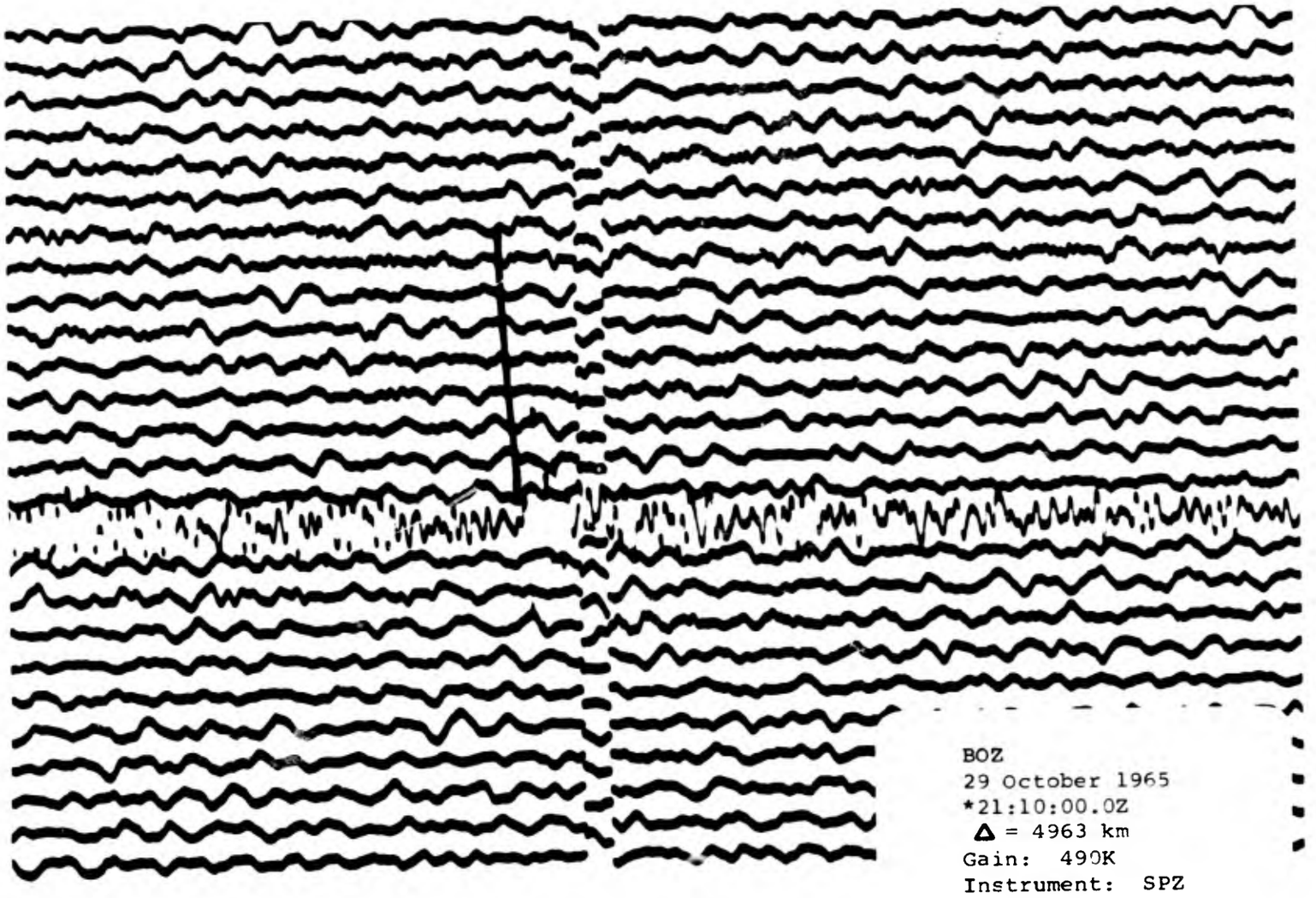


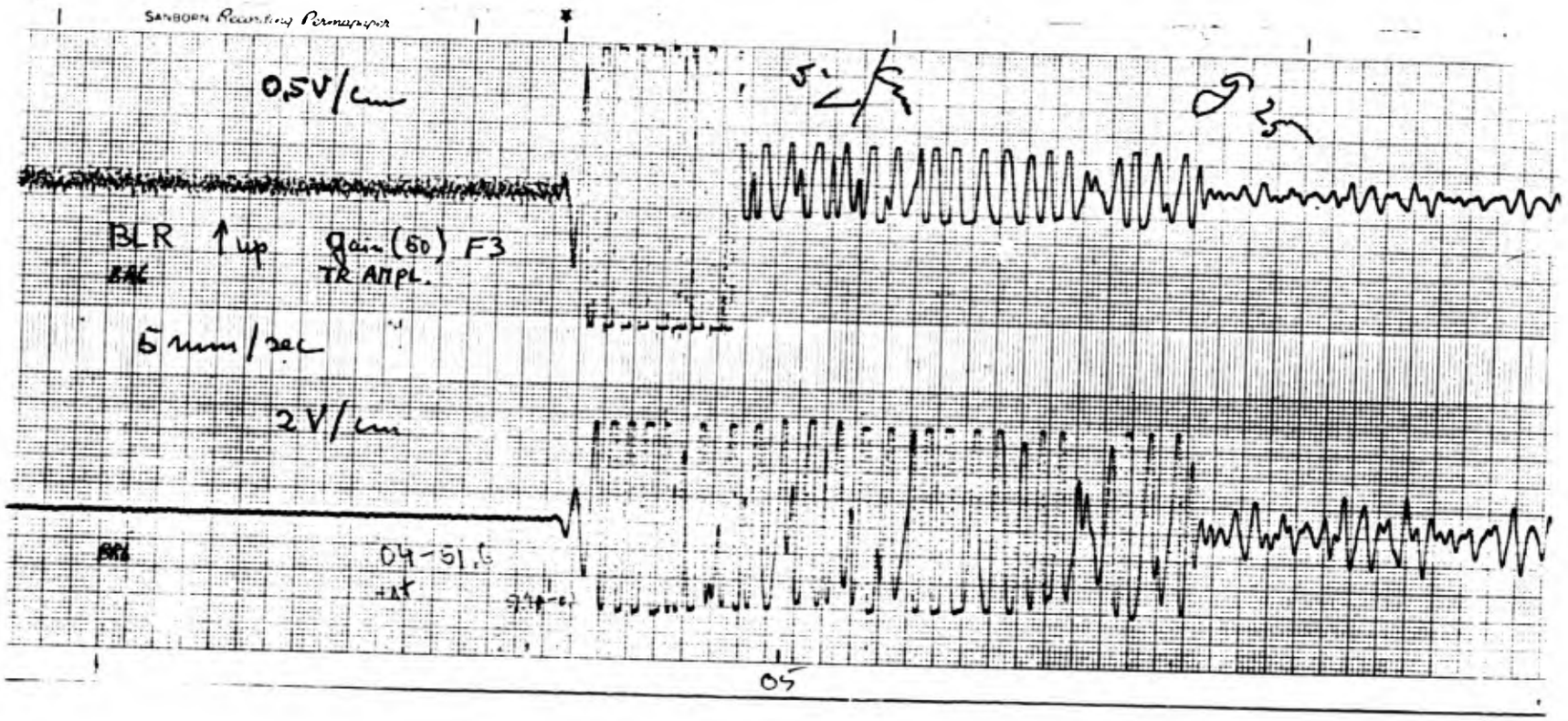
BLO
29 October 1965
*21:10:12.1Z
Δ = 7004 km
Gain: 140K
Instrument: SPZ


BMO
29 October 1965
*21:07:50.0Z
Δ = 4636 km
Gain: third trace - 76.3K
Instrument: SPZ3L

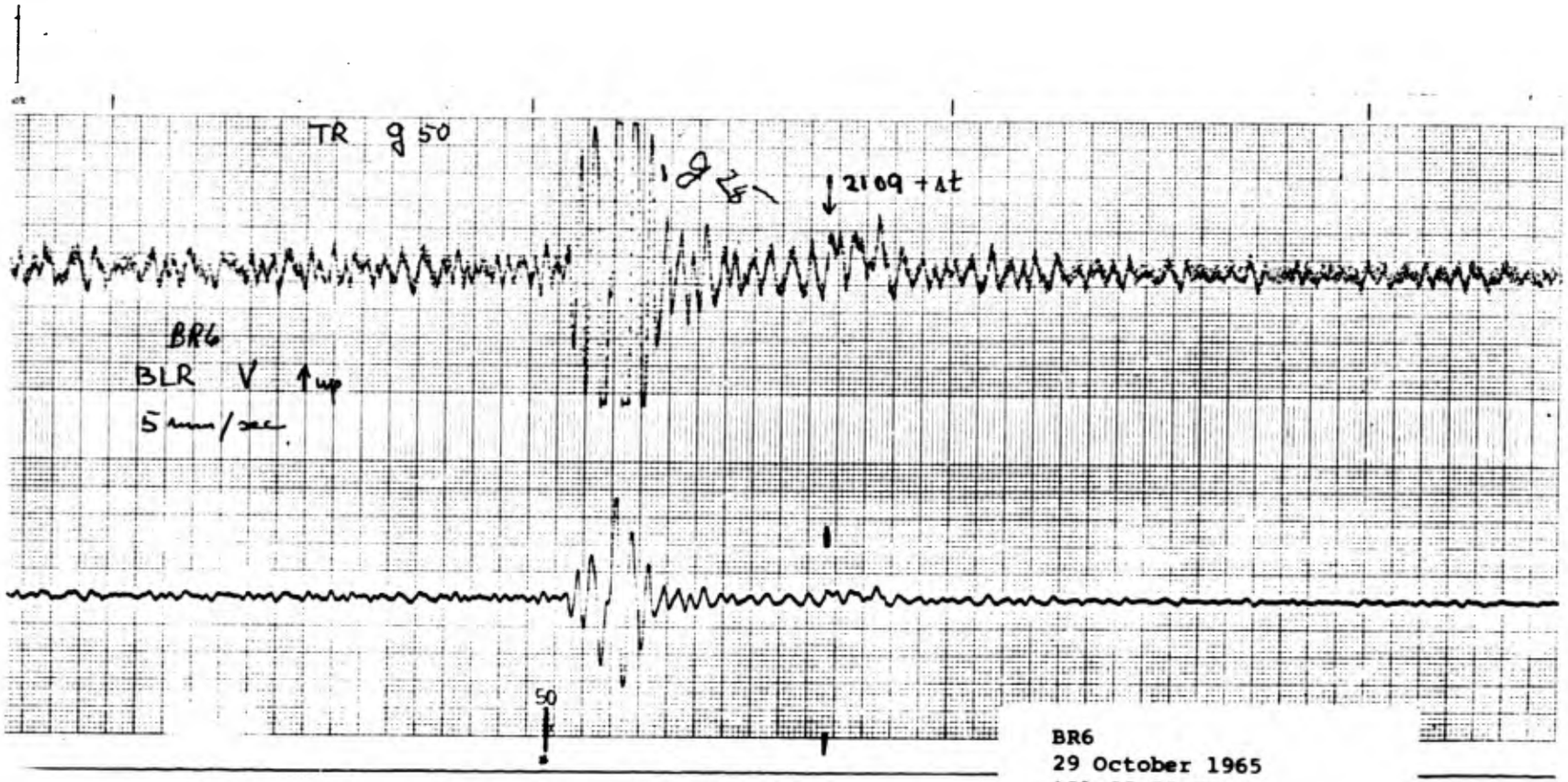

BMO
29 October 1965
*21:09:50.0Z
Δ = 4636 km
Gain: third trace-76.3K
Instrument: SPZ3


BOZ
29 October 1965
*21:09:00.0Z
Δ = 4963 km
Gain: 490K
Instrument: SPZ

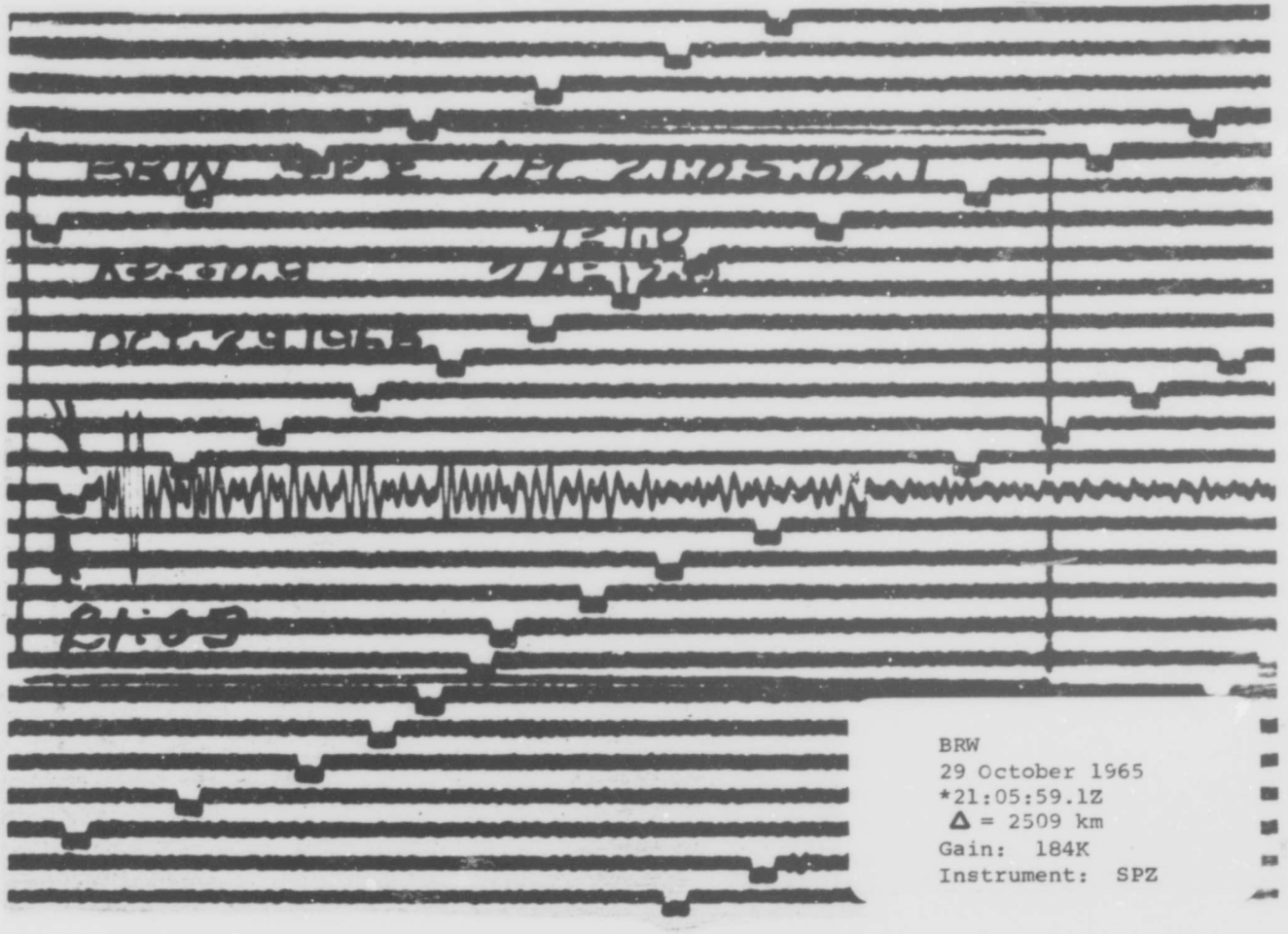

BOZ
29 October 1965
*21:10:00.0Z
Δ = 4963 km
Gain: 490K
Instrument: SPZ



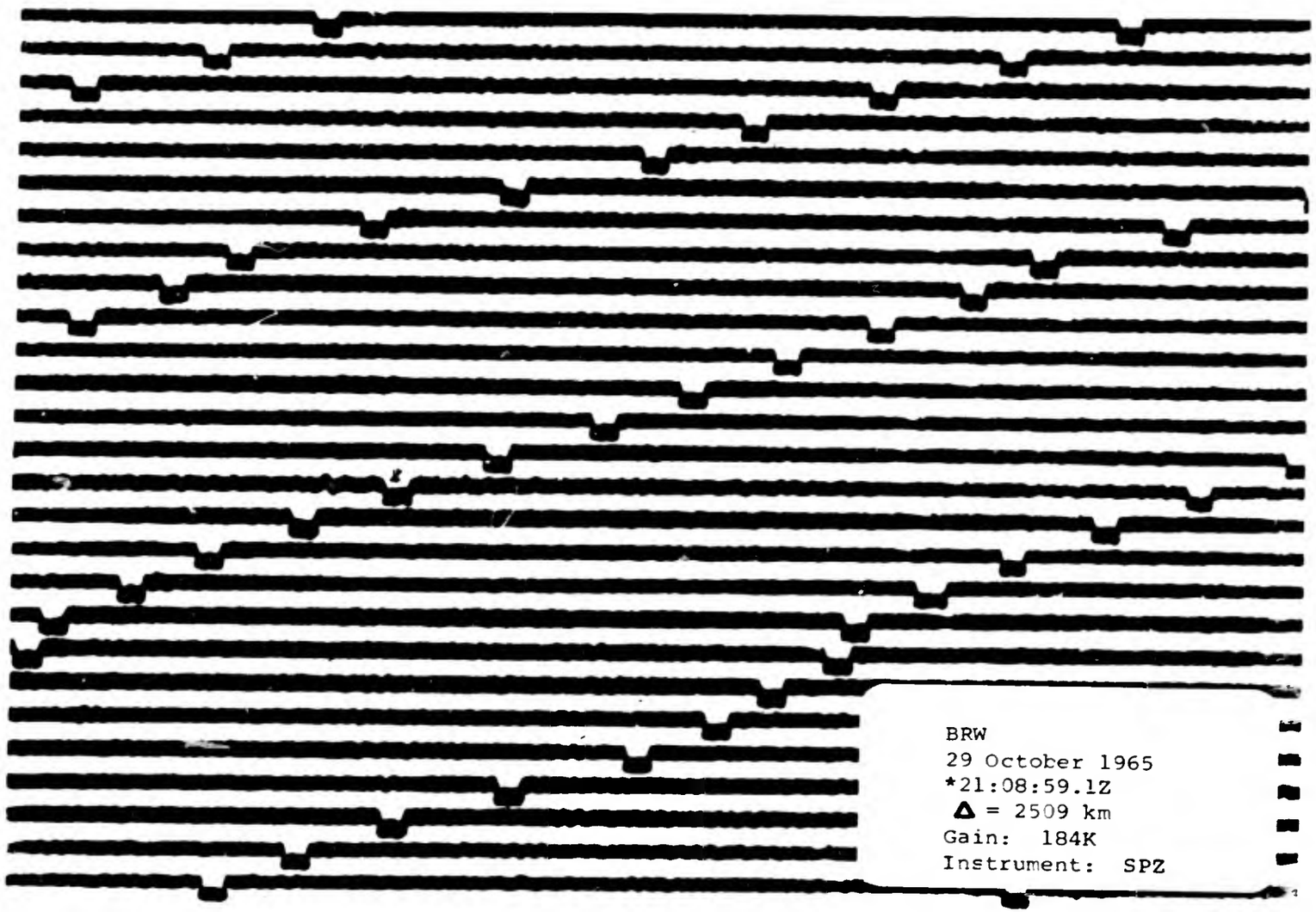
BR6
29 October 1965
*21:04:53.7Z
Δ = 2448 km
Gain: unknown
Instrument: SPZ

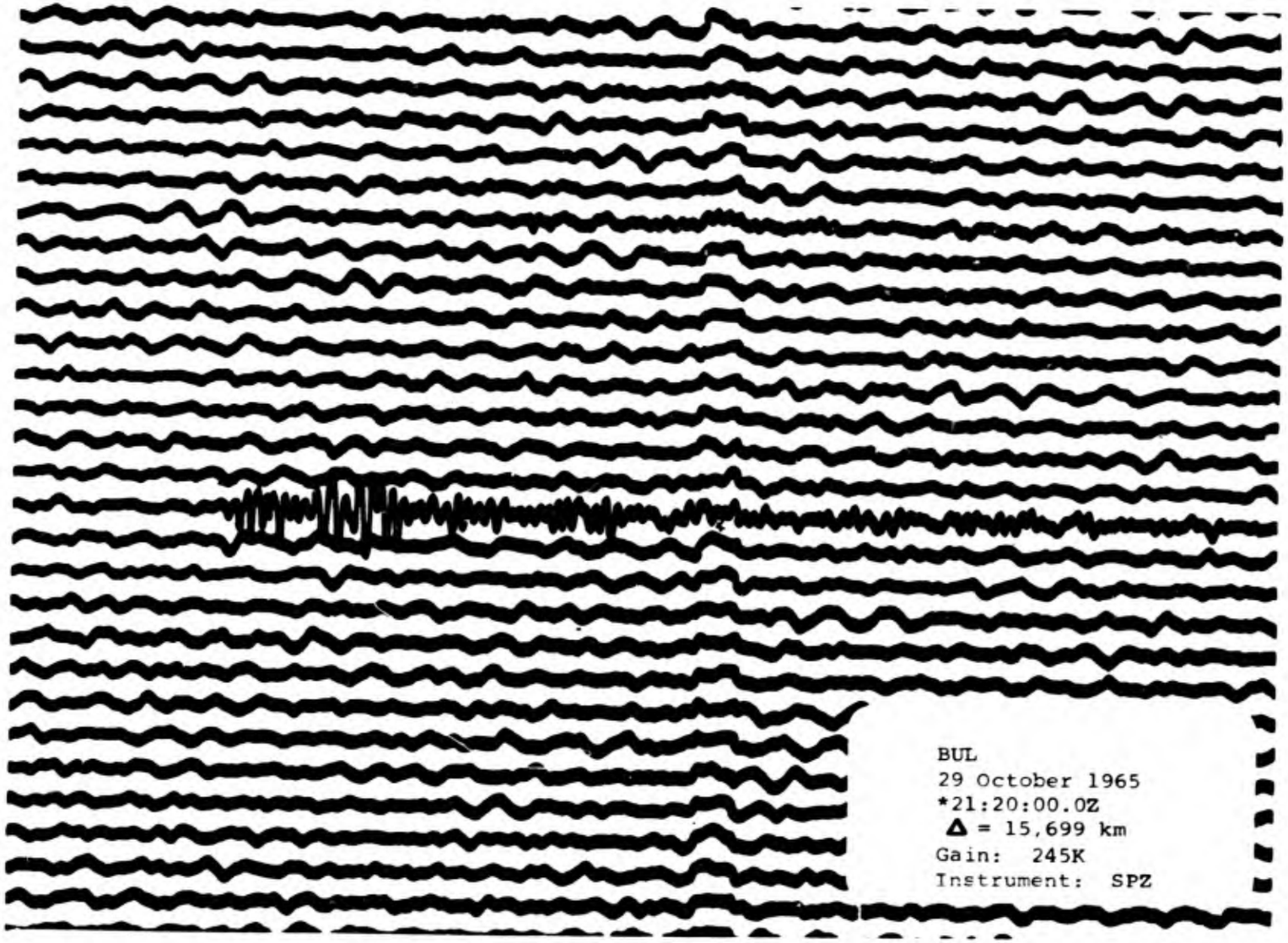


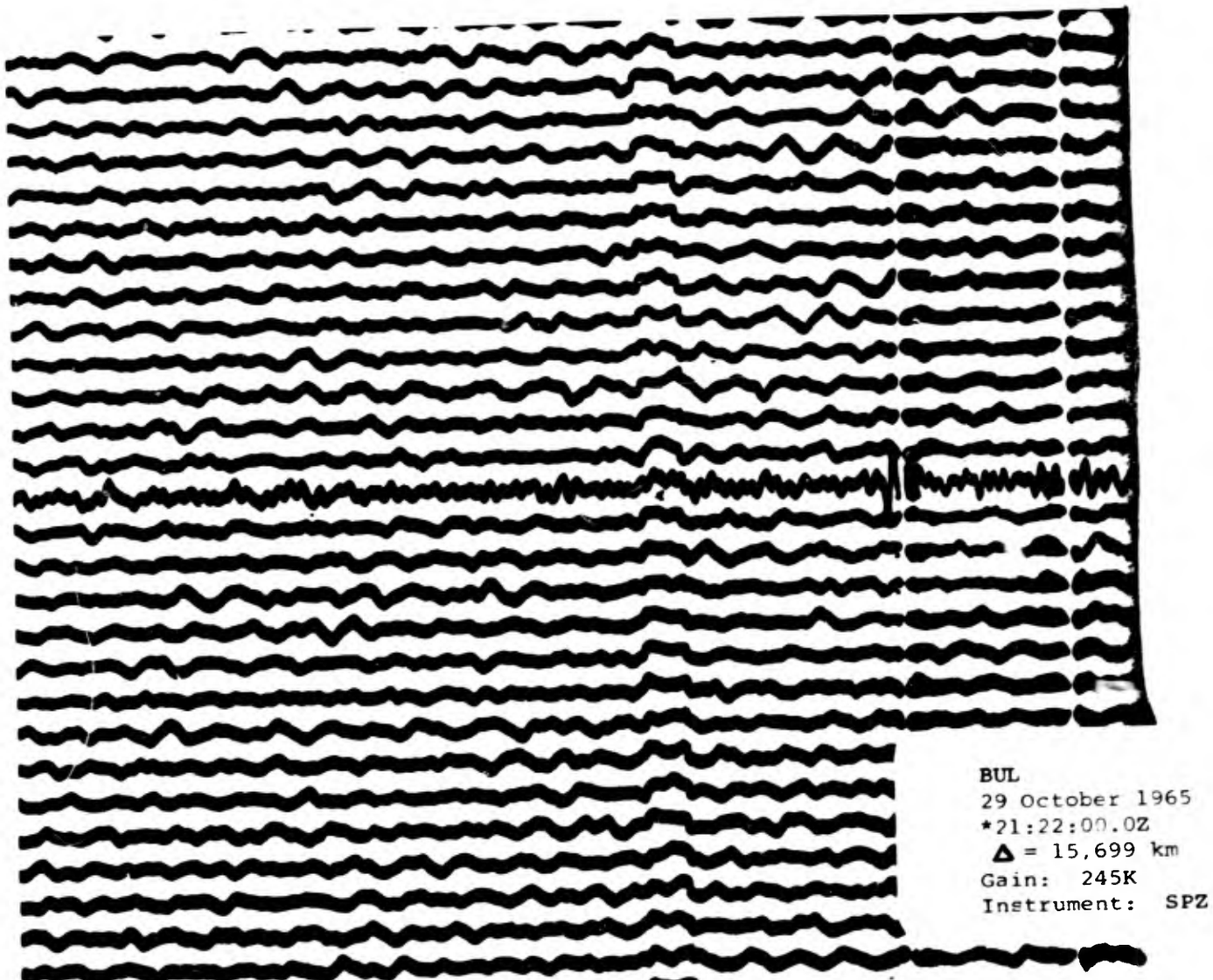
BR6
29 October 1965
*21:08:53.7Z
Δ = 2448 km
Gain: unknown
Instrument: SPZ

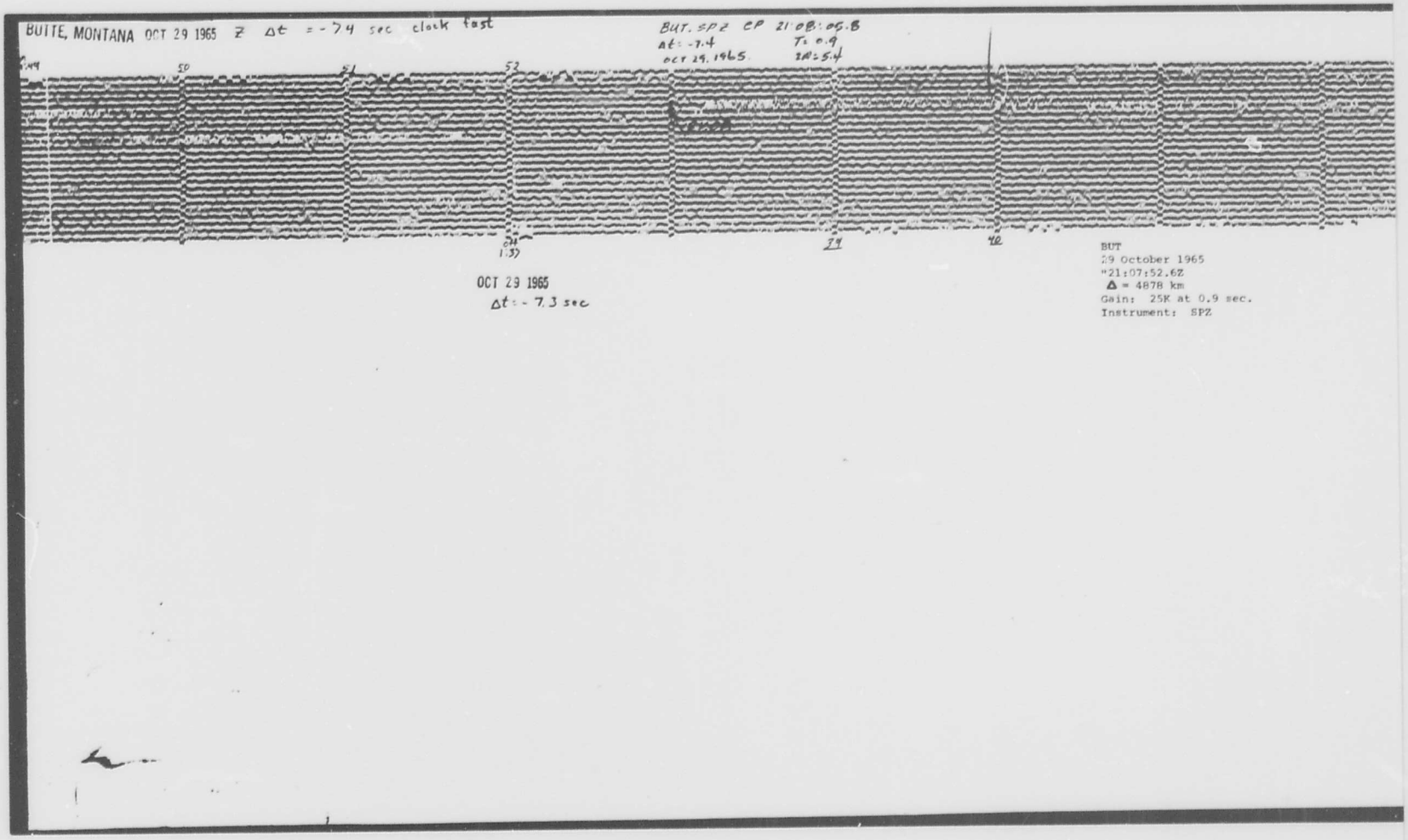


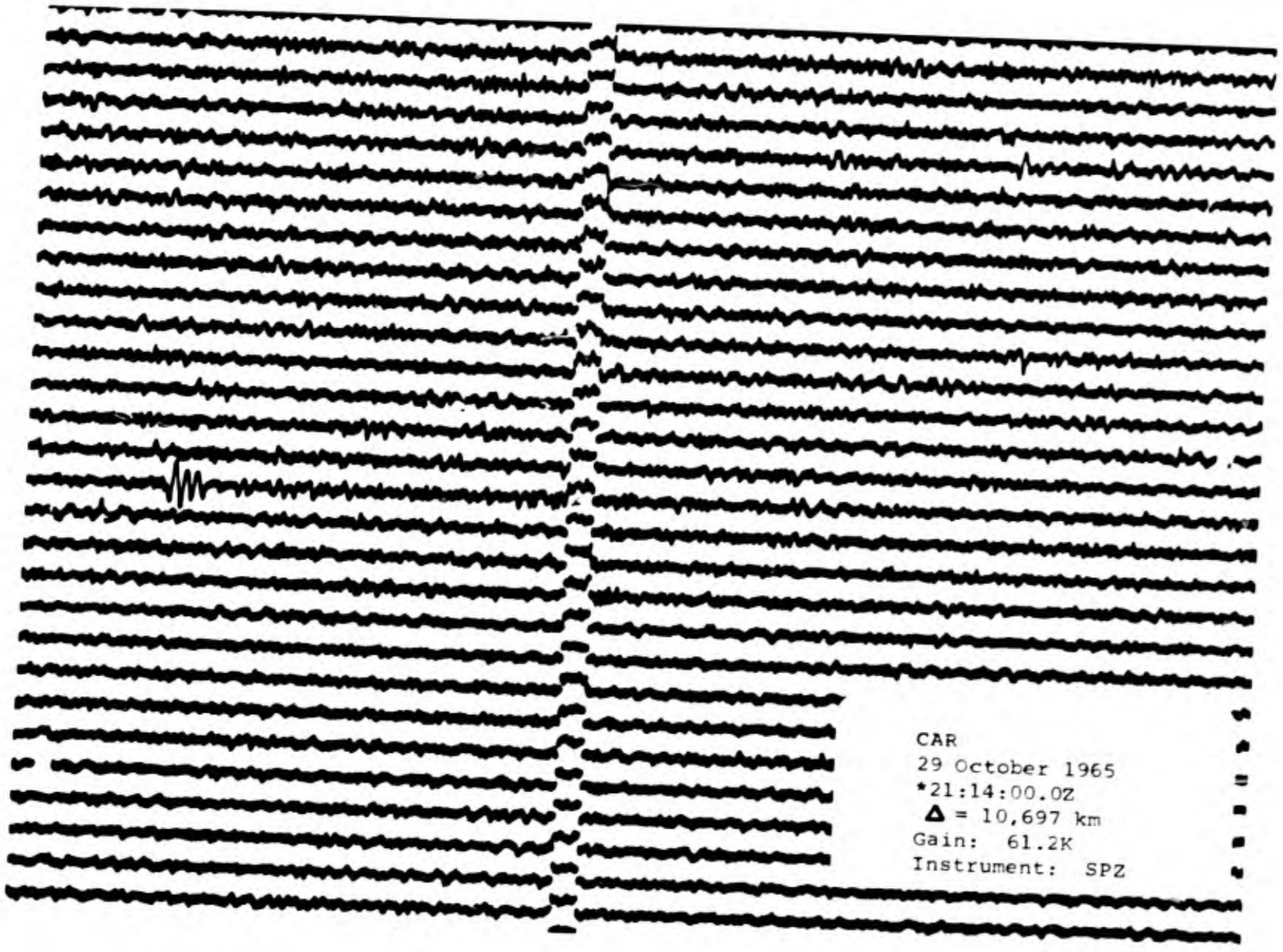
BRW
29 October 1965
*21:05:59.1Z
Δ = 2509 km
Gain: 184K
Instrument: SPZ

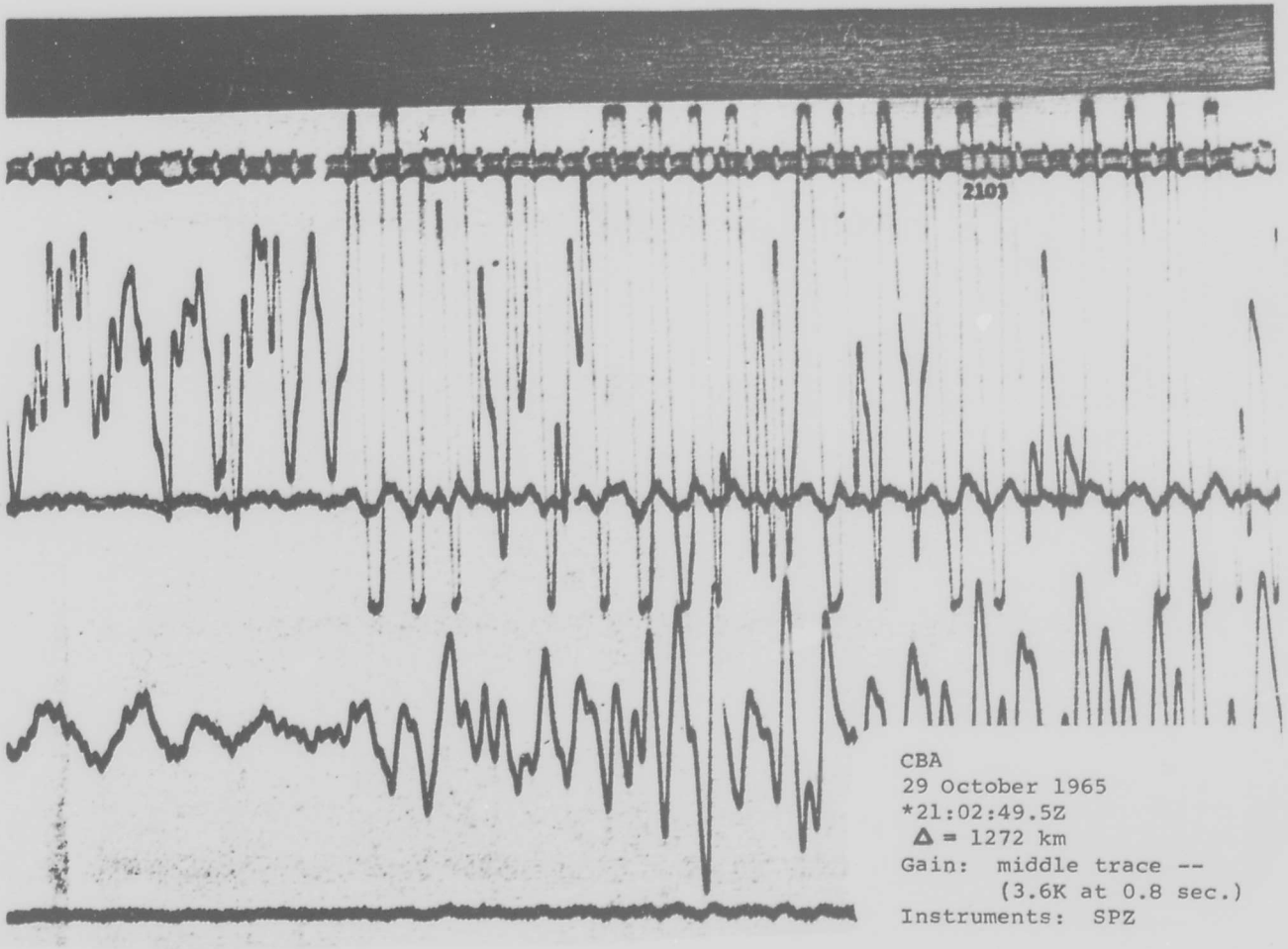

BRW
29 October 1965
*21:08:59.1Z
Δ = 2509 km
Gain: 184K
Instrument: SPZ

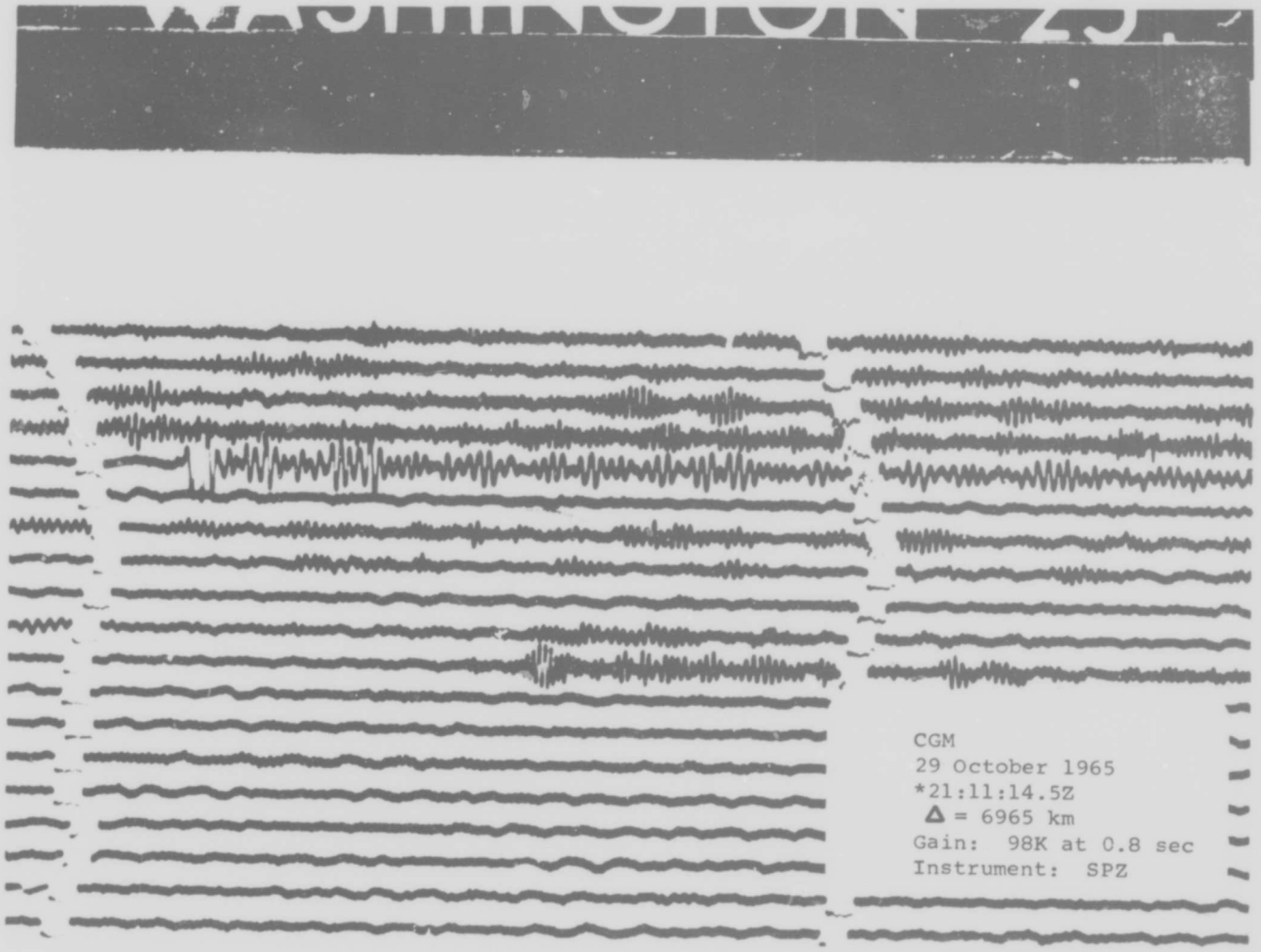

BUL
29 October 1965
*21:20:00.0Z
Δ = 15,699 km
Gain: 245K
Instrument: SPZ

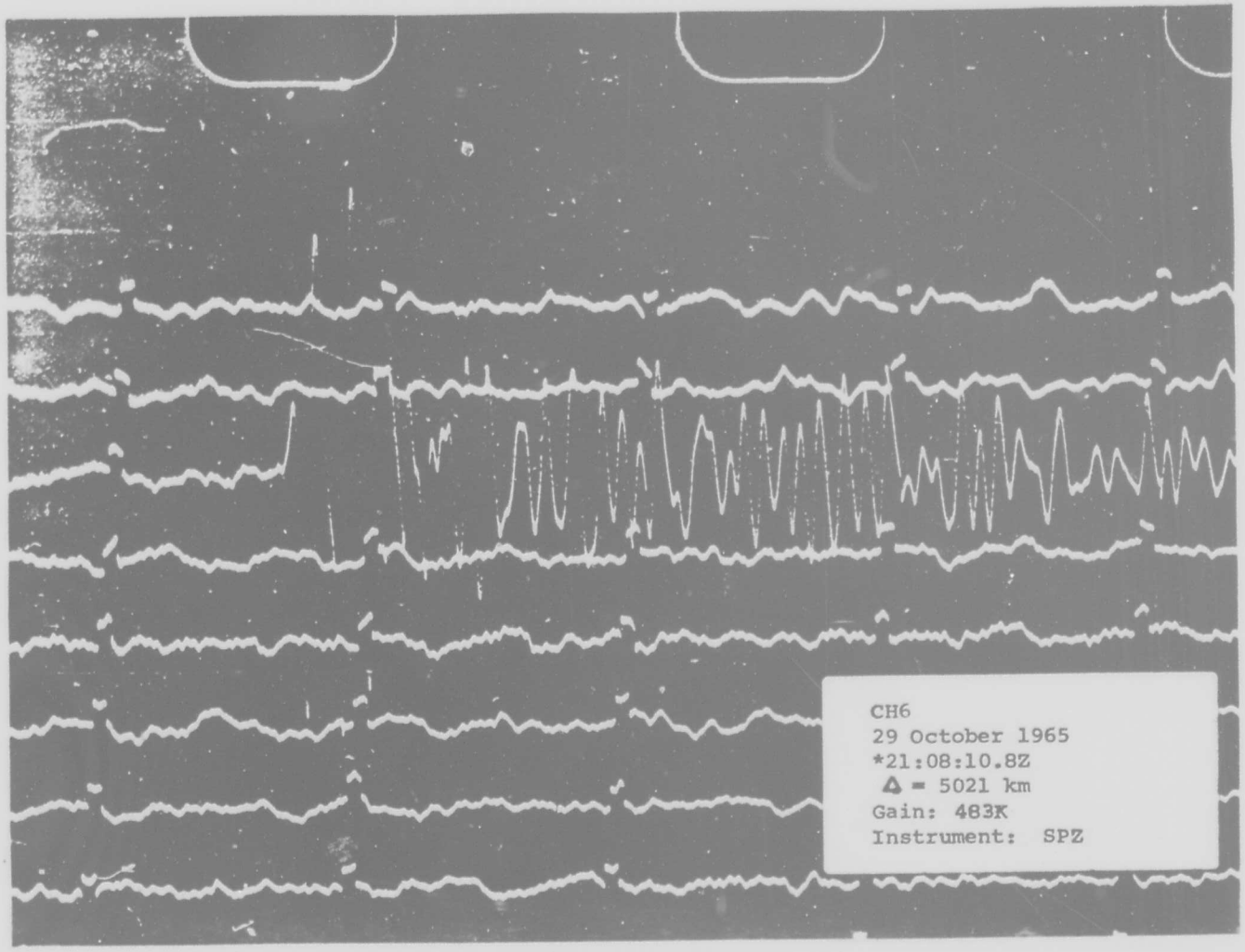

BUL
29 October 1965
*21:22:00.0Z
Δ = 15,699 km
Gain: 245K
Instrument: SPZ

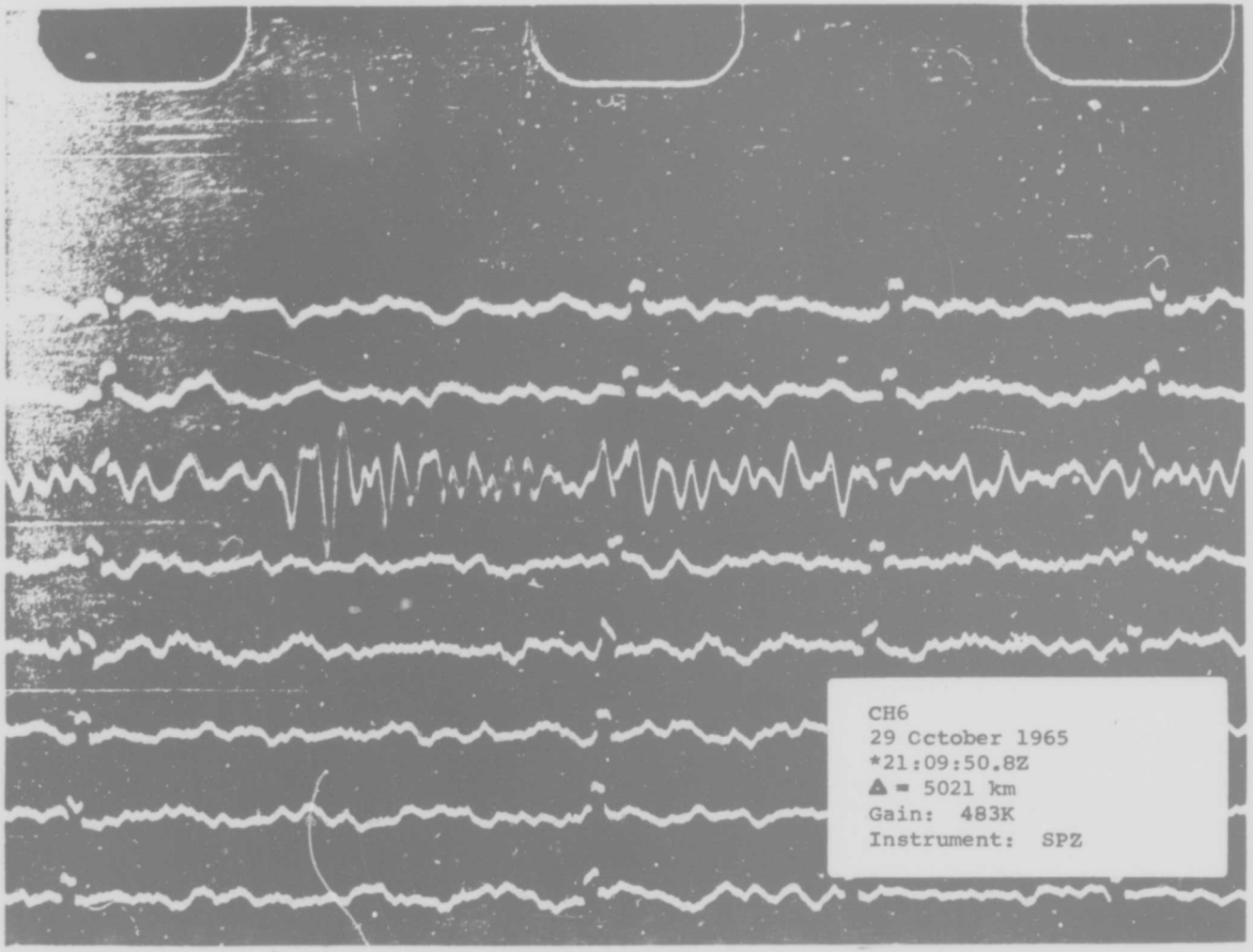

BUTTE, MONTANA OCT 29 1965 Z Δt = -7.4 sec clock fast
BUT. SPZ CP 21:08:05.8
Δt: -7.4
OCT 29, 1965
T: 0.9
TA: 5.4
49
50
51
52
53
39
40
OCT 29 1965
Δt: - 7.3 sec
BUT
29 October 1965
"21:07:52.6Z
Δ = 4878 km
Gain: 25K at 0.9 sec.
Instrument: SPZ


CAR
29 October 1965
*21:14:00.0Z
Δ = 10,697 km
Gain: 61.2K
Instrument: SPZ

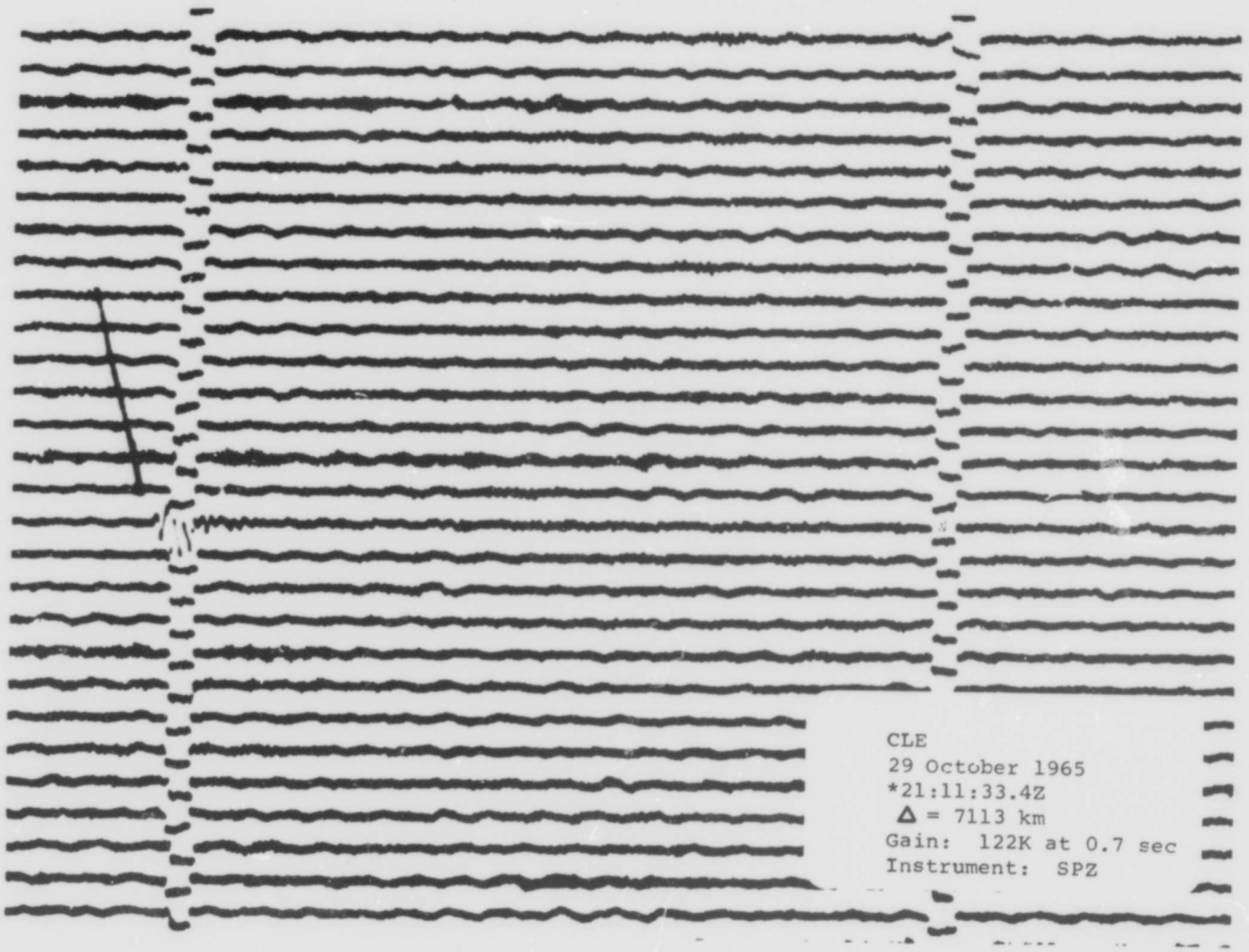

2103
CBA
29 October 1965
*21:02:49.5Z
Δ = 1272 km
Gain: middle trace --
(3.6K at 0.8 sec.)
Instruments: SPZ

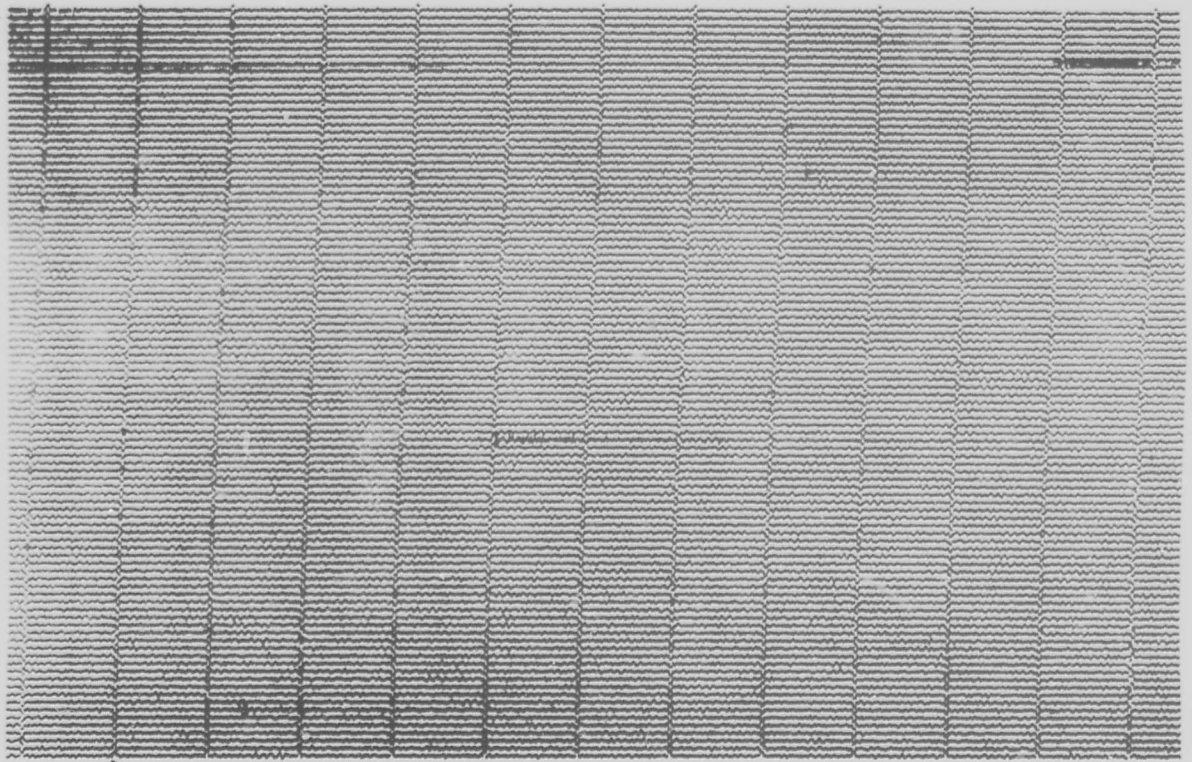

CGM
29 October 1965
*21:11:14.5Z
Δ = 6965 km
Gain: 98K at 0.8 sec
Instrument: SPZ


CH6
29 October 1965
*21:08:10.8Z
Δ = 5021 km
Gain: 483K
Instrument: SPZ


CH6
29 Cctober 1965
*21:09:50.8Z
Δ = 5021 km
Gain: 483K
Instrument: SPZ

CLC
29 October 1965
*21:11:36.7Z
Δ = 5213 km
Gain: 92K at 0.8 sec.
Instrument: SPZ
clock correction 23.3
CHINA LAKE


CLE
29 October 1965
*21:11:33.4Z
Δ = 7113 km
Gain: 122K at 0.7 sec
Instrument: SPZ



Return To.
ADELAIDE, AUST.

ARCHITKA ISLAND
EXPLOSION
21 Kt 400 (no correction applied to this reading)

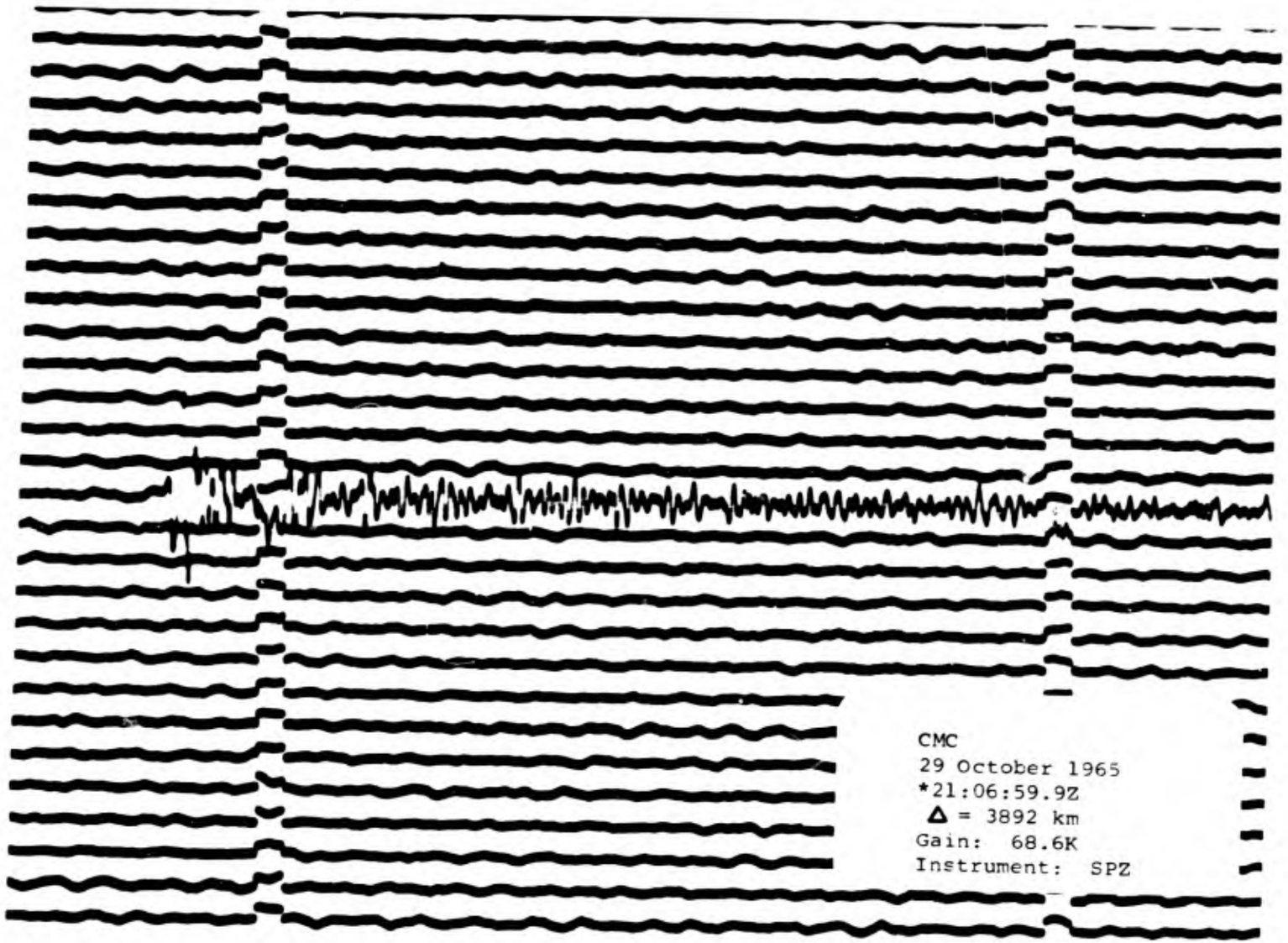
← 30 sec →

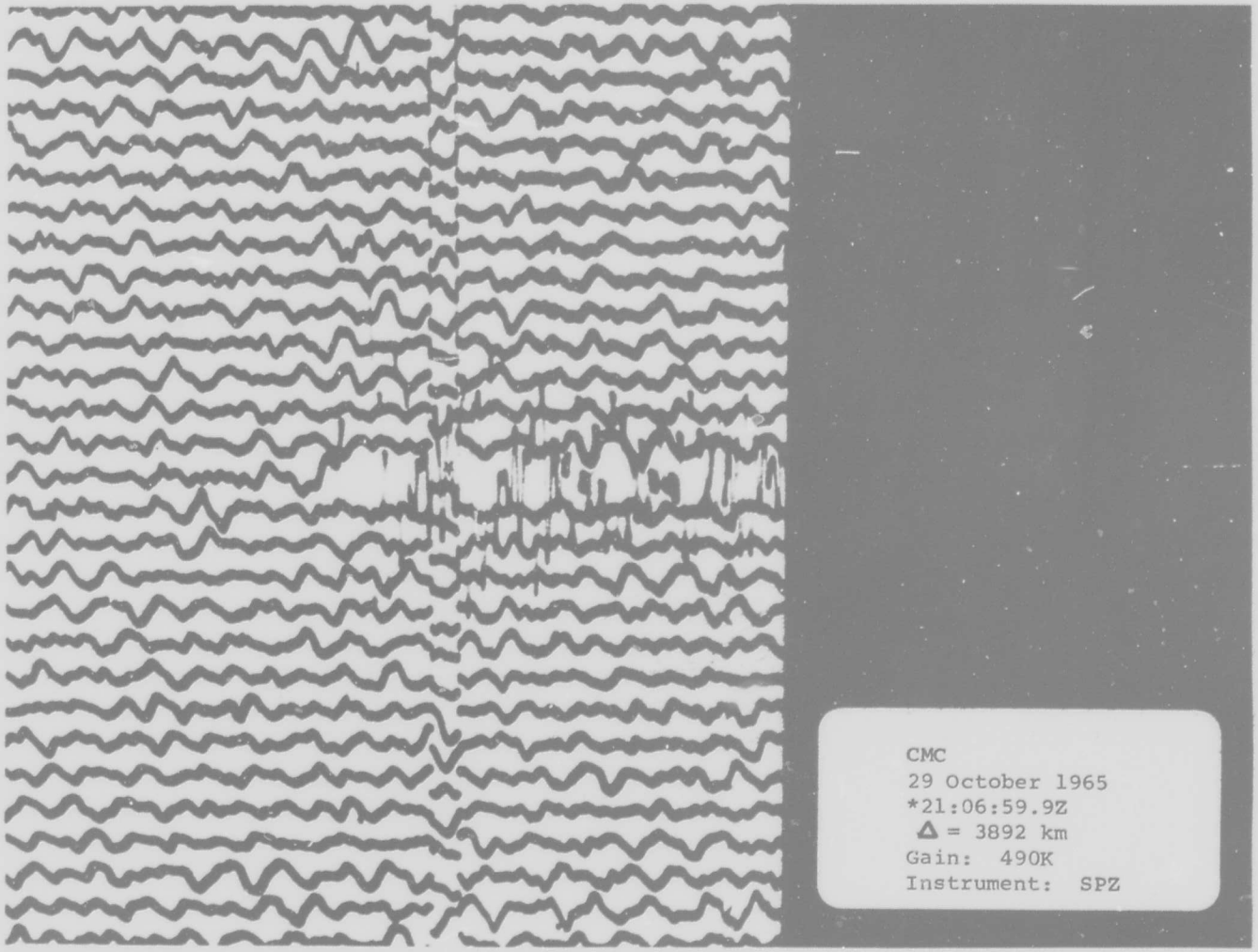
CLEVE RECORD

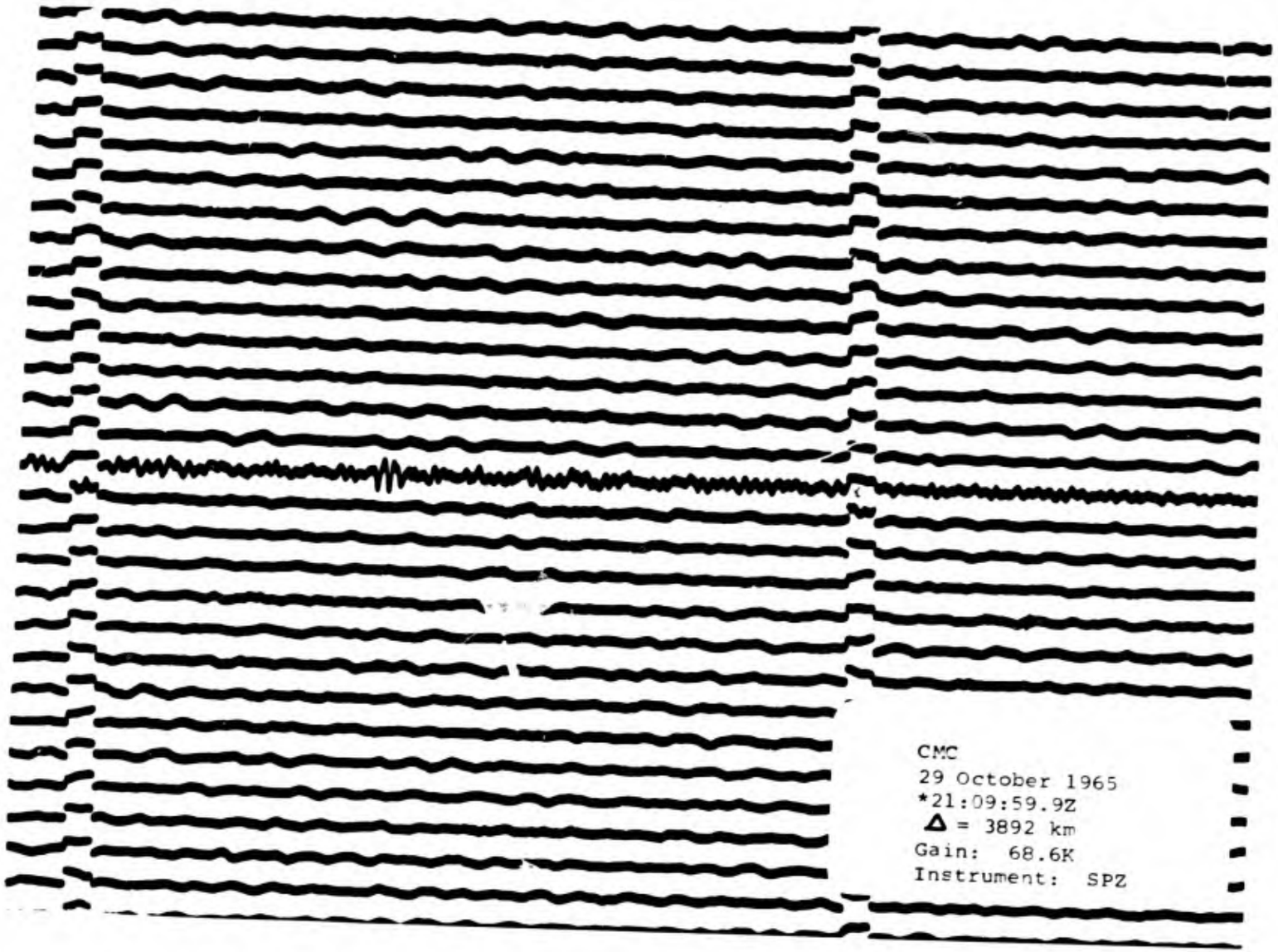
CLV

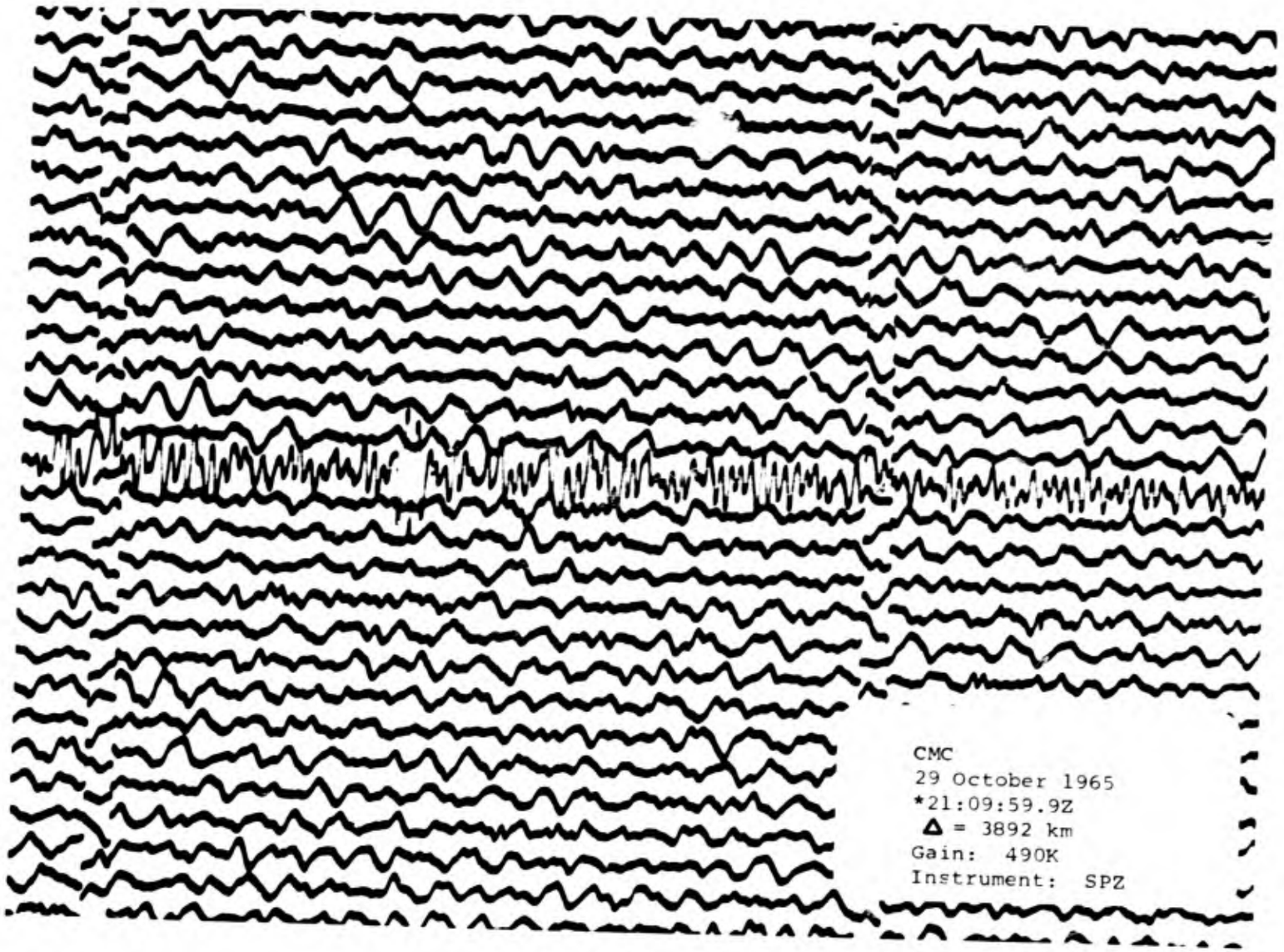
Coordinates . 33° 41' 88" S, 136° 29' 44" E
1st Correction: + 3 minutes 25 4 2000
rate + 2.8 secs per day

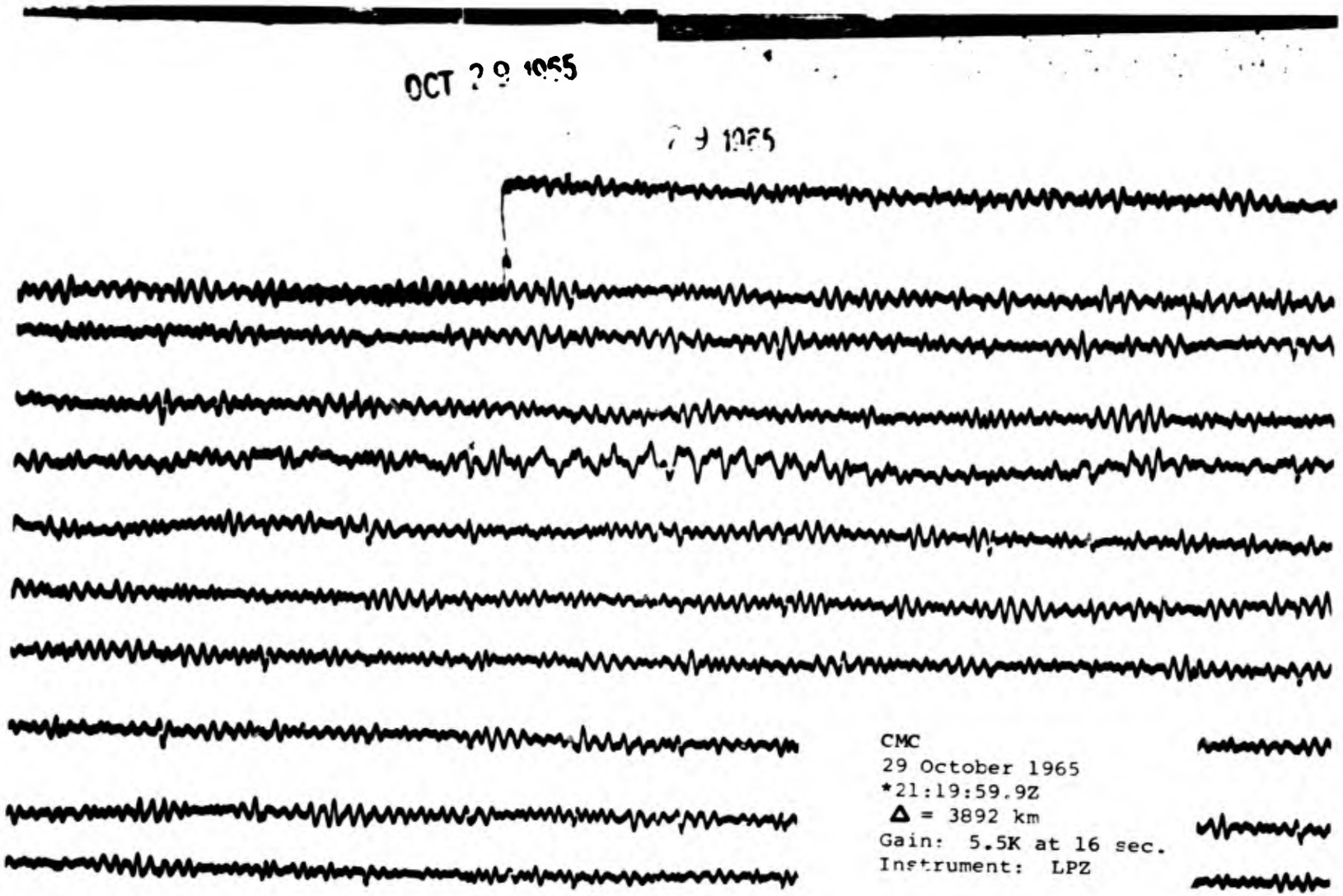
CLV
29 October 1965
*21:13:01.6
Δ = 10,307 km
Gain: 55K at 0.9 sec.
Instrument: SPZ


CMC
29 October 1965
*21:06:59.9Z
Δ = 3892 km
Gain: 68.6K
Instrument: SPZ

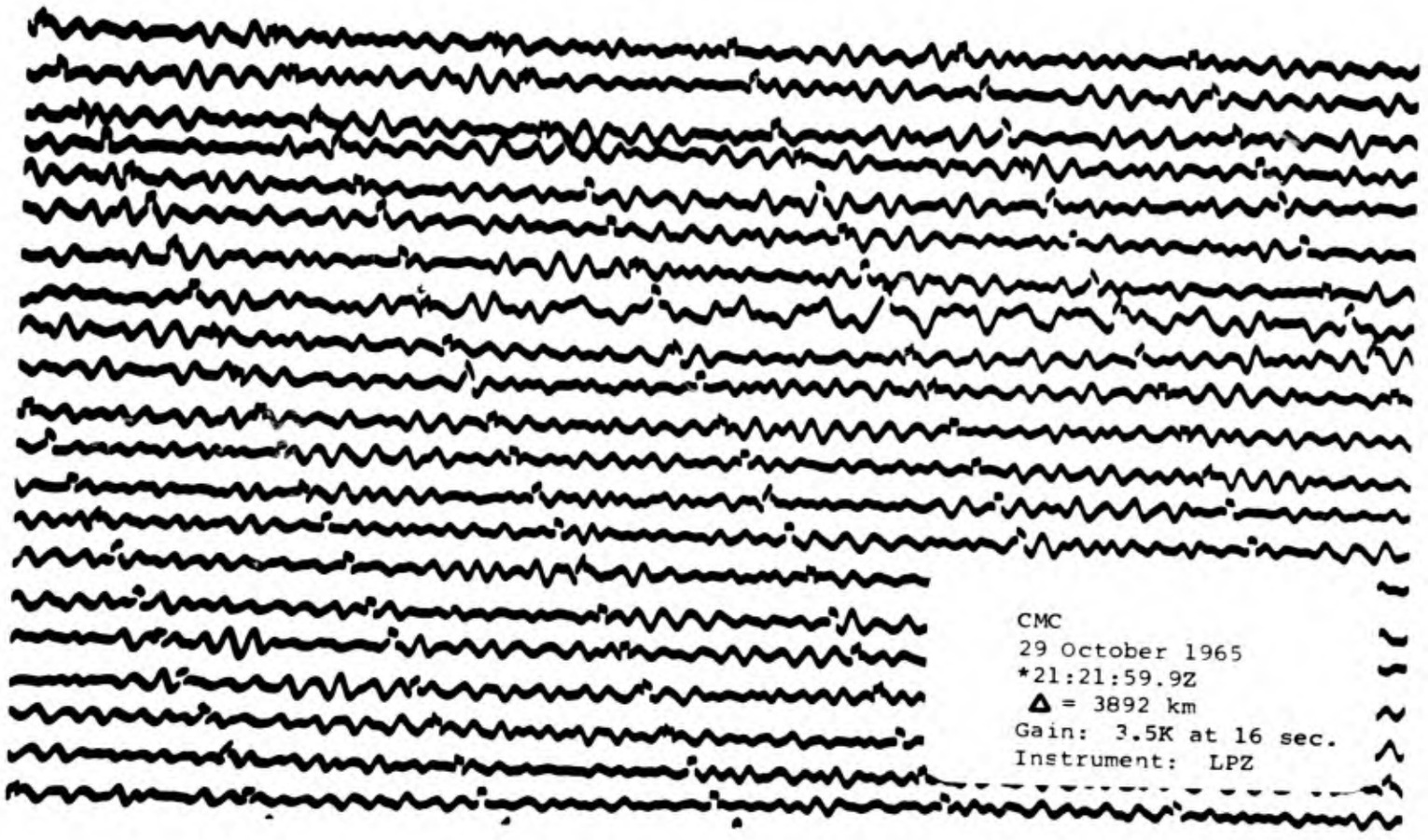

CMC
29 October 1965
*21:06:59.9Z
Δ = 3892 km
Gain: 490K
Instrument: SPZ

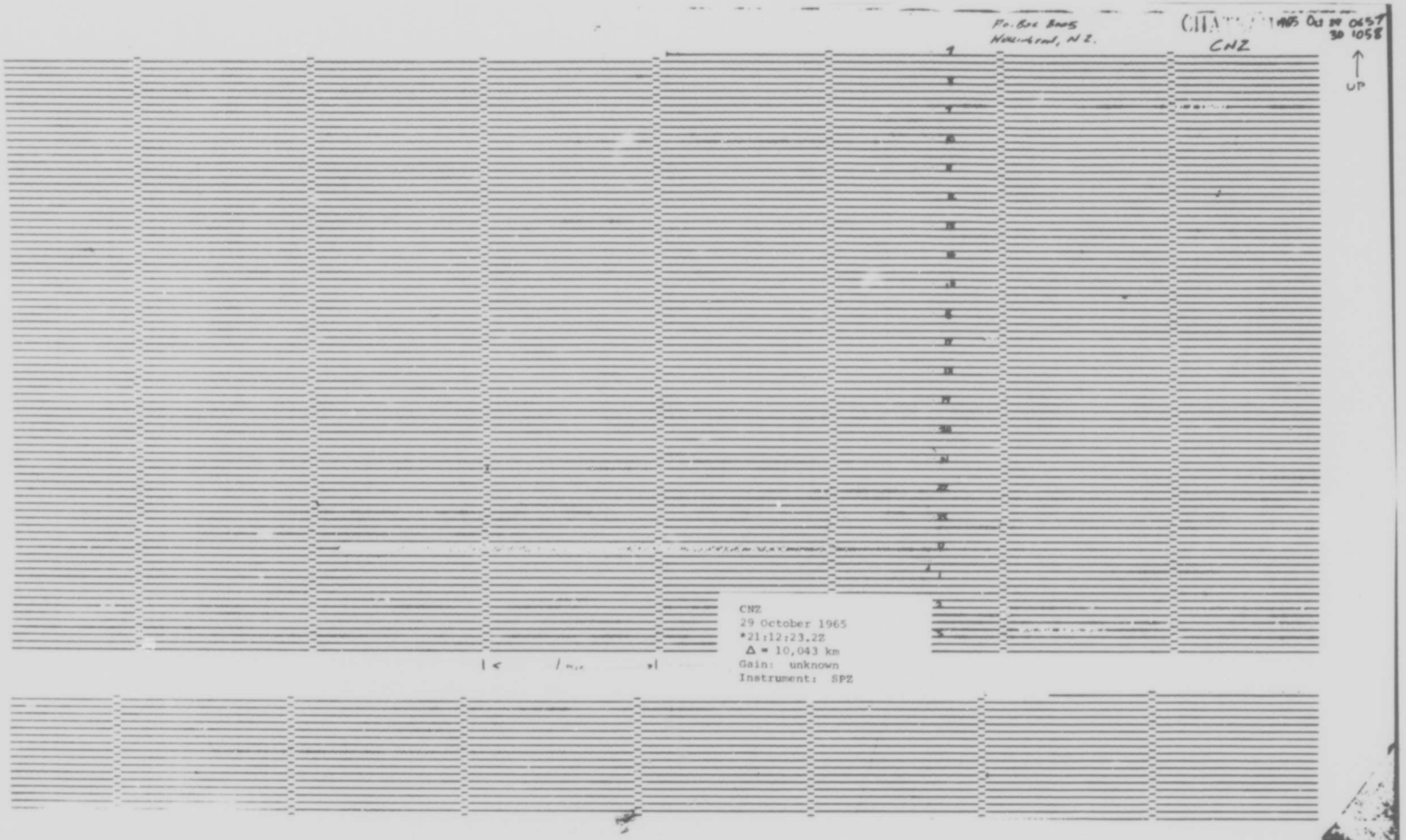

CMC
29 October 1965
*21:09:59.9Z
Δ = 3892 km
Gain: 68.6K
Instrument: SPZ


CMC
29 October 1965
*21:09:59.9Z
Δ = 3892 km
Gain: 490K
Instrument: SPZ

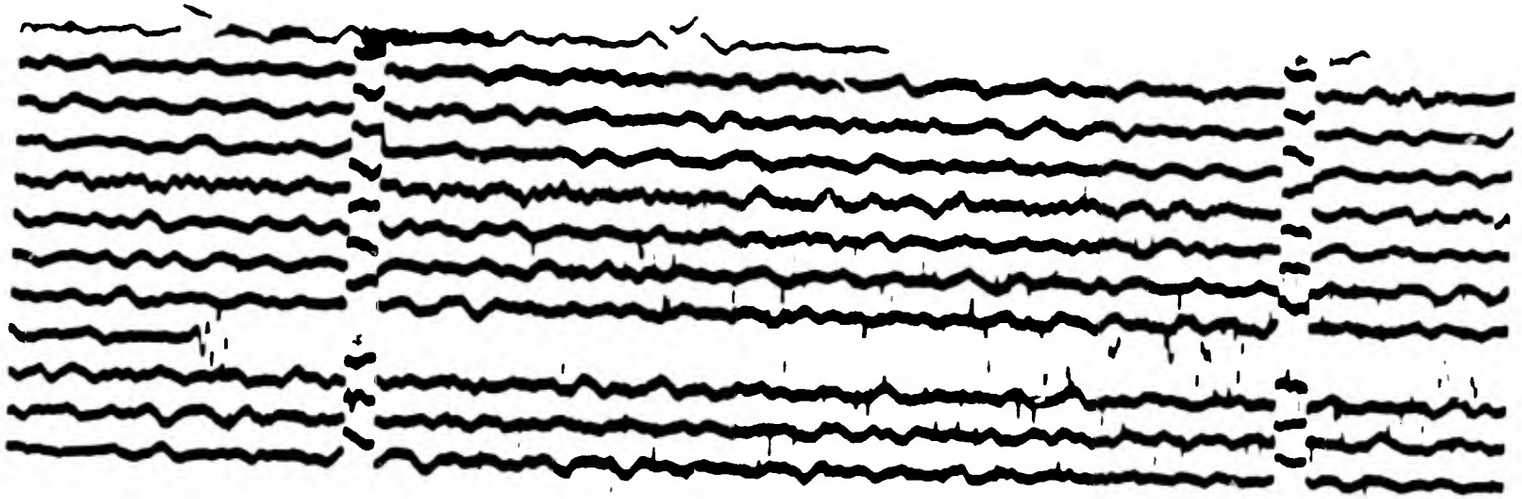

OCT 29 1965
29 1965
CMC
29 October 1965
*21:19:59.9Z
Δ = 3892 km
Gain: 5.5K at 16 sec.
Instrument: LPZ

965


CMC
29 October 1965
*21:21:59.9Z
Δ = 3892 km
Gain: 3.5K at 16 sec.
Instrument: LPZ



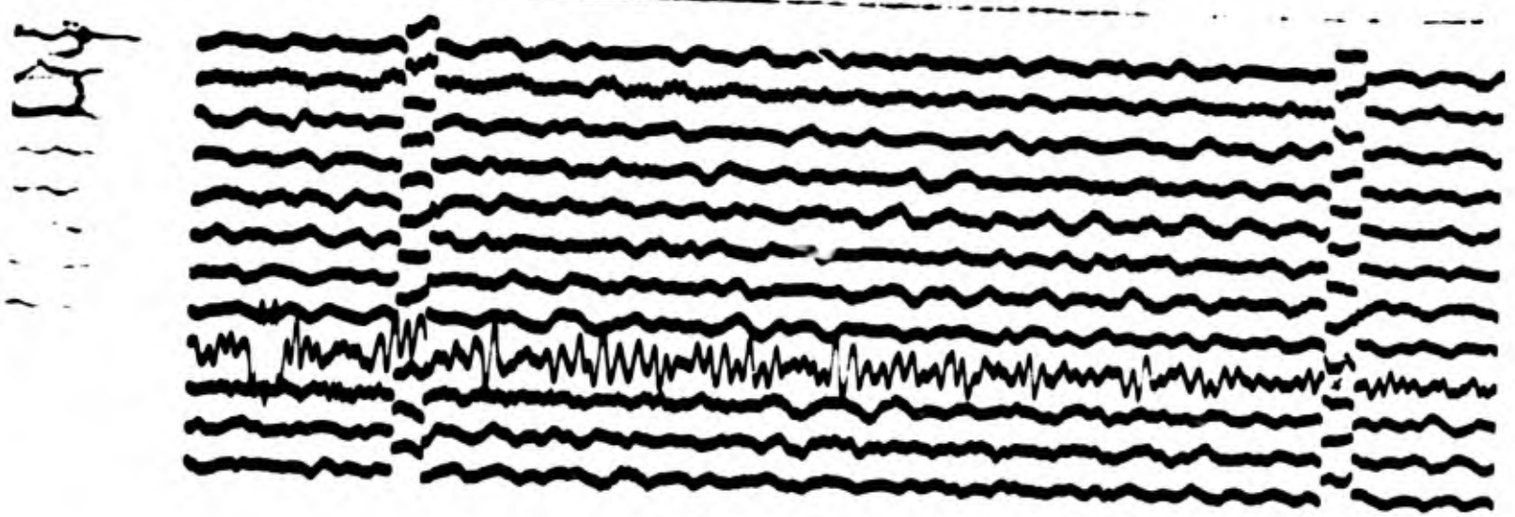
CORRECT TIME MARKED BY
BEGINNING OF SIXTH DEFLECTION



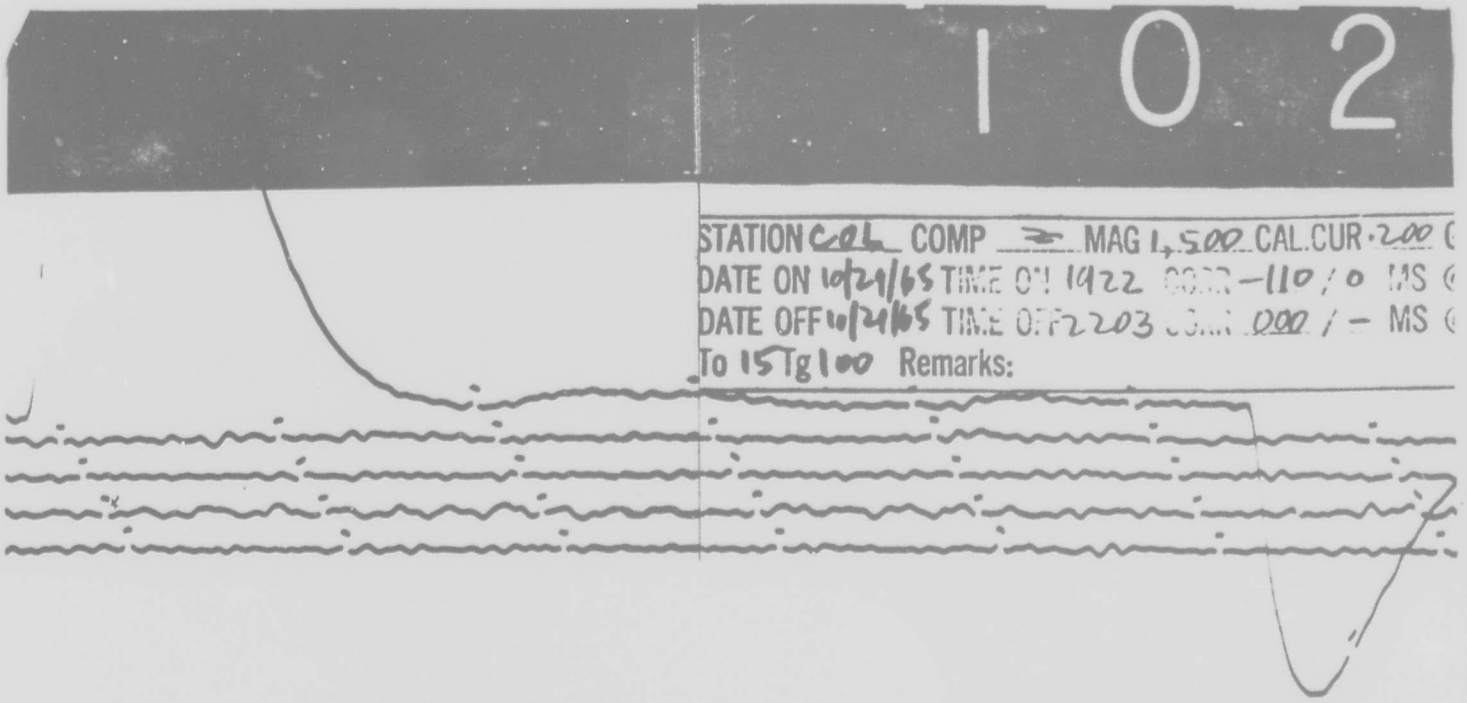
COL
29 October 1965
*21:05:00.0Z
Δ = 2412 km
Gain: 245K
Instrument: SPZ

DATE OF 10/29/65 2200 000

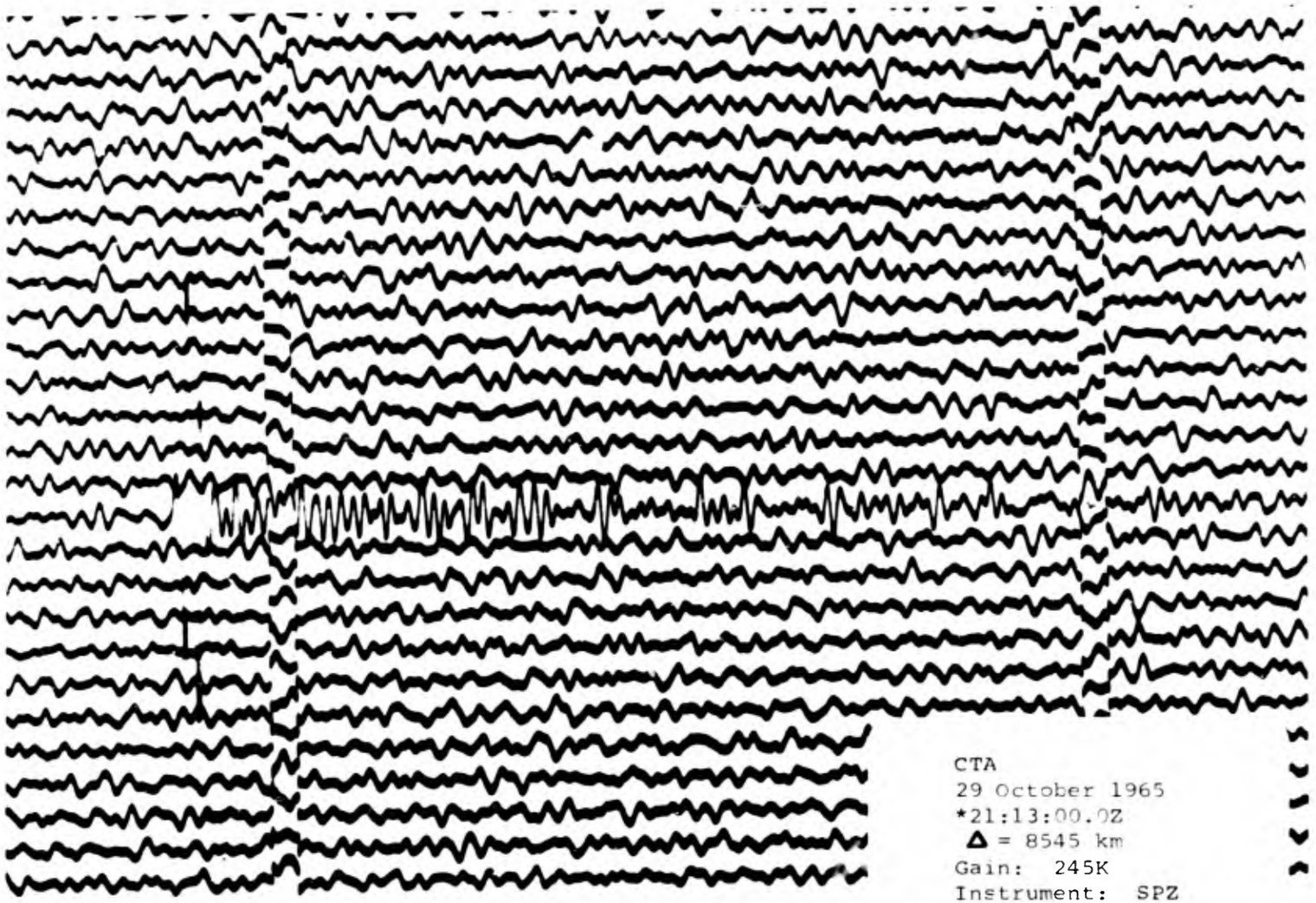
TO 10Tg.75 REMARKS:

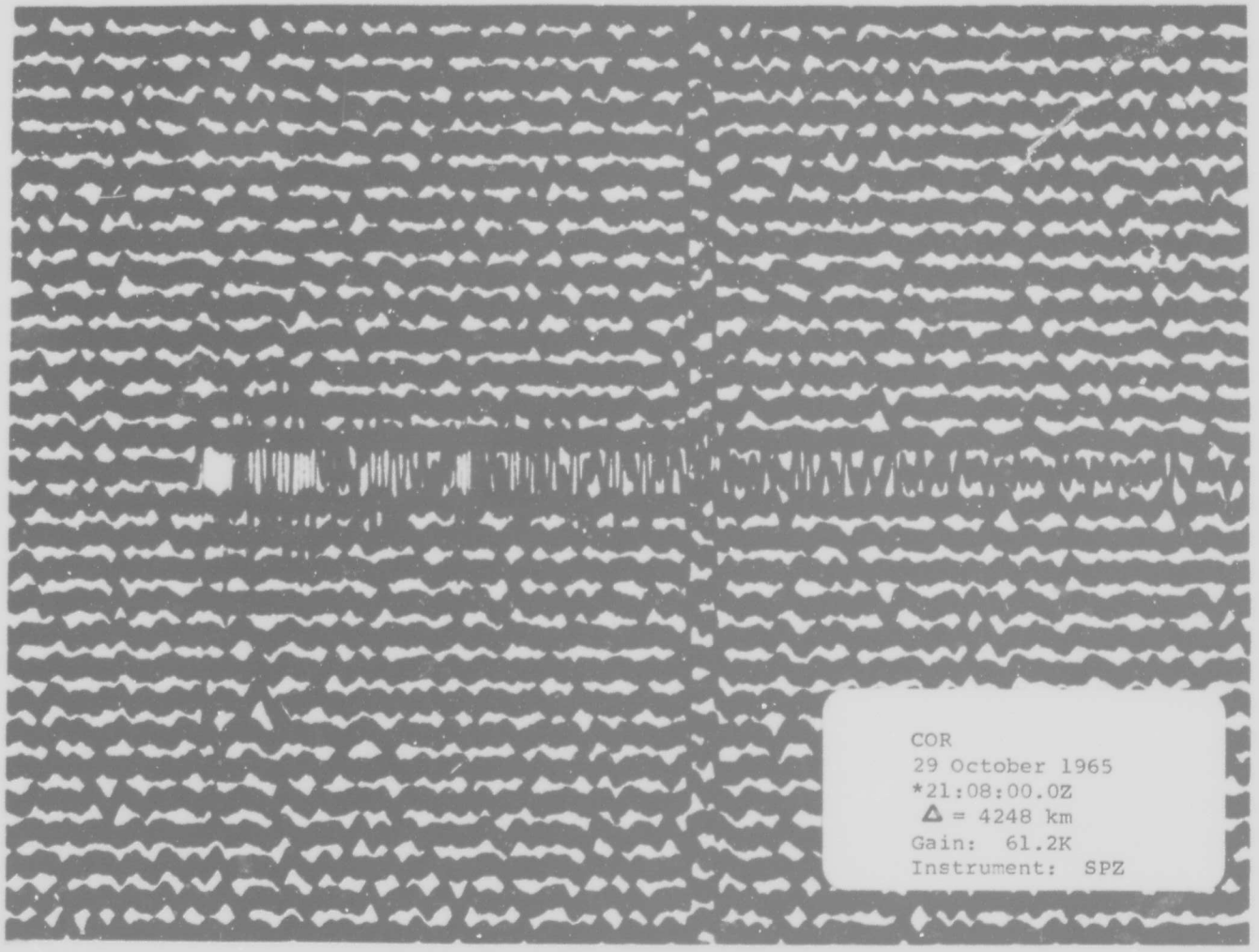


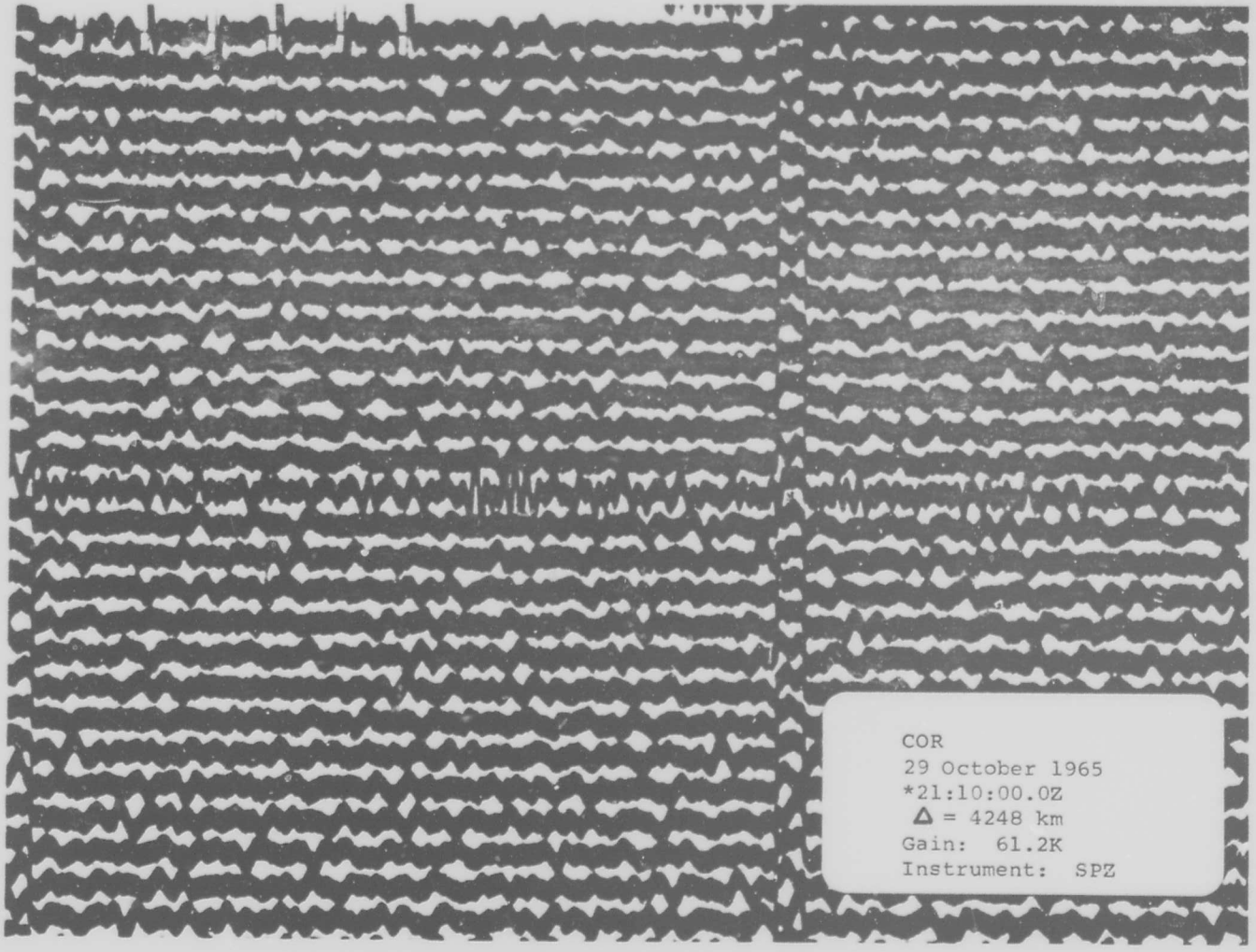
COL
29 October 1965
*21:10:00.0Z
Δ = 2412 km
Gain: 245K
Instrument: SPZ

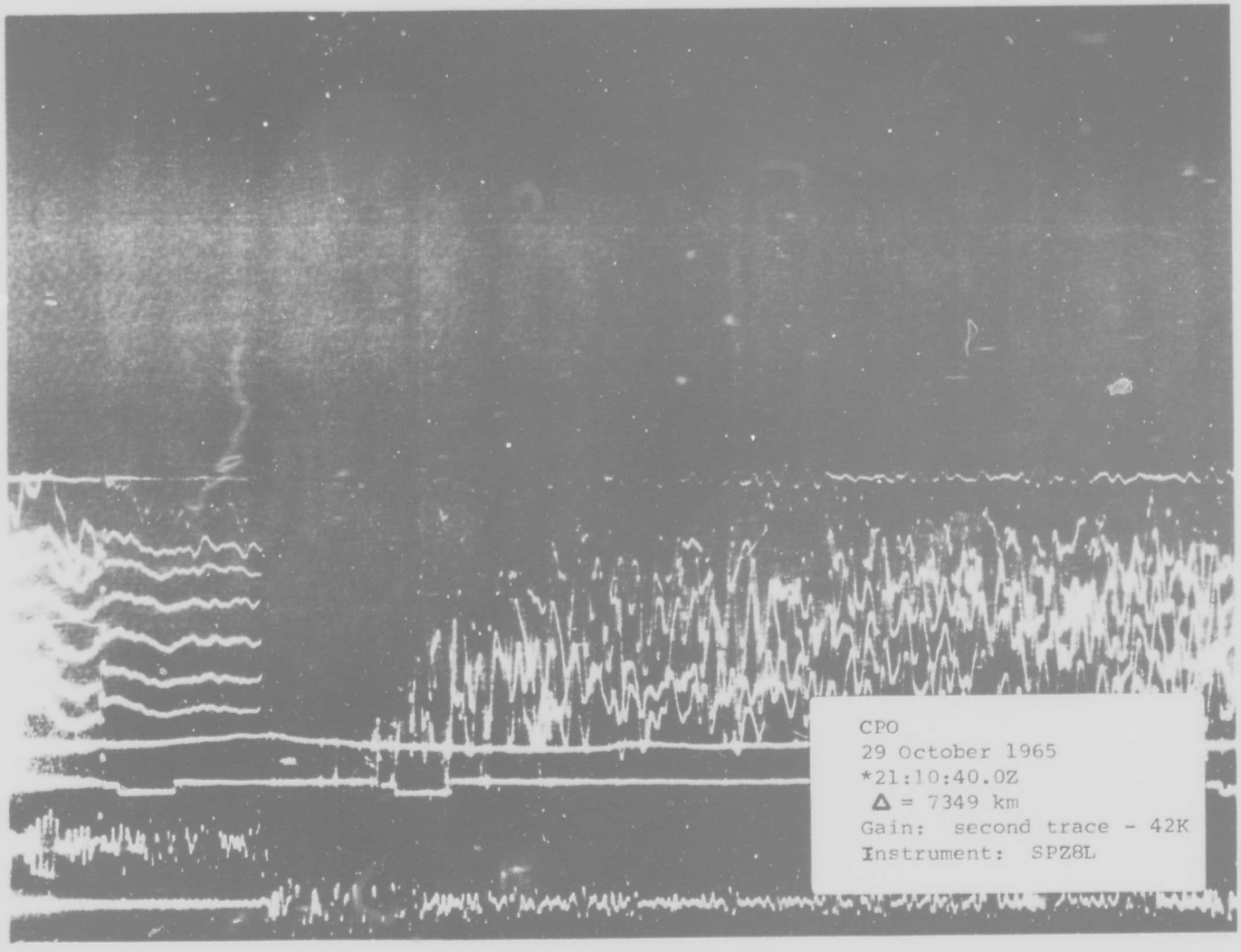


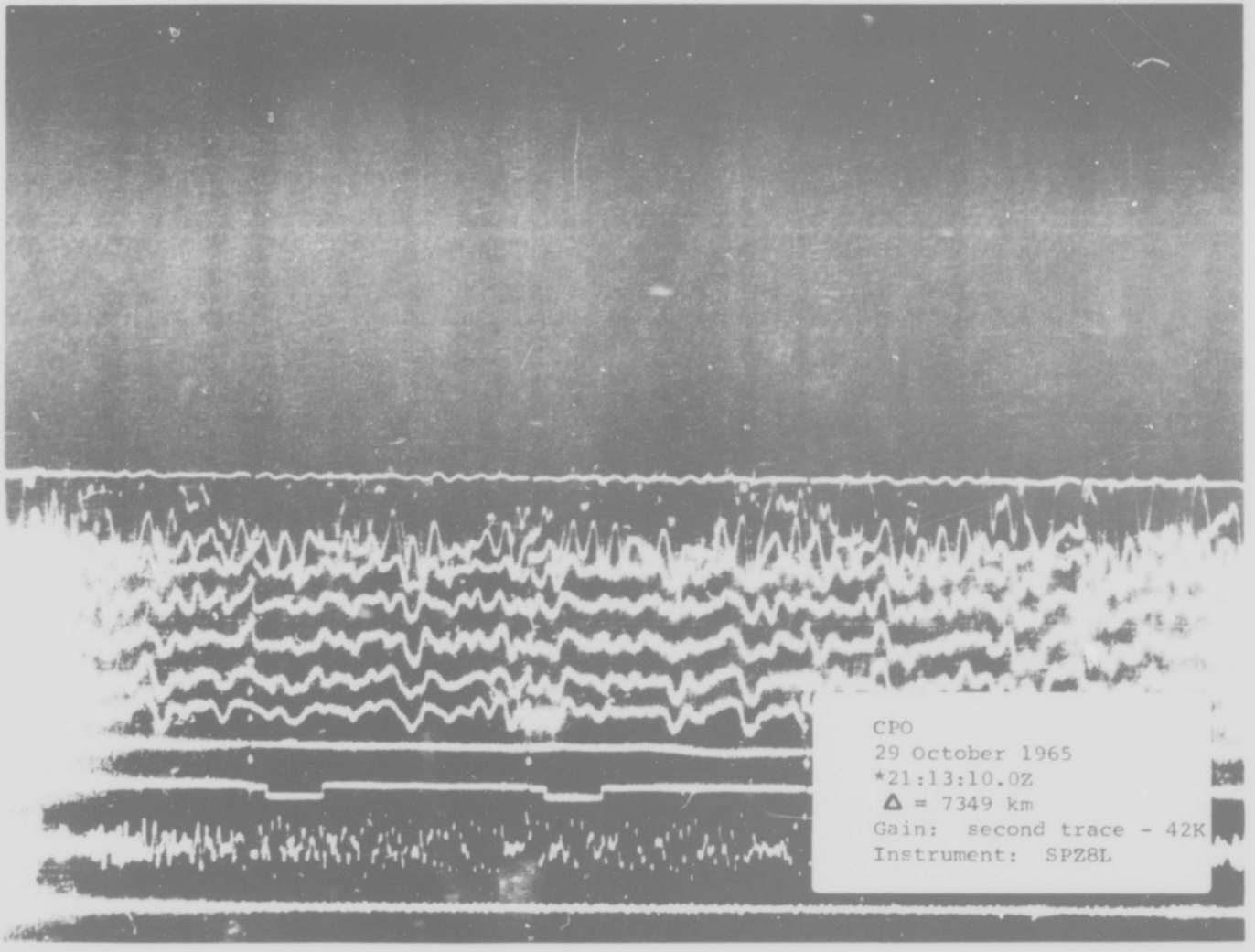
COL
29 October 1965
*21:13:00.0Z
Δ = 2412 km
Gain: 1.7K at 14 sec.
Instrument: LPZ

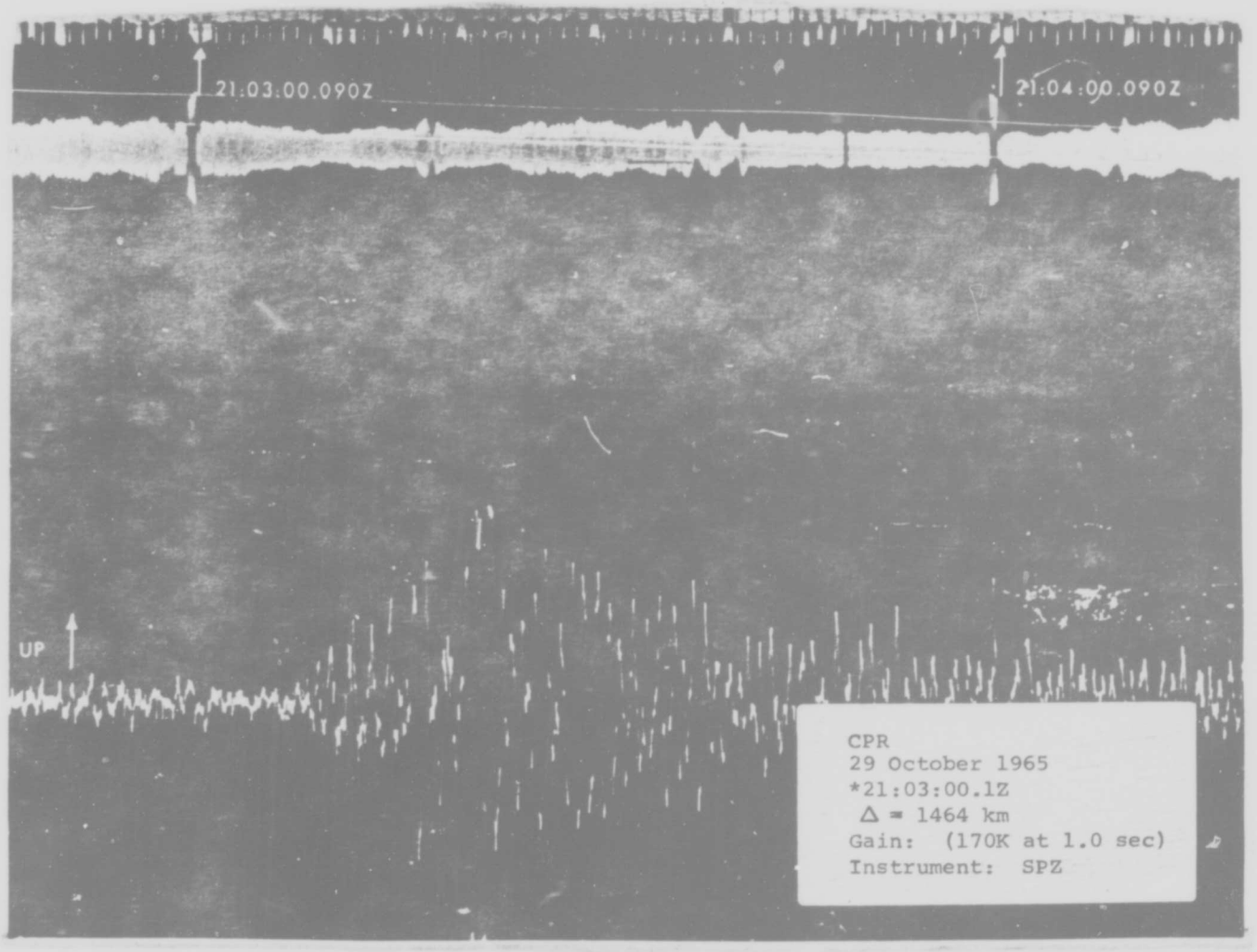

CTA
29 October 1965
*21:13:00.0Z
Δ = 8545 km
Gain: 245K
Instrument: SPZ

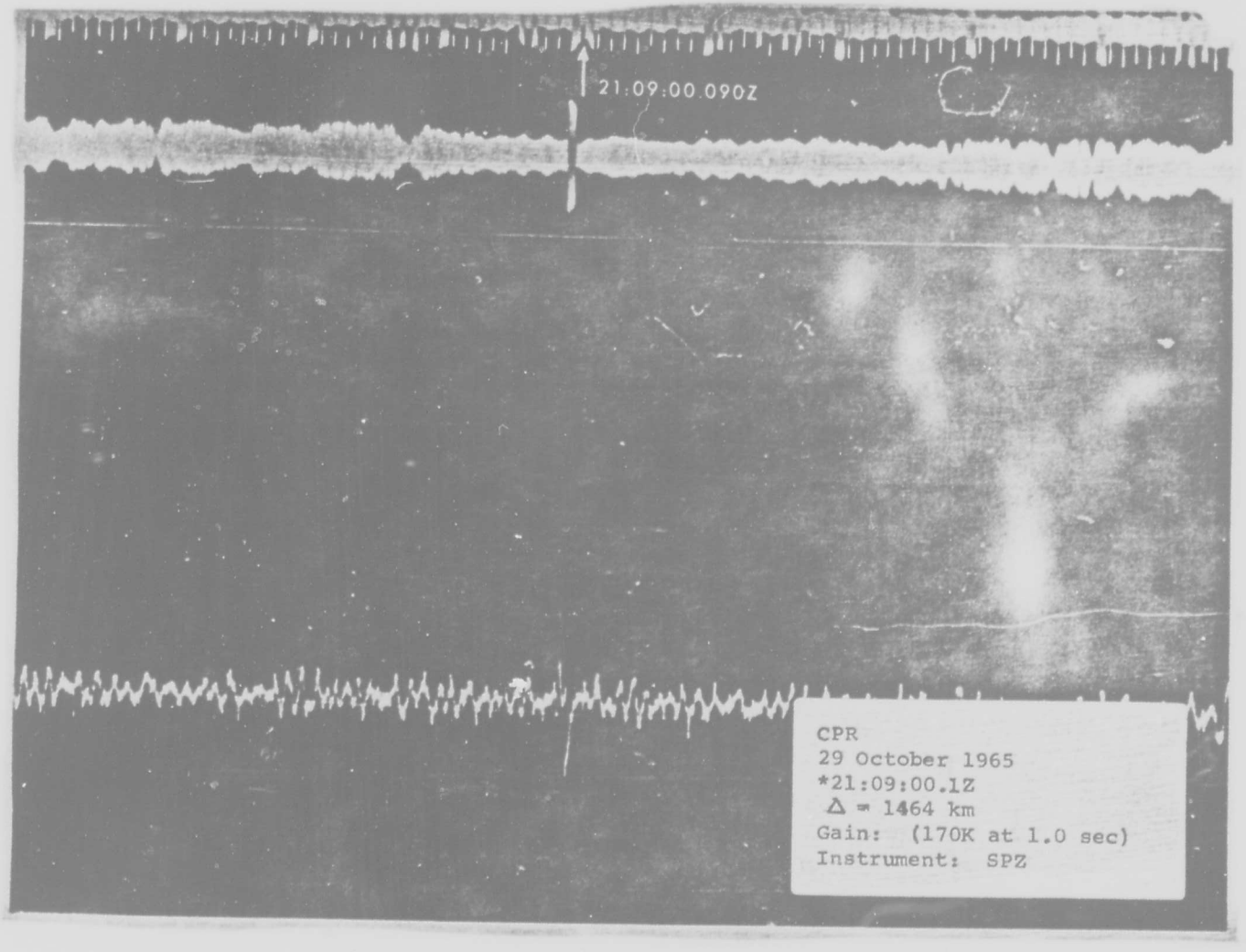

COR
29 October 1965
*21:08:00.0Z
Δ = 4248 km
Gain: 61.2K
Instrument: SPZ

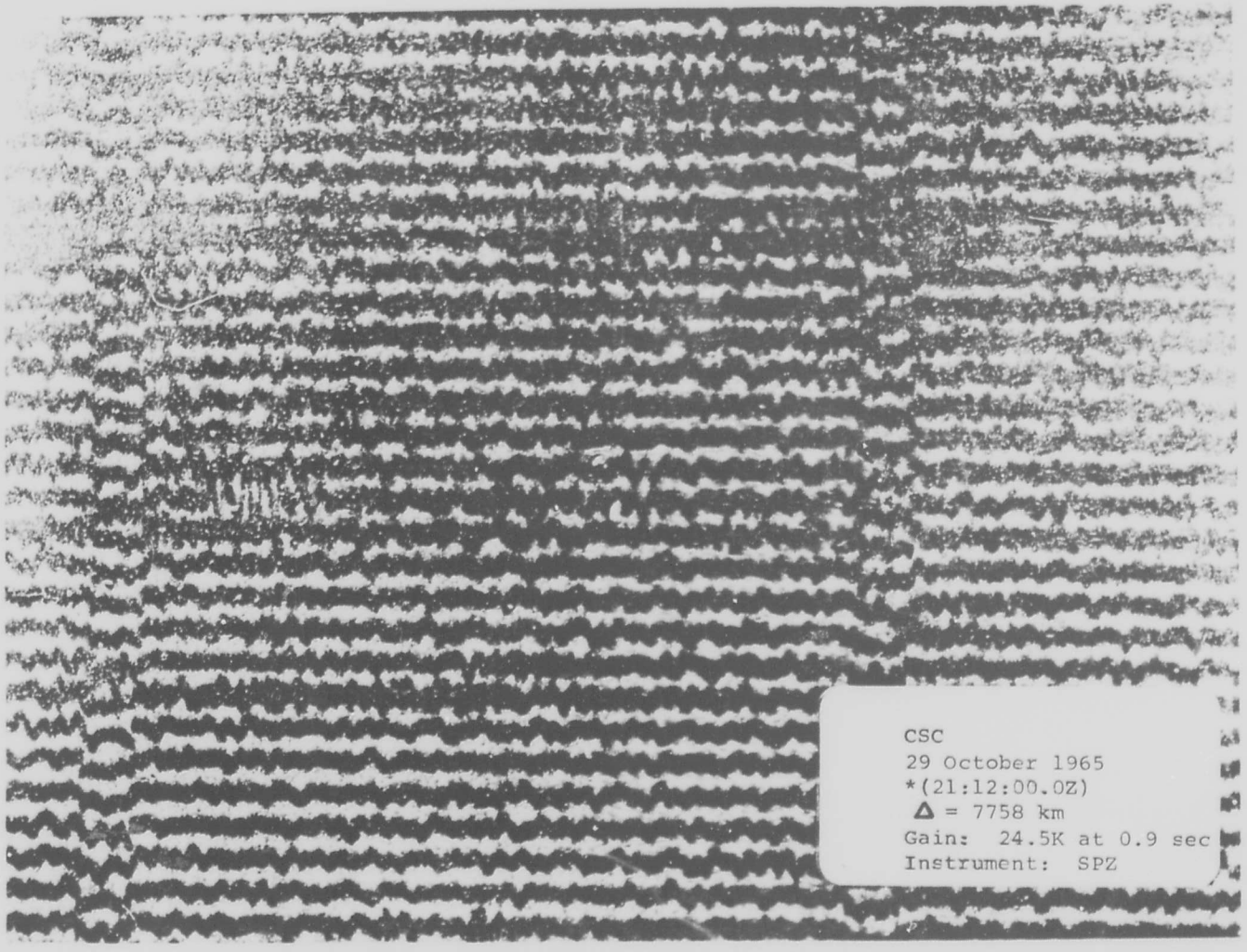

COR
29 October 1965
*21:10:00.0Z
Δ = 4248 km
Gain: 61.2K
Instrument: SPZ

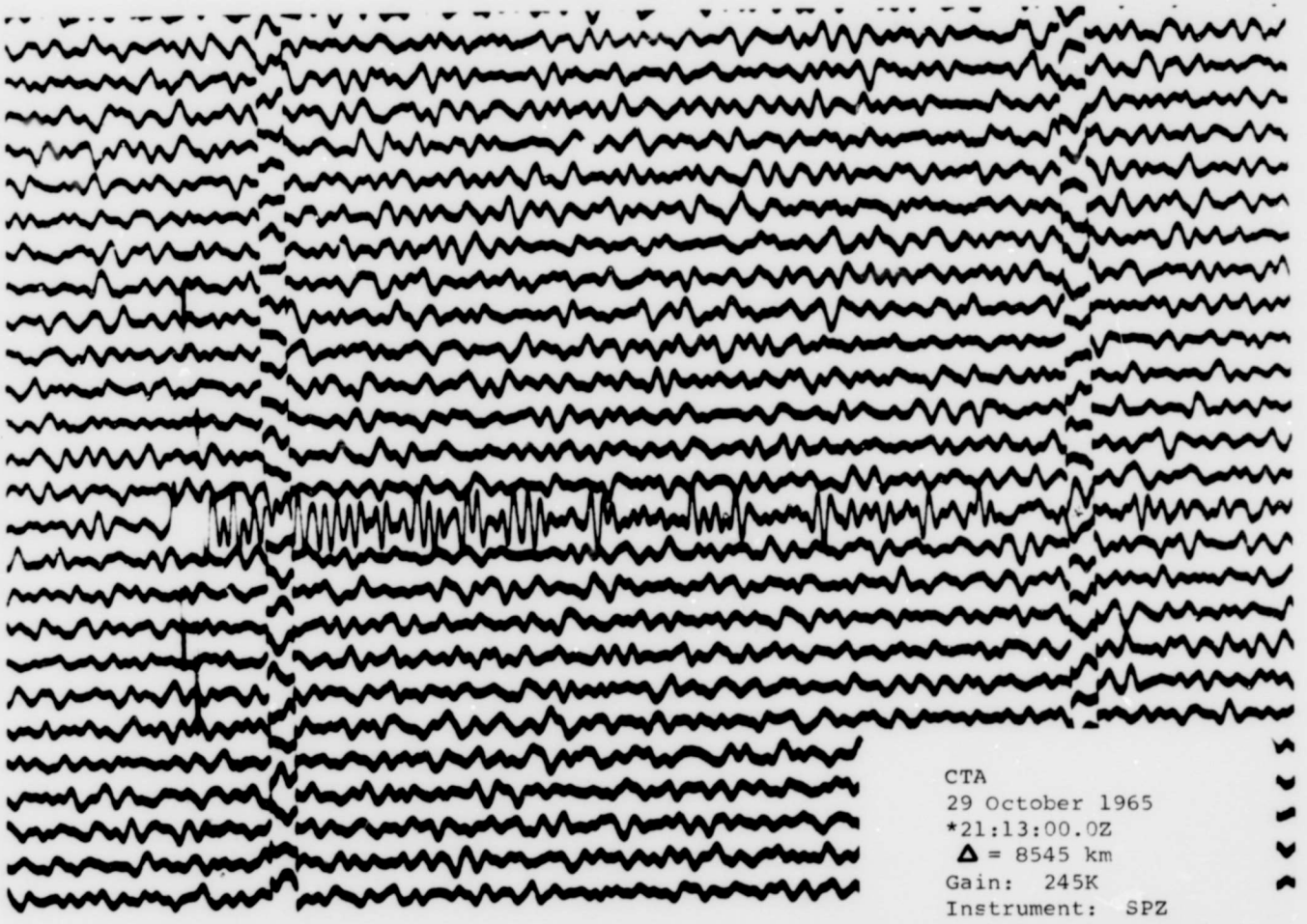

CPO
29 October 1965
*21:10:40.0Z
Δ = 7349 km
Gain: second trace - 42K
Instrument: SPZ8L


CPO
29 October 1965
*21:13:10.0Z
Δ = 7349 km
Gain: second trace - 42K
Instrument: SPZ8L

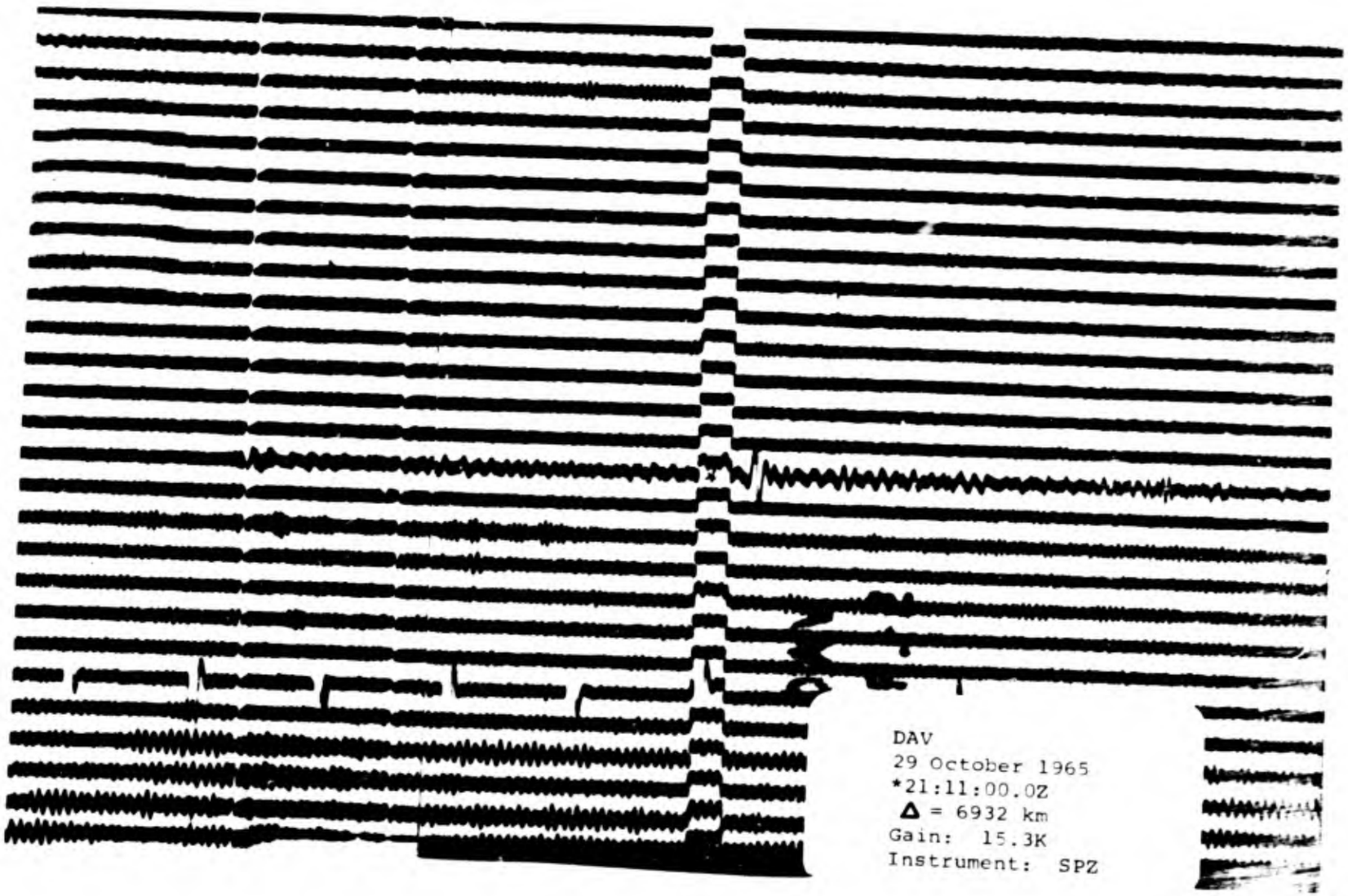

21:03:00.090Z
21:04:00.090Z
UP
CPR
29 October 1965
*21:03:00.1Z
Δ = 1464 km
Gain: (170K at 1.0 sec)
Instrument: SPZ

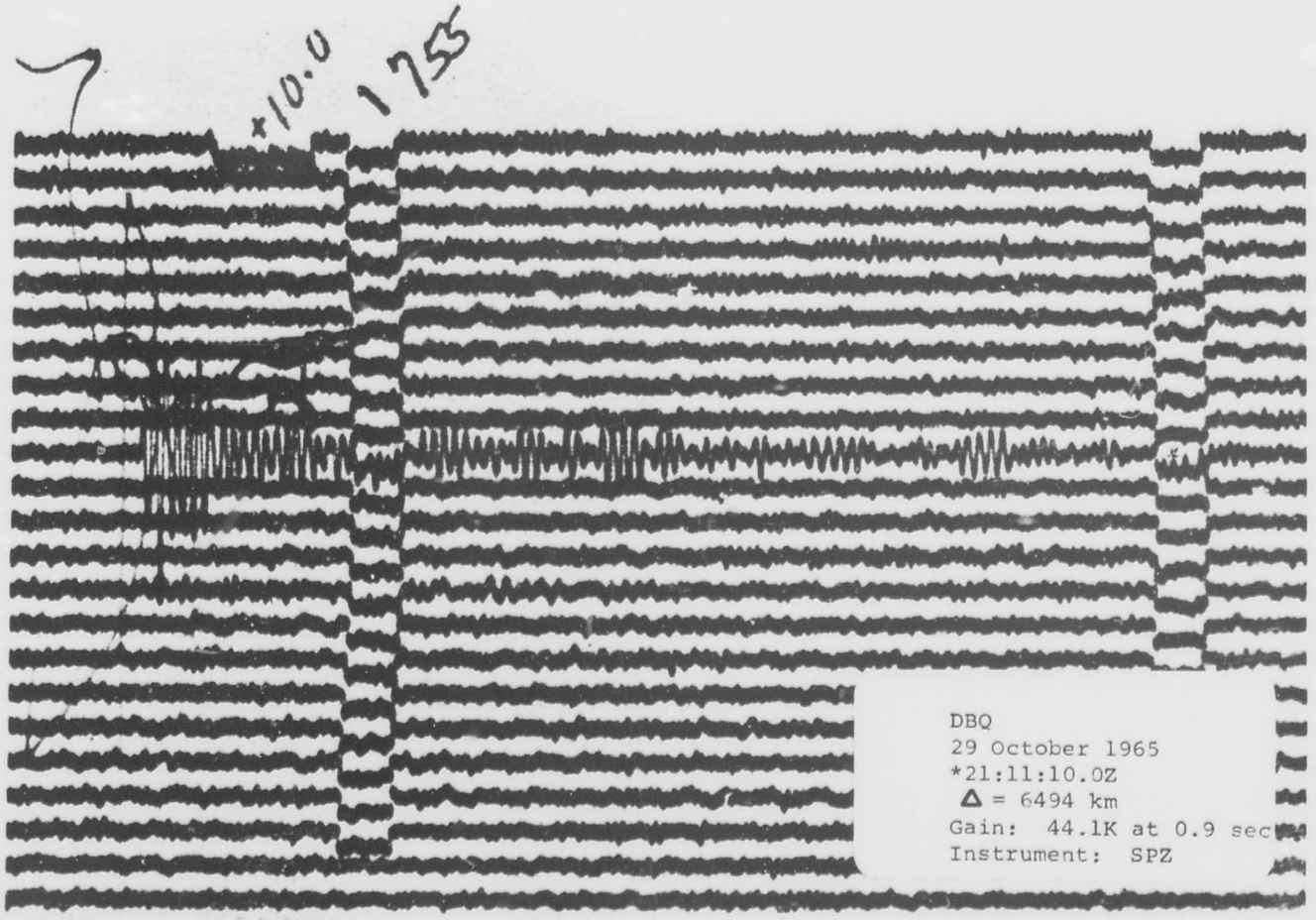

21:09:00.090Z
CPR
29 October 1965
*21:09:00.1Z
Δ = 1464 km
Gain: (170K at 1.0 sec)
Instrument: SPZ

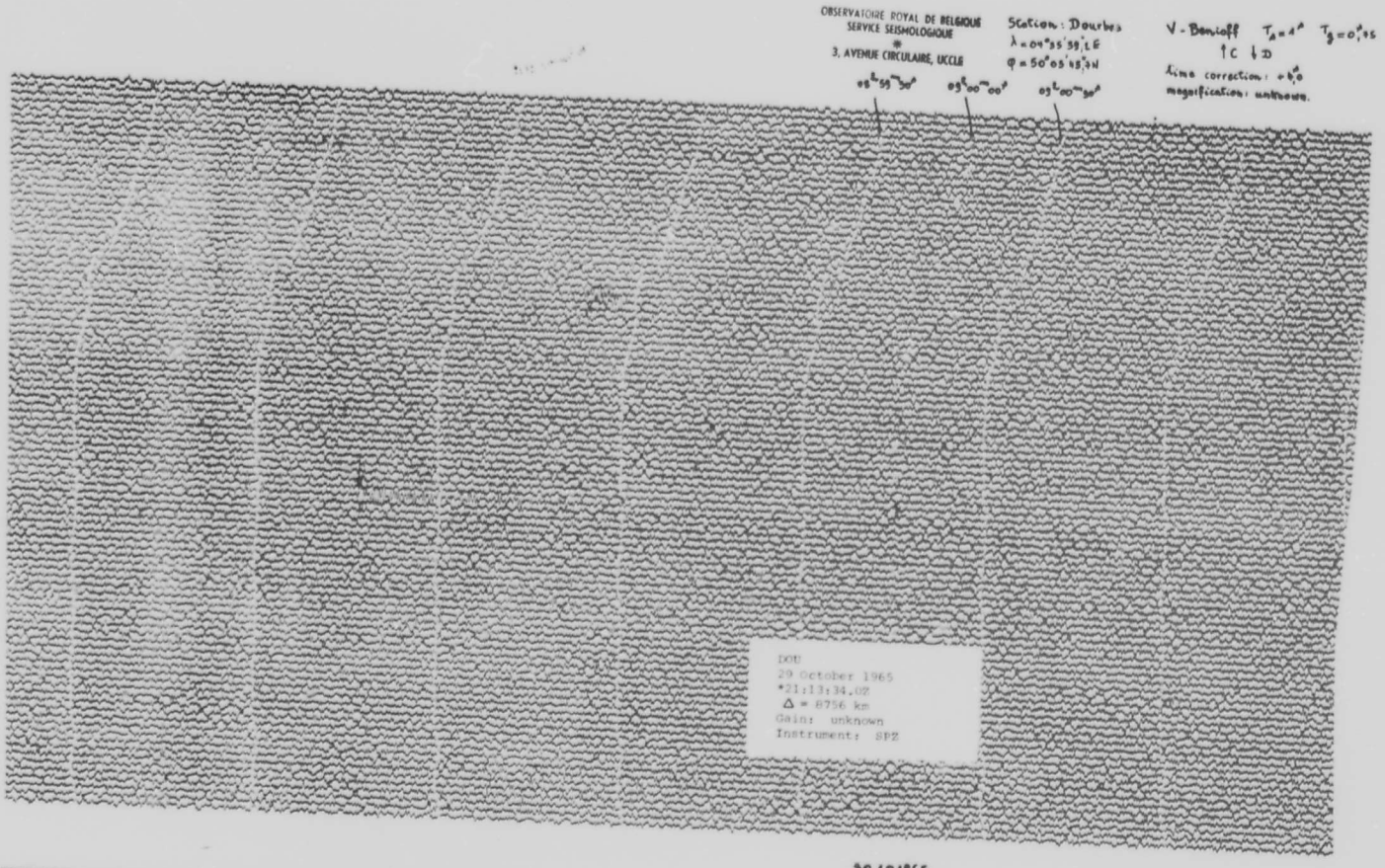

CSC
29 October 1965
*(21:12:00.0Z)
Δ = 7758 km
Gain: 24.5K at 0.9 sec
Instrument: SPZ

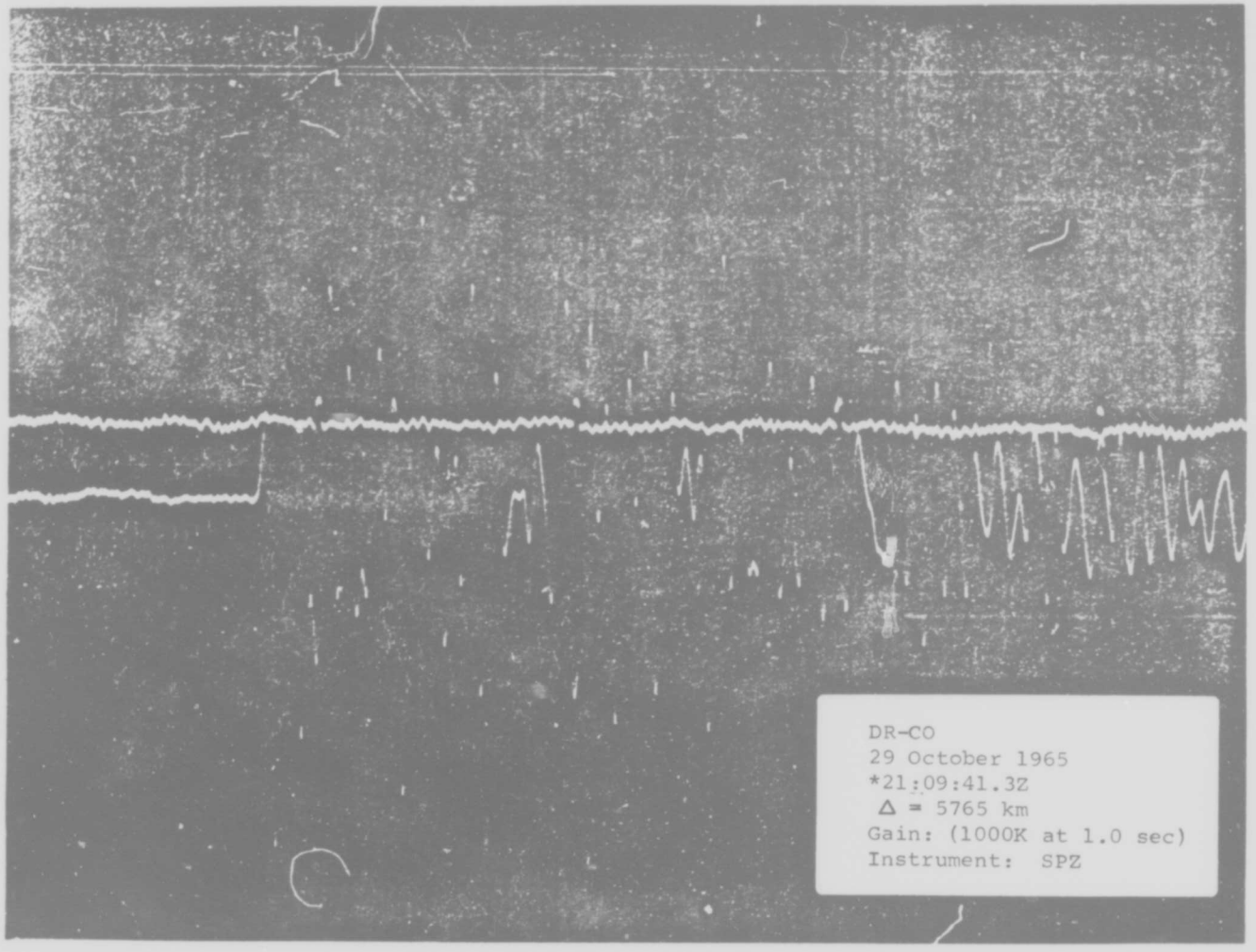

CTA
29 October 1965
*21:13:00.0Z
Δ = 8545 km
Gain: 245K
Instrument: SPZ

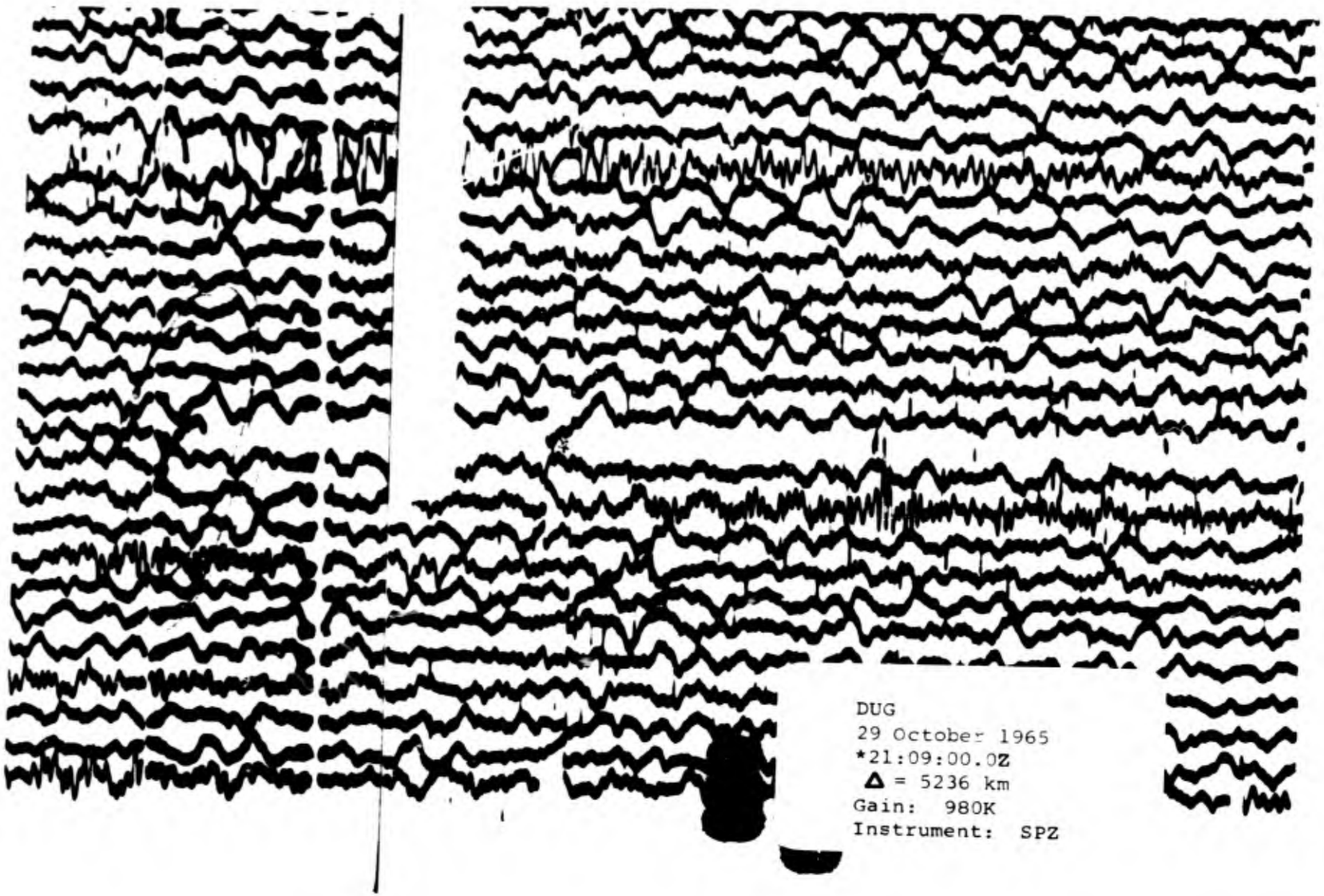
DAL
29 October 1965
*21:10:59.9Z
Δ = 6849 km
Gain: 61.2K
Instrument: SPZ

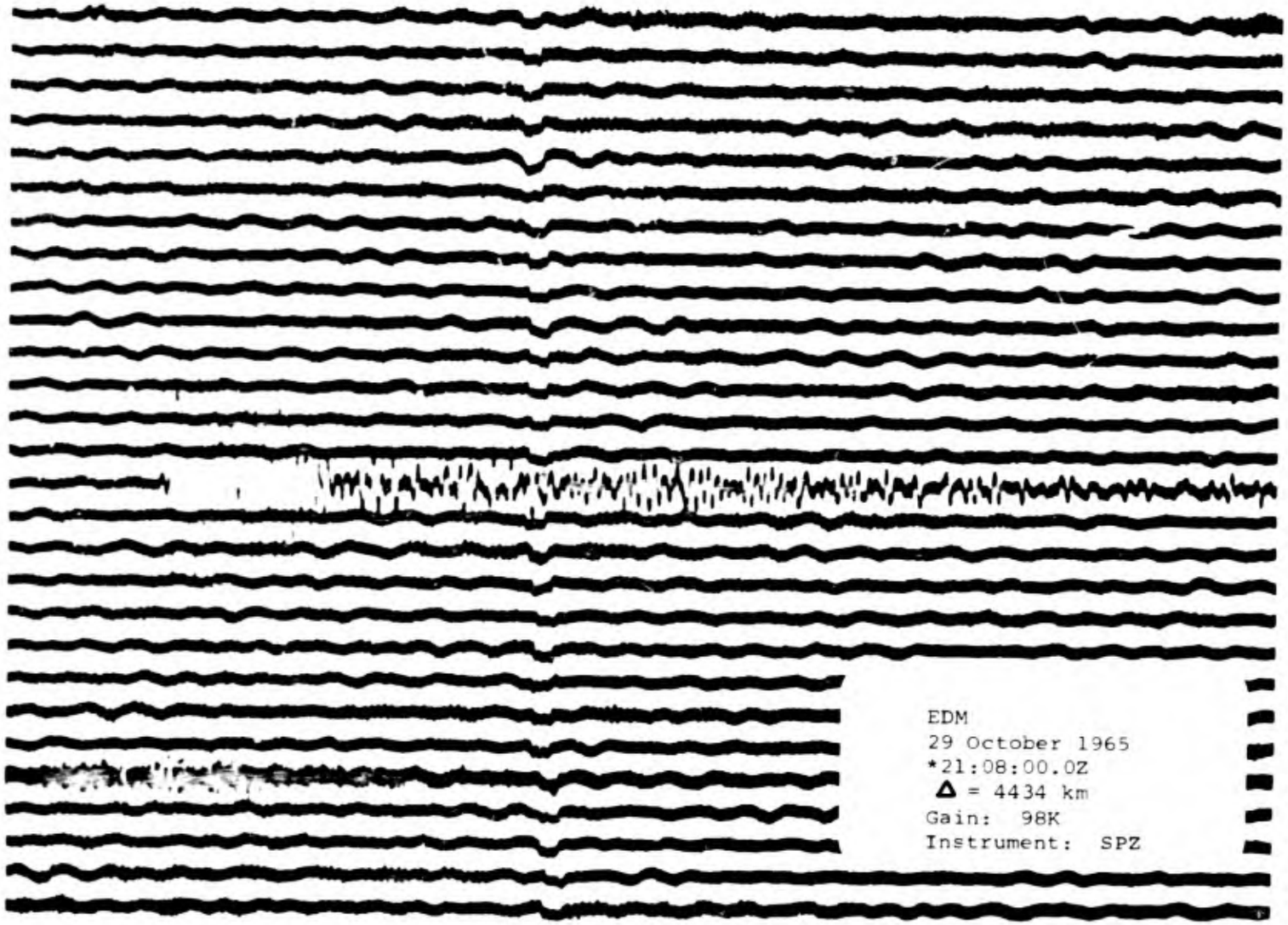

DAV
29 October 1965
*21:11:00.0Z
Δ = 6932 km
Gain: 15.3K
Instrument: SPZ

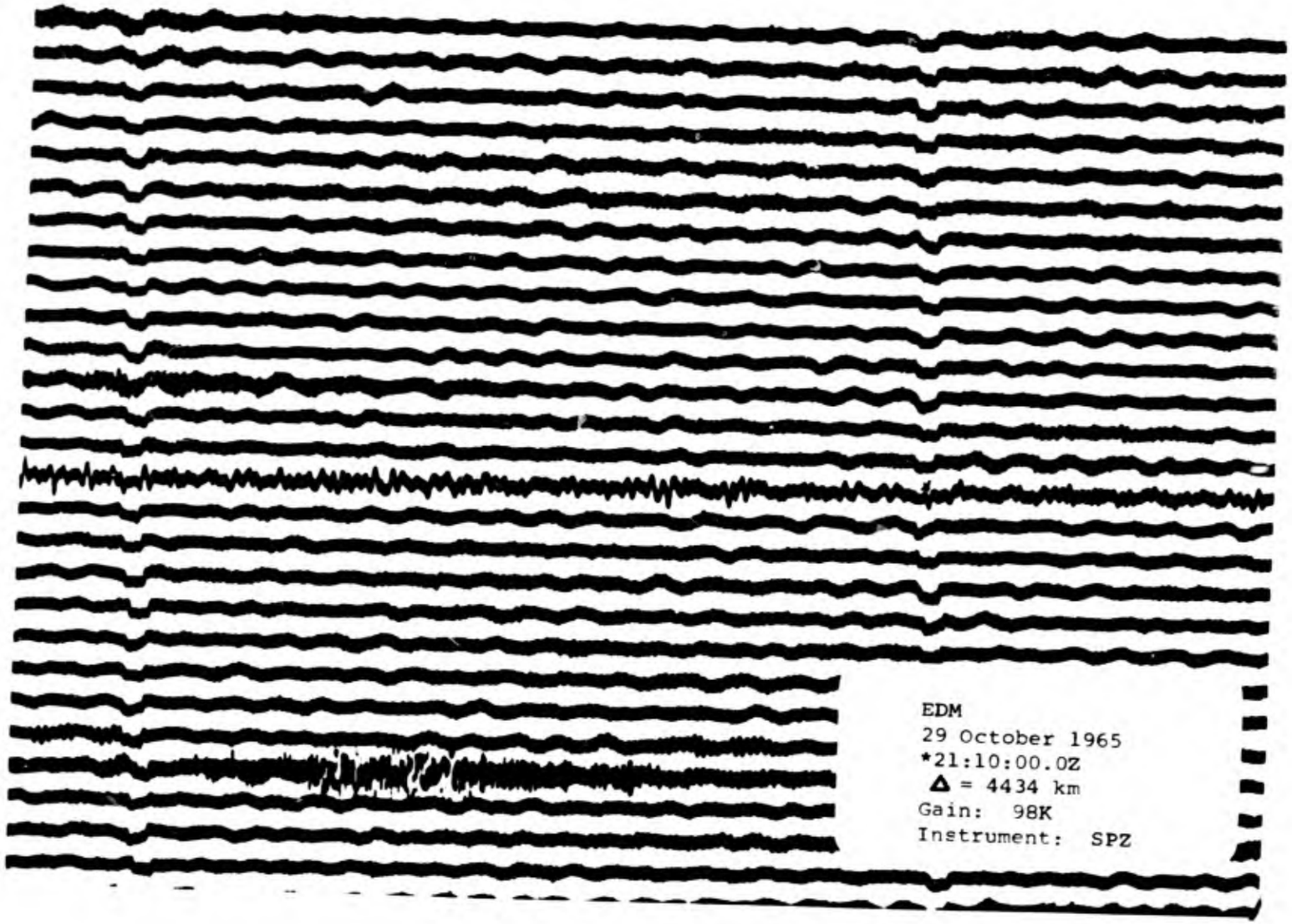

+10.0
1755
DBQ
29 October 1965
*21:11:10.0Z
Δ = 6494 km
Gain: 44.1K at 0.9 sec
Instrument: SPZ

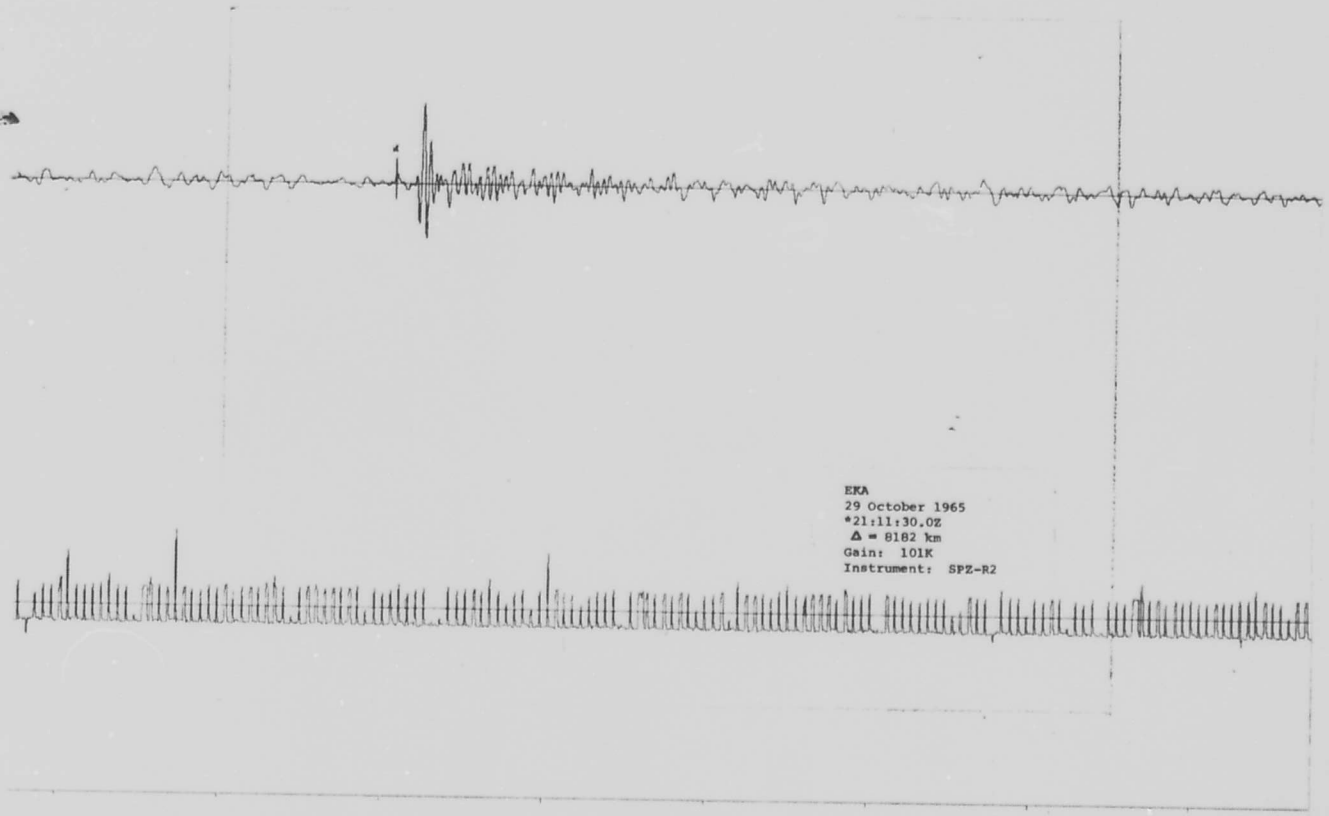

OBSERVATOIRE ROYAL DE BELGIQUE
SERVICE SEISMOLOGIQUE
3, AVENUE CIRCULAIRE, UCCLE
Station : Dourbes
λ = 04°35'39",6 E
φ = 50°05'48",3 N
V - Beniaff T_A = 1^s T_B = 0^s,95
↑C ↓D
time correction : +0^s,0
magnification : unknown
03h59m30s
04h00m00s
04h00m30s
DOU
29 October 1965
*21:13:34.02
Δ = 8756 km
Gain: unknown
Instrument: SP2
30.10.1965

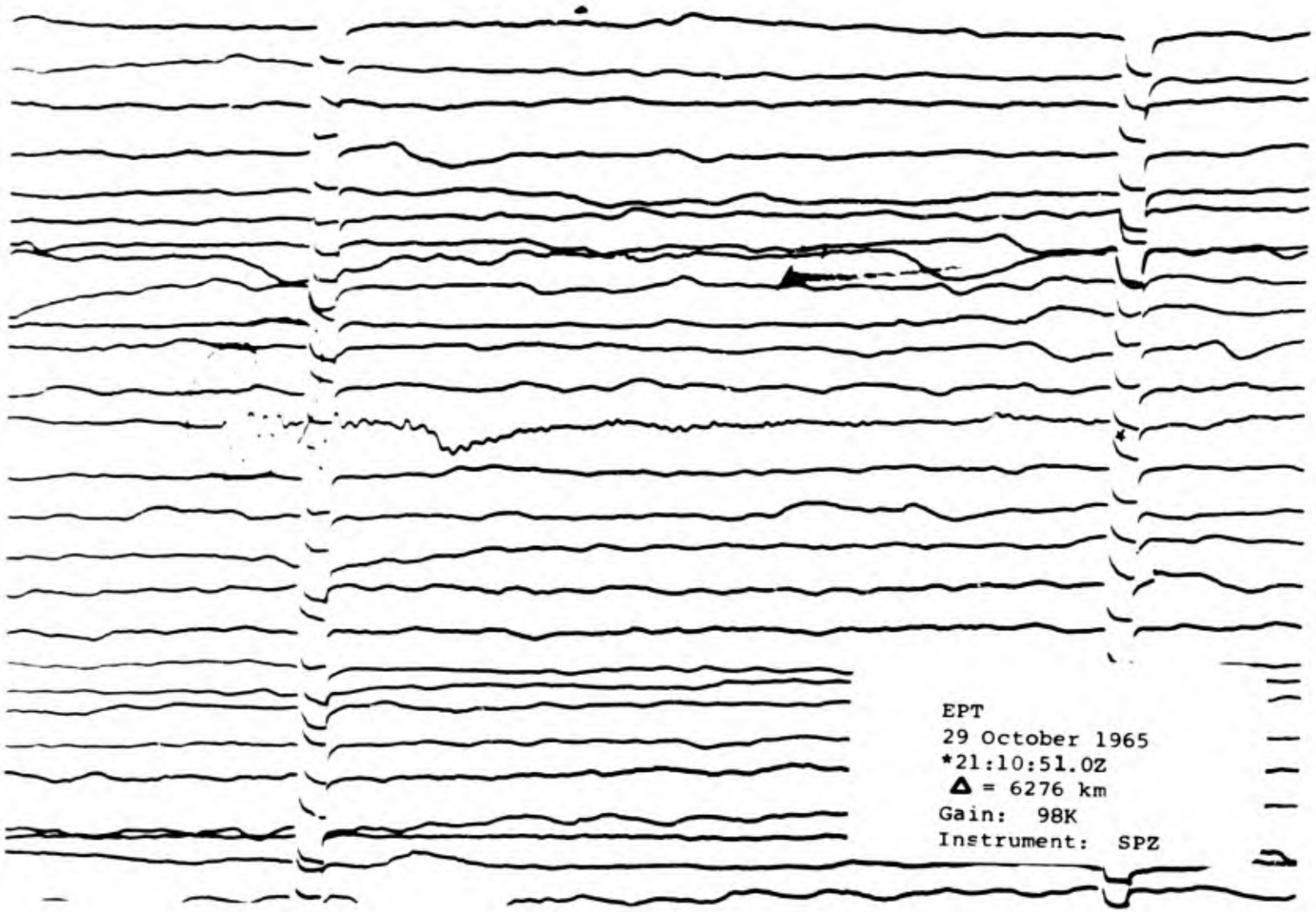

DR-CO
29 October 1965
*21:09:41.3Z
Δ = 5765 km
Gain: (1000K at 1.0 sec)
Instrument: SPZ

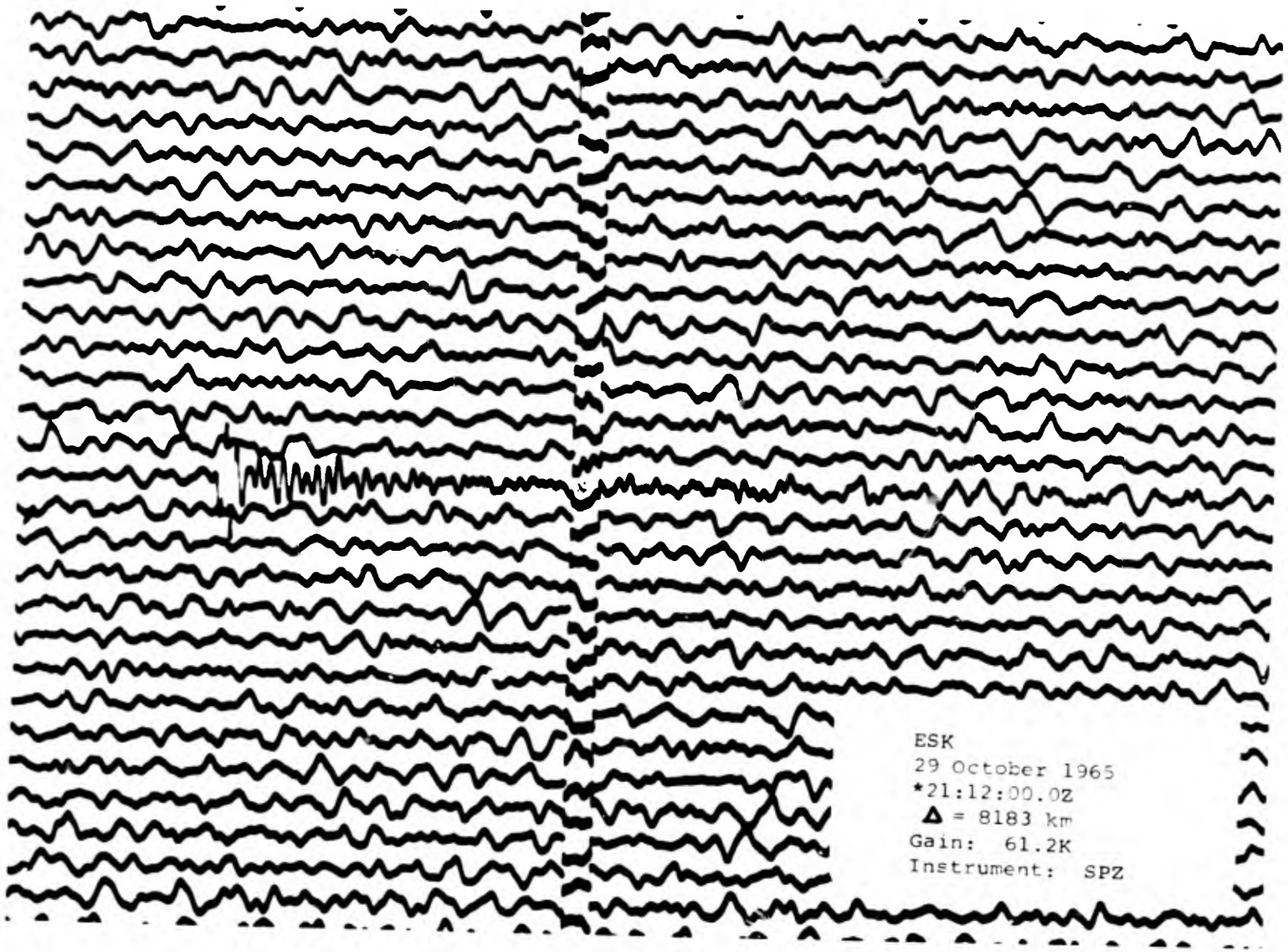

DUG
29 October 1965
*21:09:00.0Z
Δ = 5236 km
Gain: 980K
Instrument: SPZ


EDM
29 October 1965
*21:08:00.0Z
Δ = 4434 km
Gain: 98K
Instrument: SPZ


EDM
29 October 1965
*21:10:00.0Z
Δ = 4434 km
Gain: 98K
Instrument: SPZ

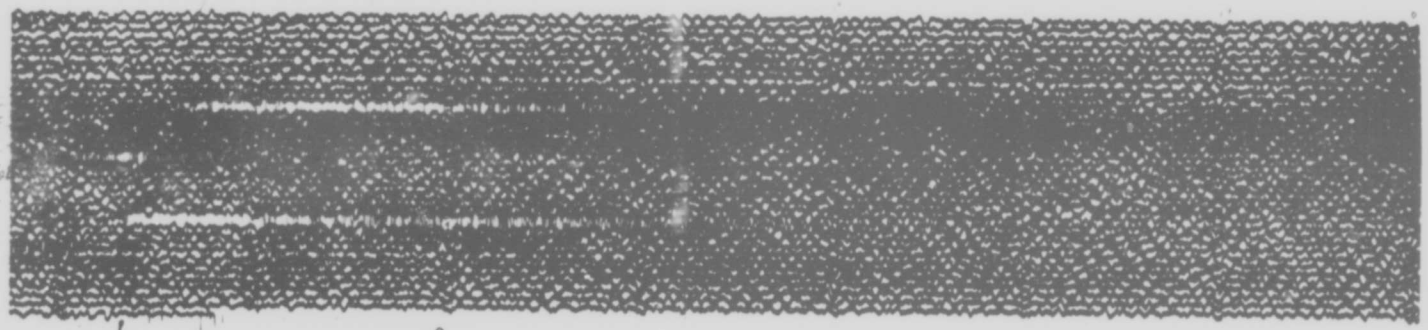

EKA
29 October 1965
*21:11:30.0Z
Δ = 8182 km
Gain: 101K
Instrument: SPZ-R2


EPT
29 October 1965
*21:10:51.0Z
Δ = 6276 km
Gain: 98K
Instrument: SPZ


ESK
29 October 1965
*21:12:00.0Z
Δ = 8183 km
Gain: 61.2K
Instrument: SPZ

Date on Oct 29 1965
Clock Fast/Slow 00

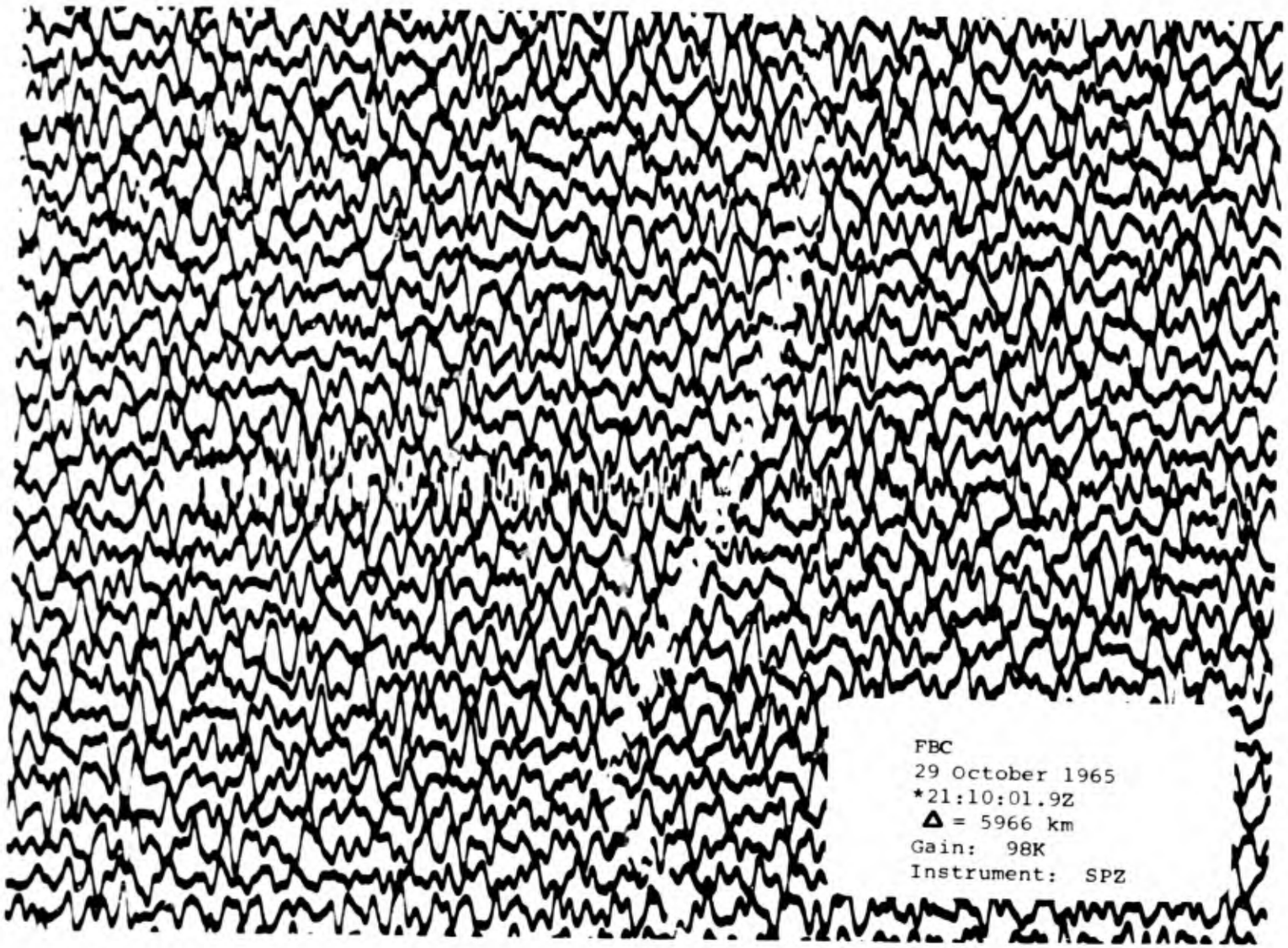
EUREKA, NEVADA

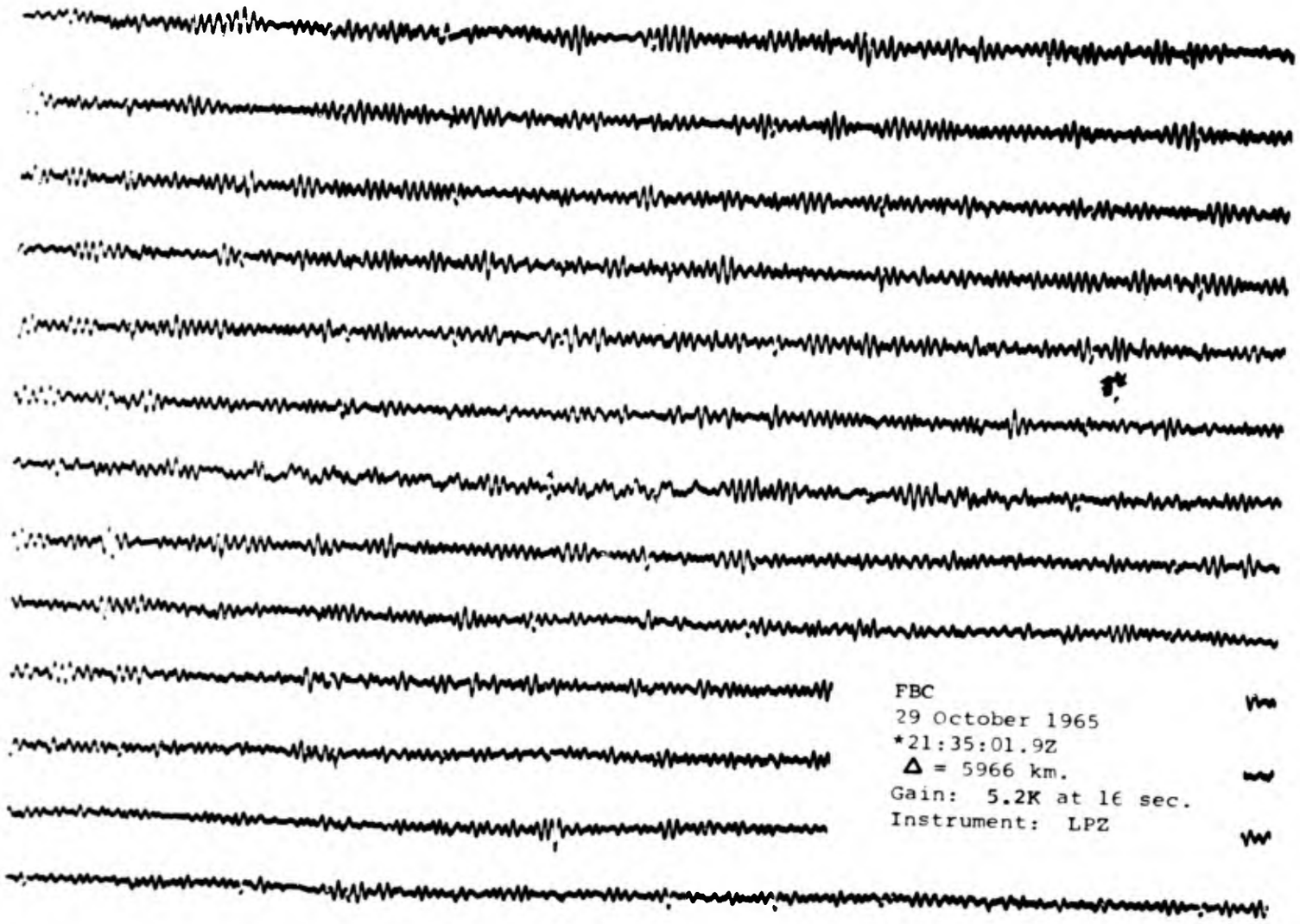


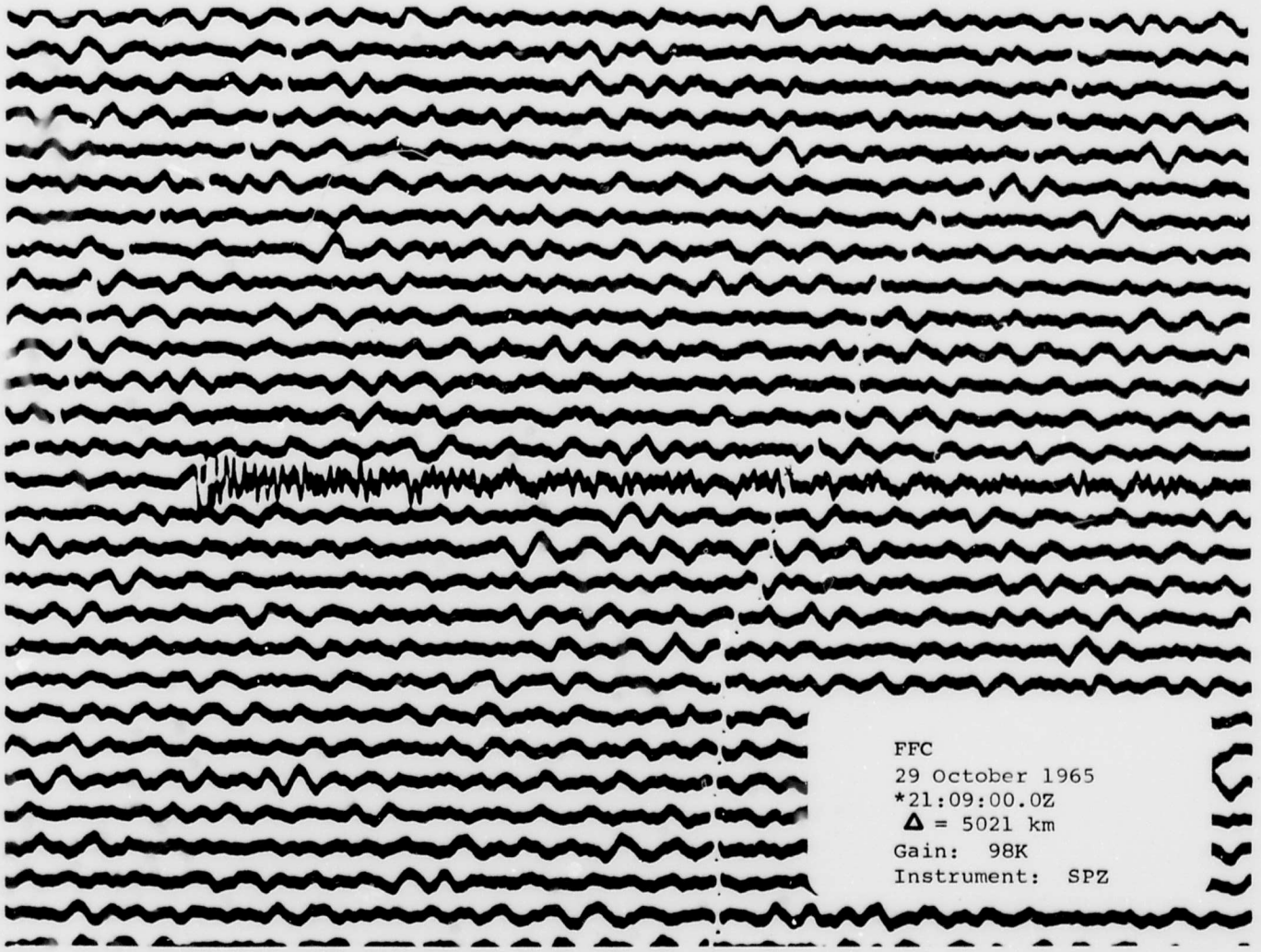
EUR
29 October 1965
*21:10:00.0Z
Δ = 5070 km
Gain: 225K
Instrument: SPZ

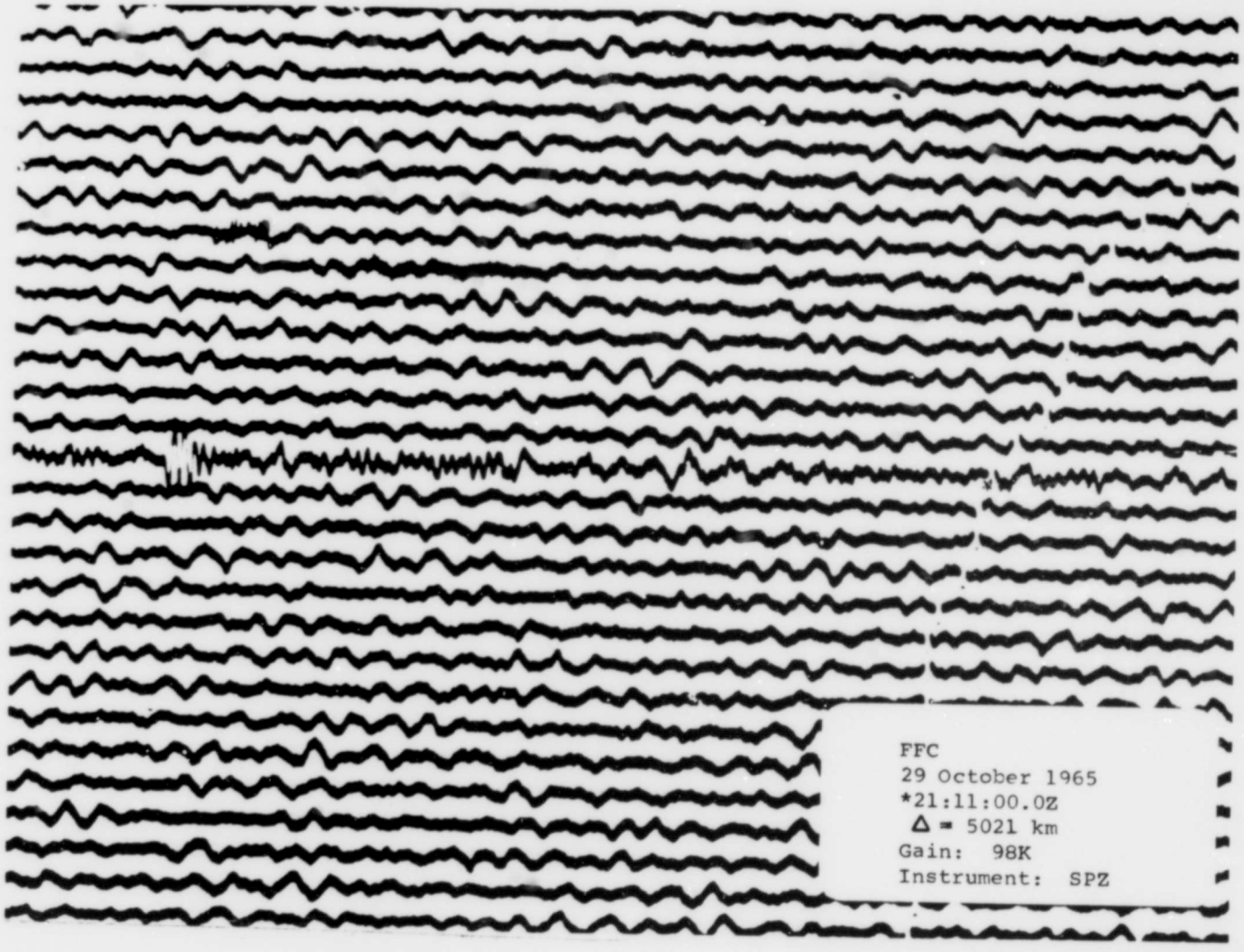
EUR.
SPZ
225K at 1.0
CPE: 21:08:31.5
T: 0.9
A = 118.0
OCT 29, 1965
Long Nat.

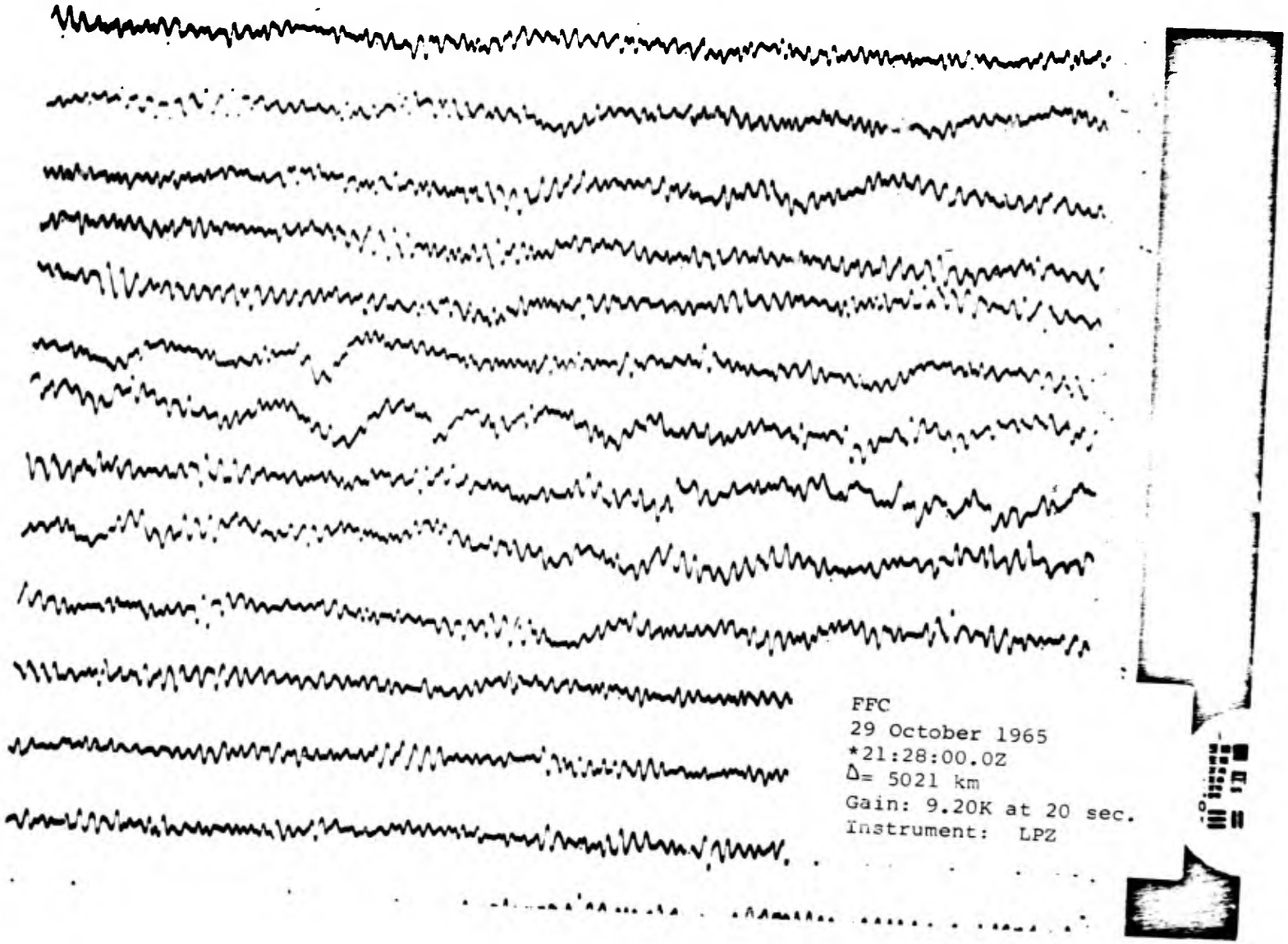
EUREKA, NEVADA

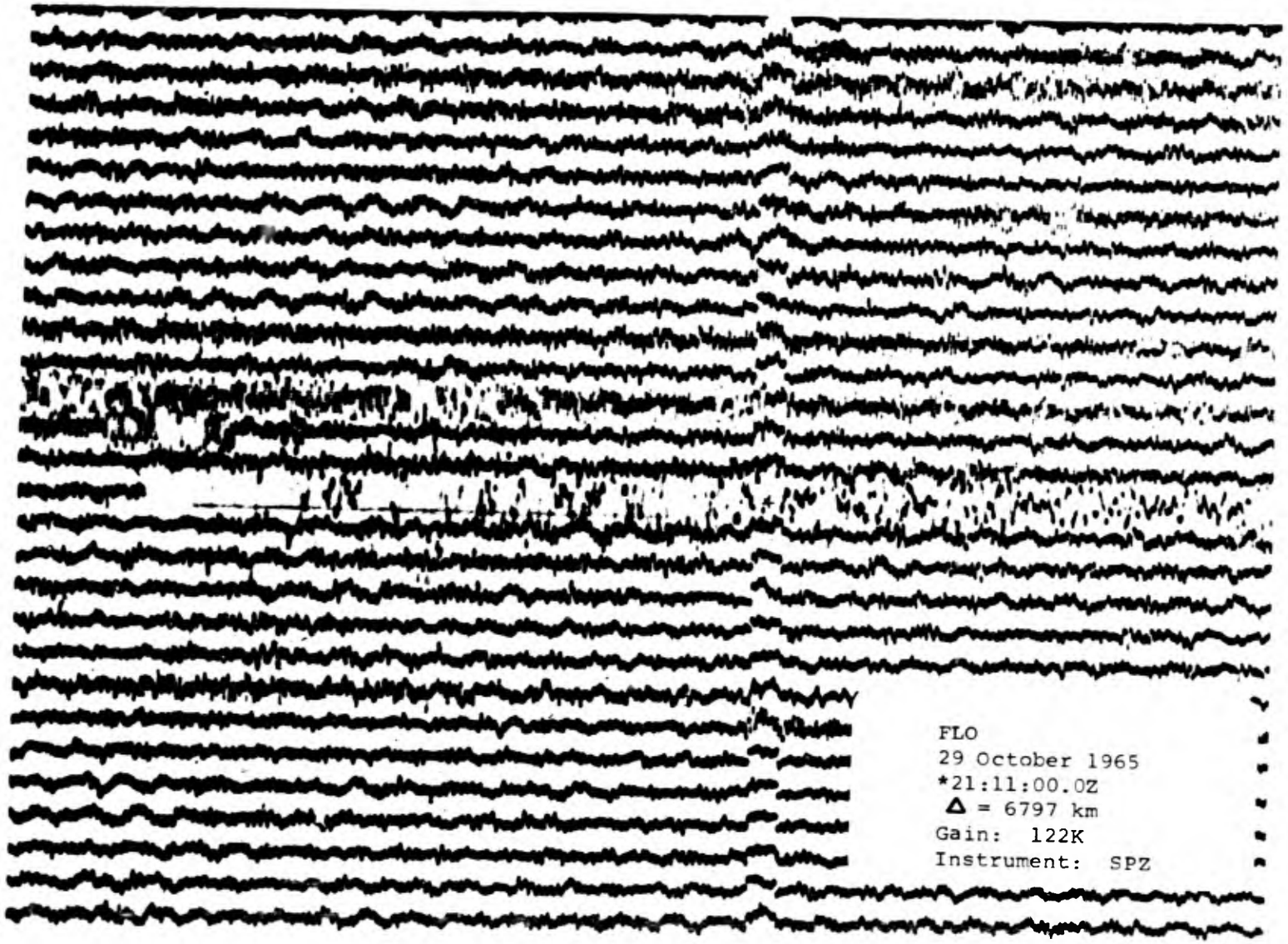

FBC
29 October 1965
*21:10:01.9Z
Δ = 5966 km
Gain: 98K
Instrument: SPZ

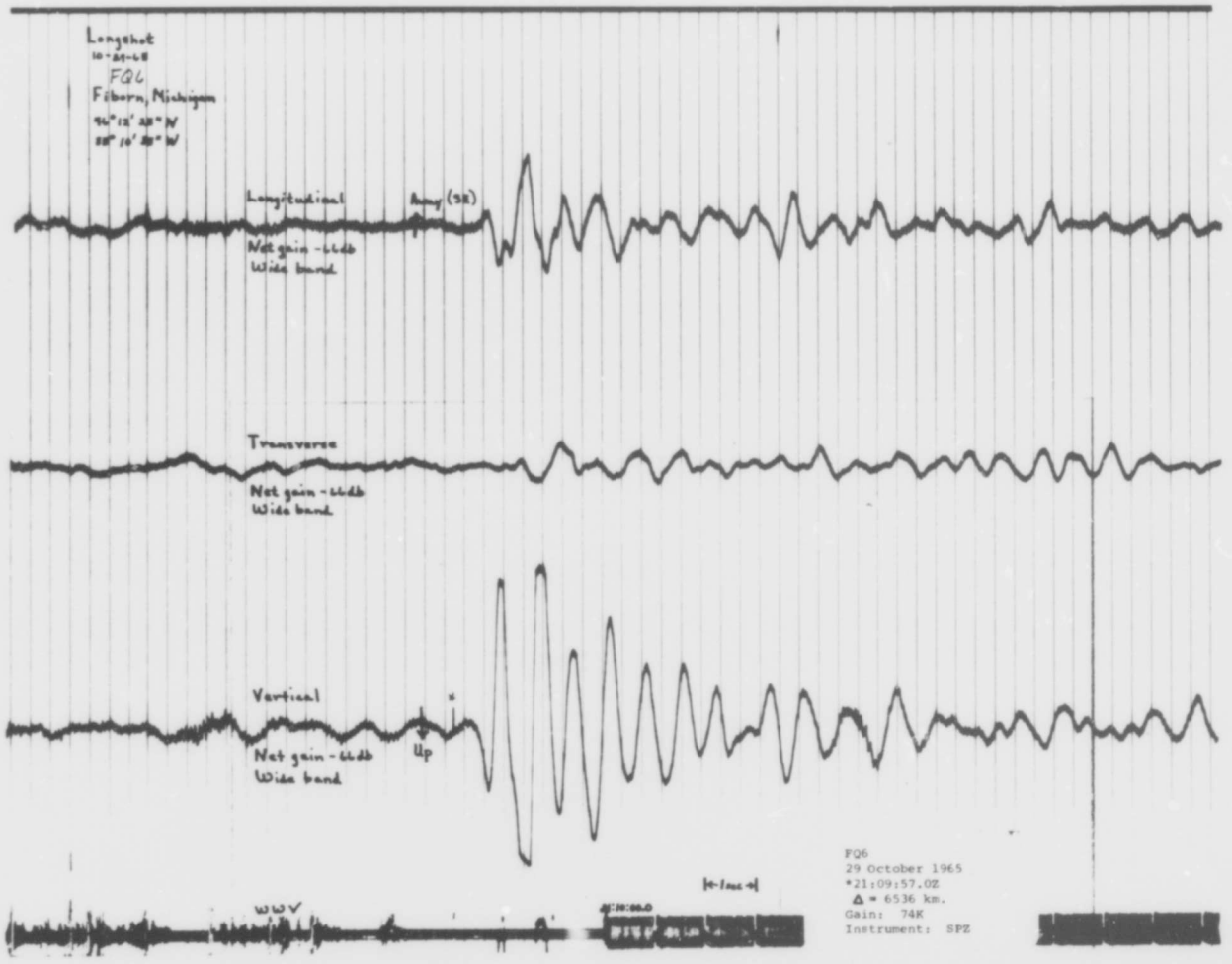

FBC
29 October 1965
*21:35:01.9Z
Δ = 5966 km.
Gain: 5.2K at 16 sec.
Instrument: LPZ

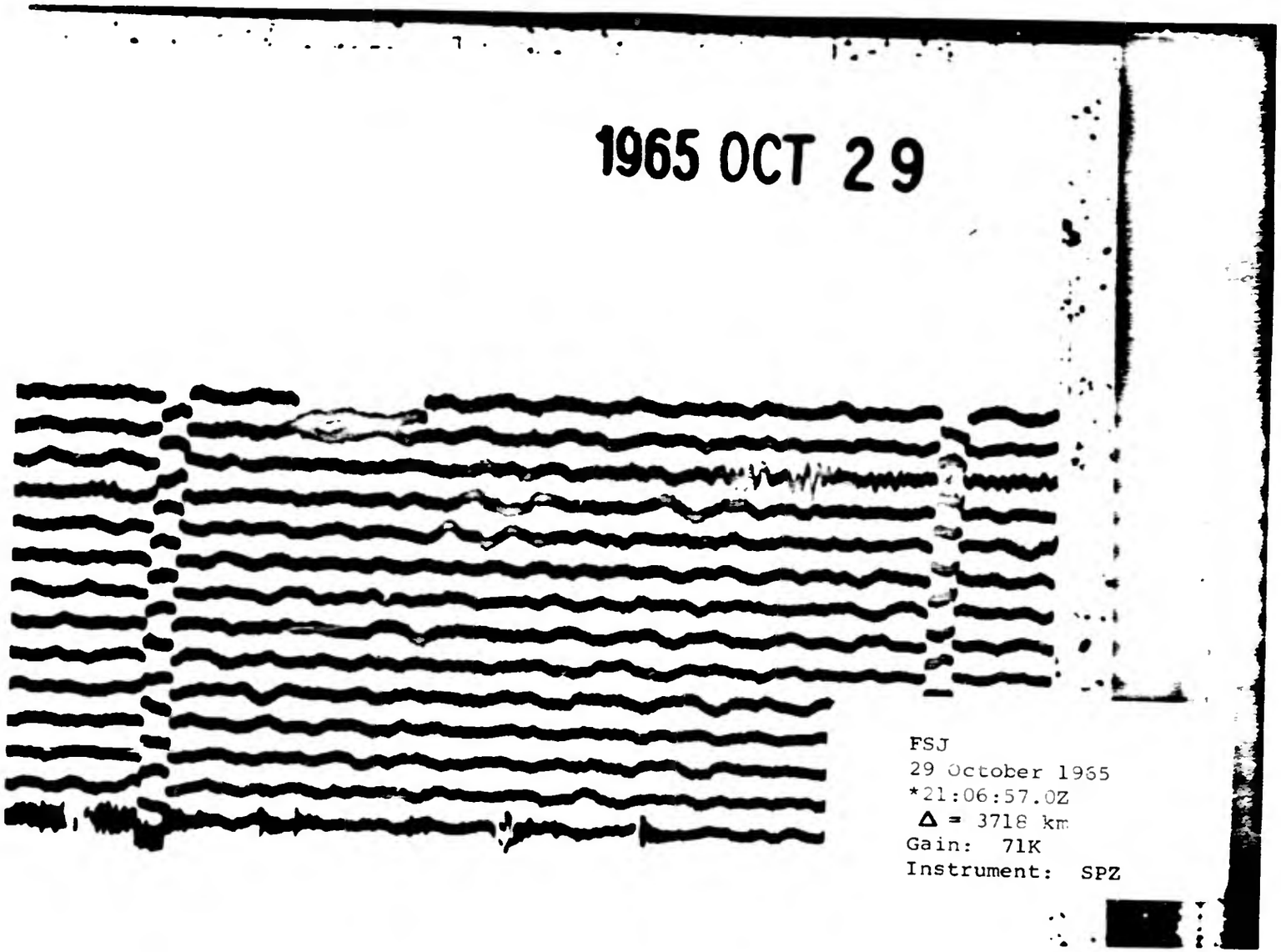

FFC
29 October 1965
*21:09:00.0Z
Δ = 5021 km
Gain: 98K
Instrument: SPZ


FFC
29 October 1965
*21:11:00.0Z
Δ = 5021 km
Gain: 98K
Instrument: SPZ

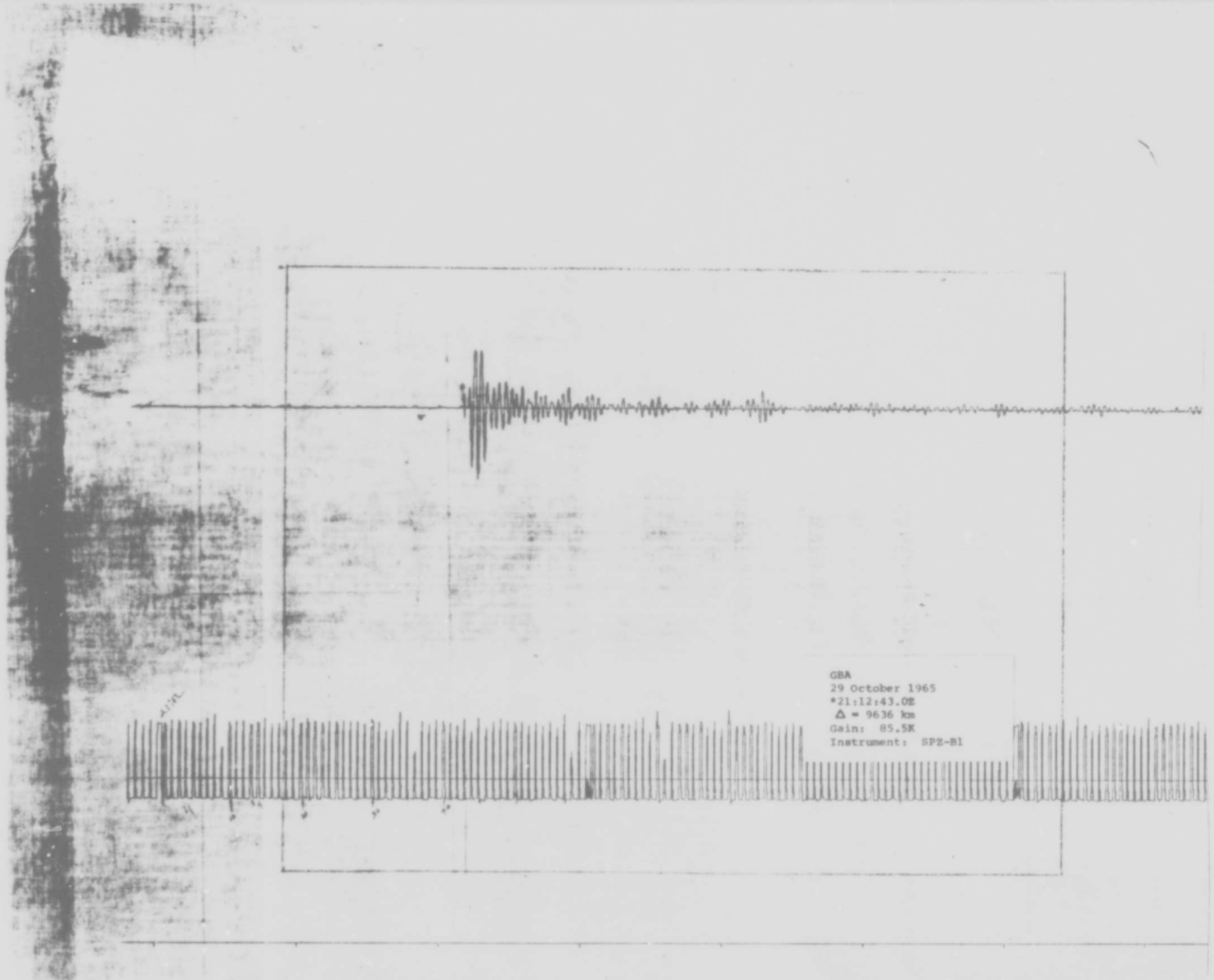

FFC
29 October 1965
*21:28:00.0Z
Δ= 5021 km
Gain: 9.20K at 20 sec.
Instrument: LPZ

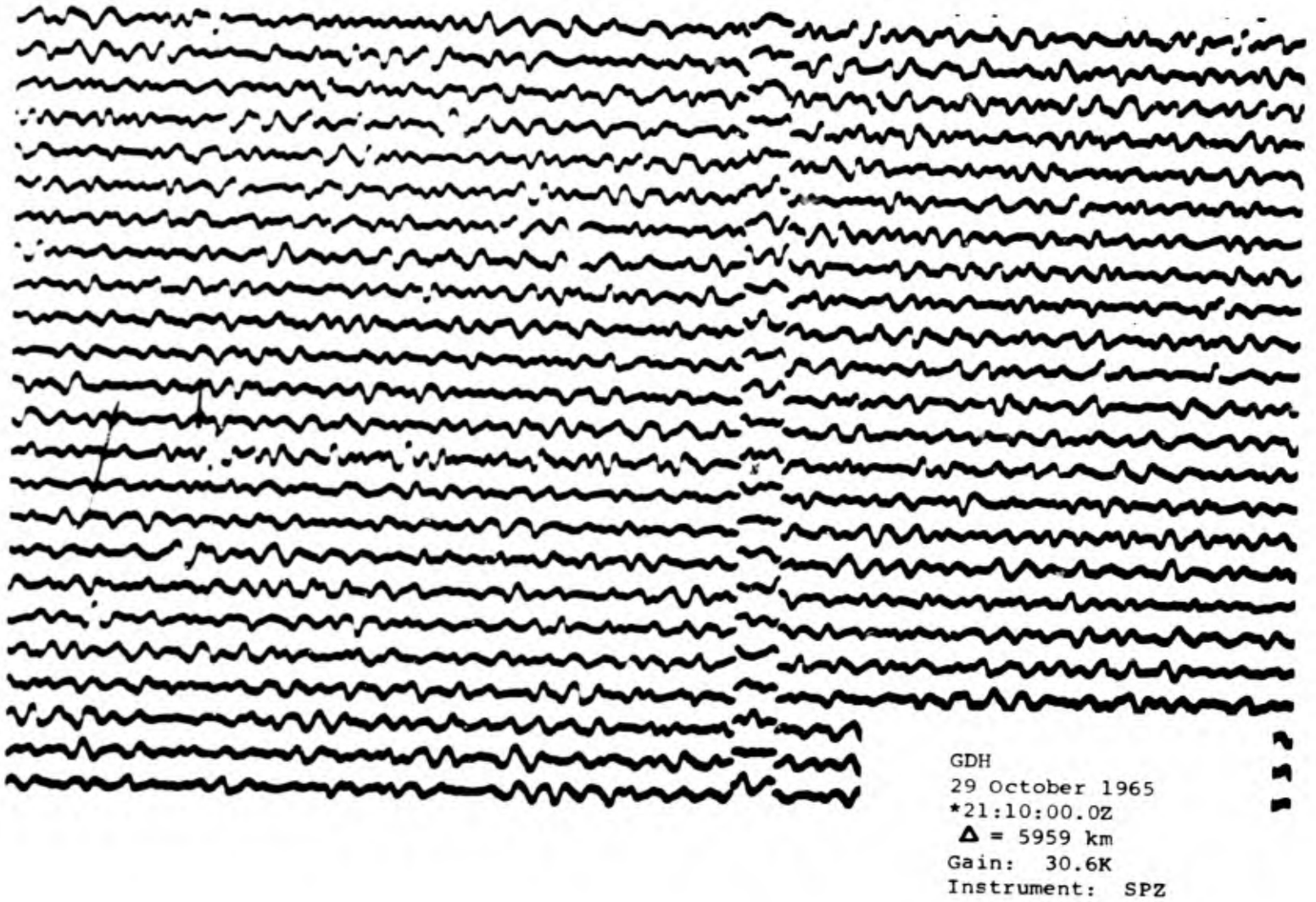

FLO
29 October 1965
*21:11:00.0Z
Δ = 6797 km
Gain: 122K
Instrument: SPZ

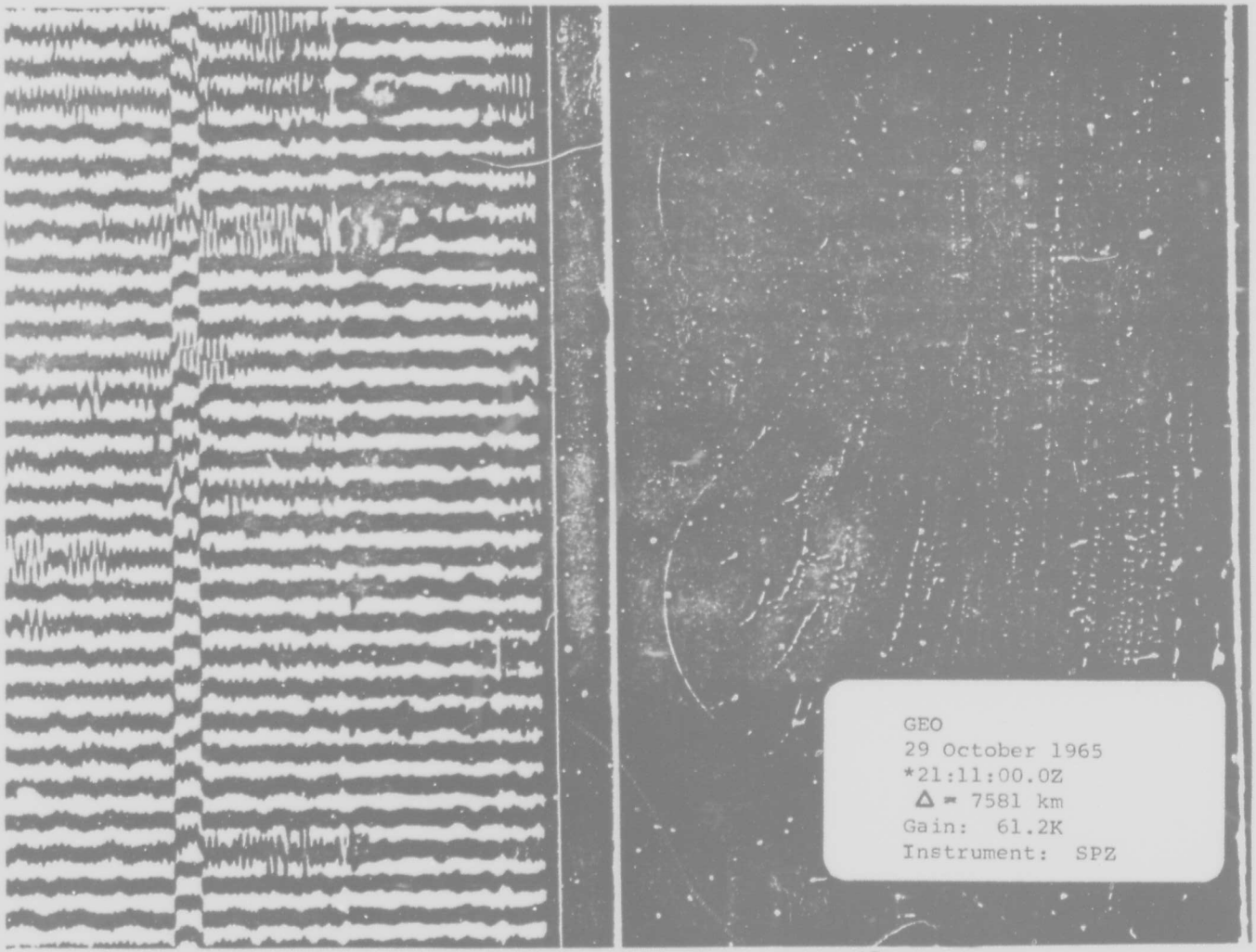

Longshot
10-29-65
FQ6
Fiborn, Michigan
96° 12' 28" N
88° 10' 30" W
Longitudinal
Amp (SZ)
Net gain -66db
Wide band
Transverse
Net gain -66db
Wide band
Vertical
Net gain -66db
Wide band
Up
WWV
FQ6
29 October 1965
*21:09:57.0Z
Δ = 6536 km.
Gain: 74K
Instrument: SPZ

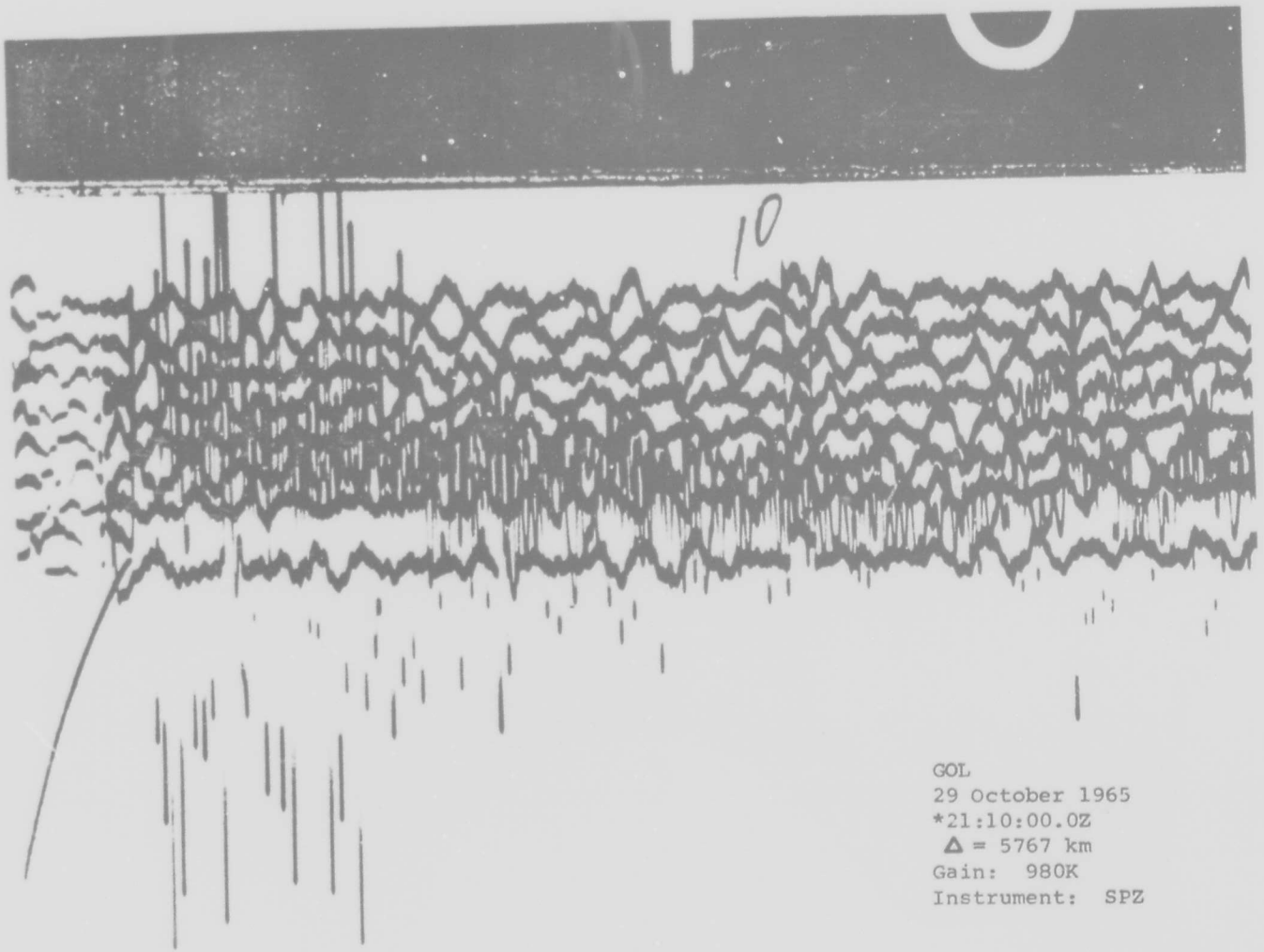

1965 OCT 29
FSJ
29 October 1965
*21:06:57.0Z
Δ = 3718 km
Gain: 71K
Instrument: SPZ

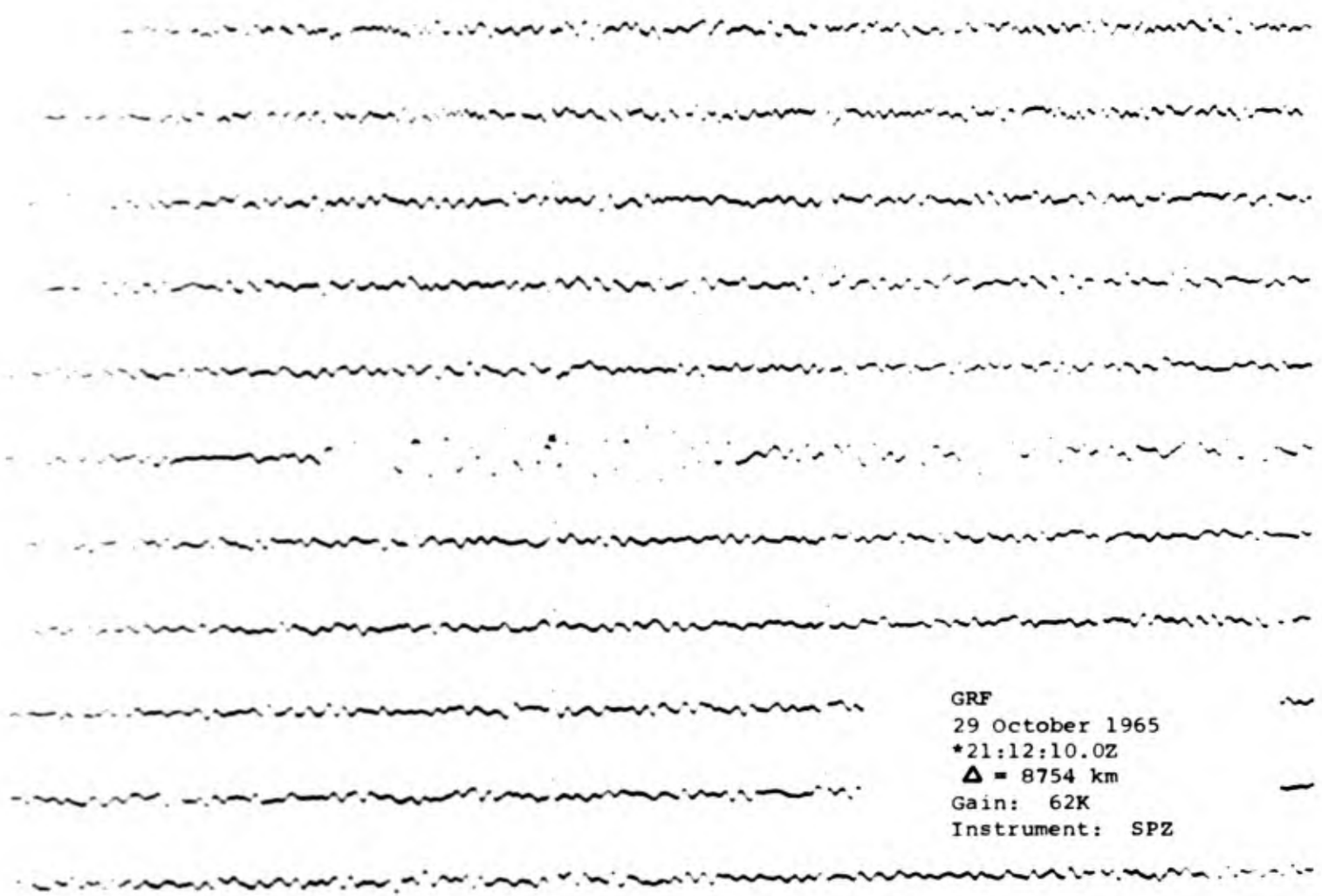
FT. TION
FTC
29 October 1965
*21:09:45.0Z
Δ = 5190 km.
Gain: unknown
Instrument: SPZ

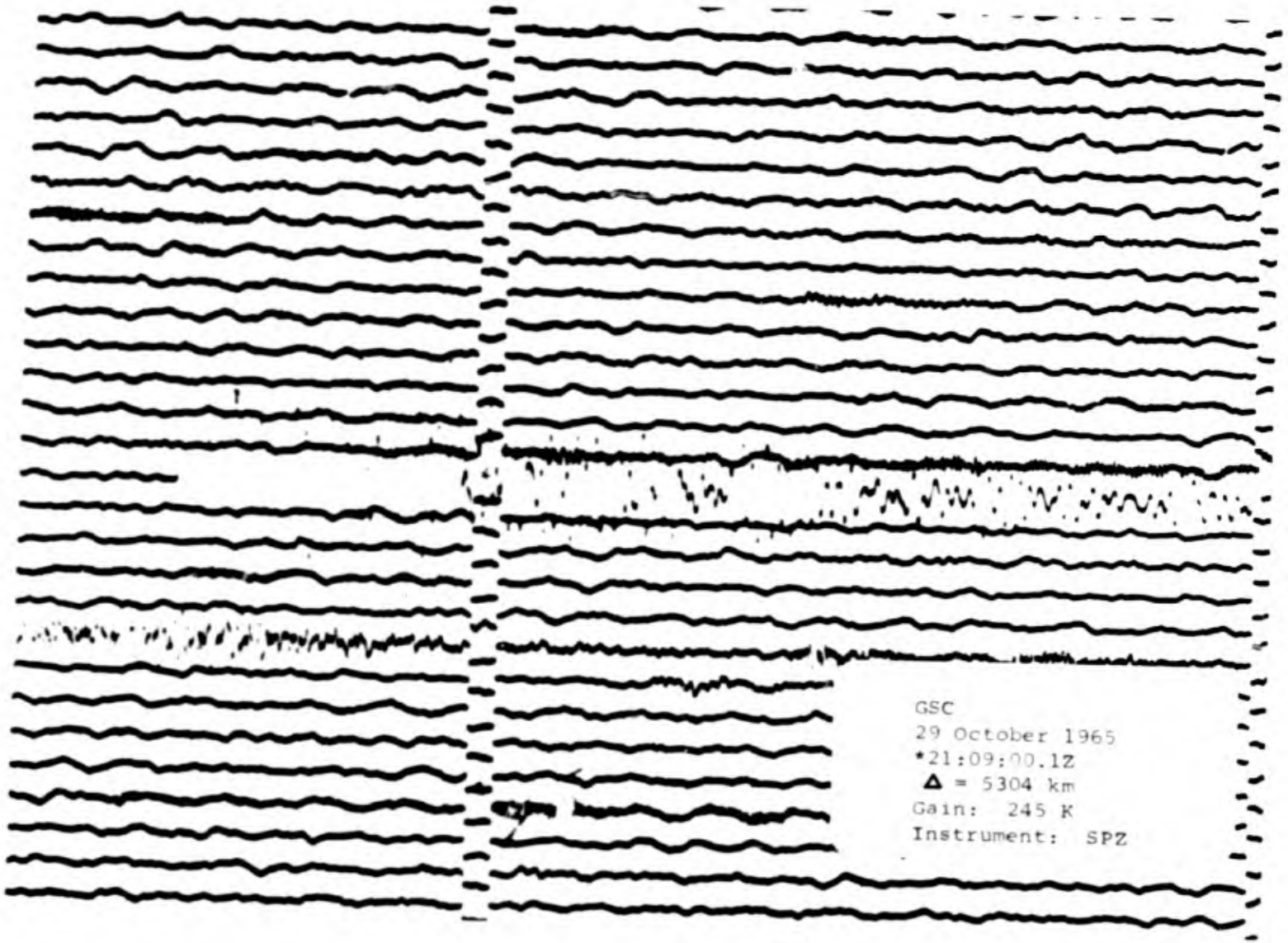

GBA
29 October 1965
*21:12:43.0Z
Δ = 9636 km
Gain: 85.5K
Instrument: SPZ-B1

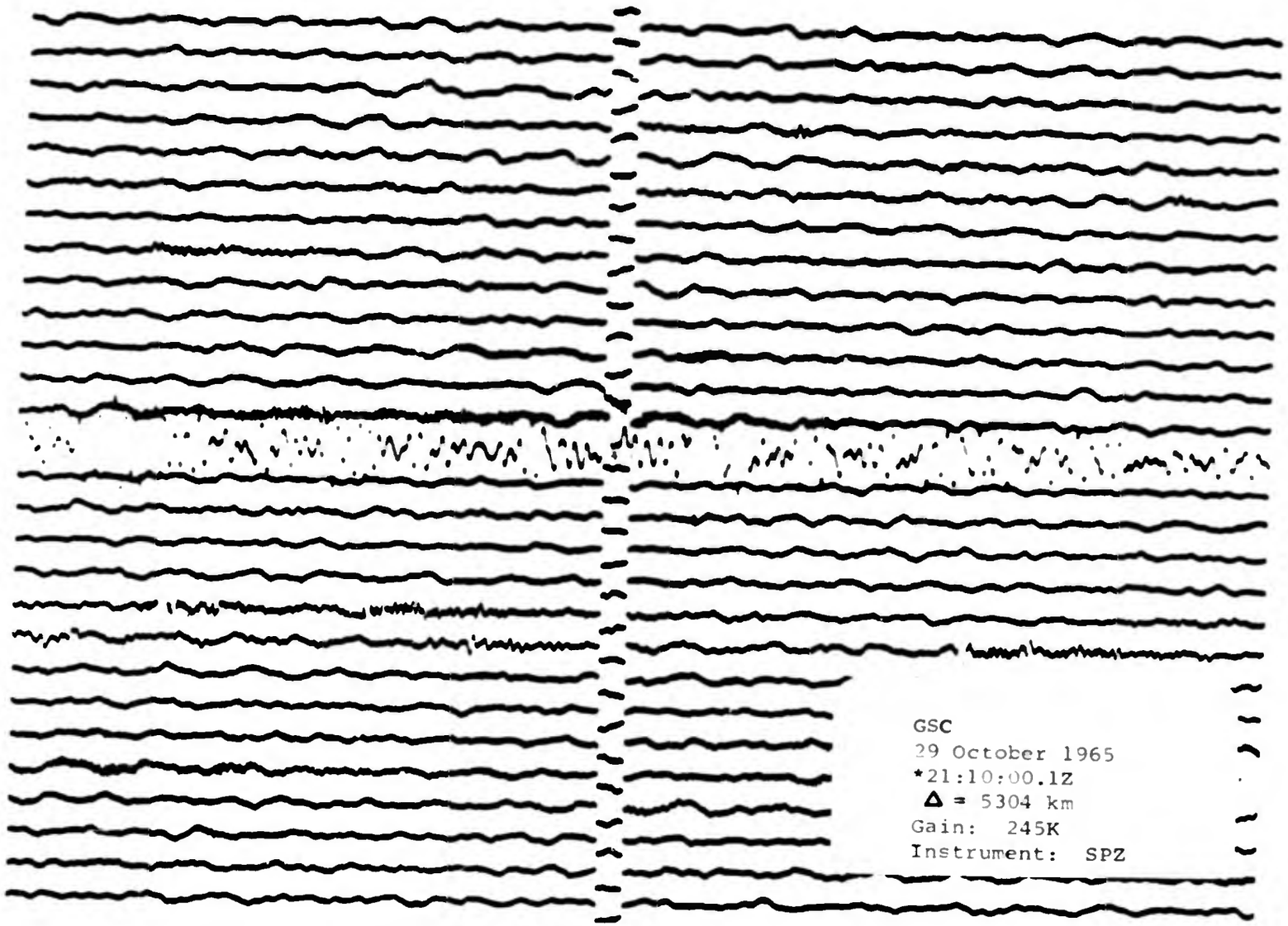

GDH
29 October 1965
*21:10:00.0Z
Δ = 5959 km
Gain: 30.6K
Instrument: SPZ

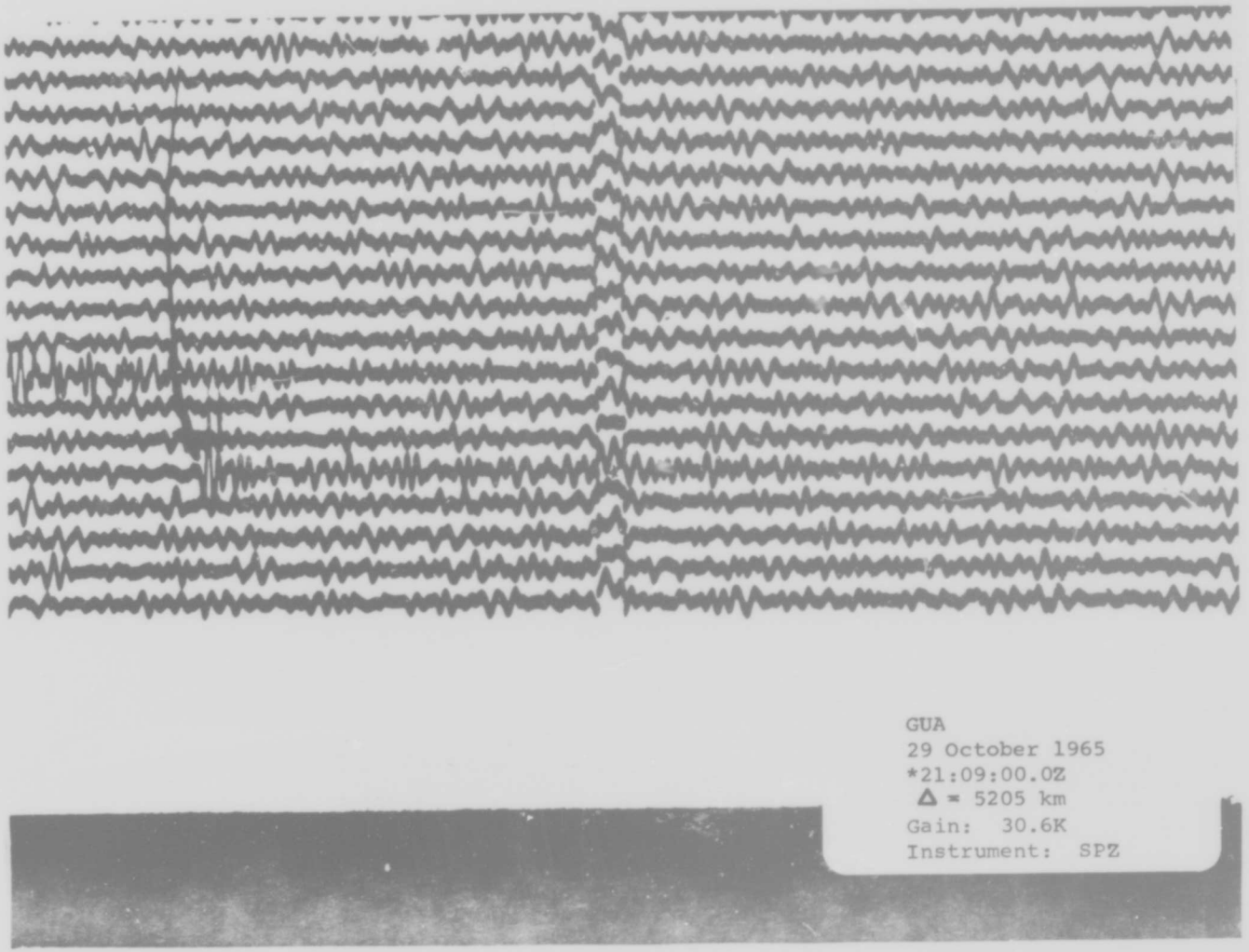

GEO
29 October 1965
*21:11:00.0Z
Δ = 7581 km
Gain: 61.2K
Instrument: SPZ

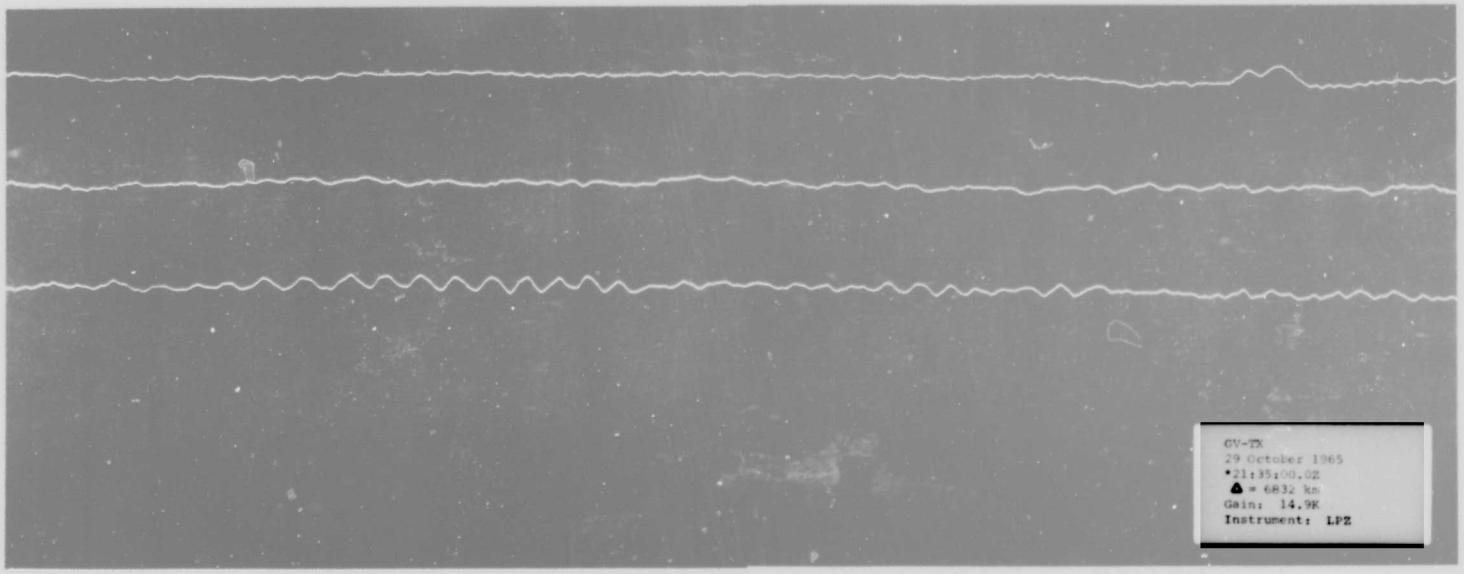

10
GOL
29 October 1965
*21:10:00.0Z
Δ = 5767 km
Gain: 980K
Instrument: SPZ


GRF
29 October 1965
*21:12:10.0Z
Δ = 8754 km
Gain: 62K
Instrument: SPZ

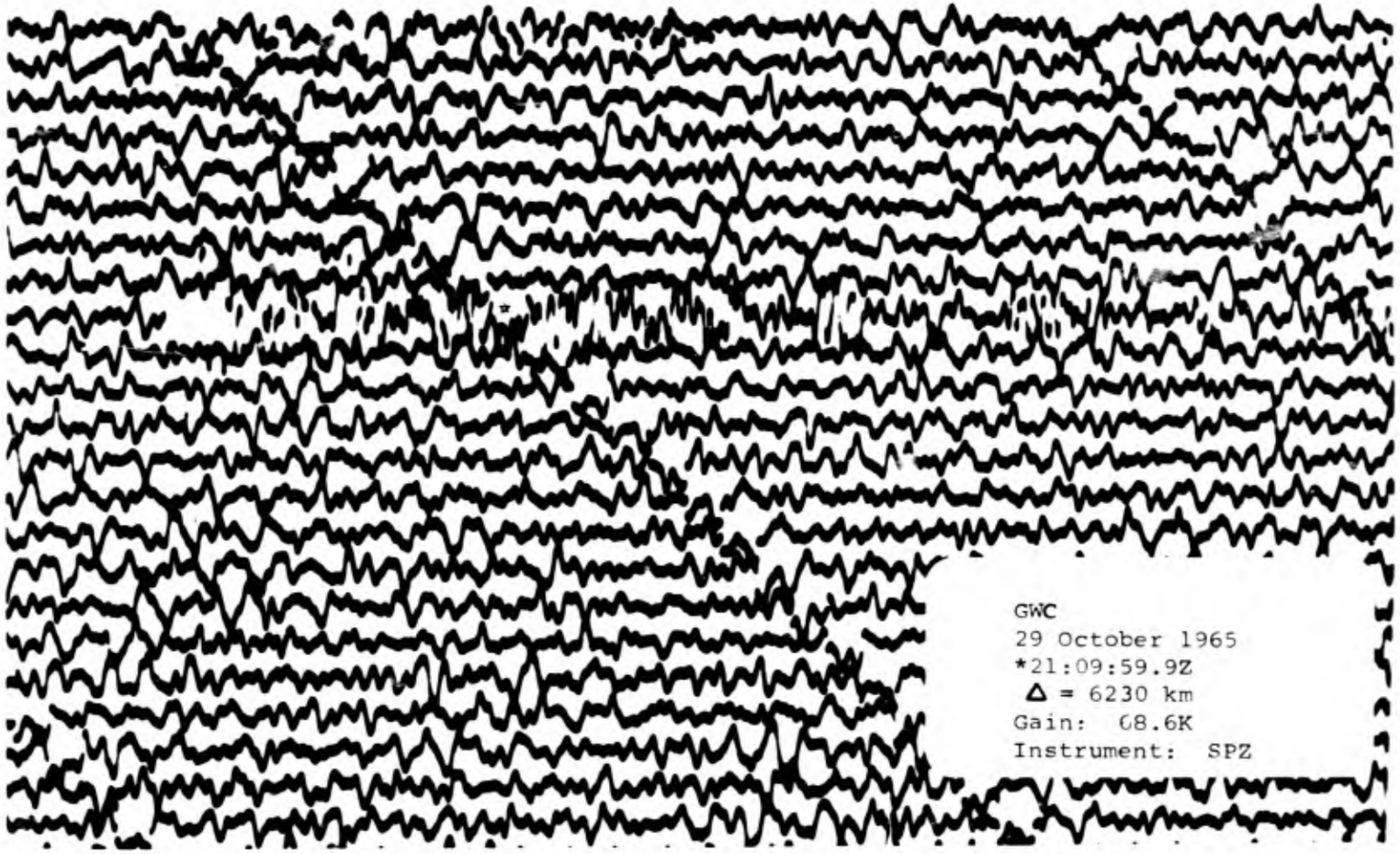

GSC
29 October 1965
*21:09:00.1Z
Δ = 5304 km
Gain: 245 K
Instrument: SPZ

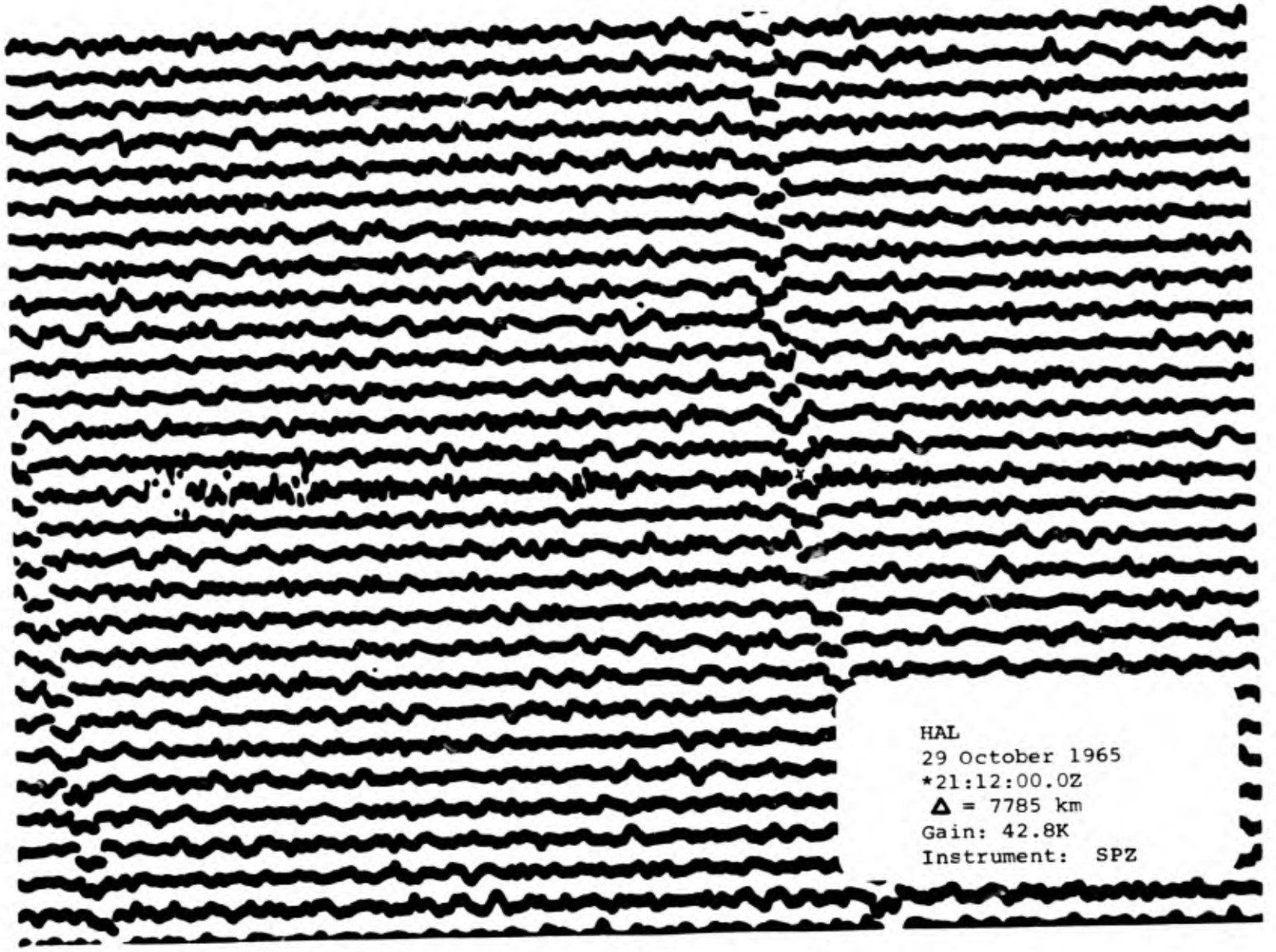

GSC
29 October 1965
*21:10:00.1Z
Δ = 5304 km
Gain: 245K
Instrument: SPZ

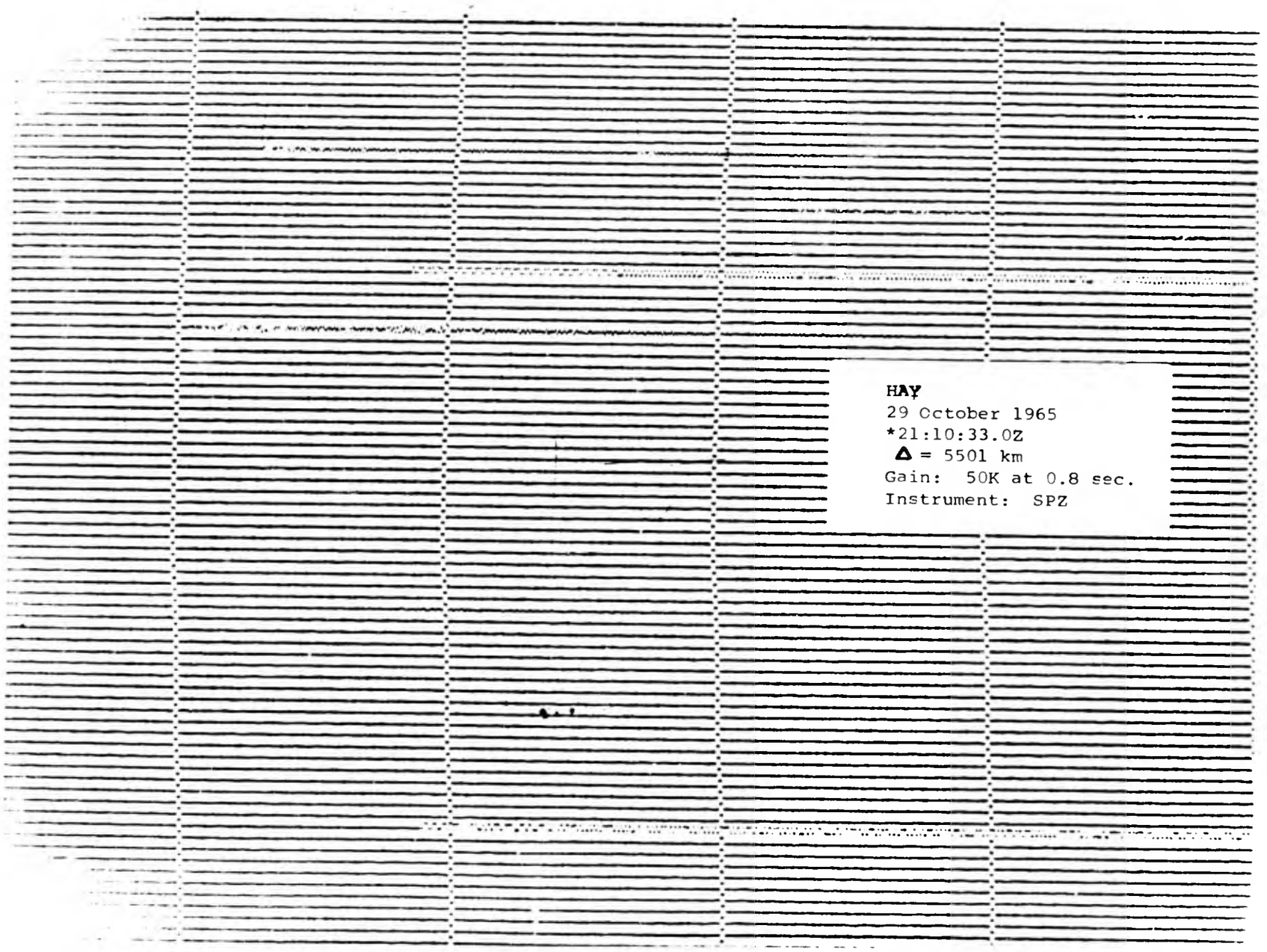

GUA
29 October 1965
*21:09:00.0Z
Δ = 5205 km
Gain: 30.6K
Instrument: SPZ

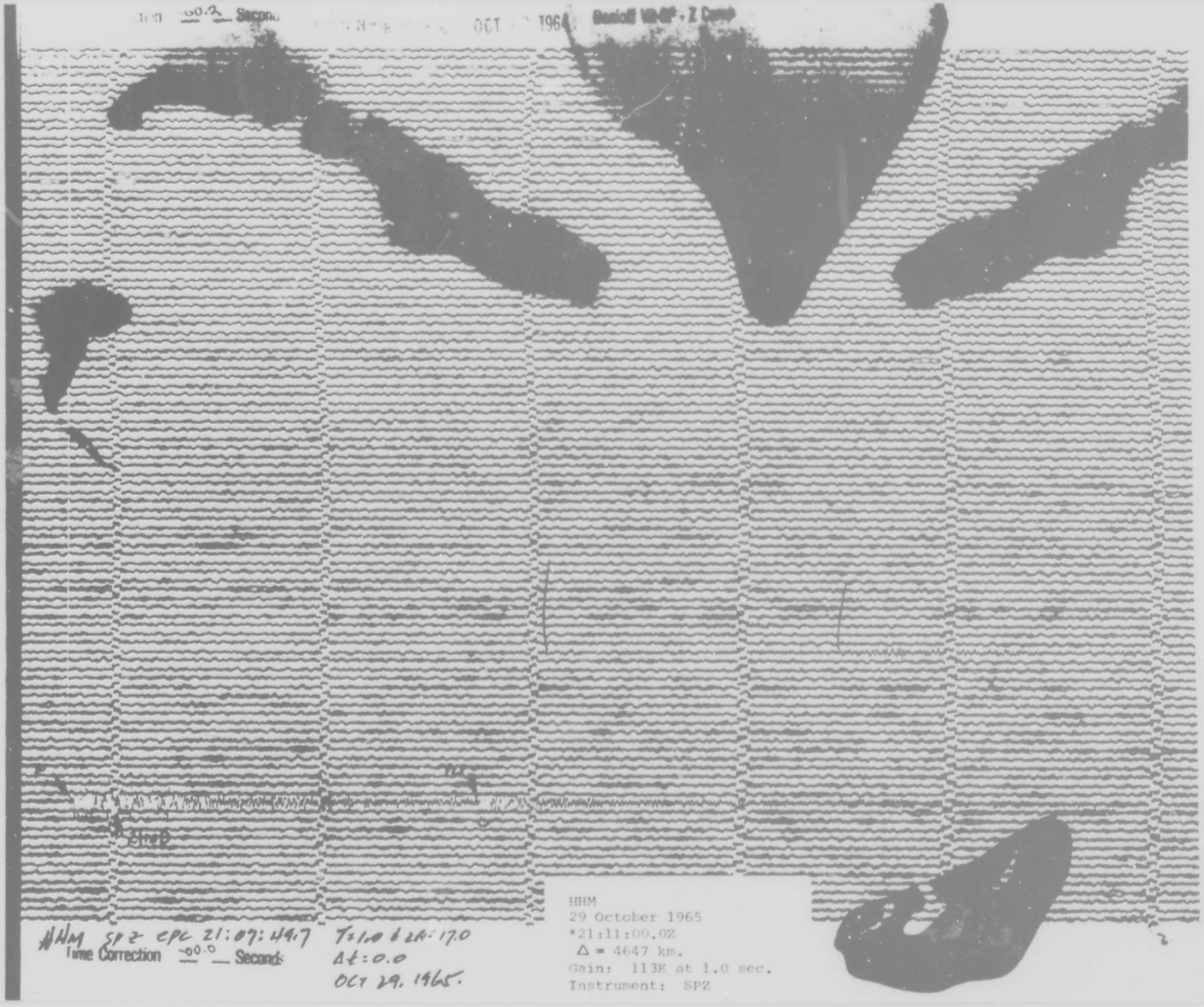

GV-TX
29 October 1965
•21:35:00.0Z
Δ = 6832 km
Gain: 14.9K
Instrument: LPZ

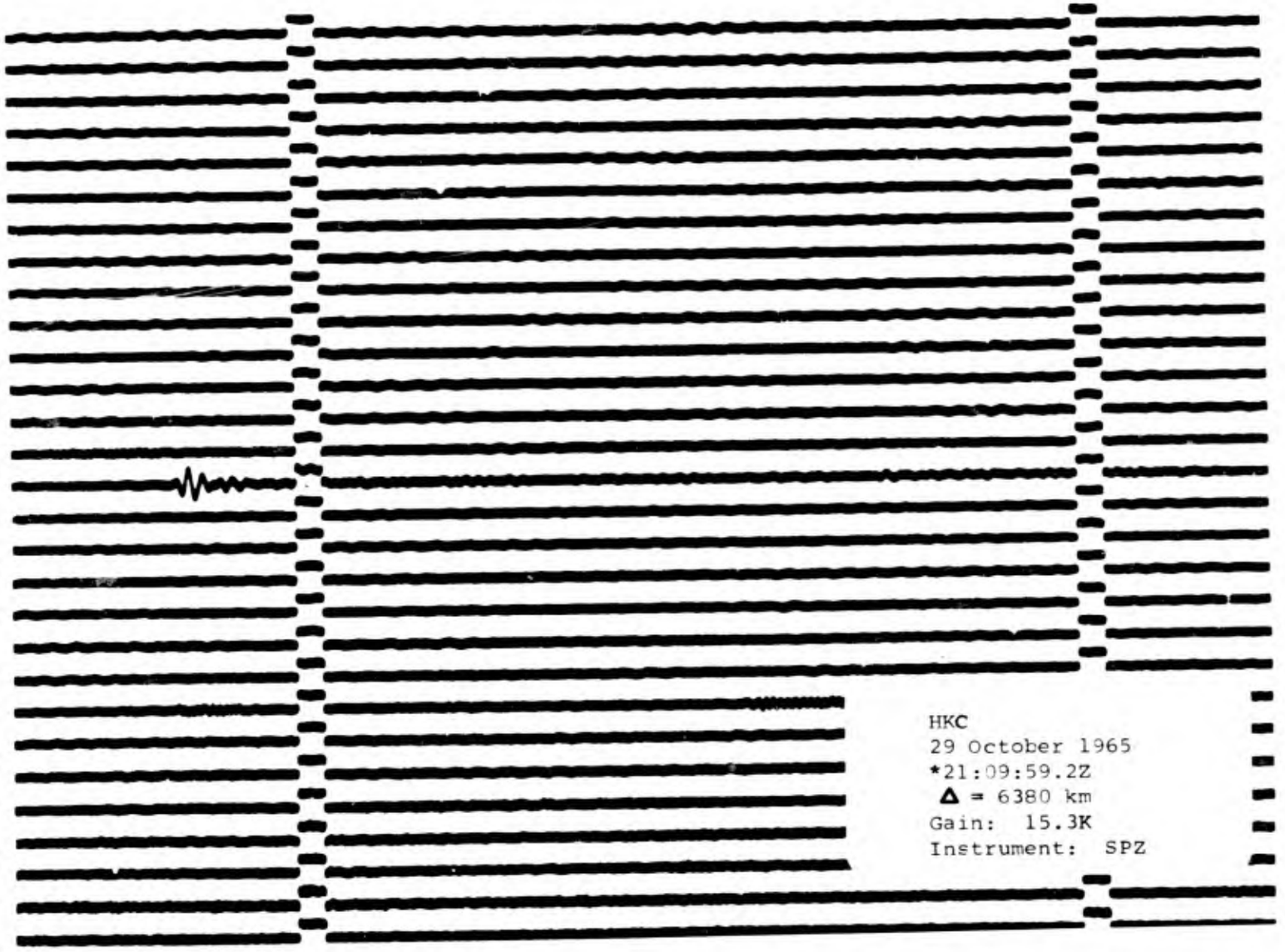
CHRONOGRAPH

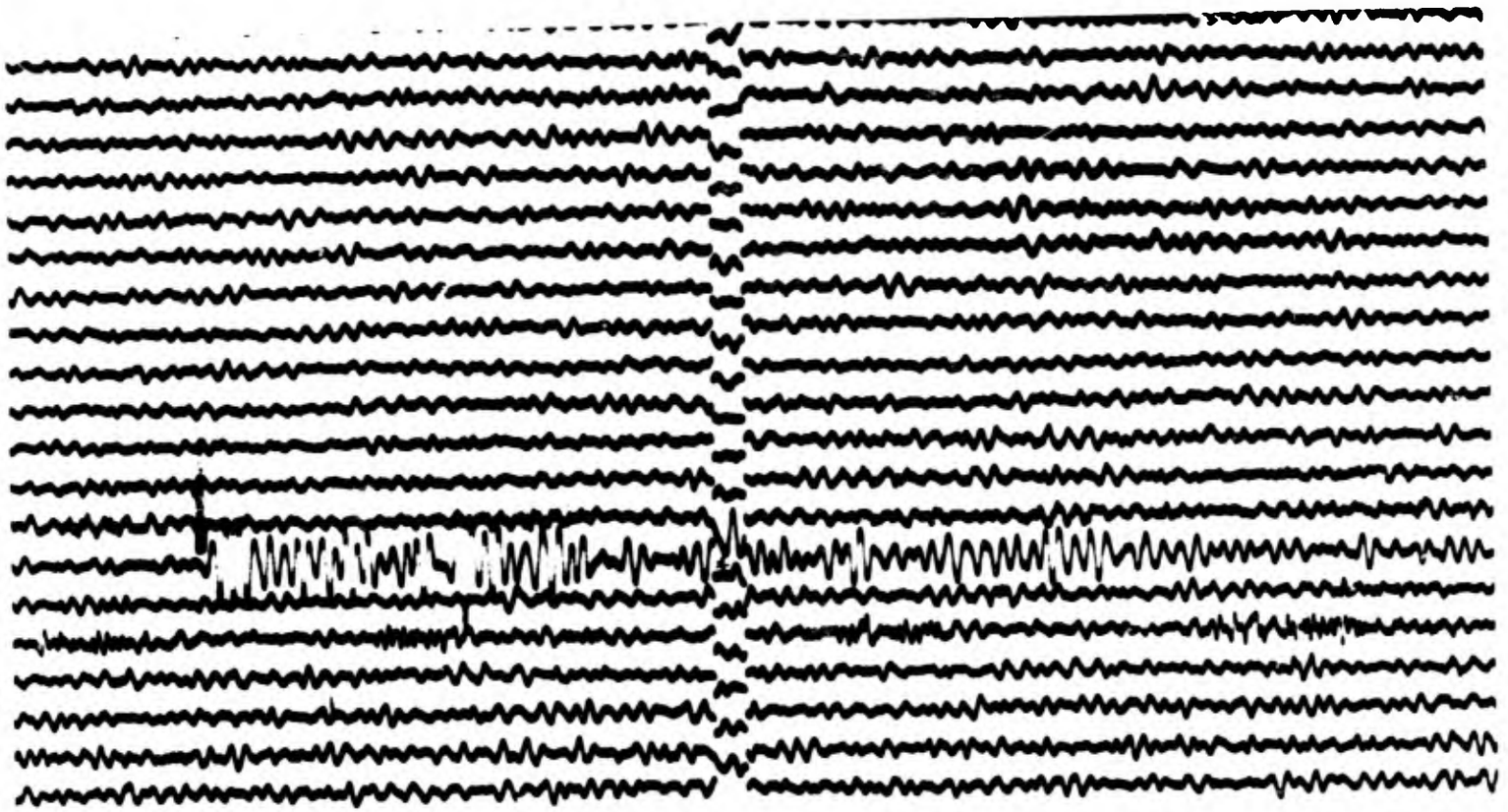



HAL
29 October 1965
*21:12:00.0Z
Δ = 7785 km
Gain: 42.8K
Instrument: SPZ

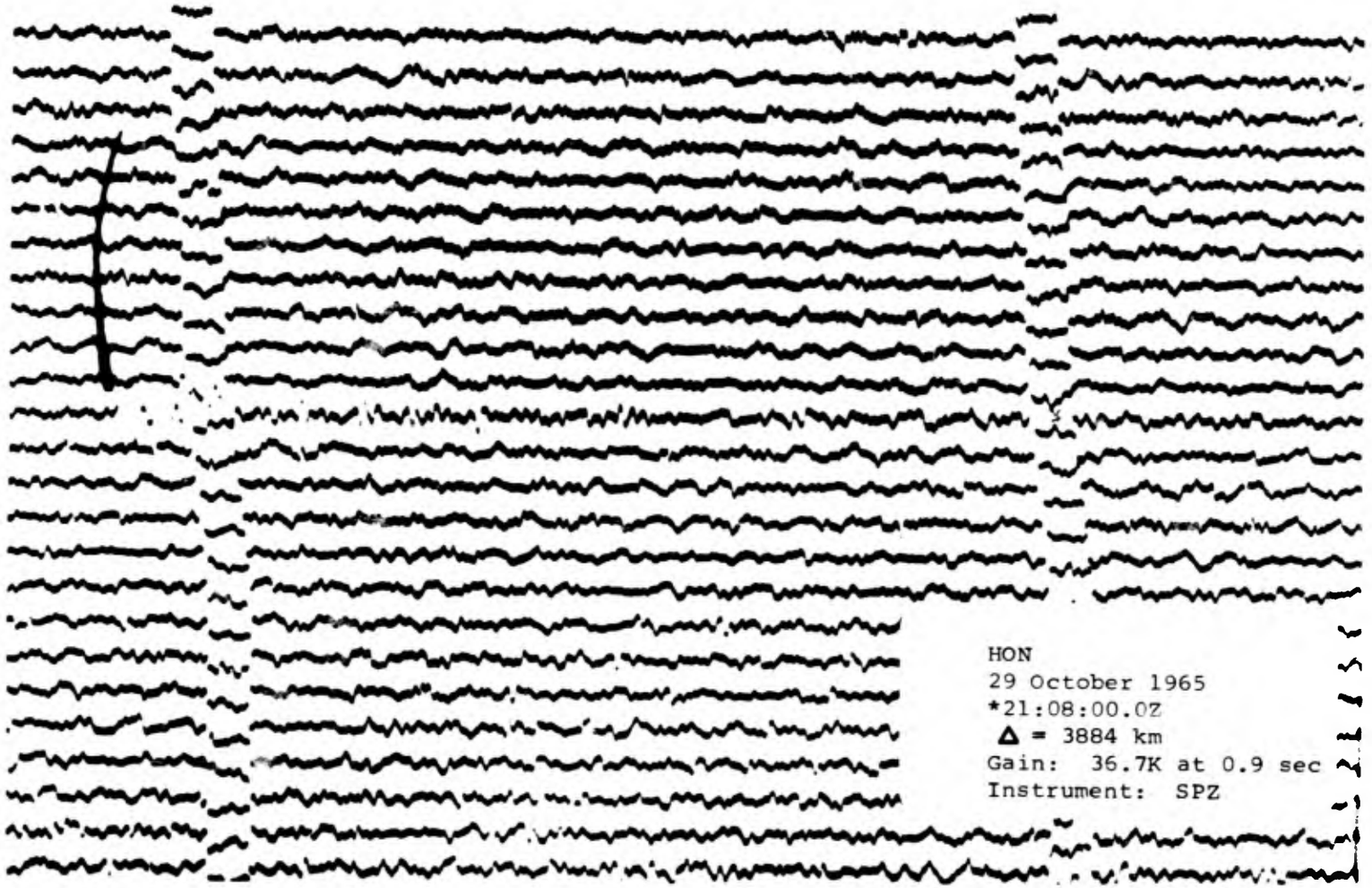

HAY
29 October 1965
*21:10:33.0Z
Δ = 5501 km
Gain: 50K at 0.8 sec.
Instrument: SPZ

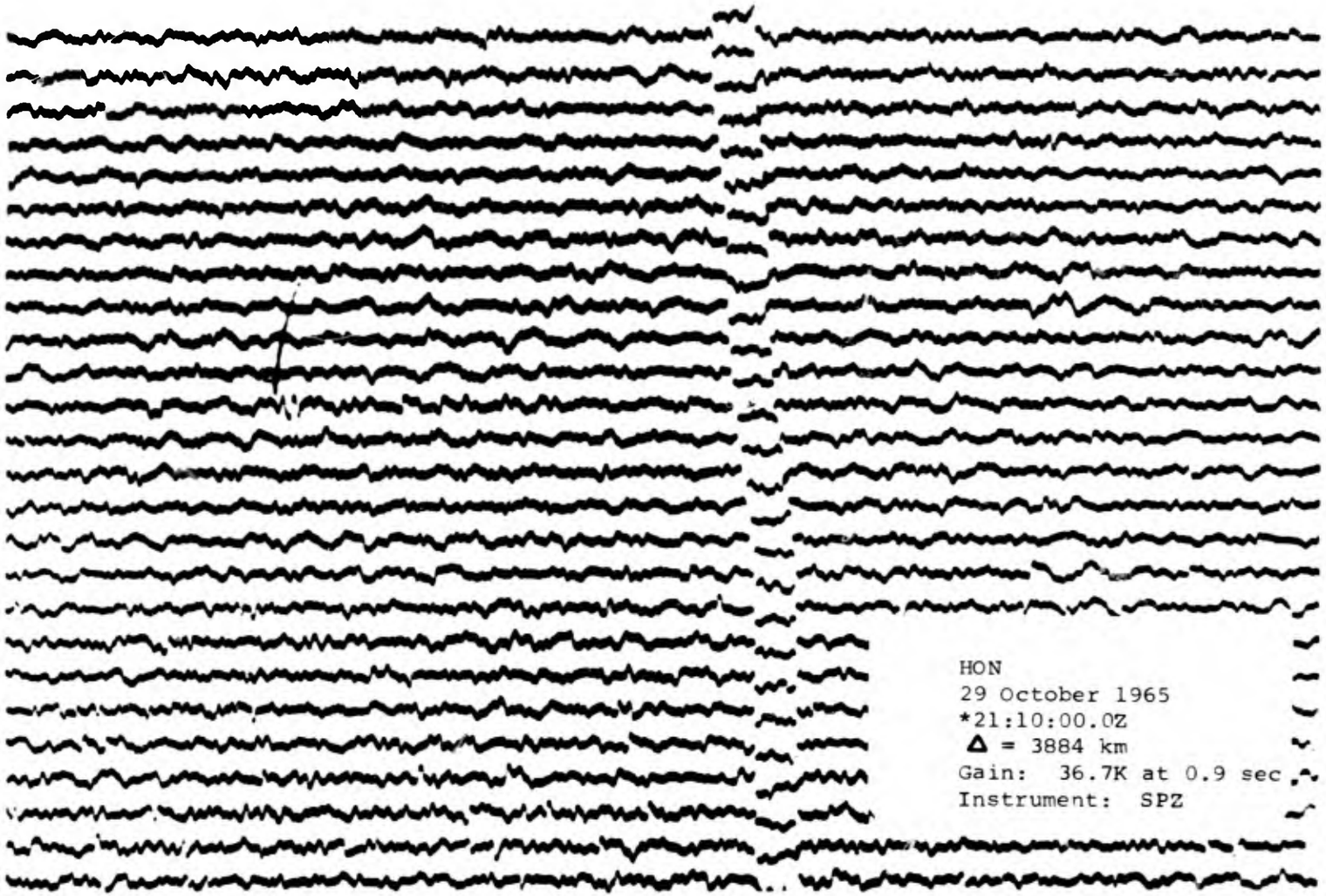

HHM SPZ epc 21:07:49.7
Time Correction +00.0 Seconds
T:1.0 & 2A: 17.0
Δt: 0.0
OCT 29, 1965.
HHM
29 October 1965
*21:11:00.0Z
Δ = 4647 km.
Gain: 113K at 1.0 sec.
Instrument: SPZ

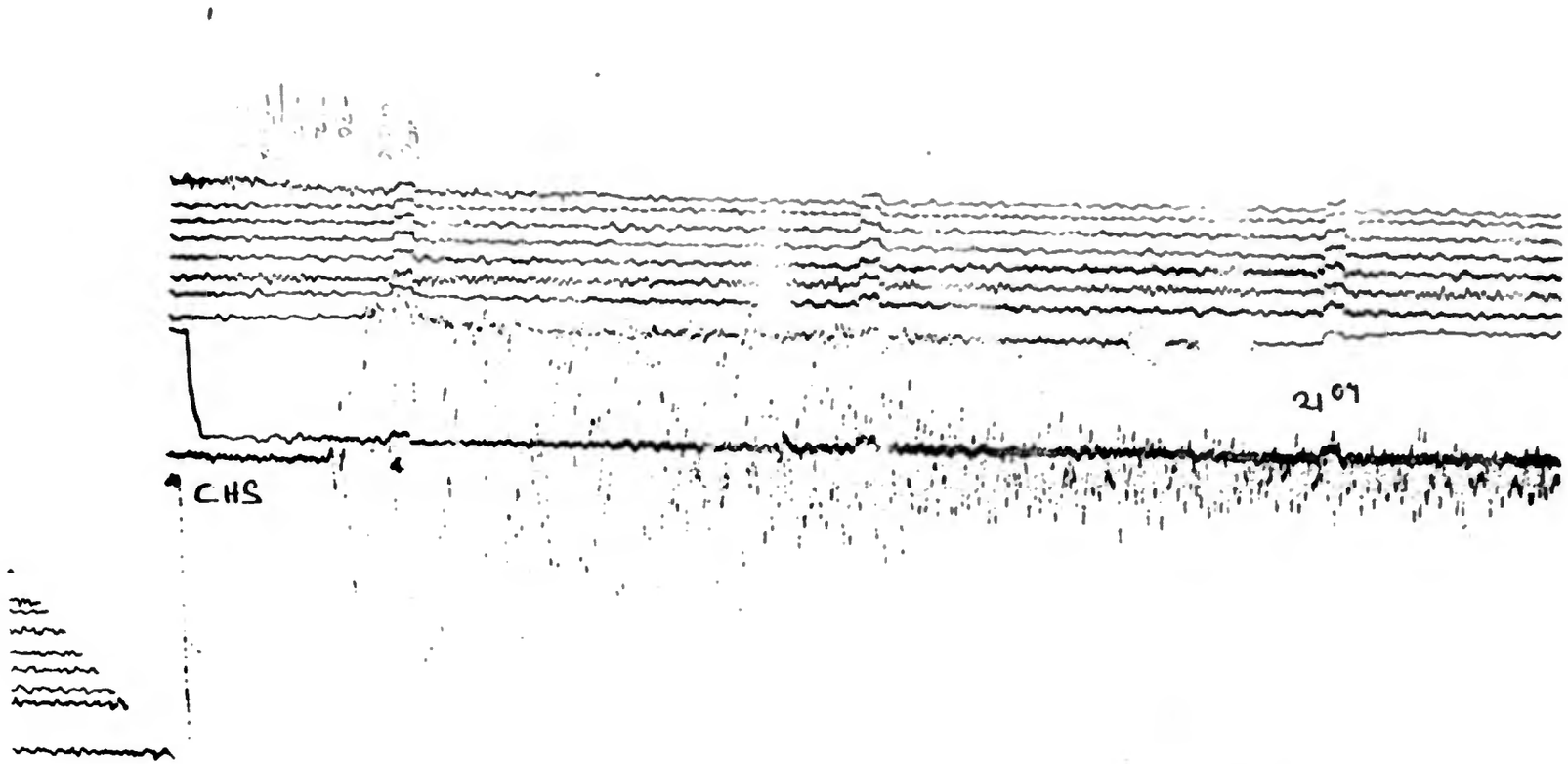

HKC
29 October 1965
*21:09:59.2Z
Δ = 6380 km
Gain: 15.3K
Instrument: SPZ



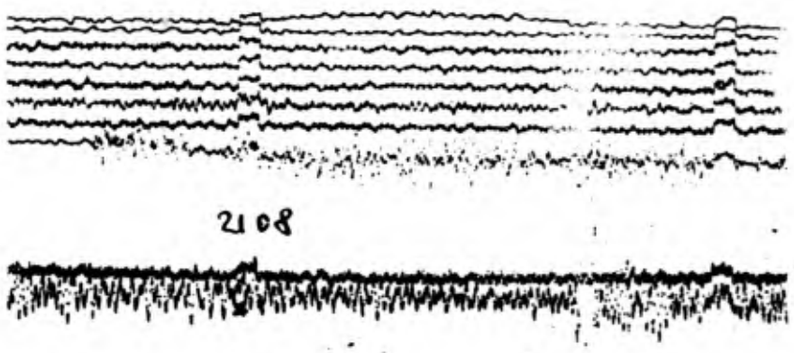
HNR
29 October 1965
*21:11:00.2Z
Δ = 6990 km
Gain: 30.6K
Instrument: SPZ


HON
29 October 1965
*21:08:00.0Z
Δ = 3884 km
Gain: 36.7K at 0.9 sec
Instrument: SPZ

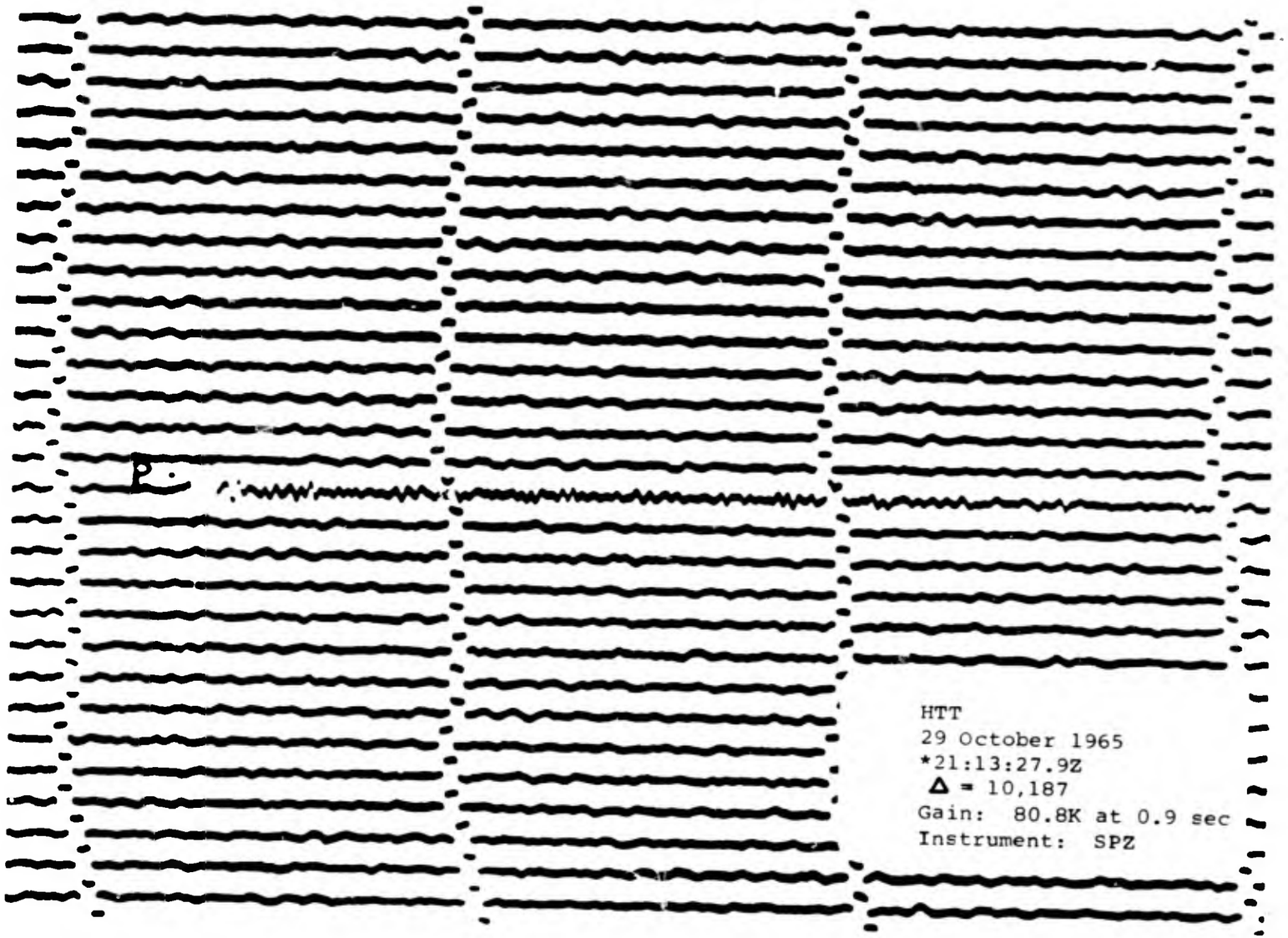

HON
29 October 1965
*21:10:00.0Z
Δ = 3884 km
Gain: 36.7K at 0.9 sec
Instrument: SPZ

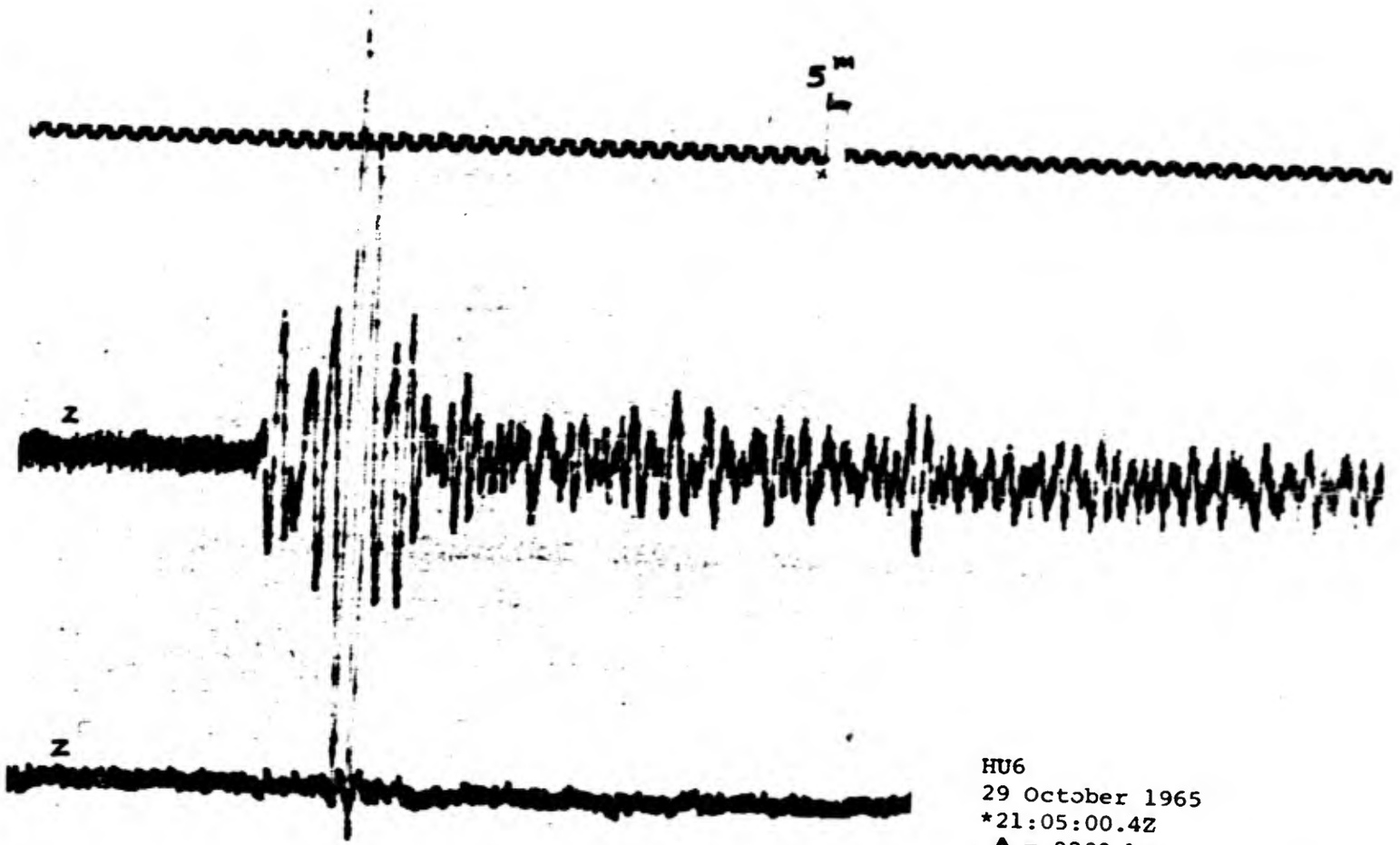


HS6
29 October 1965
*21:05:11.2Z
Δ = 2573 km
Gain: 206K at 0.8 sec.
Instrument: SPZ

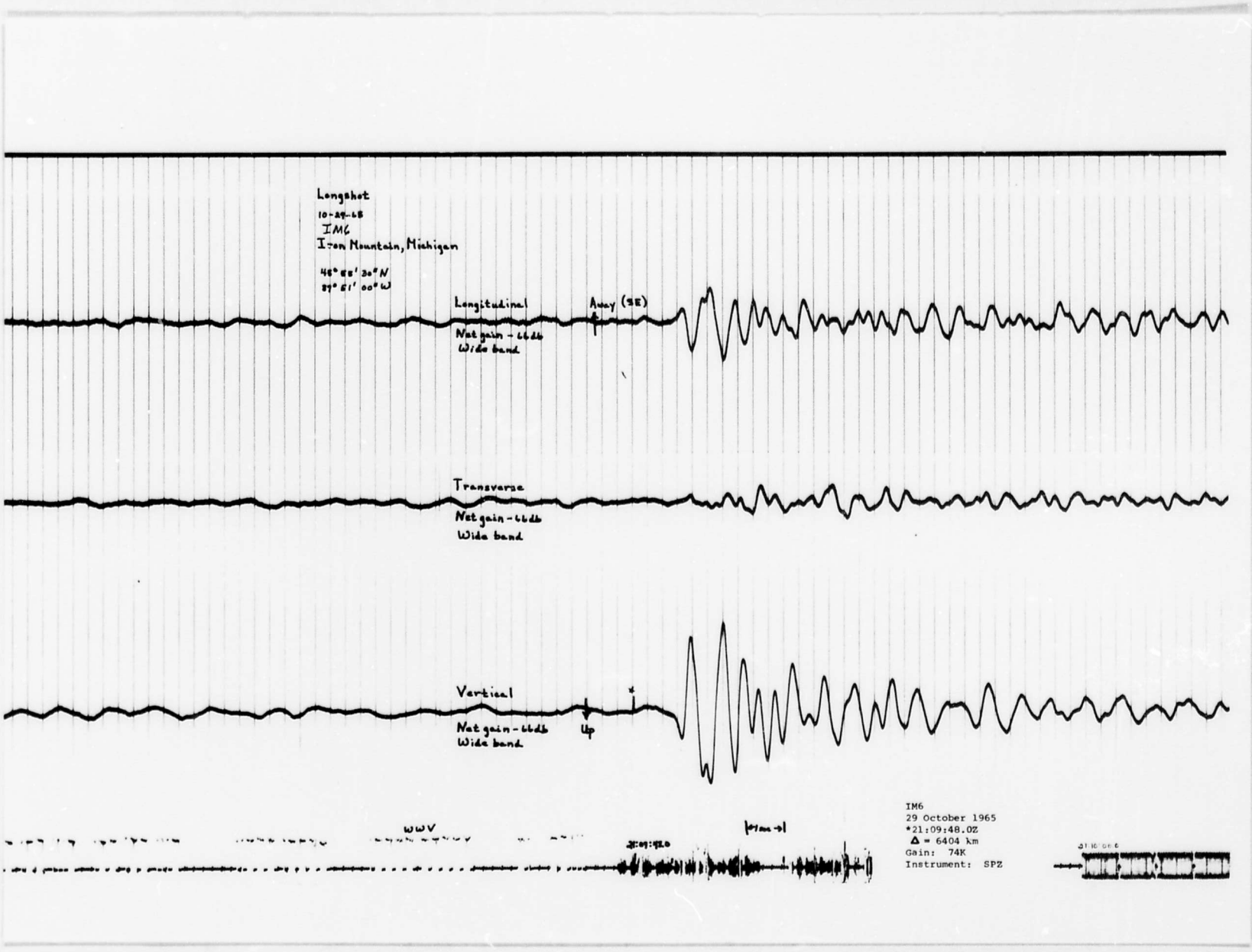


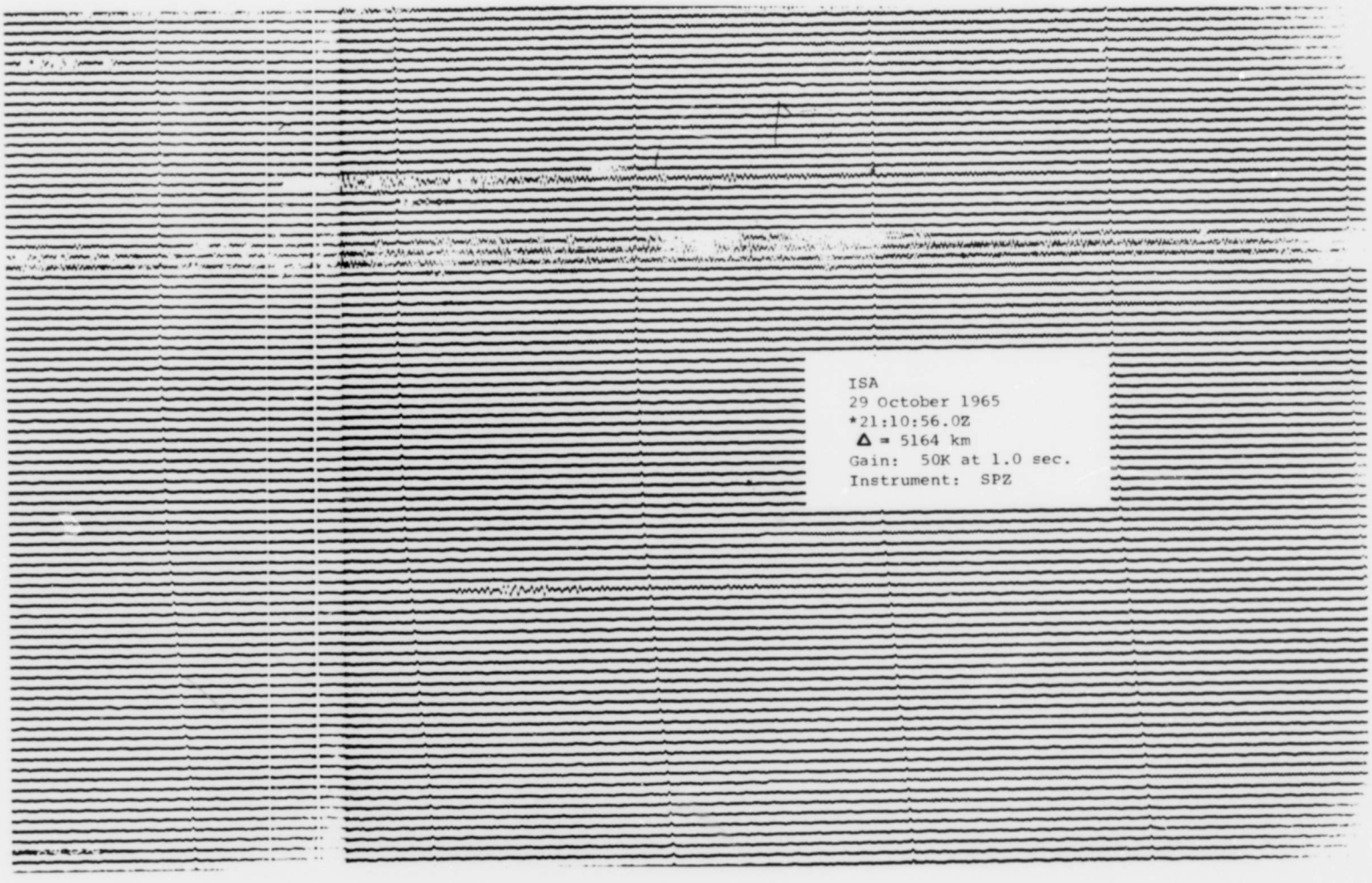
HS6
29 October 1965
*21:08:11.2Z
Δ = 2573 km
Gain: 206K at 0.8 sec.
Instrument: SPZ

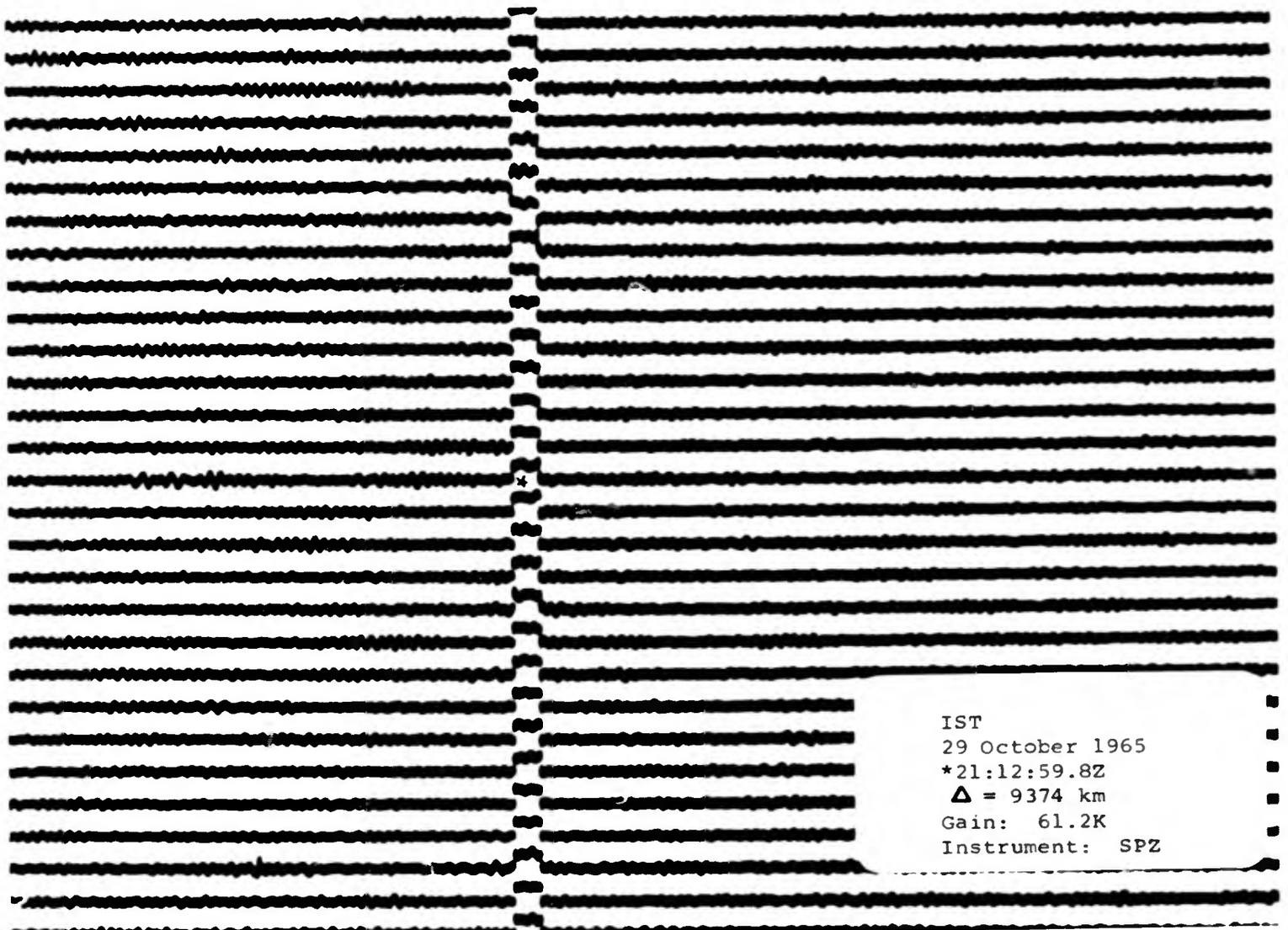

P
HTT
29 October 1965
*21:13:27.9Z
Δ = 10,187
Gain: 80.8K at 0.9 sec
Instrument: SPZ

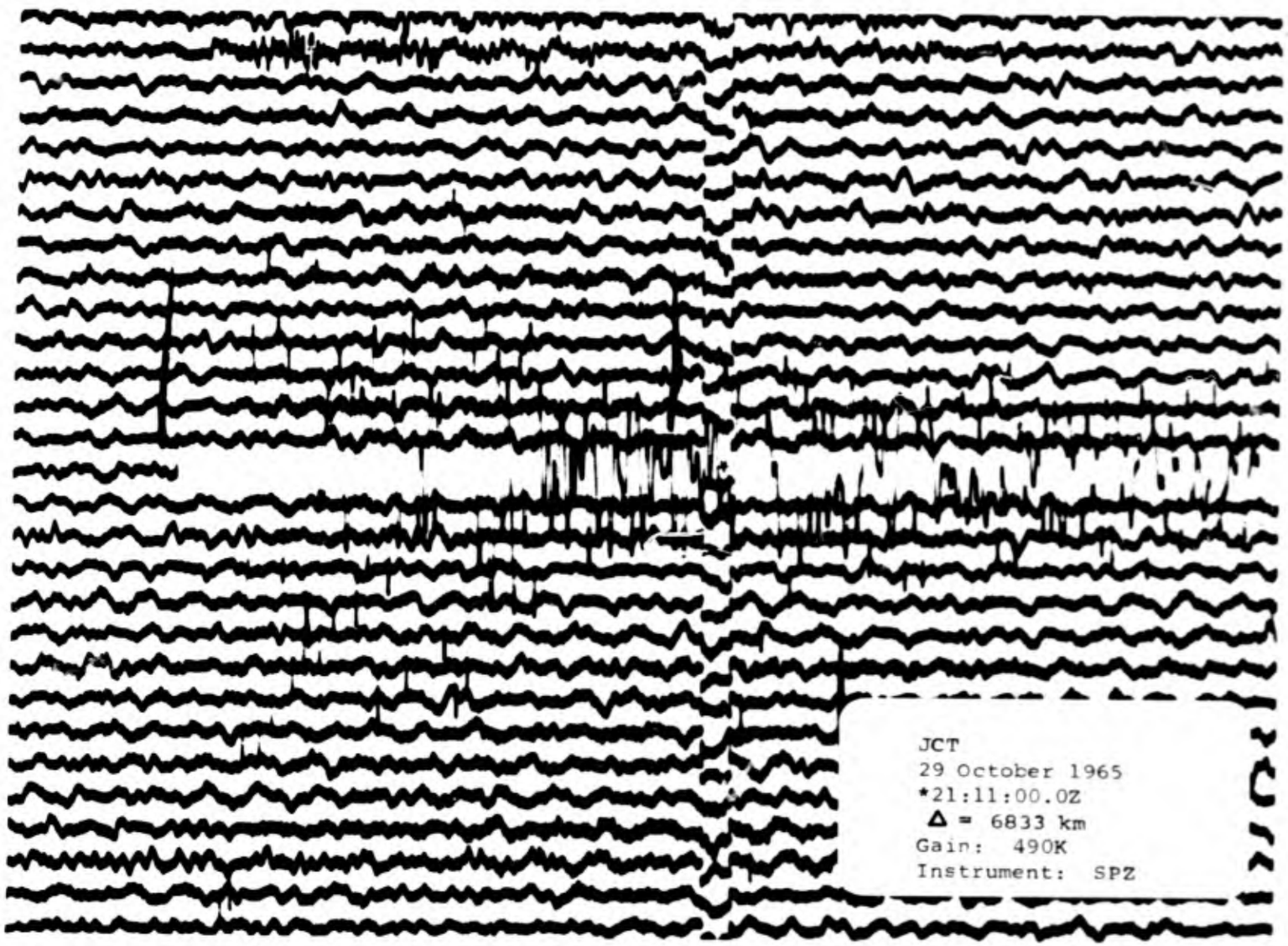


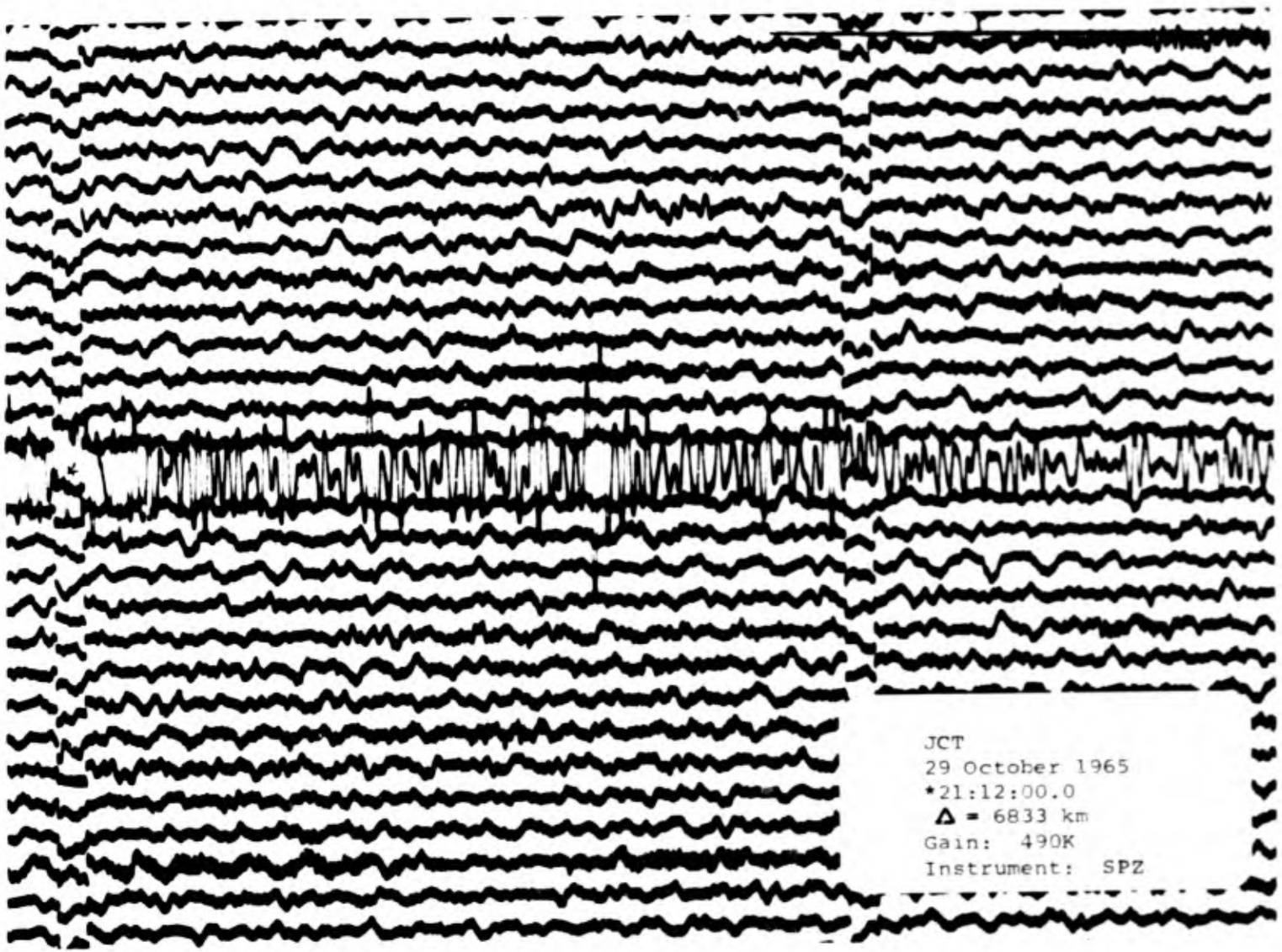
HU6
29 October 1965
*21:05:00.4Z
Δ = 2209 km.
Gain: top trace - (113K
at 0.8 sec.)
Instruments: SPZ

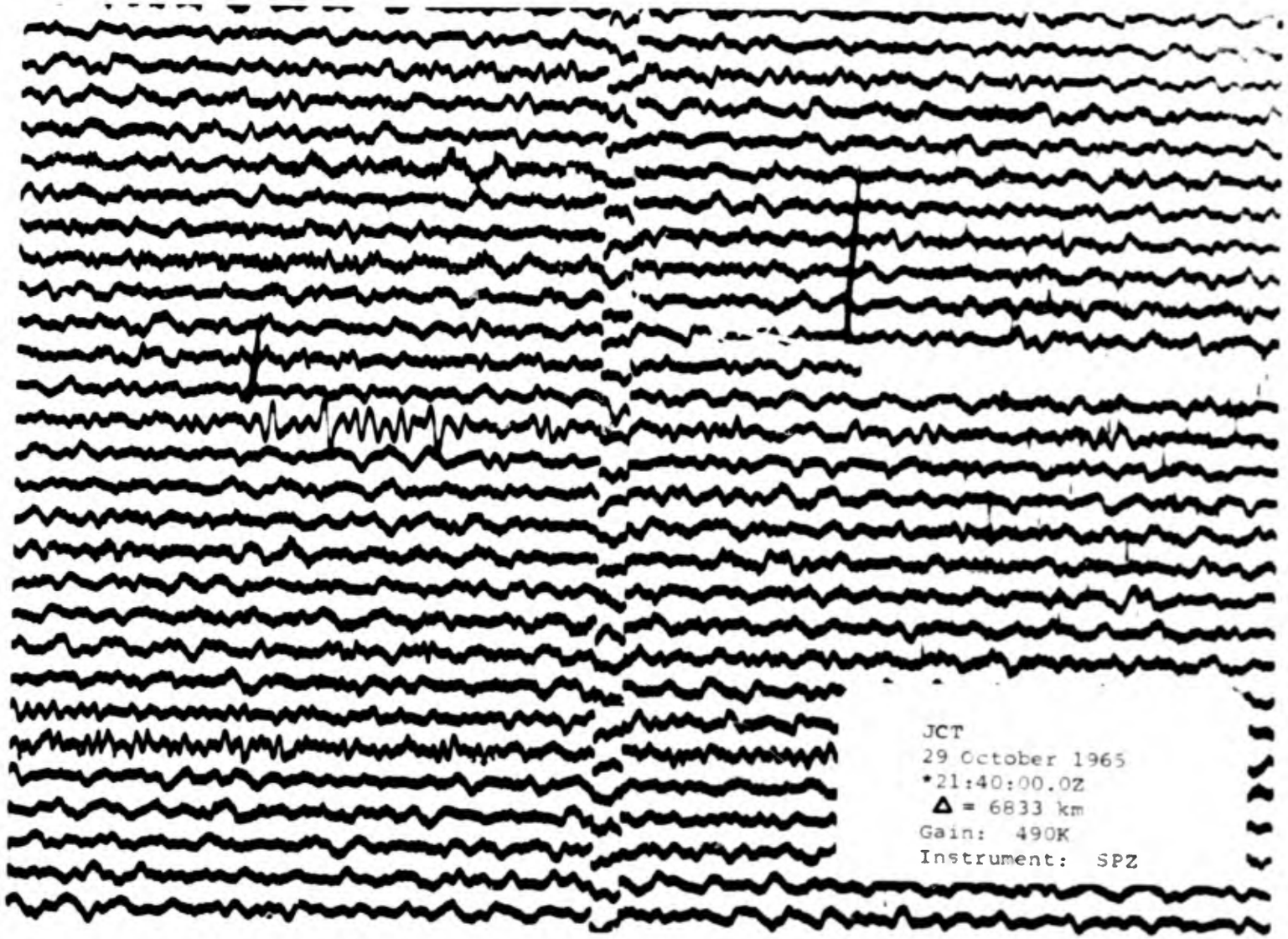

Longshot
10-29-65
IM6
Iron Mountain, Michigan
46° 05' 30" N
88° 51' 00" W
Longitudinal
Net gain - 66db
Wide band
Away (SE)
Transverse
Net gain - 66db
Wide band
Vertical
Net gain - 66db
Wide band
Up
WWV
IM6
29 October 1965
*21:09:48.0Z
Δ = 6404 km
Gain: 74K
Instrument: SPZ

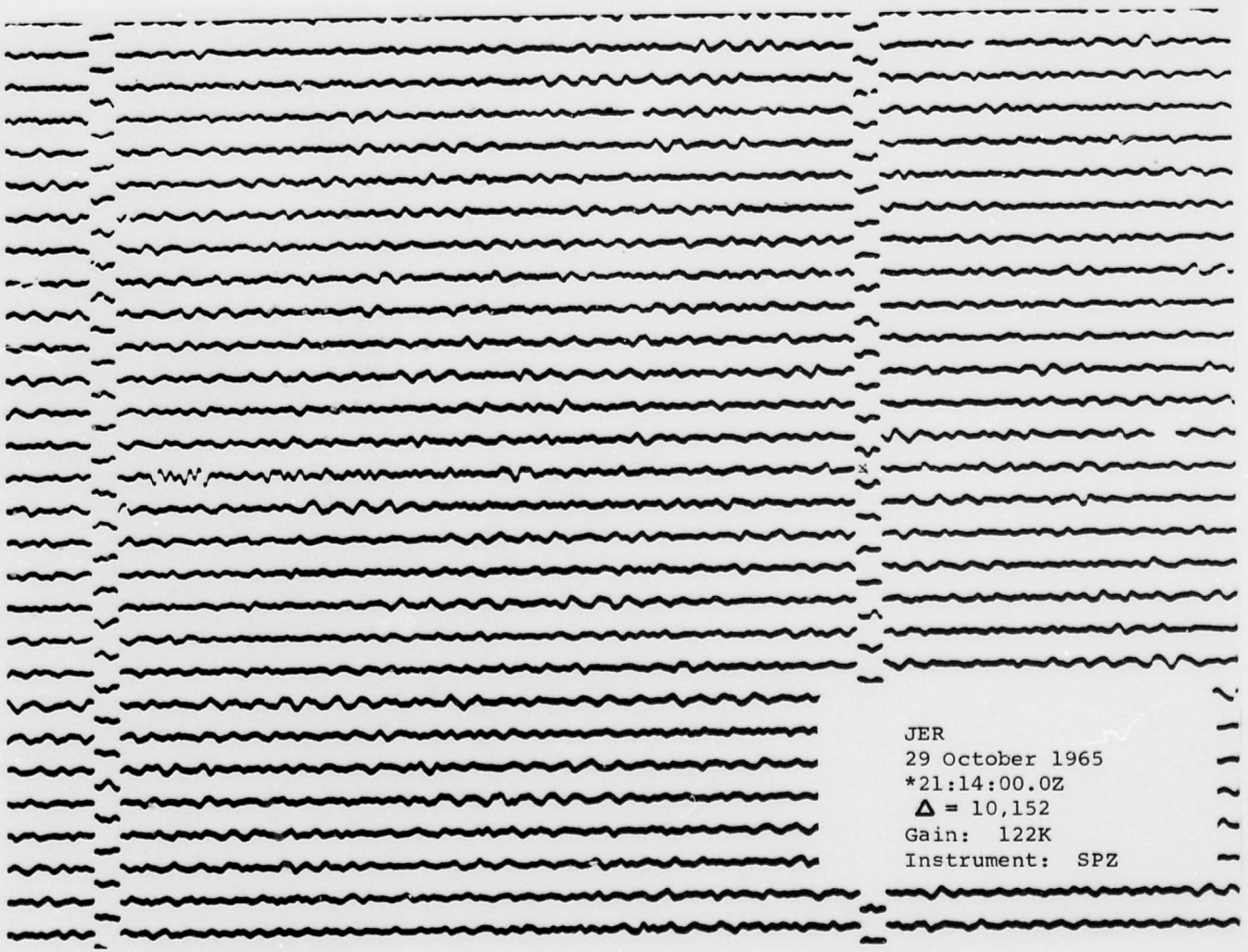

ISA
29 October 1965
*21:10:56.0Z
Δ = 5164 km
Gain: 50K at 1.0 sec.
Instrument: SPZ

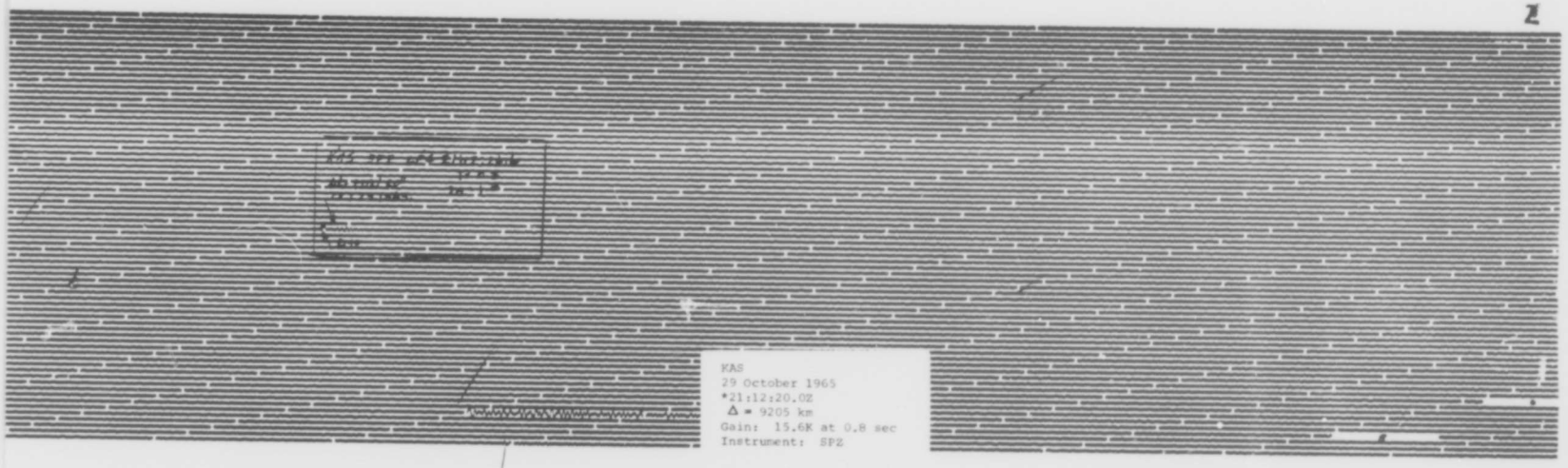

IST
29 October 1965
*21:12:59.8Z
Δ = 9374 km
Gain: 61.2K
Instrument: SPZ

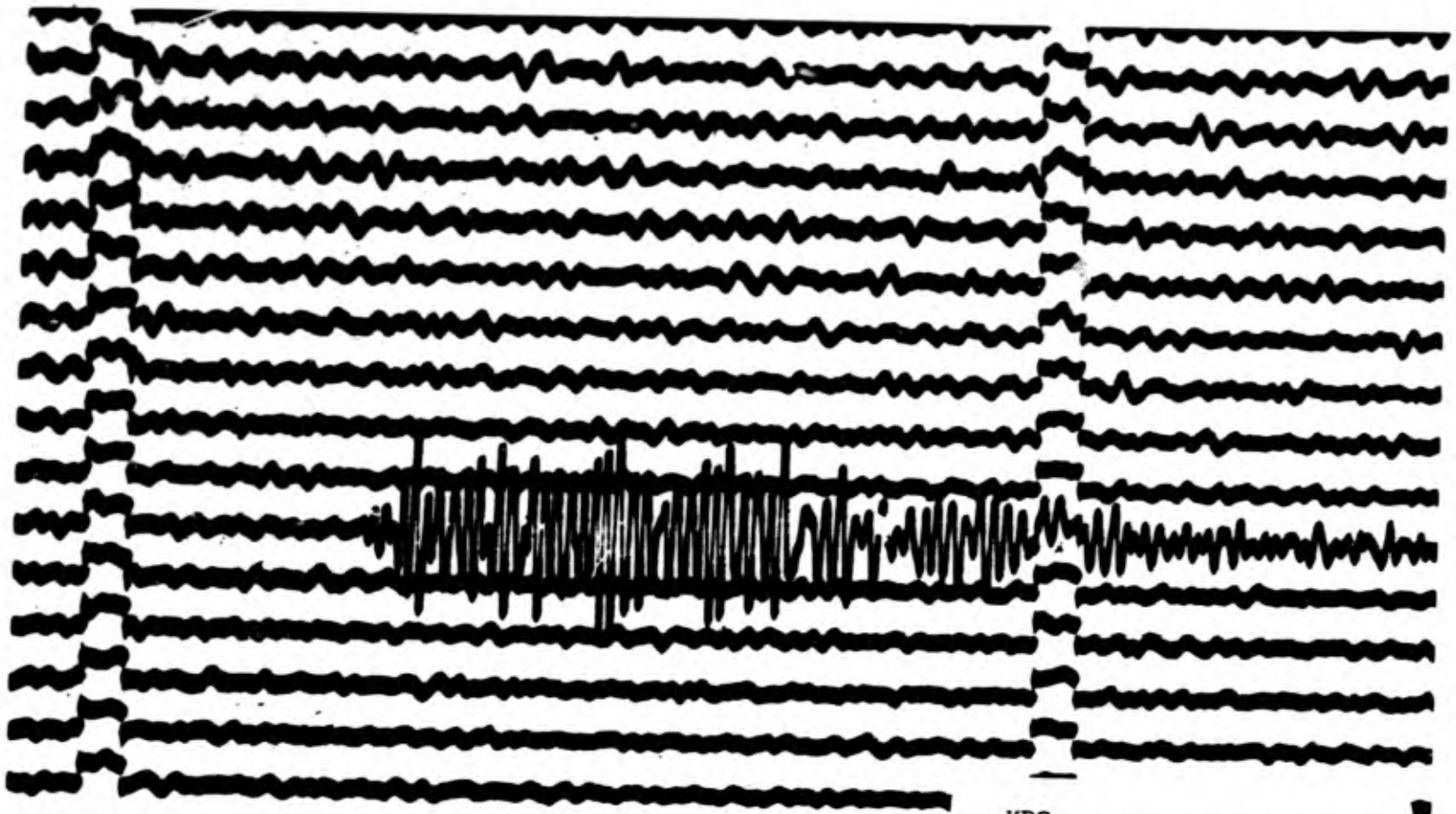

JCT
29 October 1965
*21:11:00.0Z
Δ = 6833 km
Gain: 490K
Instrument: SPZ


JCT
29 October 1965
*21:12:00.0
Δ = 6833 km
Gain: 490K
Instrument: SPZ

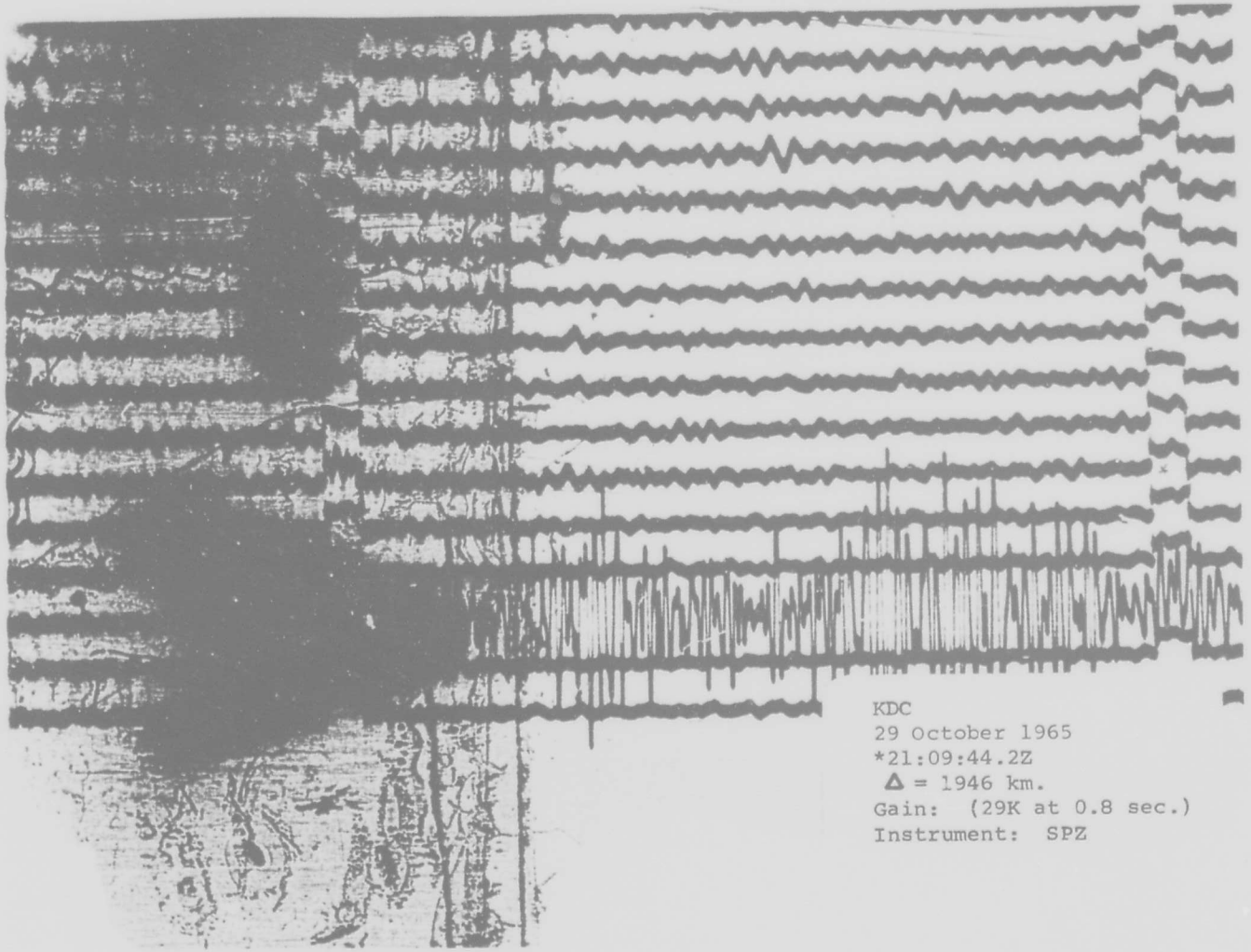

JCT
29 October 1965
*21:40:00.0Z
Δ = 6833 km
Gain: 490K
Instrument: SPZ


JER
29 October 1965
*21:14:00.0Z
Δ = 10,152
Gain: 122K
Instrument: SPZ

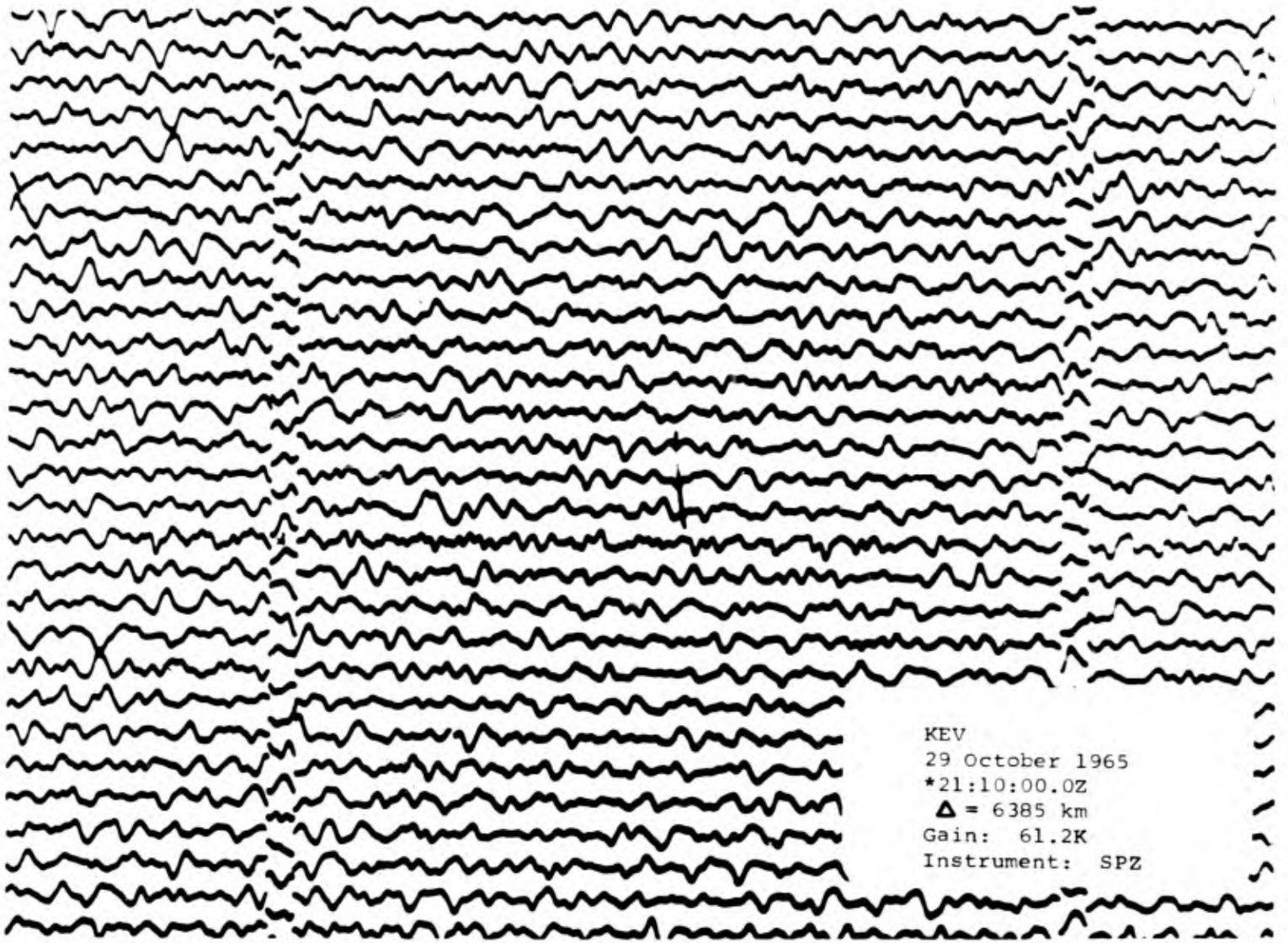

KAS
29 October 1965
*21:12:20.02
Δ = 9205 km
Gain: 15.6K at 0.8 sec
Instrument: SPZ

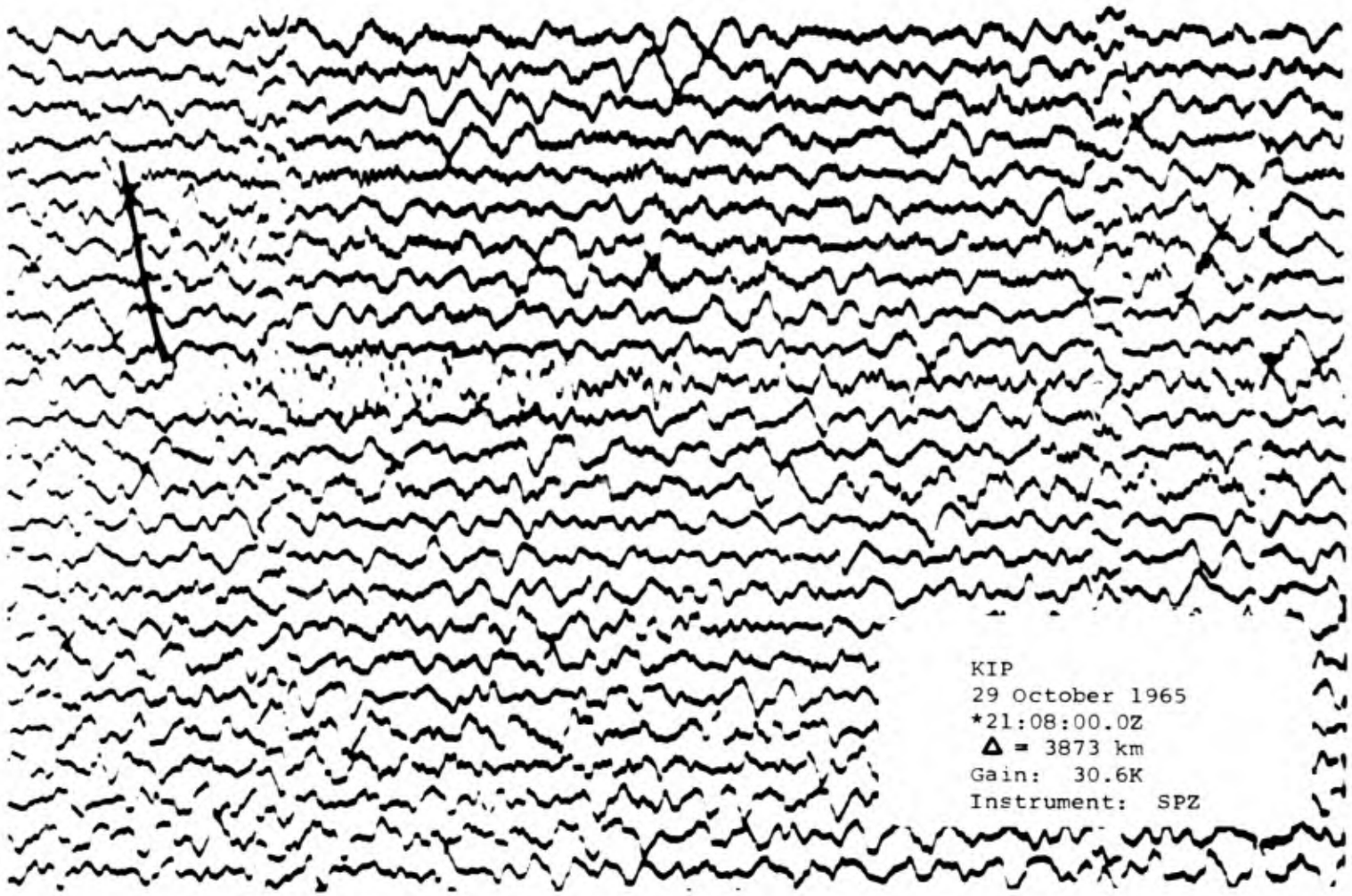


KDC
29 October 1965
*21:04:44.2Z
Δ = 1946 km.
Gain: (29K at 0.8 sec.)
Instrument: SPZ

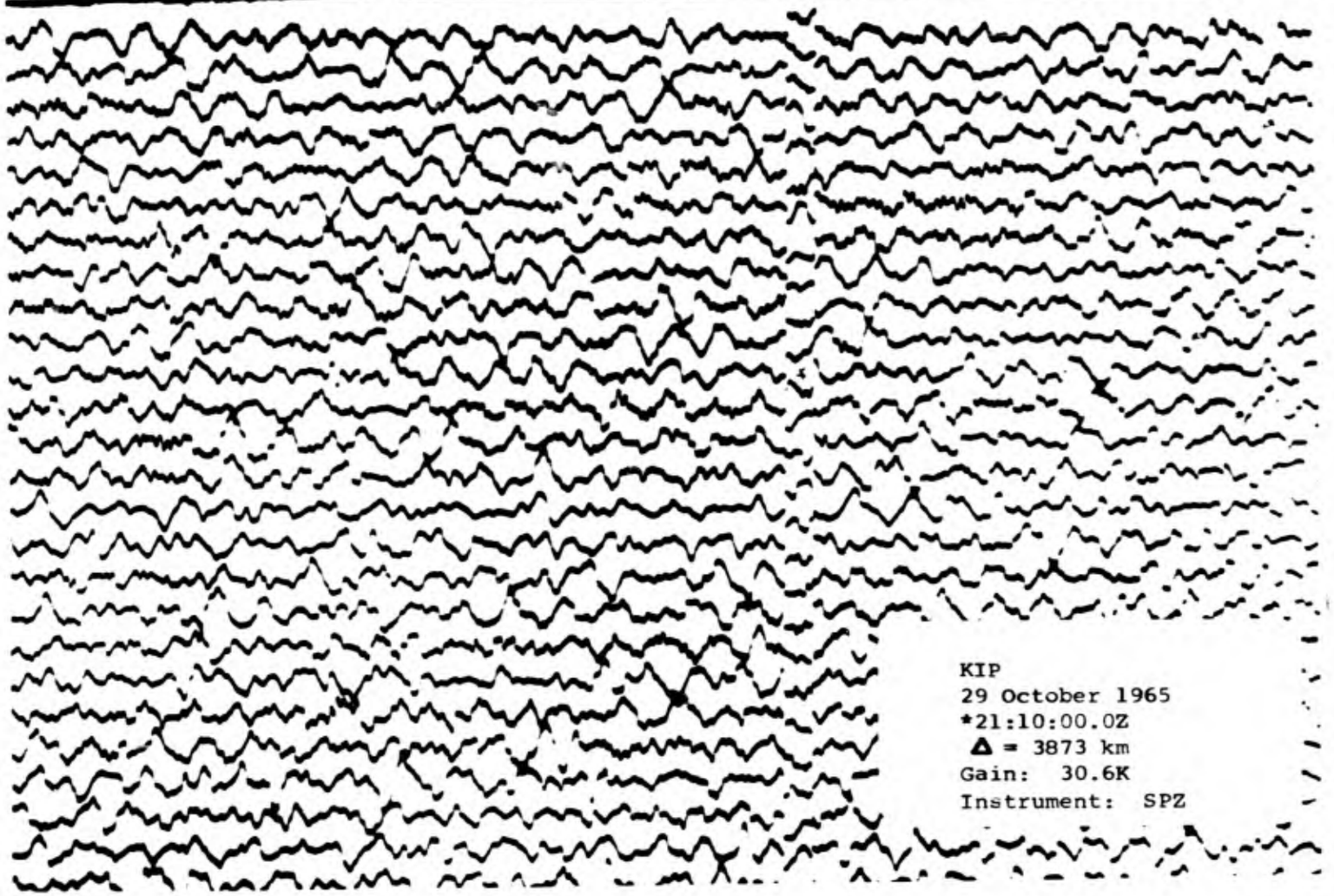


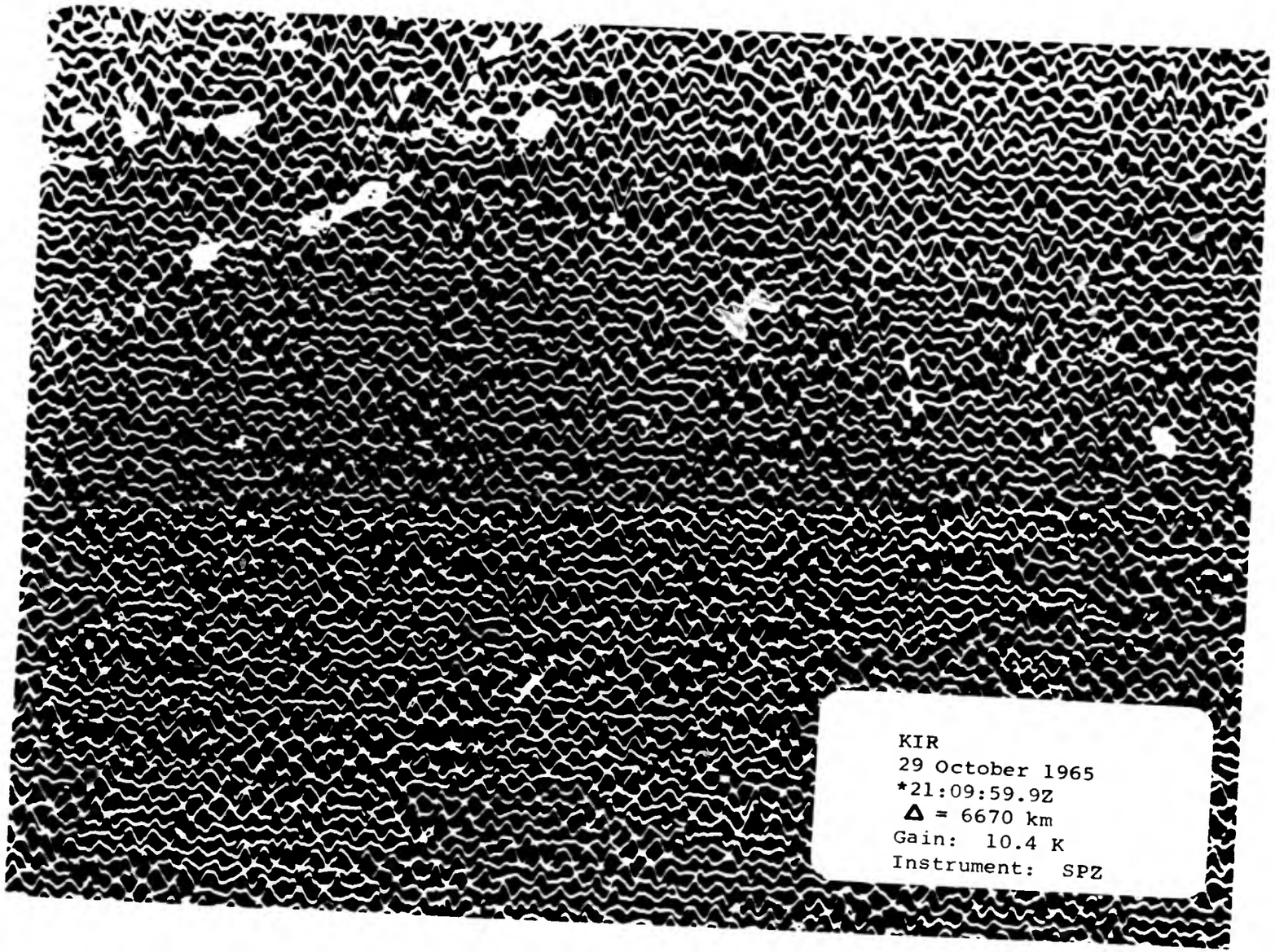
KDC
29 October 1965
*21:09:44.2Z
Δ = 1946 km.
Gain: (29K at 0.8 sec.)
Instrument: SPZ

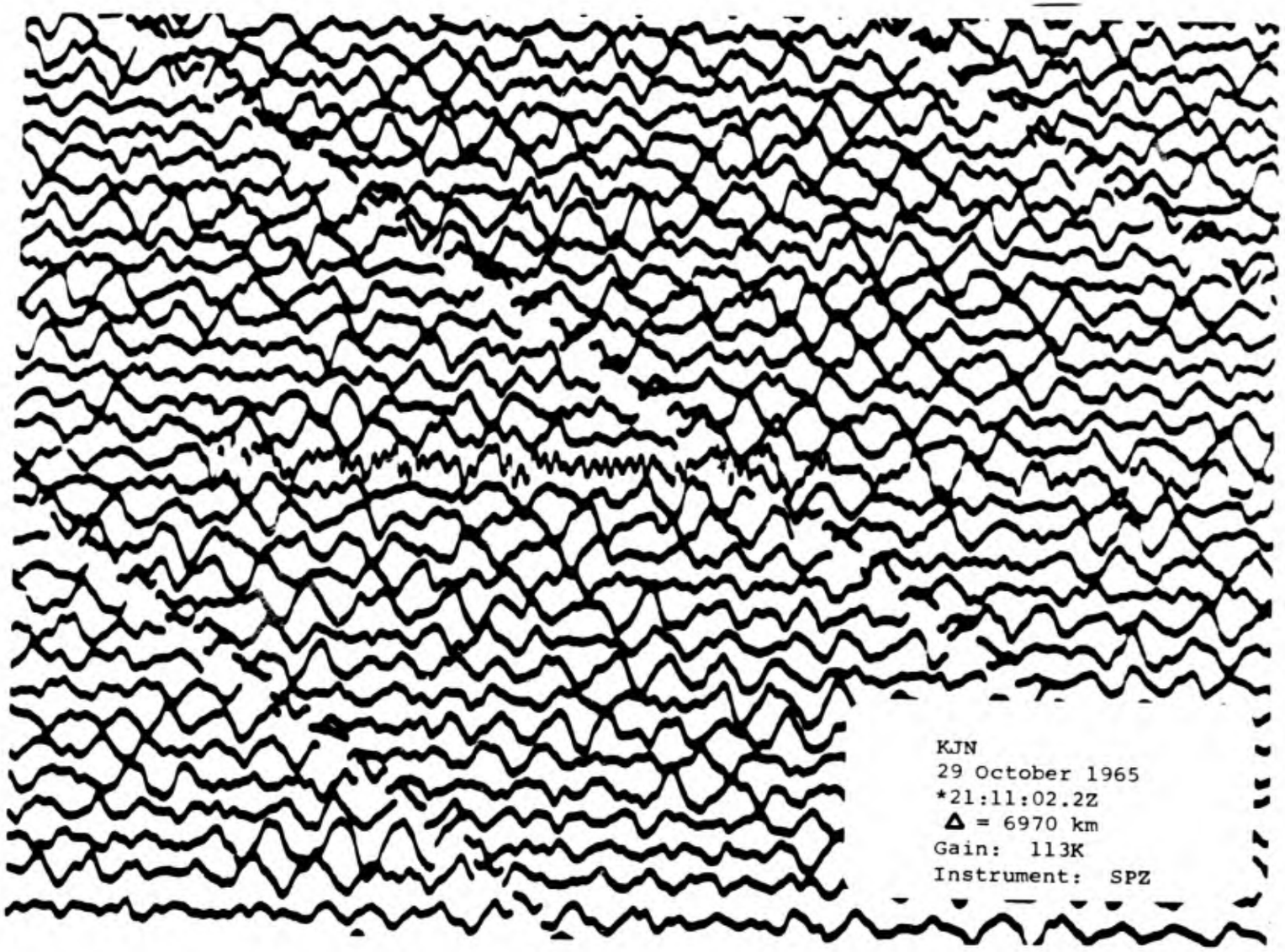

KEV
29 October 1965
*21:10:00.0Z
Δ = 6385 km
Gain: 61.2K
Instrument: SPZ

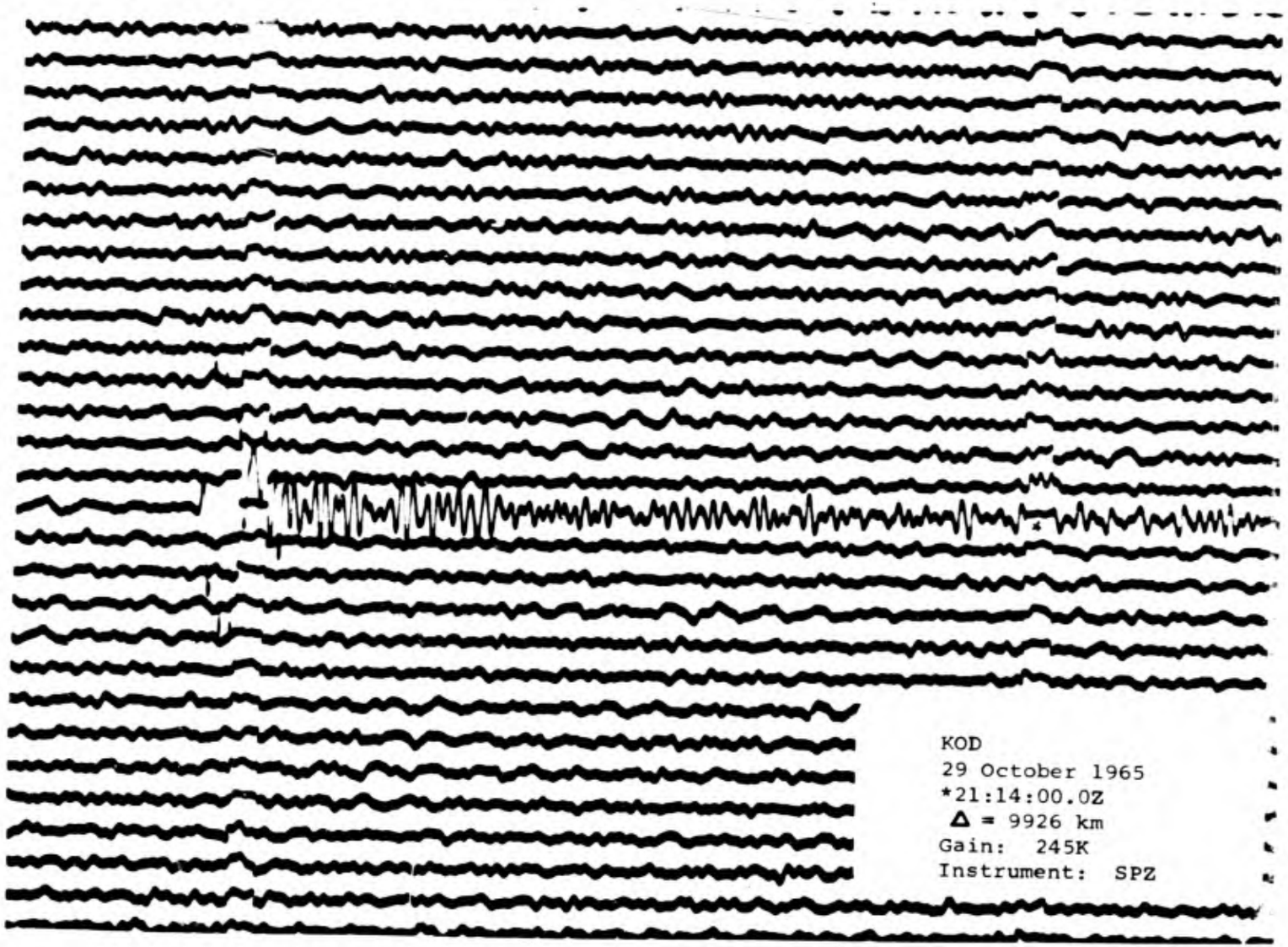

KIP
29 October 1965
*21:08:00.0Z
Δ = 3873 km
Gain: 30.6K
Instrument: SPZ

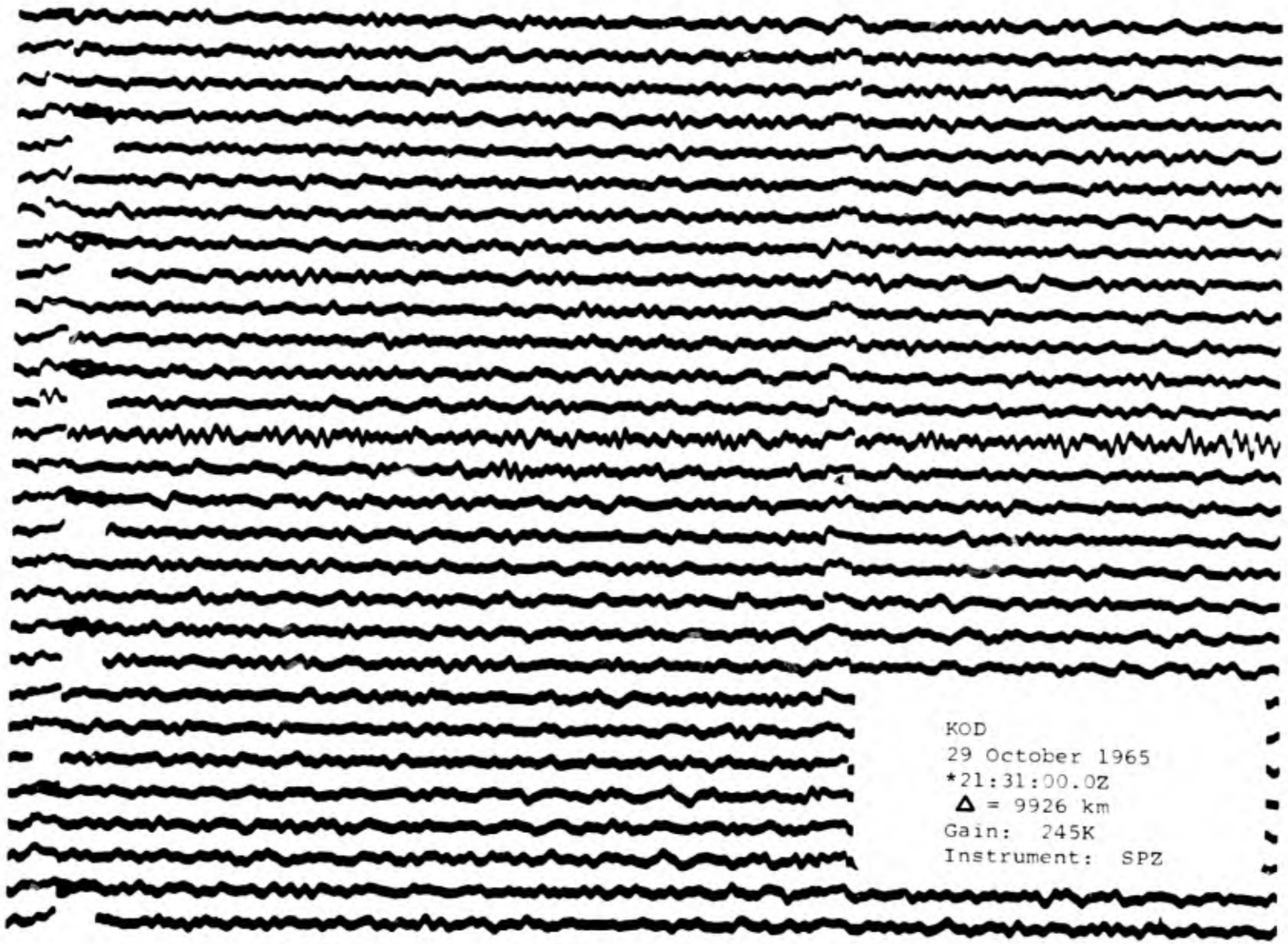
,U Ig 0,75 [illegible]RKS:

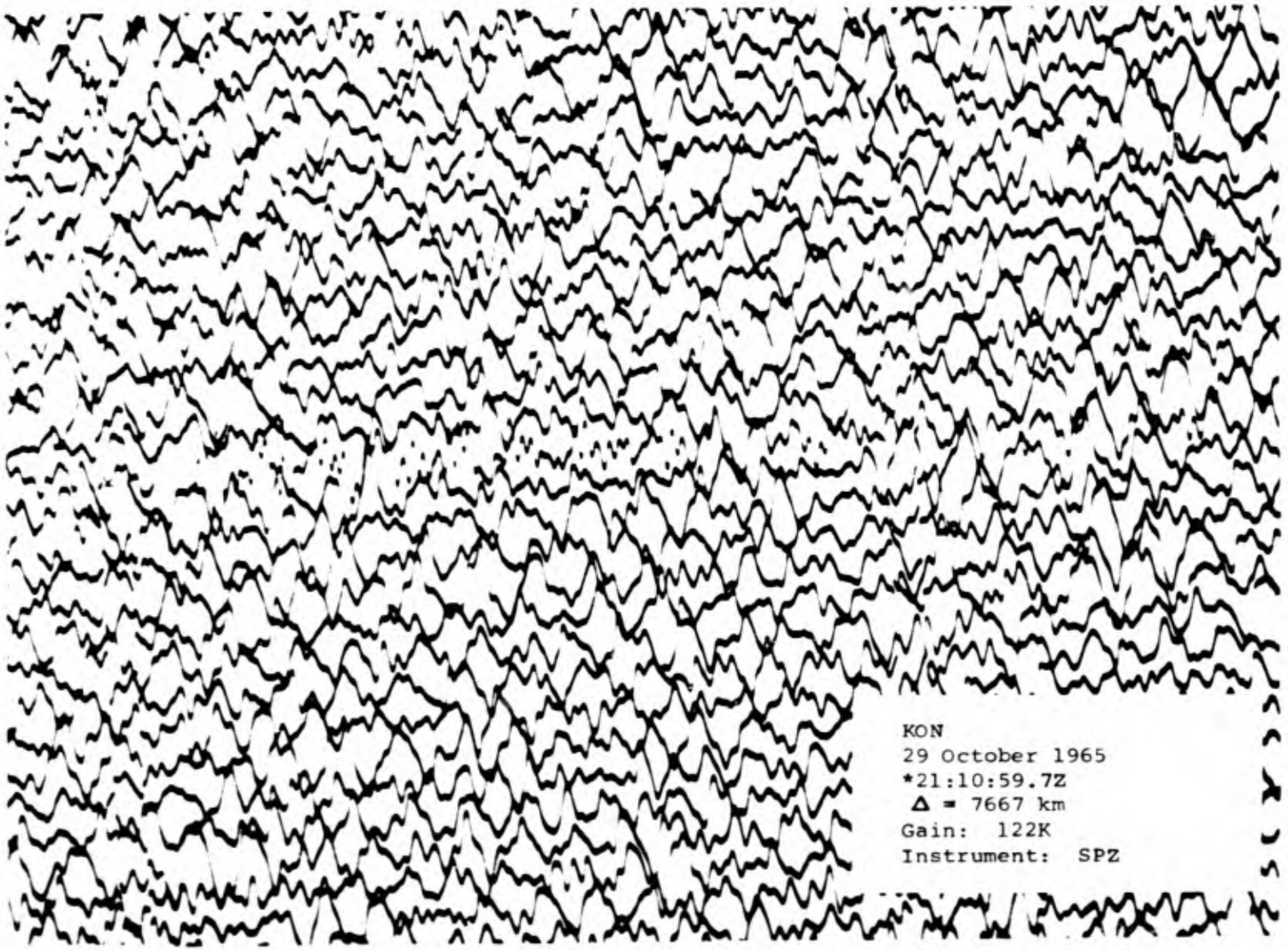

KIP
29 October 1965
*21:10:00.0Z
Δ = 3873 km
Gain: 30.6K
Instrument: SPZ

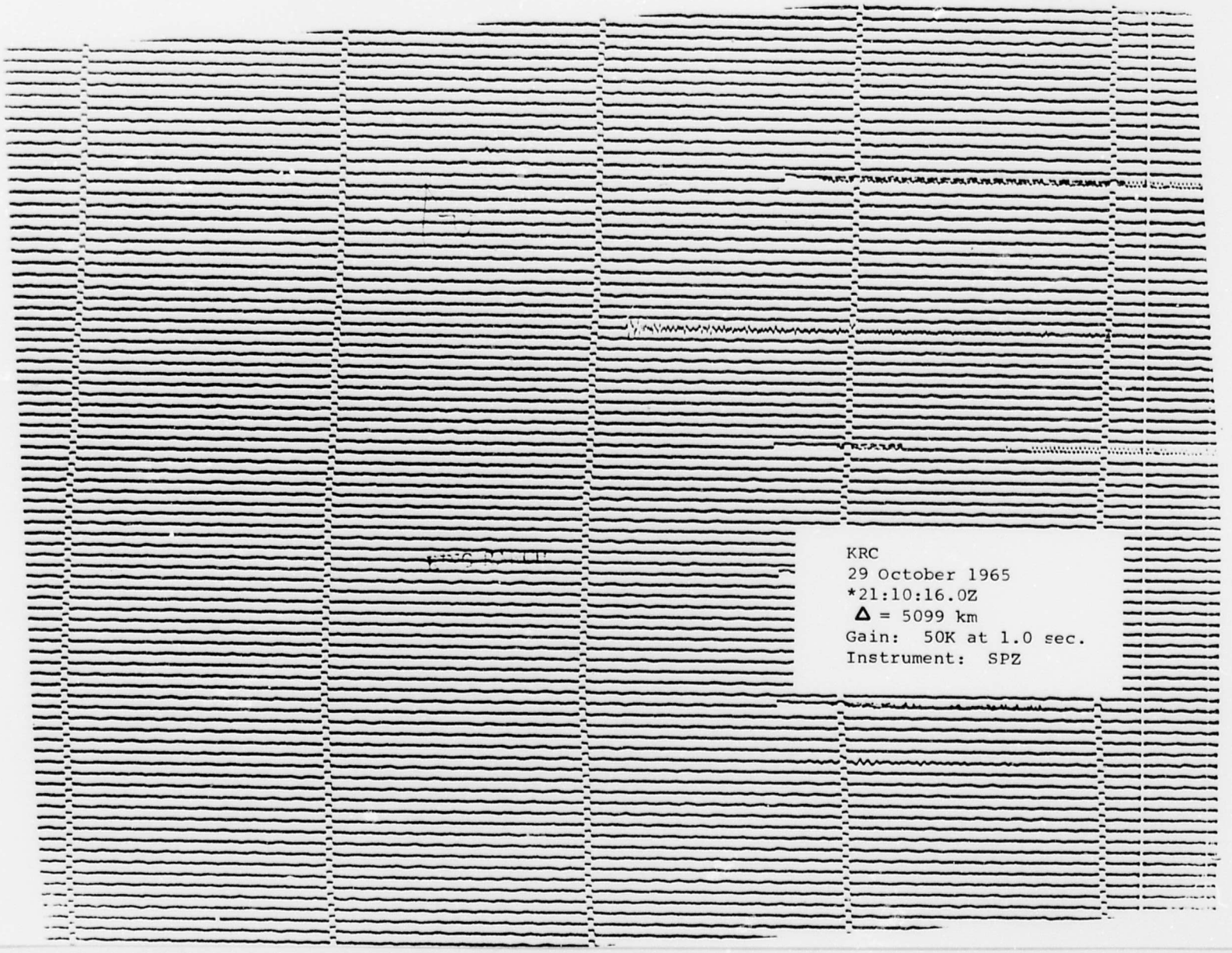

KIR
29 October 1965
*21:09:59.9Z
Δ = 6670 km
Gain: 10.4 K
Instrument: SPZ

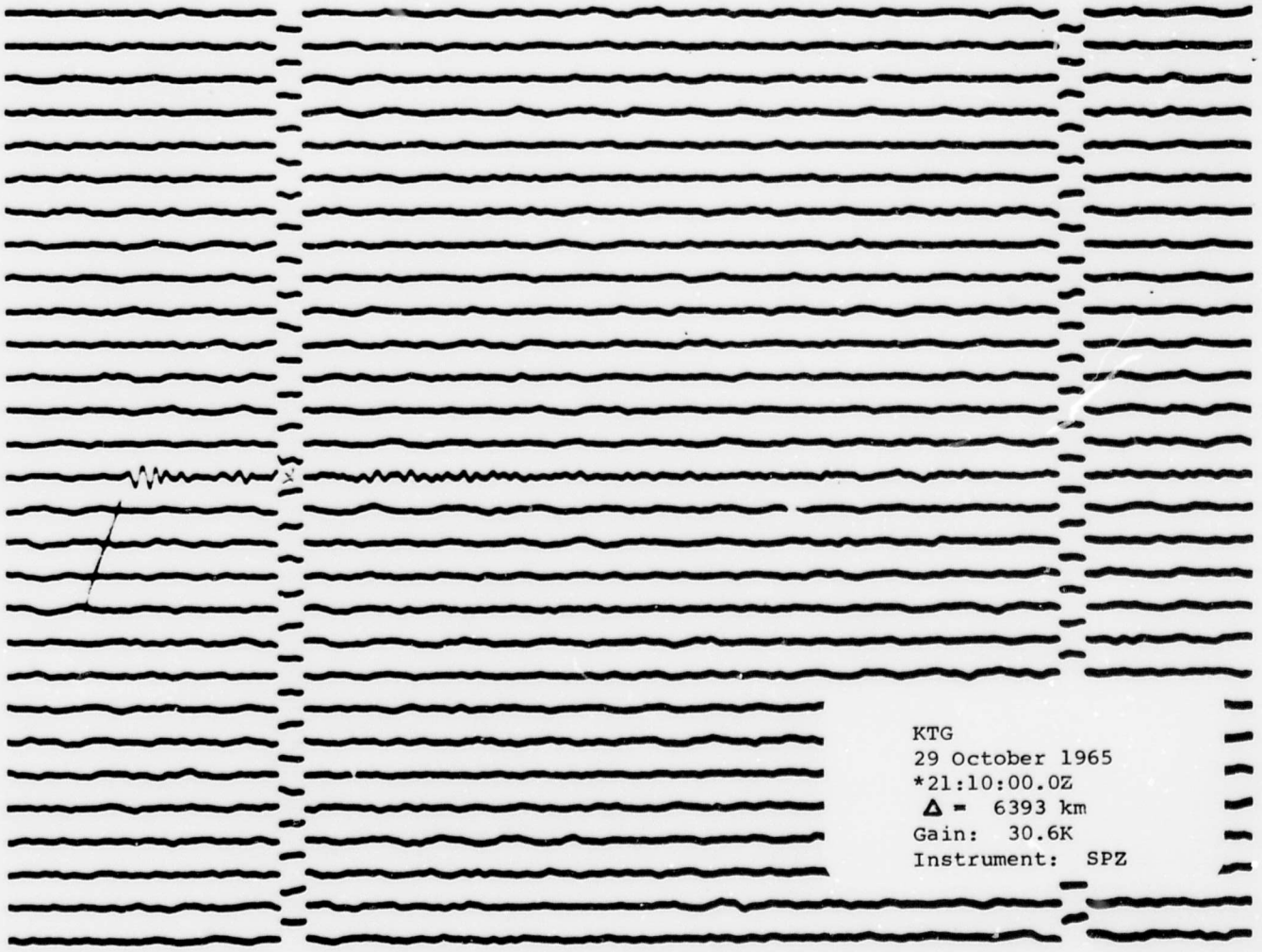

KJN
29 October 1965
*21:11:02.2Z
Δ = 6970 km
Gain: 113K
Instrument: SPZ

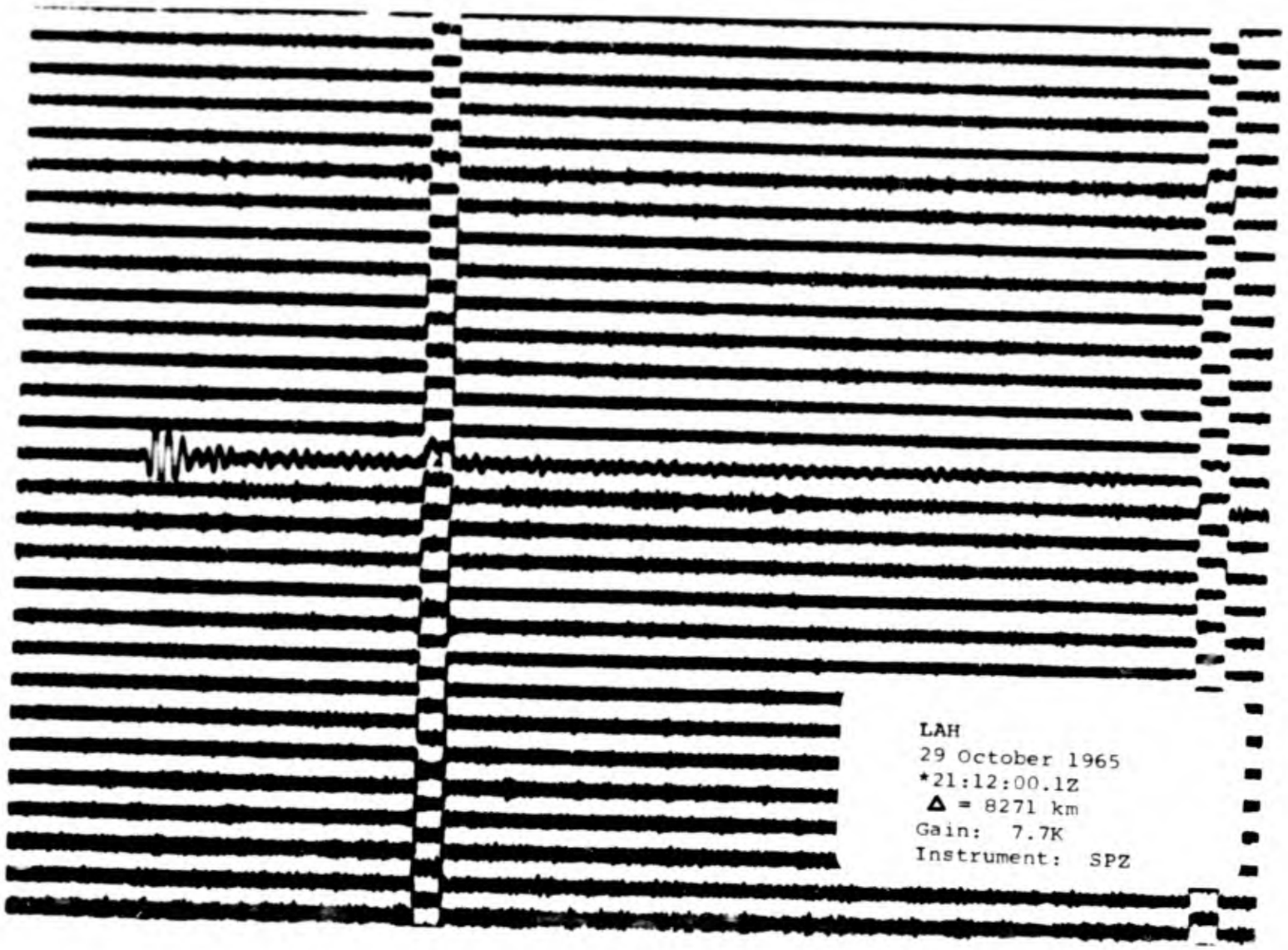

KOD
29 October 1965
*21:14:00.0Z
Δ = 9926 km
Gain: 245K
Instrument: SPZ

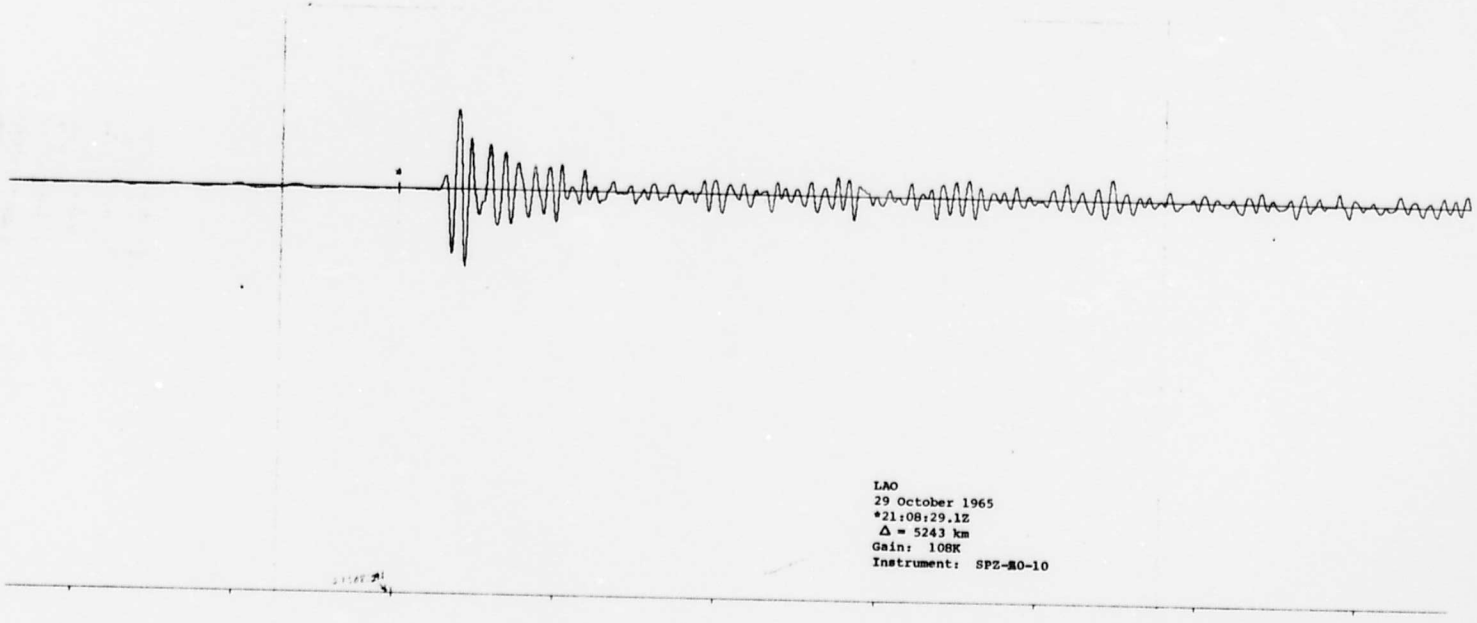

KOD
29 October 1965
*21:31:00.0Z
Δ = 9926 km
Gain: 245K
Instrument: SPZ

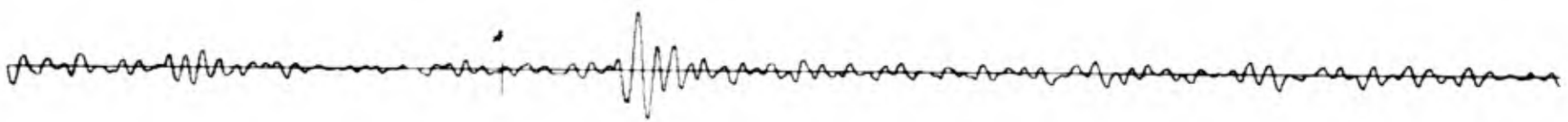

KON
29 October 1965
*21:10:59.7Z
Δ = 7667 km
Gain: 122K
Instrument: SPZ


KRC
29 October 1965
*21:10:16.0Z
Δ = 5099 km
Gain: 50K at 1.0 sec.
Instrument: SPZ

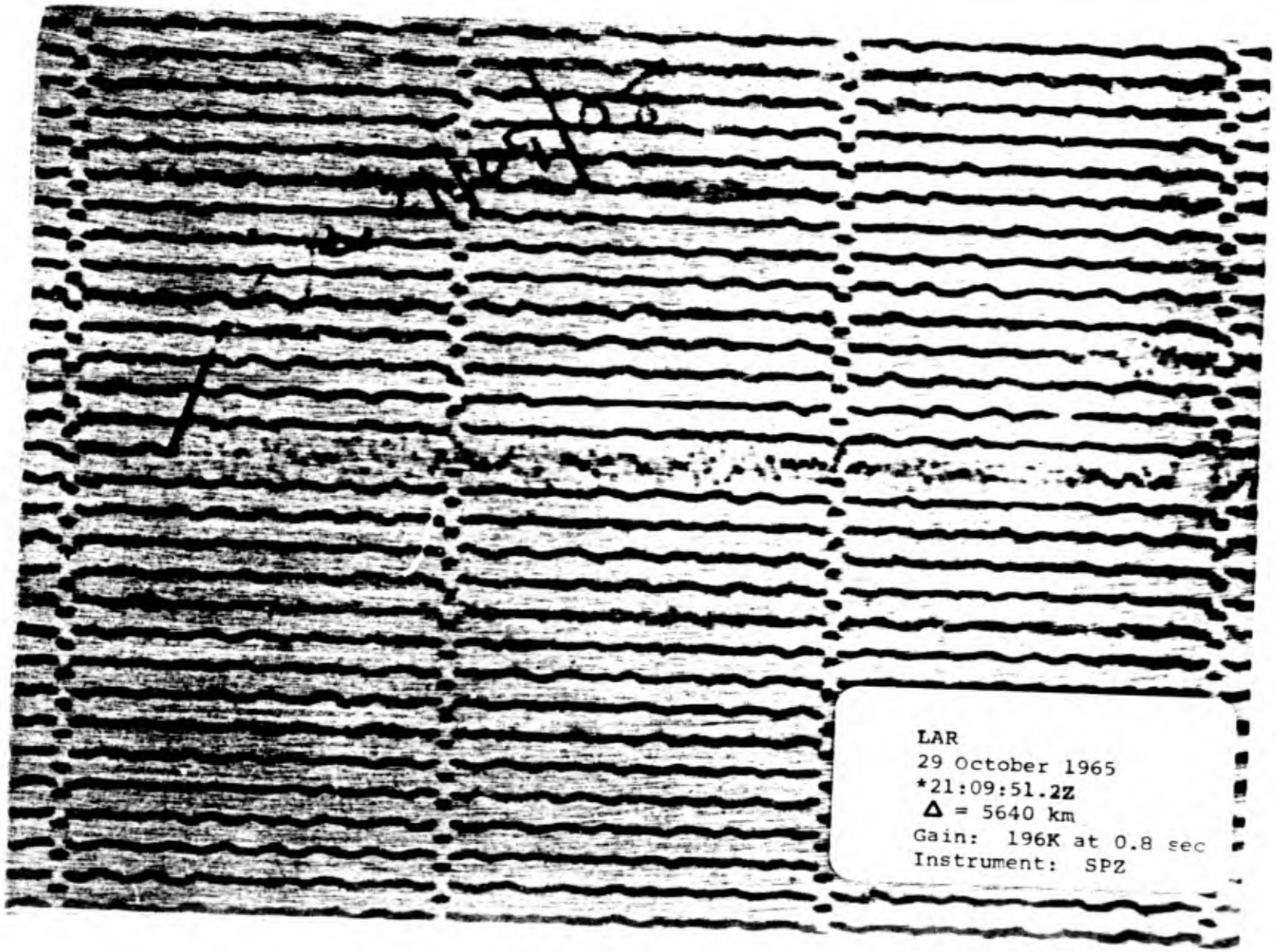

KTG
29 October 1965
*21:10:00.0Z
Δ = 6393 km
Gain: 30.6K
Instrument: SPZ

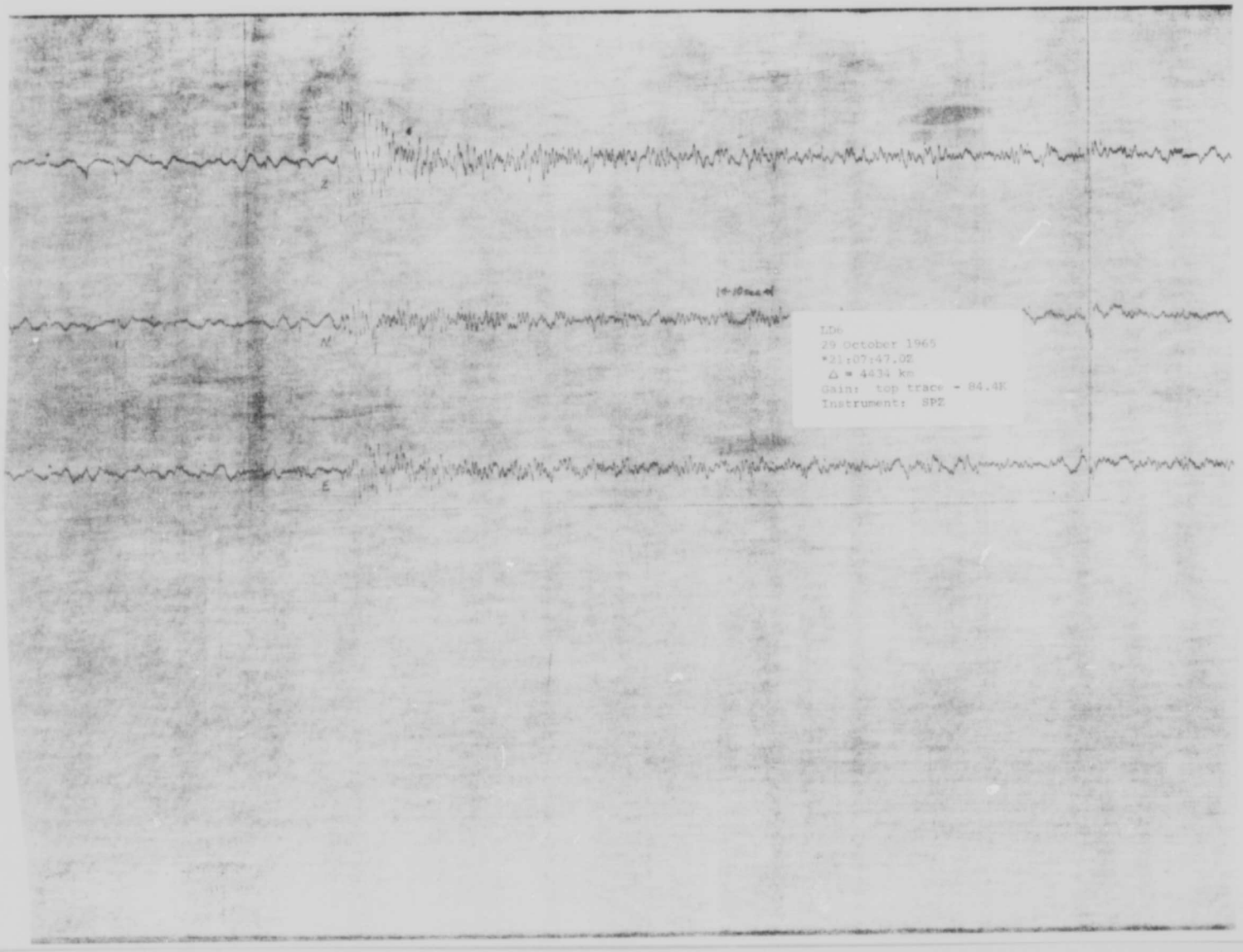

LAH
29 October 1965
*21:12:00.1Z
Δ = 8271 km
Gain: 7.7K
Instrument: SPZ

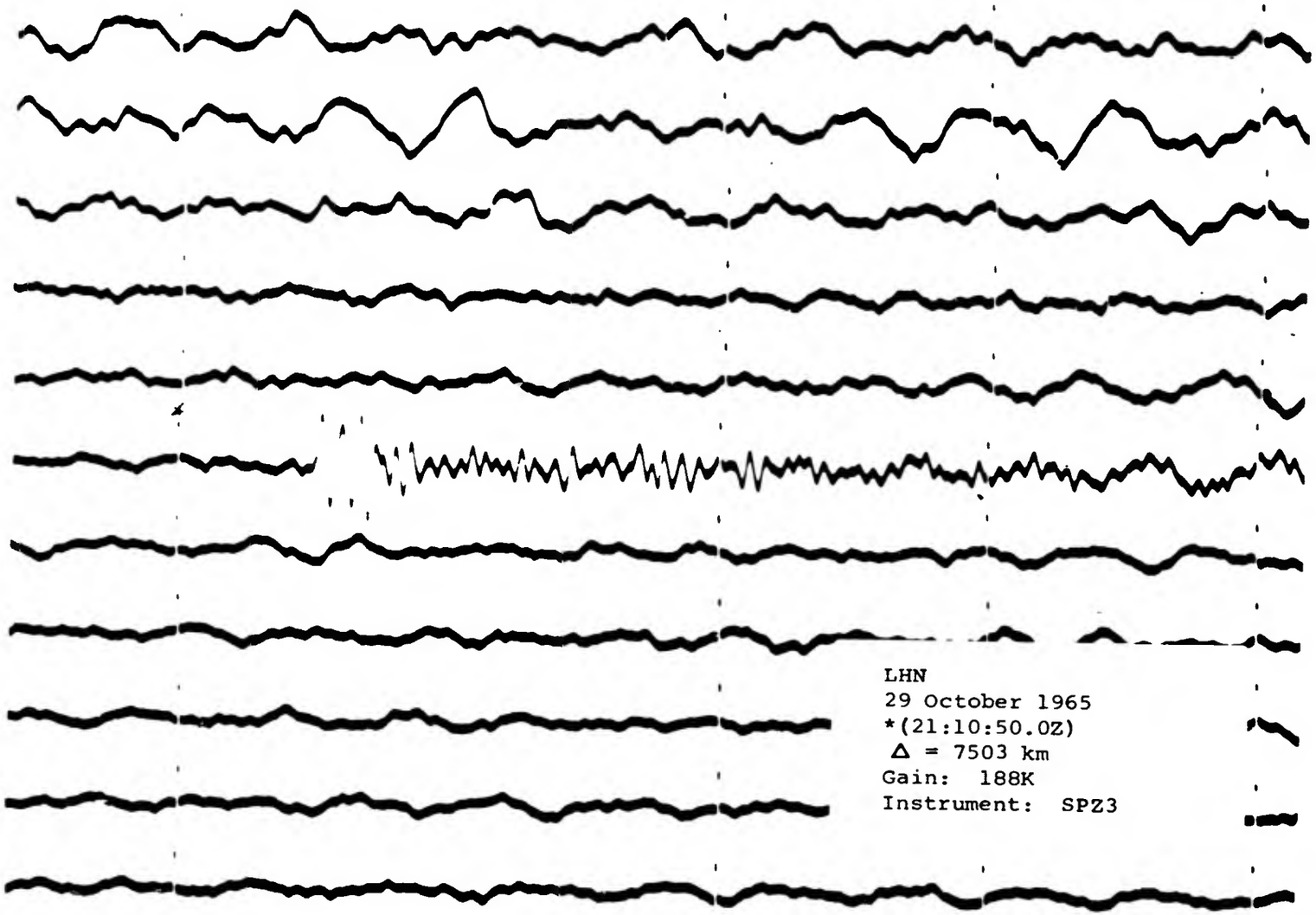

LAO
29 October 1965
*21:08:29.1Z
Δ = 5243 km
Gain: 108K
Instrument: SPZ-M0-10

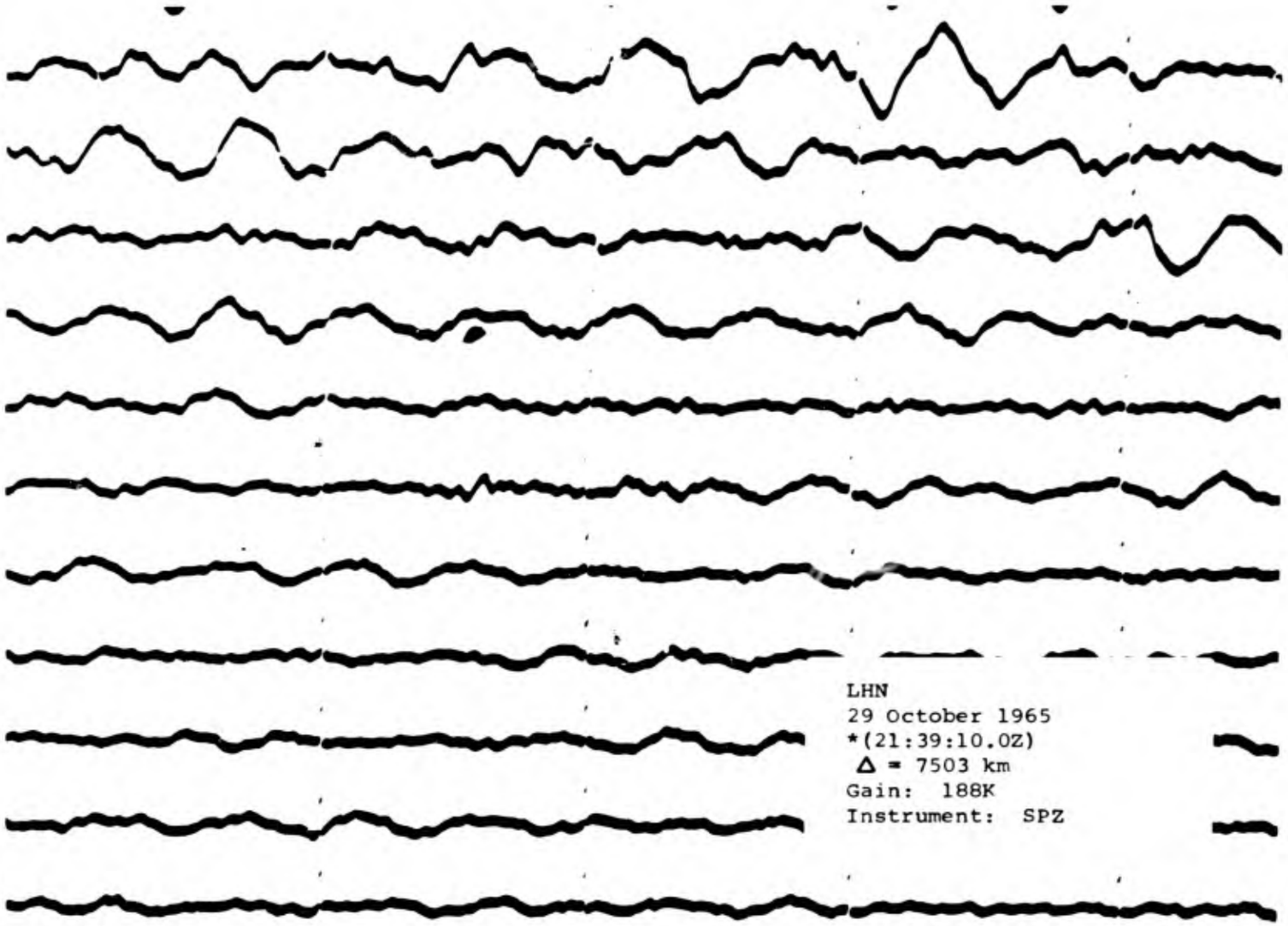


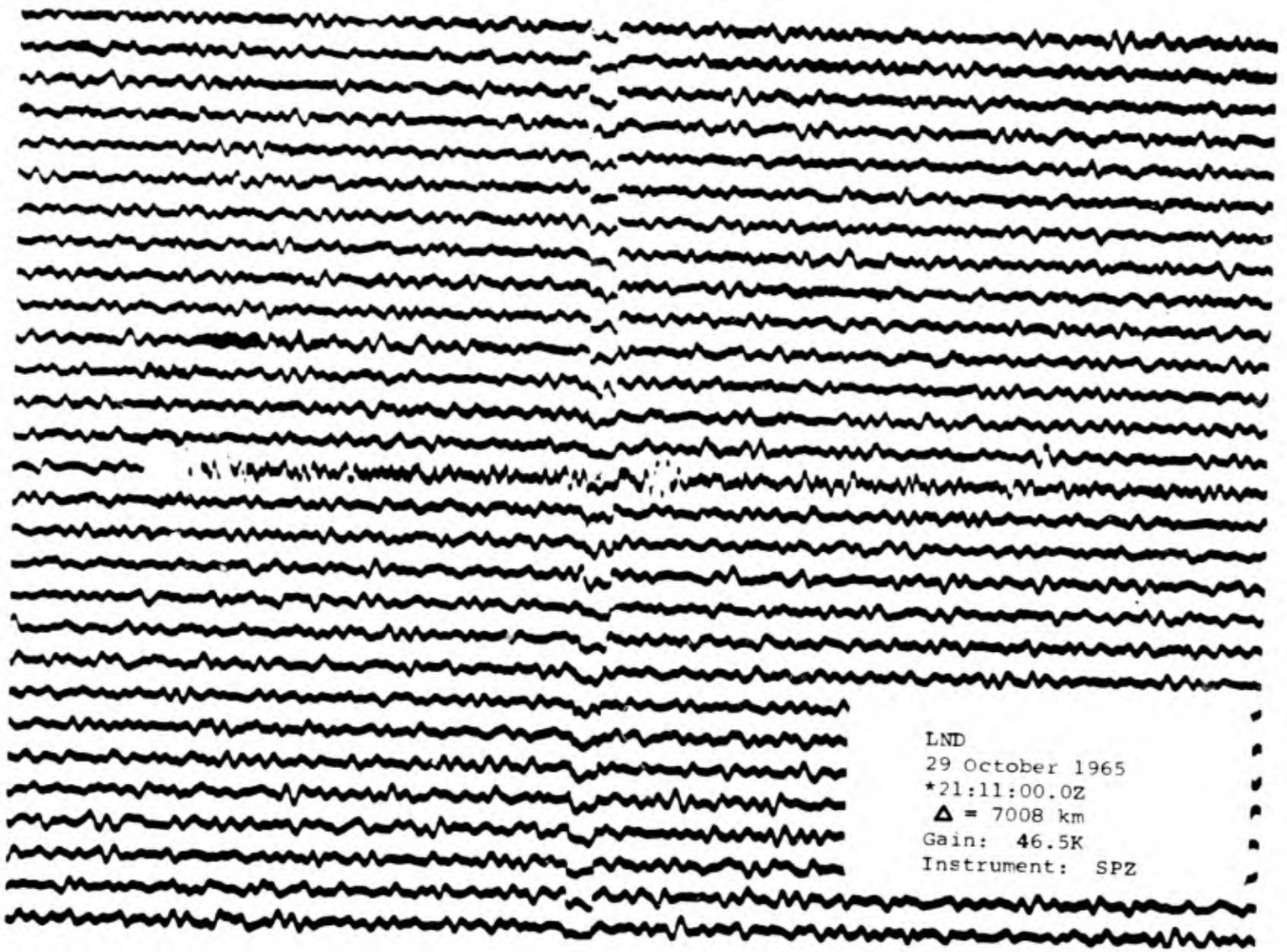
LAO
29 October 1965
*21:09:59.1
Δ = 5243 km
Gain: 108K
Instrument: SPZ-A0-10

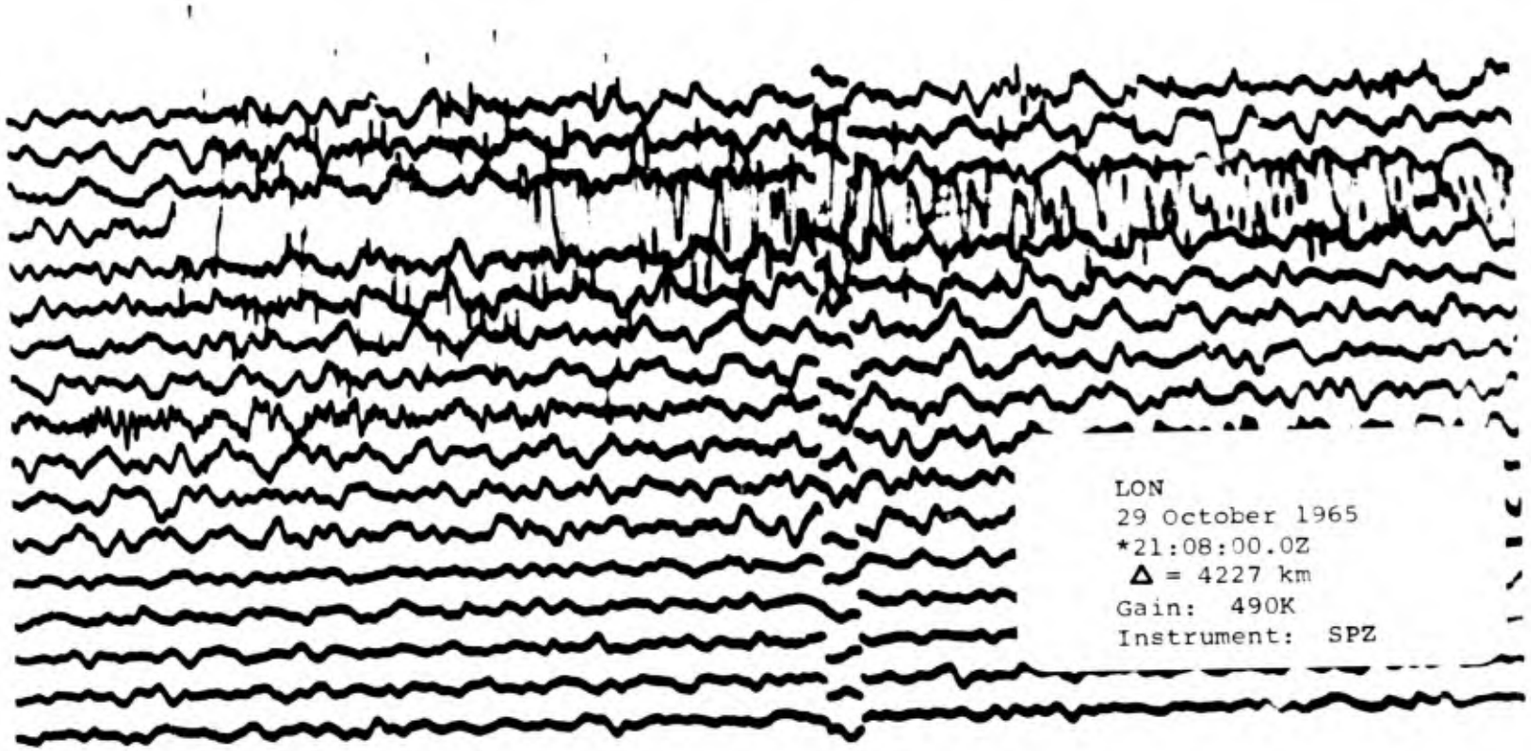

LAR
29 October 1965
*21:09:51.2Z
Δ = 5640 km
Gain: 196K at 0.8 sec
Instrument: SPZ

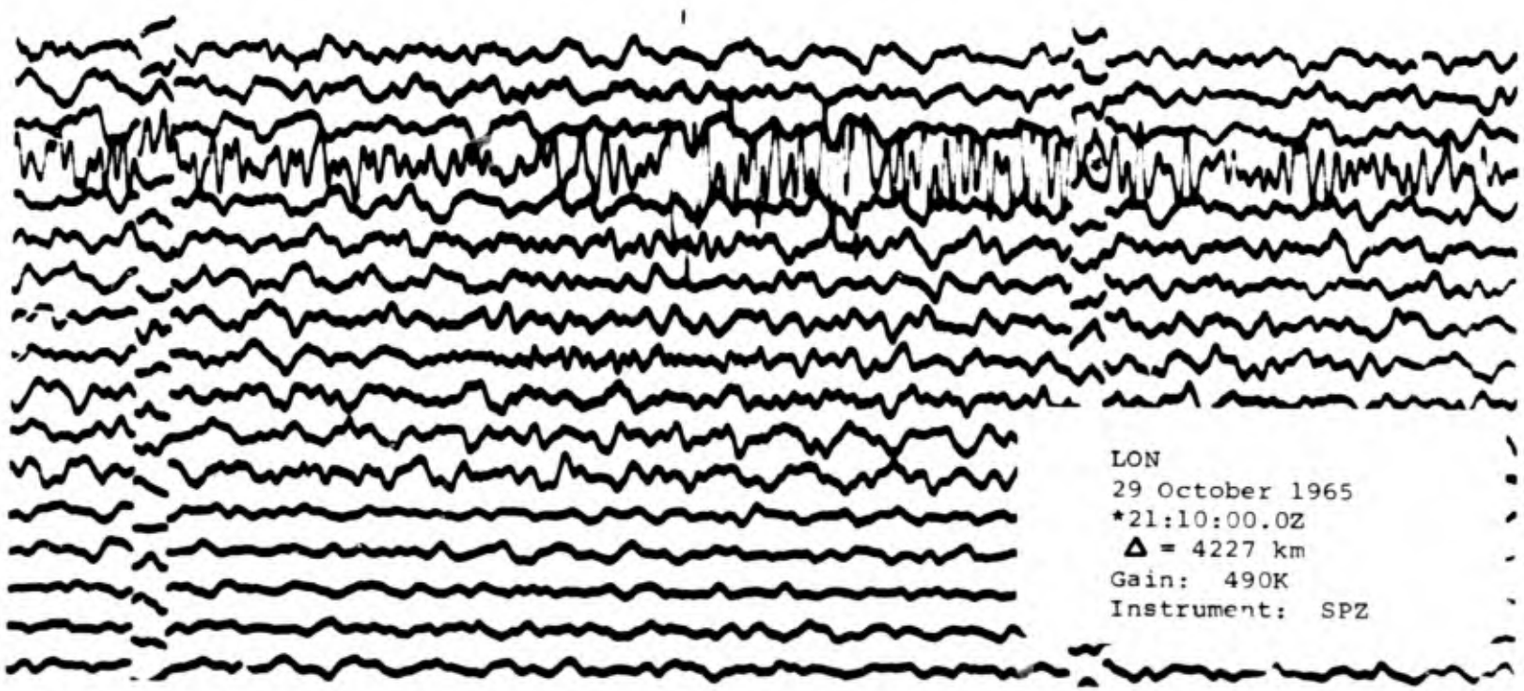

Z
N
E
LD6
29 October 1965
*21:07:47.0Z
Δ = 4434 km
Gain: top trace - 84.4K
Instrument: SPZ

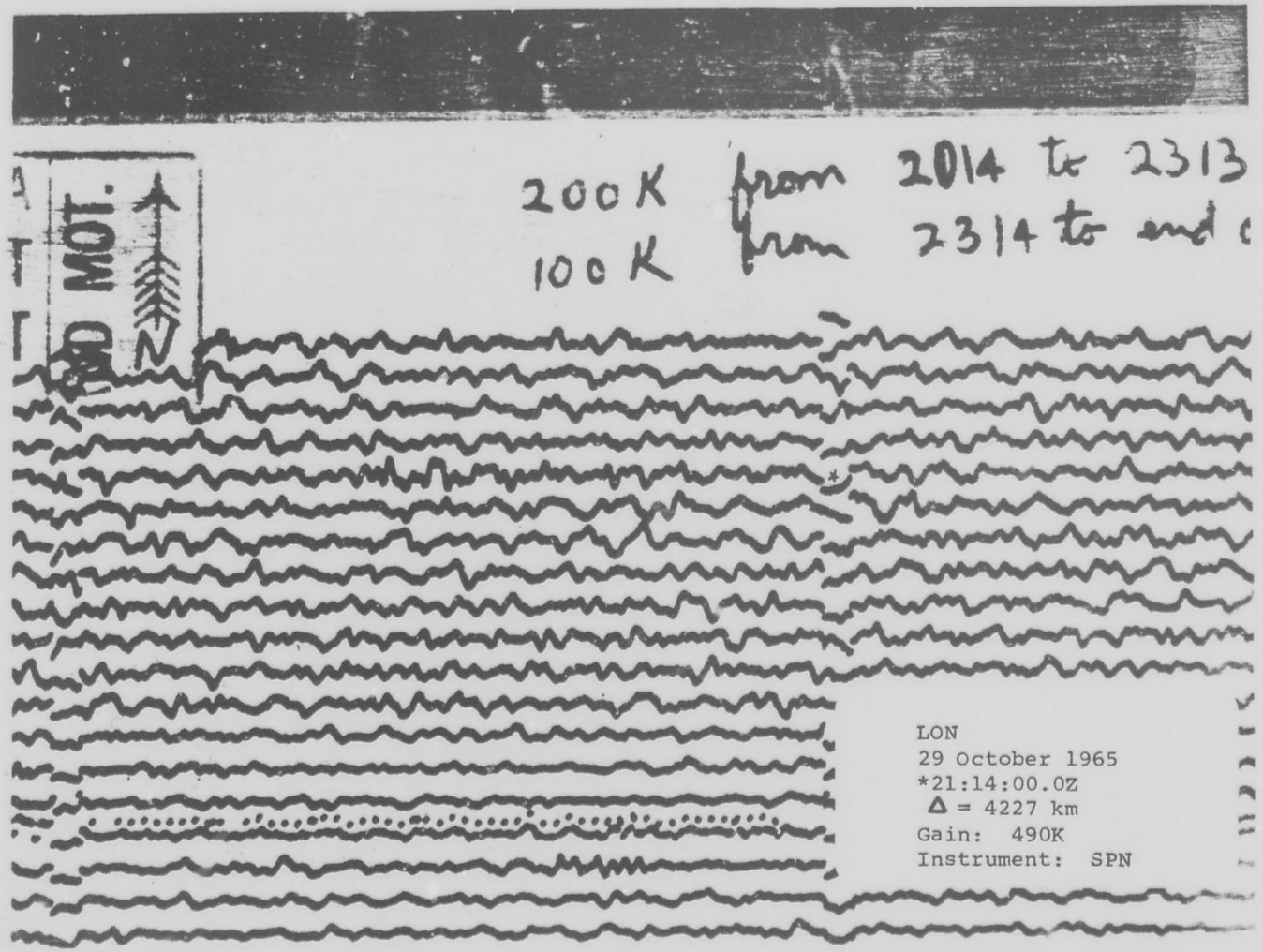

LHN
29 October 1965
*(21:10:50.0Z)
Δ = 7503 km
Gain: 188K
Instrument: SPZ3

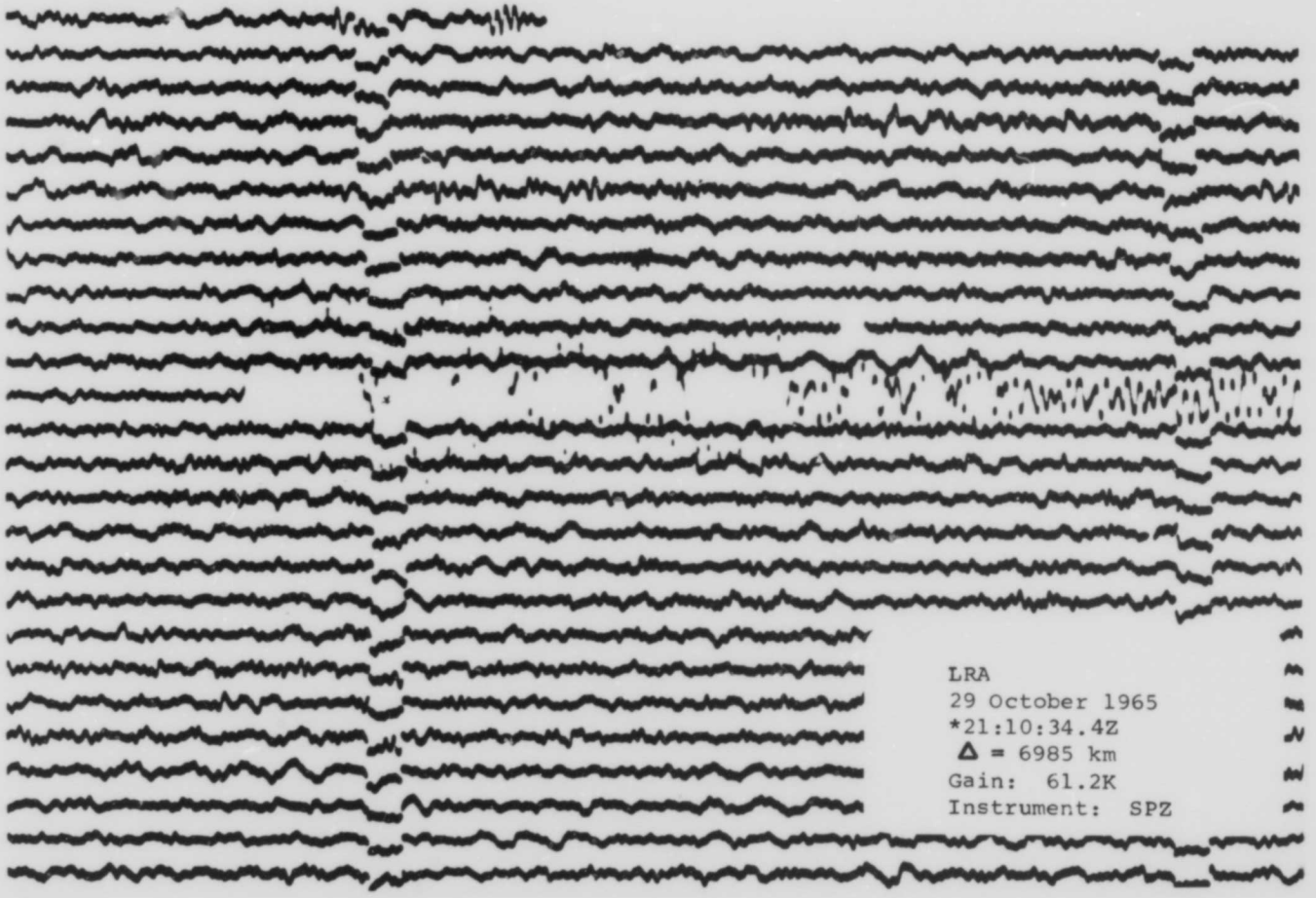

LHN
29 October 1965
*(21:39:10.0Z)
Δ = 7503 km
Gain: 188K
Instrument: SPZ

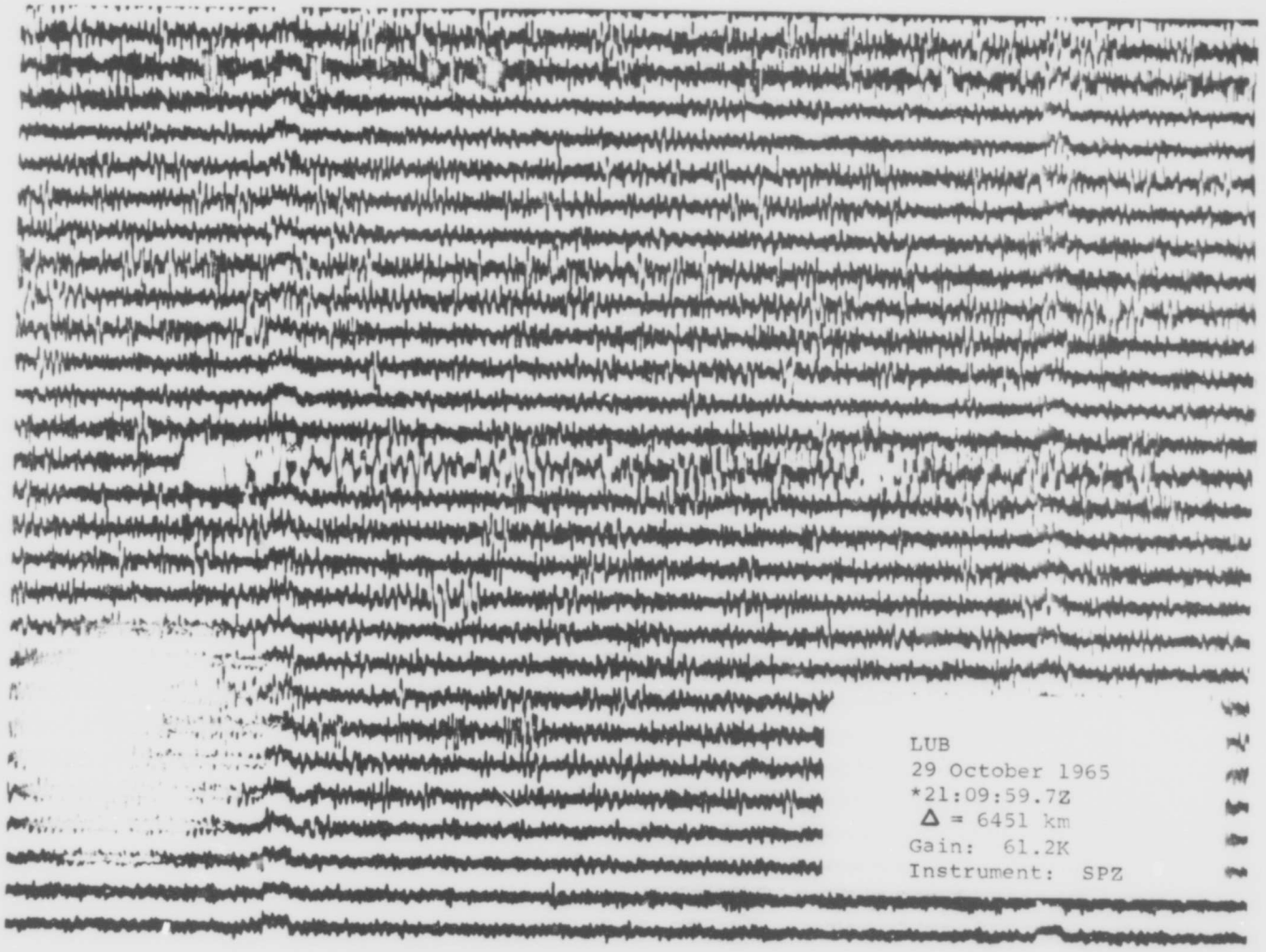

LND
29 October 1965
*21:11:00.0Z
Δ = 7008 km
Gain: 46.5K
Instrument: SPZ

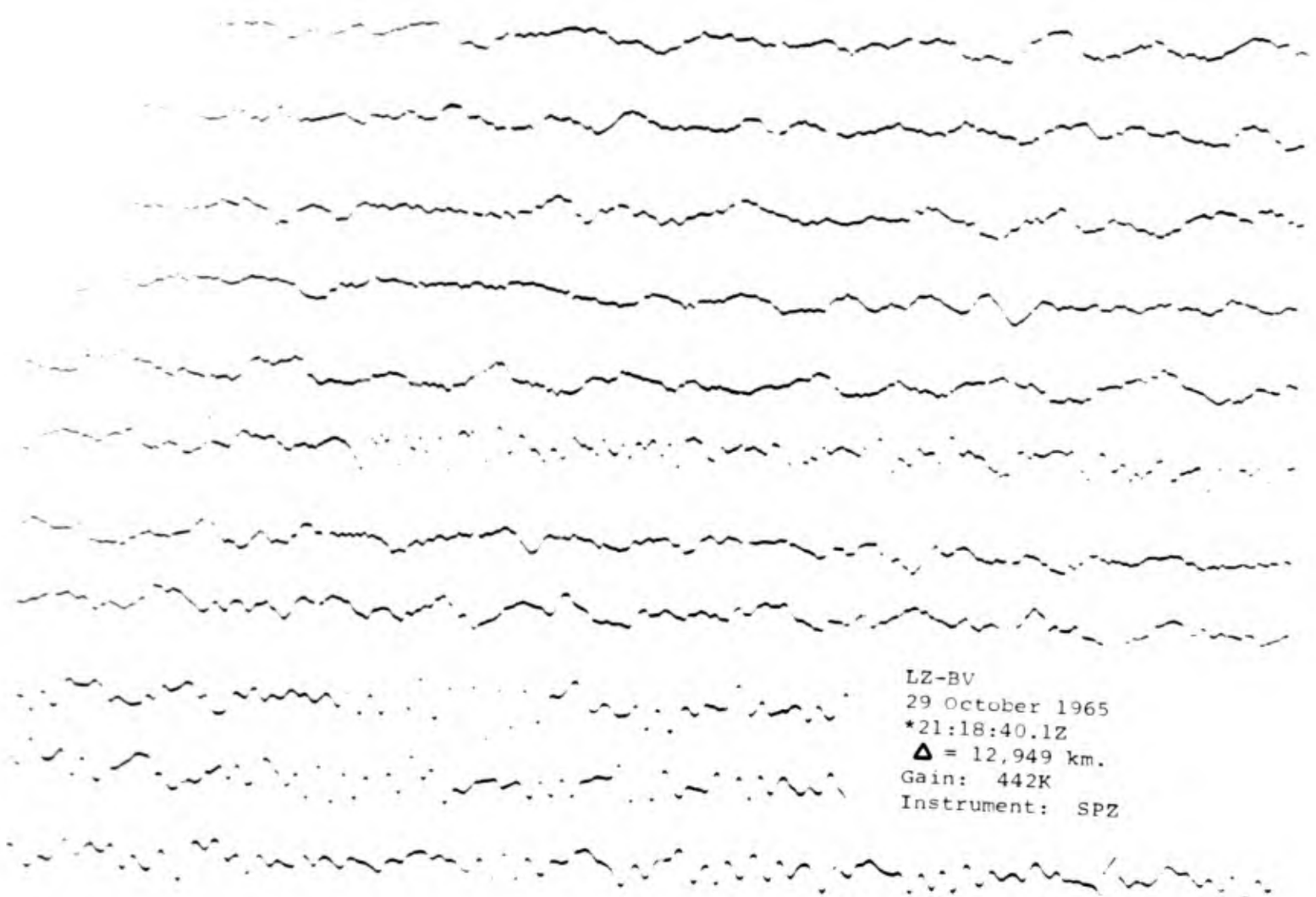

LON
29 October 1965
*21:08:00.0Z
Δ = 4227 km
Gain: 490K
Instrument: SPZ

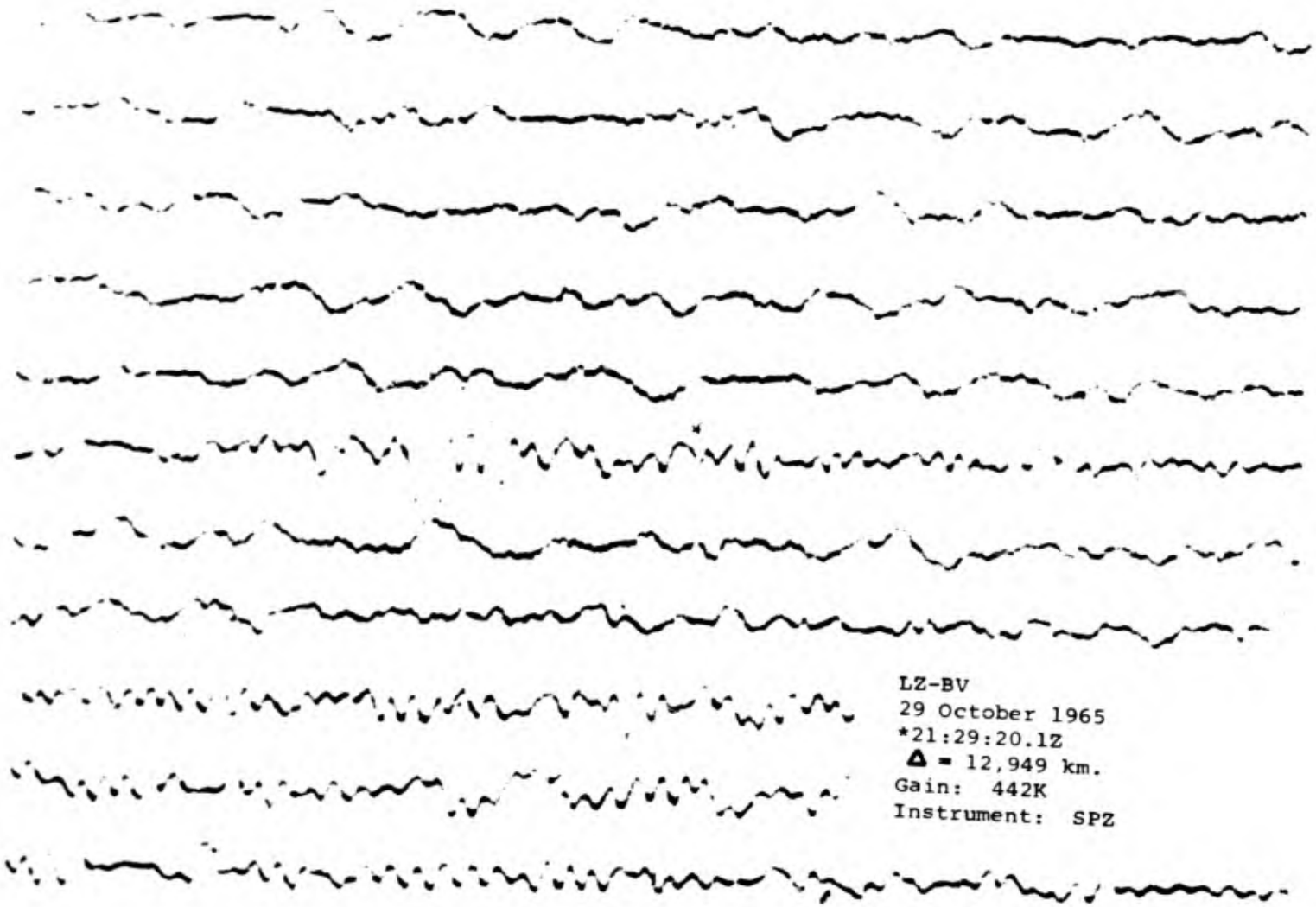

LON
29 October 1965
*21:10:00.0Z
Δ = 4227 km
Gain: 490K
Instrument: SPZ

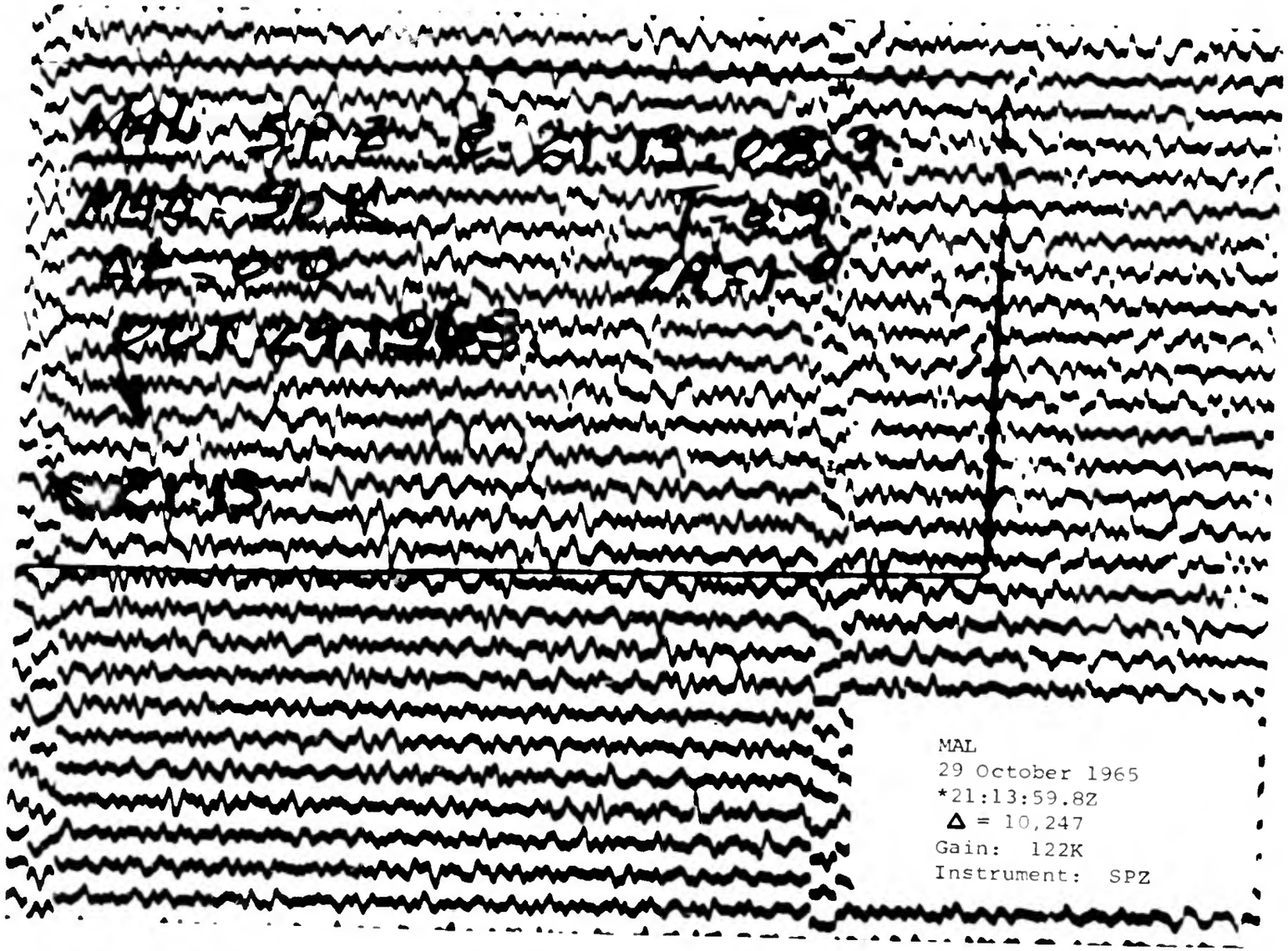

200K from 2014 to 2313
100K from 2314 to end
LON
29 October 1965
*21:14:00.0Z
Δ = 4227 km
Gain: 490K
Instrument: SPN

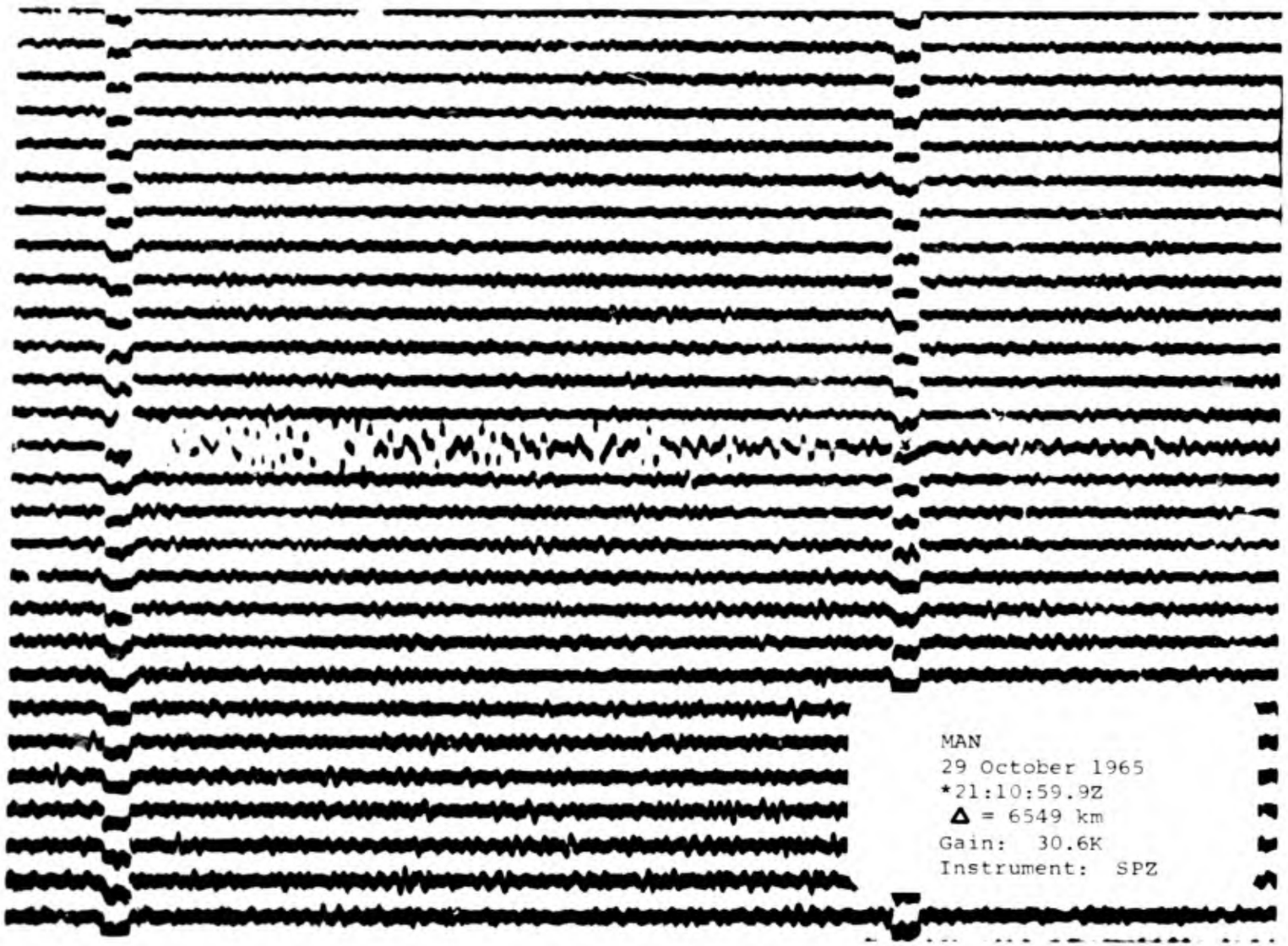

LRA
29 October 1965
*21:10:34.4Z
Δ = 6985 km
Gain: 61.2K
Instrument: SPZ

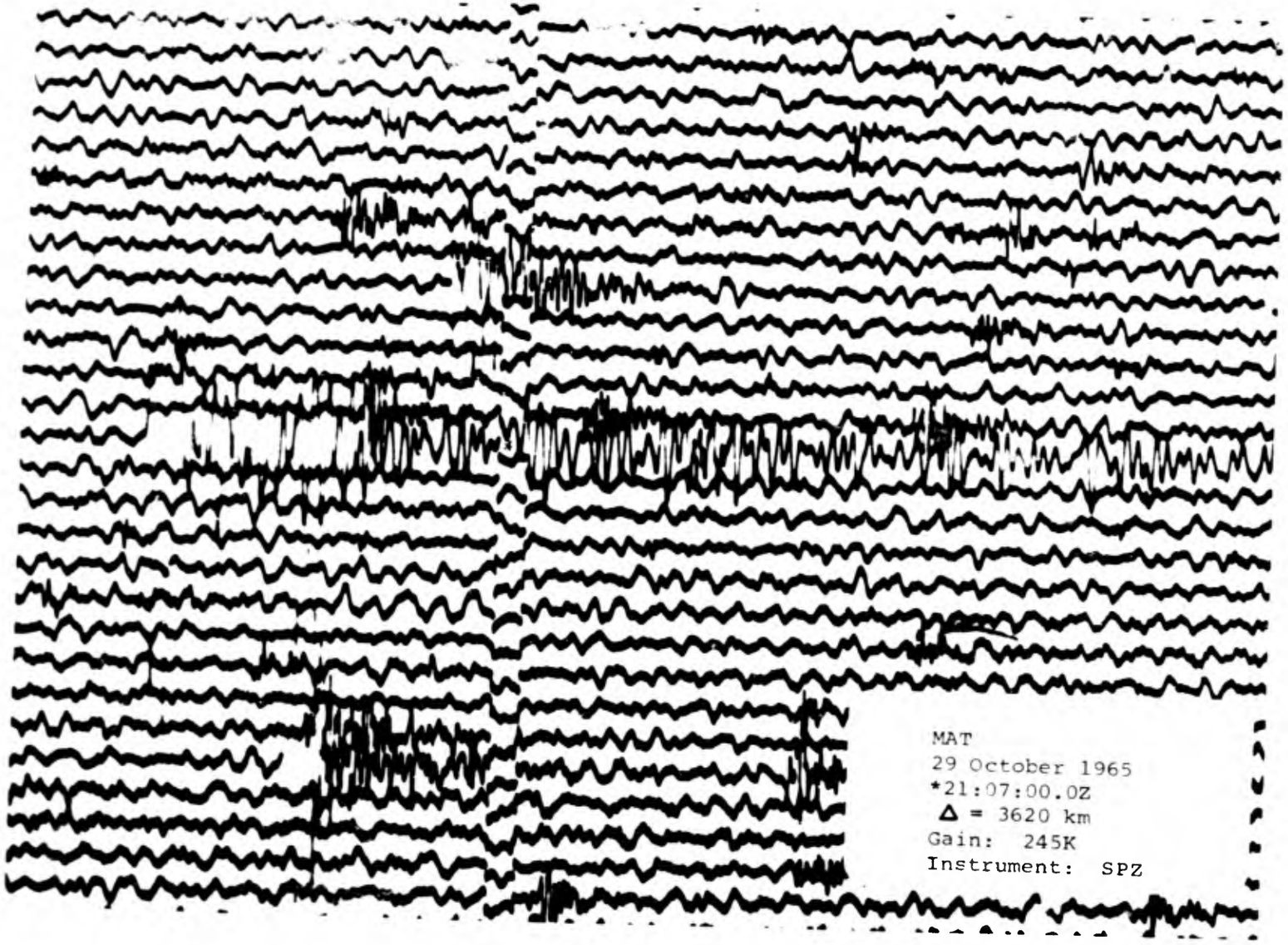

LUB
29 October 1965
*21:09:59.7Z
Δ = 6451 km
Gain: 61.2K
Instrument: SPZ

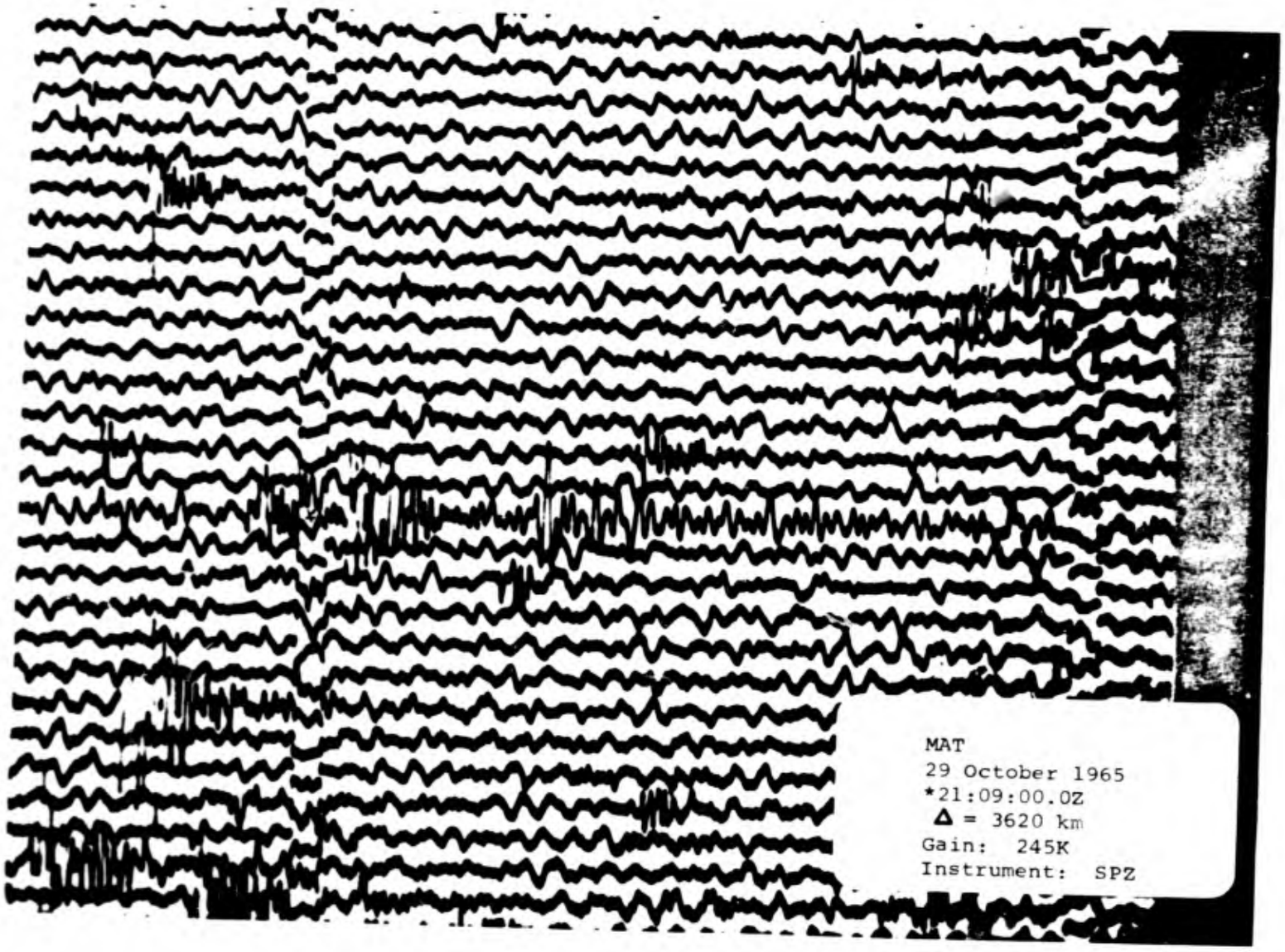

LZ-BV
29 October 1965
*21:18:40.1Z
Δ = 12,949 km.
Gain: 442K
Instrument: SPZ

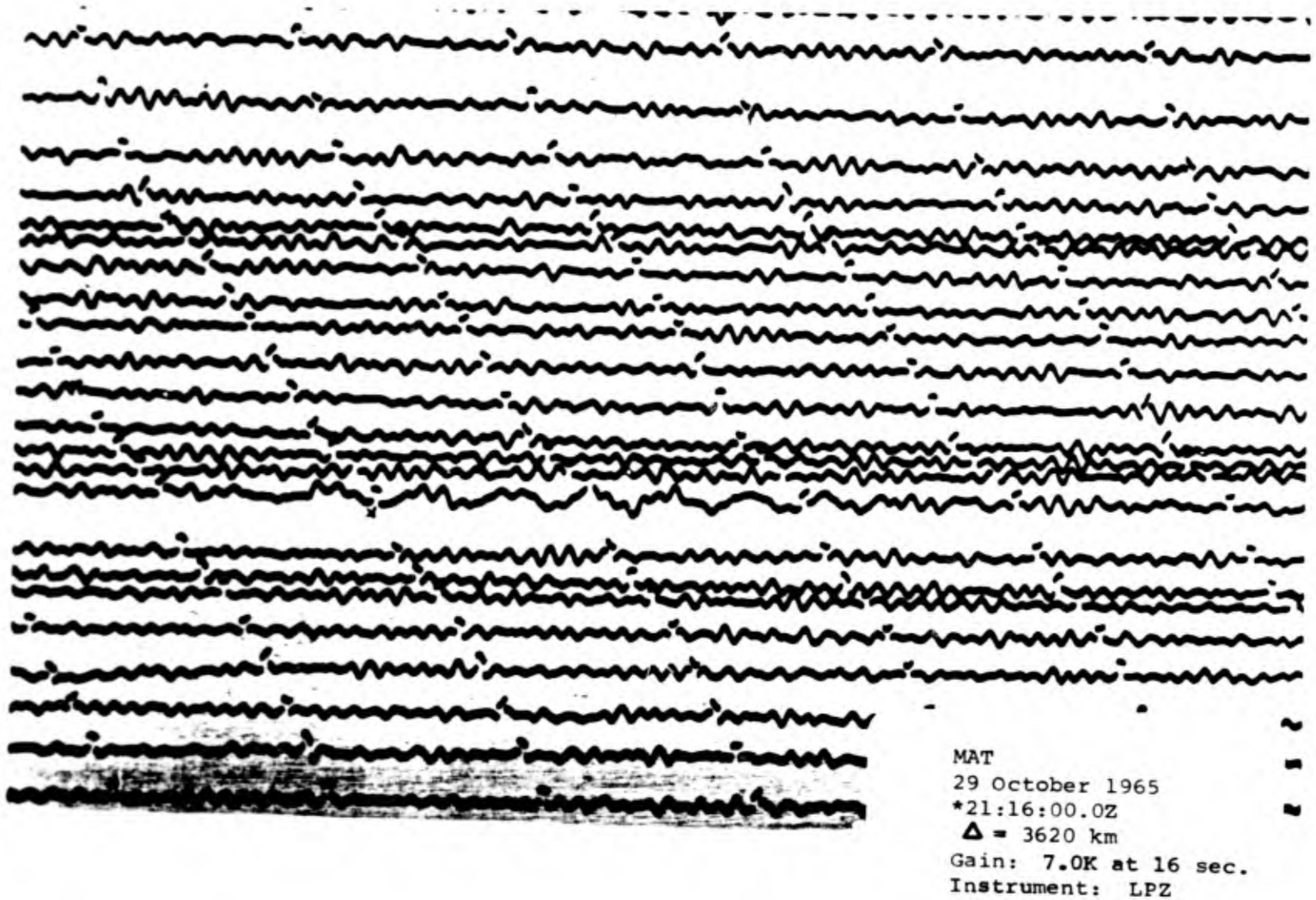

LZ-BV
29 October 1965
*21:29:20.1Z
Δ = 12,949 km.
Gain: 442K
Instrument: SPZ

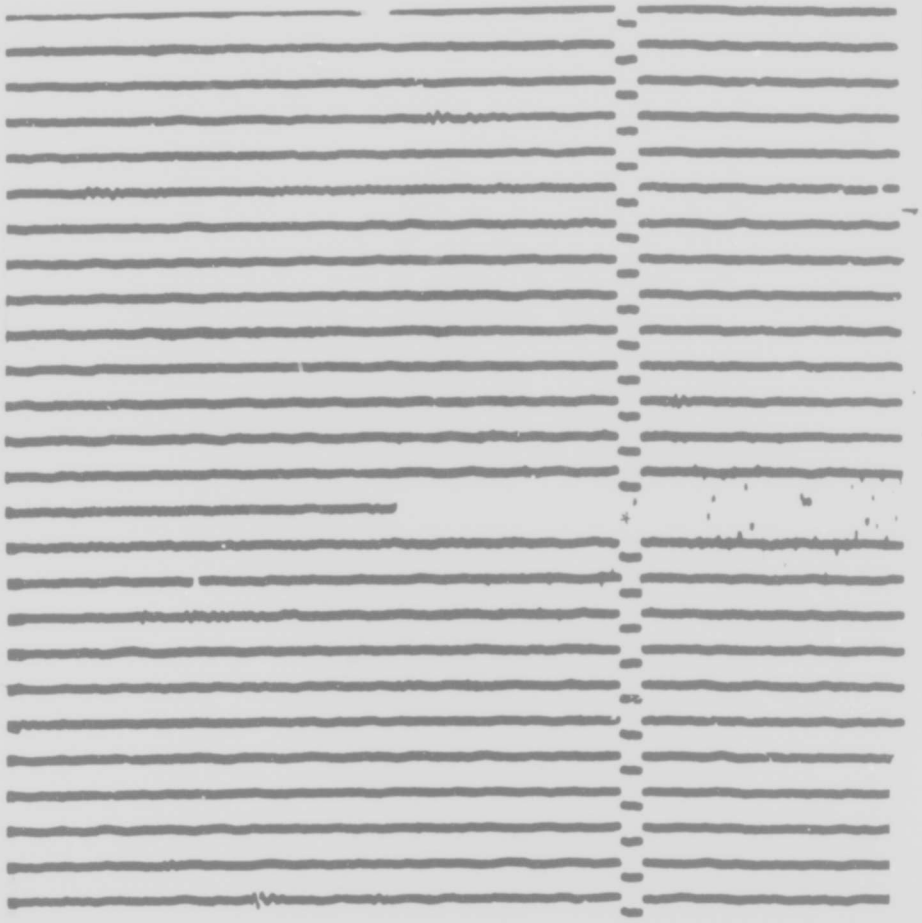

MAL
29 October 1965
*21:13:59.8Z
Δ = 10,247
Gain: 122K
Instrument: SPZ

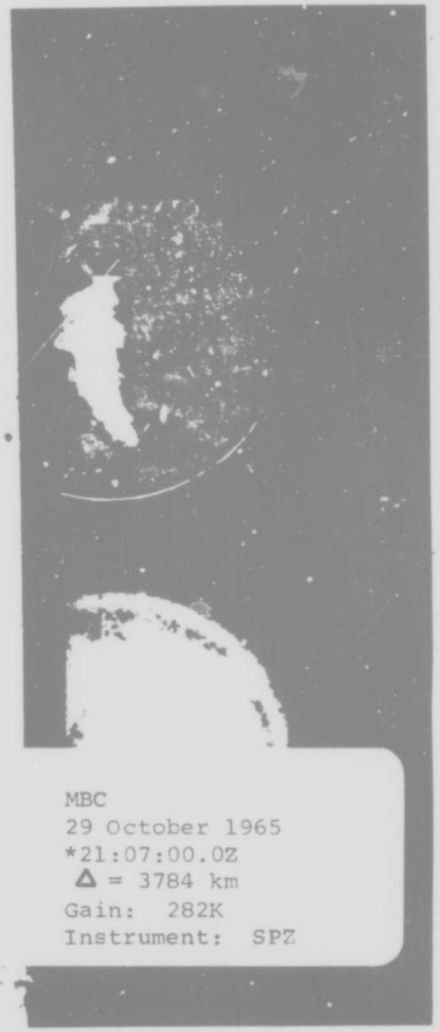

MAN
29 October 1965
*21:10:59.9Z
Δ = 6549 km
Gain: 30.6K
Instrument: SPZ

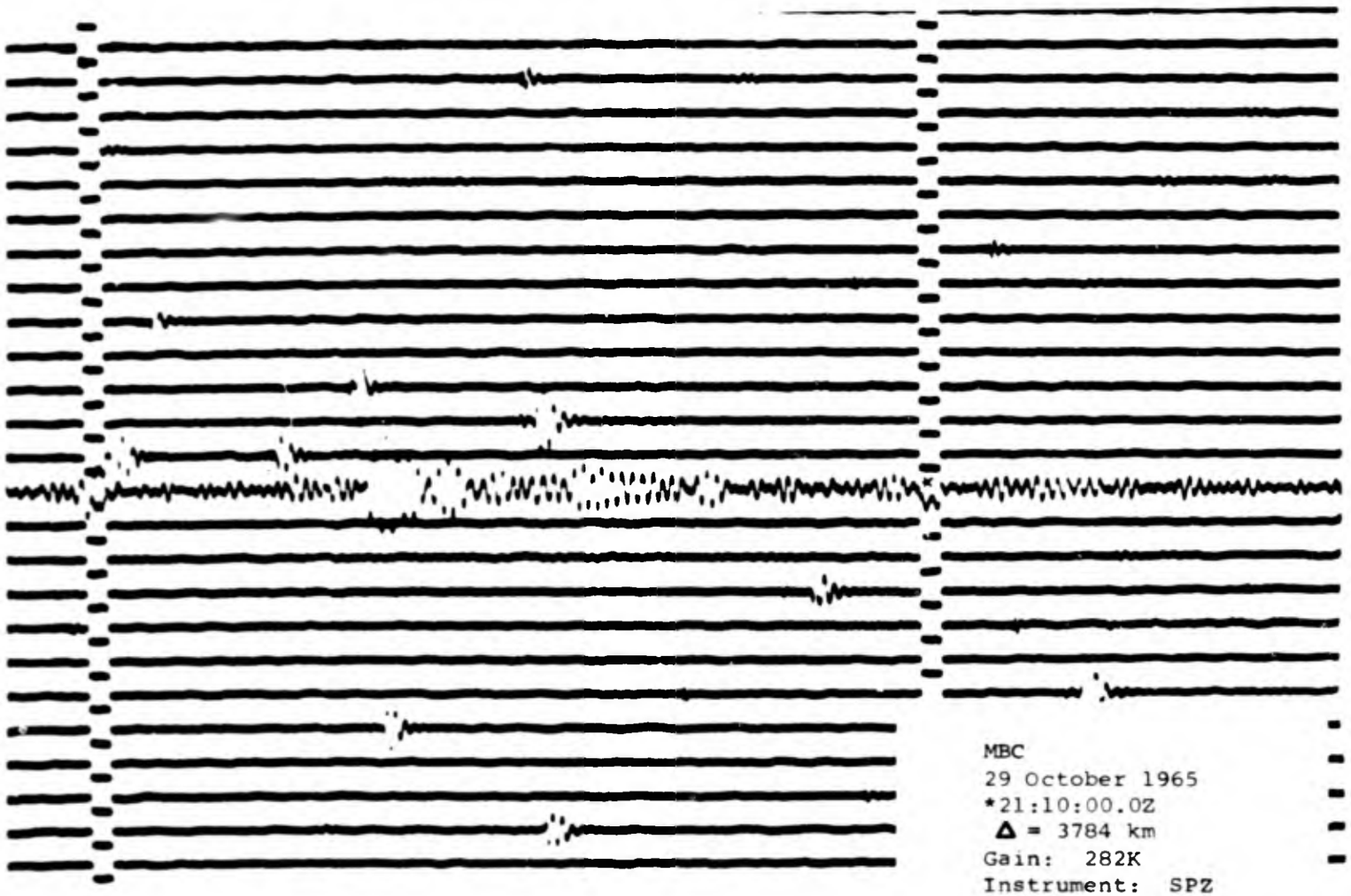

MAT
29 October 1965
*21:07:00.0Z
Δ = 3620 km
Gain: 245K
Instrument: SPZ

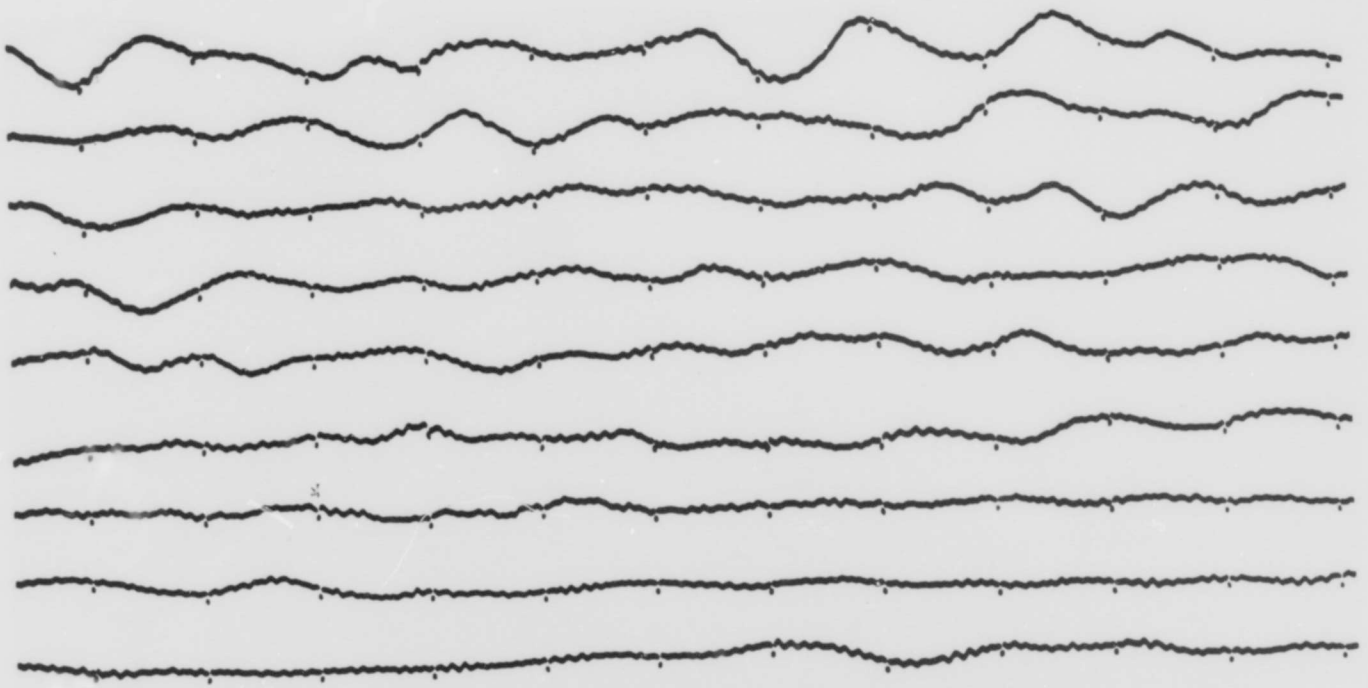

MAT
29 October 1965
*21:09:00.0Z
Δ = 3620 km
Gain: 245K
Instrument: SPZ


MAT
29 October 1965
*21:16:00.0Z
Δ = 3620 km
Gain: 7.0K at 16 sec.
Instrument: LPZ

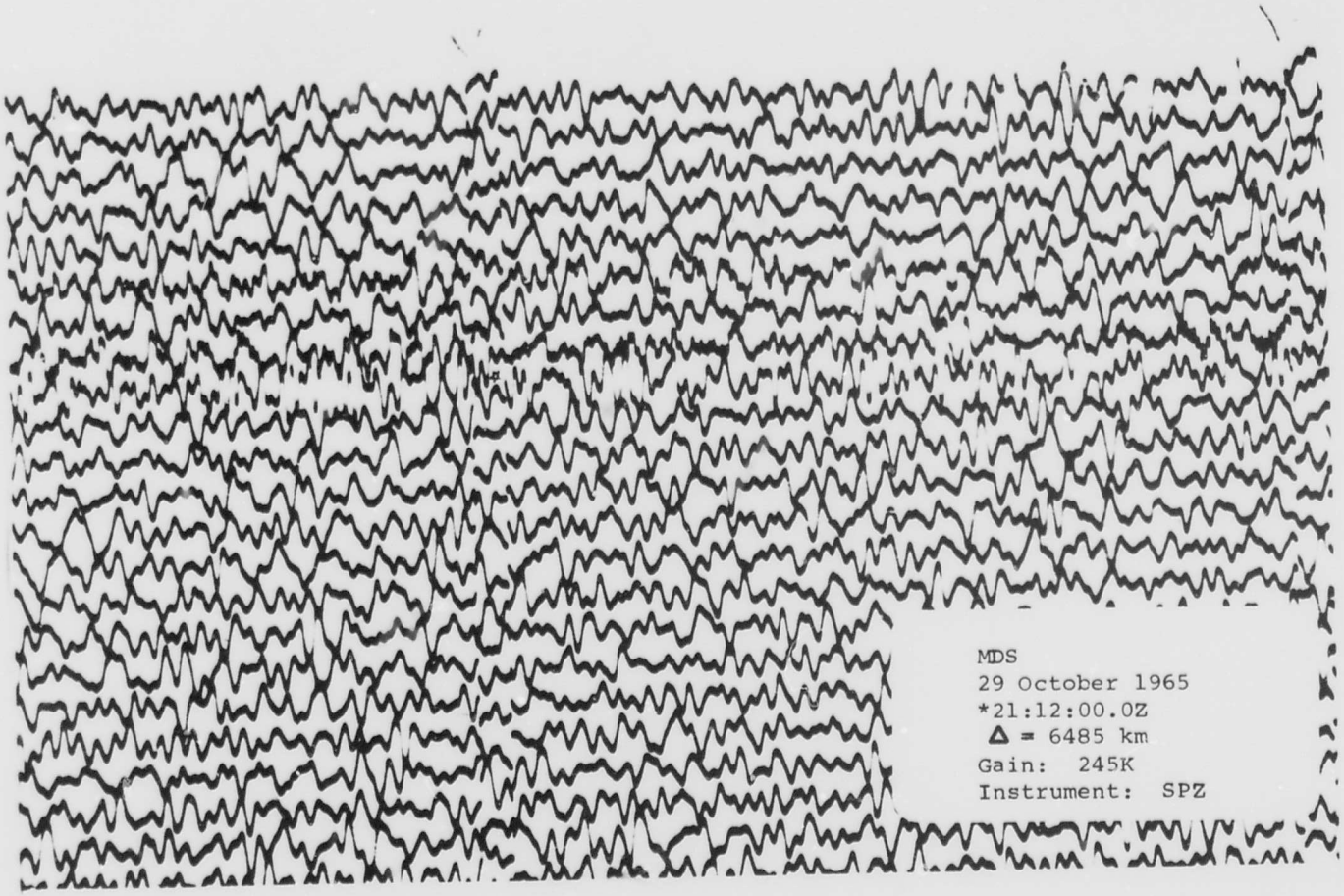


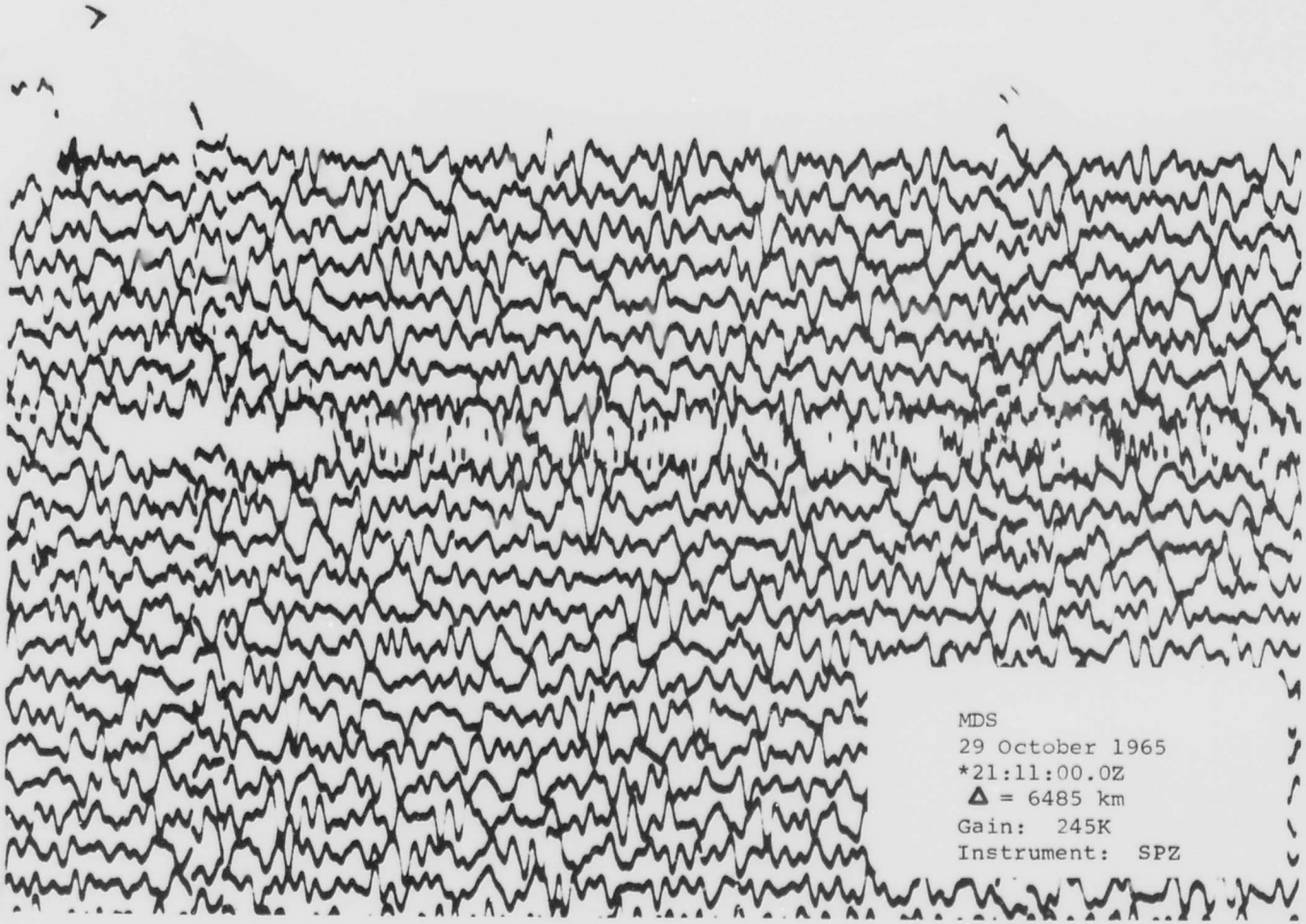

MBC
29 October 1965
*21:07:00.0Z
Δ = 3784 km
Gain: 282K
Instrument: SPZ

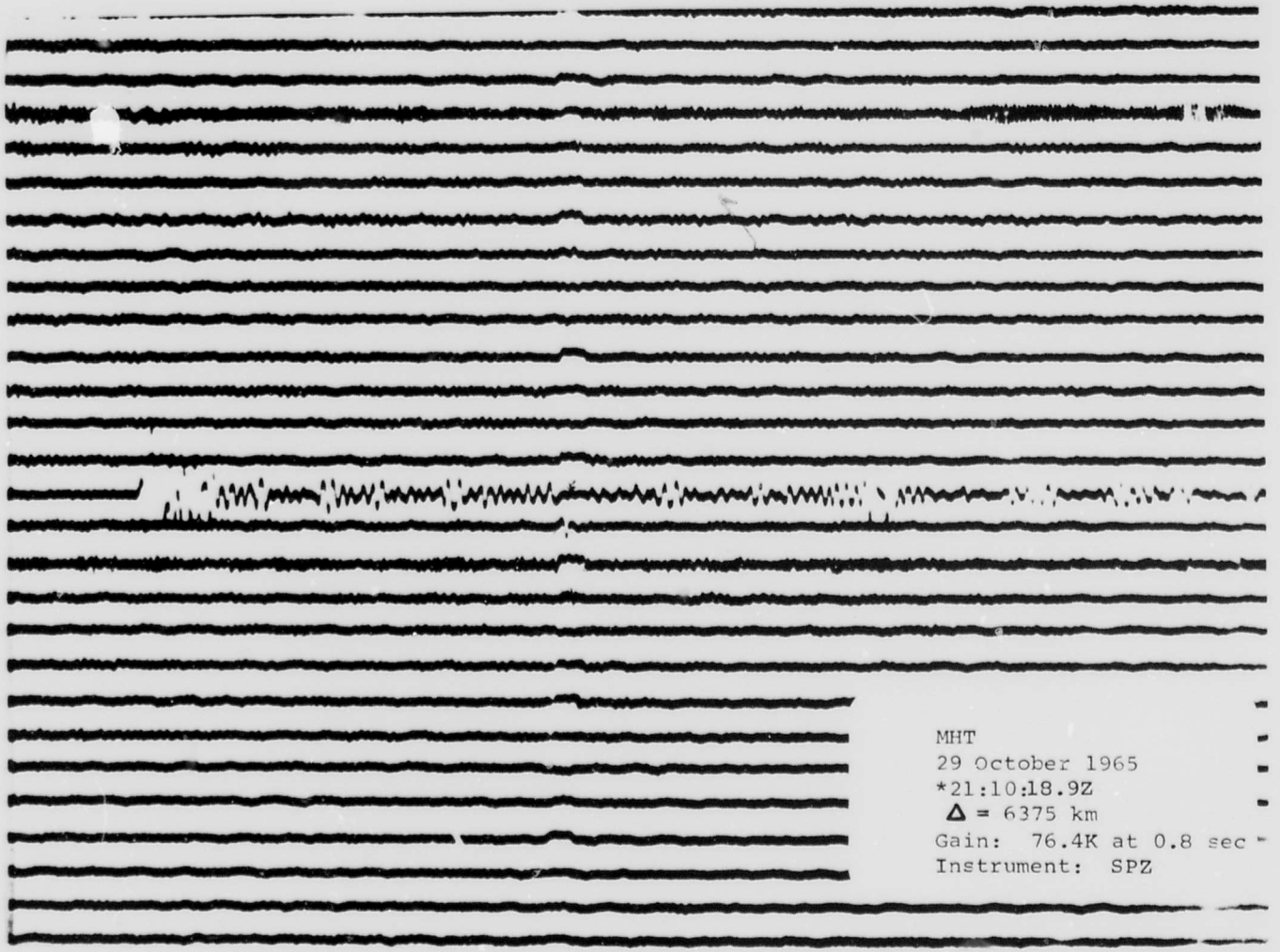

MBC
29 October 1965
*21:10:00.0Z
Δ = 3784 km
Gain: 282K
Instrument: SPZ

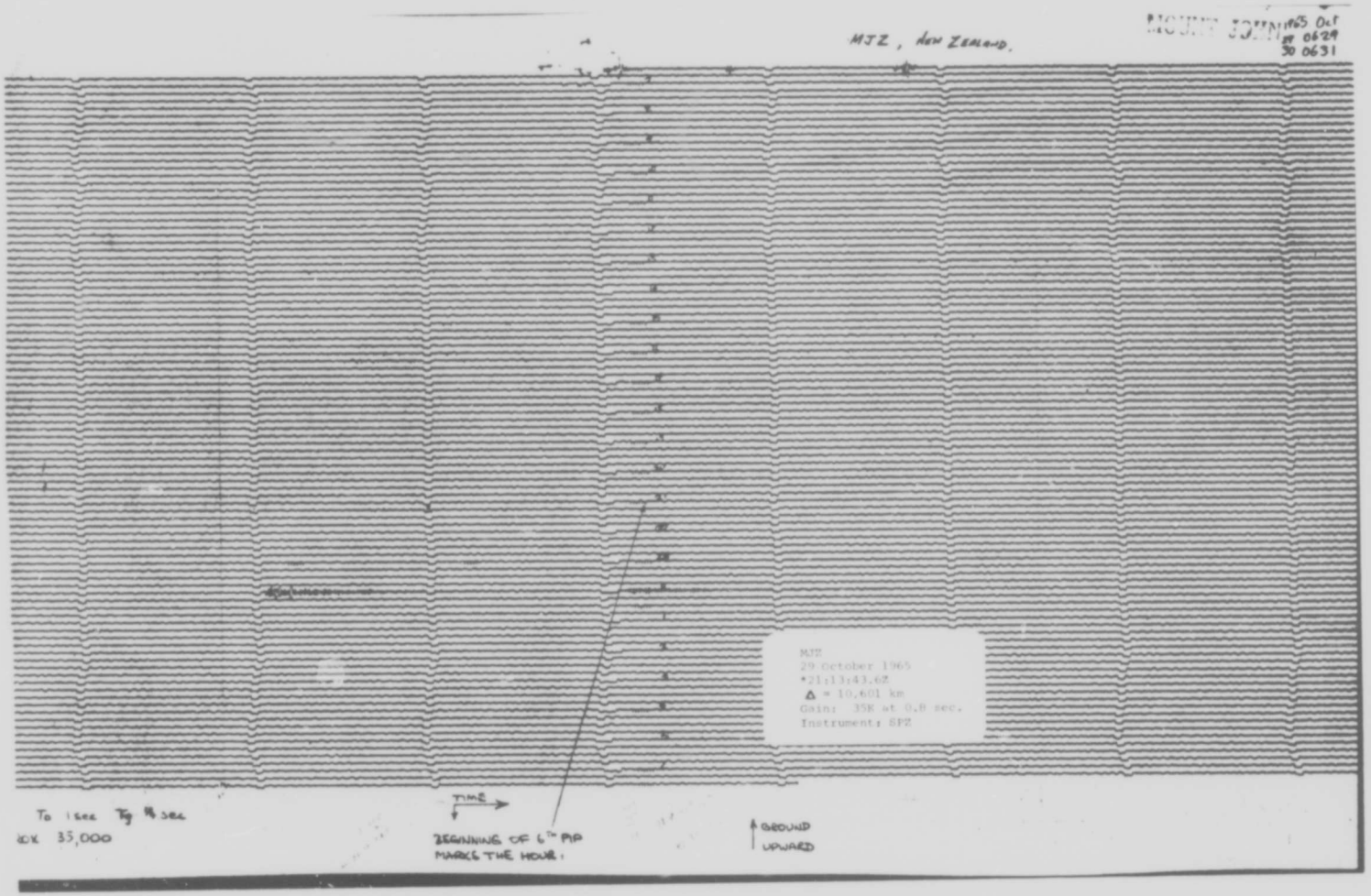


MBC
29 October 1965
*21:20:00.0Z
Δ= 3784 km
Gain: 1.46K at 18 sec.
Instrument: LPZ

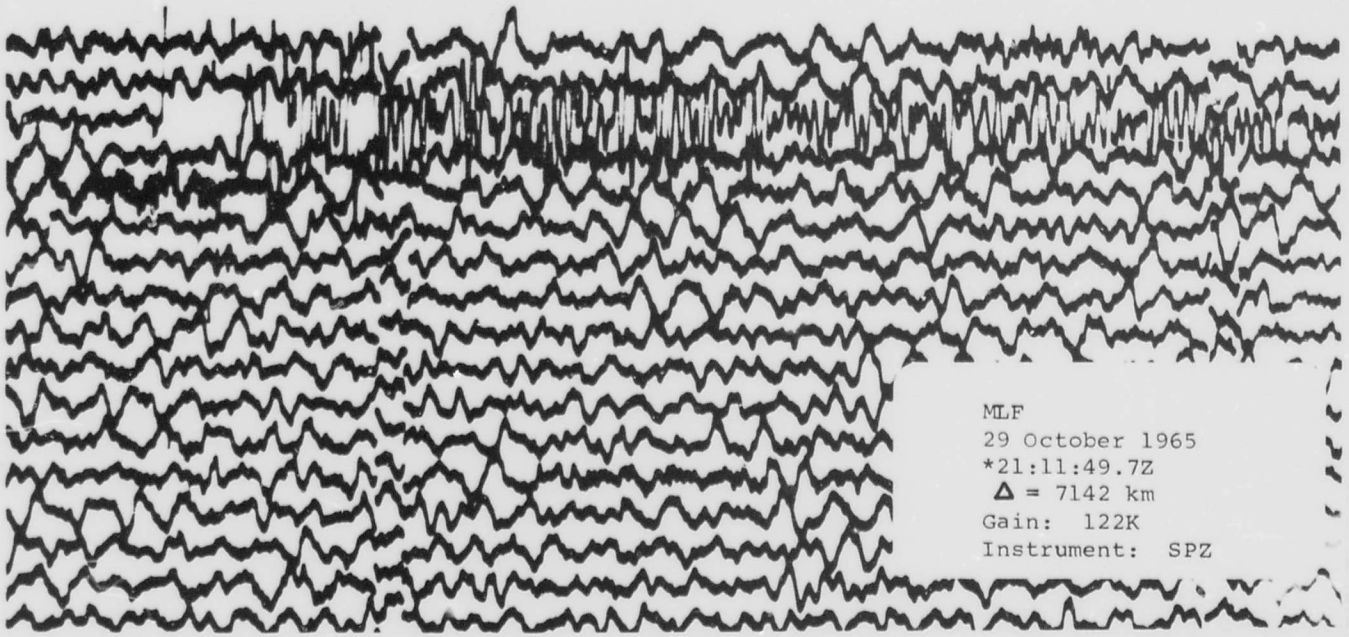

MDS
29 October 1965
*21:12:00.0Z
Δ = 6485 km
Gain: 245K
Instrument: SPZ

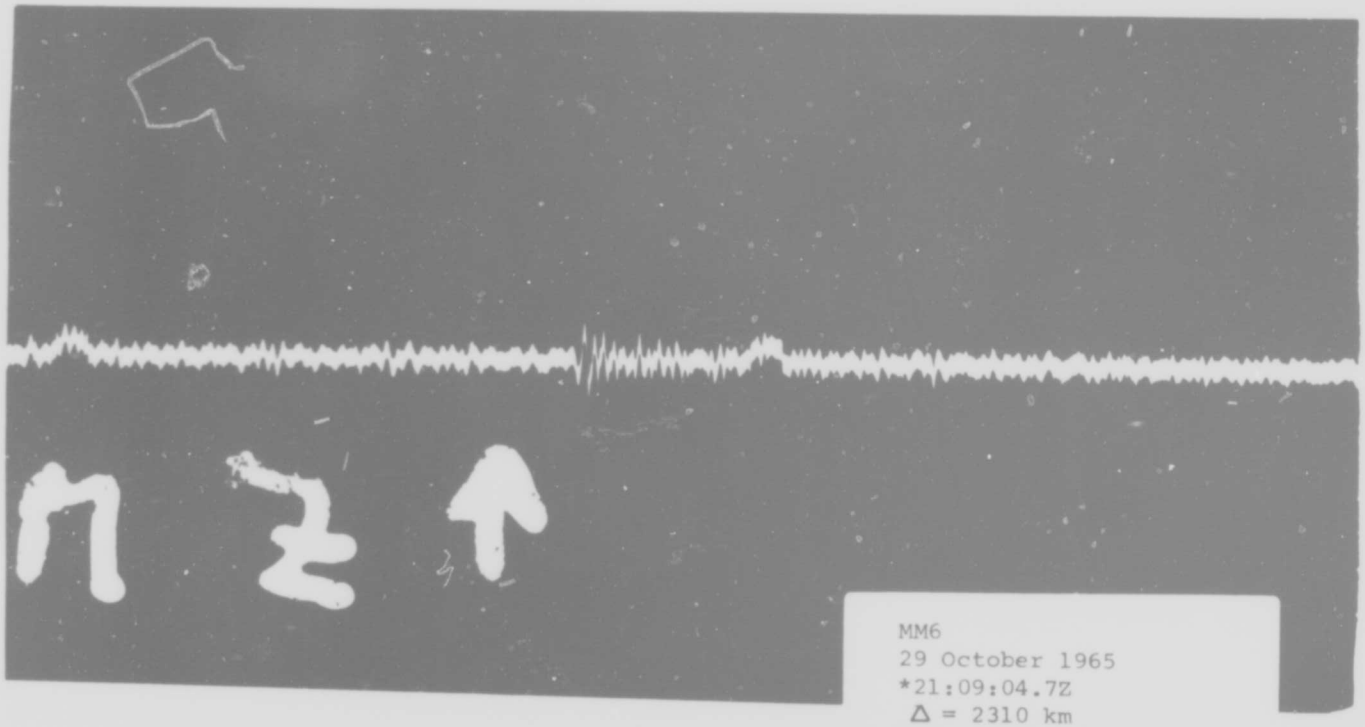

MDS
29 October 1965
*21:11:00.0Z
Δ = 6485 km
Gain: 245K
Instrument: SPZ

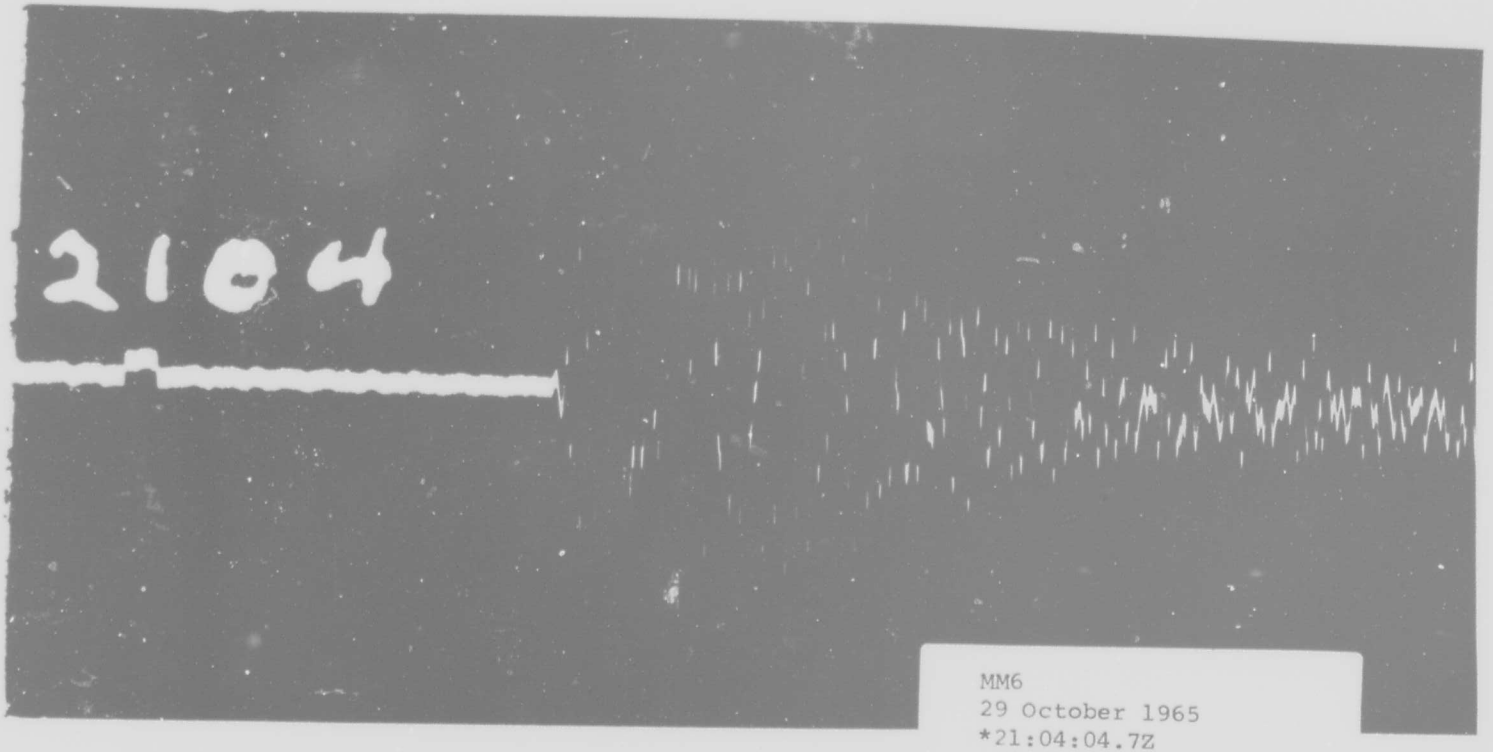

MHT
29 October 1965
*21:10:18.9Z
Δ = 6375 km
Gain: 76.4K at 0.8 sec
Instrument: SPZ


MJZ, New Zealand.
1965 Oct
29 0629
30 0631
MJZ
29 October 1965
*21:13:43.6Z
Δ = 10,601 km
Gain: 35K at 0.8 sec.
Instrument: SPZ
To 1 sec Tg 16 sec
@X 35,000
TIME
BEGINNING OF 6TH PIP
MARKS THE HOUR.
GROUND
UPWARD

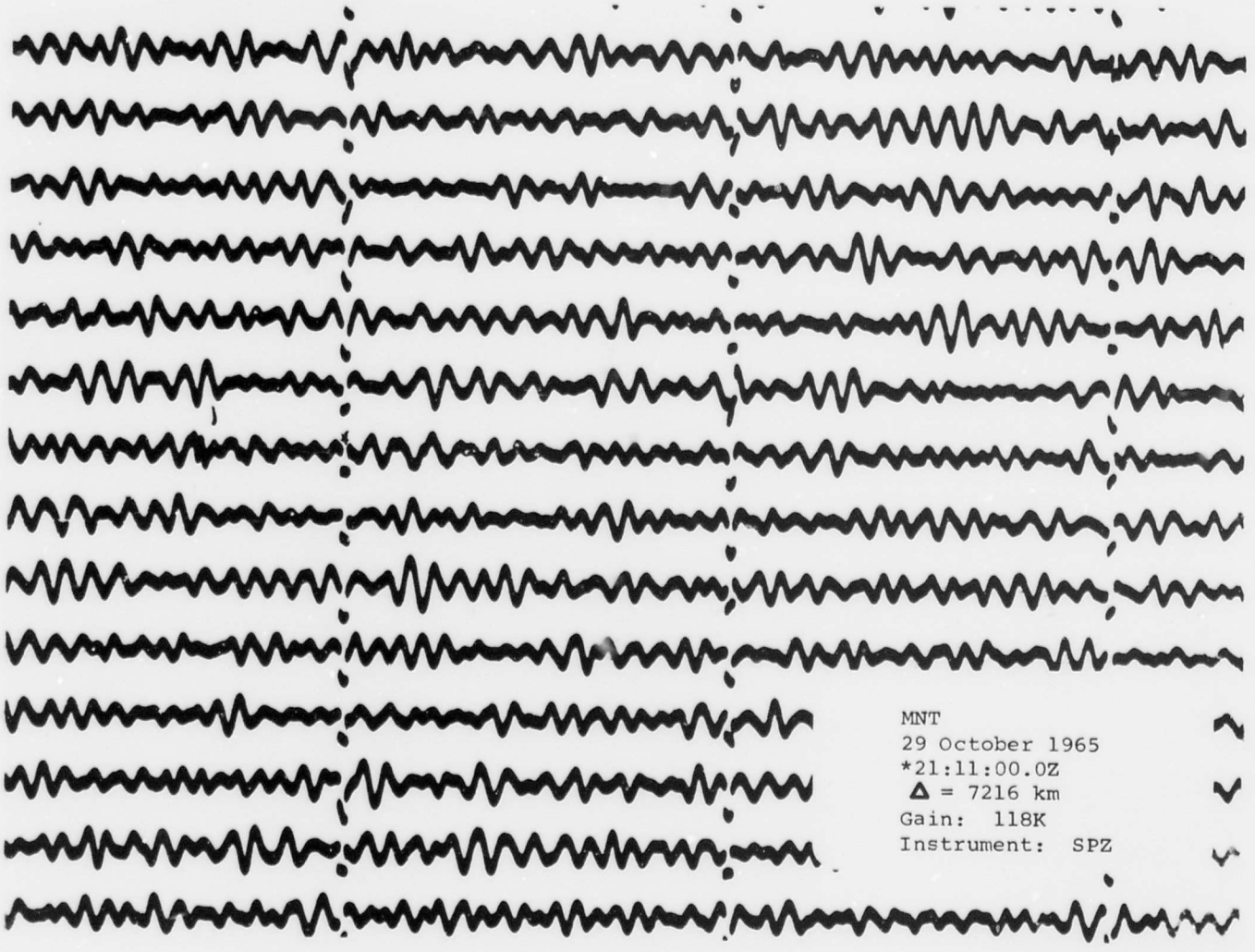
MLF

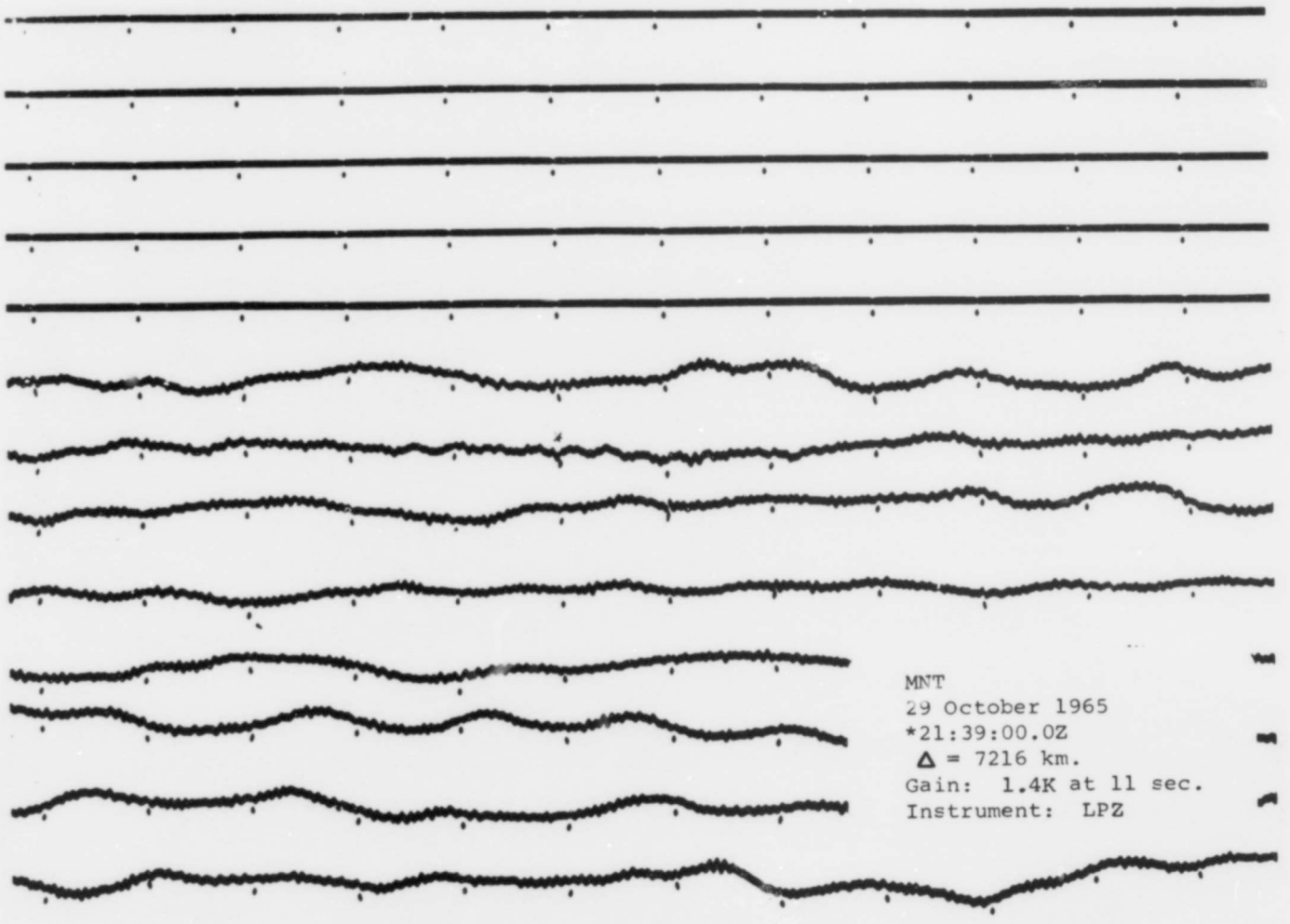

MLF
29 October 1965
*21:11:49.7Z
Δ = 7142 km
Gain: 122K
Instrument: SPZ

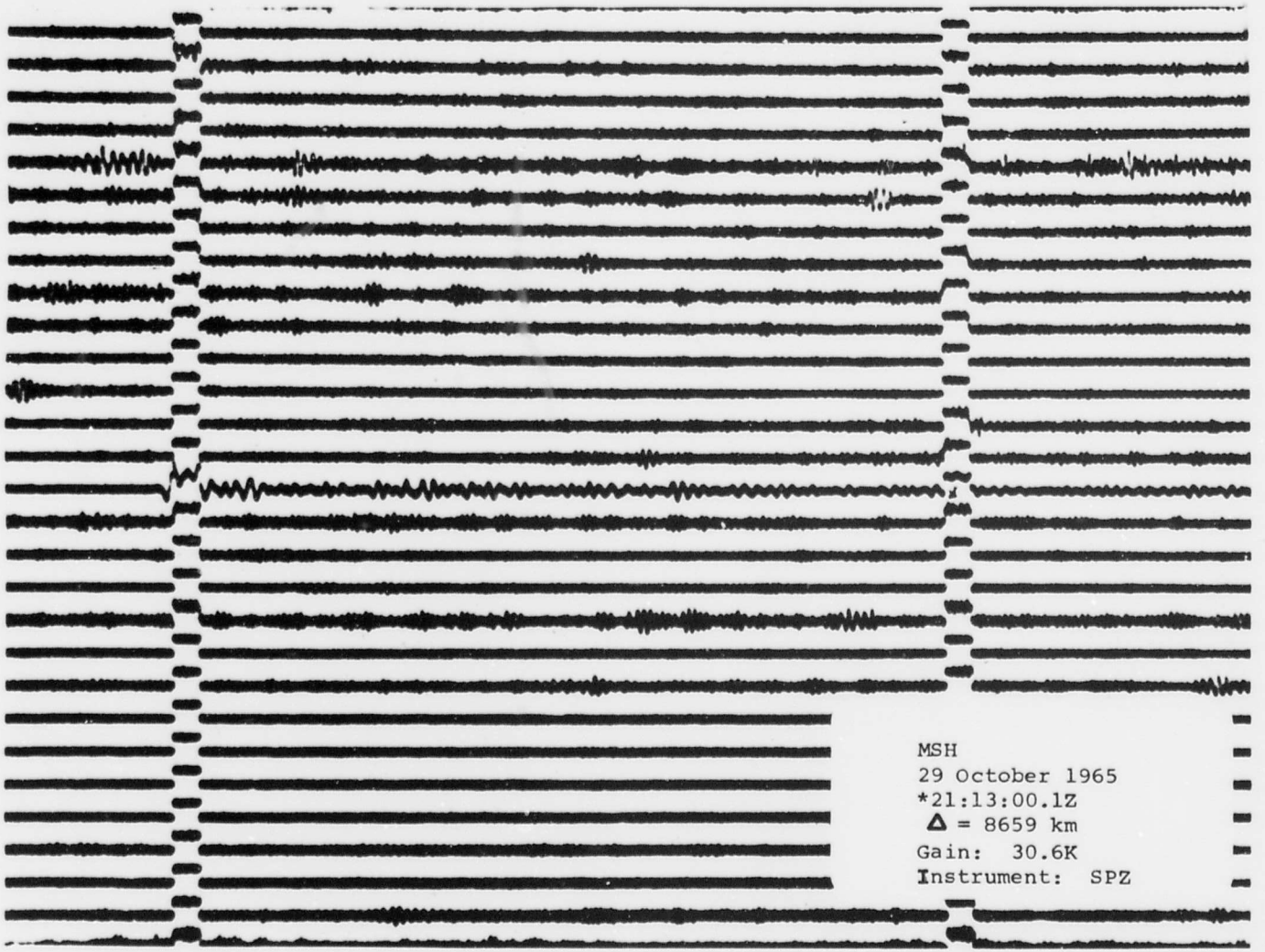

MM6
29 October 1965
*21:09:04.7Z
Δ = 2310 km
Gain: unknown
Instrument: SPZ

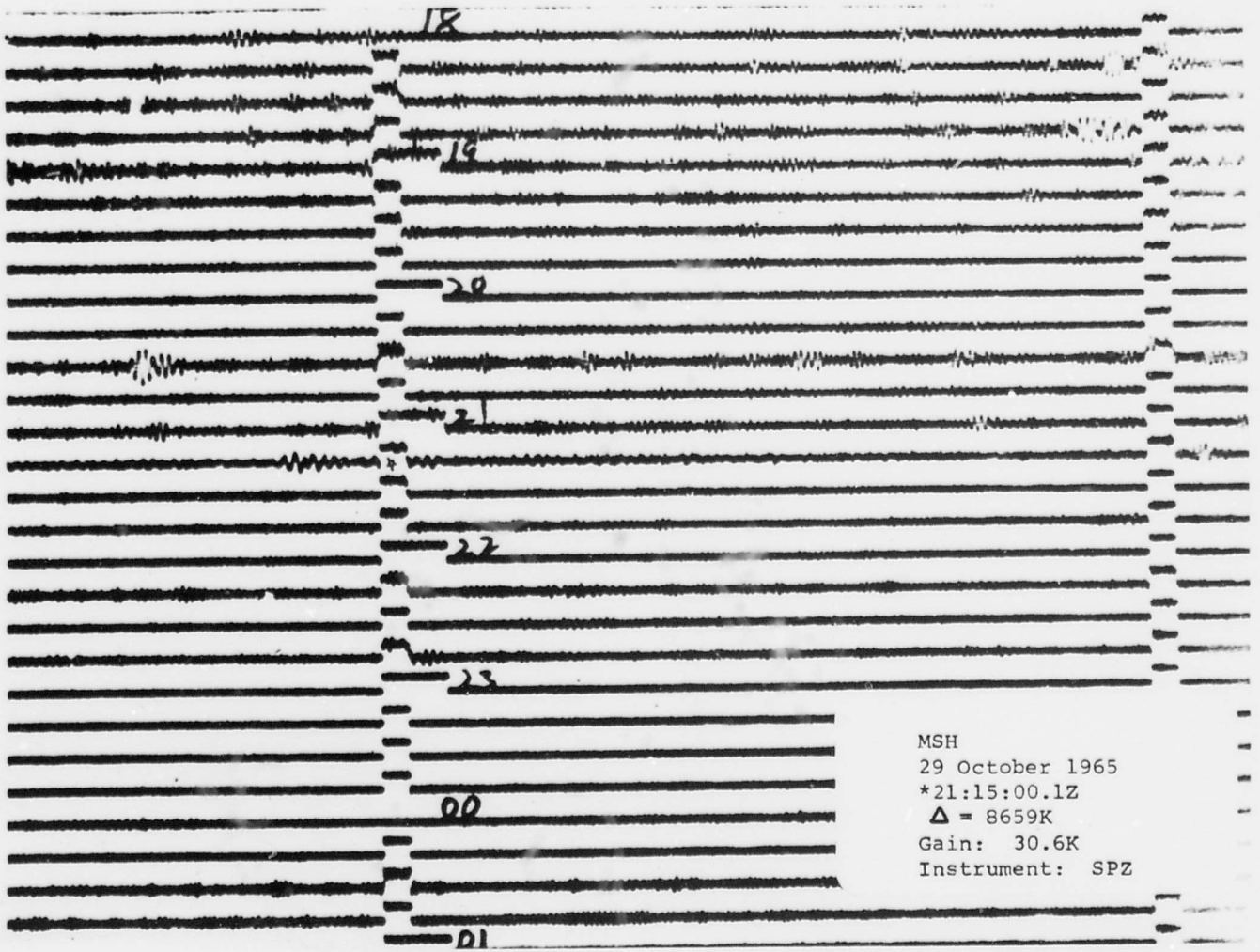


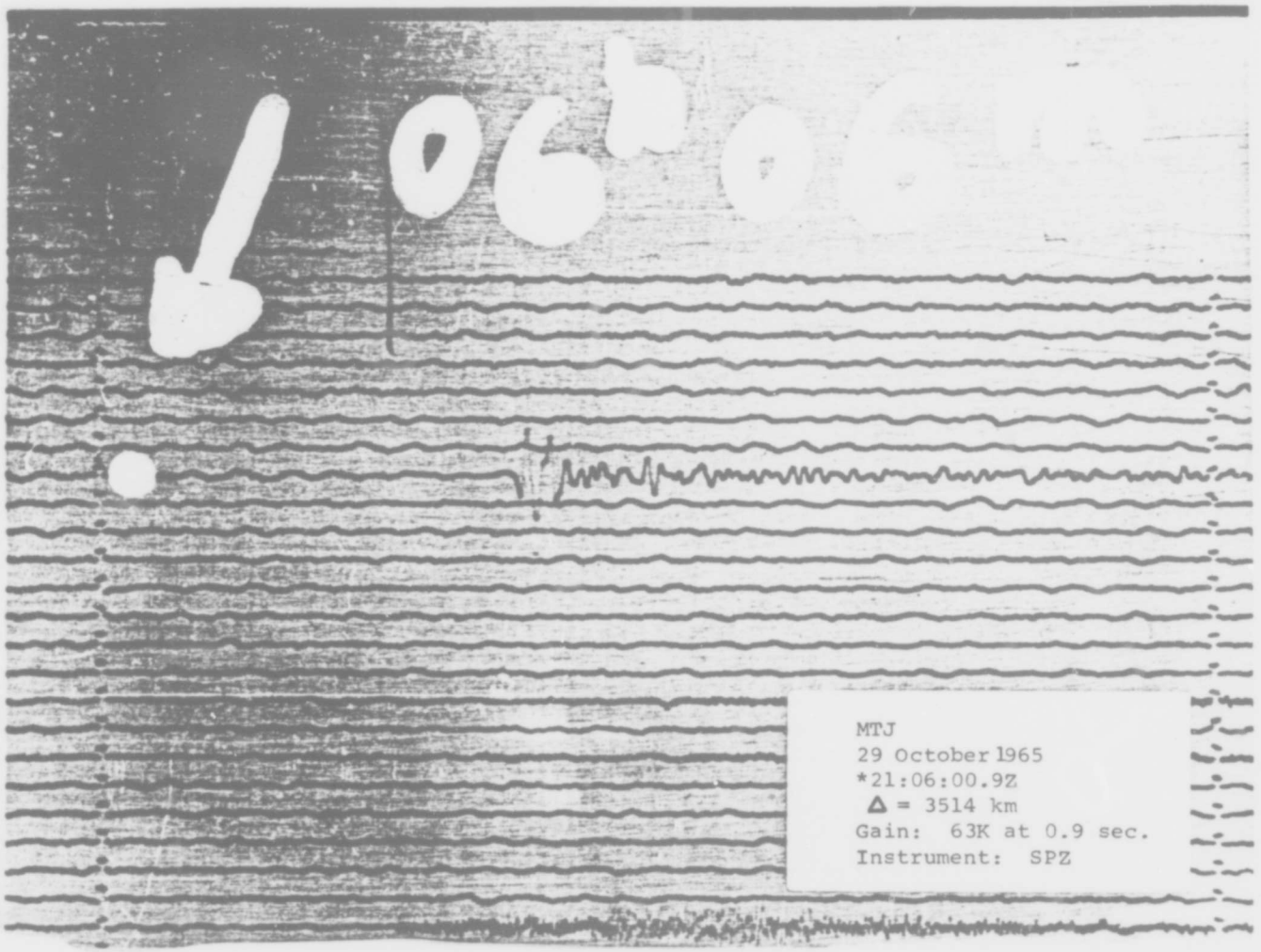
MM6
29 October 1965
*21:04:04.7Z
Δ = 2310 km
Gain: unknown
Instrument: SPZ

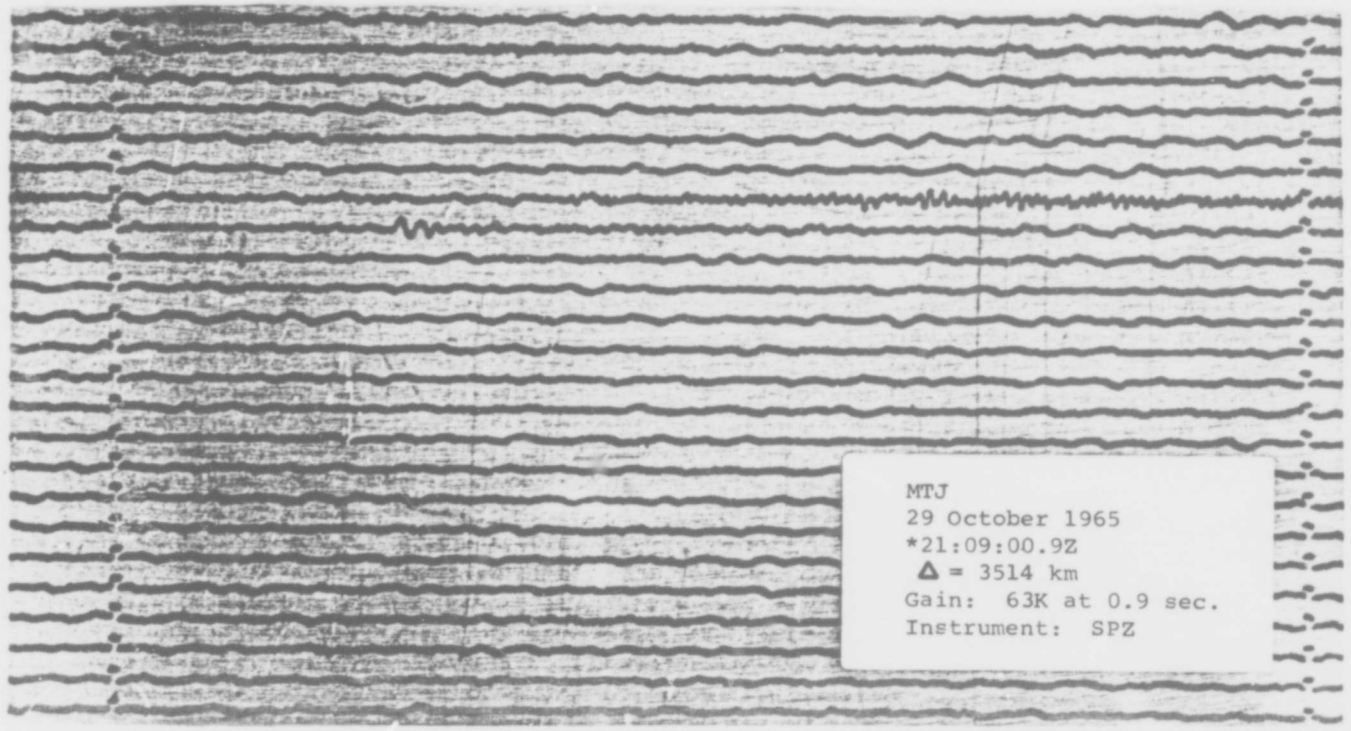

MNT
29 October 1965
*21:11:00.0Z
Δ = 7216 km
Gain: 118K
Instrument: SPZ

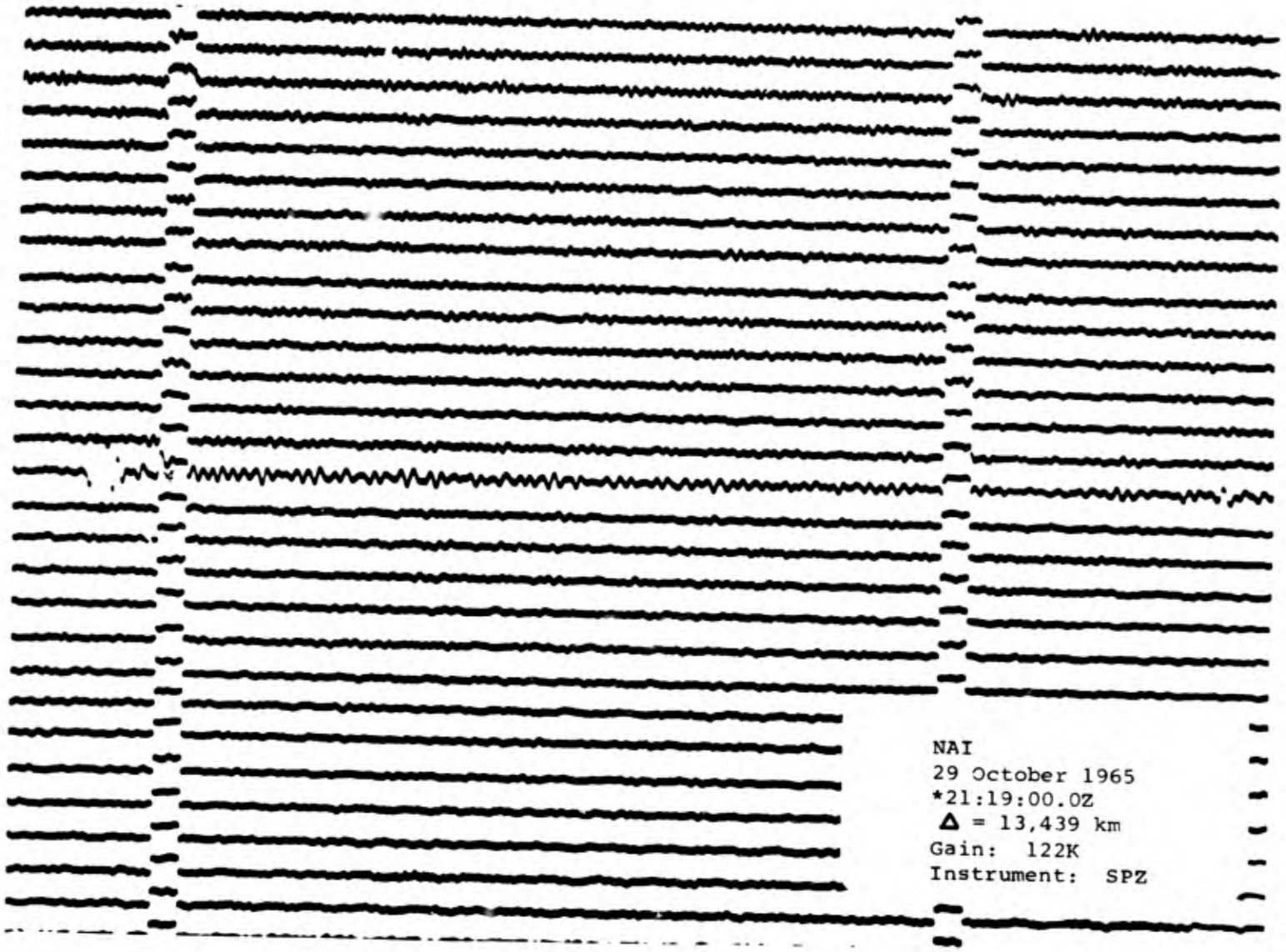

MNT
29 October 1965
*21:39:00.0Z
Δ = 7216 km.
Gain: 1.4K at 11 sec.
Instrument: LPZ

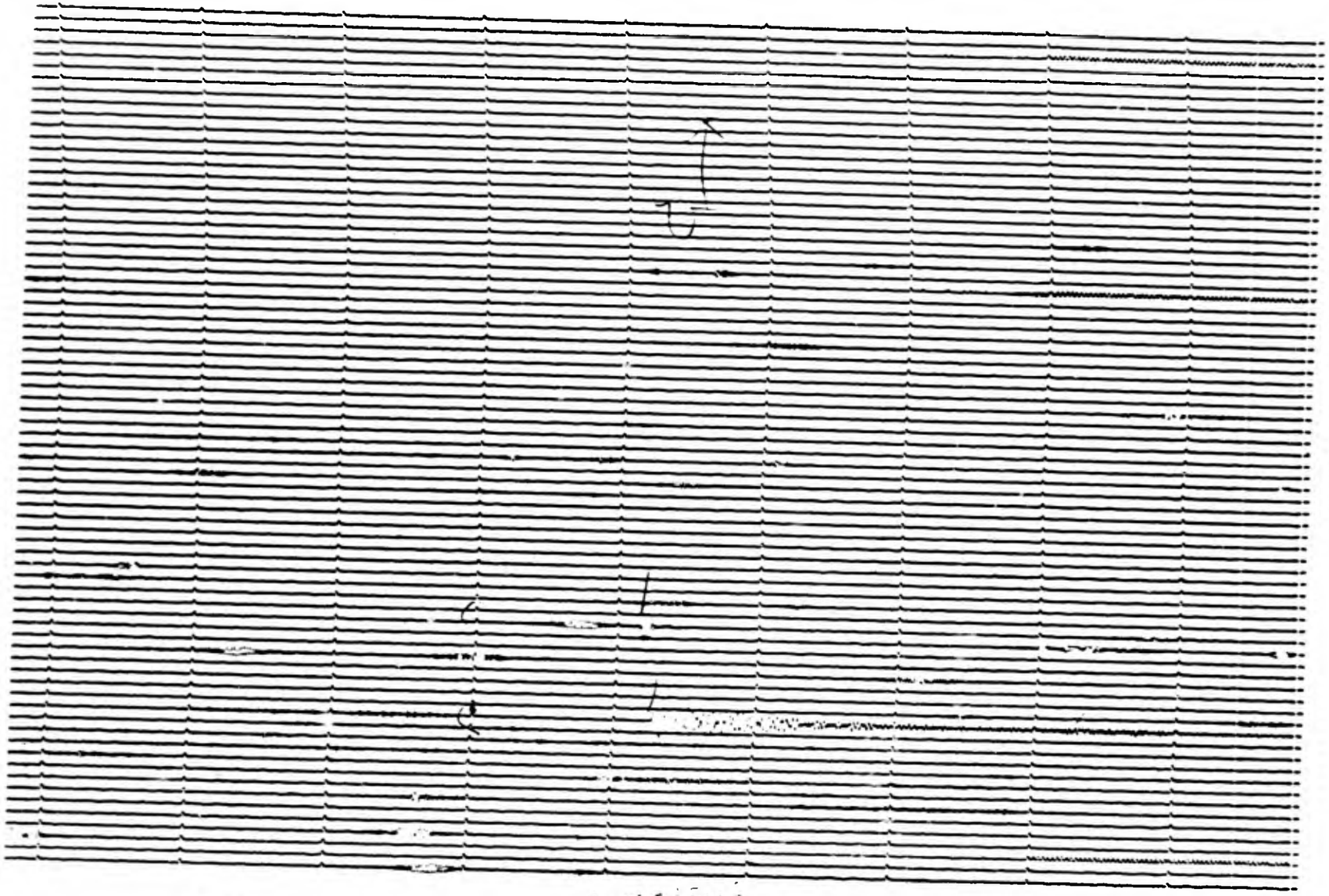

MSH
29 October 1965
*21:13:00.1Z
Δ = 8659 km
Gain: 30.6K
Instrument: SPZ


18
19
20
21
22
23
00
01
MSH
29 October 1965
*21:15:00.1Z
Δ = 8659K
Gain: 30.6K
Instrument: SPZ


MTJ
29 October 1965
*21:06:00.9Z
Δ = 3514 km
Gain: 63K at 0.9 sec.
Instrument: SPZ

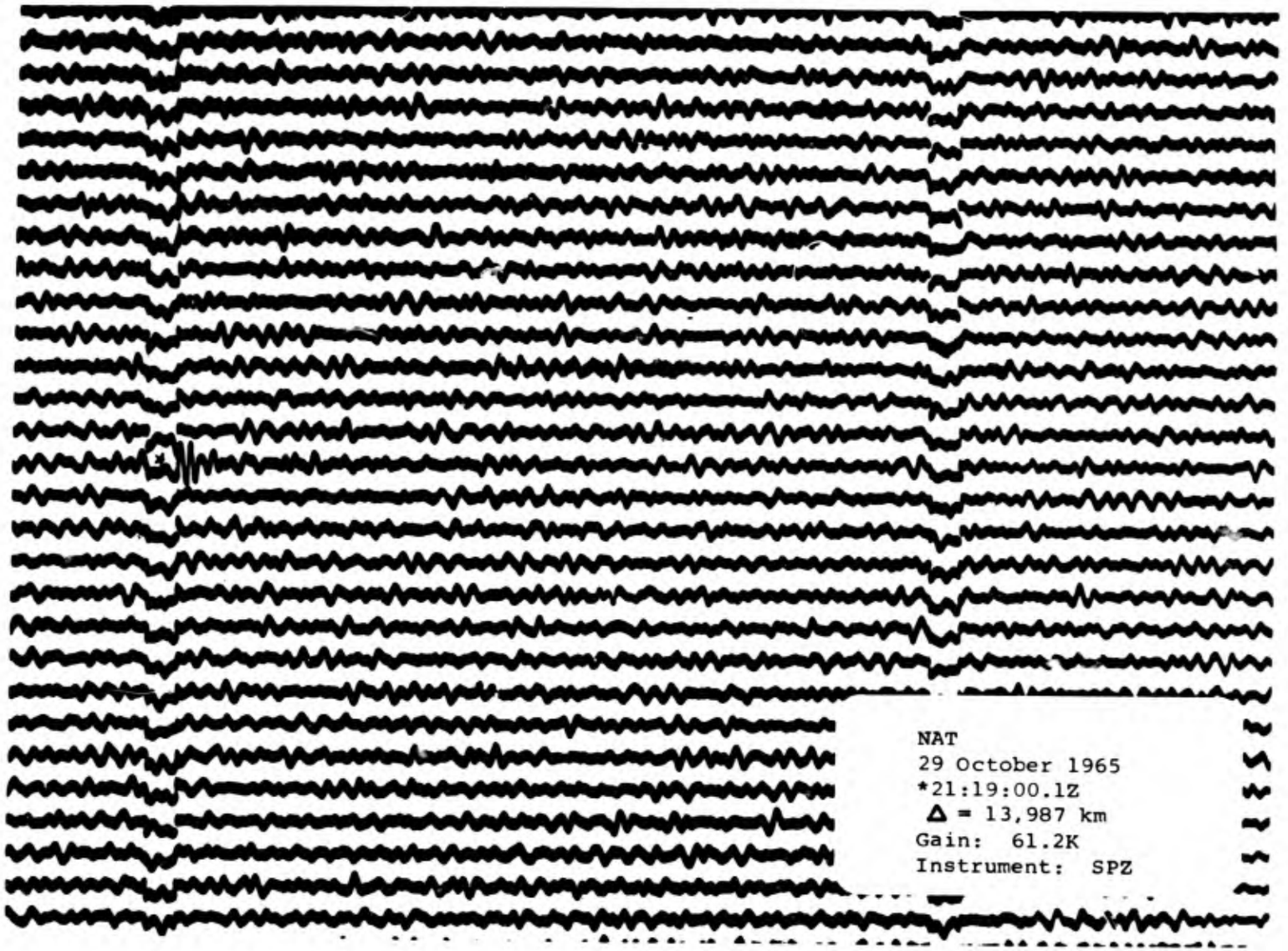

MTJ
29 October 1965
*21:09:00.9Z
Δ = 3514 km
Gain: 63K at 0.9 sec.
Instrument: SPZ

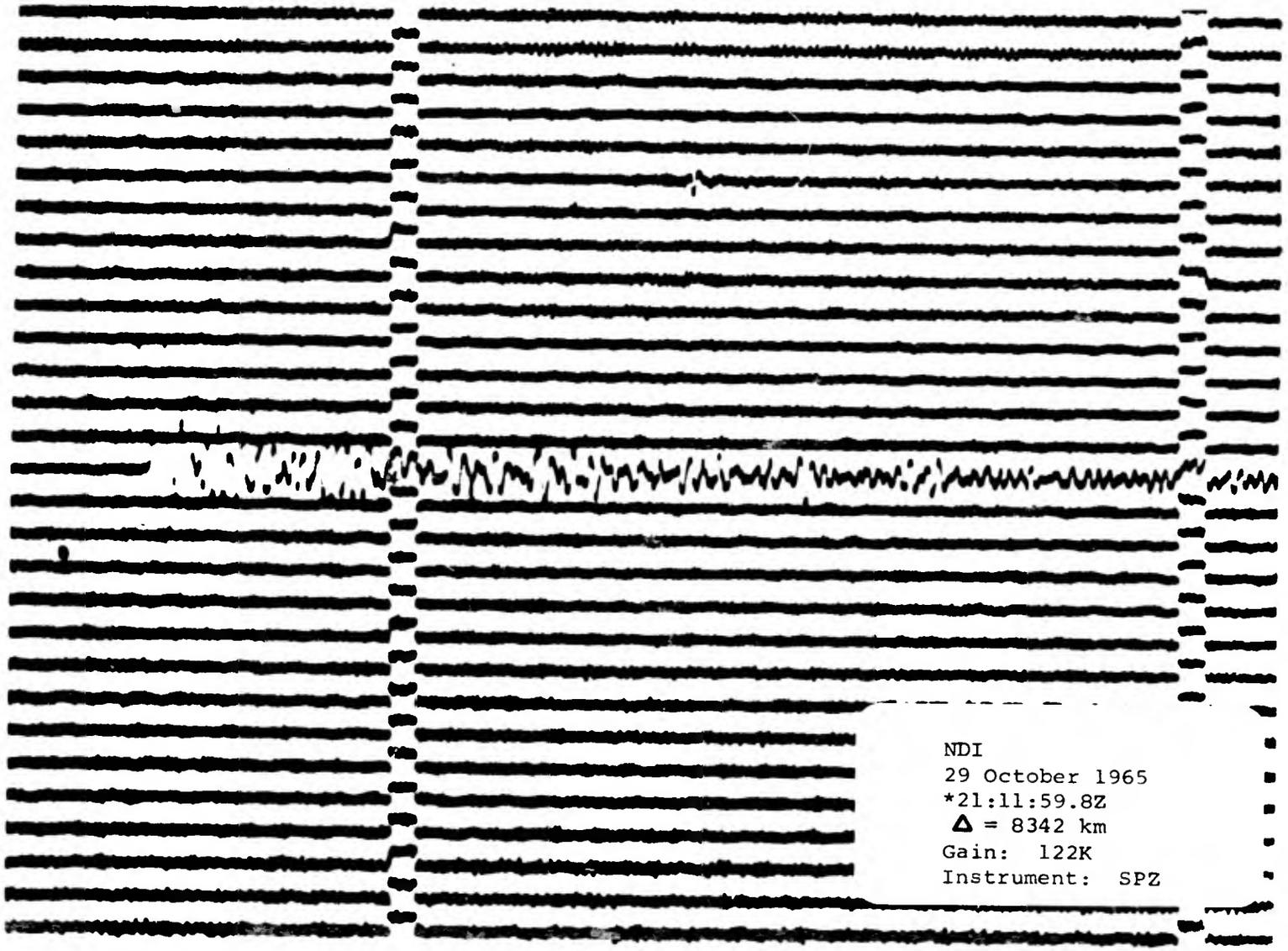

NAI
29 October 1965
*21:19:00.0Z
Δ = 13,439 km
Gain: 122K
Instrument: SPZ

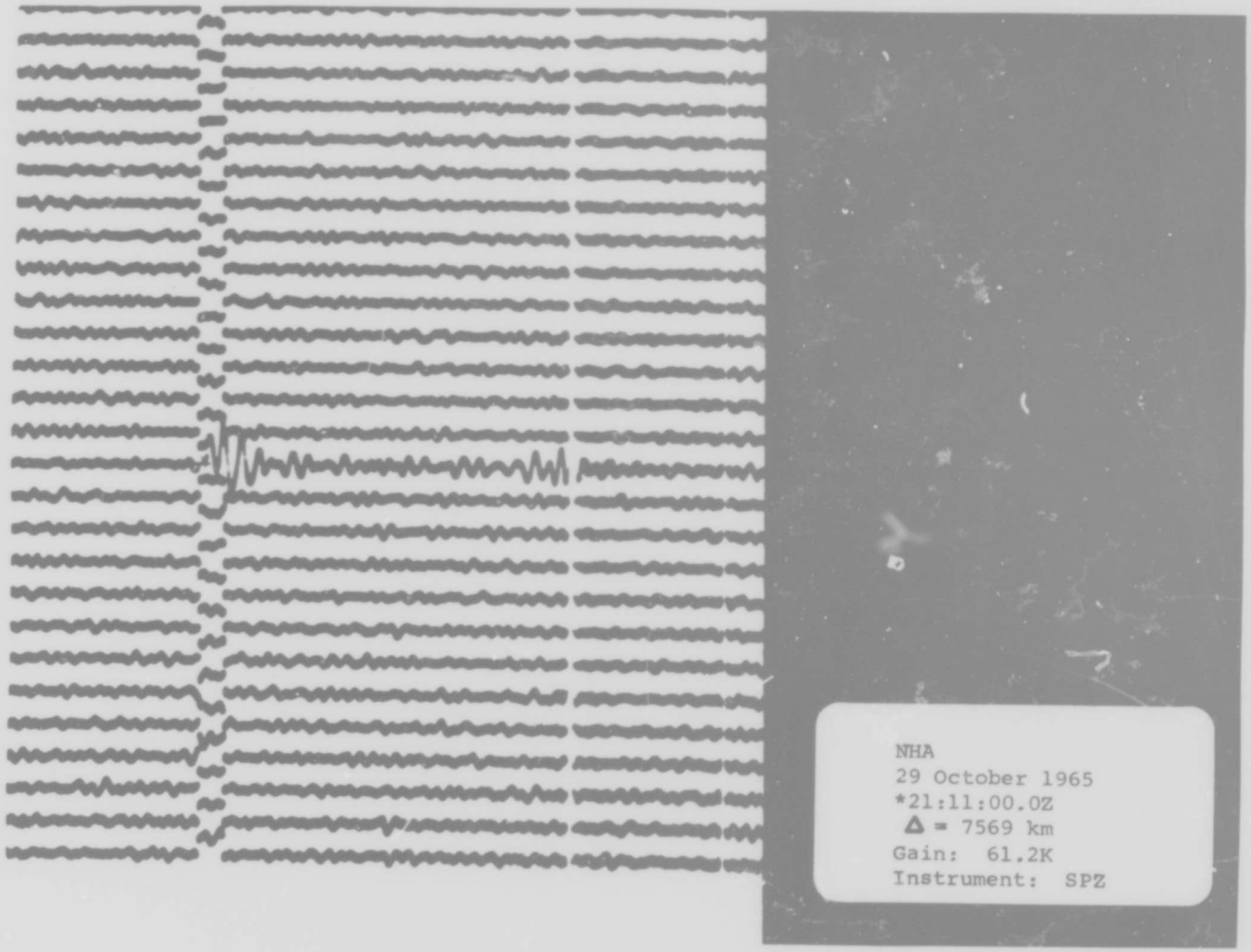


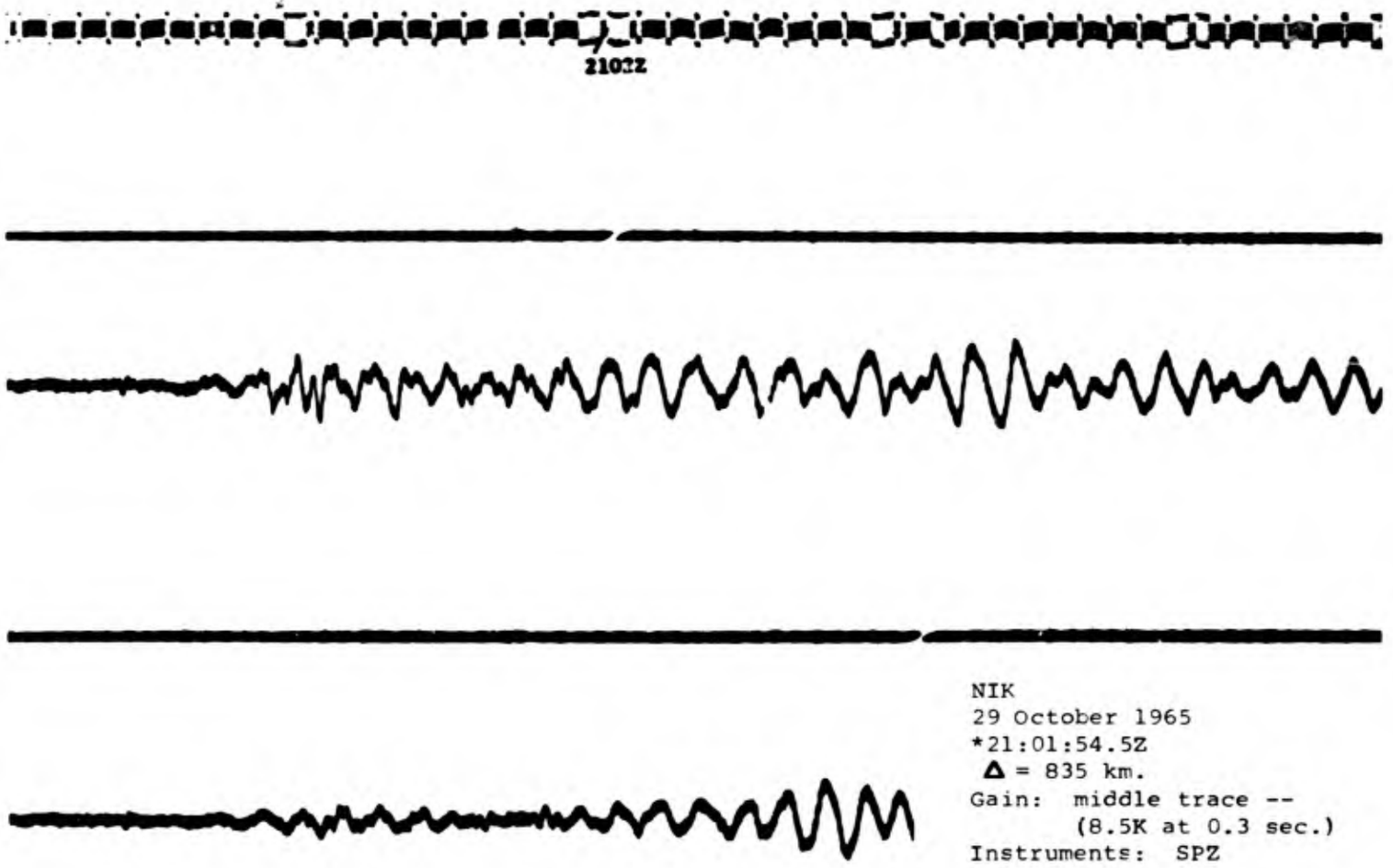
MT. WILSON

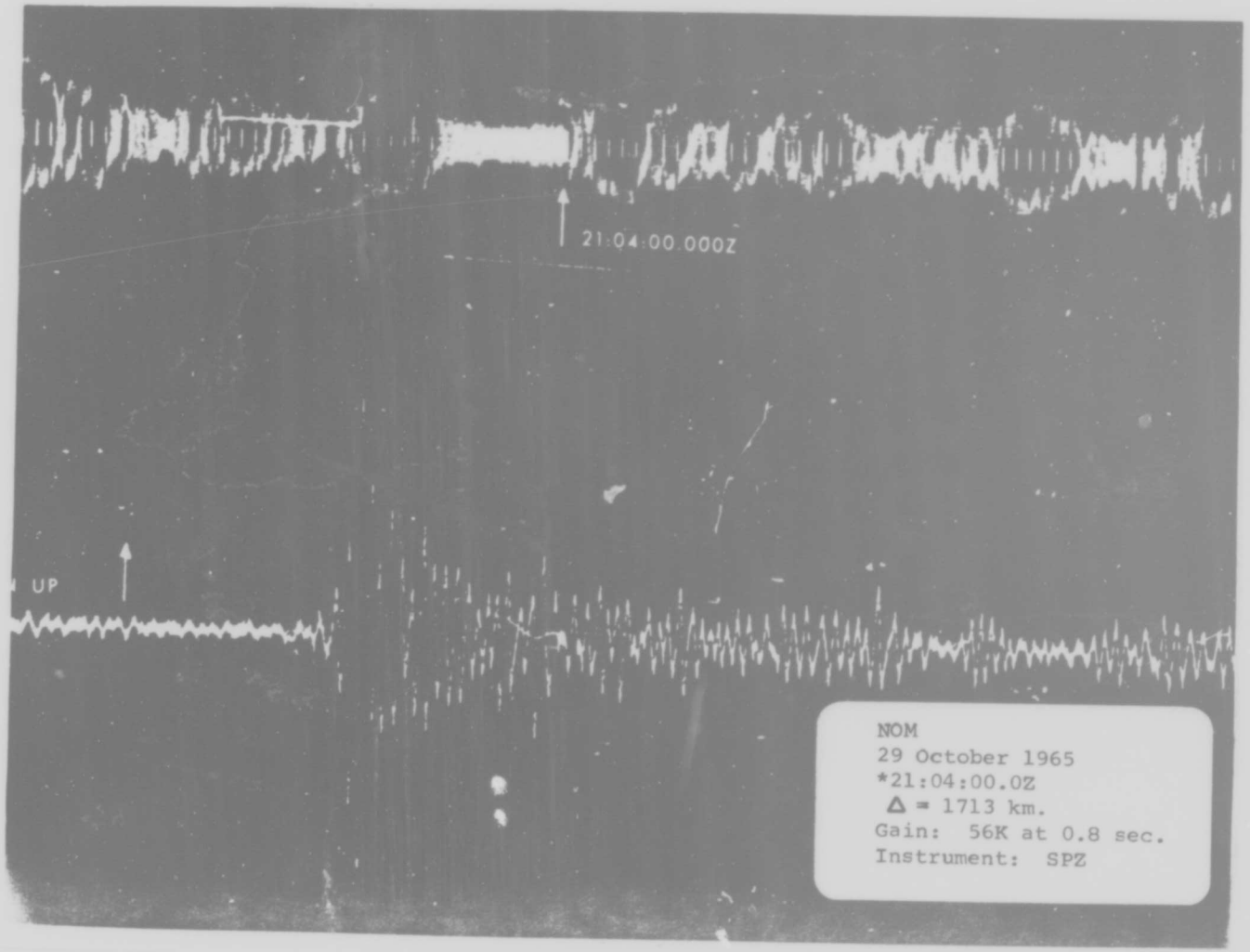
MWC
29 October 1965
*21:07:58.6Z
Δ = 5296 km
Gain: 50K at 0.9 sec.
Instrument: SPZ

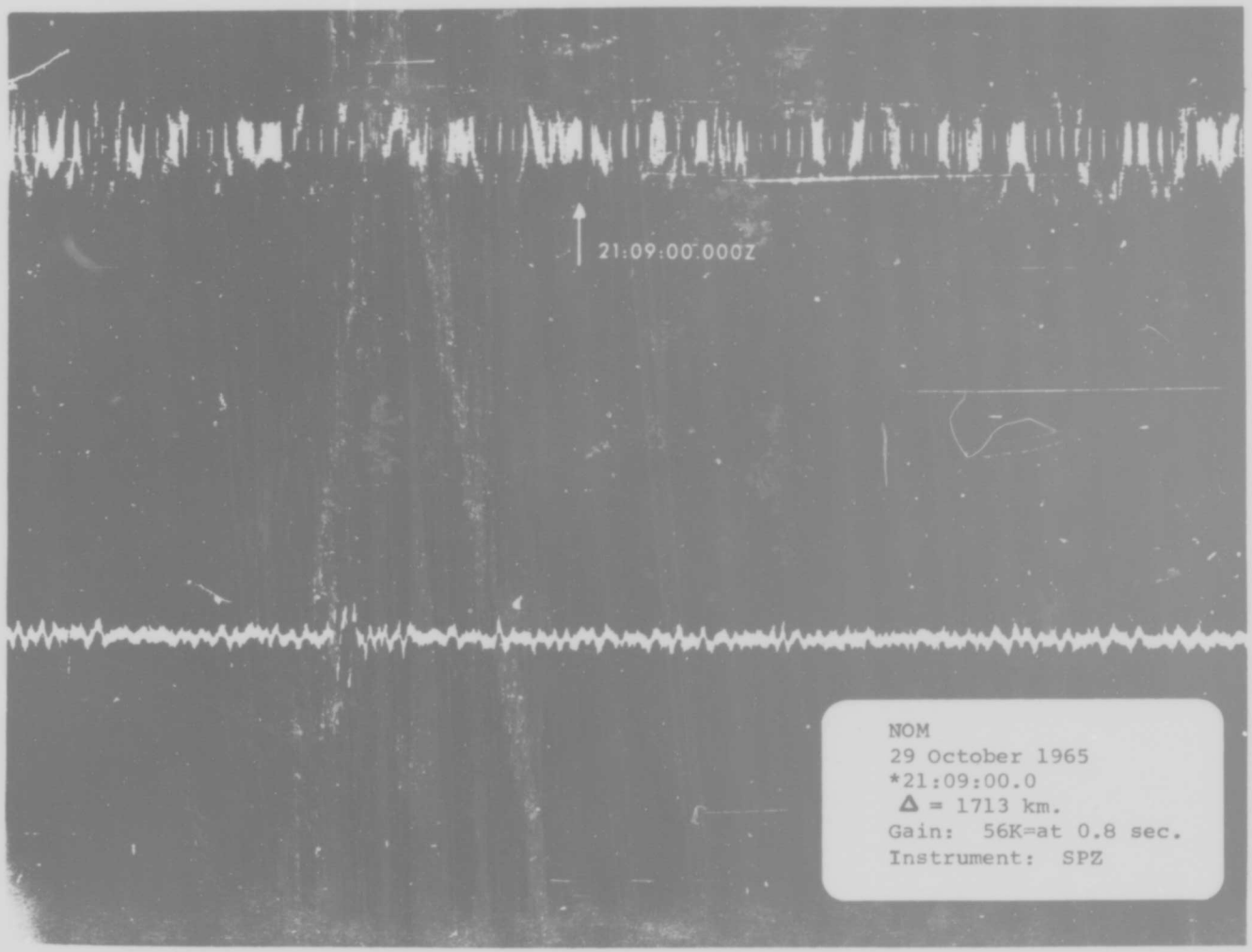

NAT
29 October 1965
*21:19:00.1Z
Δ = 13,987 km
Gain: 61.2K
Instrument: SPZ

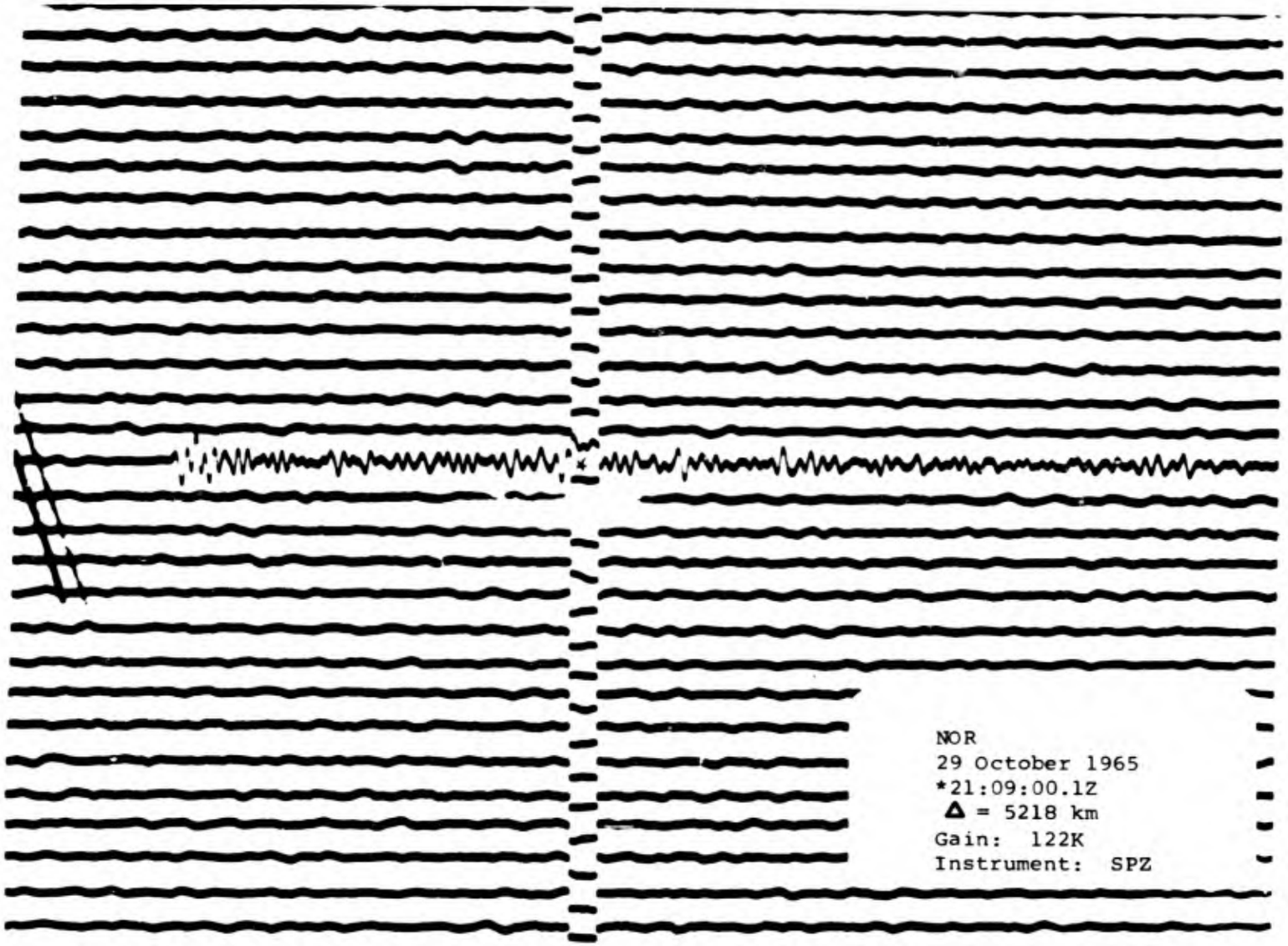

NDI
29 October 1965
*21:11:59.8Z
Δ = 8342 km
Gain: 122K
Instrument: SPZ

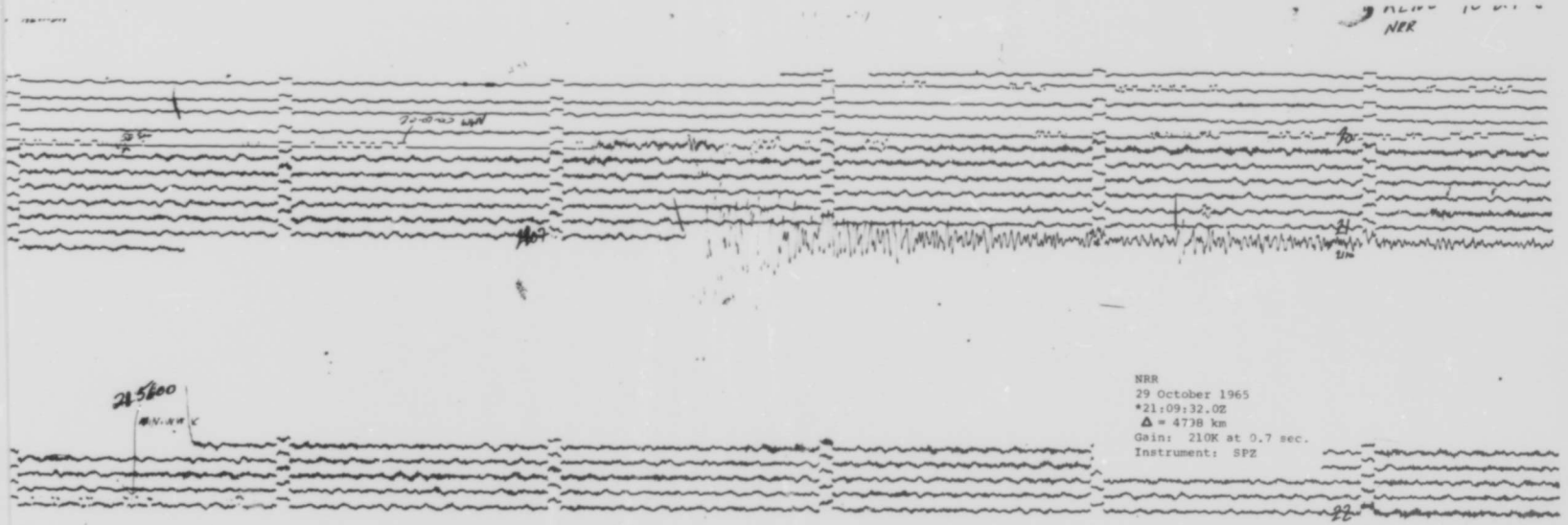

NHA
29 October 1965
*21:11:00.0Z
Δ = 7569 km
Gain: 61.2K
Instrument: SPZ

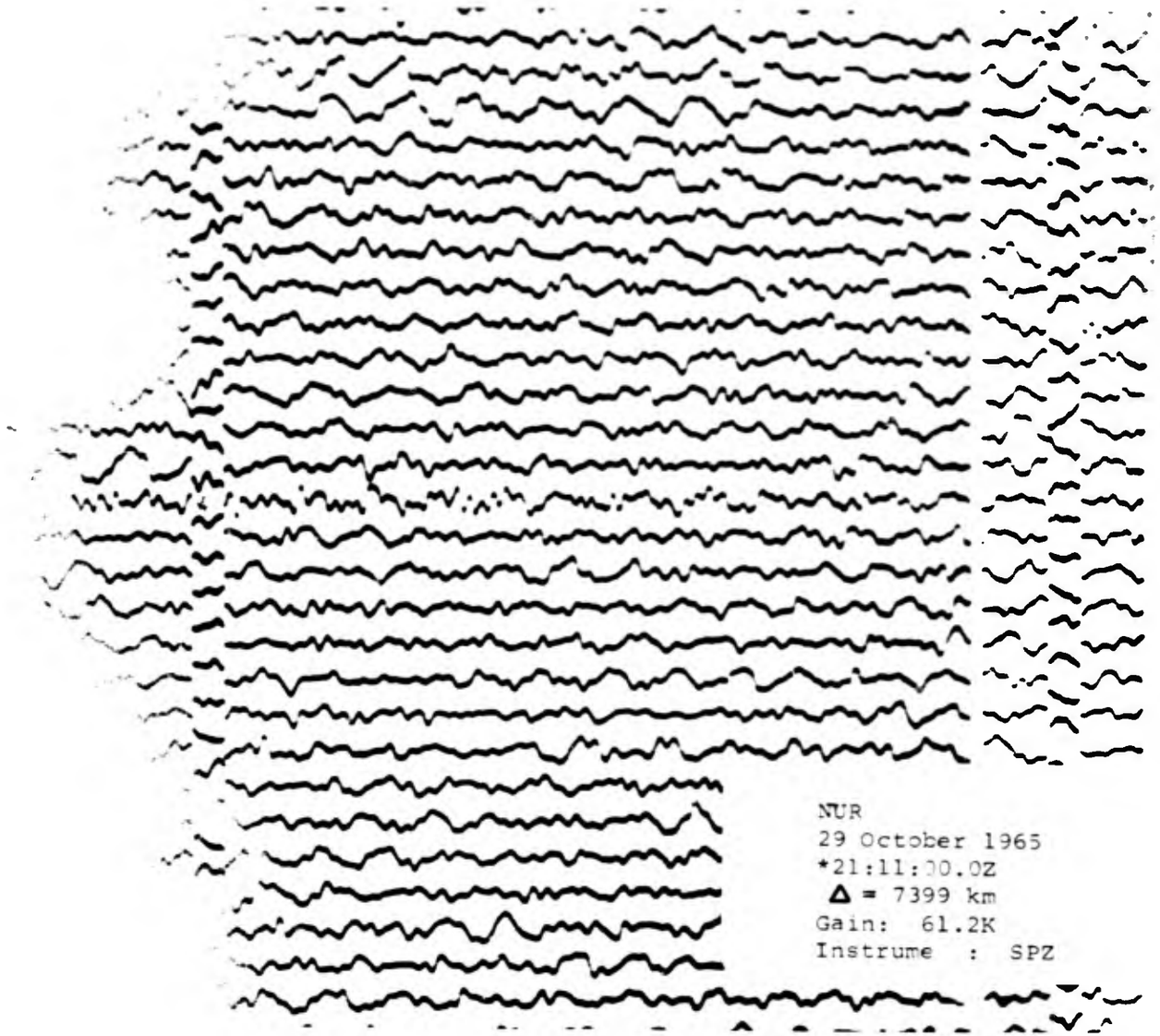

2102Z
NIK
29 October 1965
*21:01:54.5Z
Δ = 835 km.
Gain: middle trace --
(8.5K at 0.3 sec.)
Instruments: SPZ

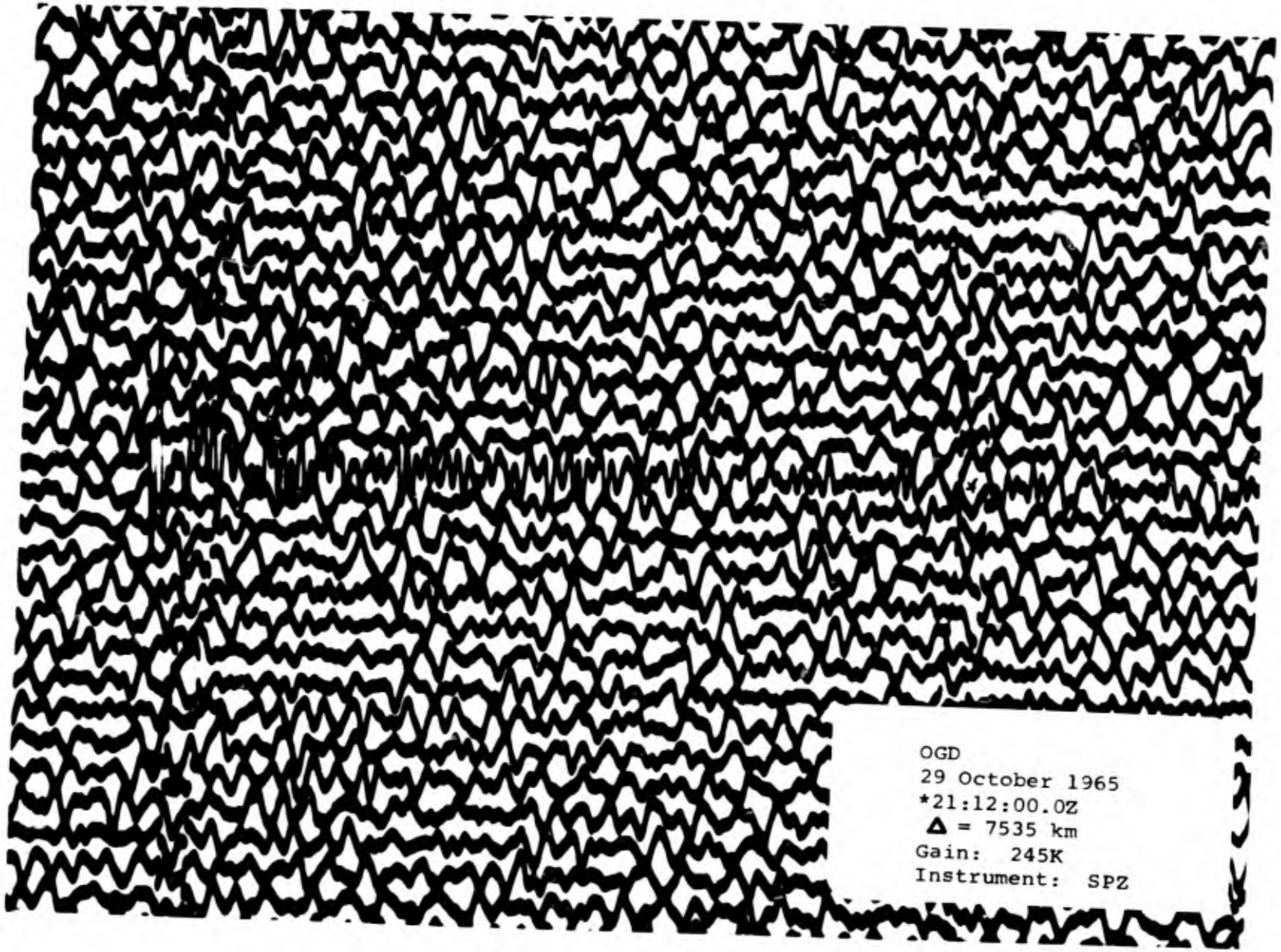

21:04:00.000Z
UP
NOM
29 October 1965
*21:04:00.0Z
Δ = 1713 km.
Gain: 56K at 0.8 sec.
Instrument: SPZ

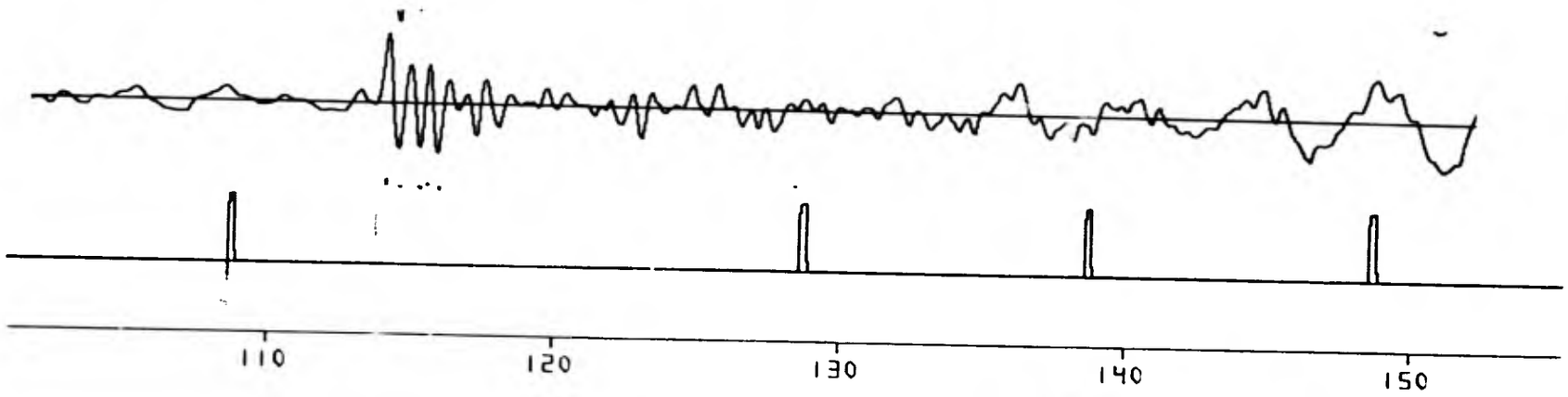

21:09:00.000Z
NOM
29 October 1965
*21:09:00.0
Δ = 1713 km.
Gain: 56K=at 0.8 sec.
Instrument: SPZ


NOR
29 October 1965
*21:09:00.1Z
Δ = 5218 km
Gain: 122K
Instrument: SPZ

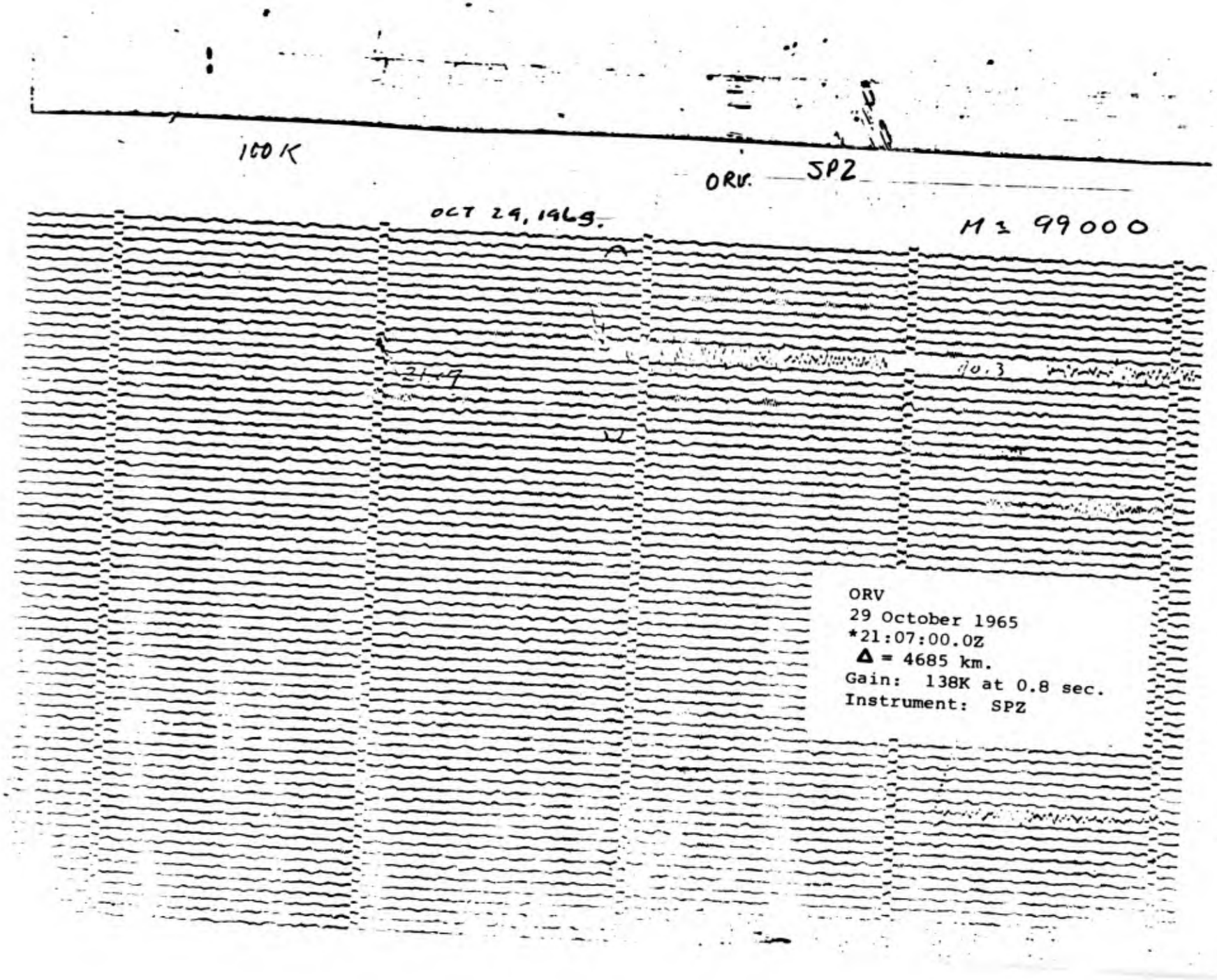

NRR
29 October 1965
*21:09:32.0Z
Δ = 4738 km
Gain: 210K at 0.7 sec.
Instrument: SPZ

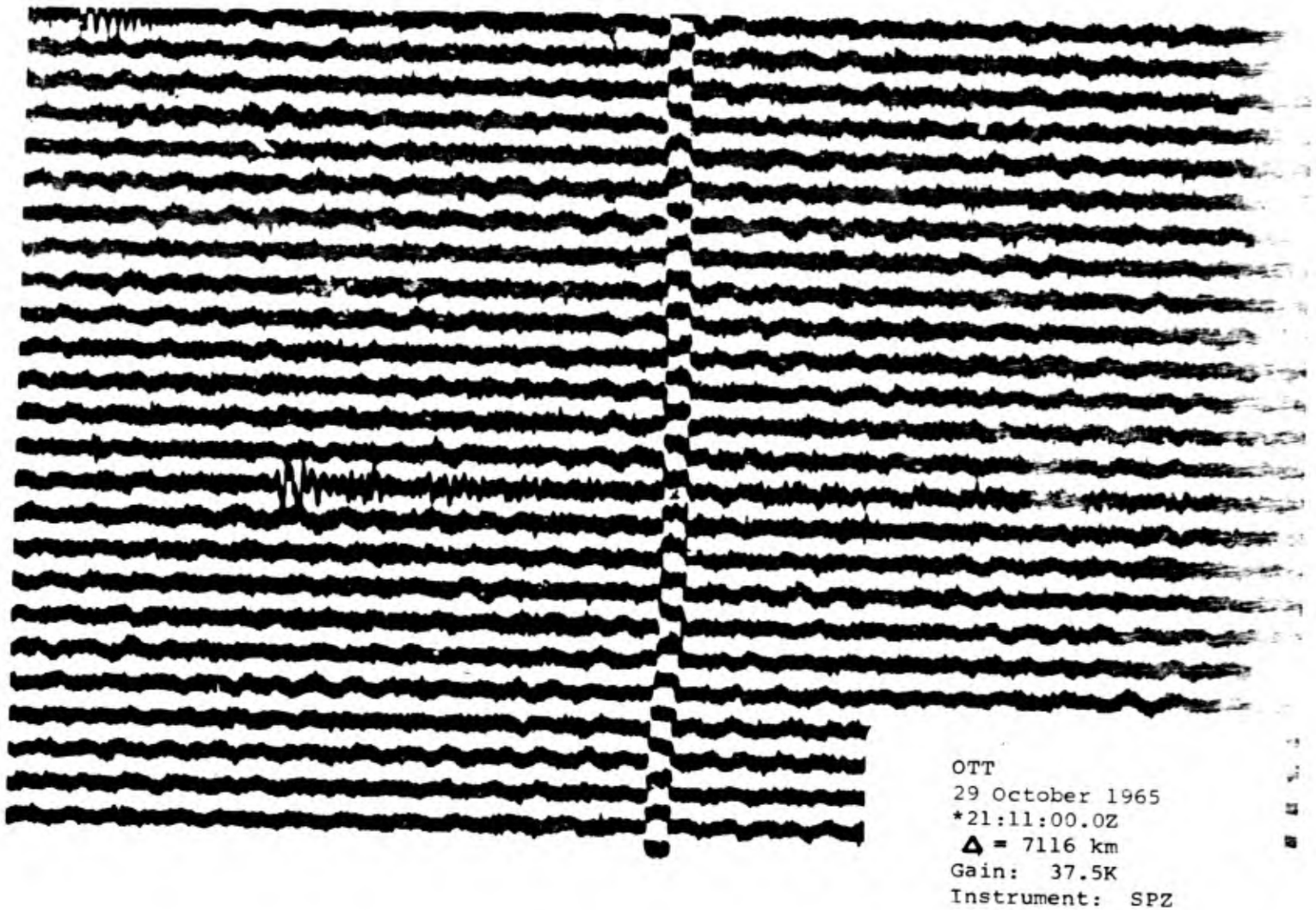

NUR
29 October 1965
*21:11:00.0Z
Δ = 7399 km
Gain: 61.2K
Instrume : SPZ

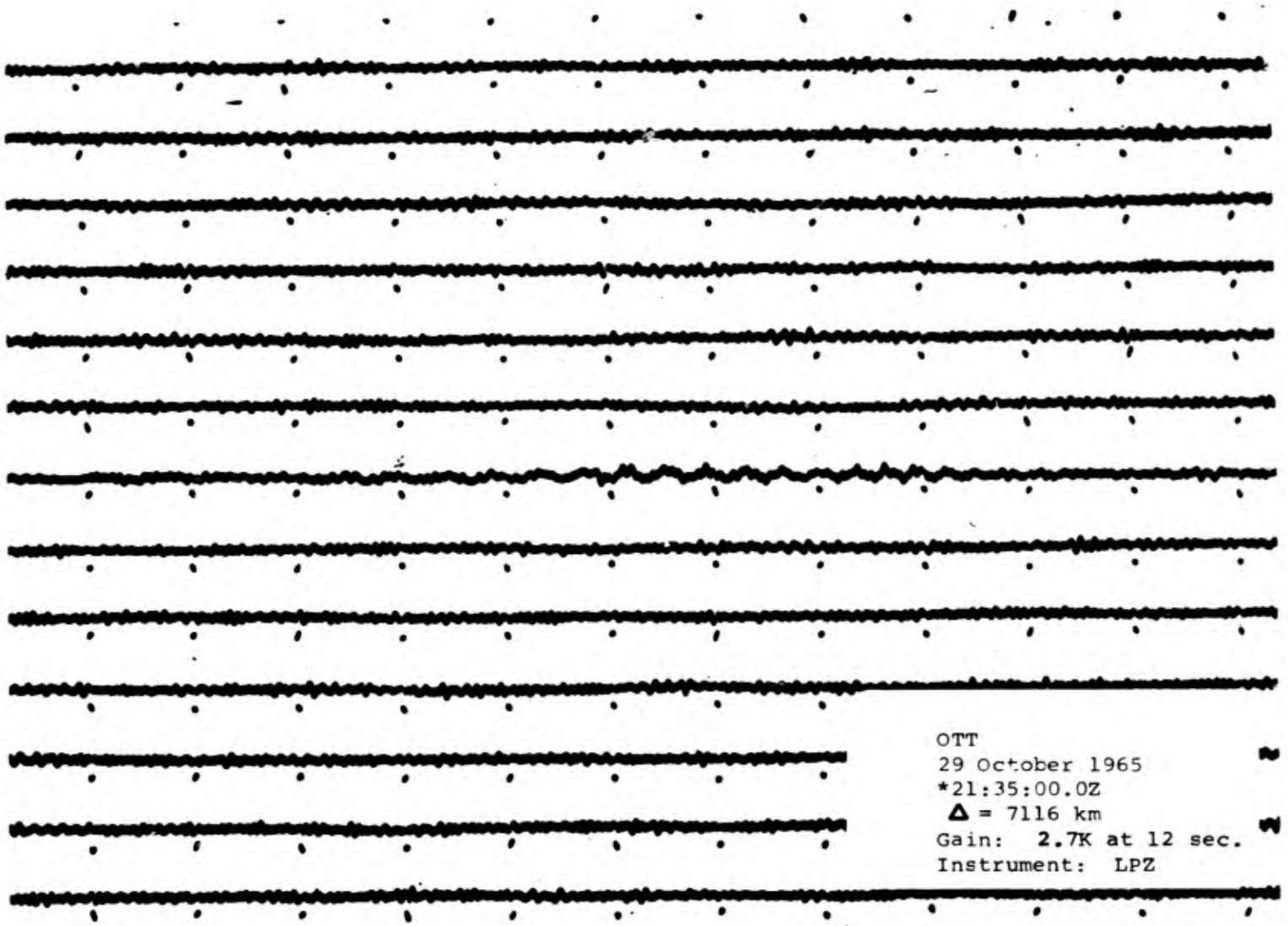

OGD
29 October 1965
*21:12:00.0Z
Δ = 7535 km
Gain: 245K
Instrument: SPZ

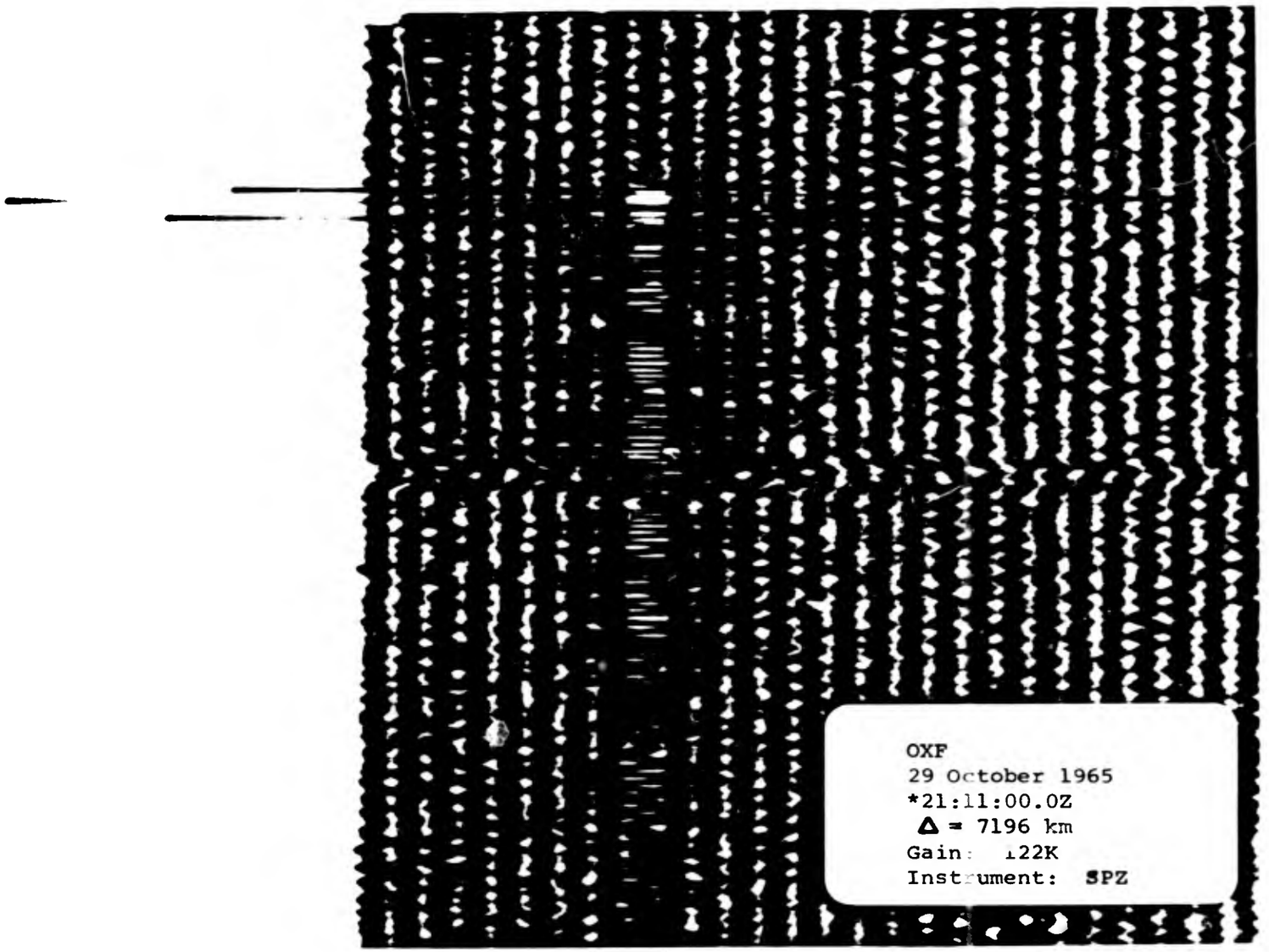


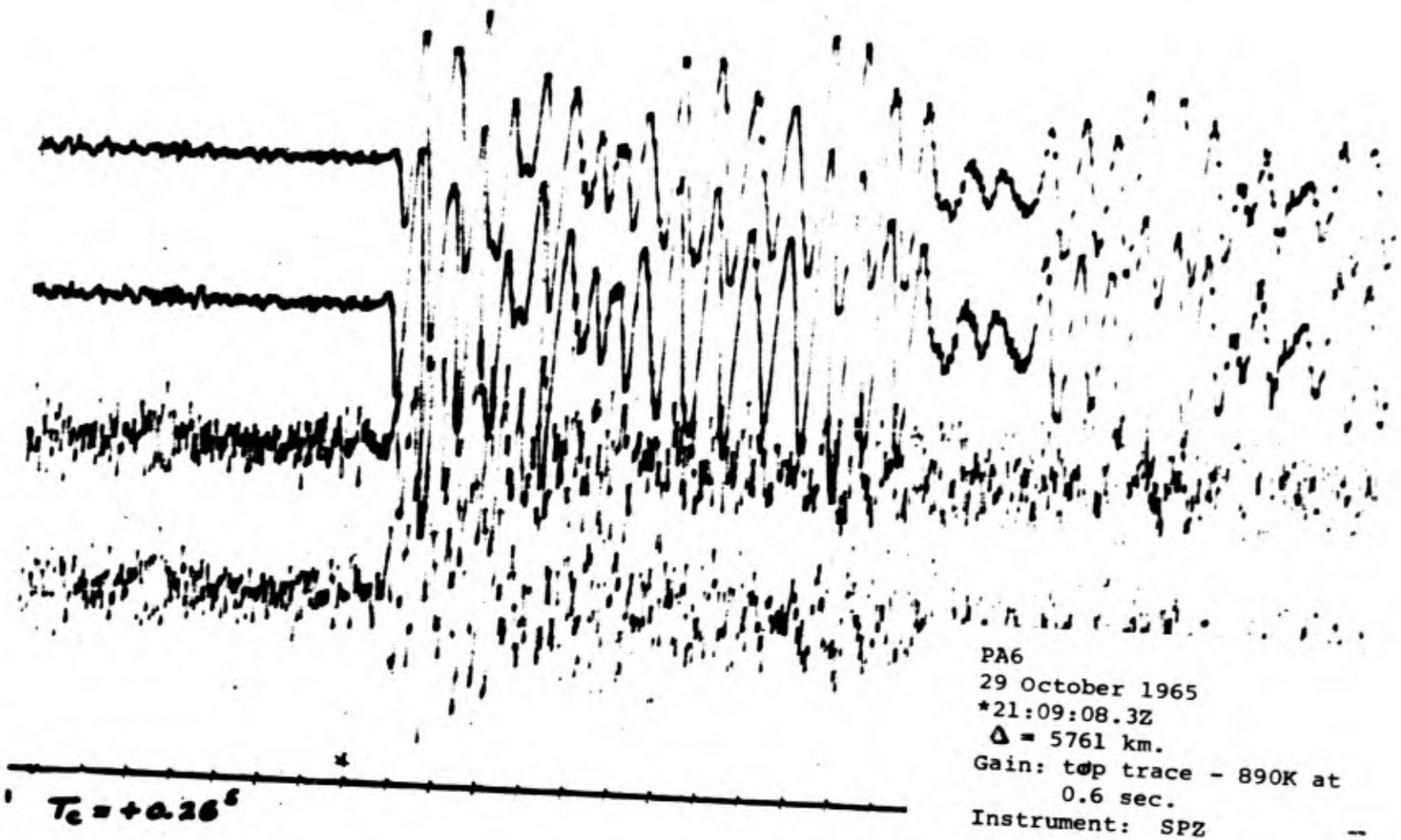
OO-NW
29 October 1965
*21:10:50.0Z
Δ = 7503 km
Gain: 188K
Instrument: SPZ-2

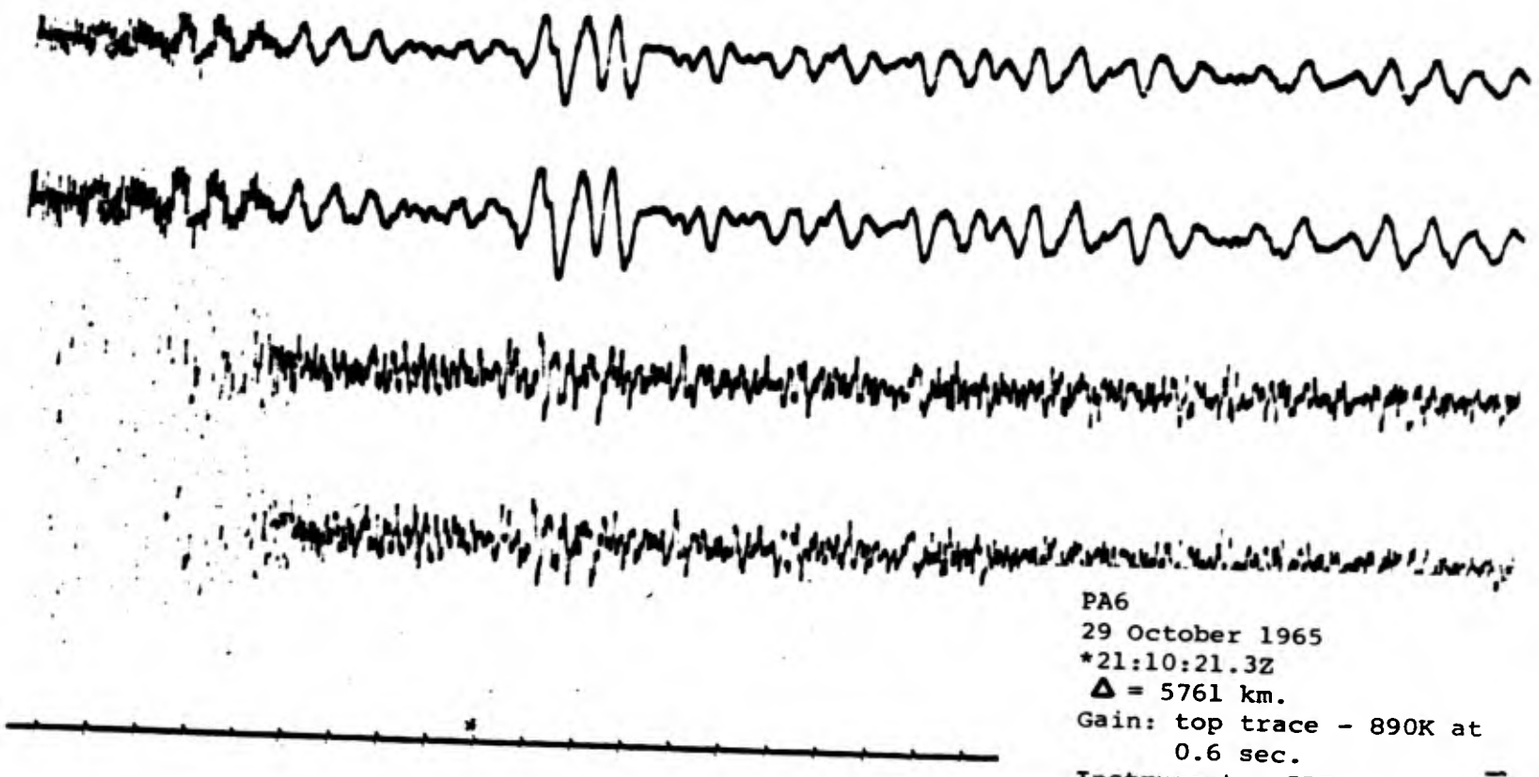

100 K
ORV. SPZ
OCT 29, 1965.
M = 99000
21.9
10.3
ORV
29 October 1965
*21:07:00.0Z
Δ = 4685 km.
Gain: 138K at 0.8 sec.
Instrument: SPZ


OTT
29 October 1965
*21:11:00.0Z
Δ = 7116 km
Gain: 37.5K
Instrument: SPZ

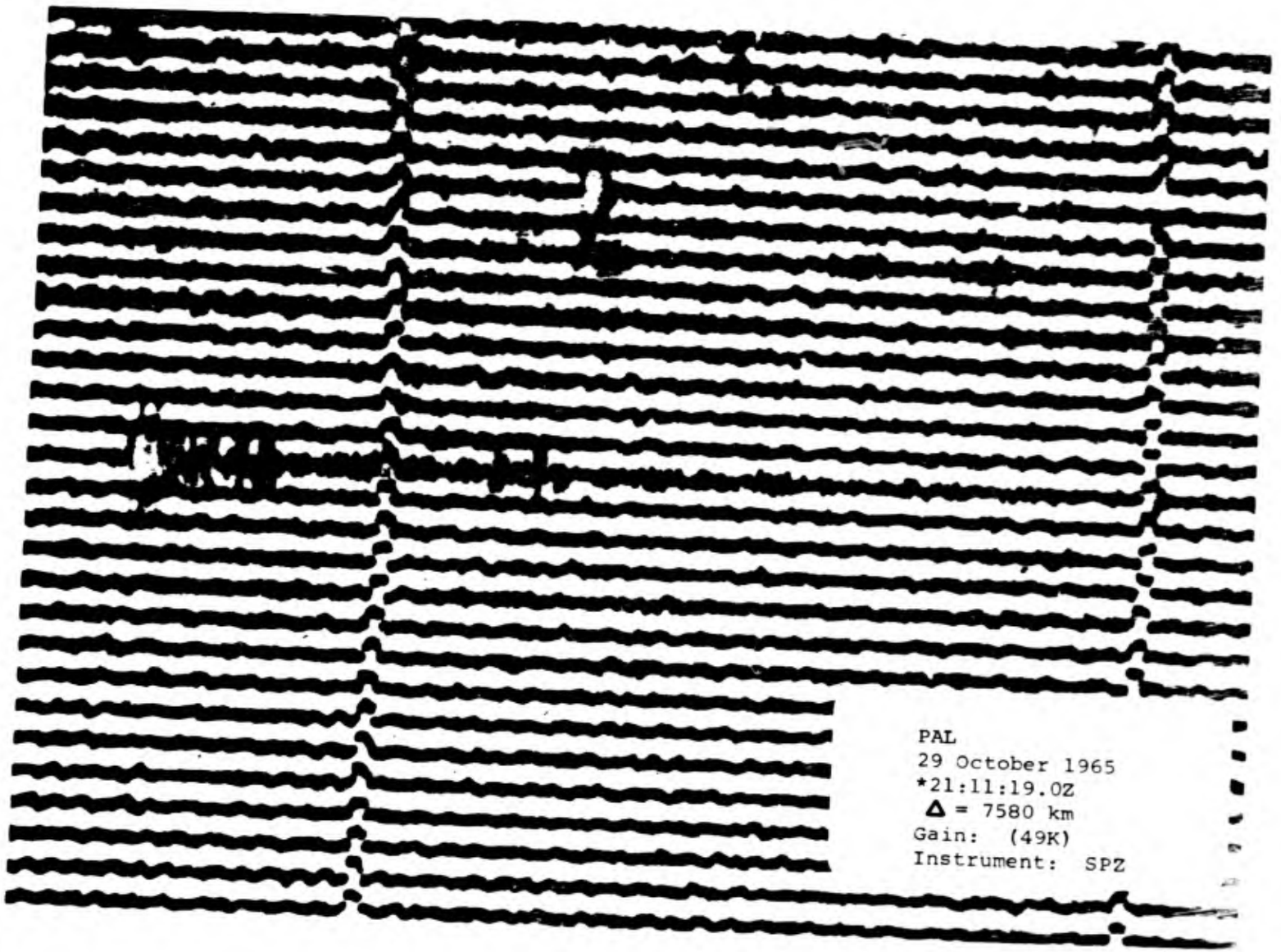

OTT
29 October 1965
*21:35:00.0Z
Δ = 7116 km
Gain: 2.7K at 12 sec.
Instrument: LPZ

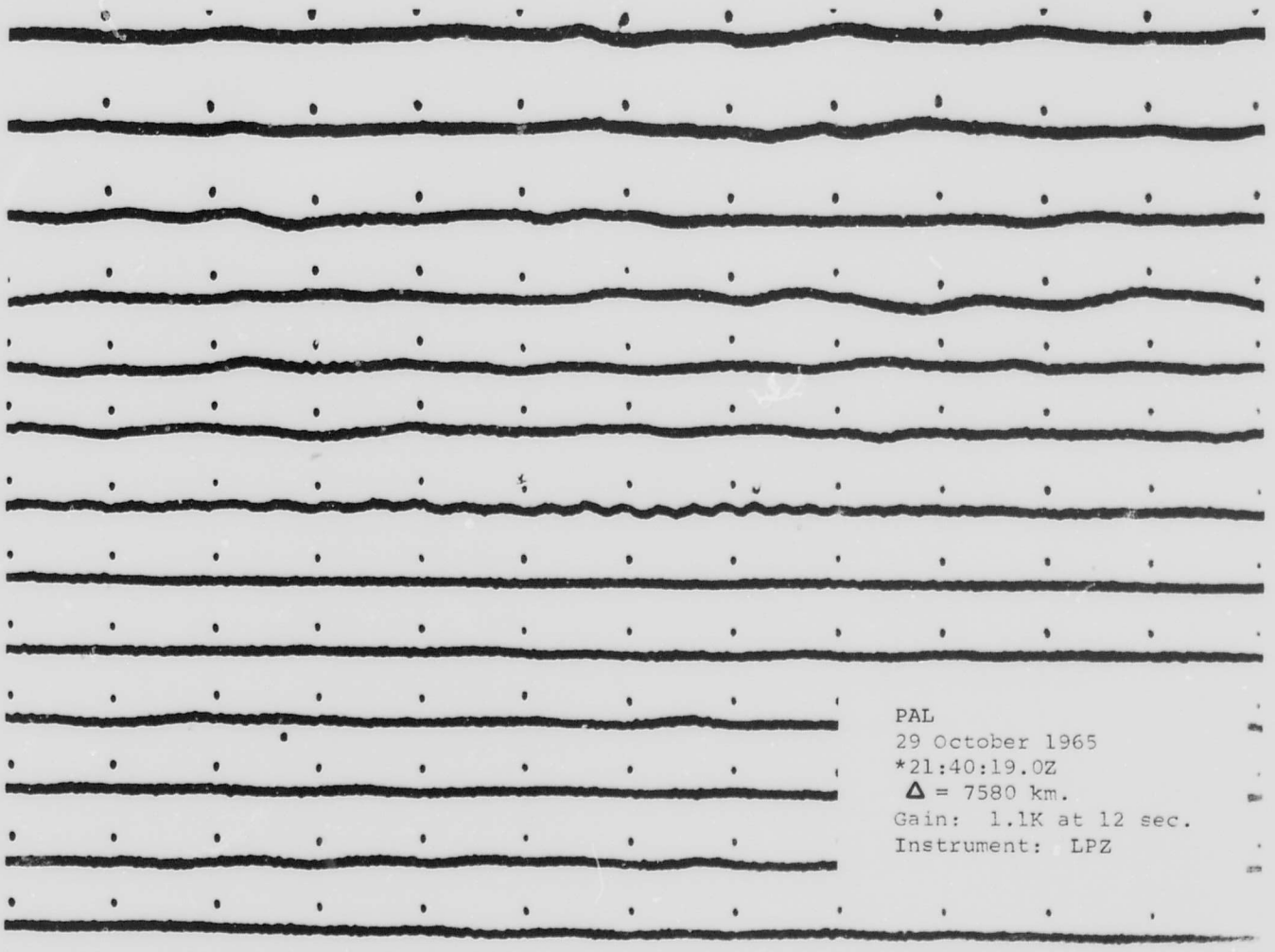

OXF
29 October 1965
*21:11:00.0Z
Δ = 7196 km
Gain: 122K
Instrument: SPZ

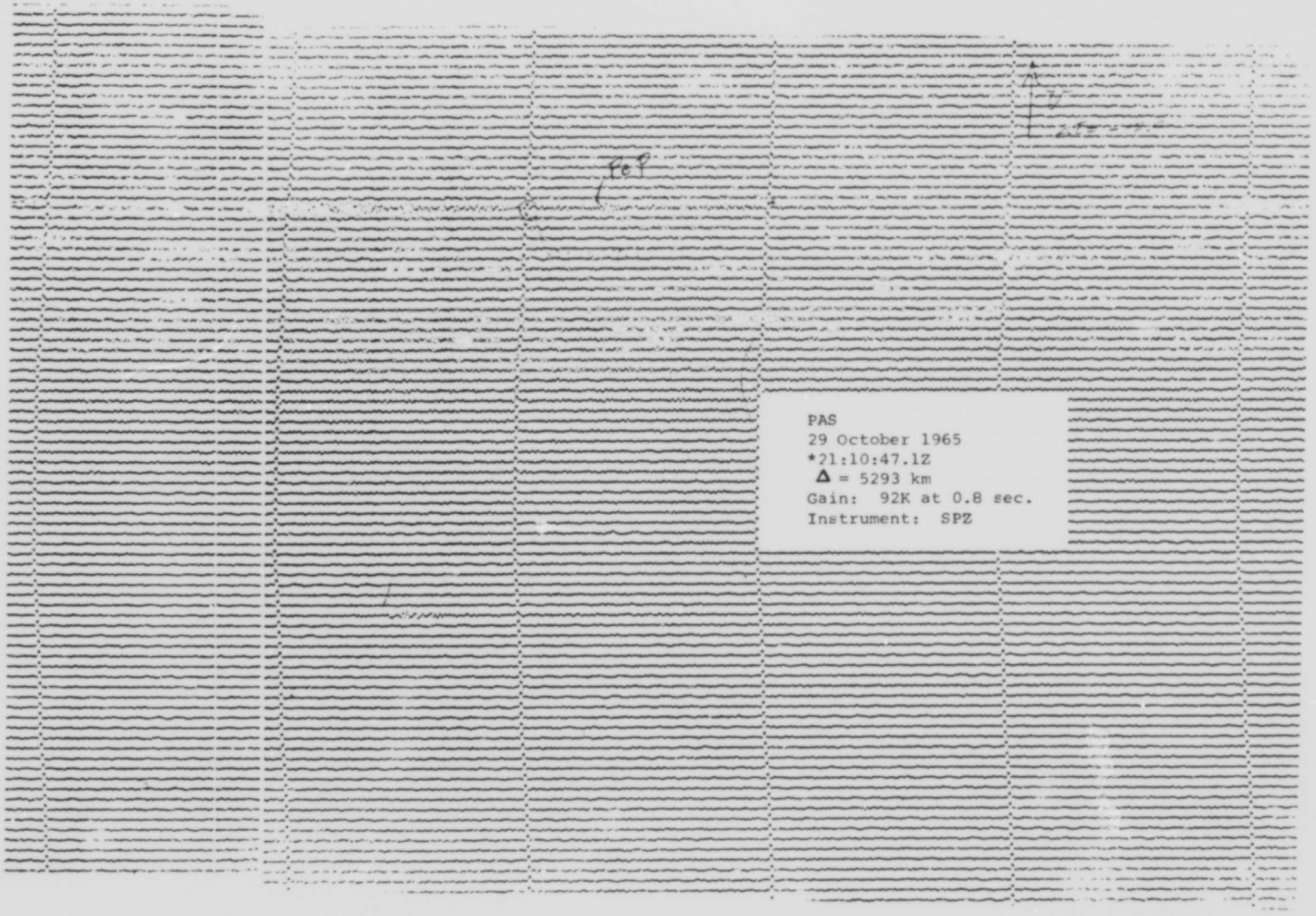

$T_c = +0.26^s$
PA6
29 October 1965
*21:09:08.3Z
Δ = 5761 km.
Gain: top trace - 890K at
0.6 sec.
Instrument: SPZ

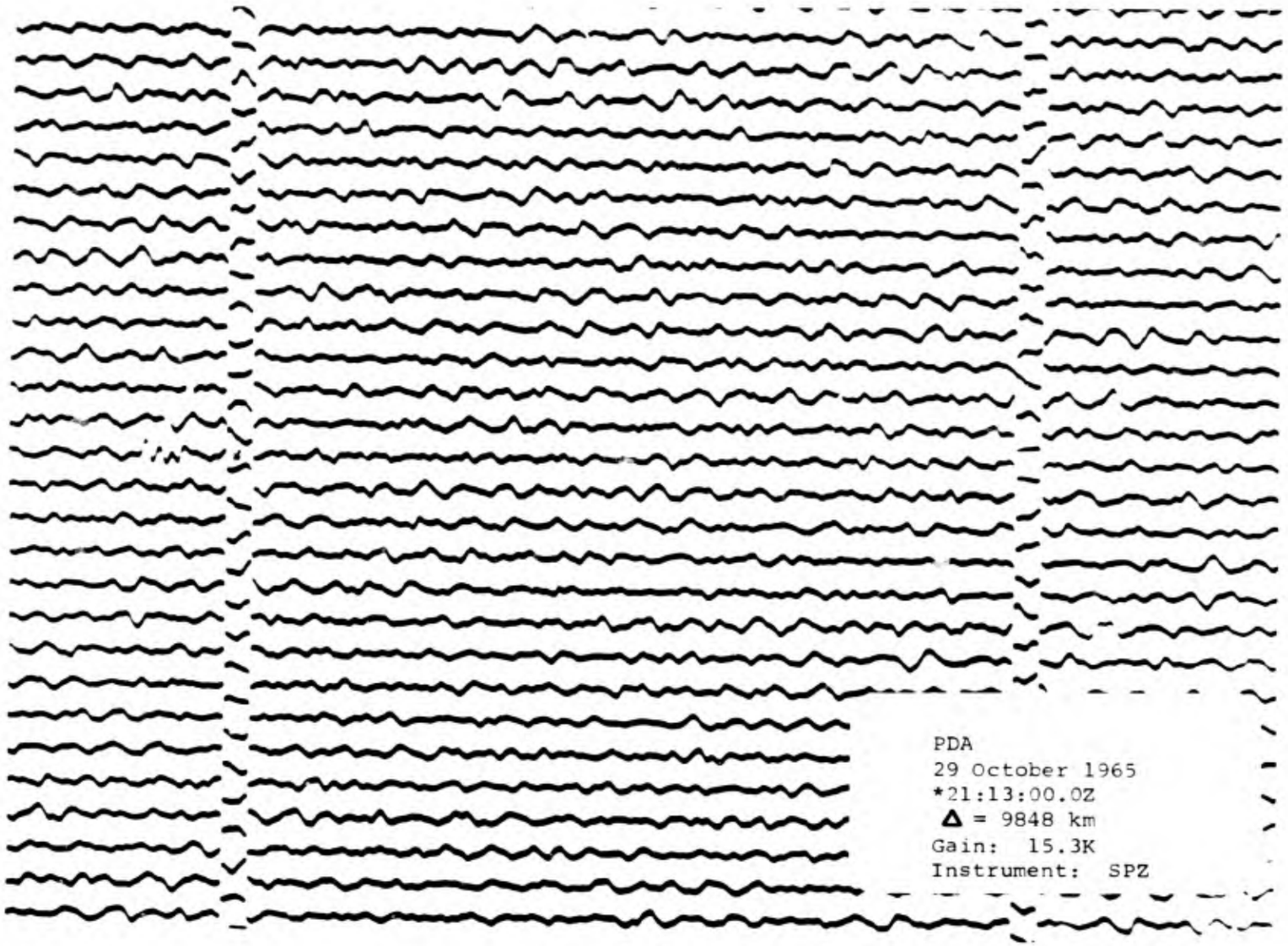


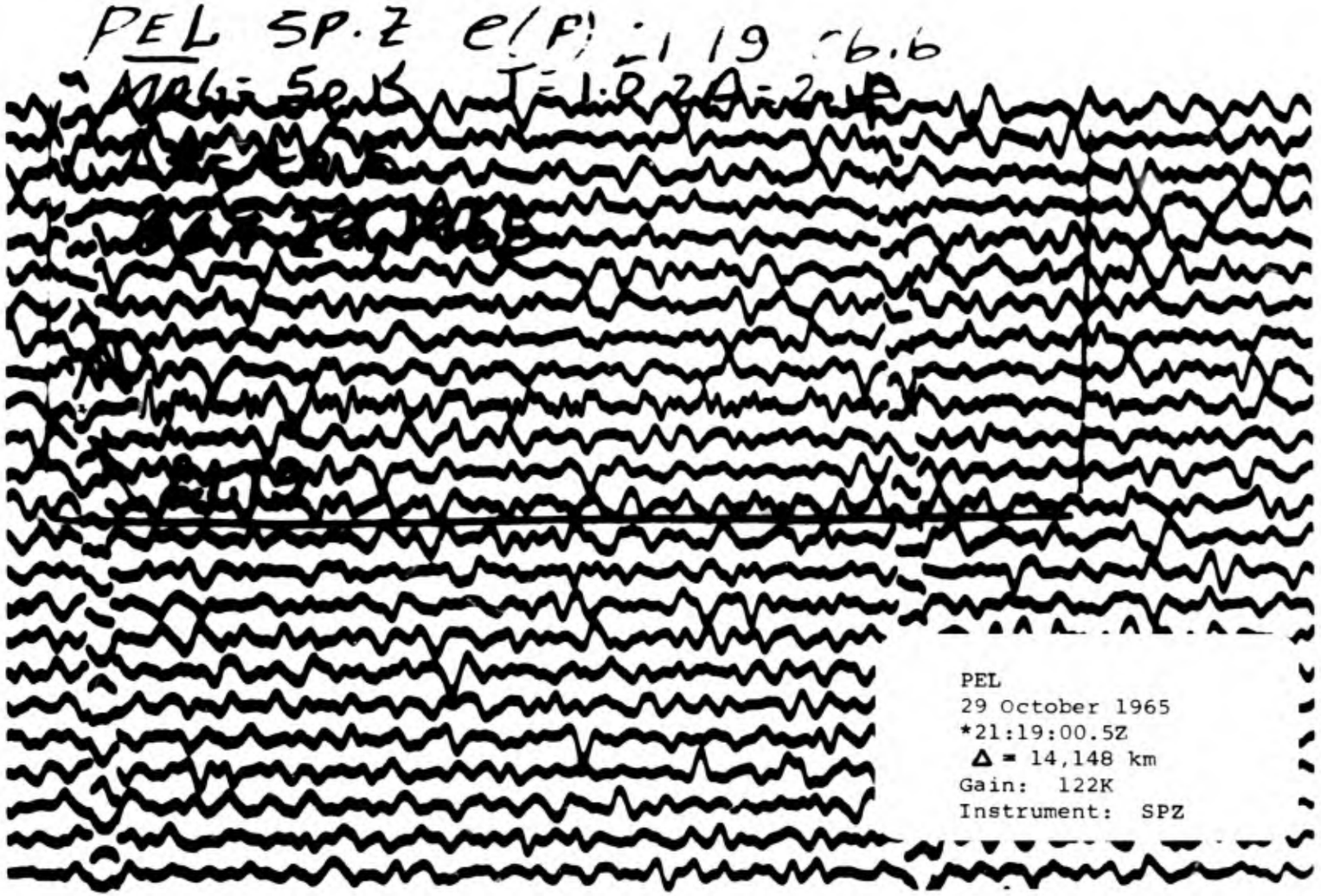
PA6
29 October 1965
*21:10:21.3Z
Δ = 5761 km.
Gain: top trace - 890K at
0.6 sec.
Instrument: SPZ

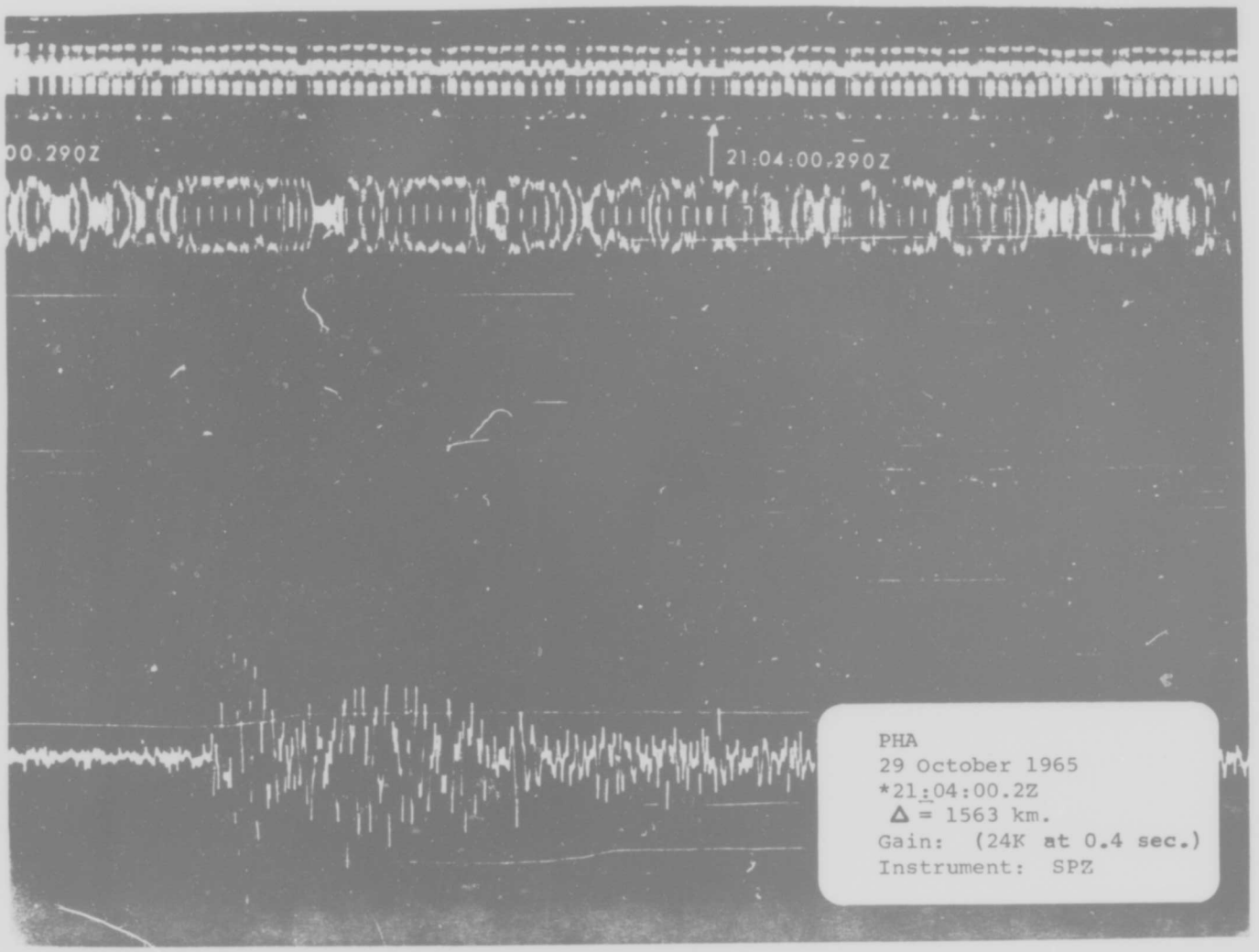

PAL
29 October 1965
*21:11:19.0Z
Δ = 7580 km
Gain: (49K)
Instrument: SPZ

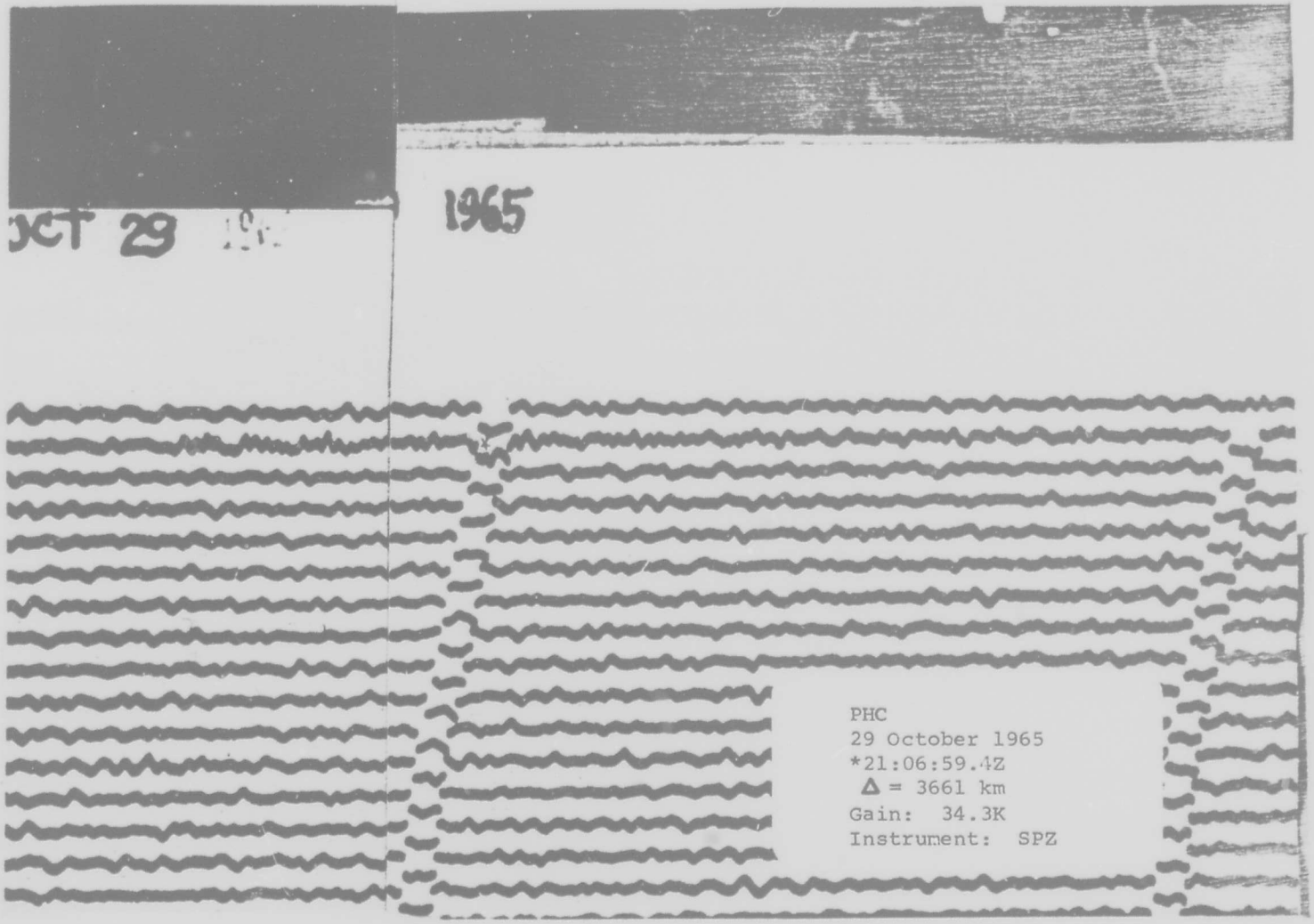

PAL
29 October 1965
*21:40:19.0Z
Δ = 7580 km.
Gain: 1.1K at 12 sec.
Instrument: LPZ

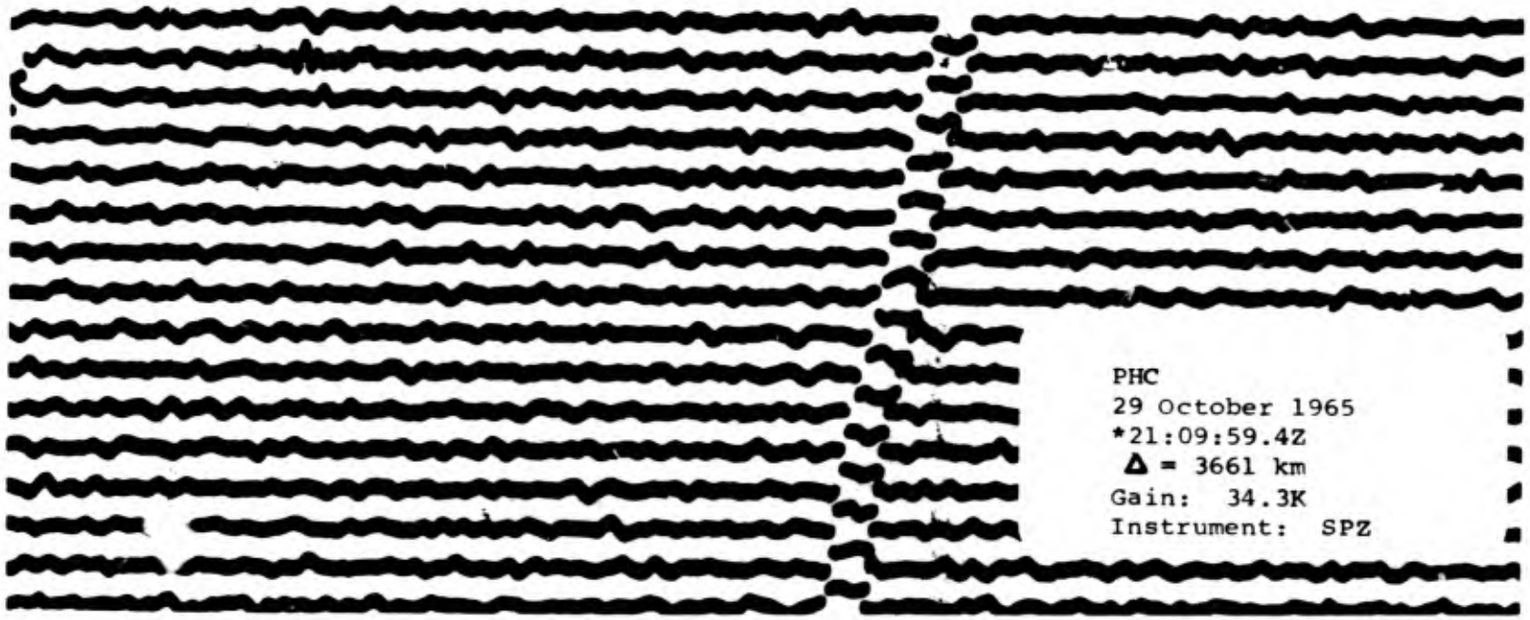

PAS
29 October 1965
*21:10:47.1Z
Δ = 5293 km
Gain: 92K at 0.8 sec.
Instrument: SPZ

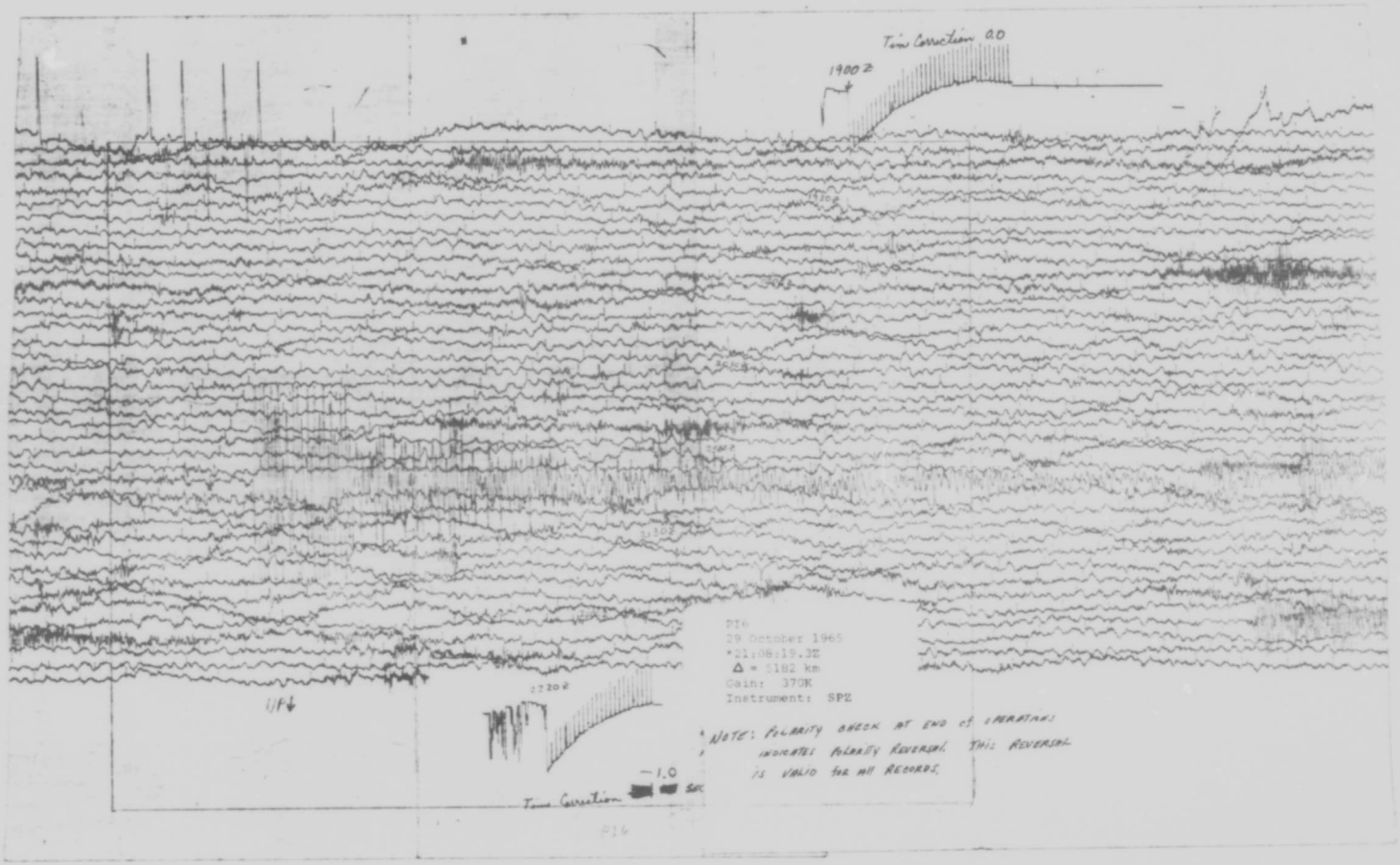

PDA
29 October 1965
*21:13:00.0Z
Δ = 9848 km
Gain: 15.3K
Instrument: SPZ

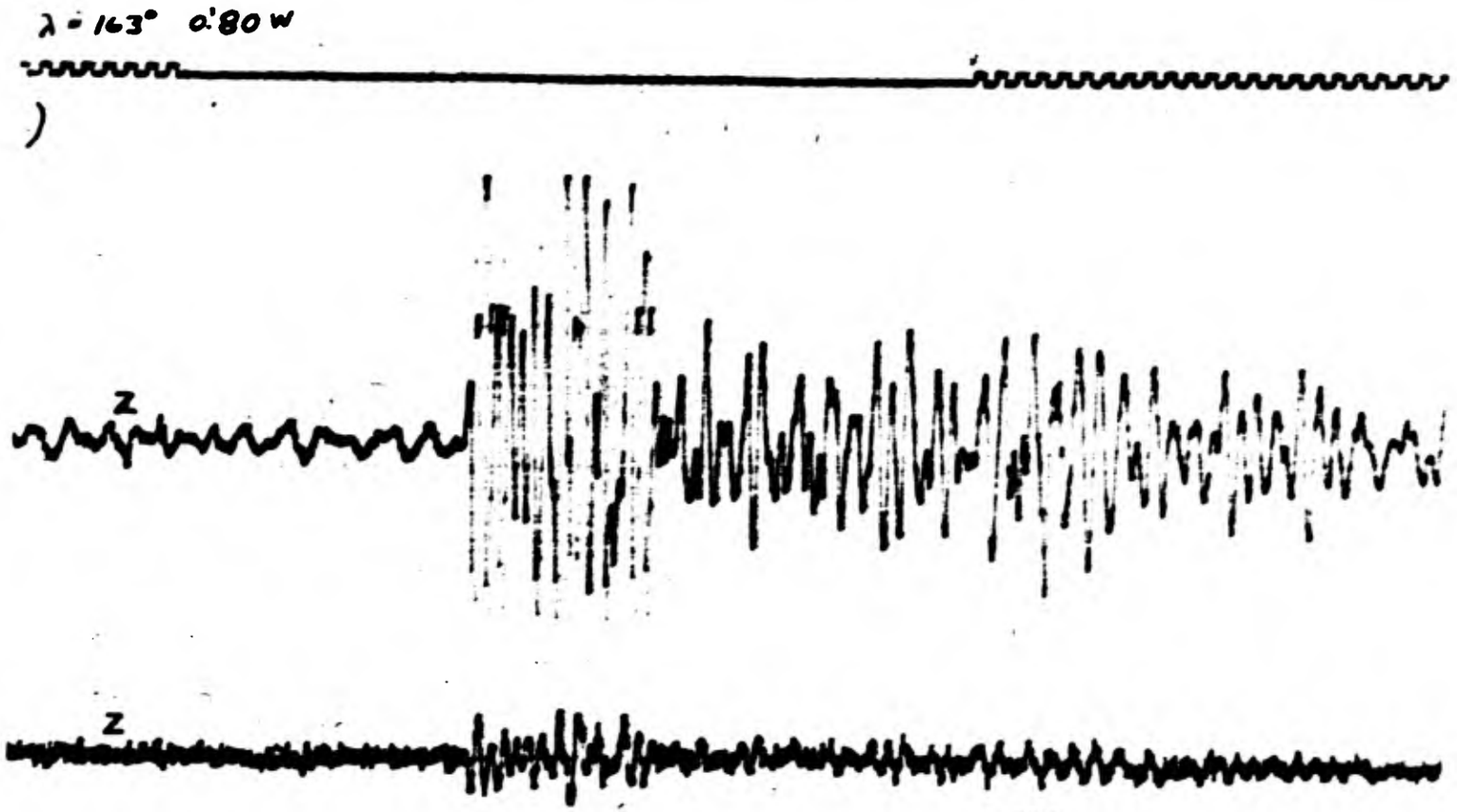

PEL SP.Z
PEL
29 October 1965
*21:19:00.5Z
Δ = 14,148 km
Gain: 122K
Instrument: SPZ


00.290Z
21:04:00.290Z
PHA
29 October 1965
*21:04:00.2Z
Δ = 1563 km.
Gain: (24K at 0.4 sec.)
Instrument: SPZ

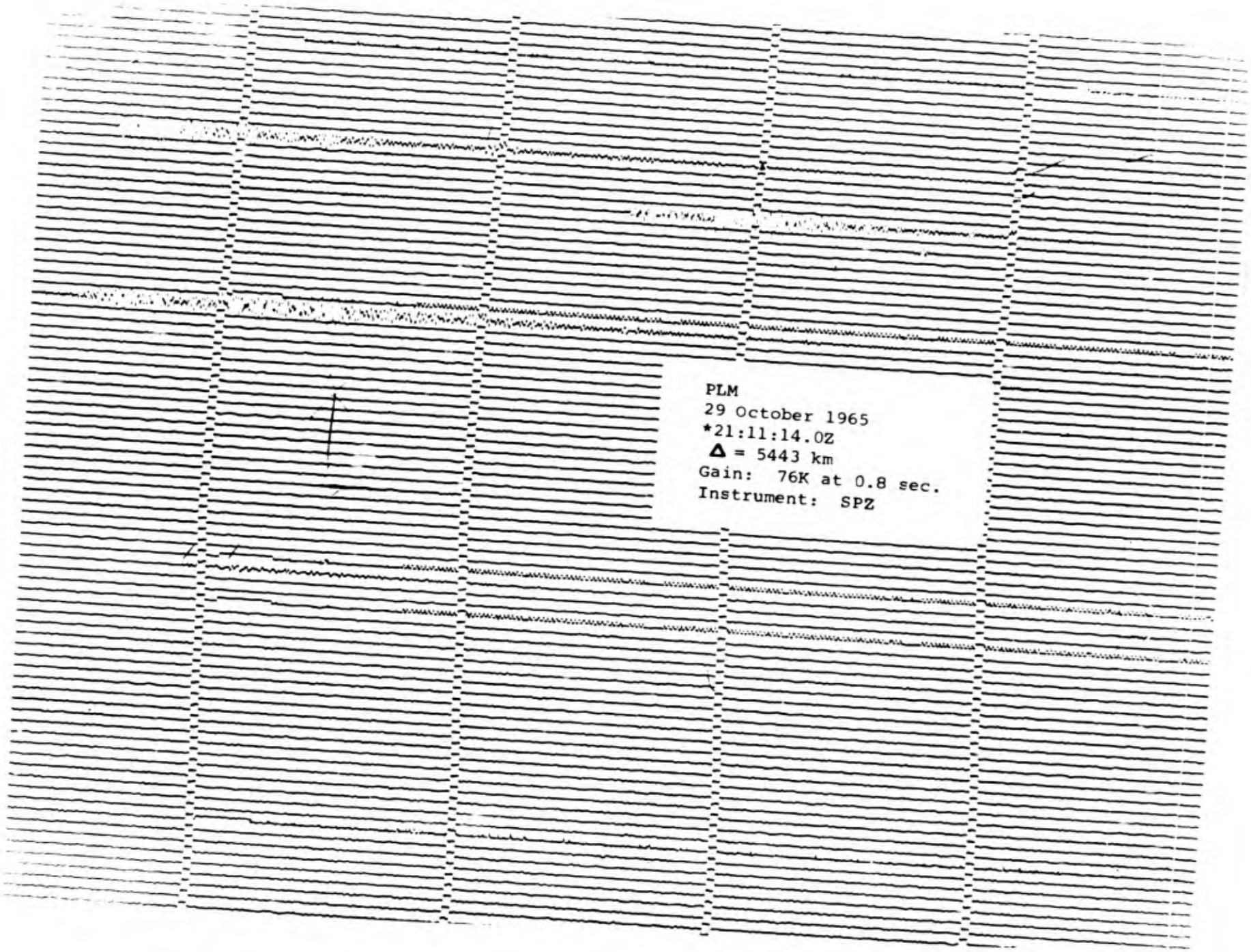

1965
PHC
29 October 1965
*21:06:59.4Z
Δ = 3661 km
Gain: 34.3K
Instrument: SPZ

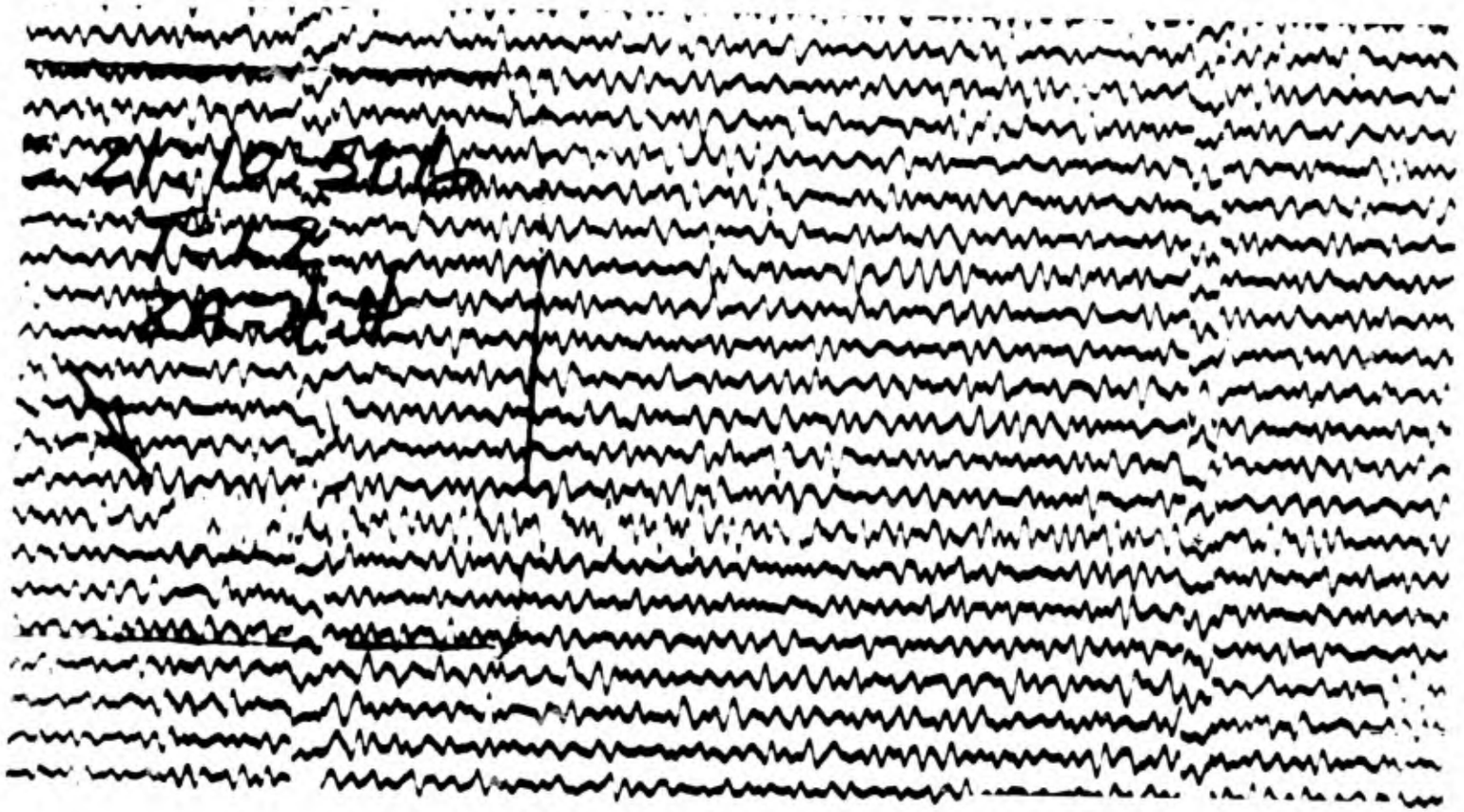

PHC
29 October 1965
*21:09:59.4Z
Δ = 3661 km
Gain: 34.3K
Instrument: SPZ


Time Correction 0.0
1900Z
PI6
29 October 1965
*21:08:19.3Z
Δ = 5182 km
Gain: 370K
Instrument: SPZ
* NOTE: POLARITY CHECK AT END OF CALIBRATION INDICATES POLARITY REVERSAL. THIS REVERSAL IS VALID FOR ALL RECORDS.
2202
UP
-1.0
Time Correction
PI6

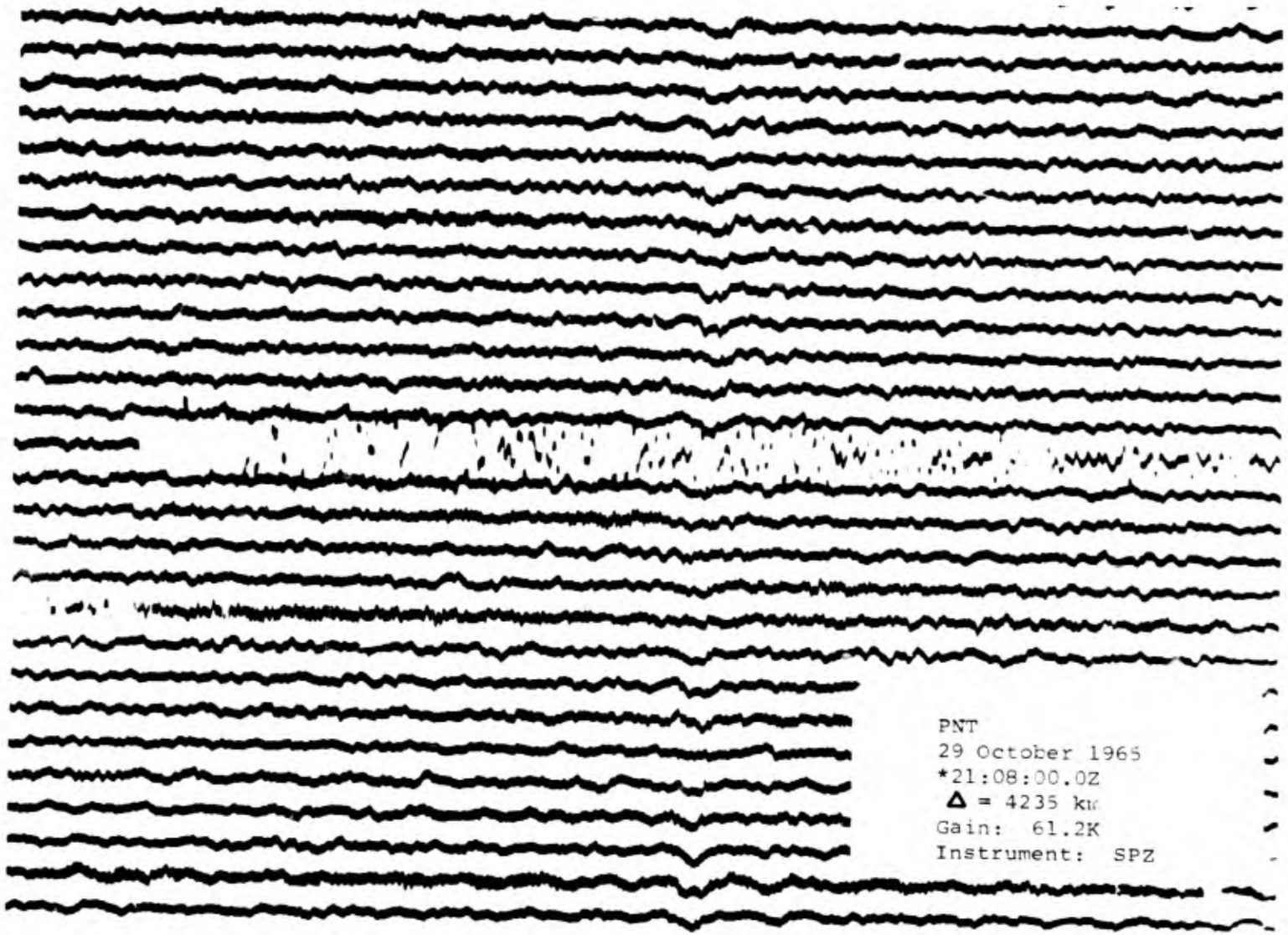


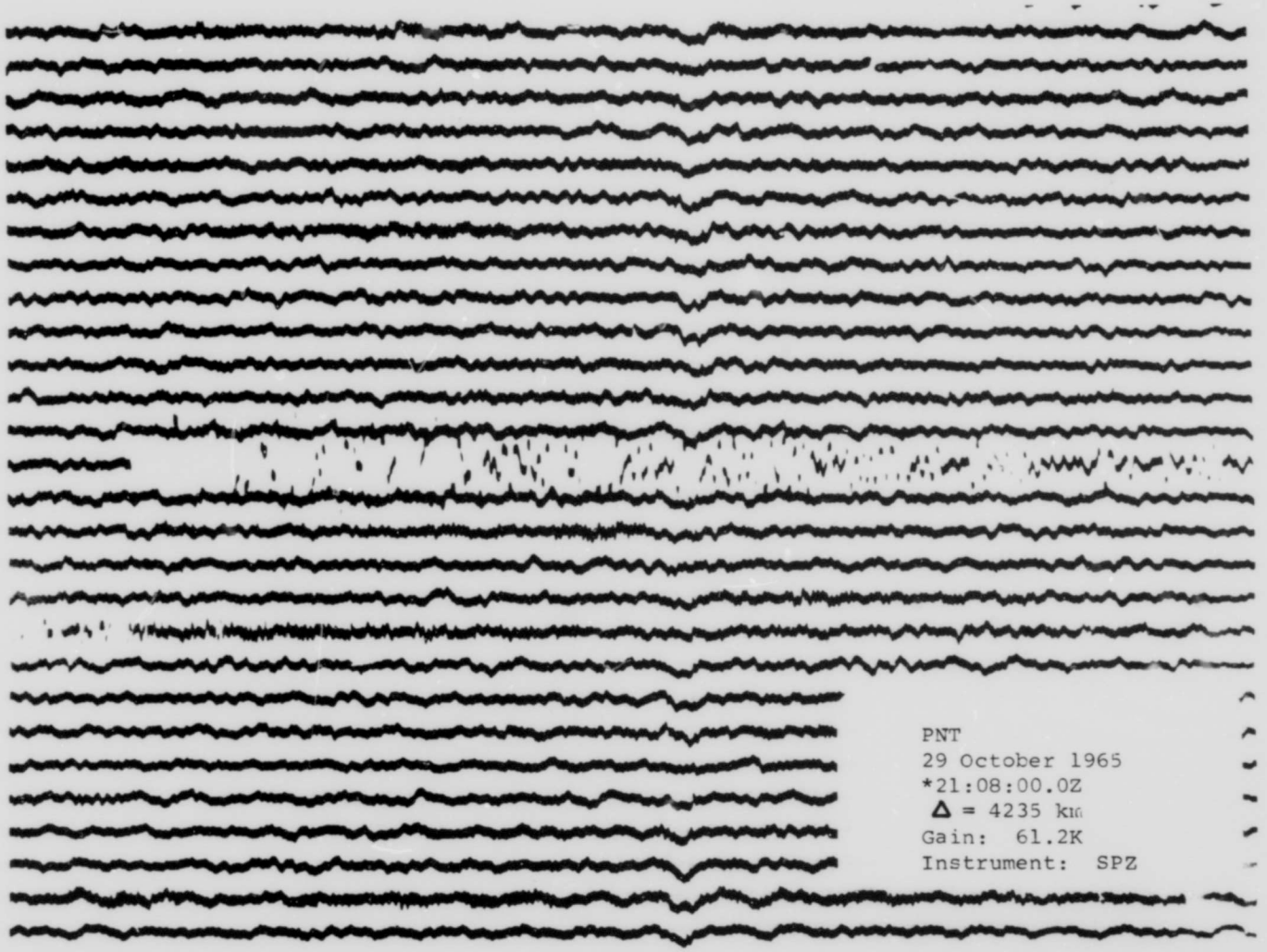
PL6
29 October 1965
*21:05:00.5Z
Δ = 2243 km.
Gain: bottom trace -
(13.4K at 0.6 sec.)
Instruments: SPZ

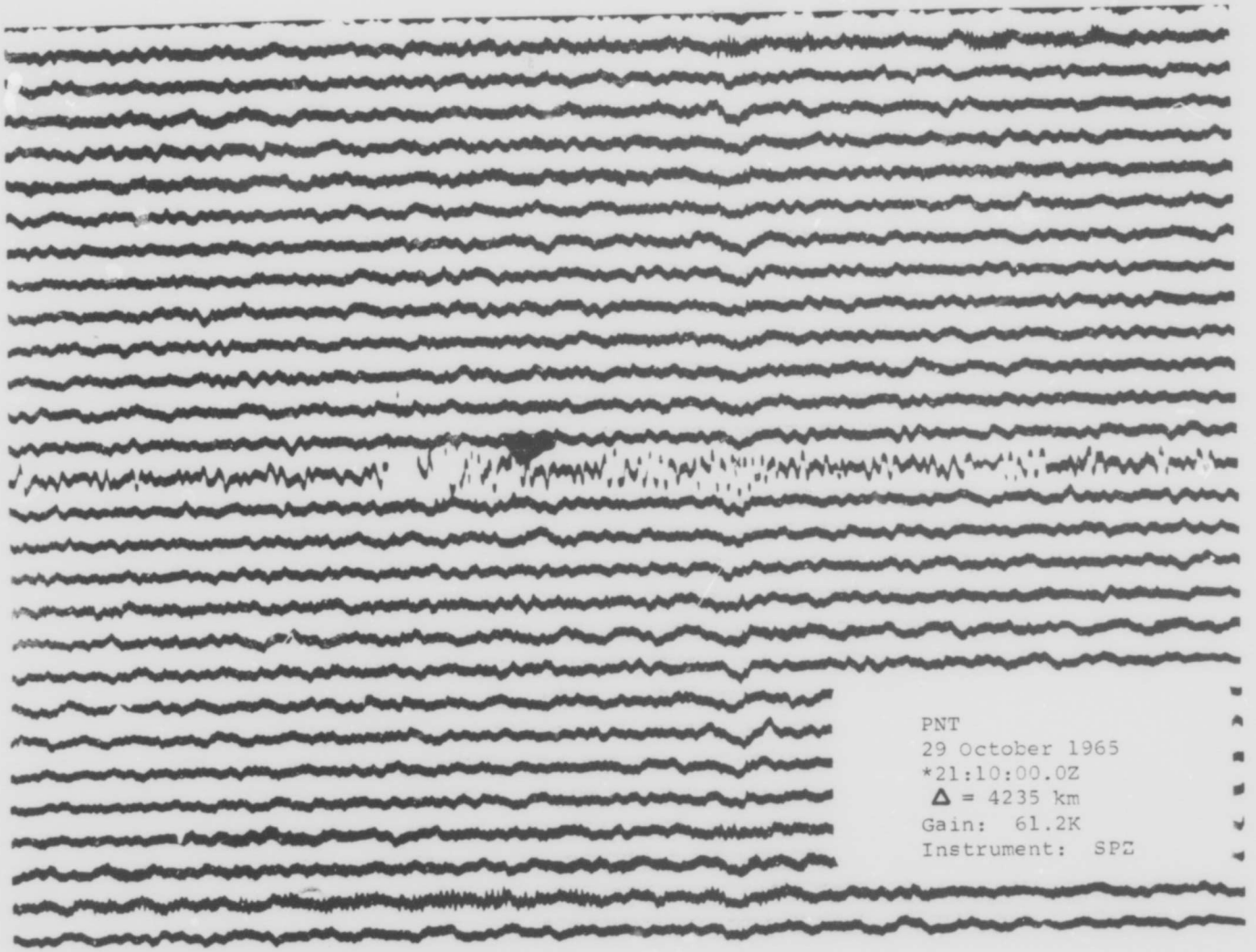

PLM
29 October 1965
*21:11:14.0Z
Δ = 5443 km
Gain: 76K at 0.8 sec.
Instrument: SPZ

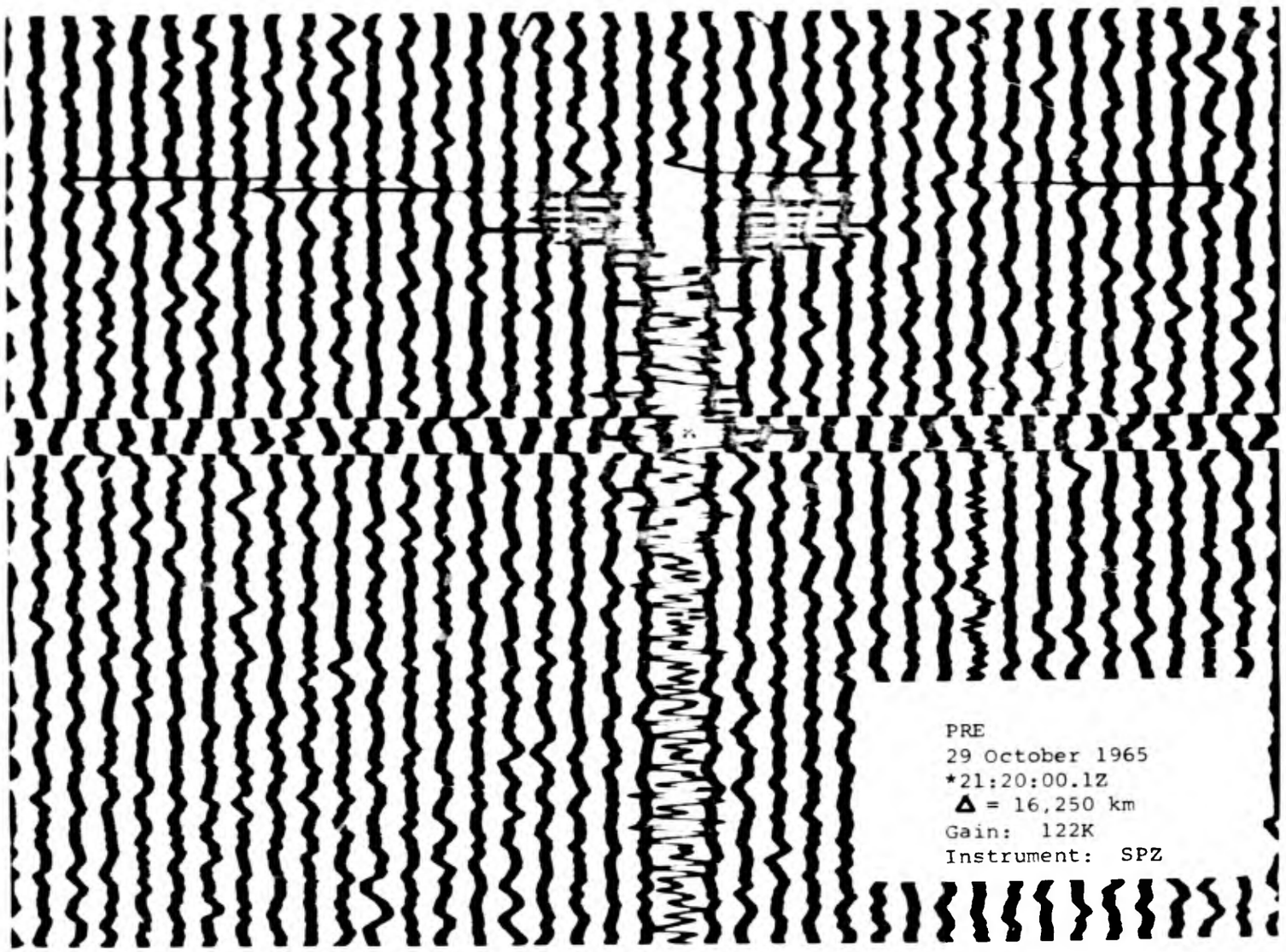


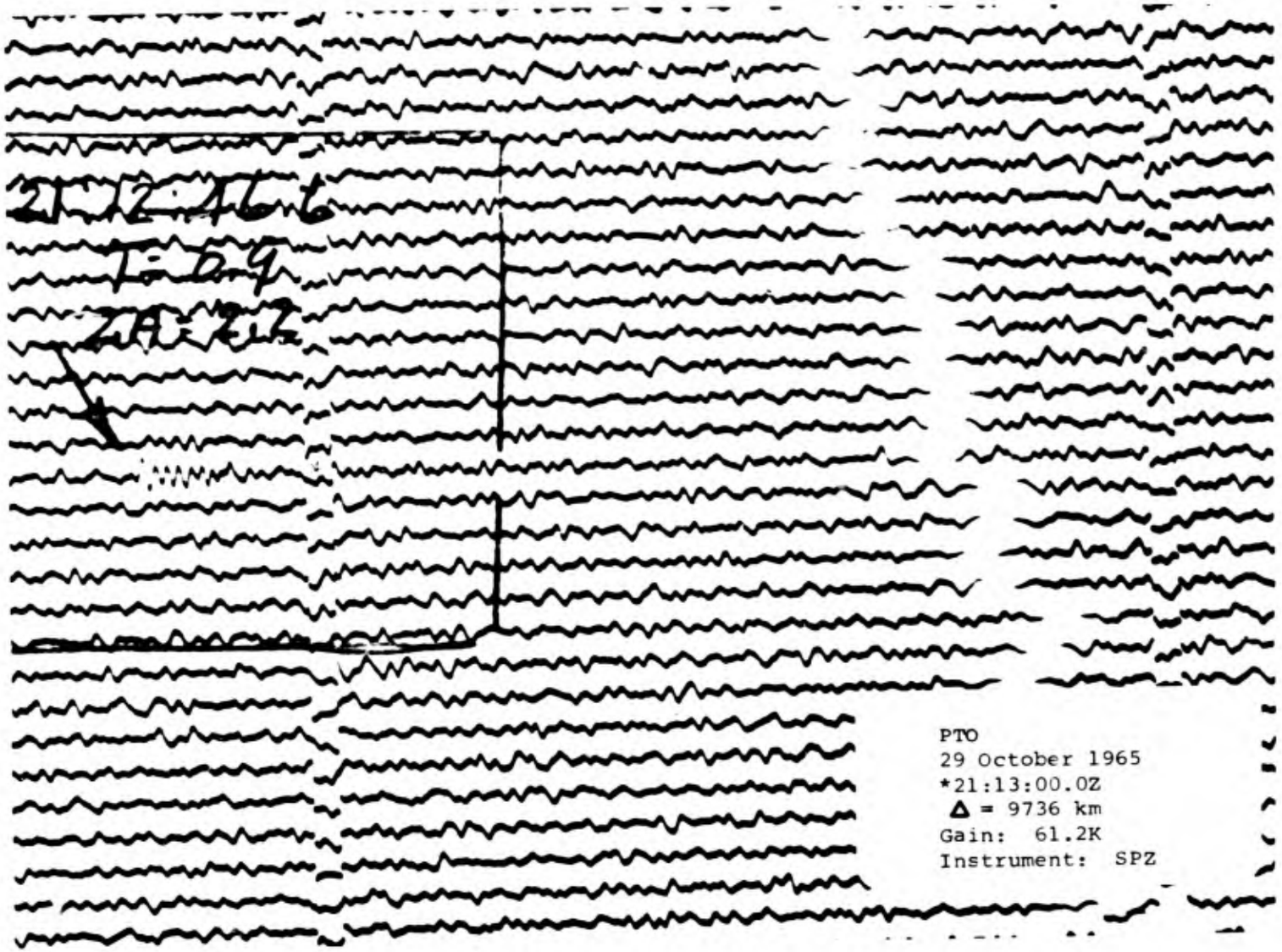
PMG
29 October 1965
*21:12:00.1Z
Δ = 7407 km
Gain: 122K
Instrument: SPZ

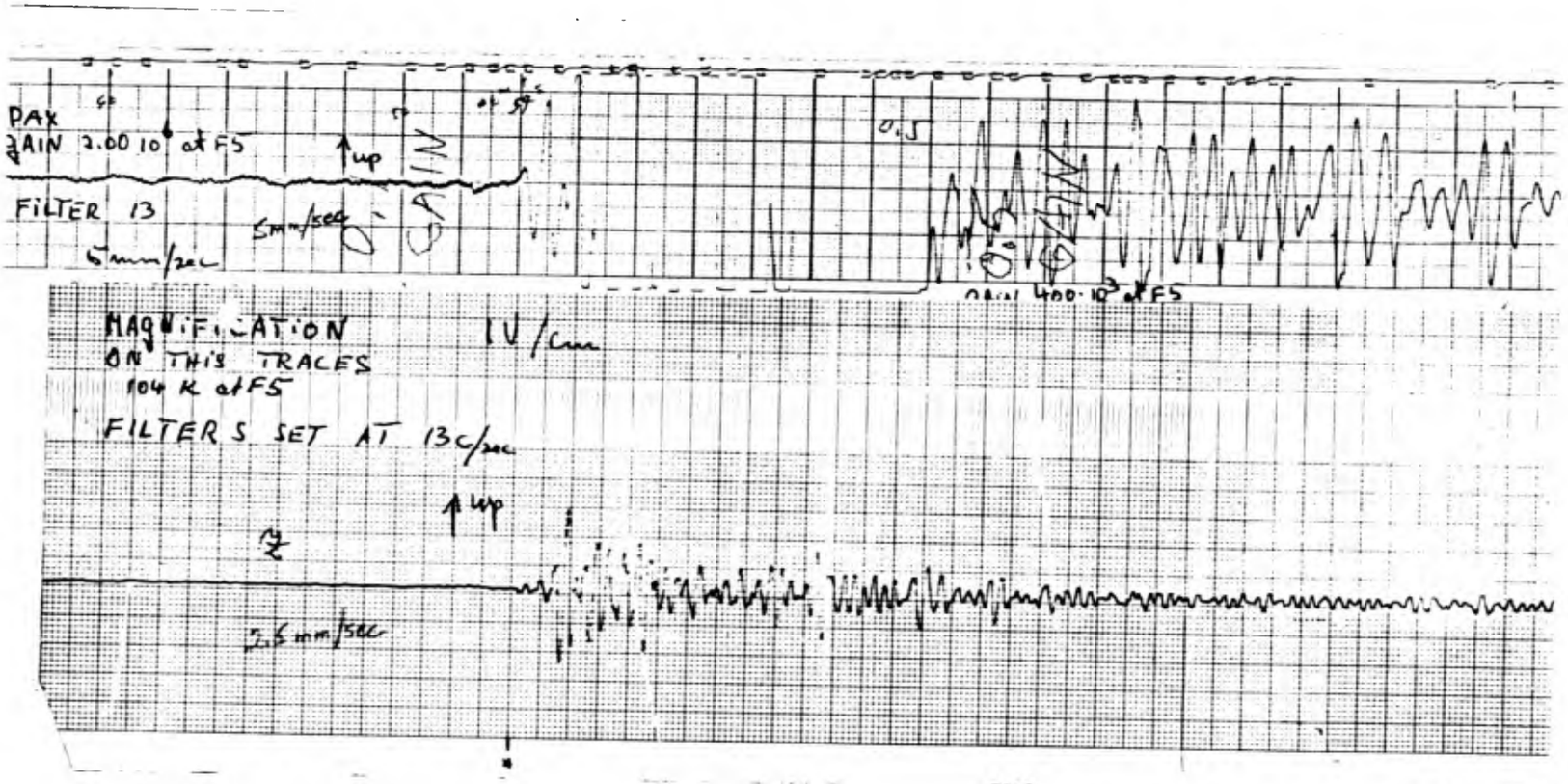

PNT
29 October 1965
*21:08:00.0Z
Δ = 4235 km
Gain: 61.2K
Instrument: SPZ


PNT
29 October 1965
*21:08:00.0Z
Δ = 4235 km
Gain: 61.2K
Instrument: SPZ

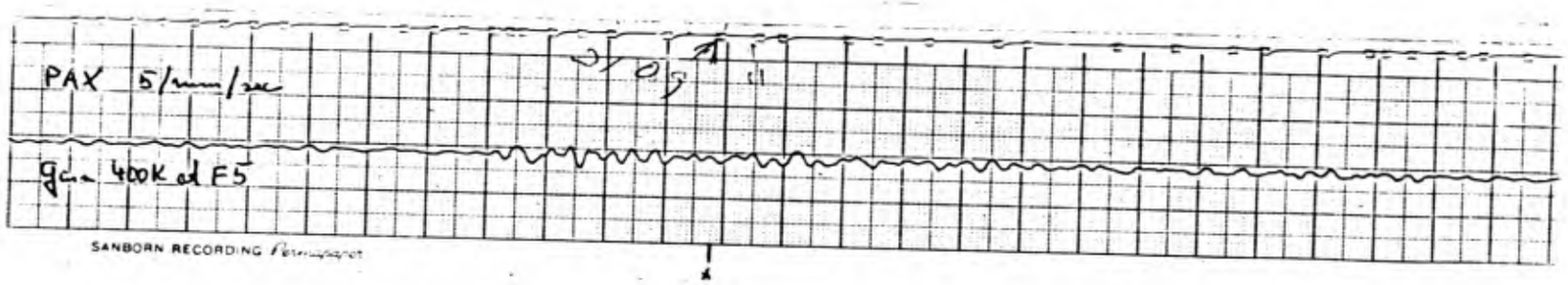

PNT
29 October 1965
*21:10:00.0Z
Δ = 4235 km
Gain: 61.2K
Instrument: SPZ


PRE
29 October 1965
*21:20:00.1Z
Δ = 16,250 km
Gain: 122K
Instrument: SPZ

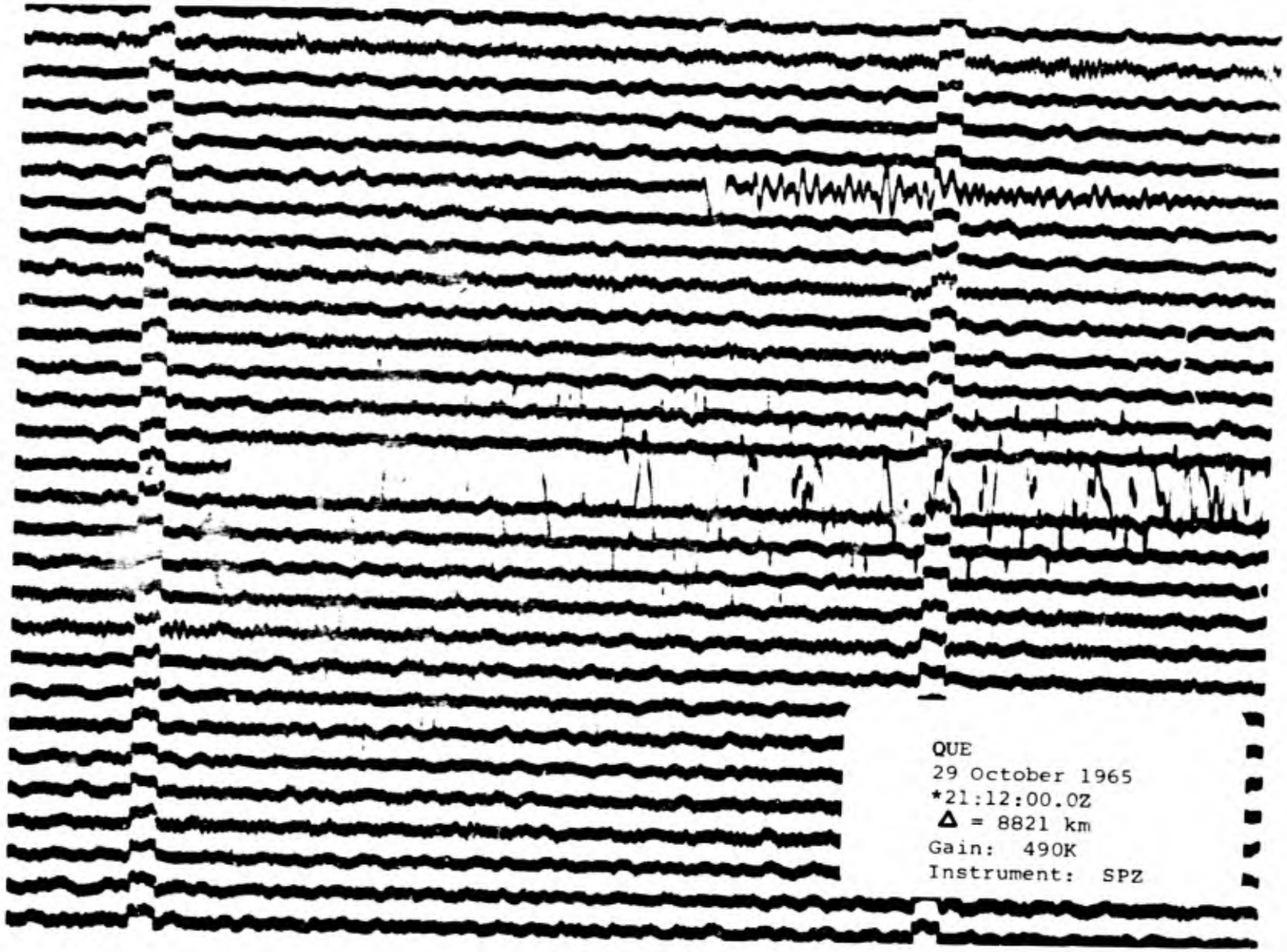

PTO
29 October 1965
*21:13:00.0Z
Δ = 9736 km
Gain: 61.2K
Instrument: SPZ

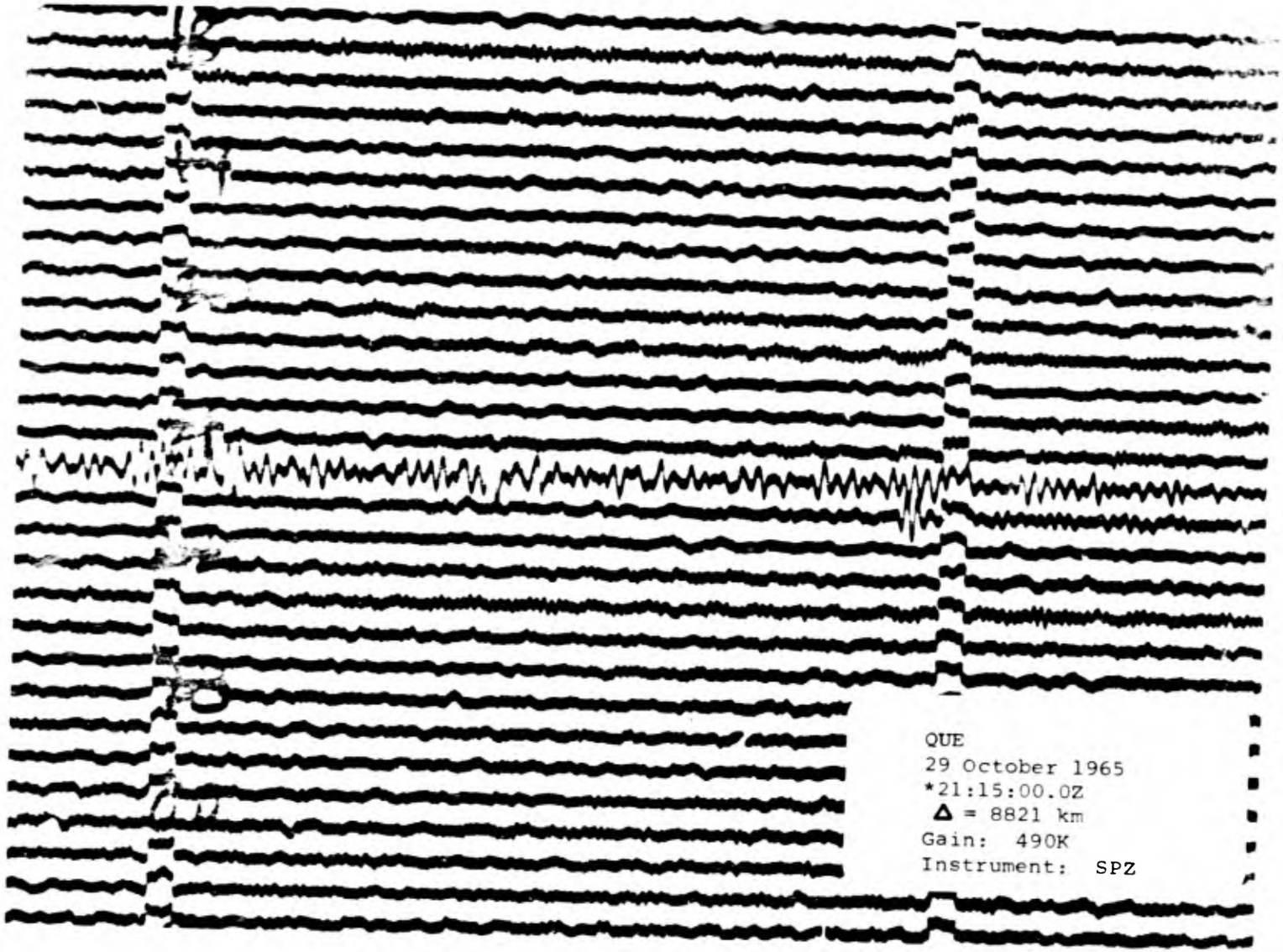


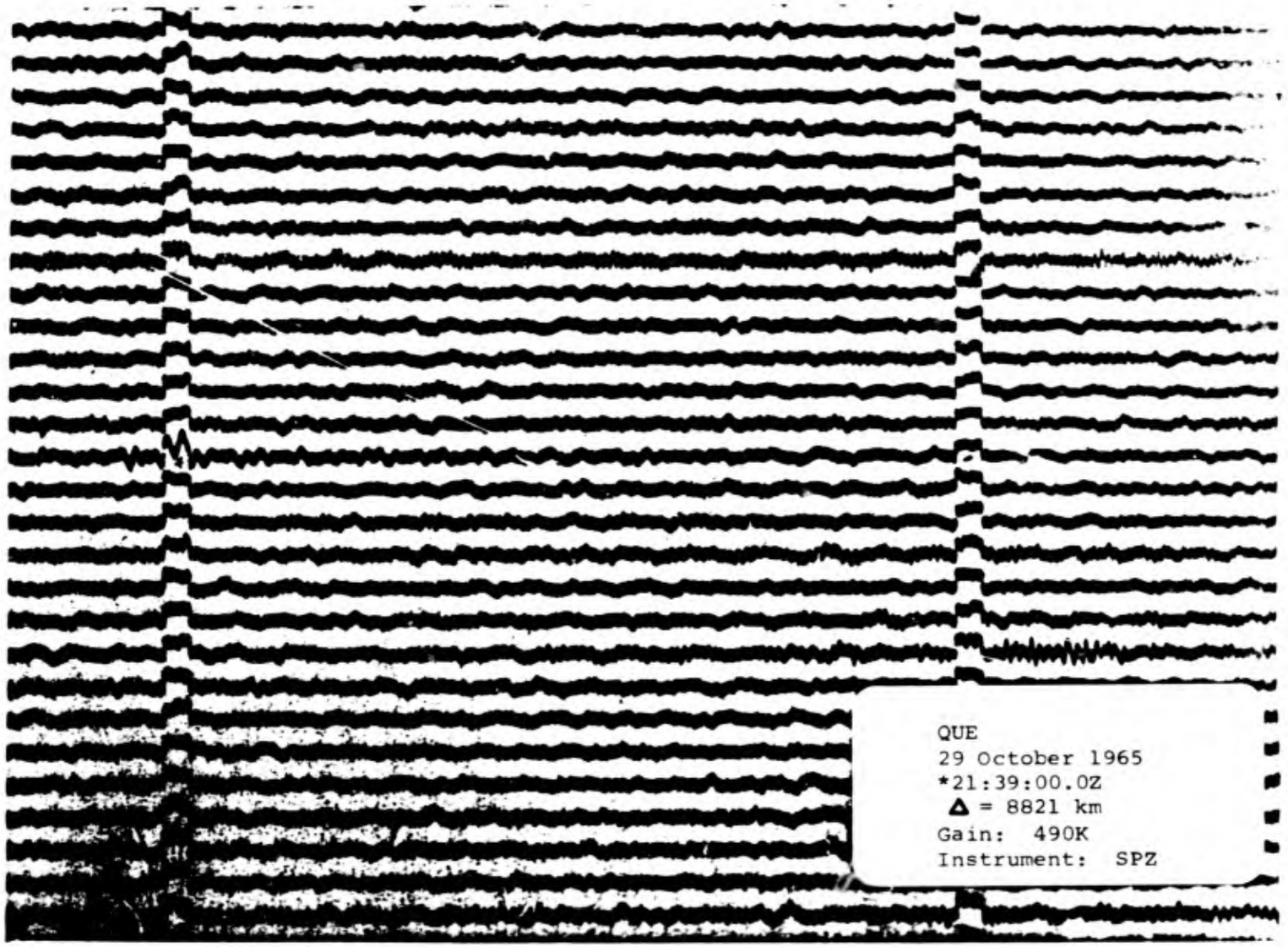
PX6
29 October 1965
*21:04:53.9Z
= 2449 km
Gain: top trace-481K at 0.8 sec., bottom trace-25K at 0.8 sec.
Instrument: SPZ

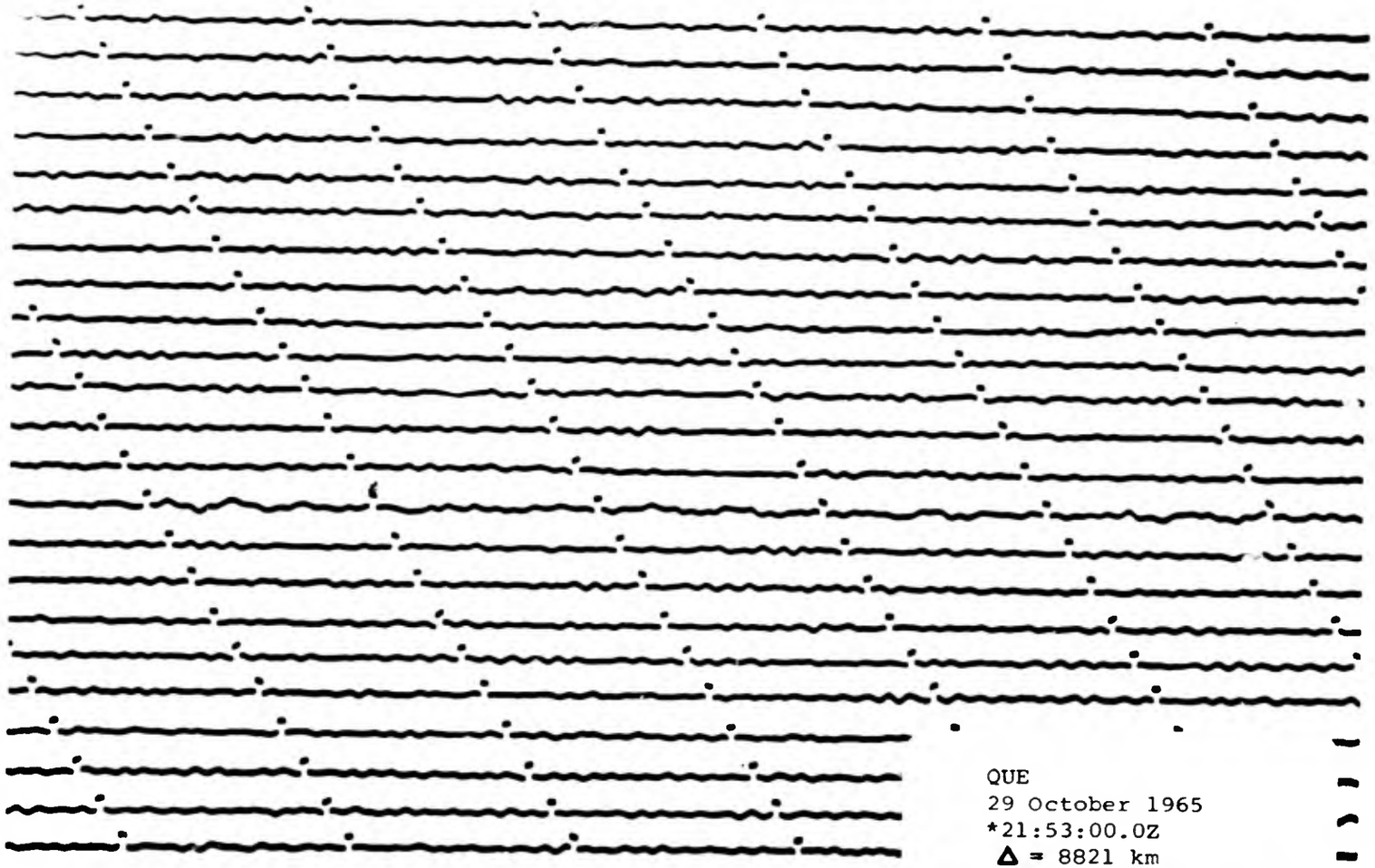


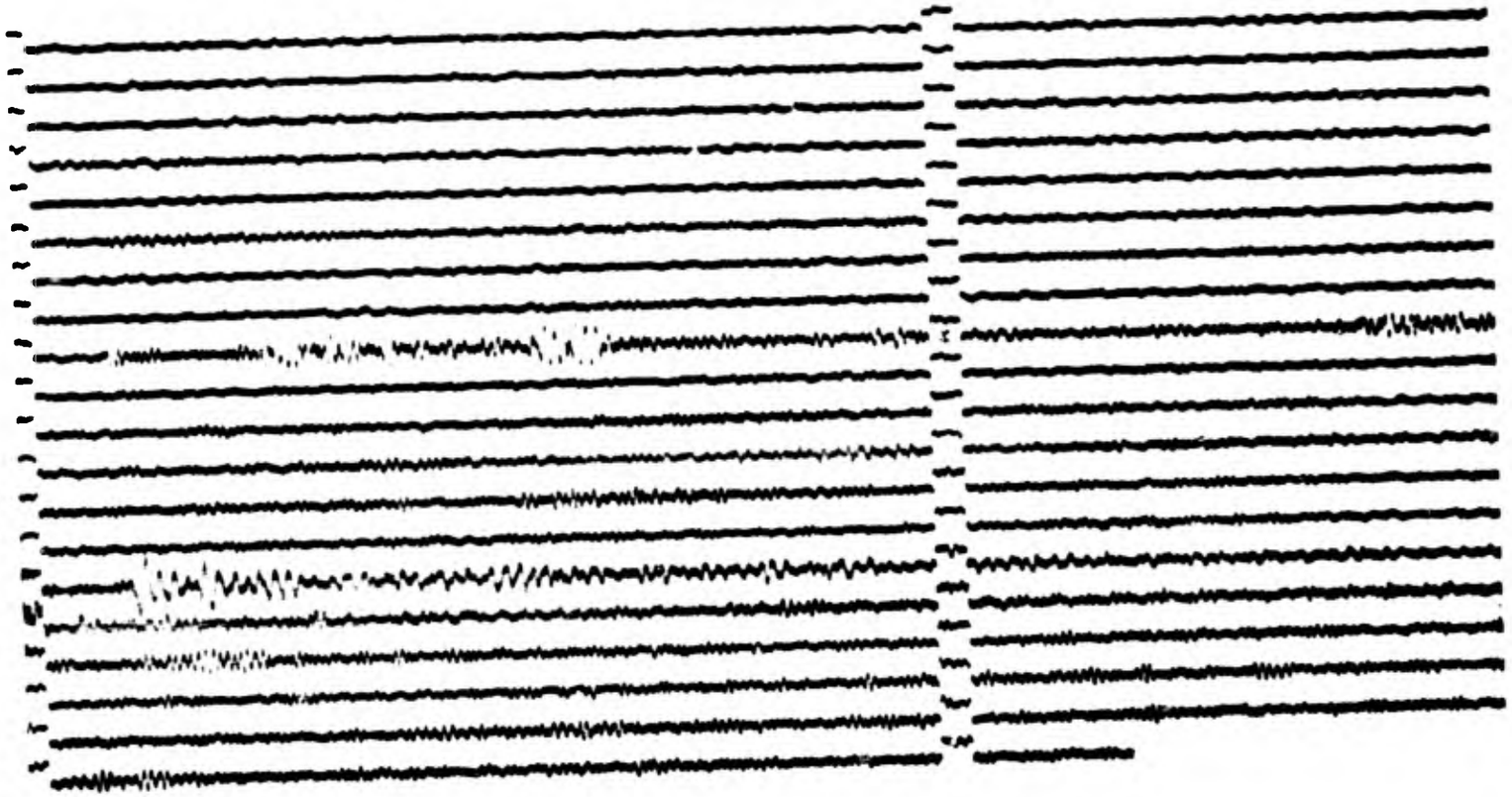
PX6
29 October 1965
*21:09:00.0Z
Δ = 2449 km
Gain: 71.4K at 0.9 sec.
Instrument: SPZ


QUE
29 October 1965
*21:12:00.0Z
Δ = 8821 km
Gain: 490K
Instrument: SPZ

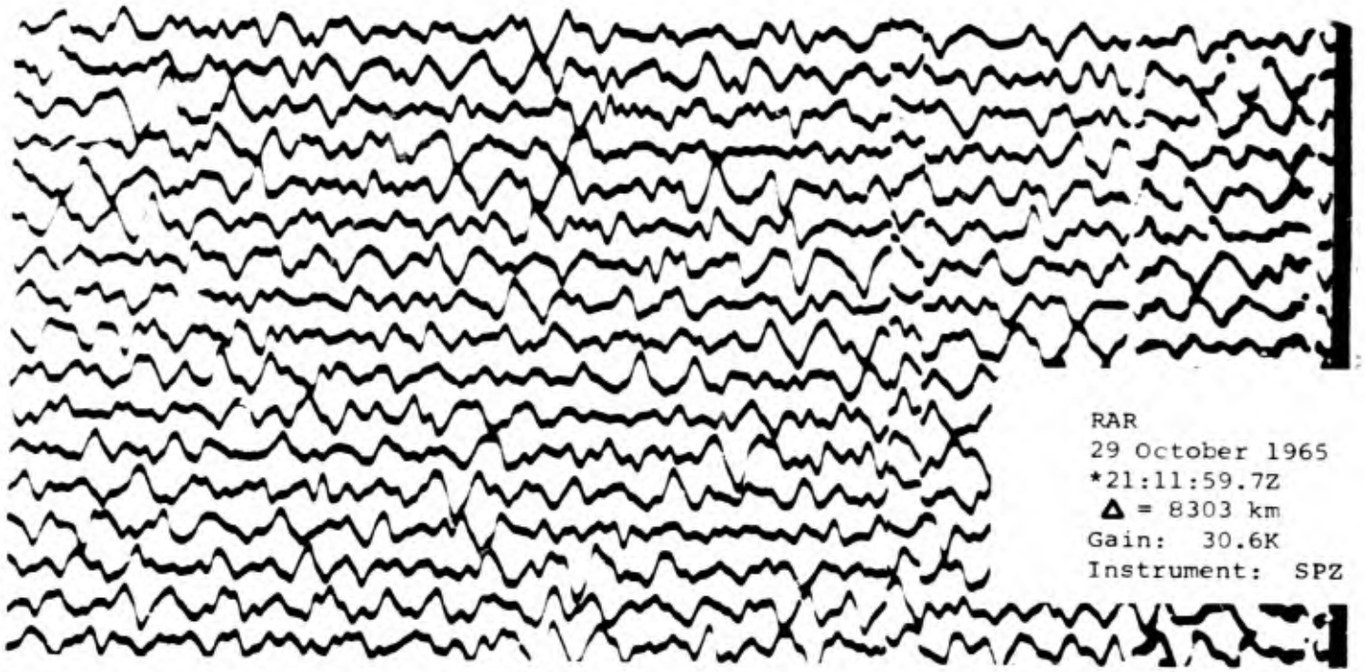

QUE
29 October 1965
*21:15:00.0Z
Δ = 8821 km
Gain: 490K
Instrument: SPZ

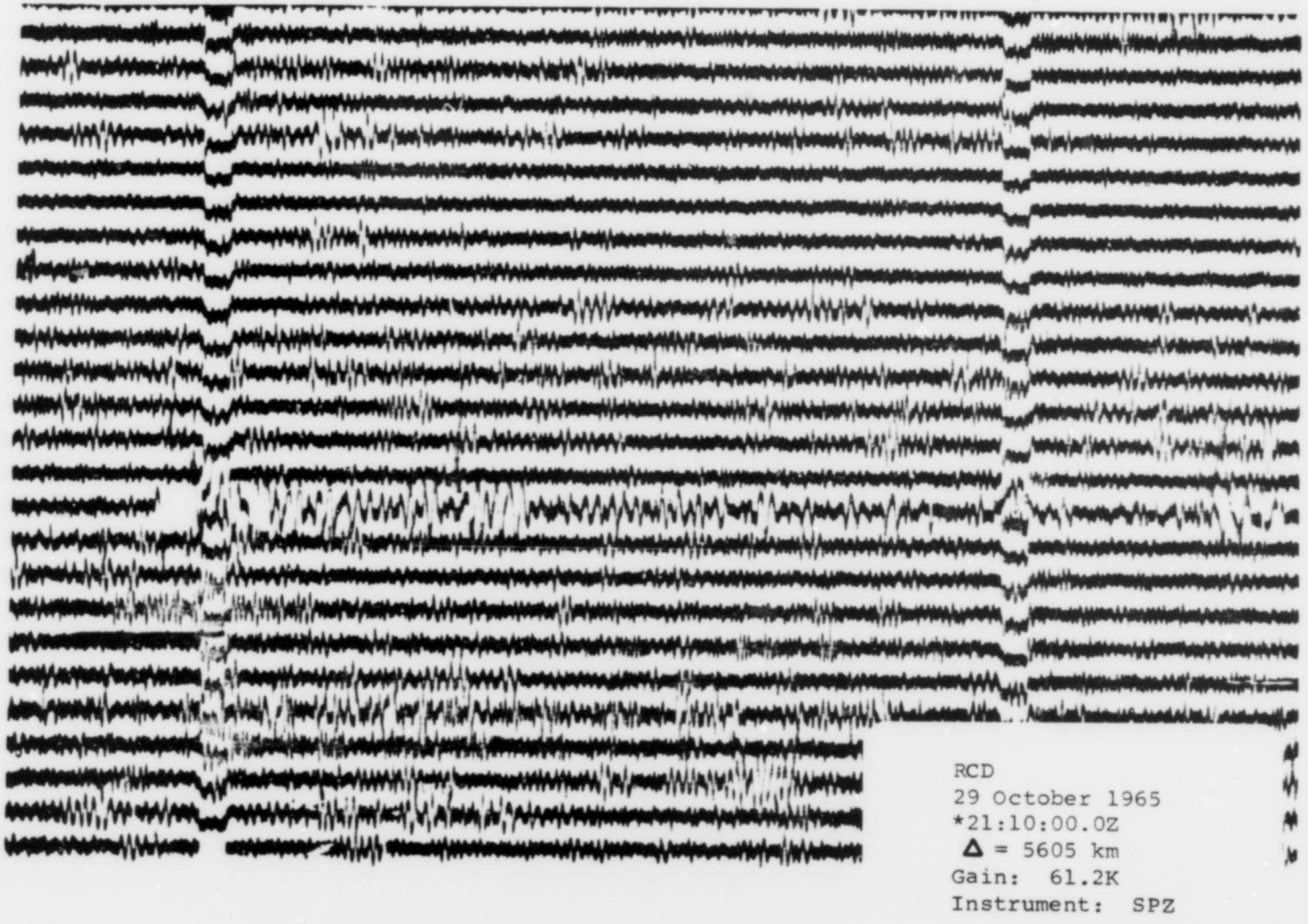

QUE
29 October 1965
*21:39:00.0Z
Δ = 8821 km
Gain: 490K
Instrument: SPZ

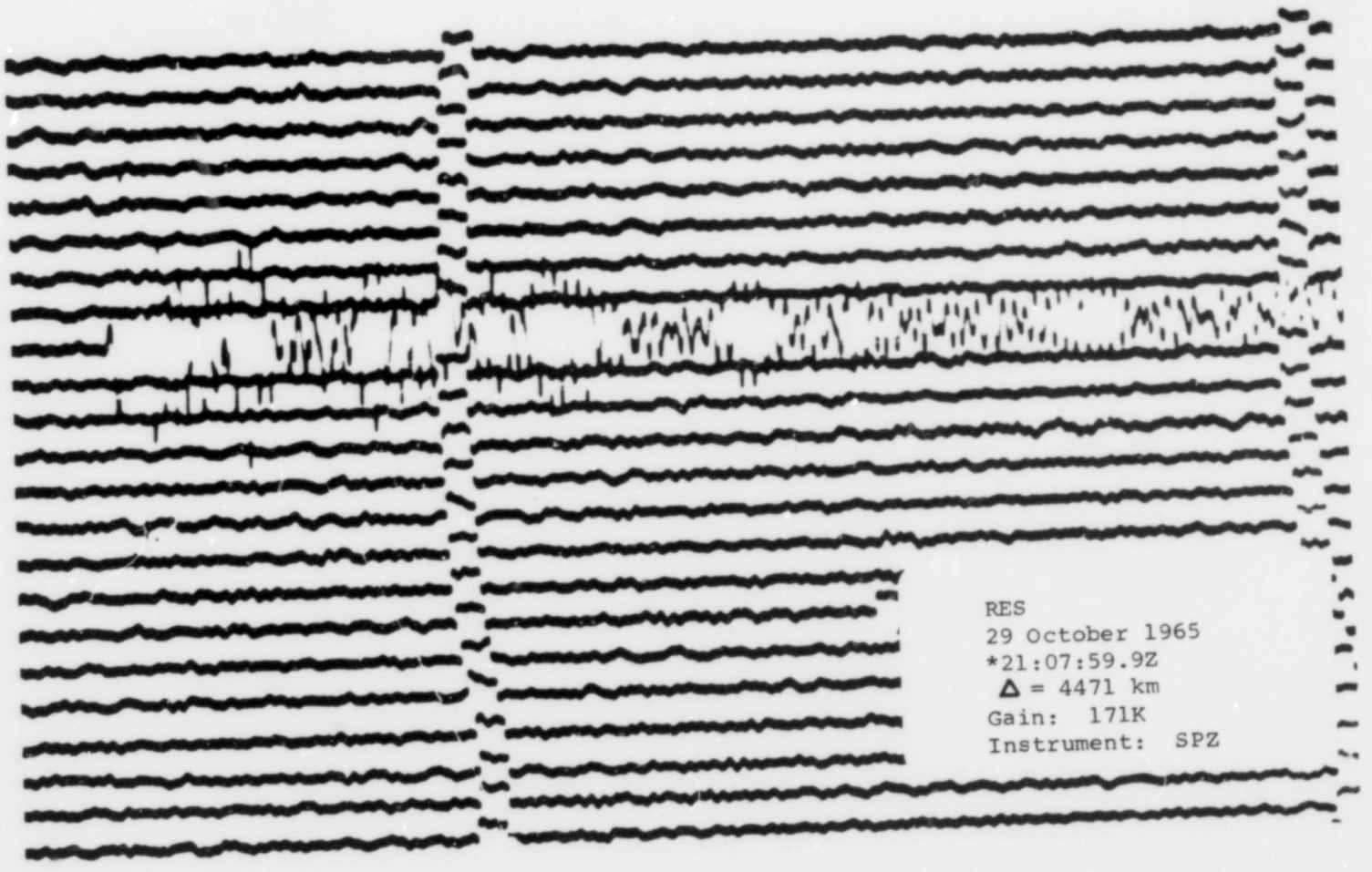

QUE
29 October 1965
*21:53:00.0Z
Δ = 8821 km
Gain: 7.3K at 17 sec.
Instrument: LPZ



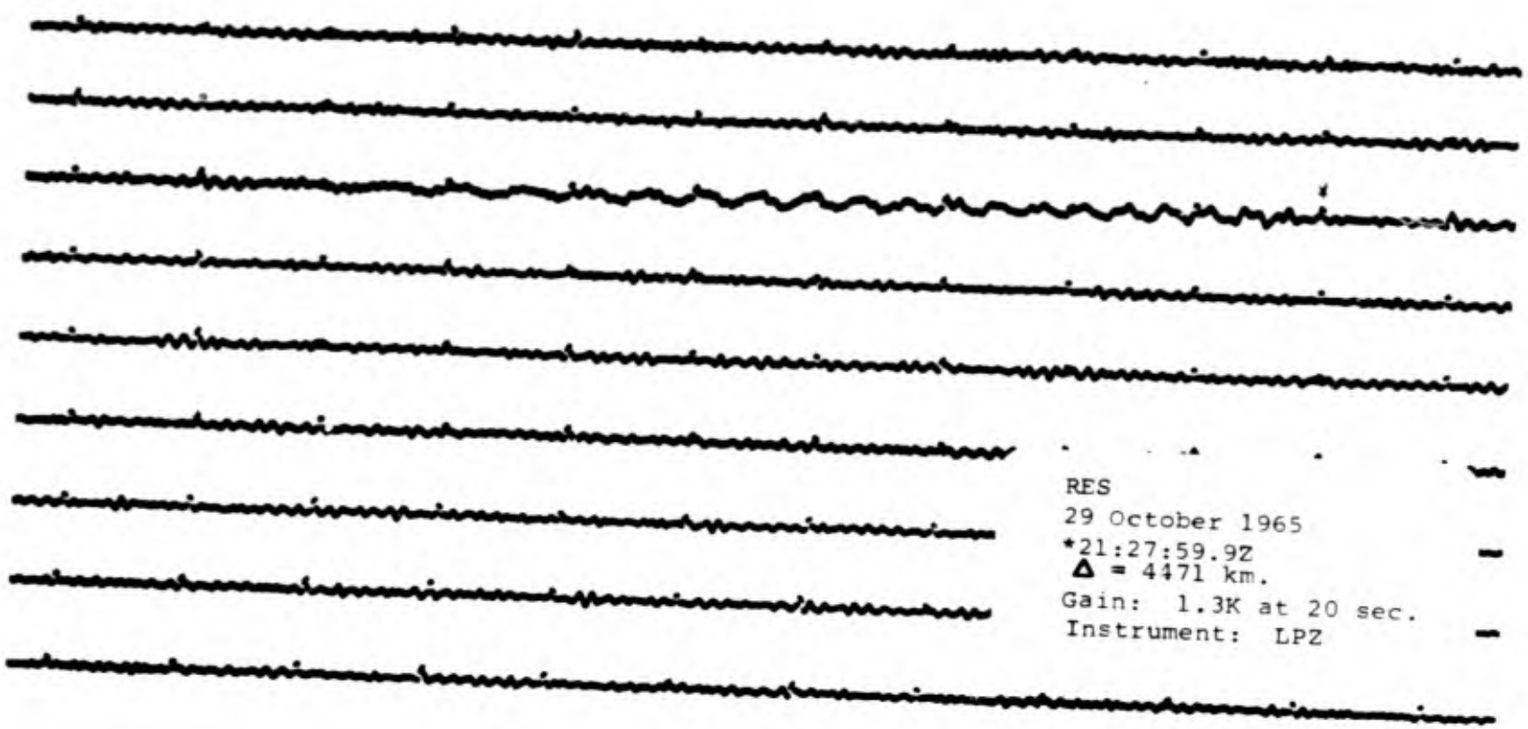
RAB
29 October 1965
*21:11:00.0Z
Δ = 6675 km
Gain: 30.6K
Instrument: SPZ

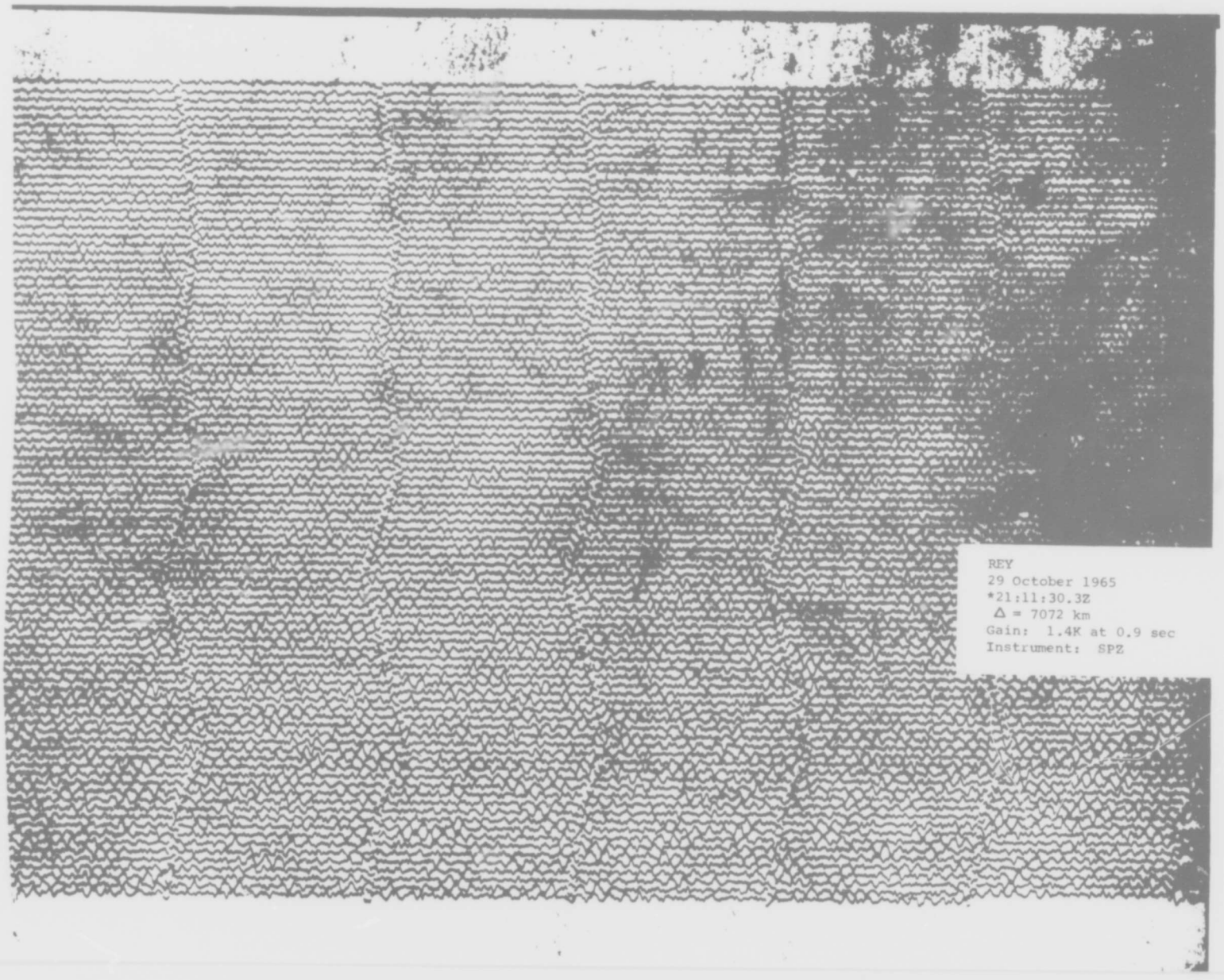

RAR
29 October 1965
*21:11:59.7Z
Δ = 8303 km
Gain: 30.6K
Instrument: SPZ

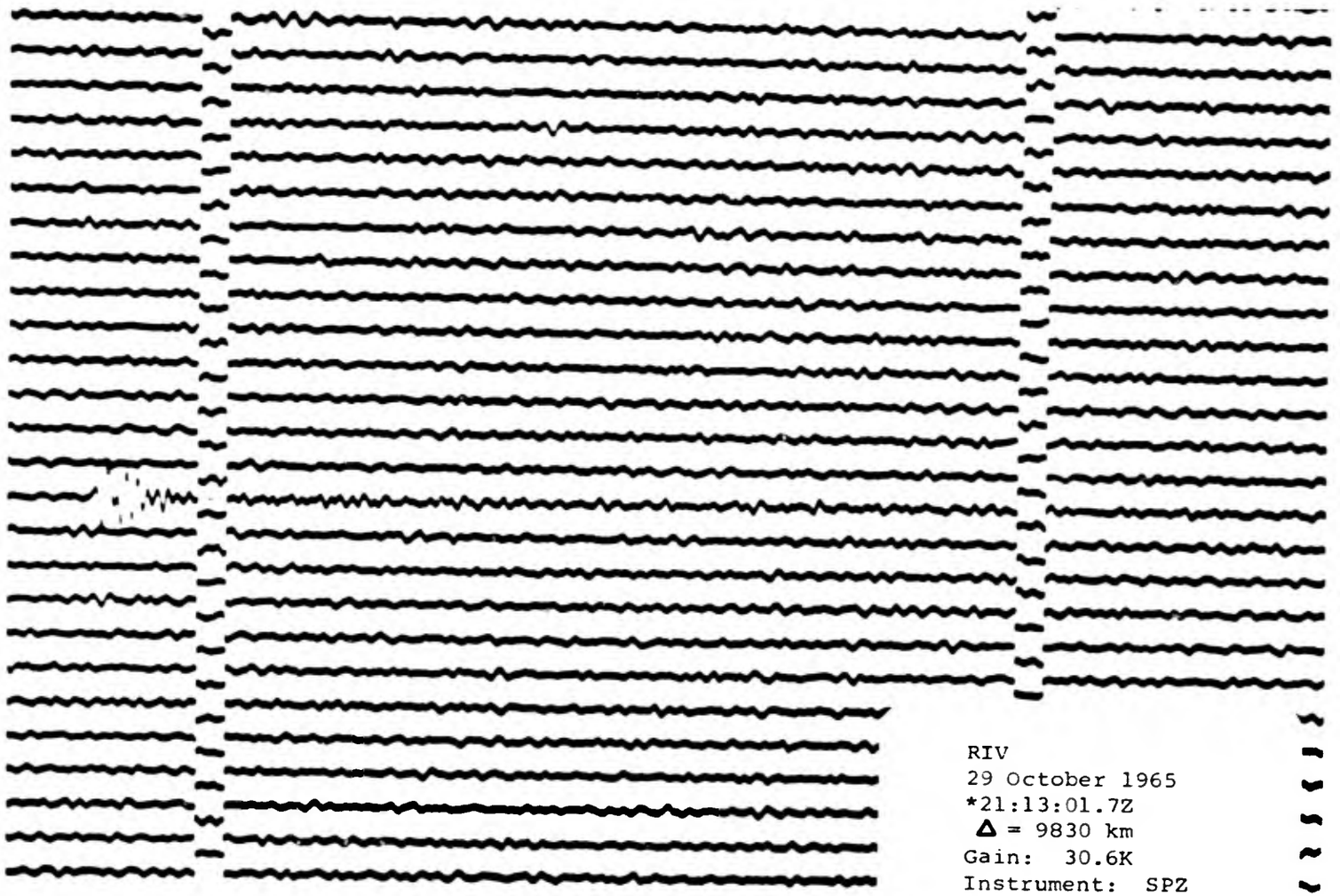

RCD
29 October 1965
*21:10:00.0Z
Δ = 5605 km
Gain: 61.2K
Instrument: SPZ

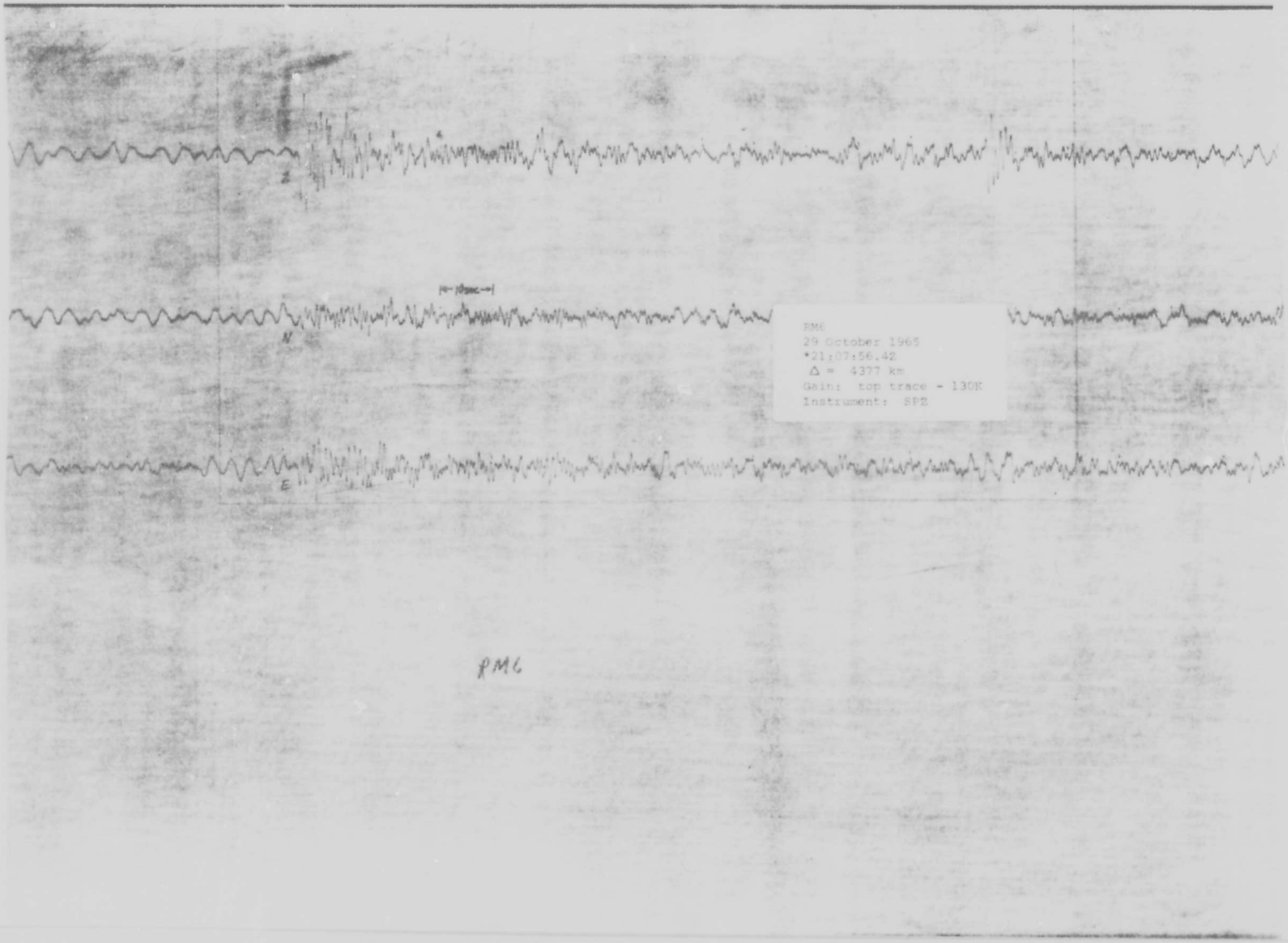

RES
29 October 1965
*21:07:59.9Z
Δ = 4471 km
Gain: 171K
Instrument: SPZ

@ 23:08:30

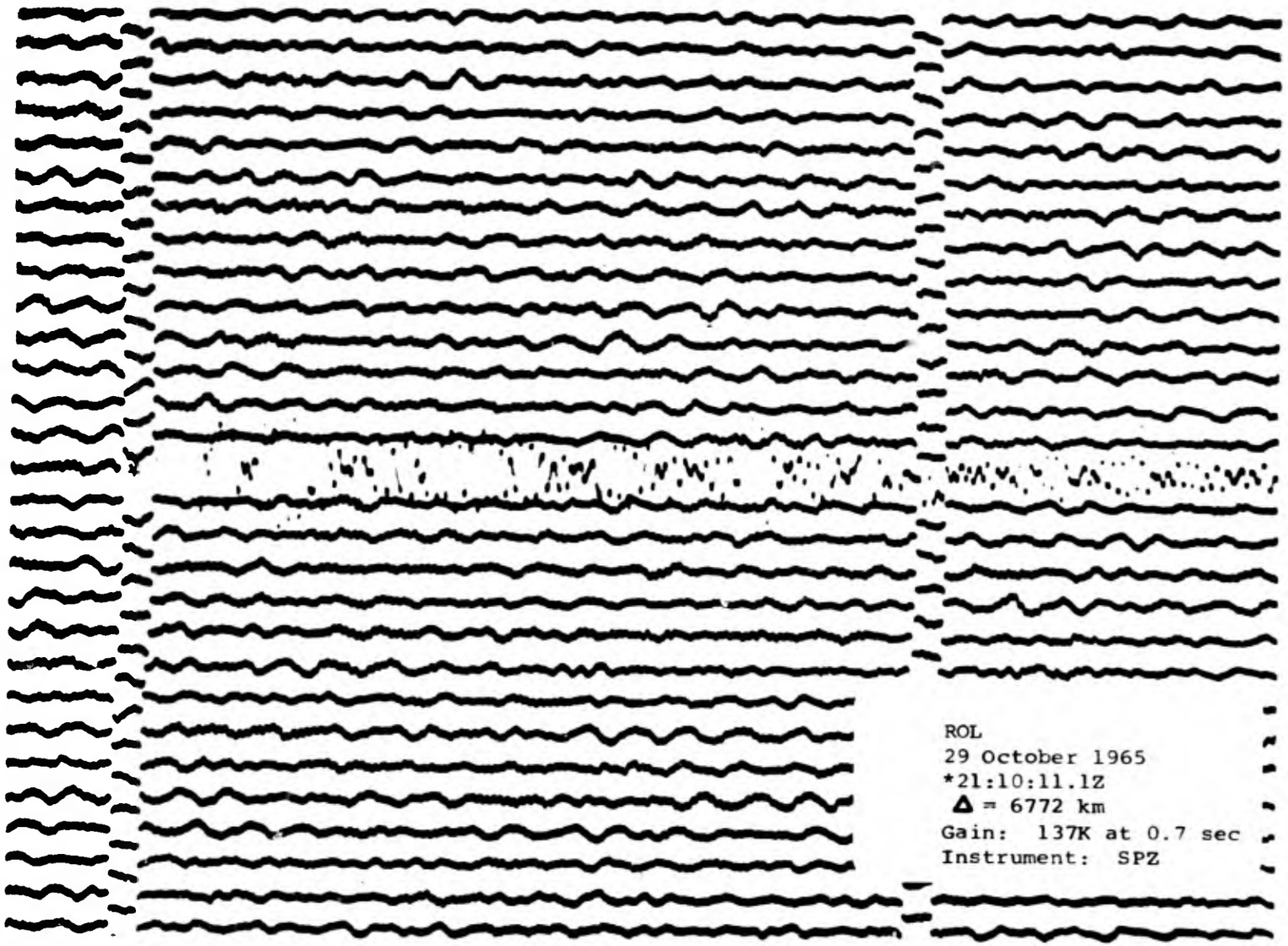

RES
29 October 1965
*21:27:59.9Z
Δ = 4471 km.
Gain: 1.3K at 20 sec.
Instrument: LPZ

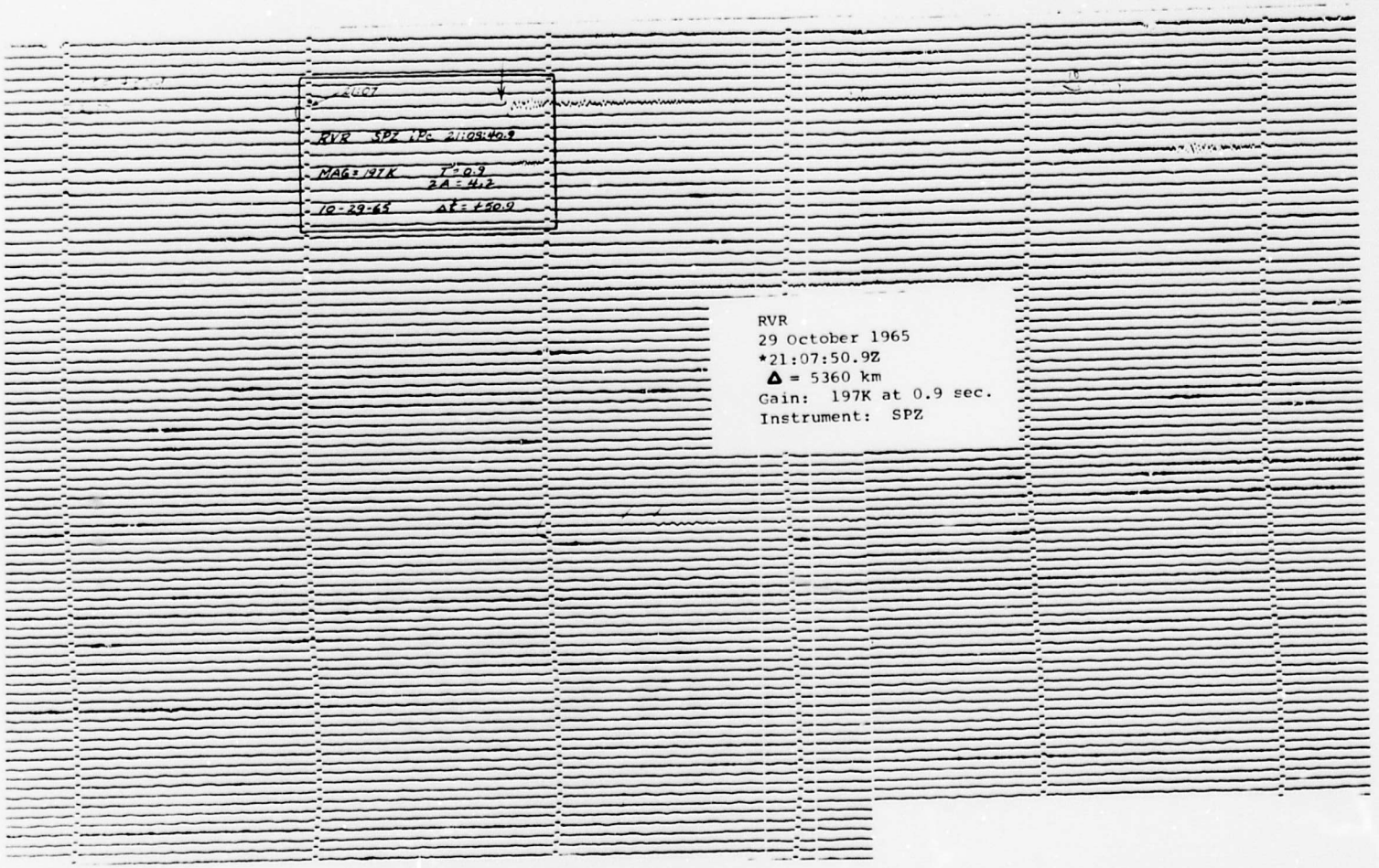

REY
29 October 1965
*21:11:30.3Z
Δ = 7072 km
Gain: 1.4K at 0.9 sec
Instrument: SPZ

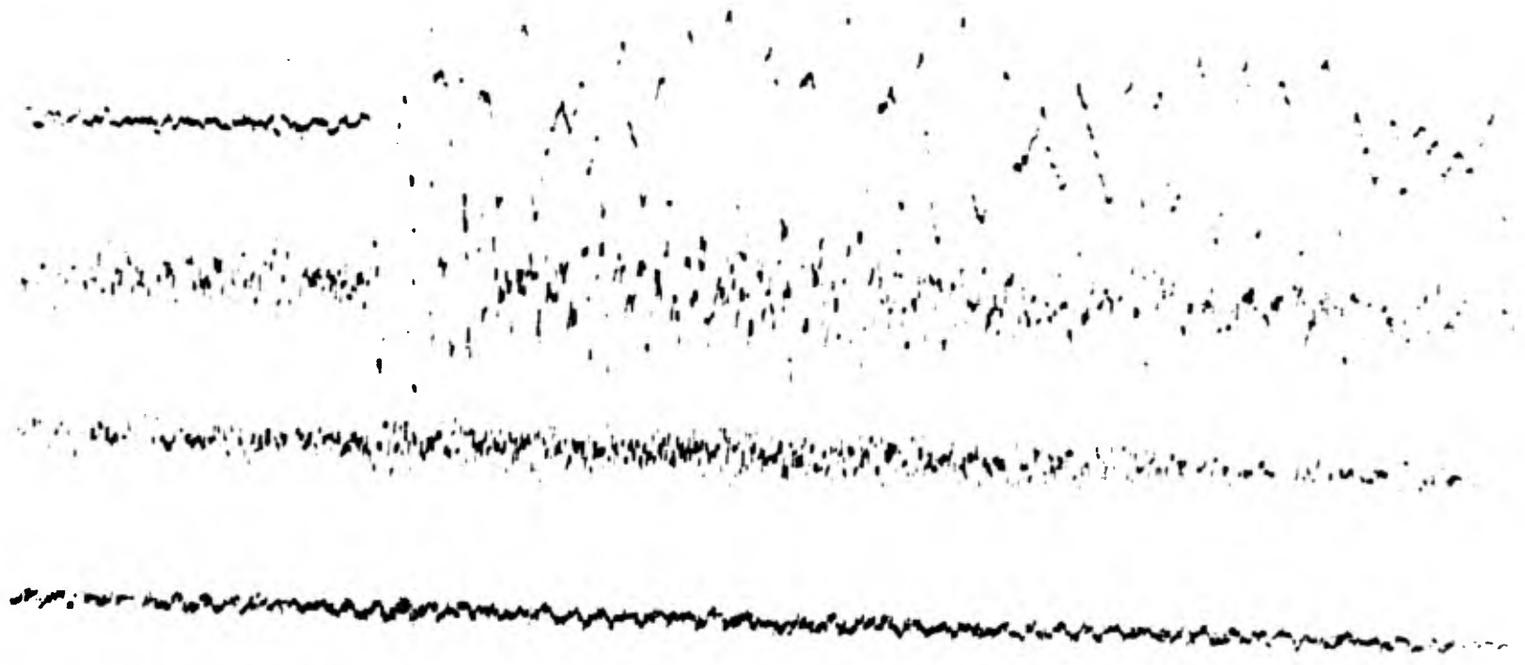

RIV
29 October 1965
*21:13:01.7Z
Δ = 9830 km
Gain: 30.6K
Instrument: SPZ


Z
N
E
10sec
PMG
29 October 1965
*21:07:56.42
Δ = 4377 km
Gain: top trace - 130K
Instruments: SP2

PMG

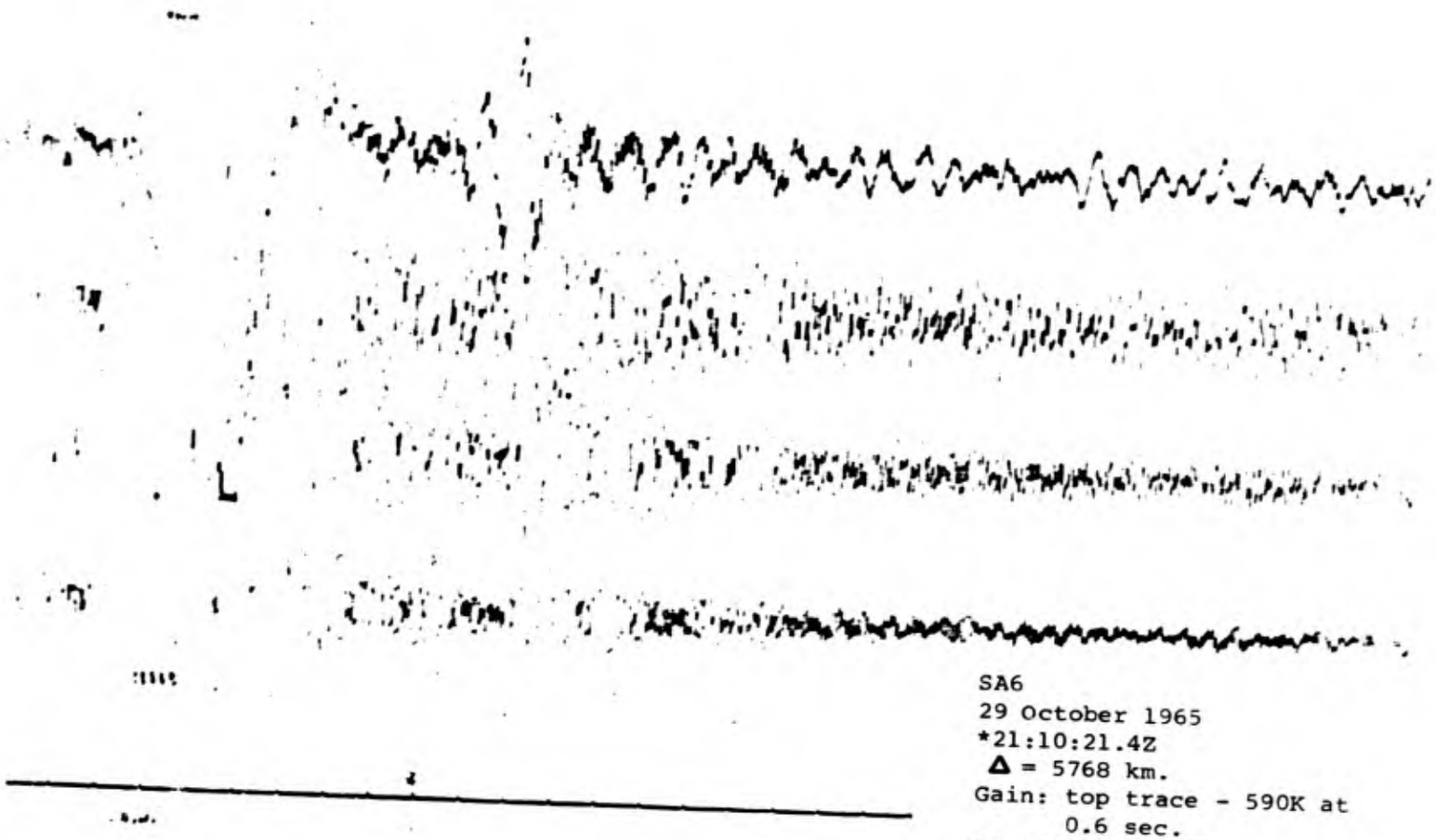

ROL
29 October 1965
*21:10:11.1Z
Δ = 6772 km
Gain: 137K at 0.7 sec
Instrument: SPZ


RVR SPZ IPC 21:09:40.9
MAG=197K T=0.9
2A=4.2
10-29-65 Δt=+50.9
RVR
29 October 1965
*21:07:50.9Z
Δ = 5360 km
Gain: 197K at 0.9 sec.
Instrument: SPZ

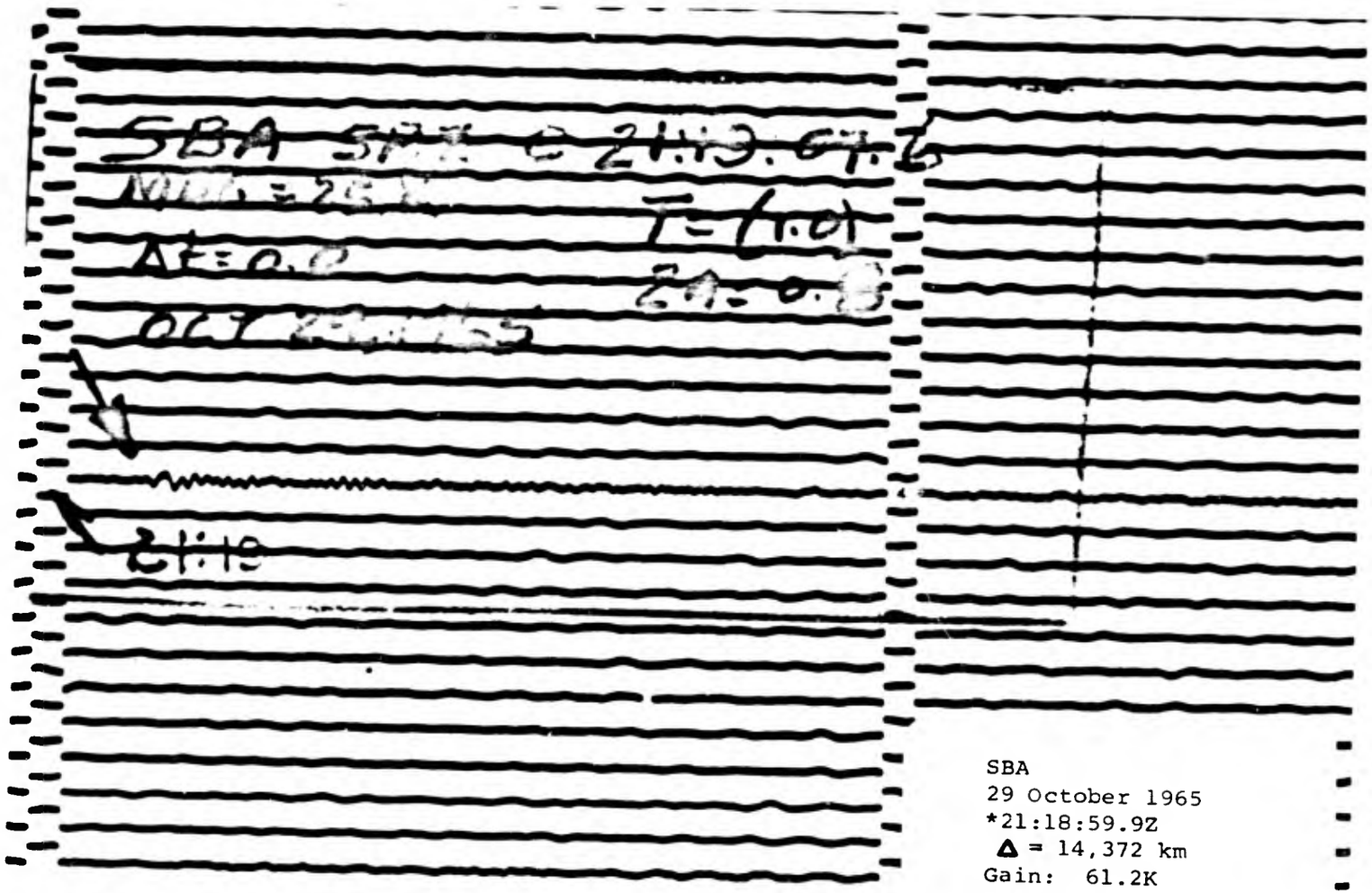


$T_c = +0.40^s$

SA6
29 October 1965
*21:09:08.4Z
Δ = 5768 km.
Gain: top trace - 590K at
0.6 sec.
Instrument: SPZ

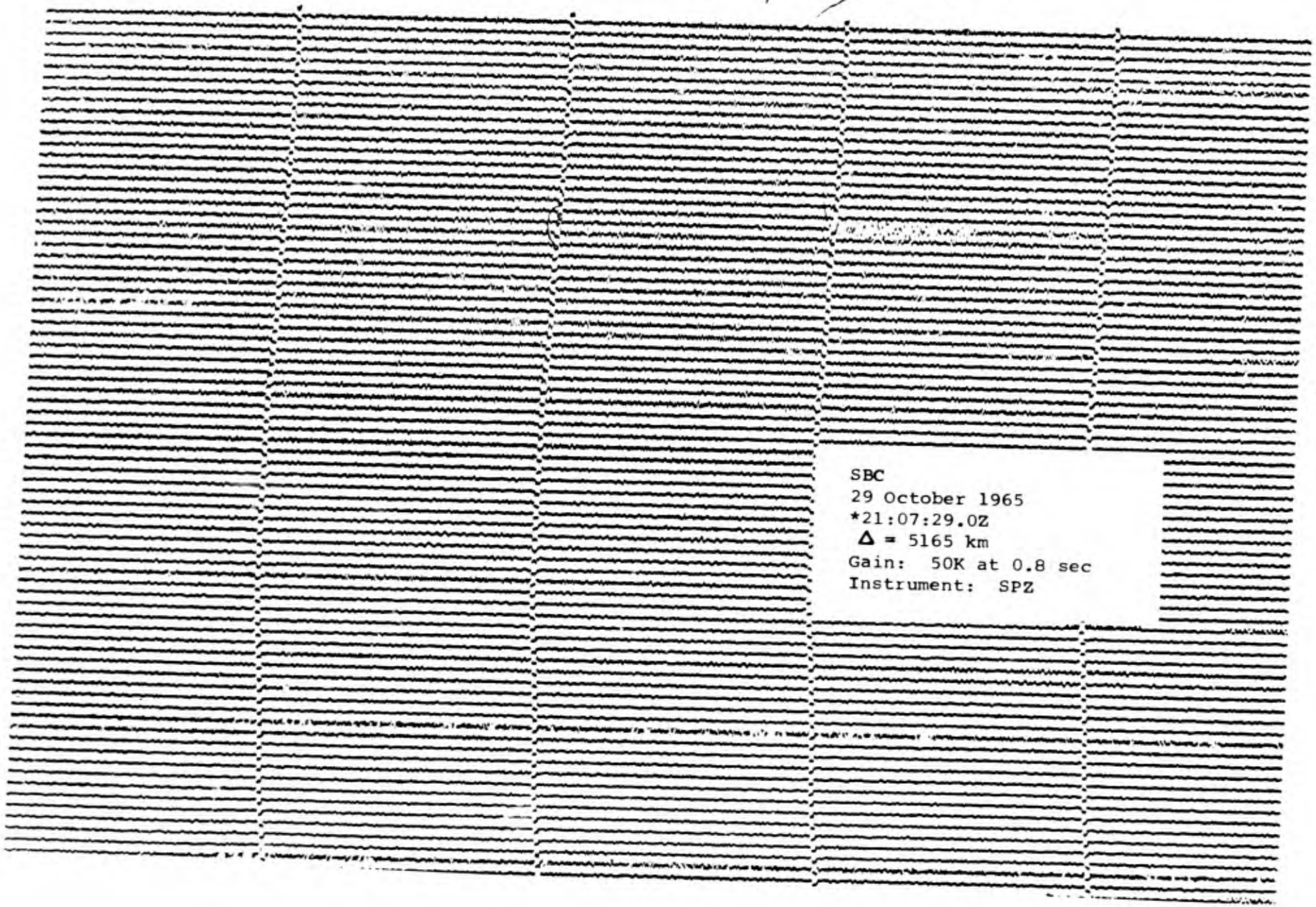


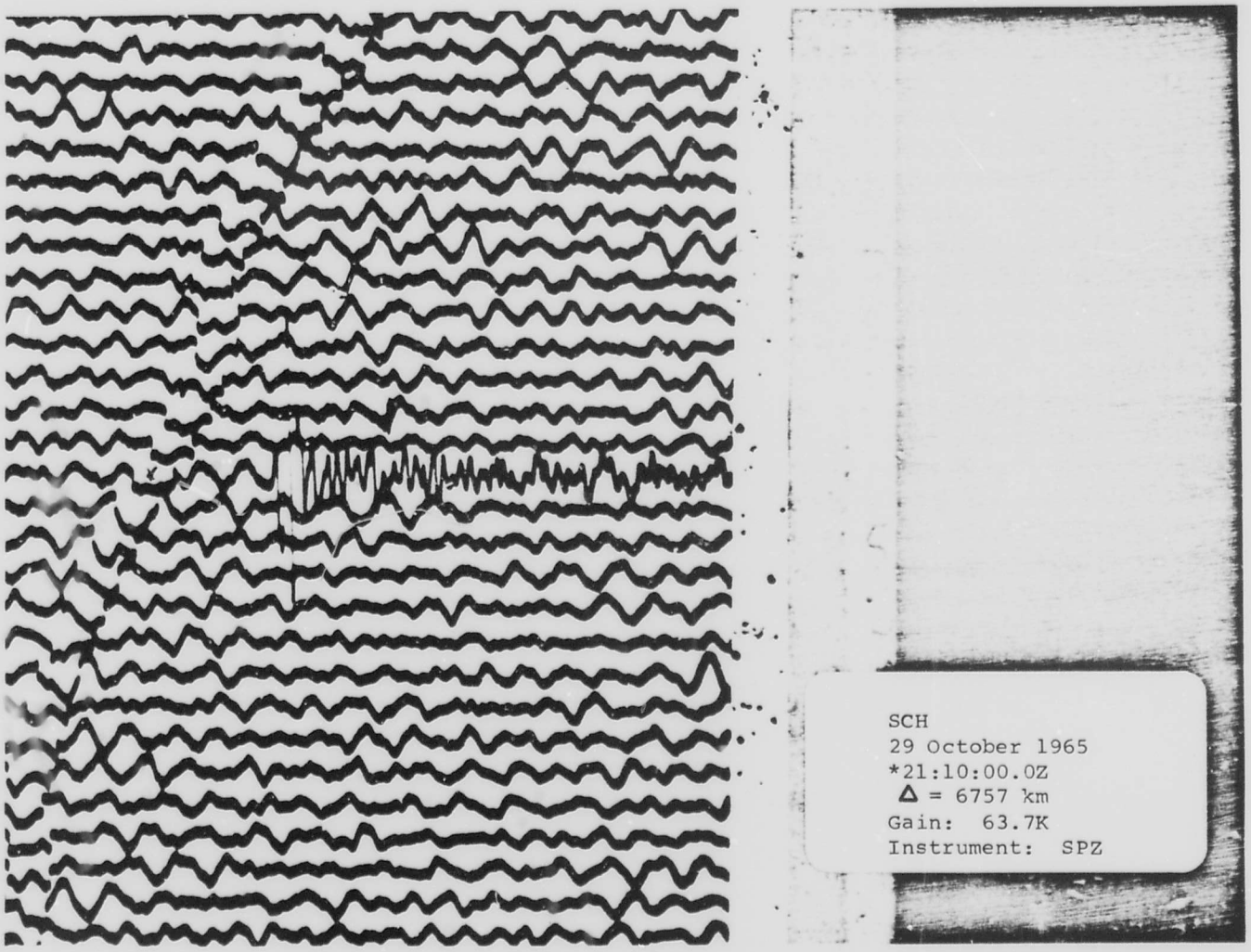
SA6
29 October 1965
*21:10:21.4Z
Δ = 5768 km.
Gain: top trace - 590K at
0.6 sec.
Instrument: SPZ

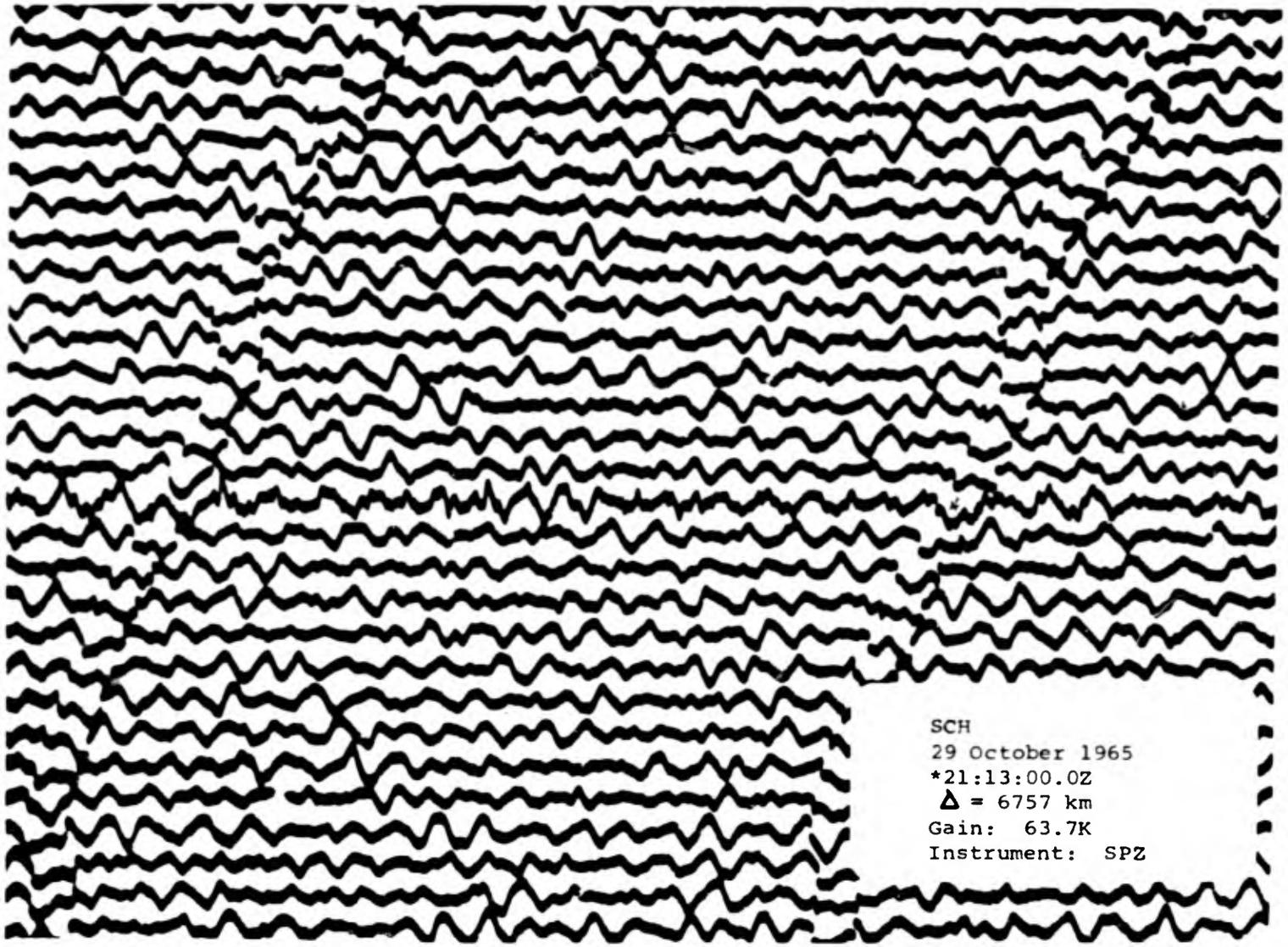


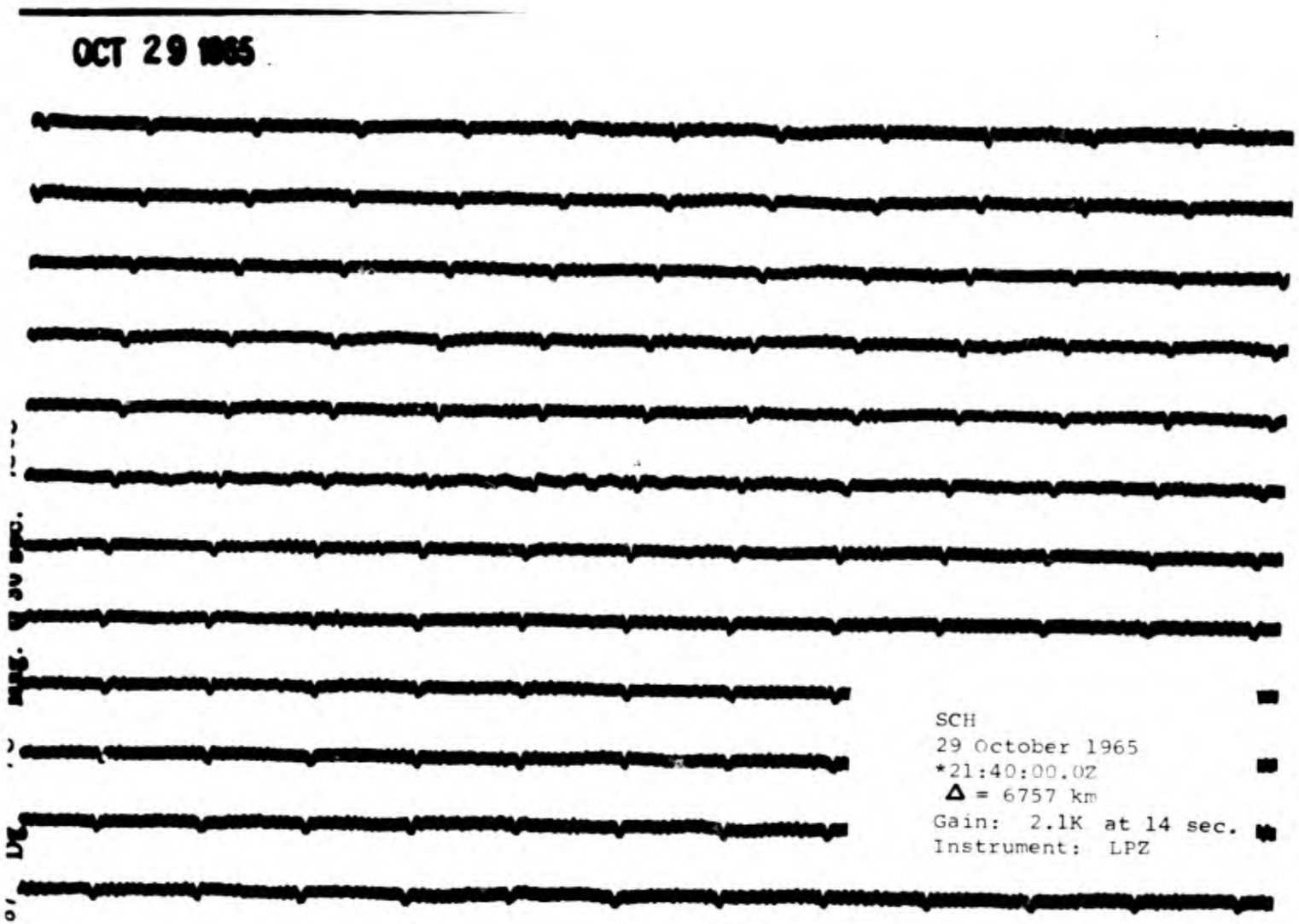
SBA
29 October 1965
*21:18:59.9Z
Δ = 14,372 km
Gain: 61.2K
Instrument: SPZ

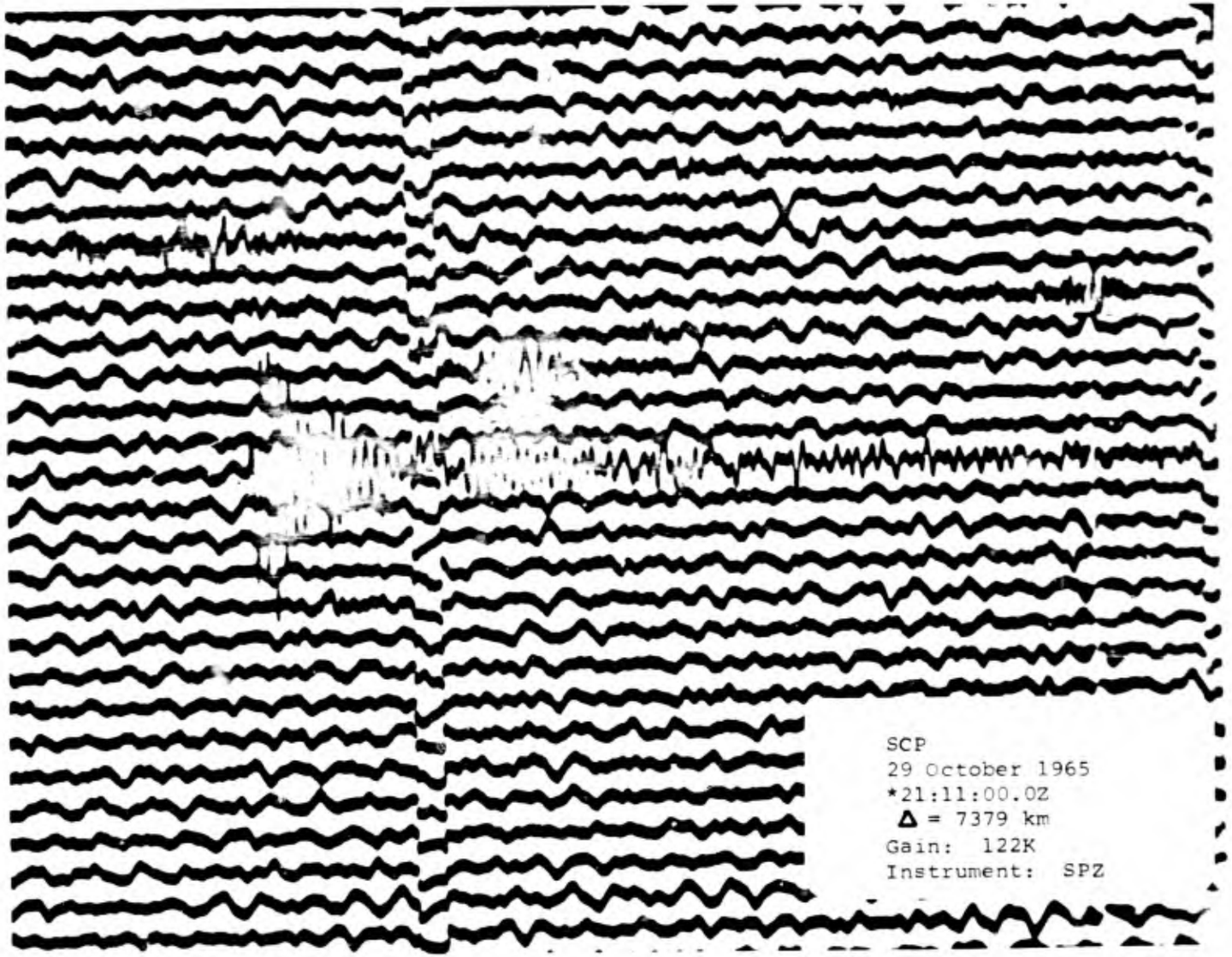
SANTA BARBARA

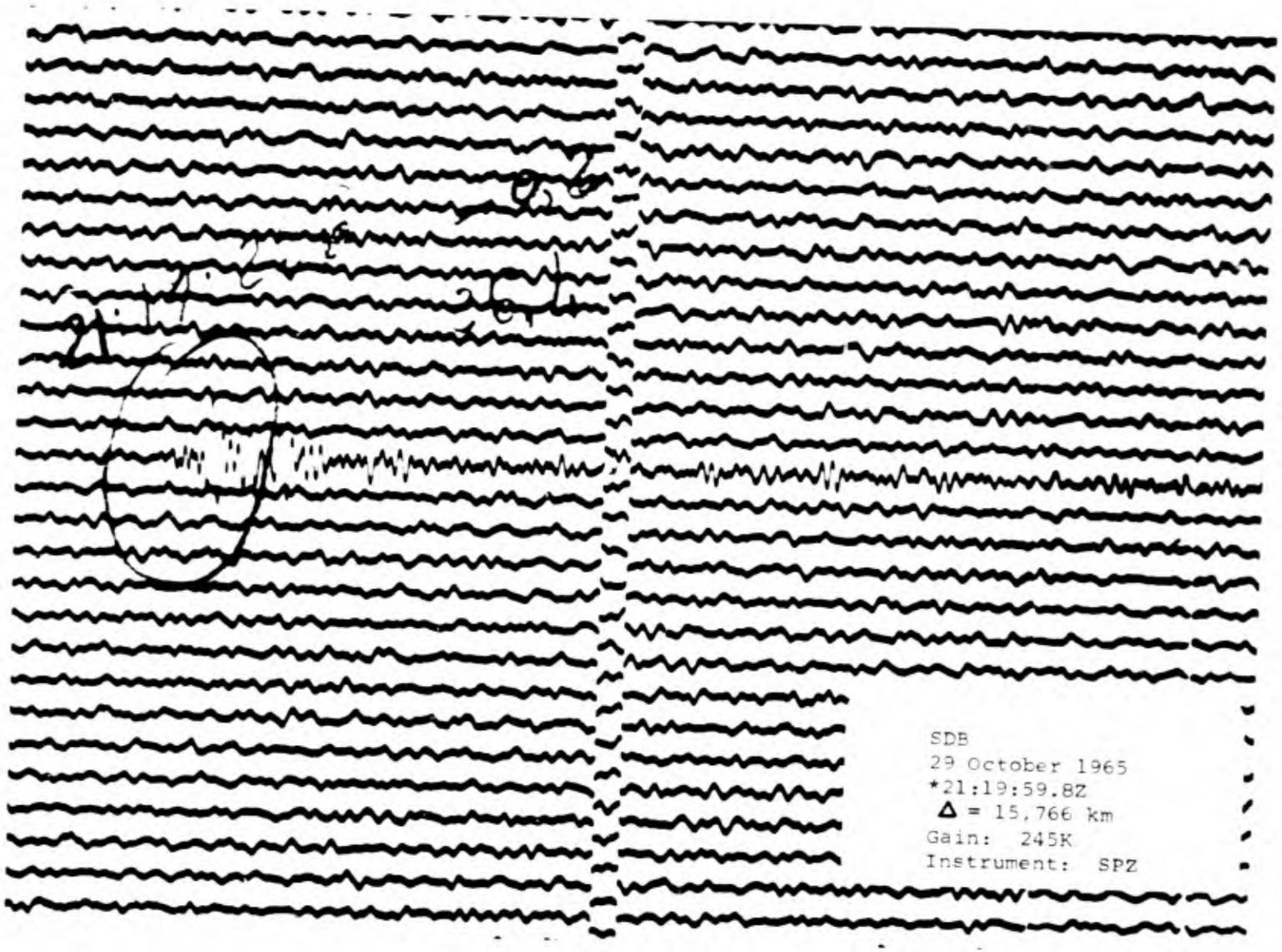


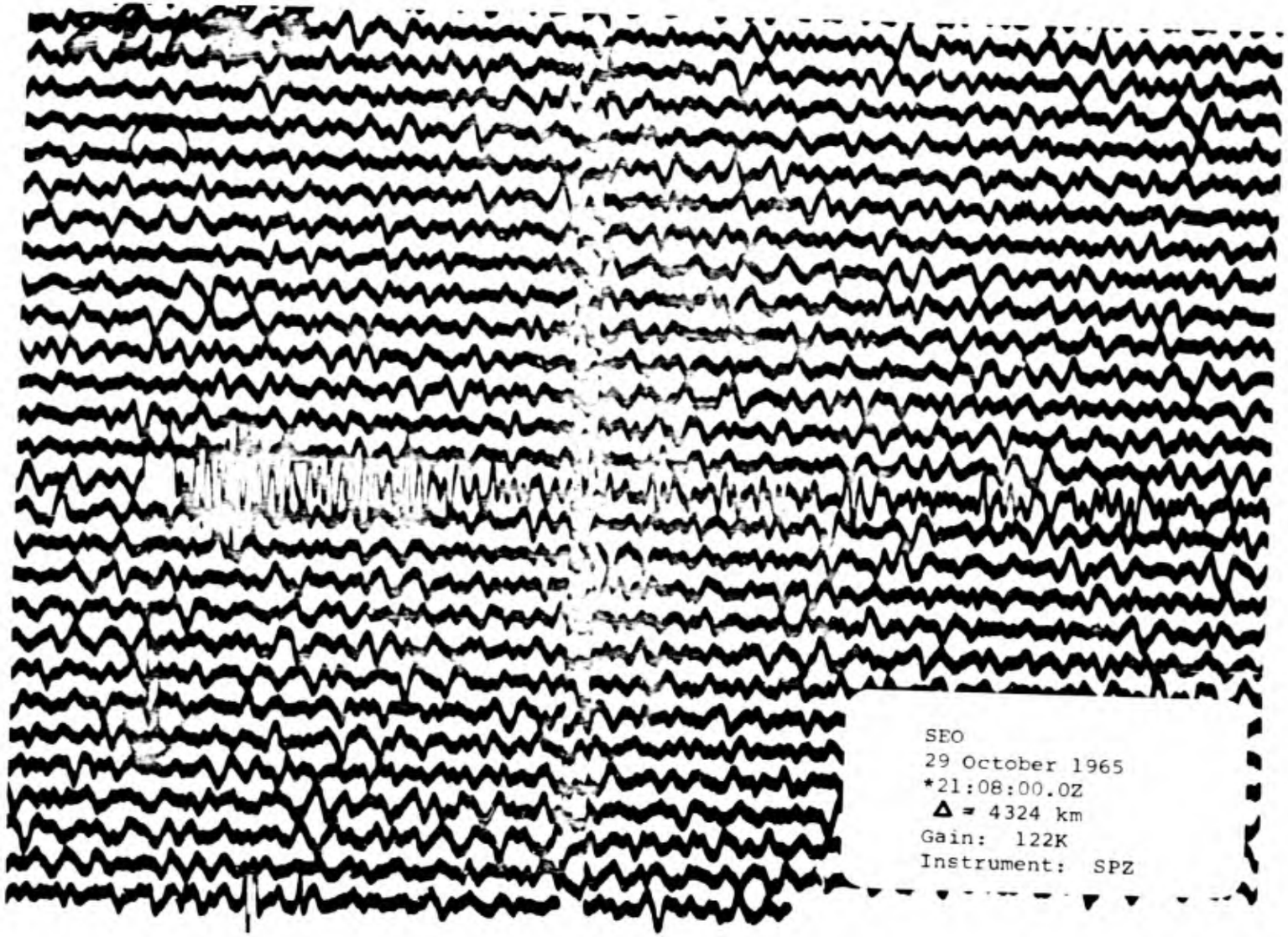

SCH
29 October 1965
*21:10:00.0Z
Δ = 6757 km
Gain: 63.7K
Instrument: SPZ

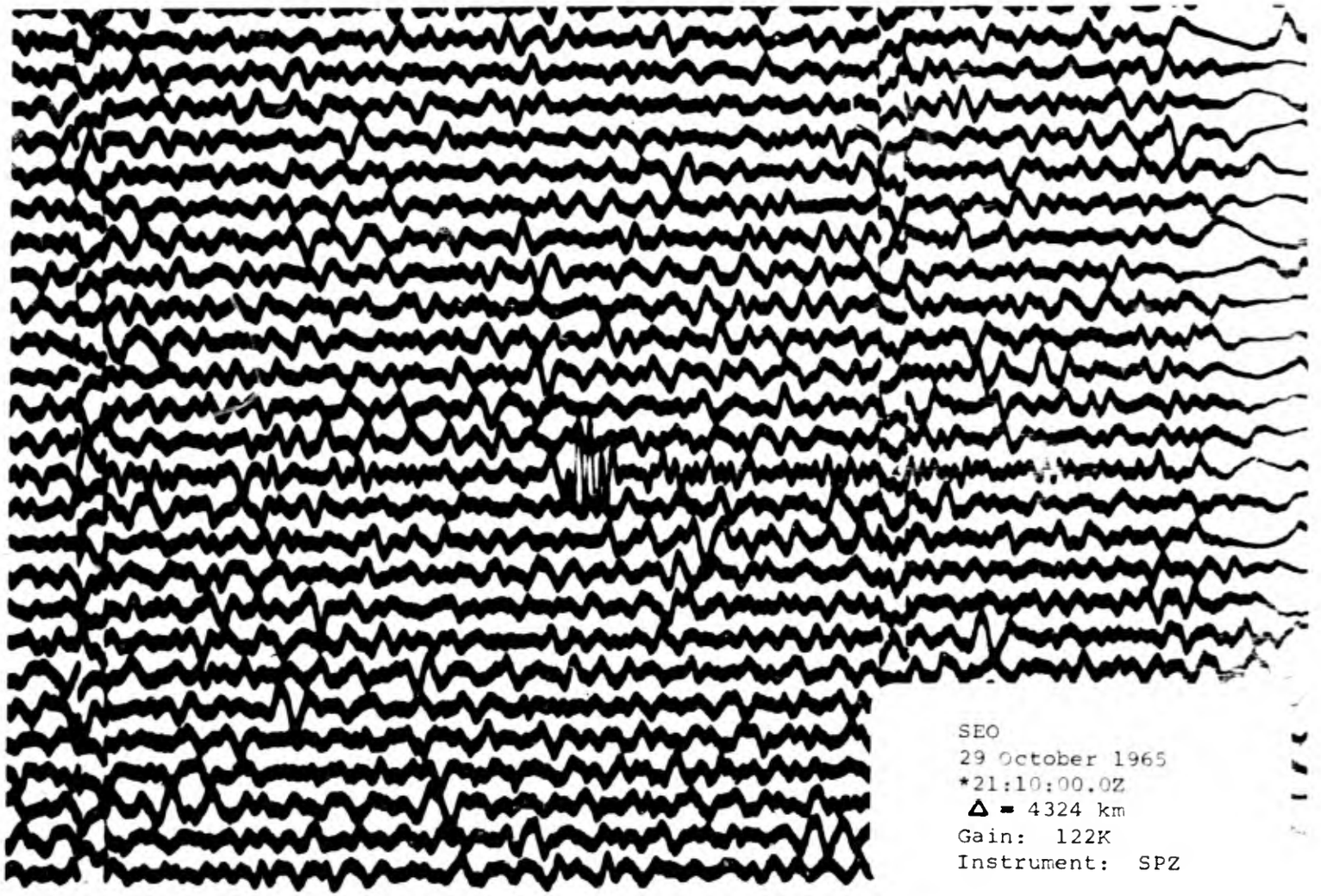

SCH
29 October 1965
*21:13:00.0Z
Δ = 6757 km
Gain: 63.7K
Instrument: SPZ

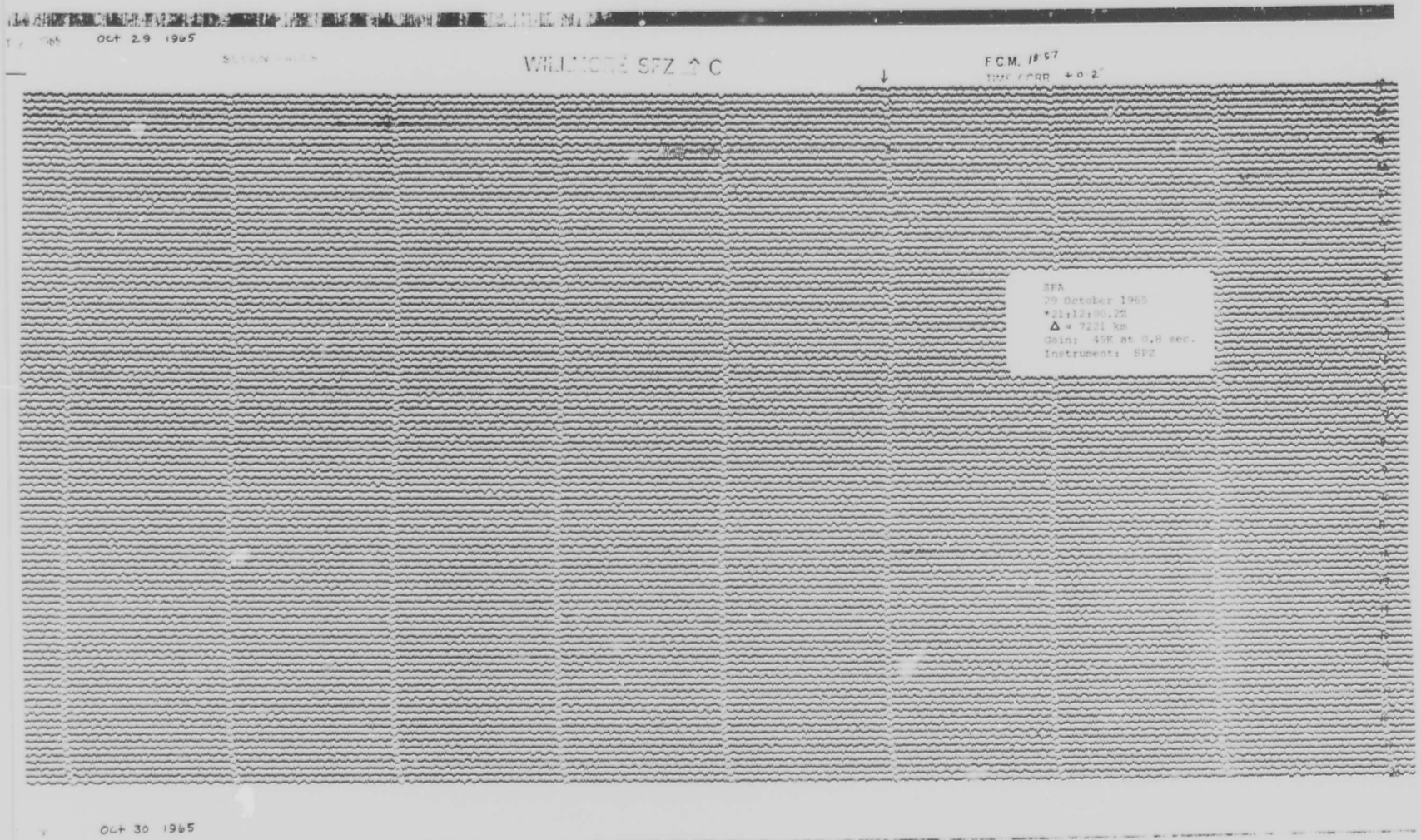

OCT 29 1965
SCH
29 October 1965
*21:40:00.0Z
Δ = 6757 km
Gain: 2.1K at 14 sec.
Instrument: LPZ

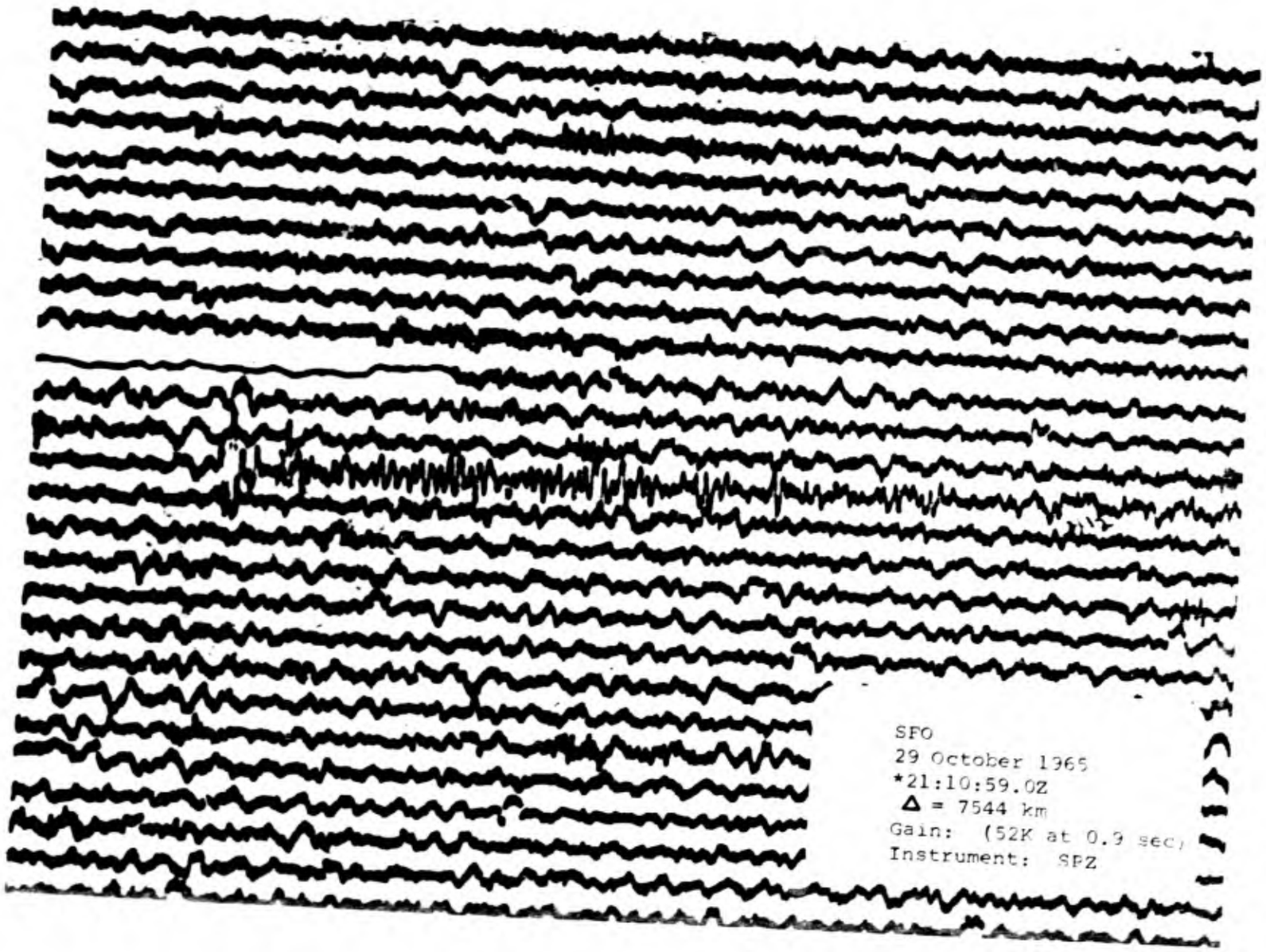

SCP
29 October 1965
*21:11:00.0Z
Δ = 7379 km
Gain: 122K
Instrument: SPZ

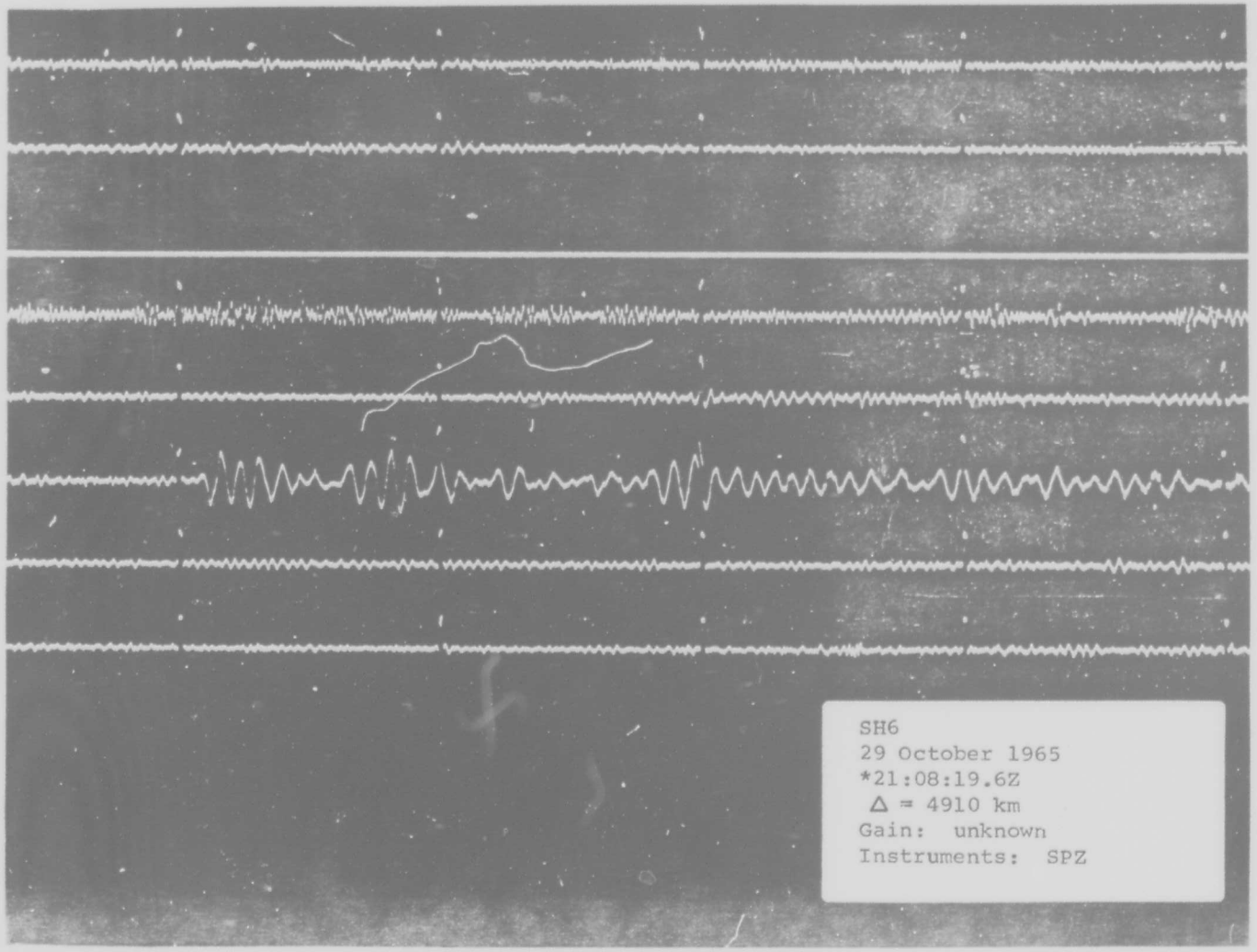

SDB
29 October 1965
*21:19:59.8Z
Δ = 15,766 km
Gain: 245K
Instrument: SPZ

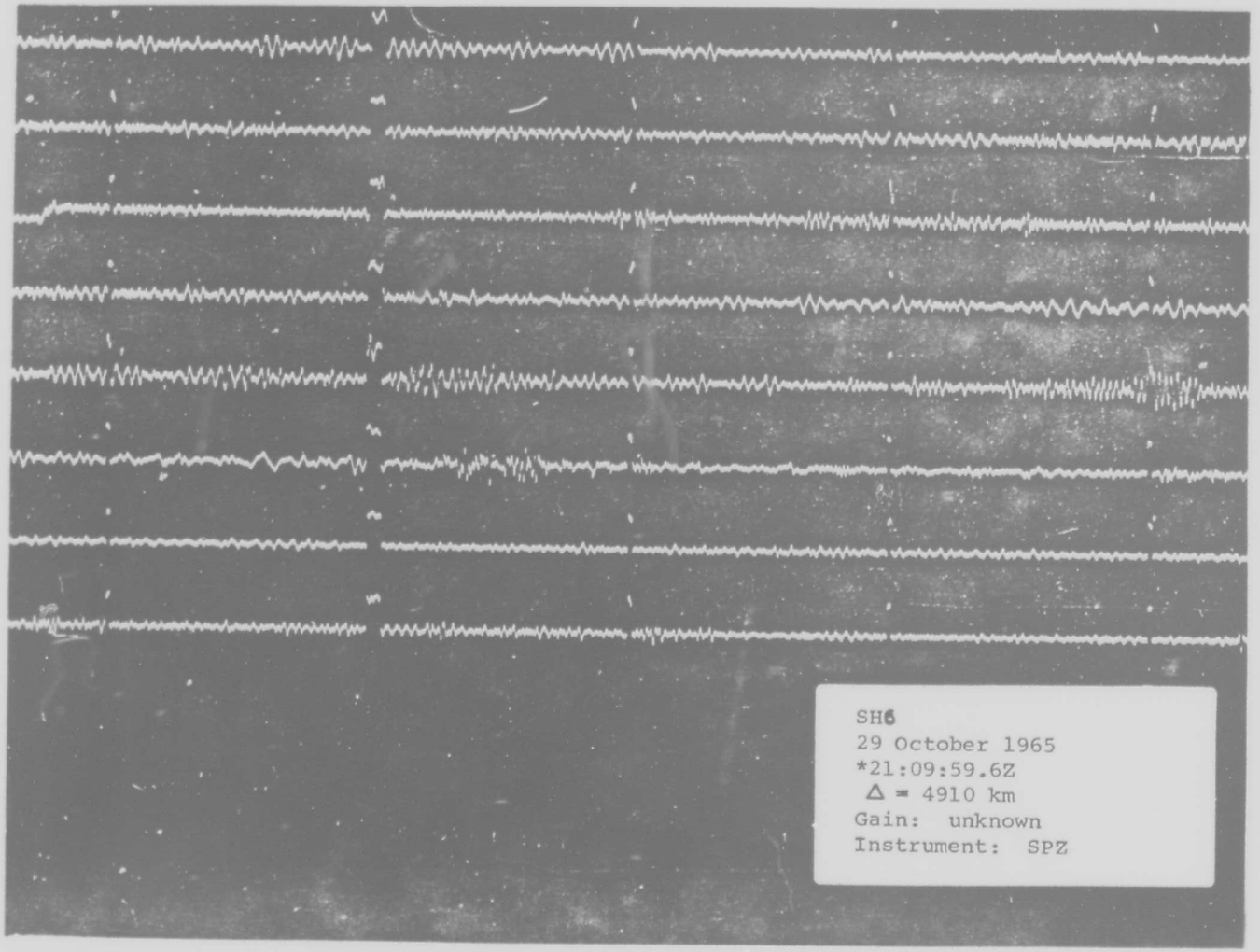

SEO
29 October 1965
*21:08:00.0Z
Δ = 4324 km
Gain: 122K
Instrument: SPZ

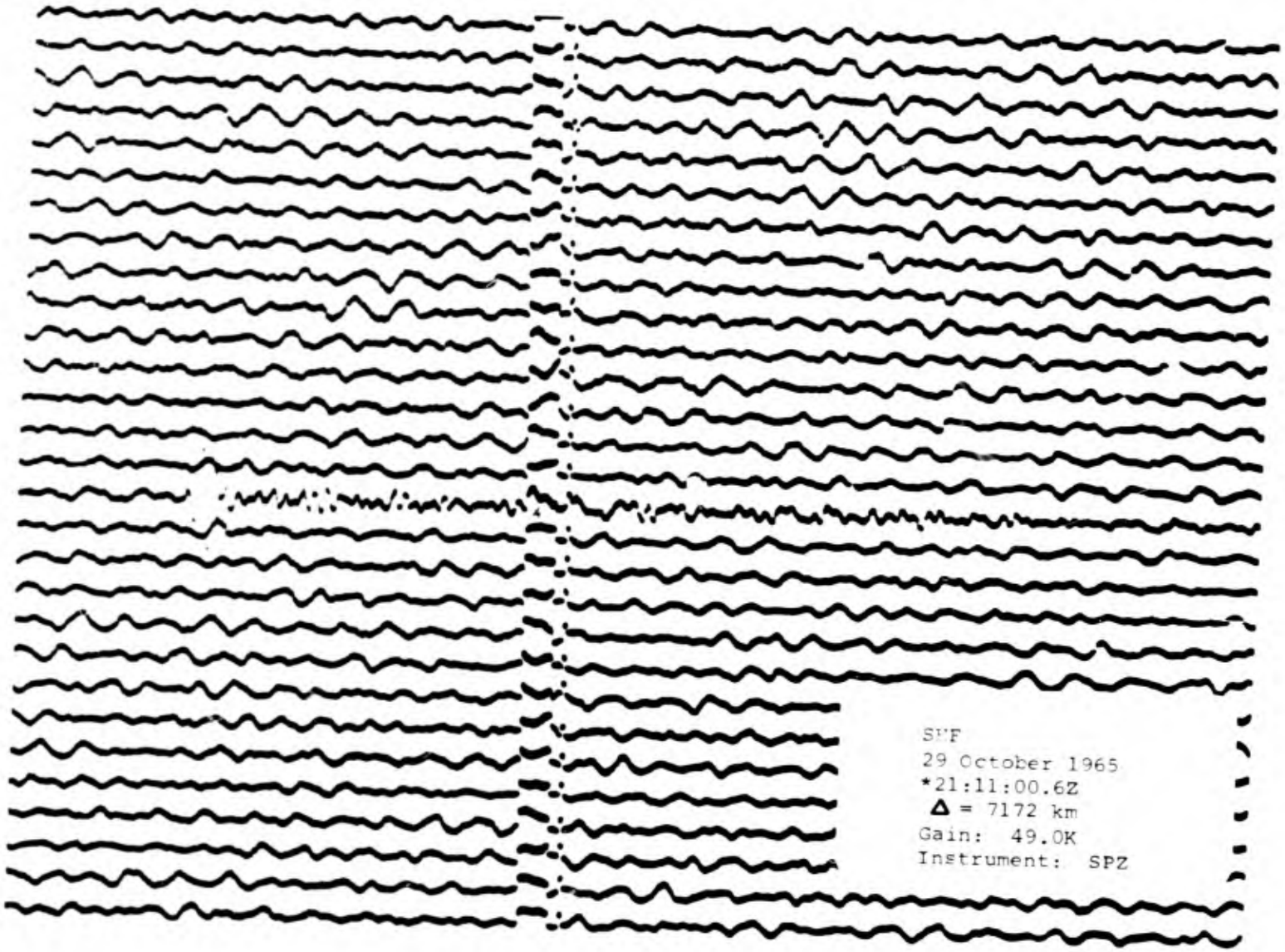

SEO
29 October 1965
*21:10:00.0Z
Δ = 4324 km
Gain: 122K
Instrument: SPZ

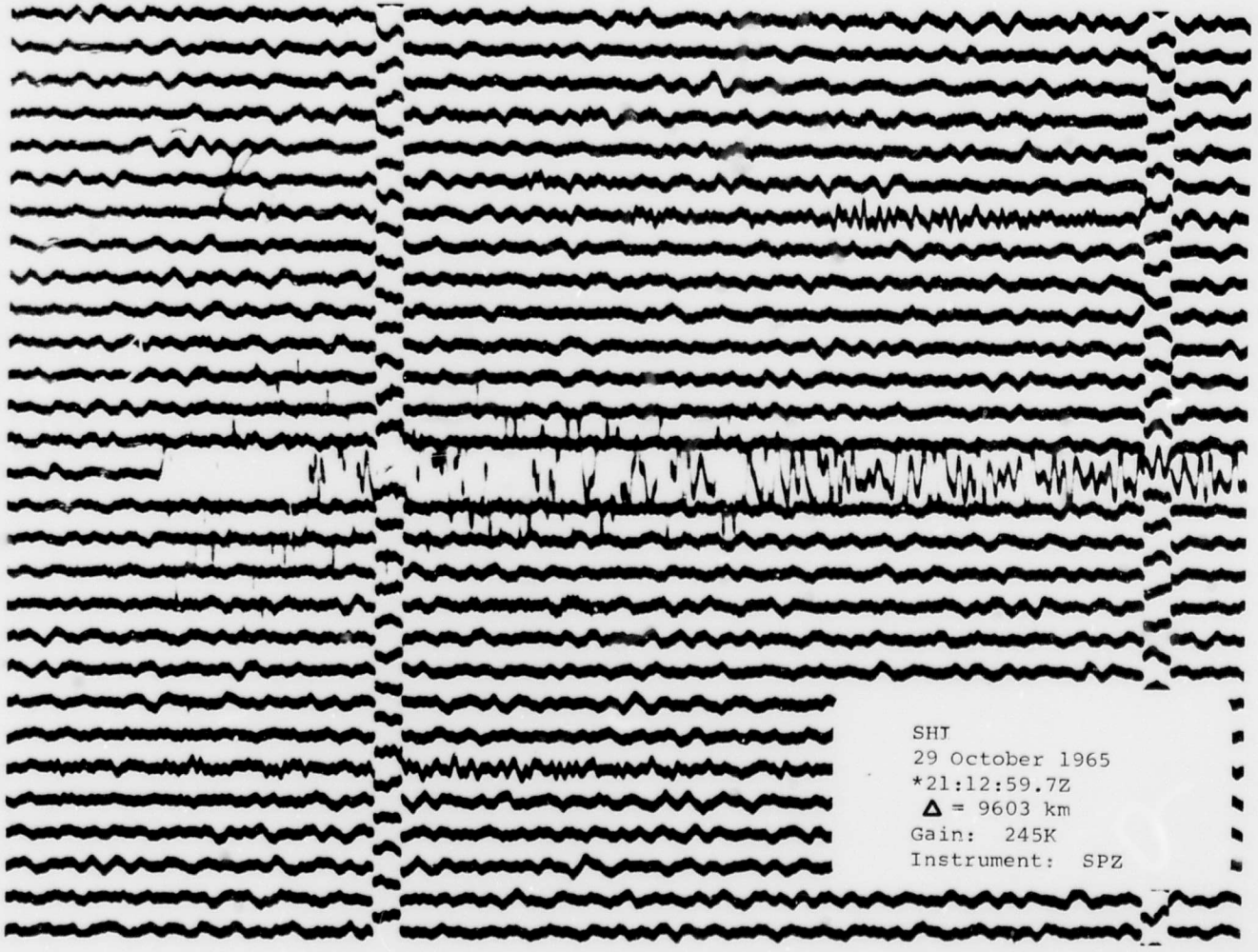

Oct 29 1965
WILLMORE SPZ ↑ C
F.C.M. 18.57
TIME CORR. +0.2
SPA
29 October 1965
*21:12:00.2S
Δ = 7221 km
Gain: 45K at 0.8 sec.
Instrument: SPZ
Oct 30 1965

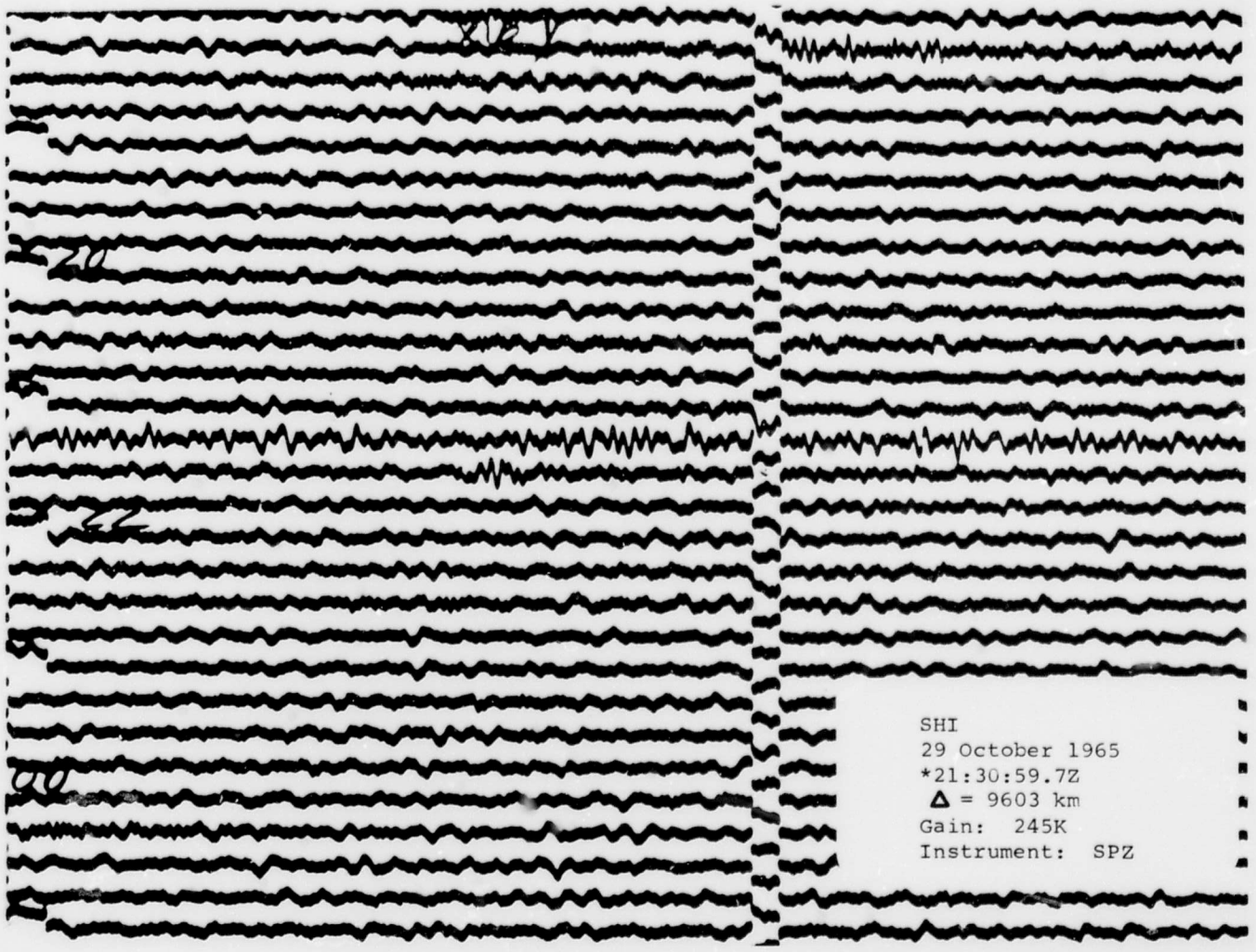

SFO
29 October 1965
*21:10:59.0Z
Δ = 7544 km
Gain: (52K at 0.9 sec)
Instrument: SPZ

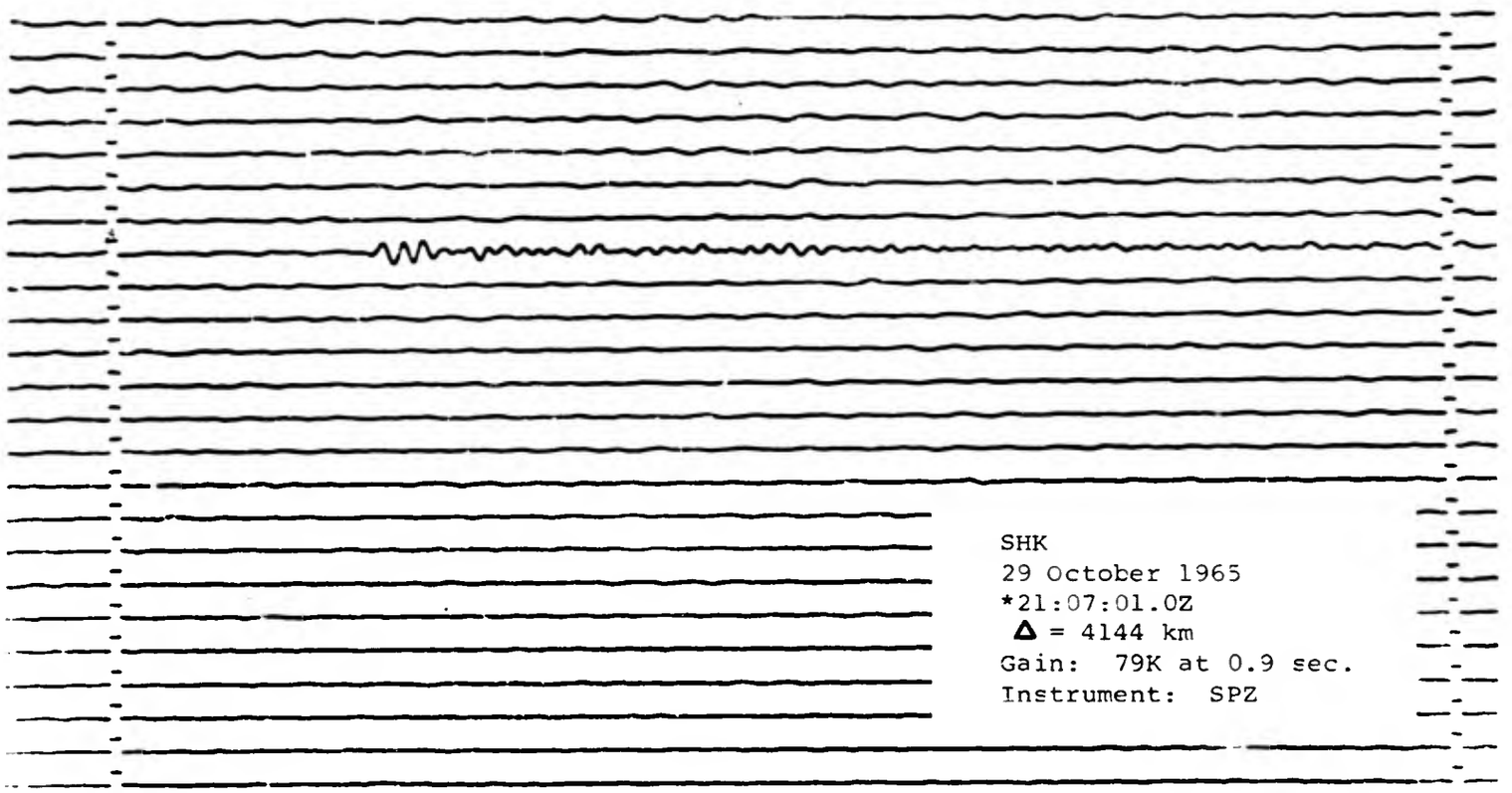

SH6
29 October 1965
*21:08:19.6Z
Δ = 4910 km
Gain: unknown
Instruments: SPZ

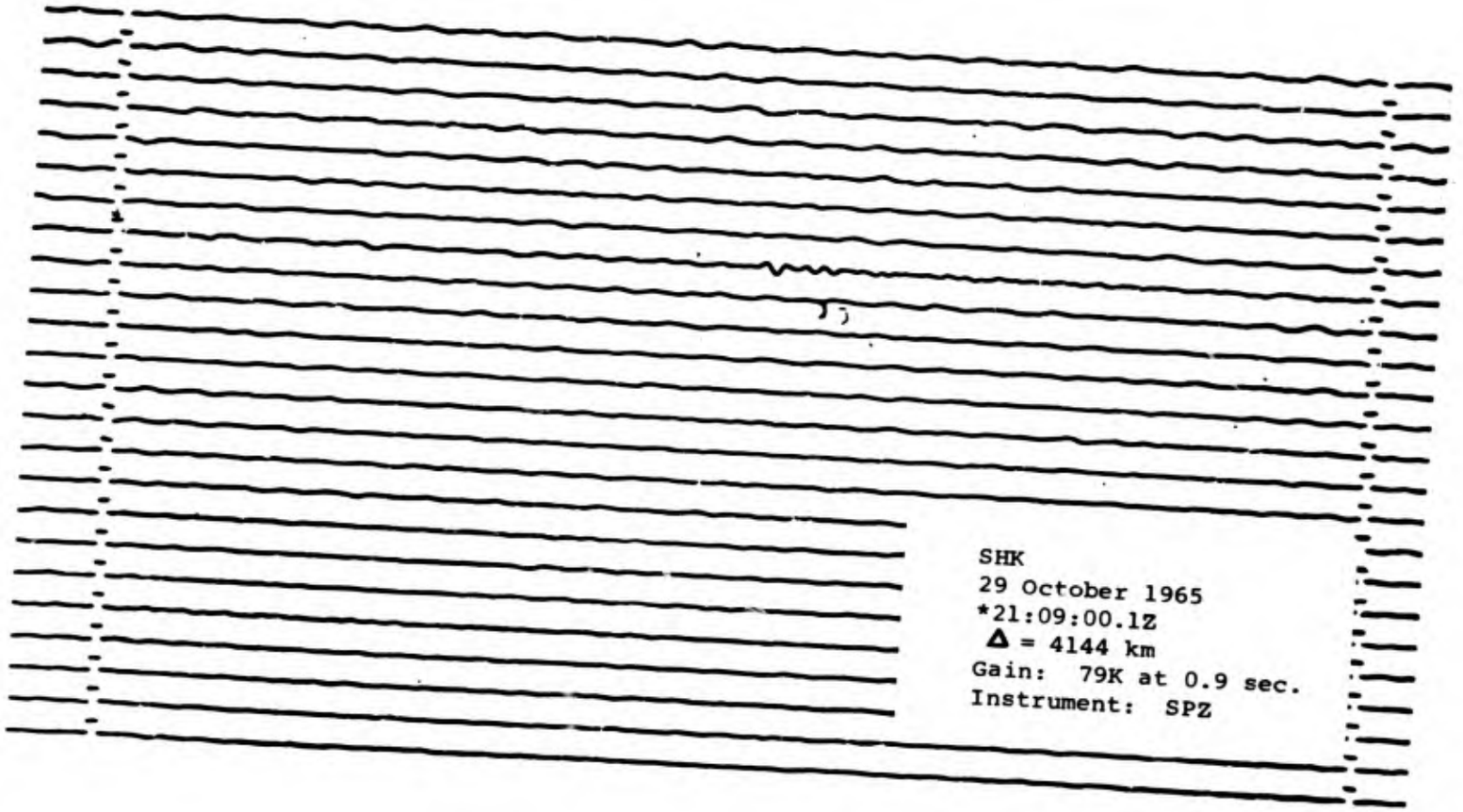

SHO
29 October 1965
*21:09:59.6Z
Δ = 4910 km
Gain: unknown
Instrument: SPZ

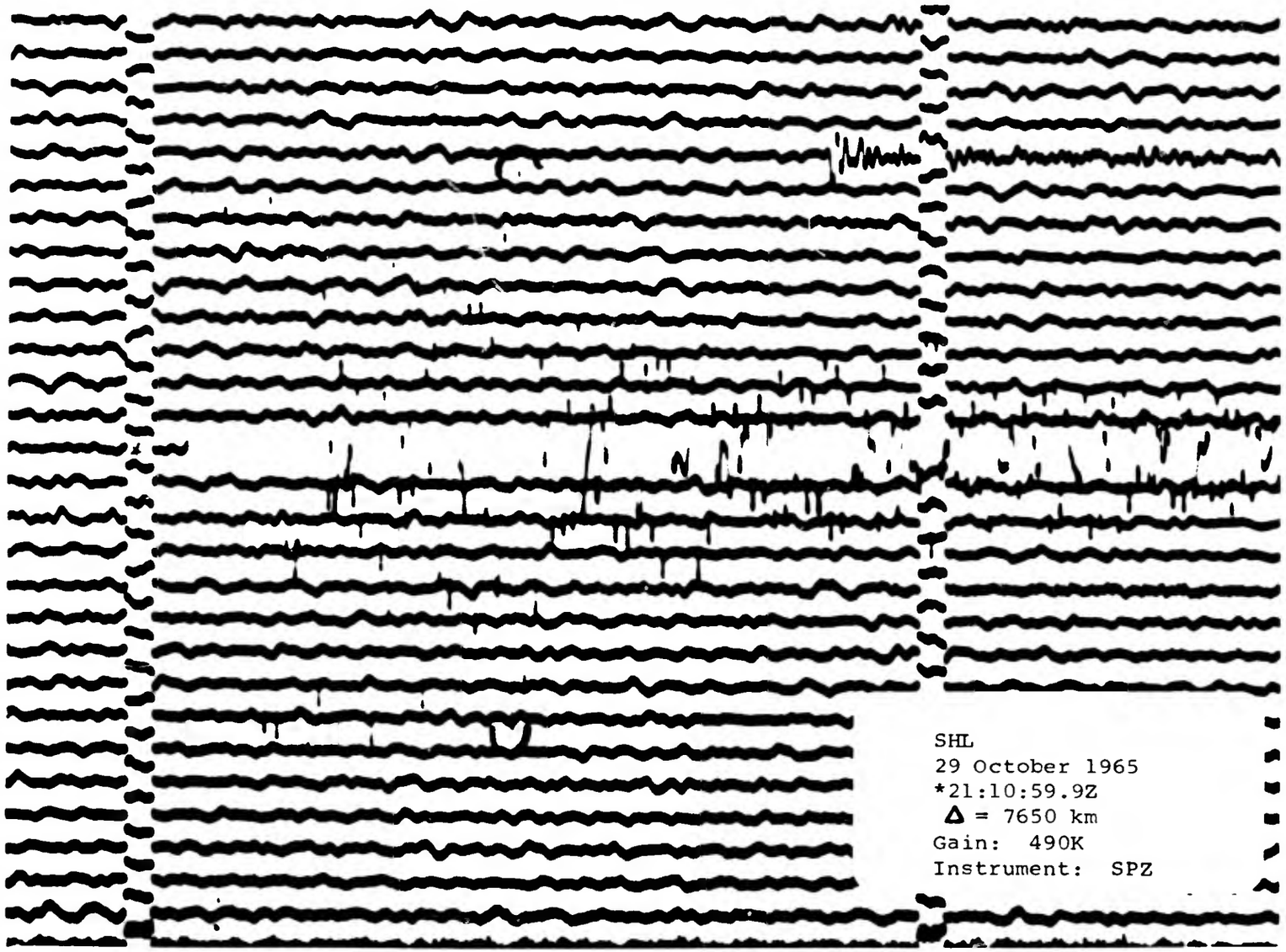

SPF
29 October 1965
*21:11:00.6Z
Δ = 7172 km
Gain: 49.0K
Instrument: SPZ

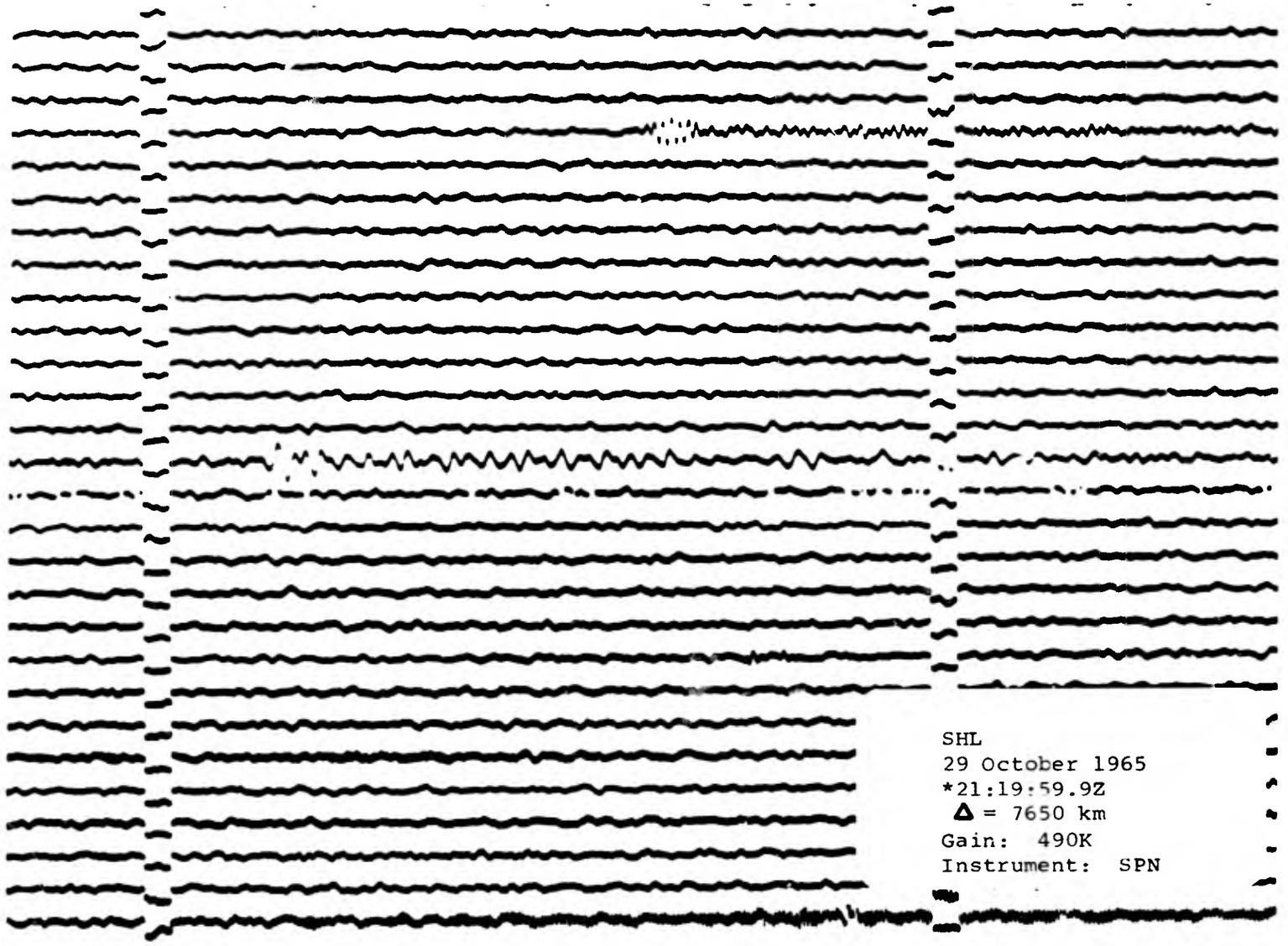

SHJ
29 October 1965
*21:12:59.7Z
Δ = 9603 km
Gain: 245K
Instrument: SPZ

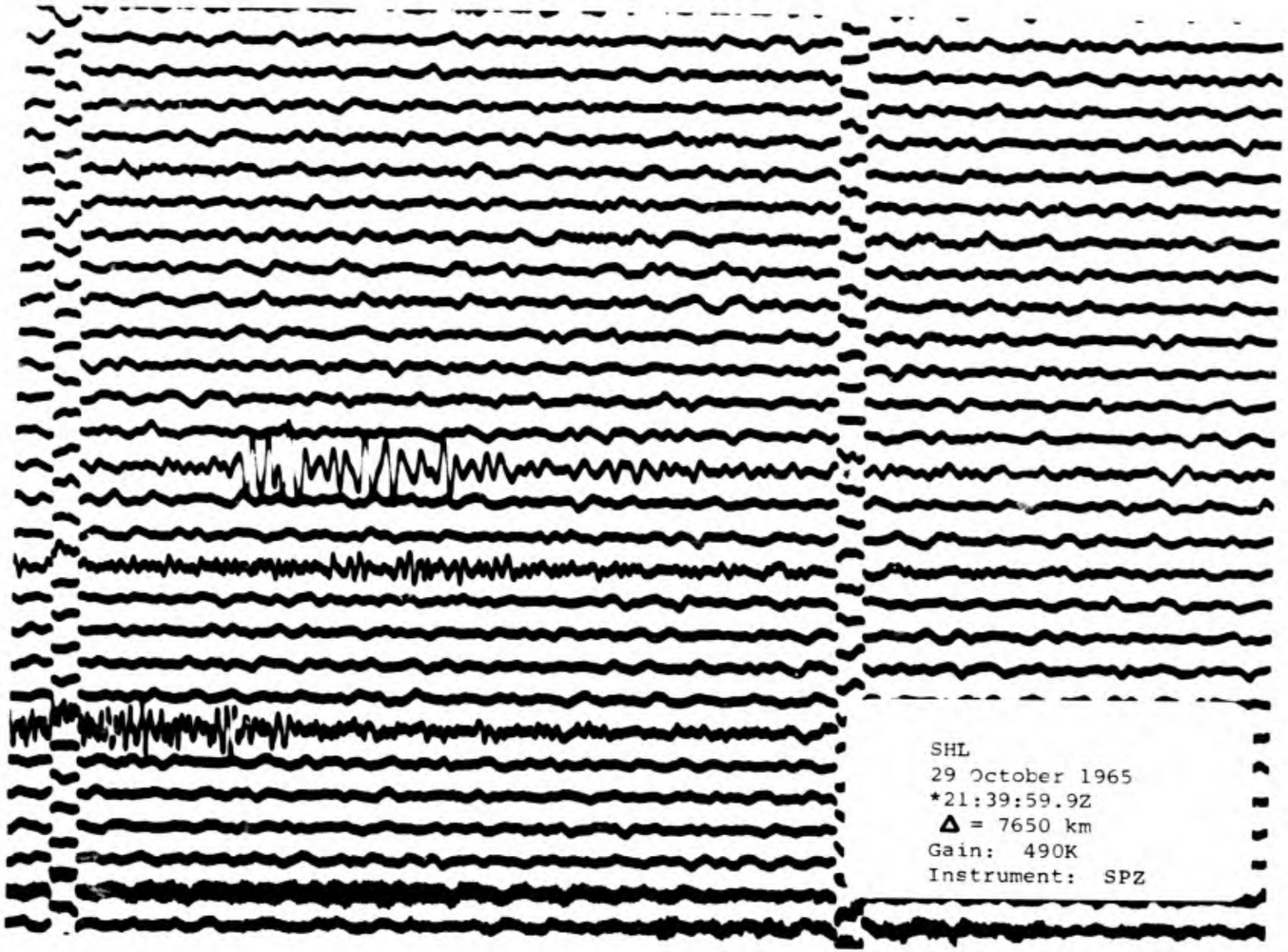

SHI
29 October 1965
*21:30:59.7Z
Δ = 9603 km
Gain: 245K
Instrument: SPZ


SHK
29 October 1965
*21:07:01.0Z
Δ = 4144 km
Gain: 79K at 0.9 sec.
Instrument: SPZ


SHK
29 October 1965
*21:09:00.1Z
Δ = 4144 km
Gain: 79K at 0.9 sec.
Instrument: SPZ


SHL
29 October 1965
*21:10:59.9Z
Δ = 7650 km
Gain: 490K
Instrument: SPZ

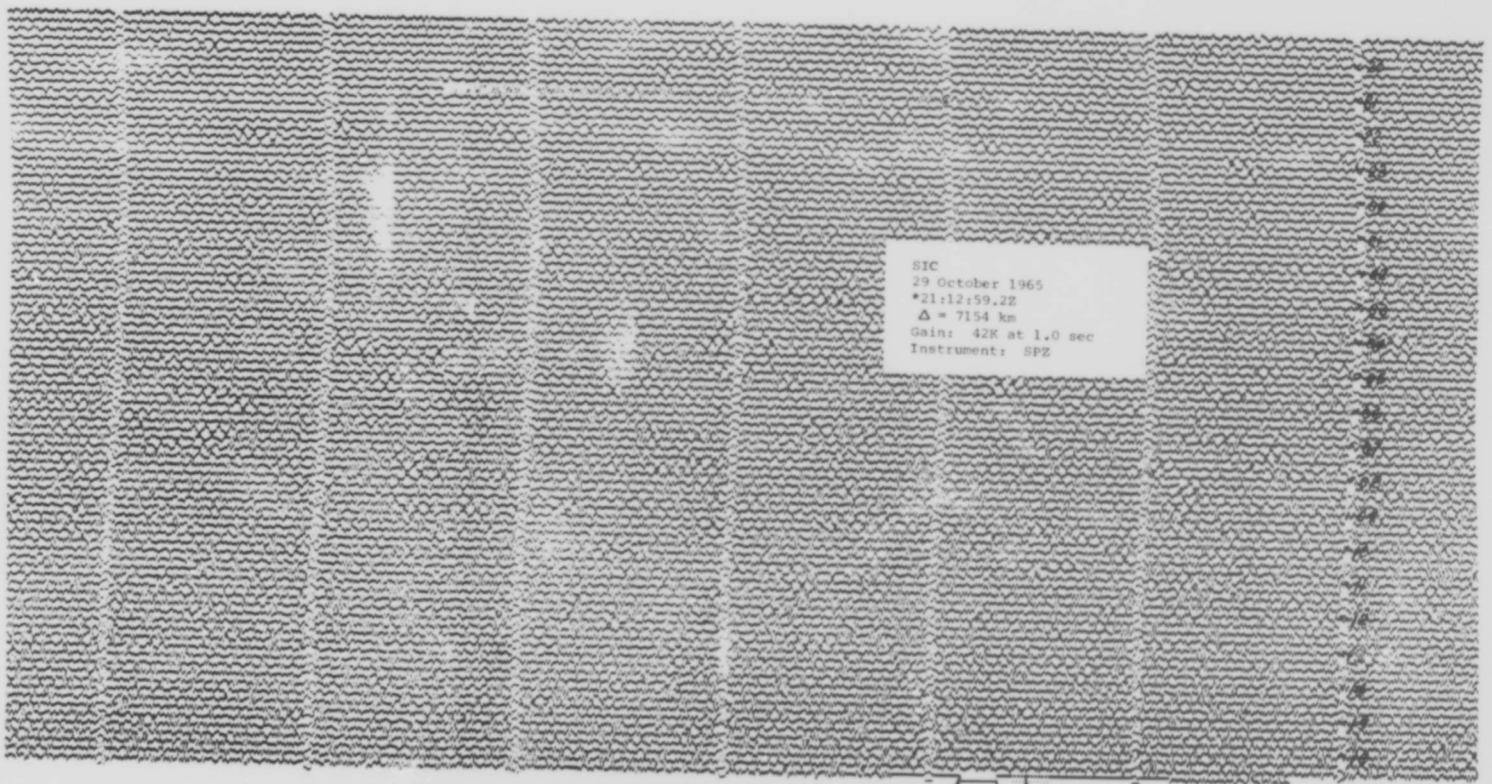

SHL
29 October 1965
*21:19:59.9Z
Δ = 7650 km
Gain: 490K
Instrument: SPN


SHL
29 October 1965
*21:39:59.9Z
Δ = 7650 km
Gain: 490K
Instrument: SPZ

OCT 2 9 1965

9 1965

SEPT-ILES



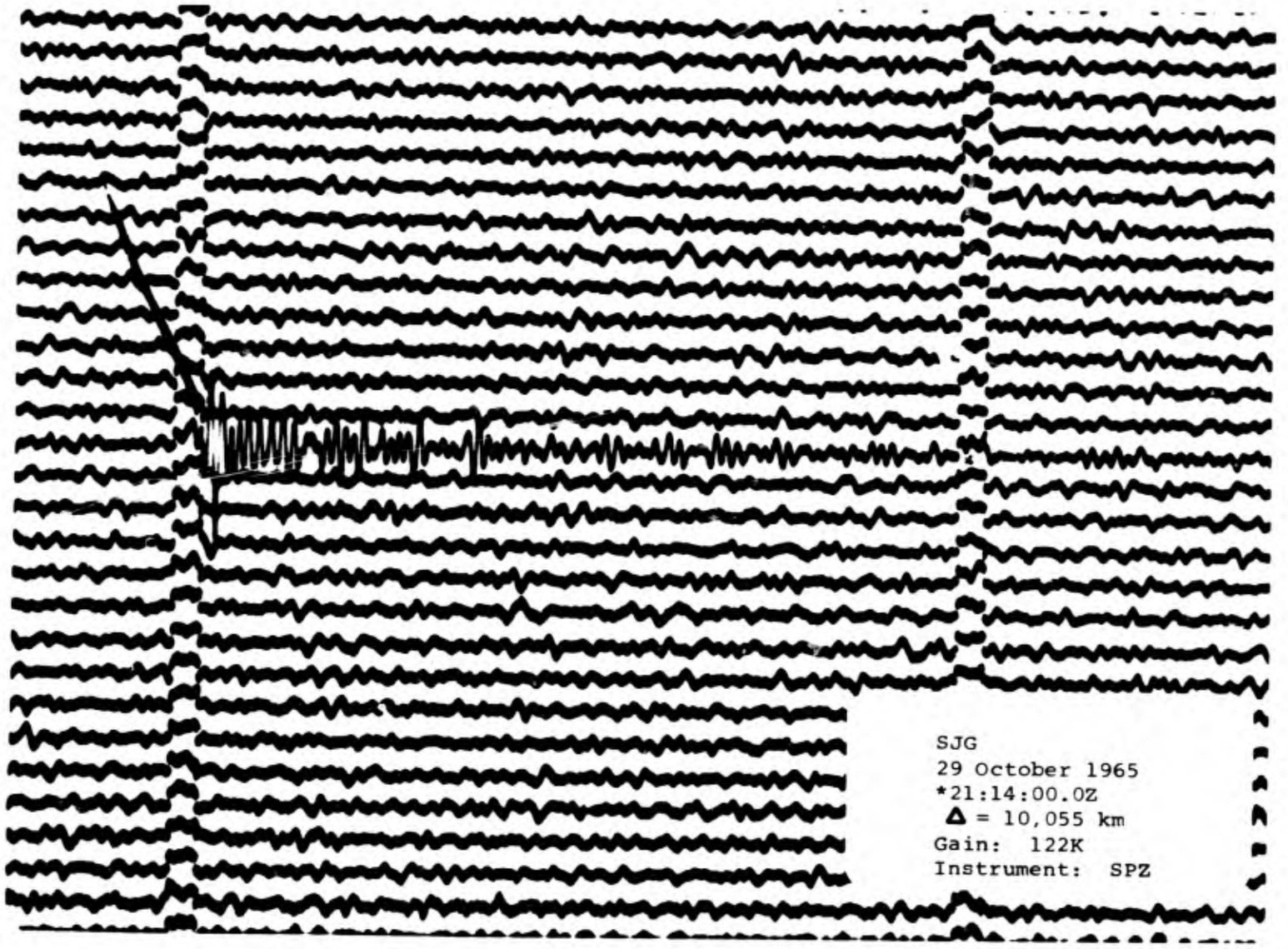
OCT 3 0 1965

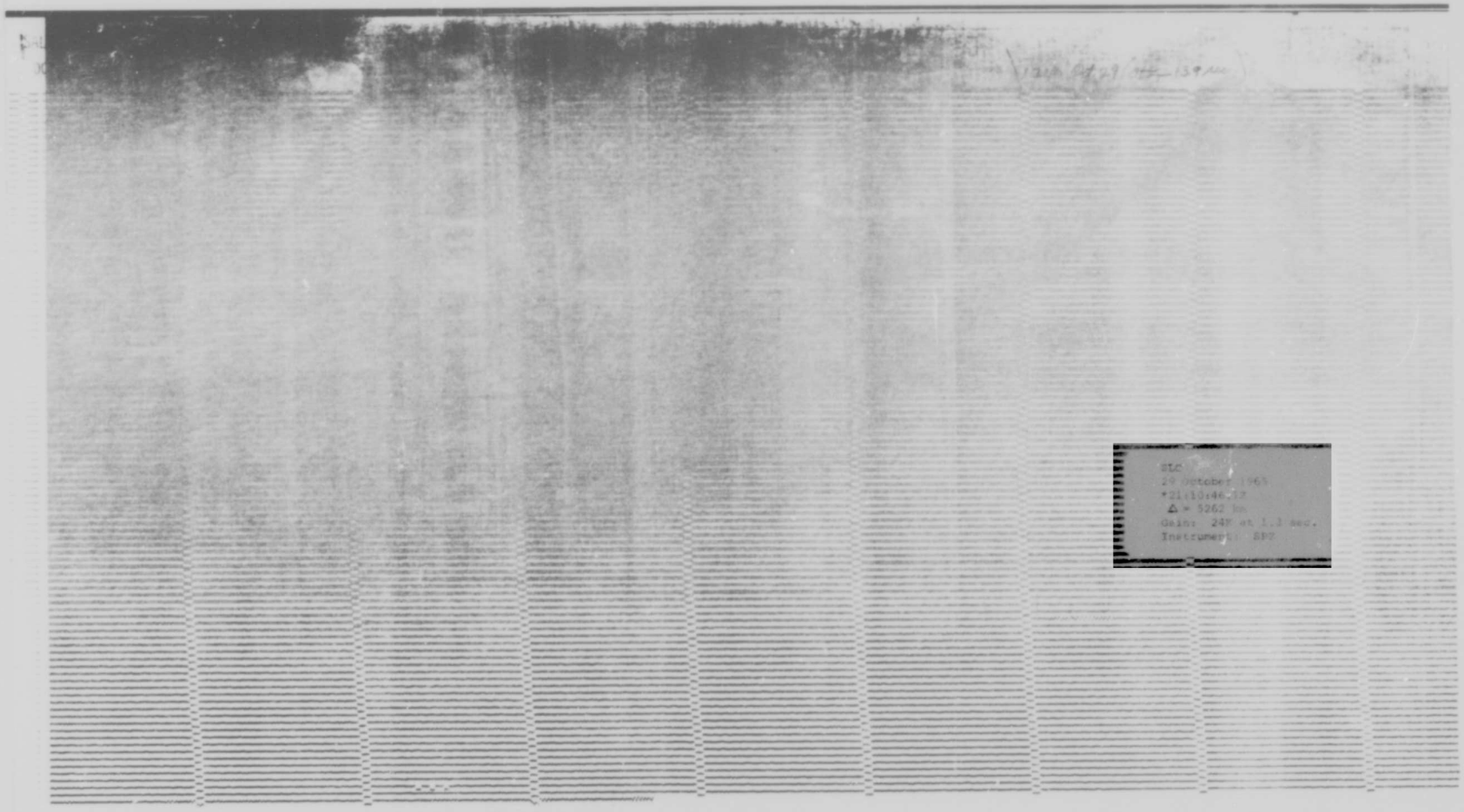
) 1965

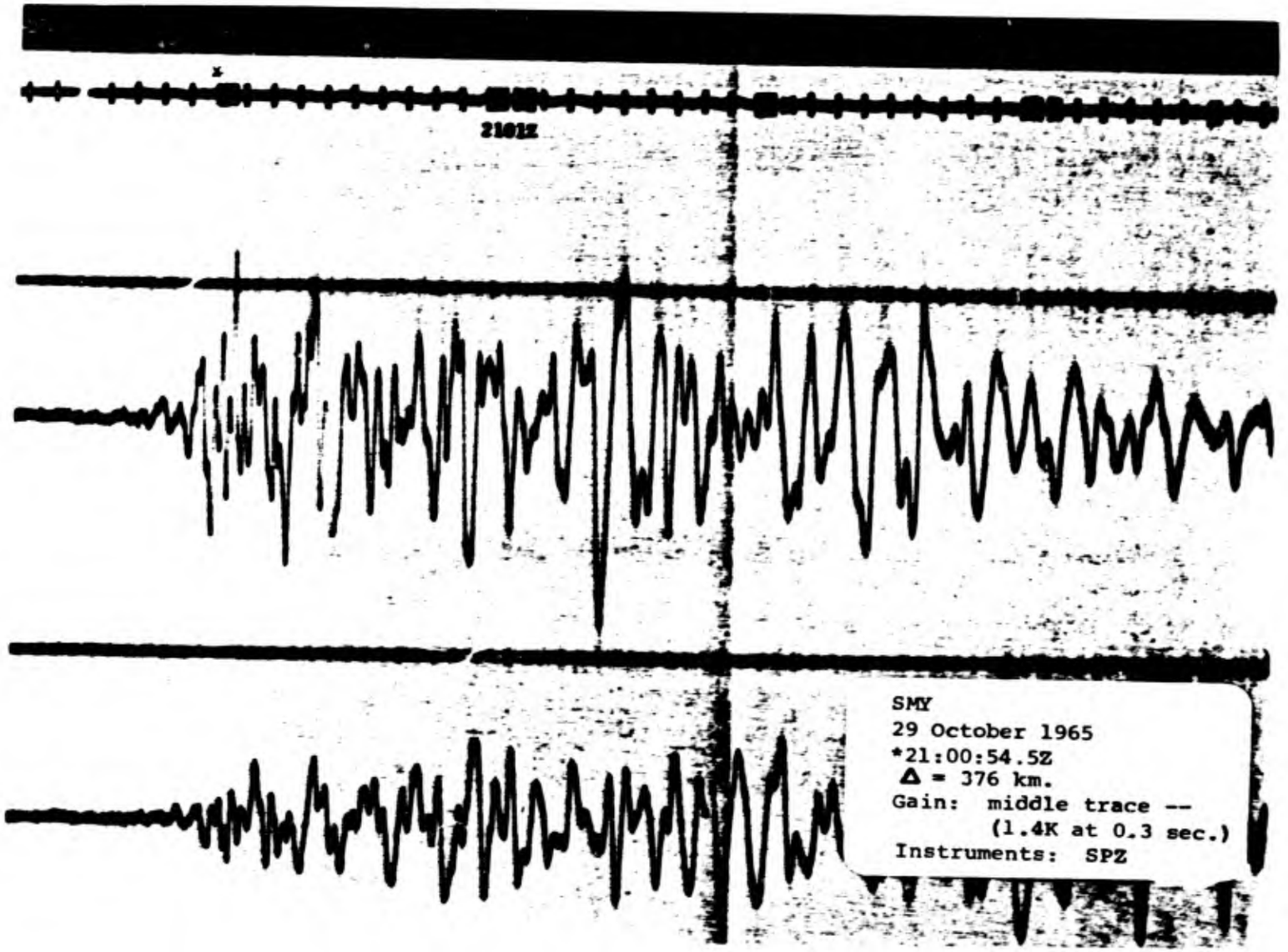
16:43:10
16:43:20
16:43:30

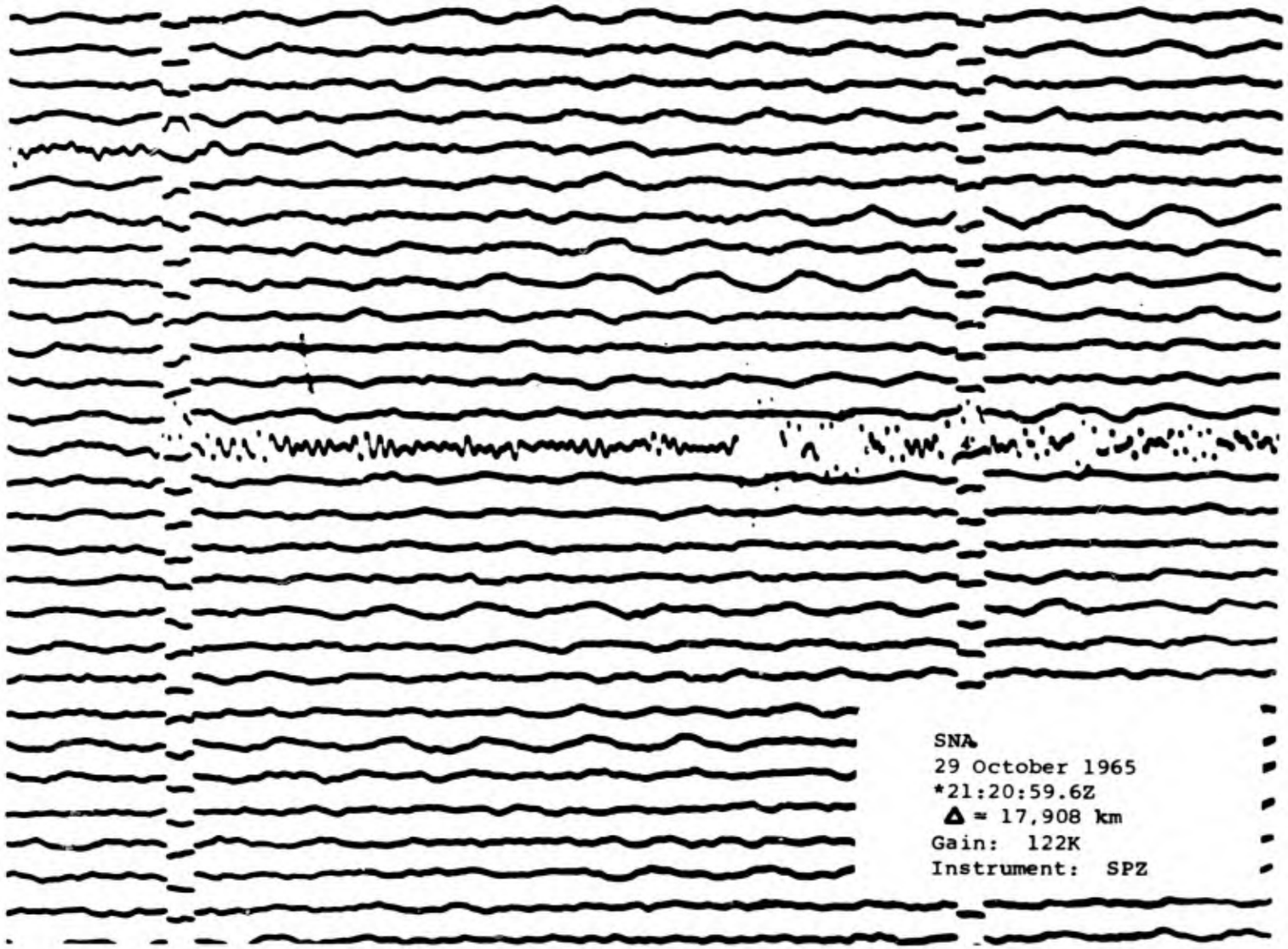
L.C.M. 16:44

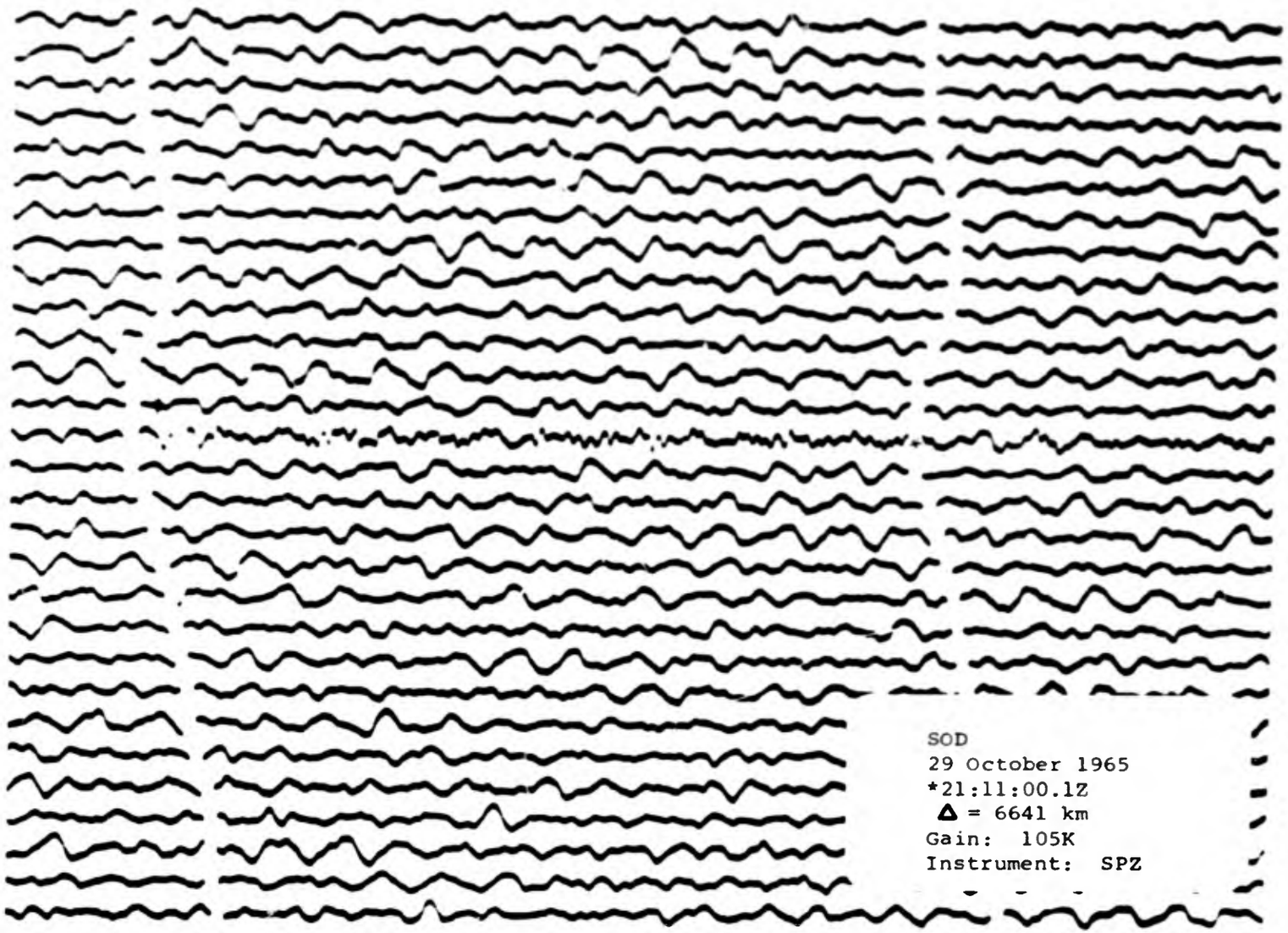
TIME CORR -0.5"

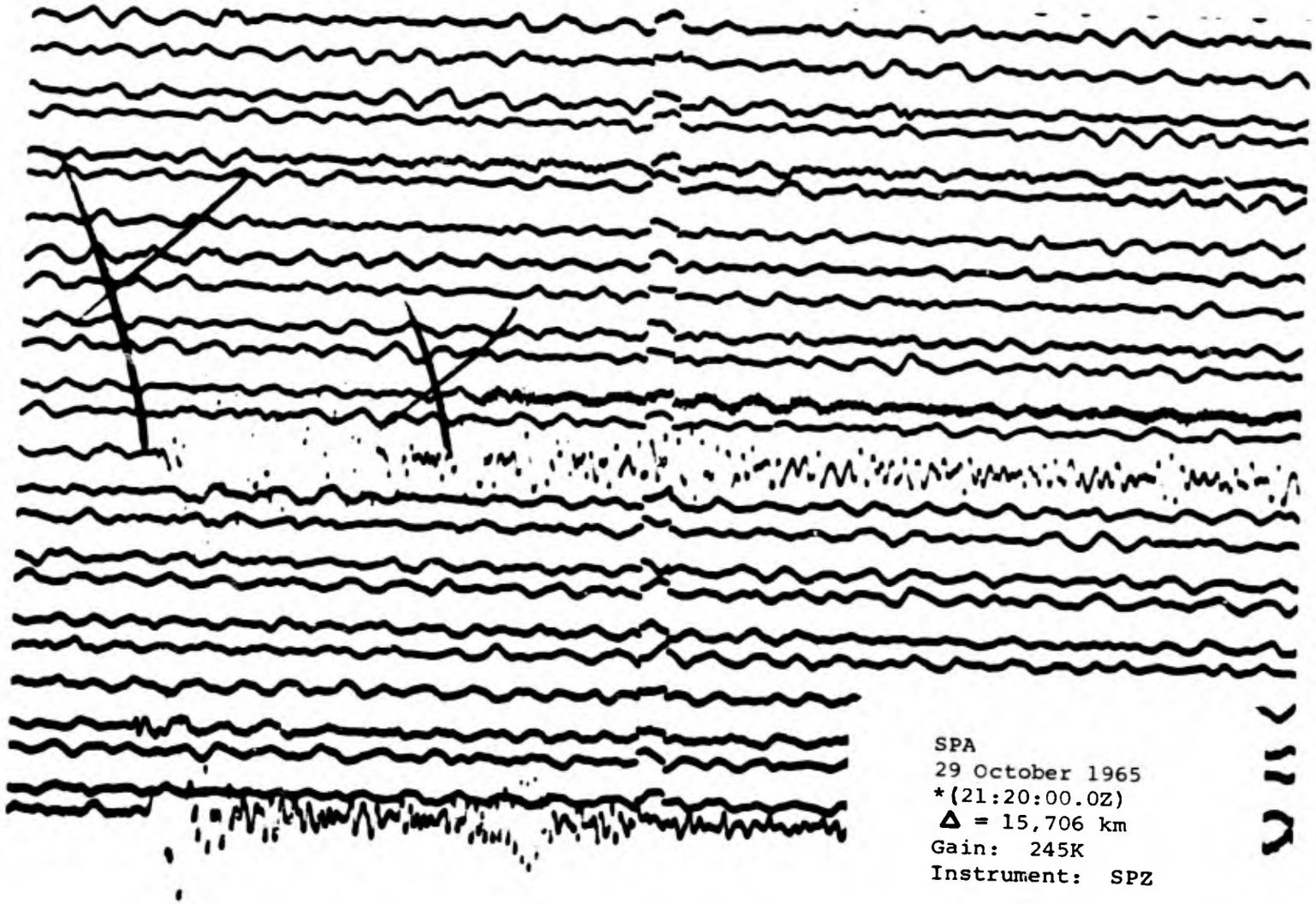

SJG
29 October 1965
*21:14:00.0Z
Δ = 10,055 km
Gain: 122K
Instrument: SPZ

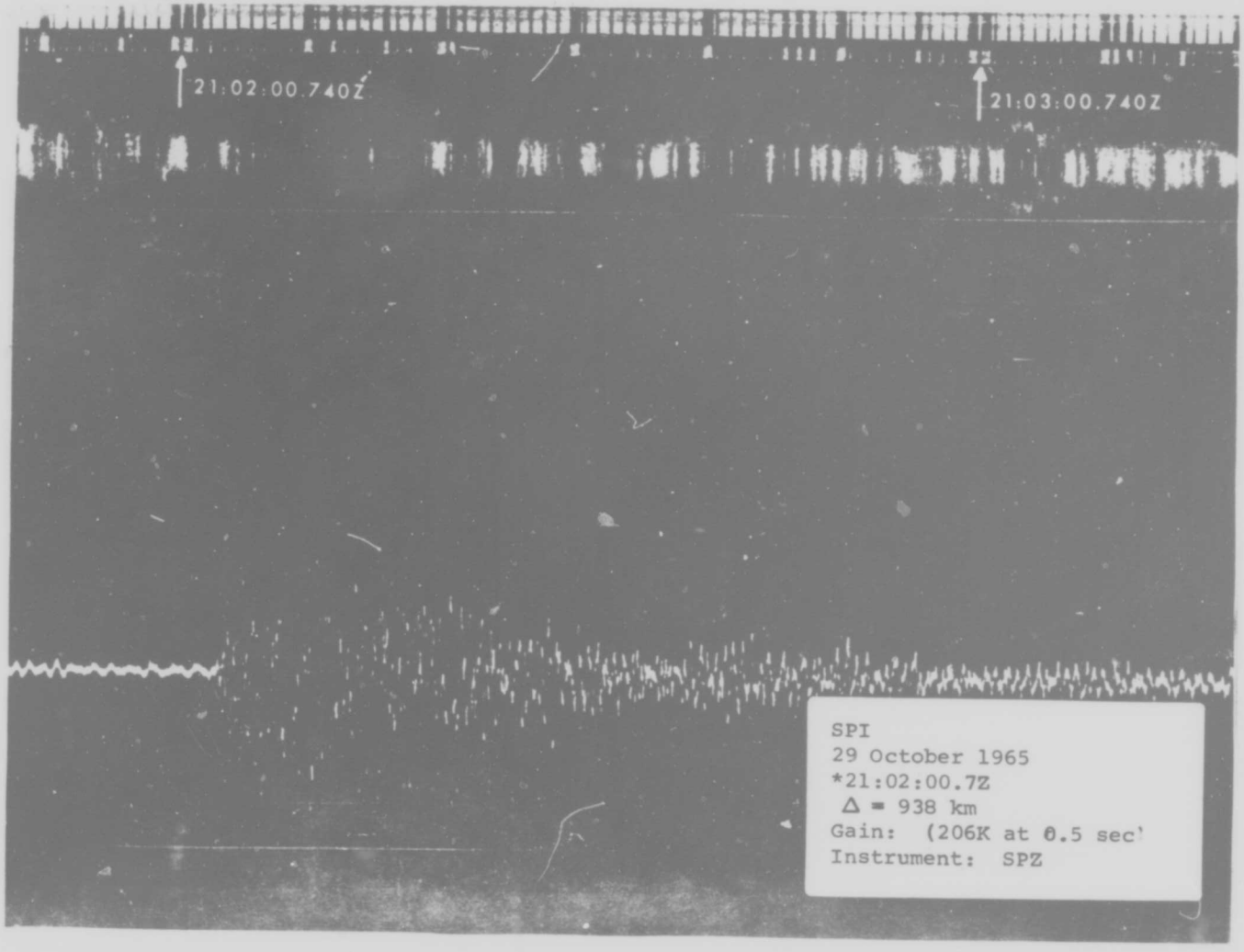

ESC
29 October 1963
Δ = 5262 km
Instrument: SP2

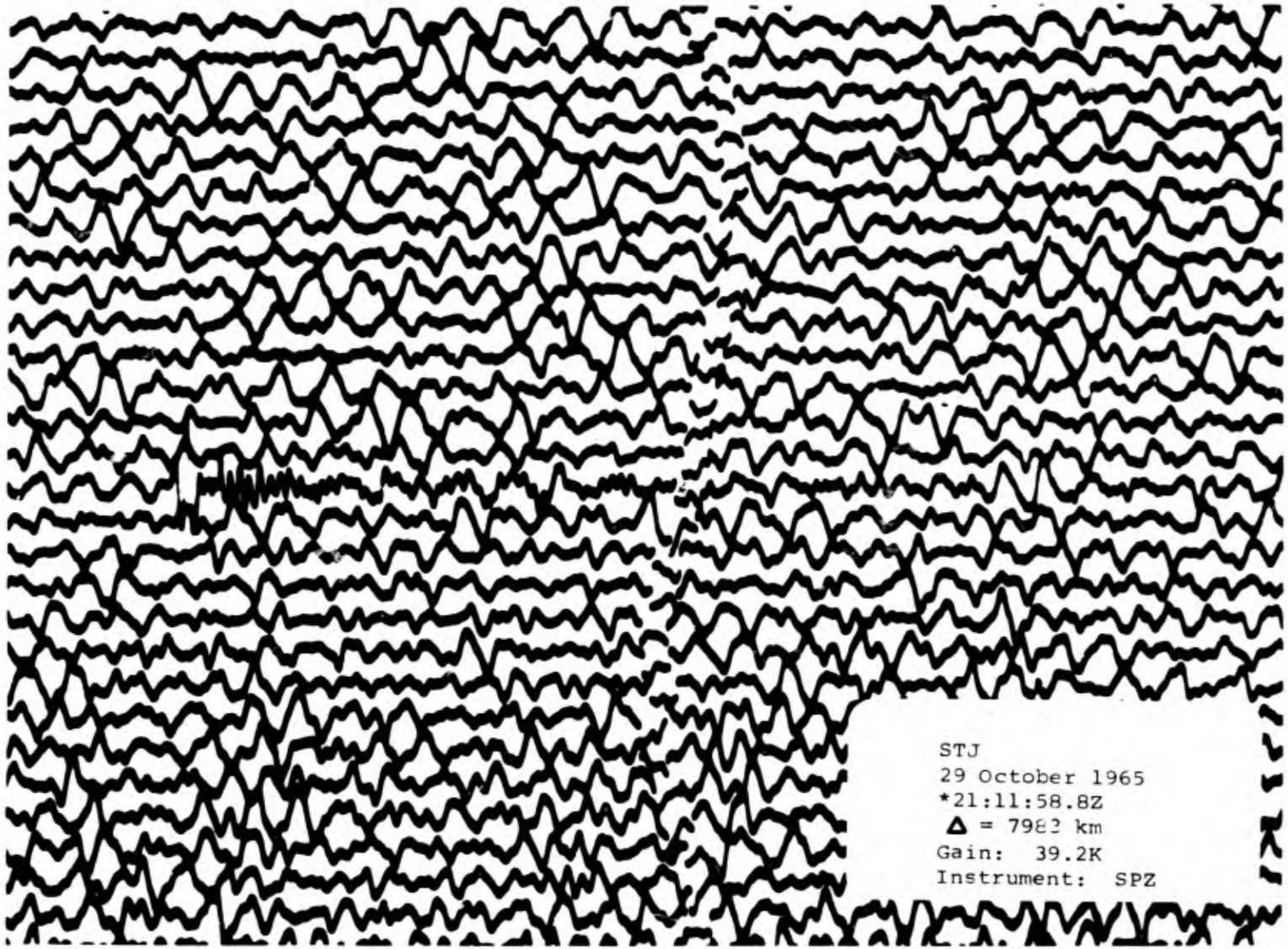

2101Z
SMY
29 October 1965
*21:00:54.5Z
Δ = 376 km.
Gain: middle trace --
(1.4K at 0.3 sec.)
Instruments: SPZ

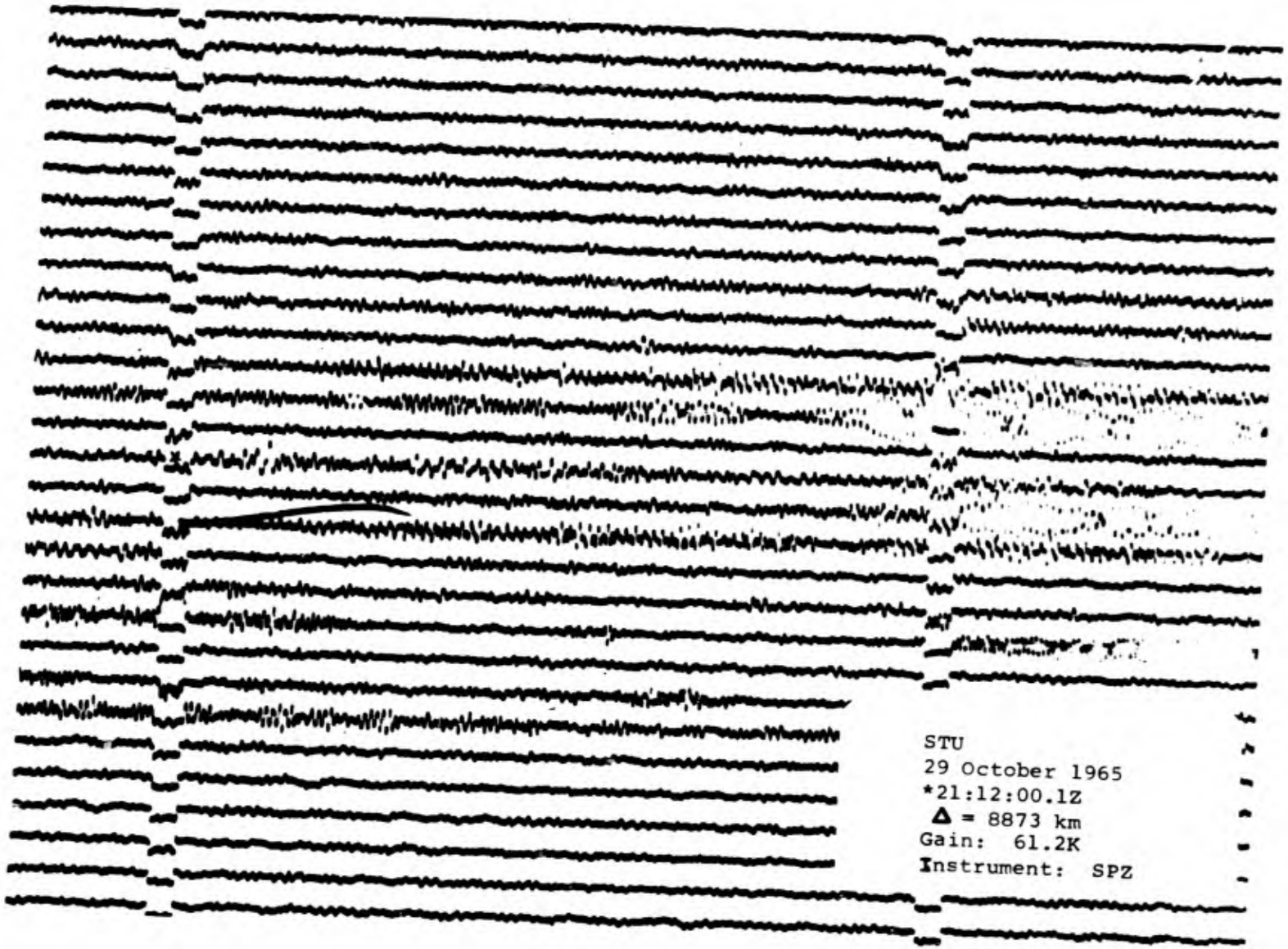

SNA
29 October 1965
*21:20:59.6Z
Δ ≈ 17,908 km
Gain: 122K
Instrument: SPZ

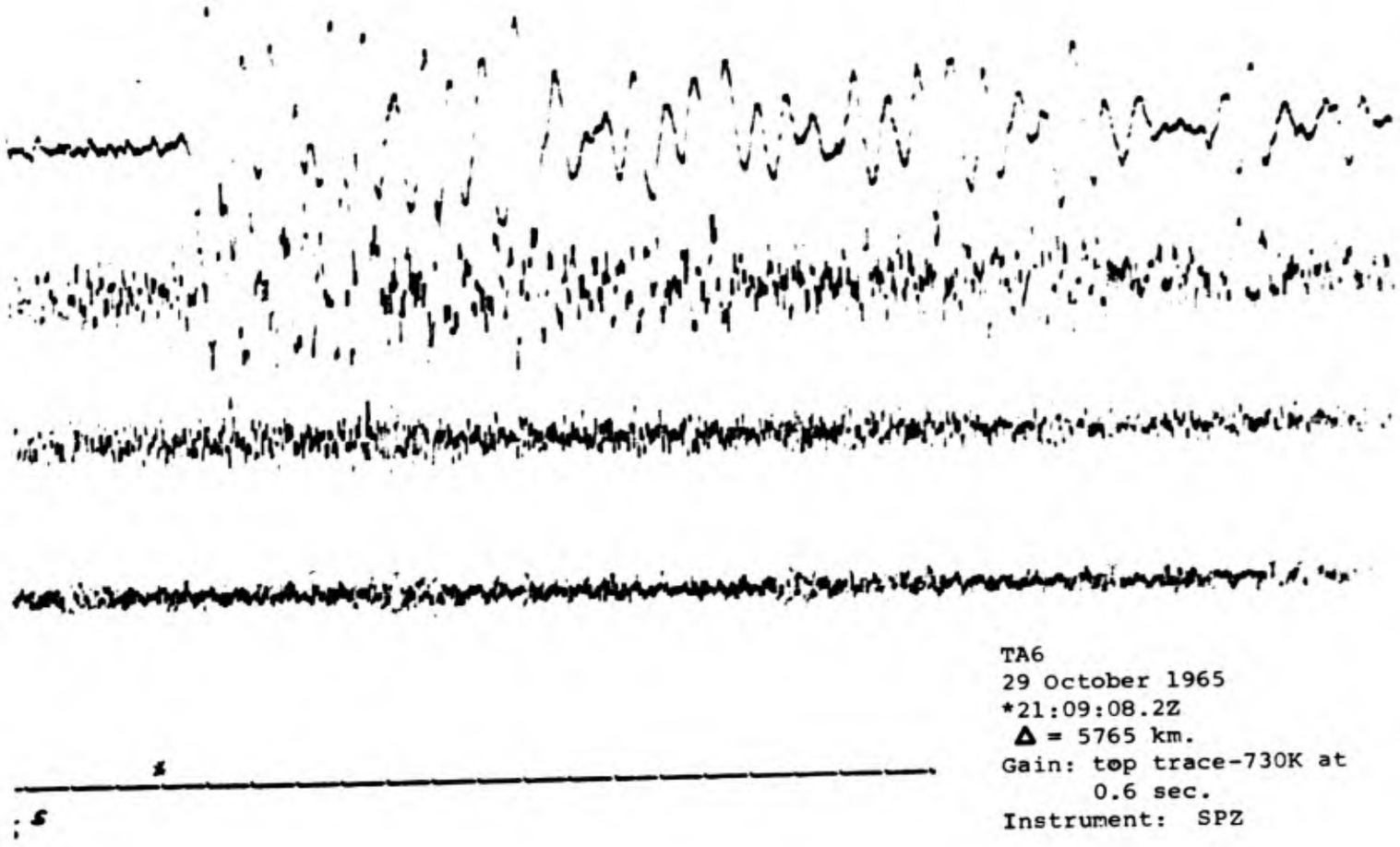

SOD
29 October 1965
*21:11:00.1Z
Δ = 6641 km
Gain: 105K
Instrument: SPZ


SPA
29 October 1965
*(21:20:00.0Z)
Δ = 15,706 km
Gain: 245K
Instrument: SPZ

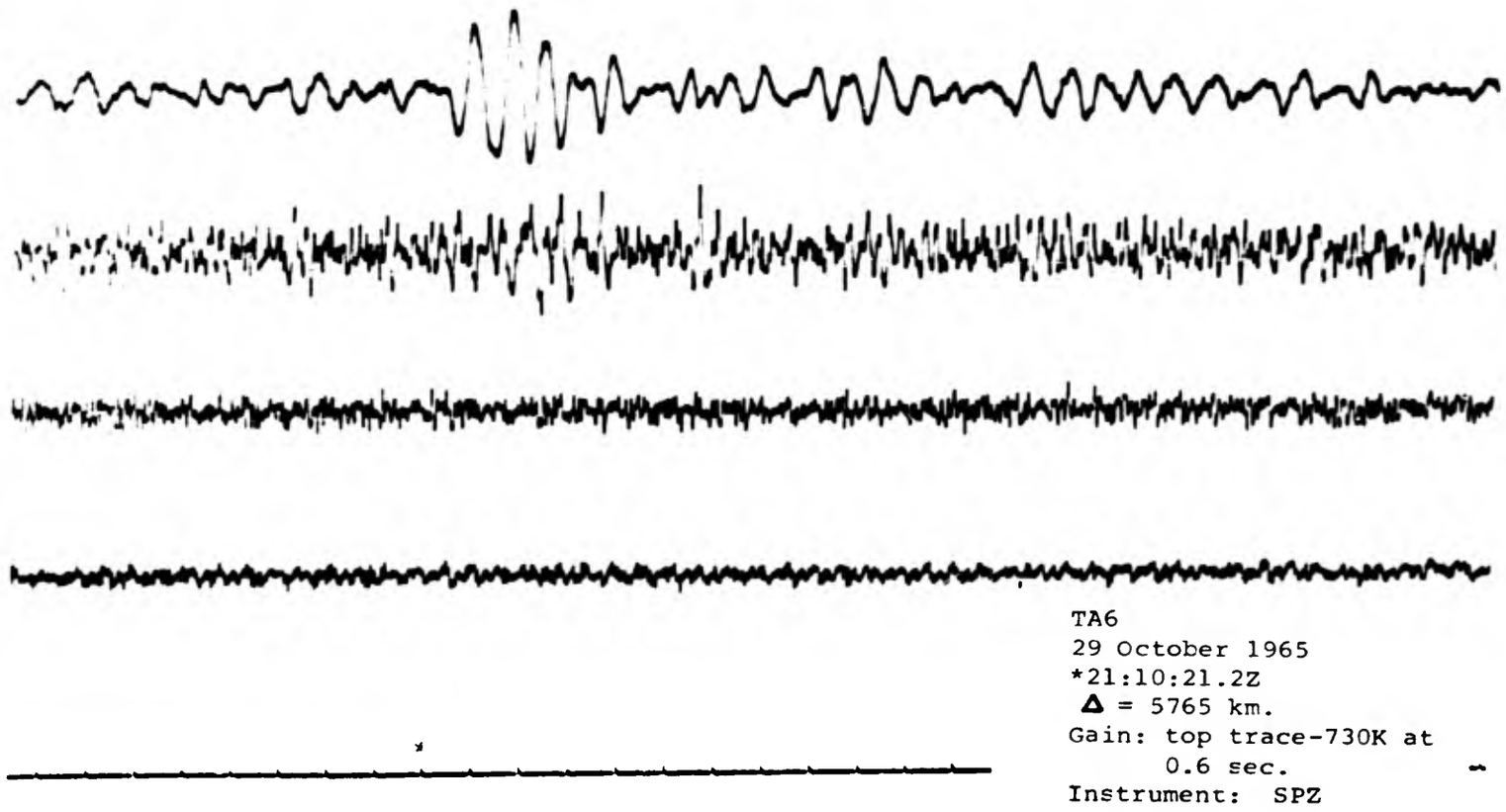

21:02:00.740Z
21:03:00.740Z
SPI
29 October 1965
*21:02:00.7Z
Δ = 938 km
Gain: (206K at 0.5 sec'
Instrument: SPZ

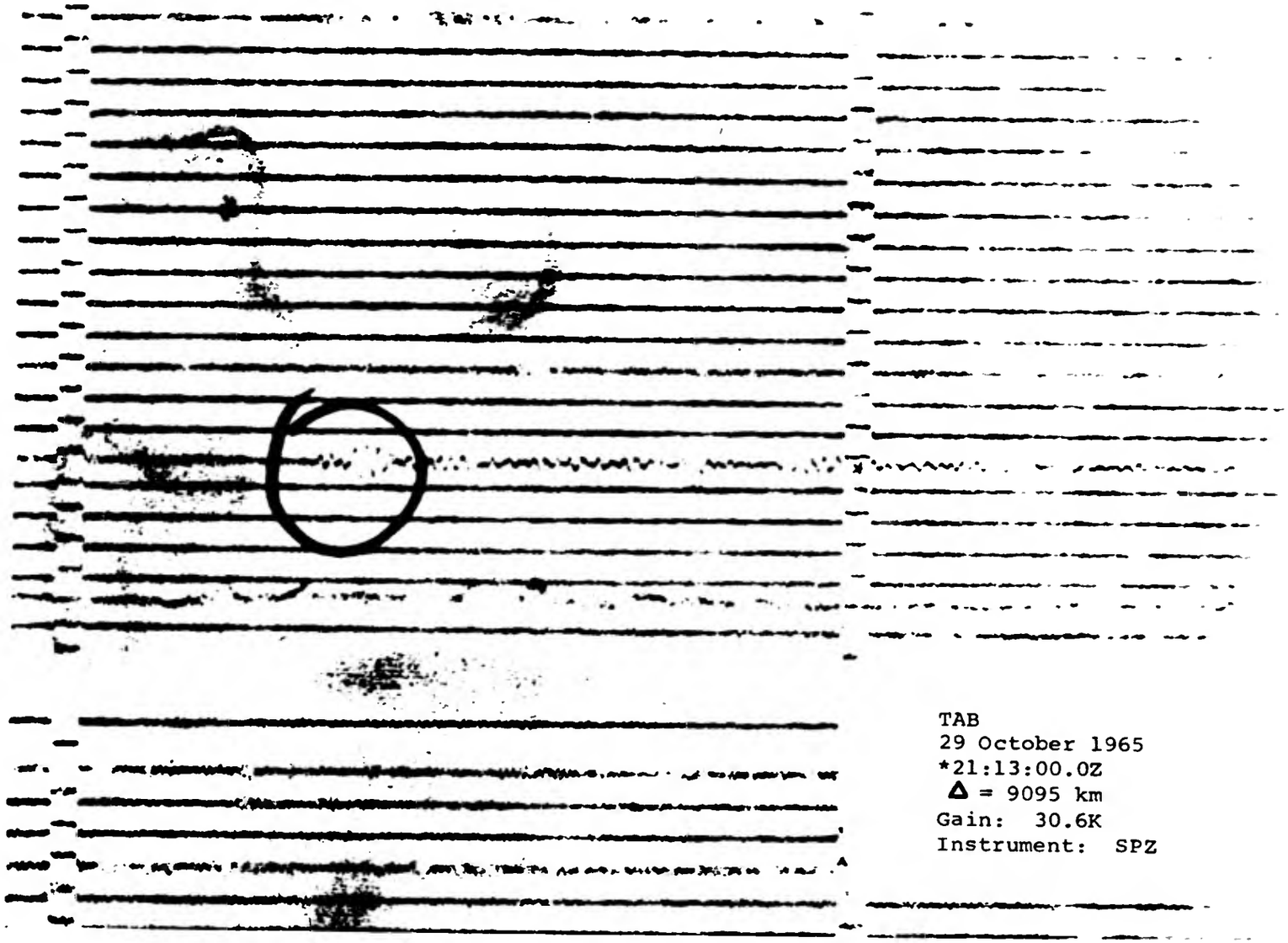

STJ
29 October 1965
*21:11:58.8Z
Δ = 7982 km
Gain: 39.2K
Instrument: SPZ

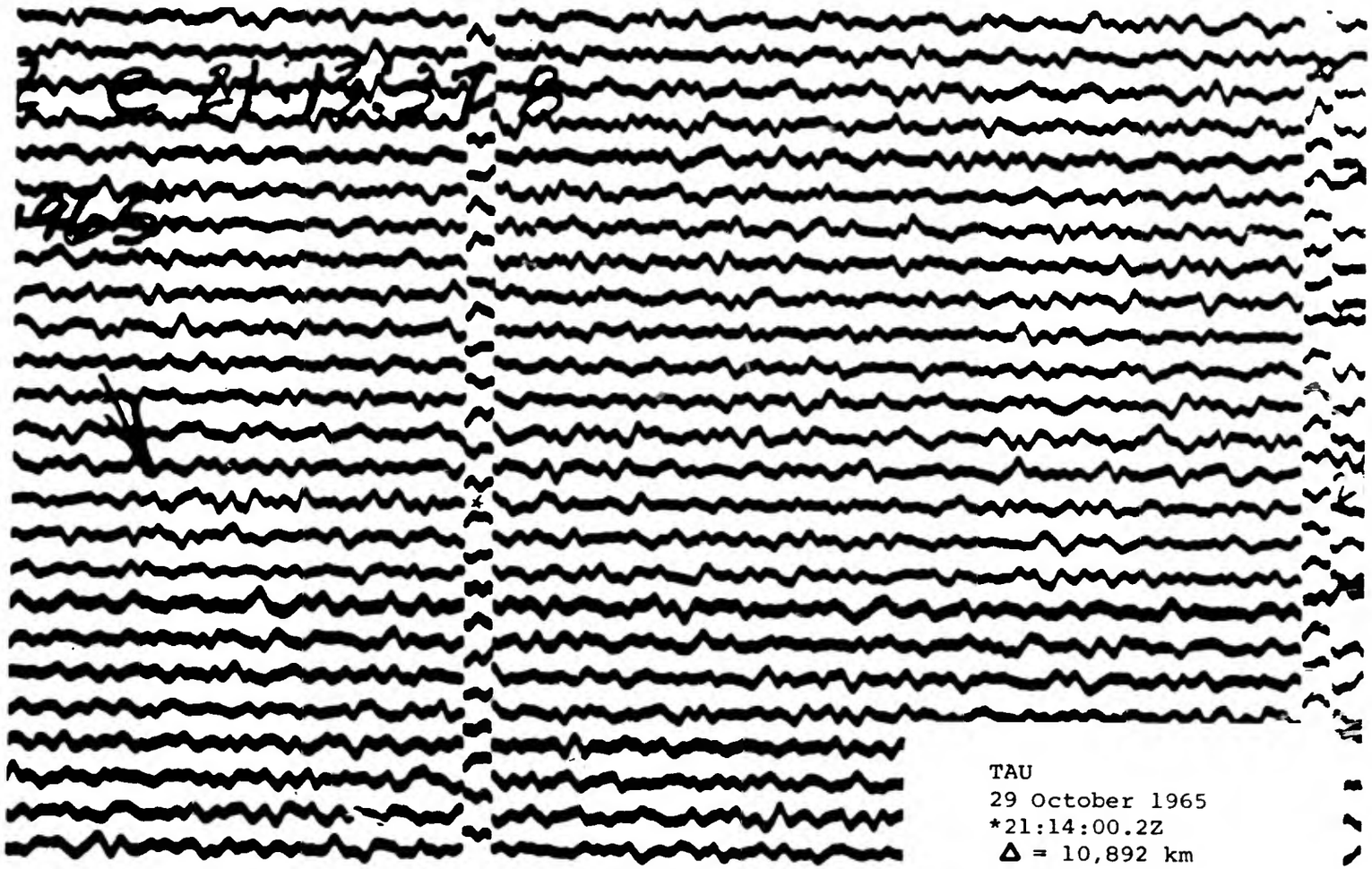

STU
29 October 1965
*21:12:00.1Z
Δ = 8873 km
Gain: 61.2K
Instrument: SPZ

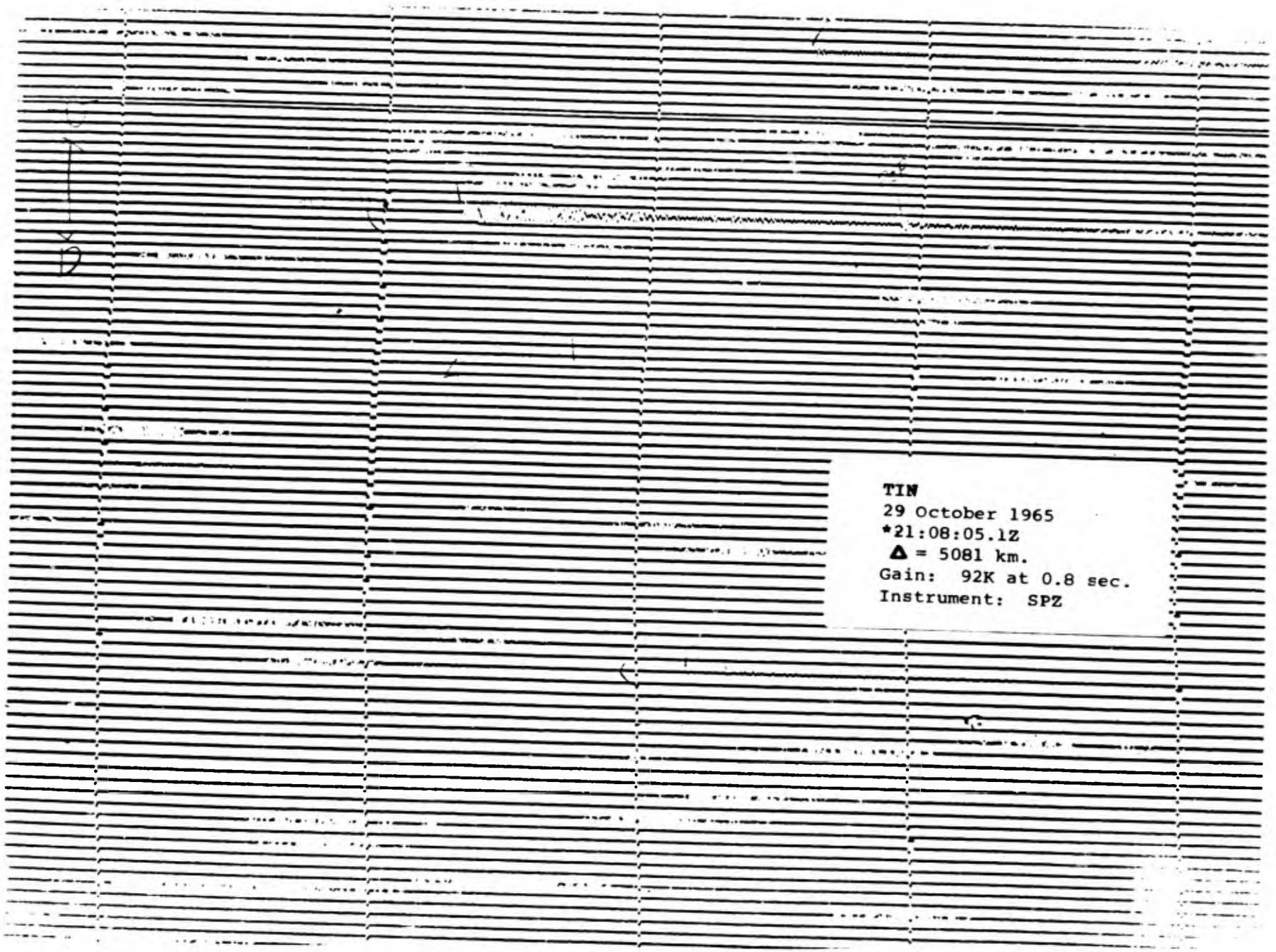


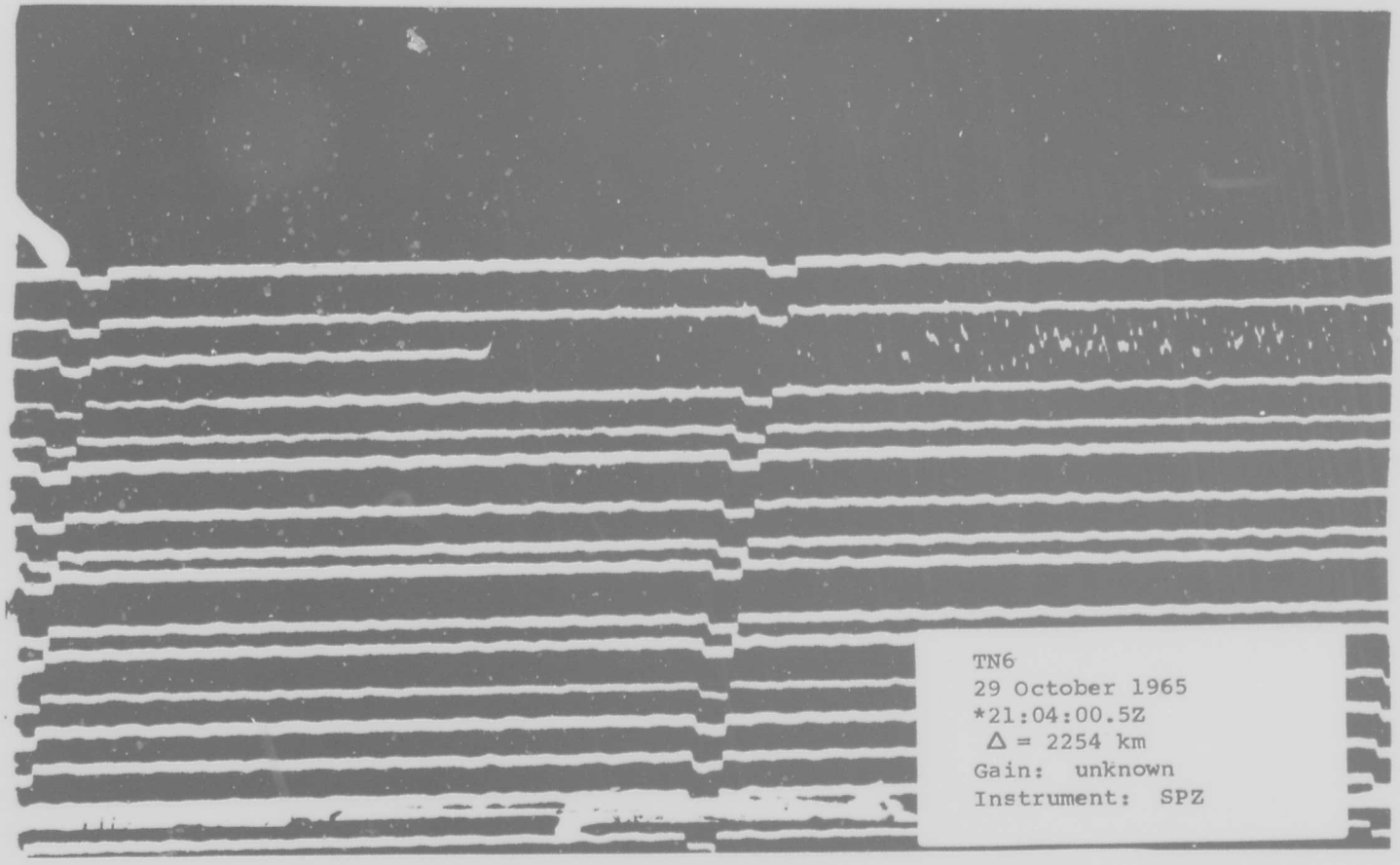
TA6
29 October 1965
*21:09:08.2Z
Δ = 5765 km.
Gain: top trace-730K at
0.6 sec.
Instrument: SPZ

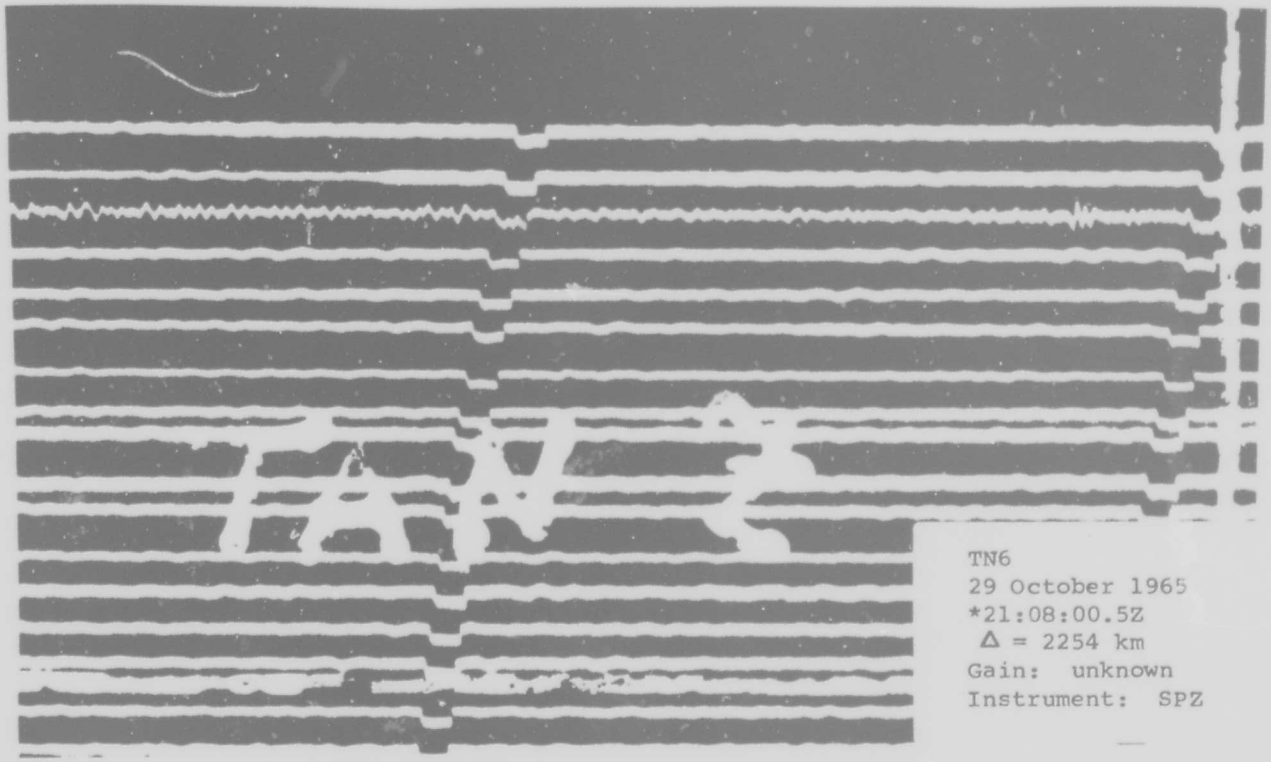

TA6
29 October 1965
*21:10:21.2Z
Δ = 5765 km.
Gain: top trace-730K at
0.6 sec.
Instrument: SPZ

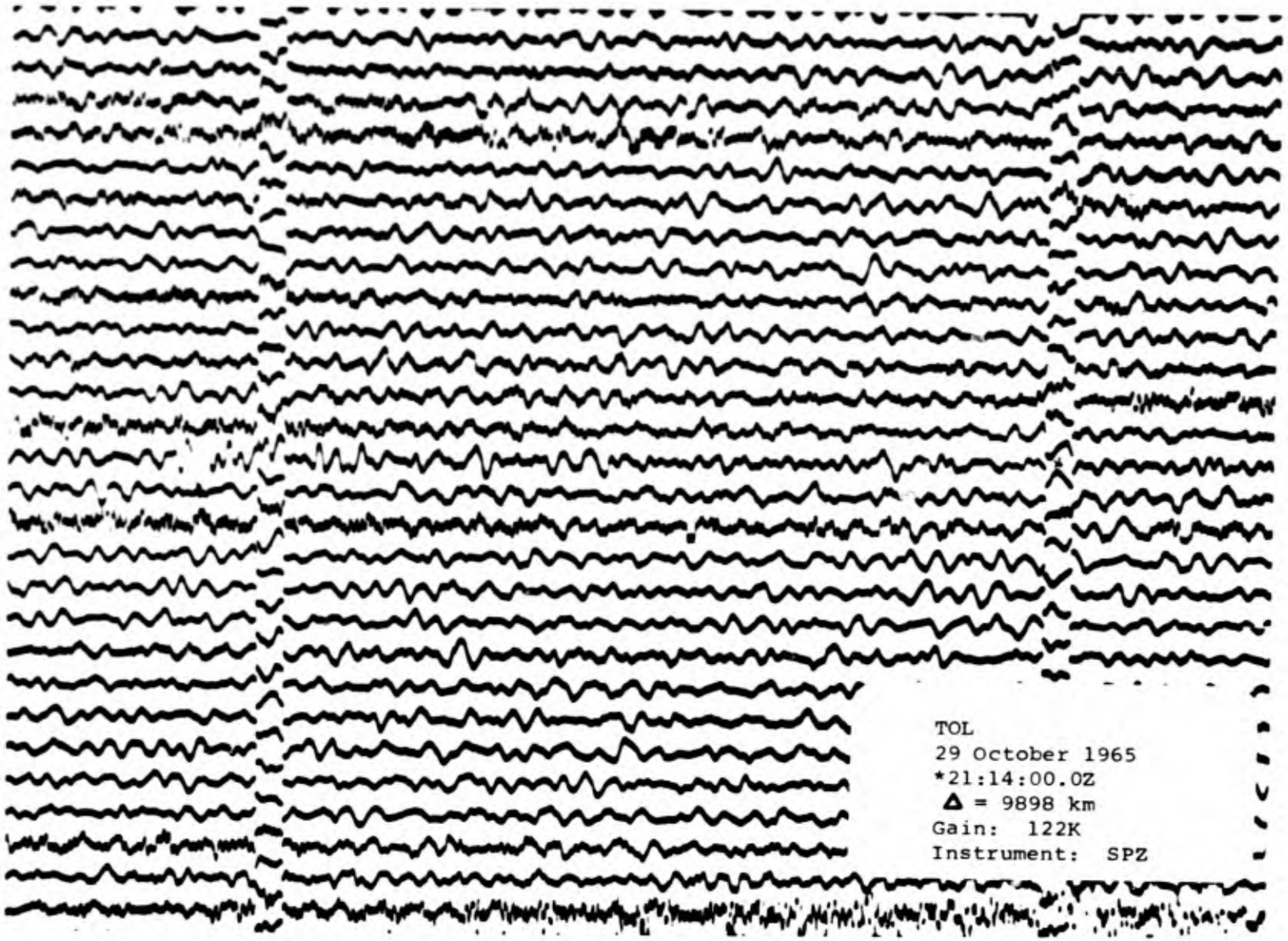

TAB
29 October 1965
*21:13:00.0Z
Δ = 9095 km
Gain: 30.6K
Instrument: SPZ

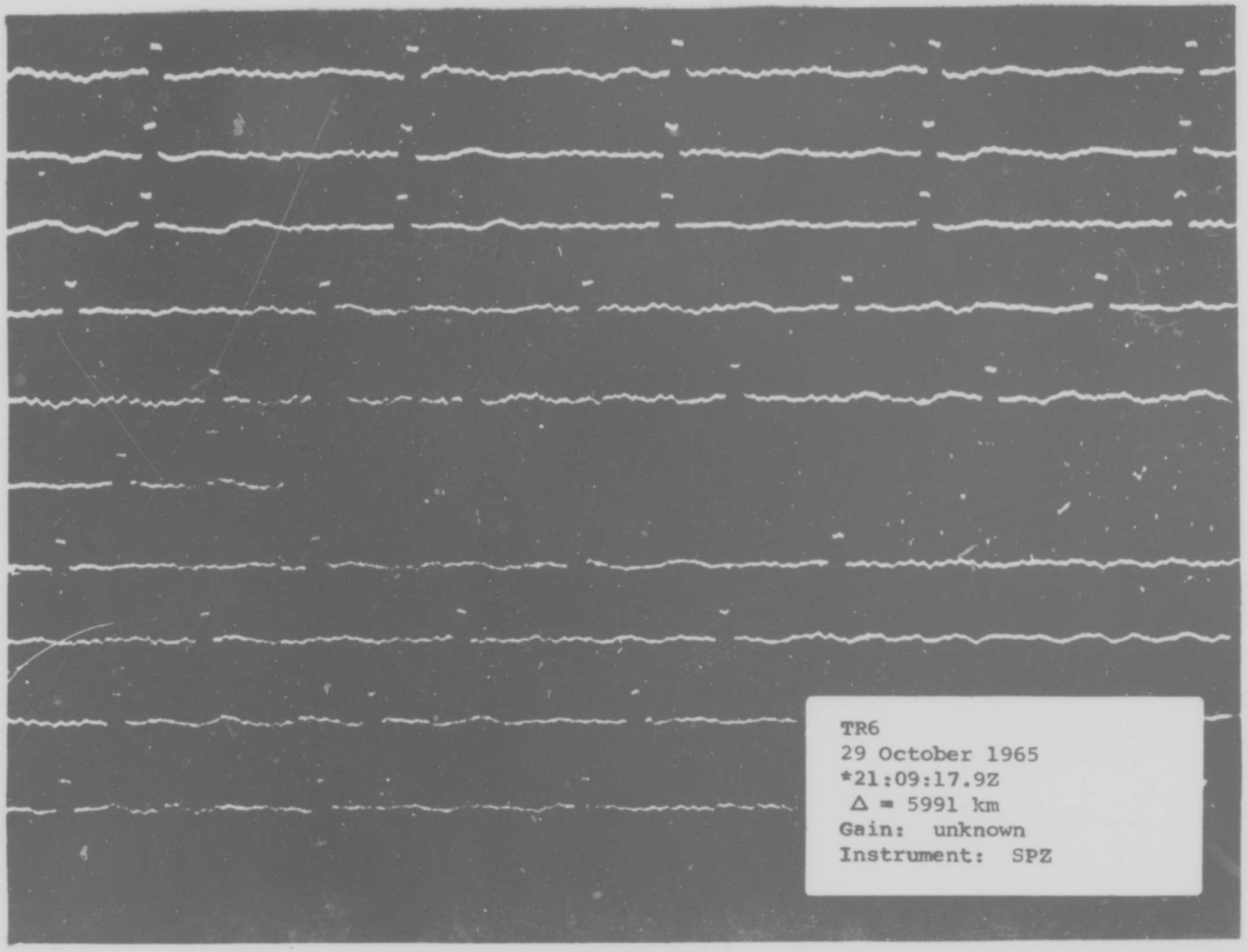

TAU
29 October 1965
*21:14:00.2Z
Δ = 10,892 km
Gain: 61.2K
Instrument: SPZ

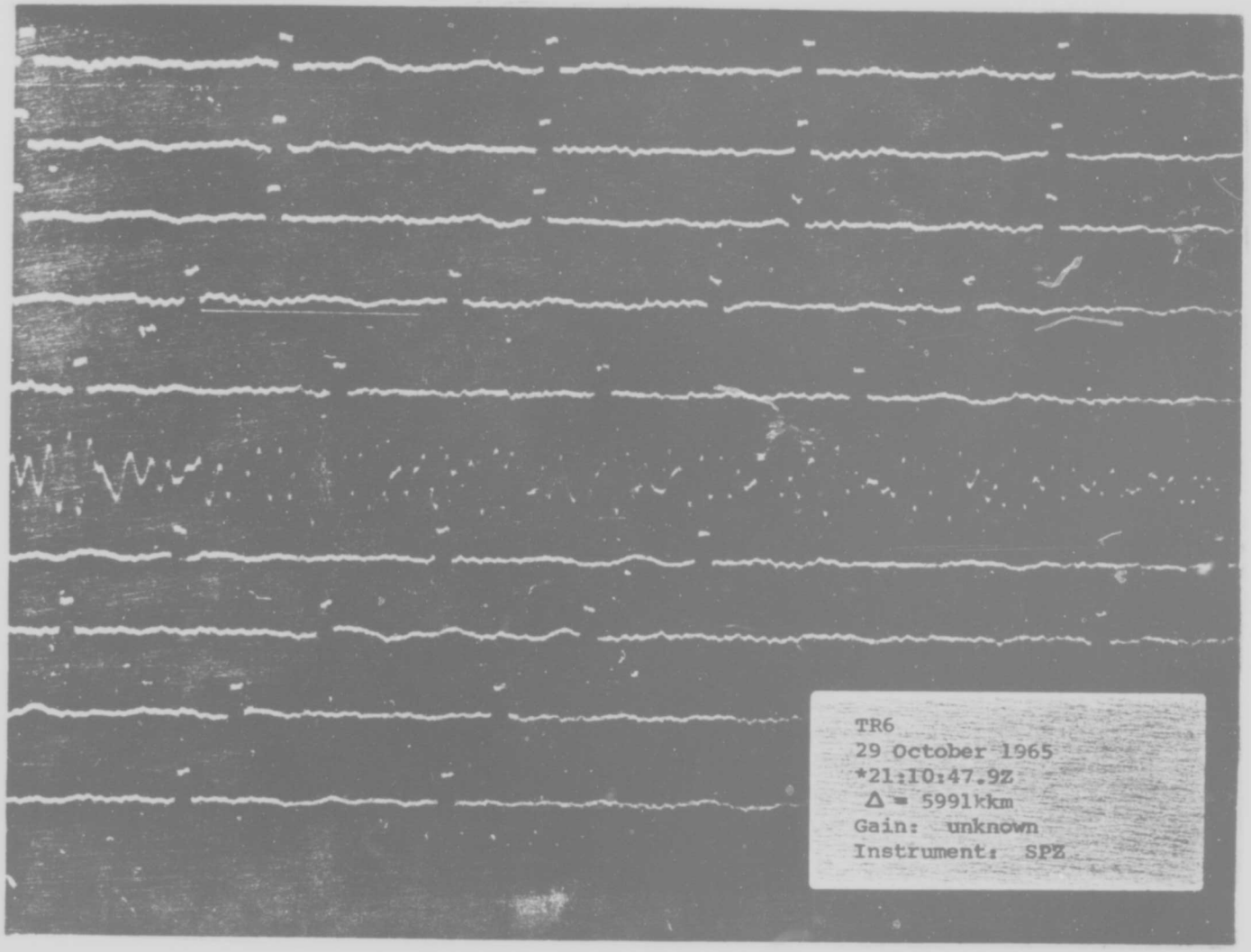

TIN
29 October 1965
*21:08:05.1Z
Δ = 5081 km.
Gain: 92K at 0.8 sec.
Instrument: SPZ

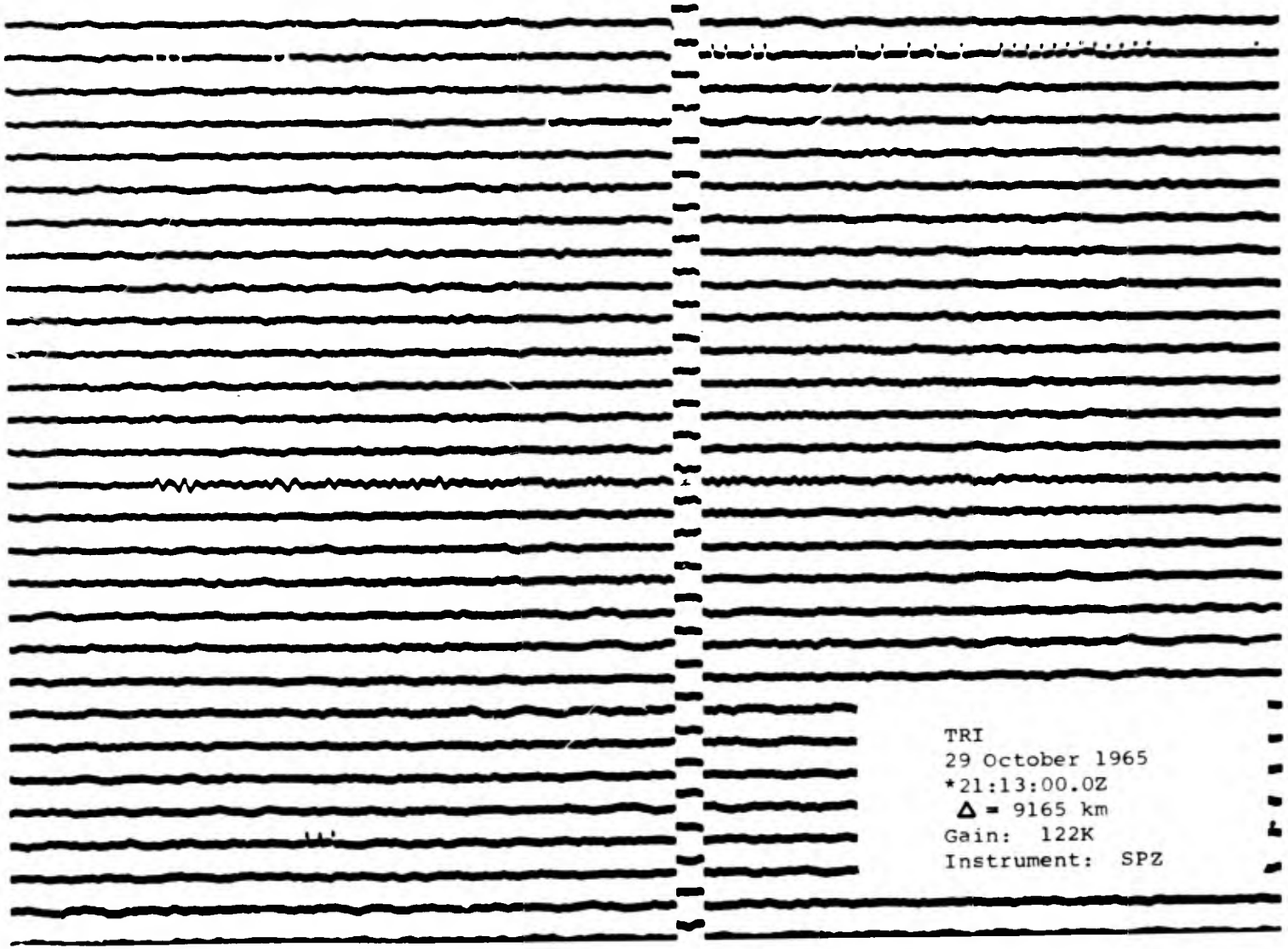

TN6
29 October 1965
*21:04:00.5Z
Δ = 2254 km
Gain: unknown
Instrument: SPZ

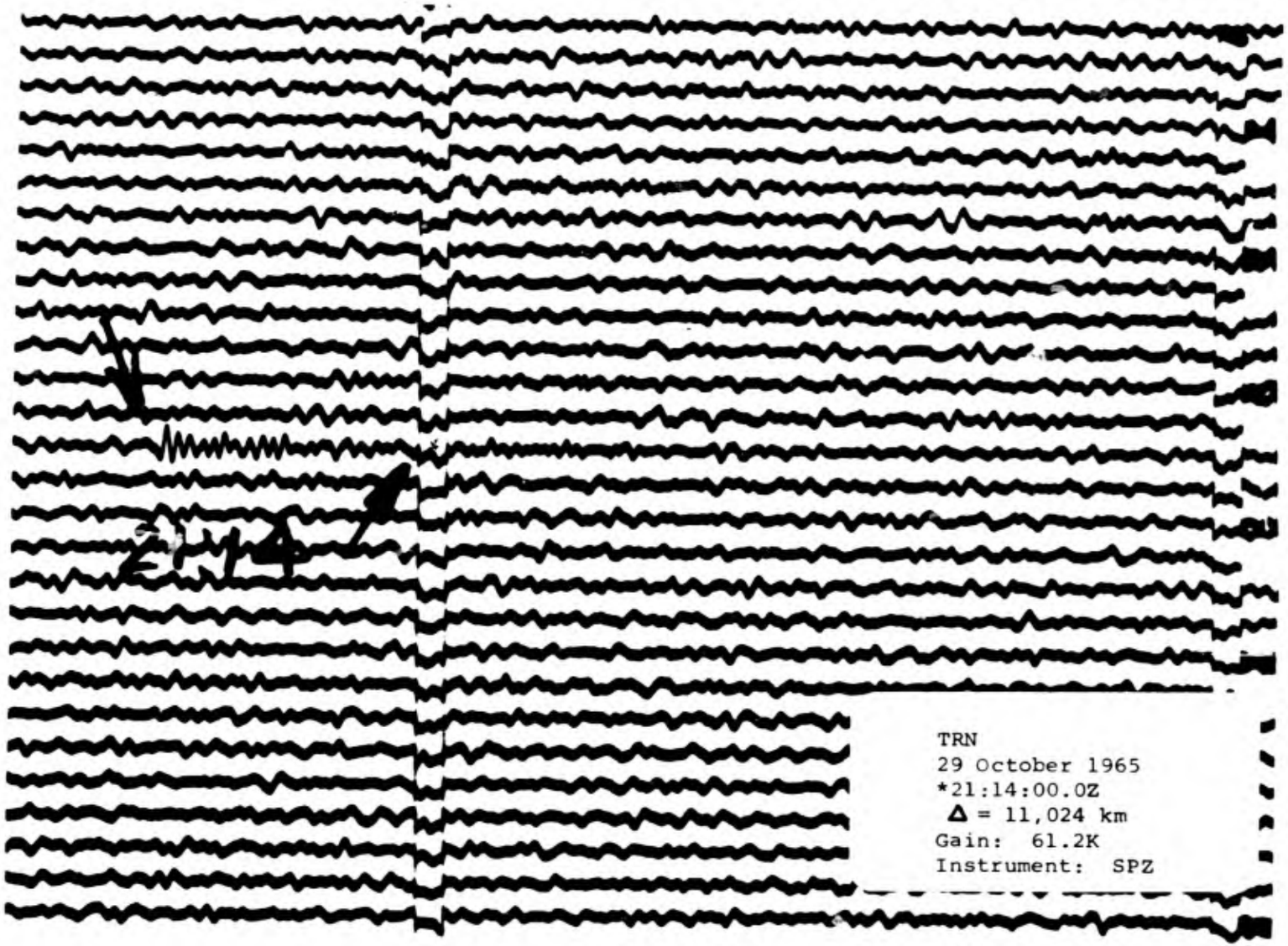

TN6
29 October 1965
*21:08:00.5Z
Δ = 2254 km
Gain: unknown
Instrument: SPZ

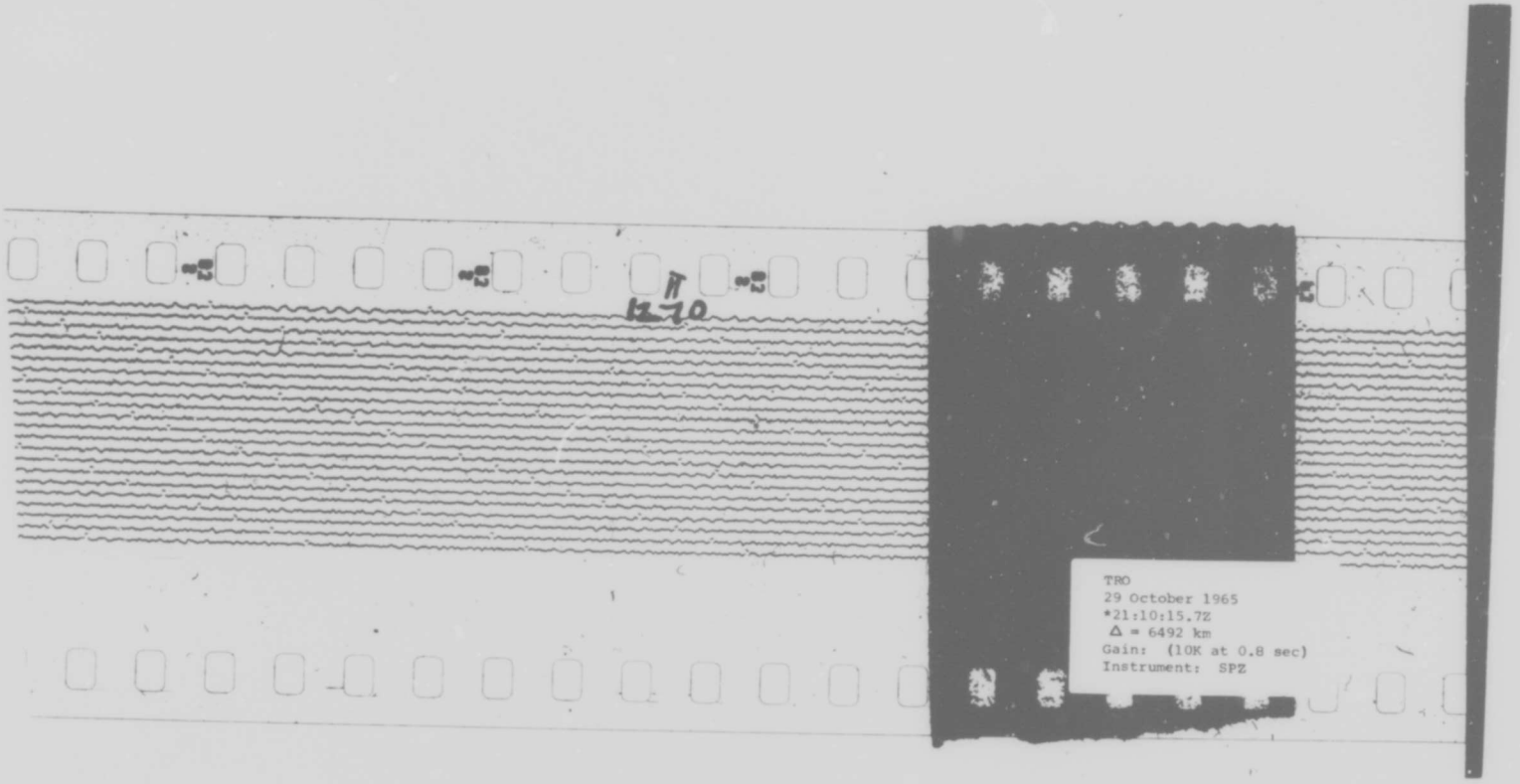

TOL
29 October 1965
*21:14:00.0Z
Δ = 9898 km
Gain: 122K
Instrument: SPZ

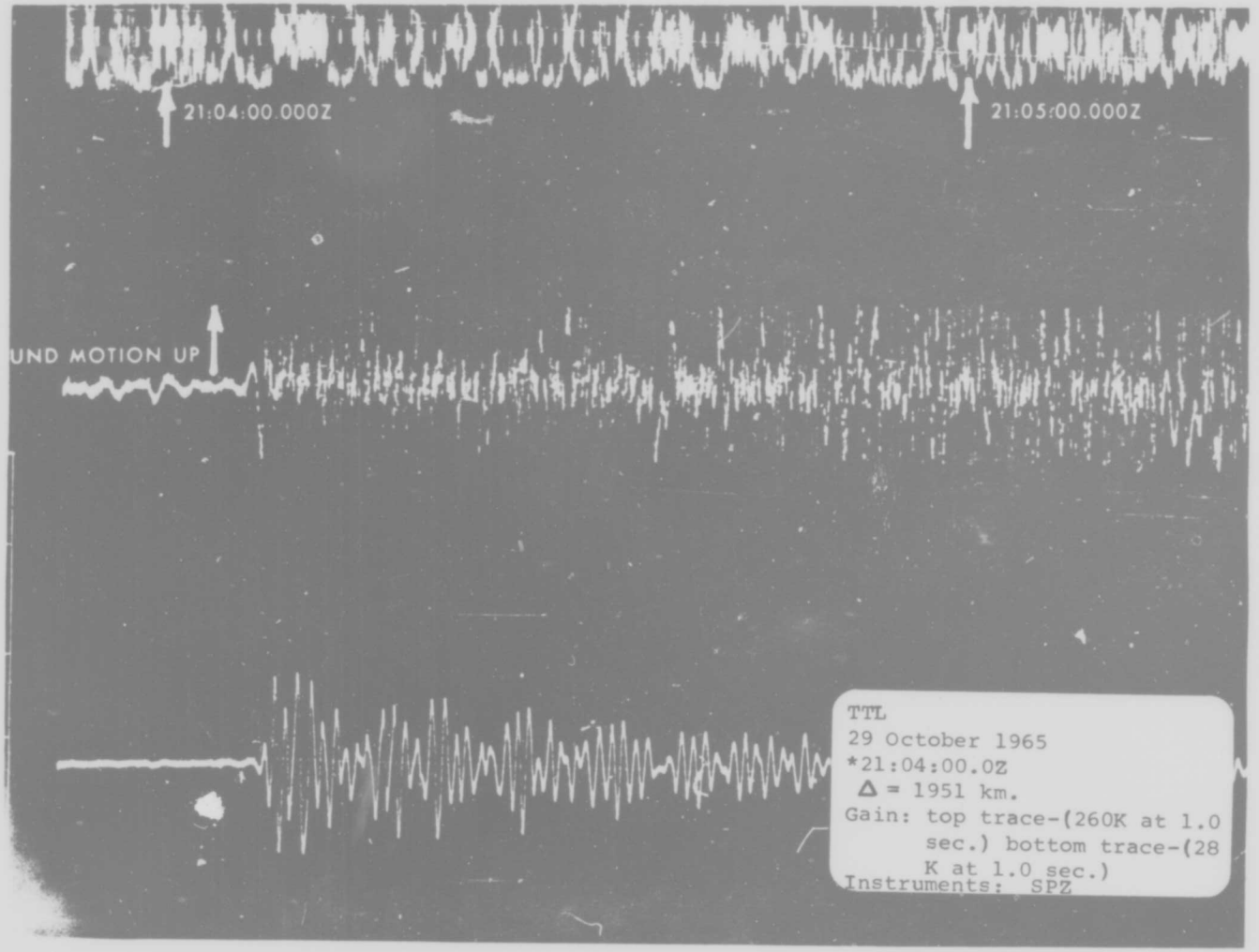

TR6
29 October 1965
*21:09:17.9Z
Δ = 5991 km
Gain: unknown
Instrument: SPZ

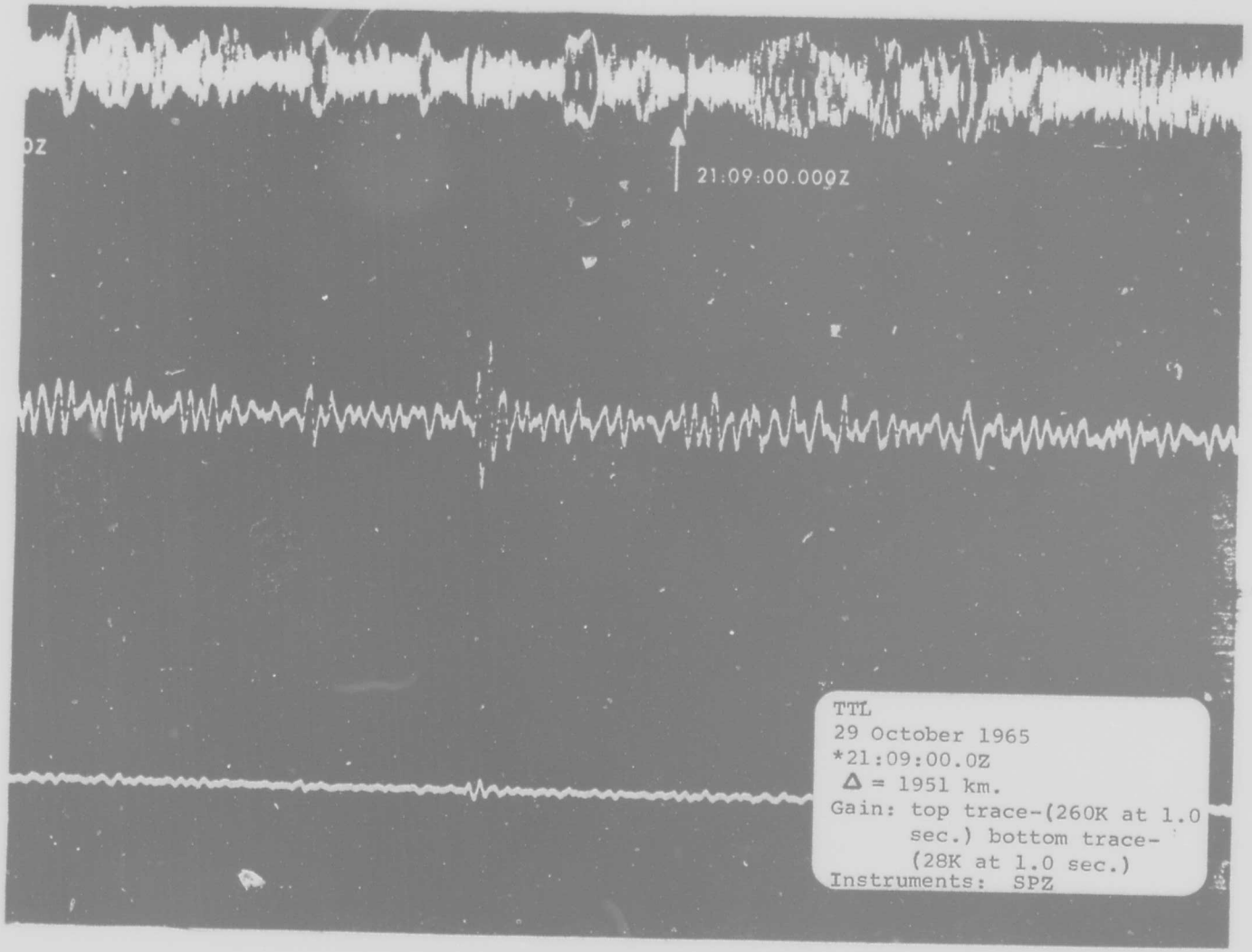

TR6
29 October 1965
*21:10:47.9Z
Δ = 5991kkm
Gain: unknown
Instrument: SPZ

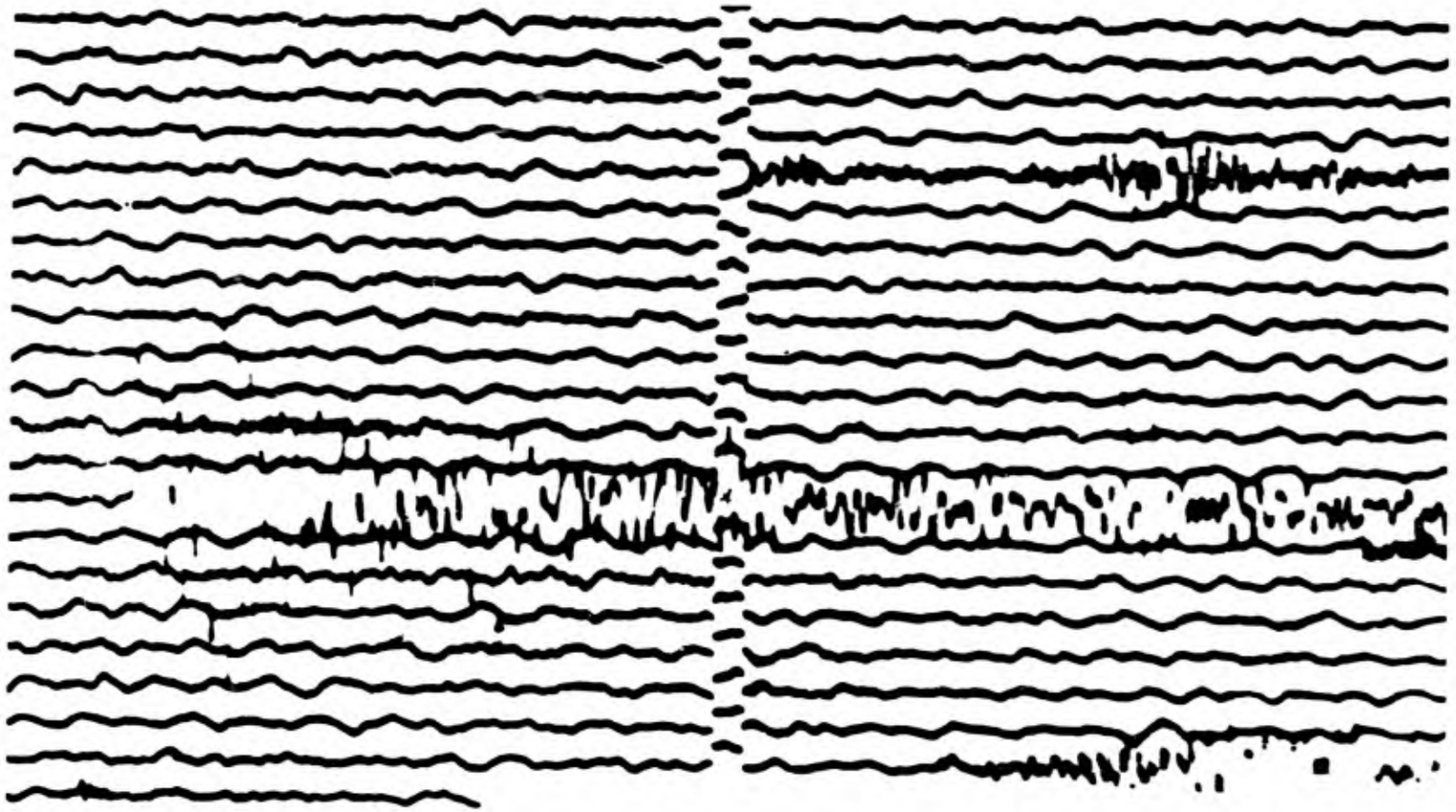

TRI
29 October 1965
*21:13:00.0Z
Δ = 9165 km
Gain: 122K
Instrument: SPZ


TRN
29 October 1965
*21:14:00.0Z
Δ = 11,024 km
Gain: 61.2K
Instrument: SPZ

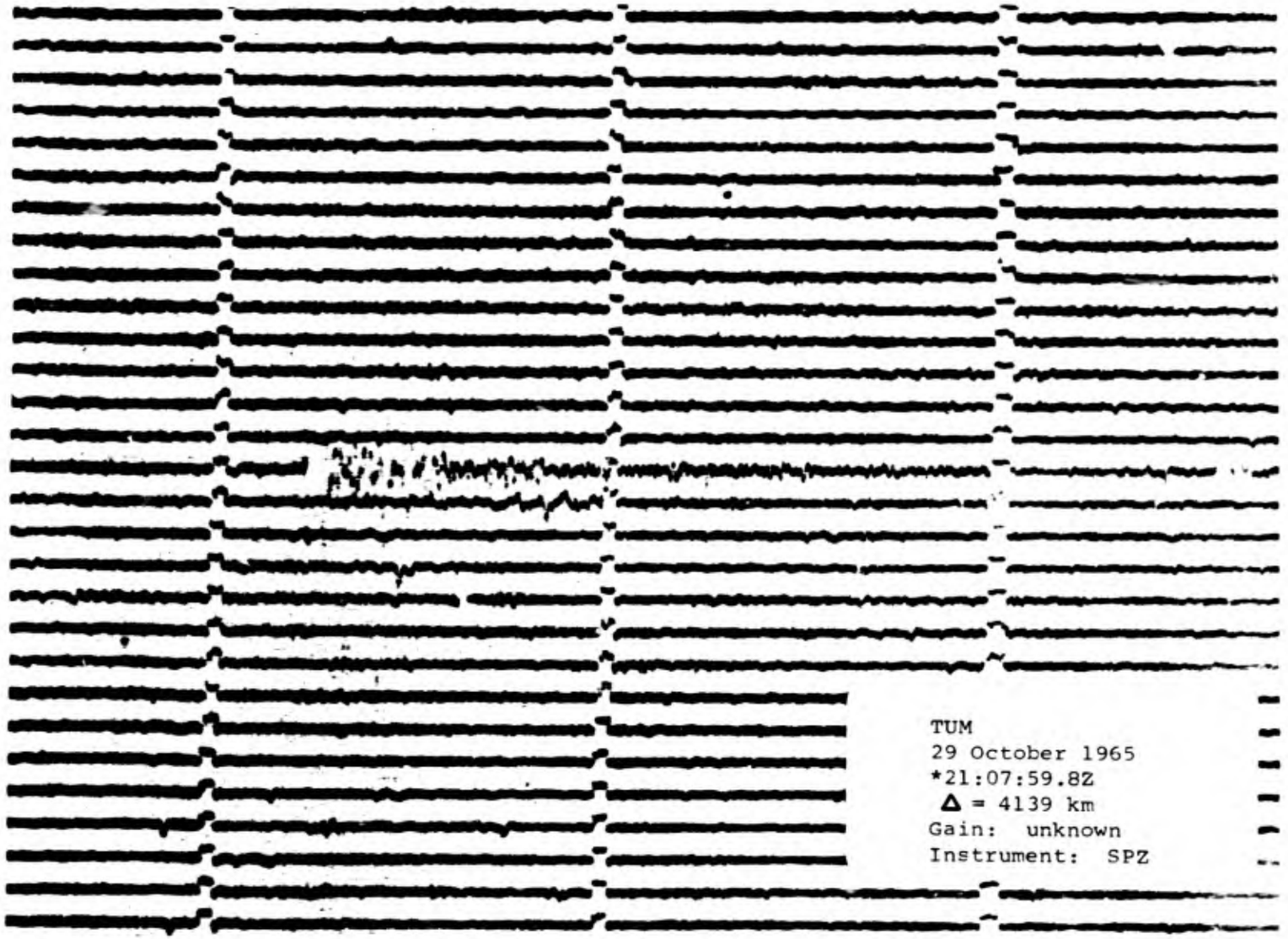

TRO
29 October 1965
*21:10:15.7Z
Δ = 6492 km
Gain: (10K at 0.8 sec)
Instrument: SPZ


21:04:00.000Z
21:05:00.000Z
UND MOTION UP
TTL
29 October 1965
*21:04:00.0Z
Δ = 1951 km.
Gain: top trace-(260K at 1.0 sec.) bottom trace-(28 K at 1.0 sec.)
Instruments: SPZ

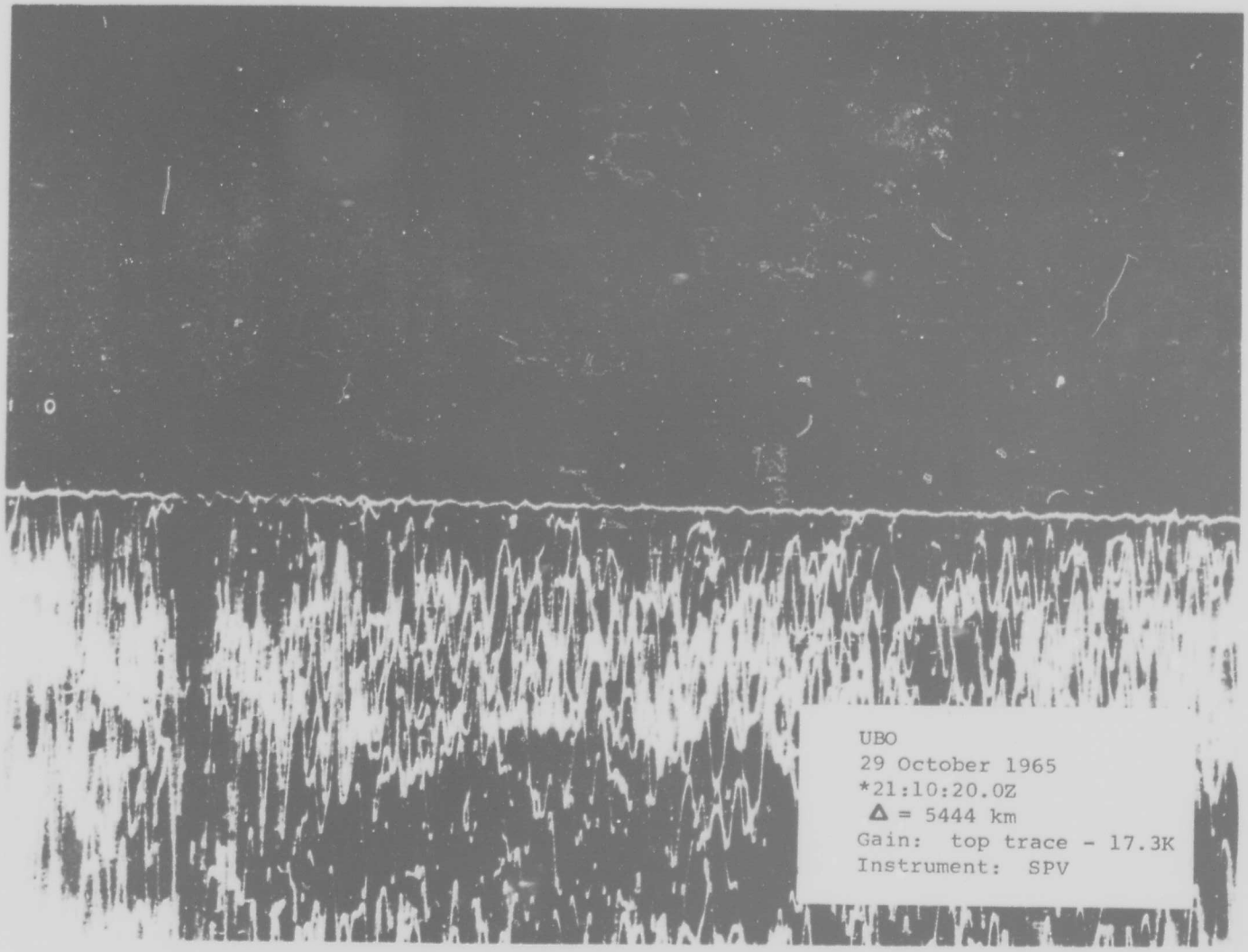

OZ
21:09:00.000Z
TTL
29 October 1965
*21:09:00.0Z
Δ = 1951 km.
Gain: top trace-(260K at 1.0 sec.) bottom trace-(28K at 1.0 sec.)
Instruments: SPZ

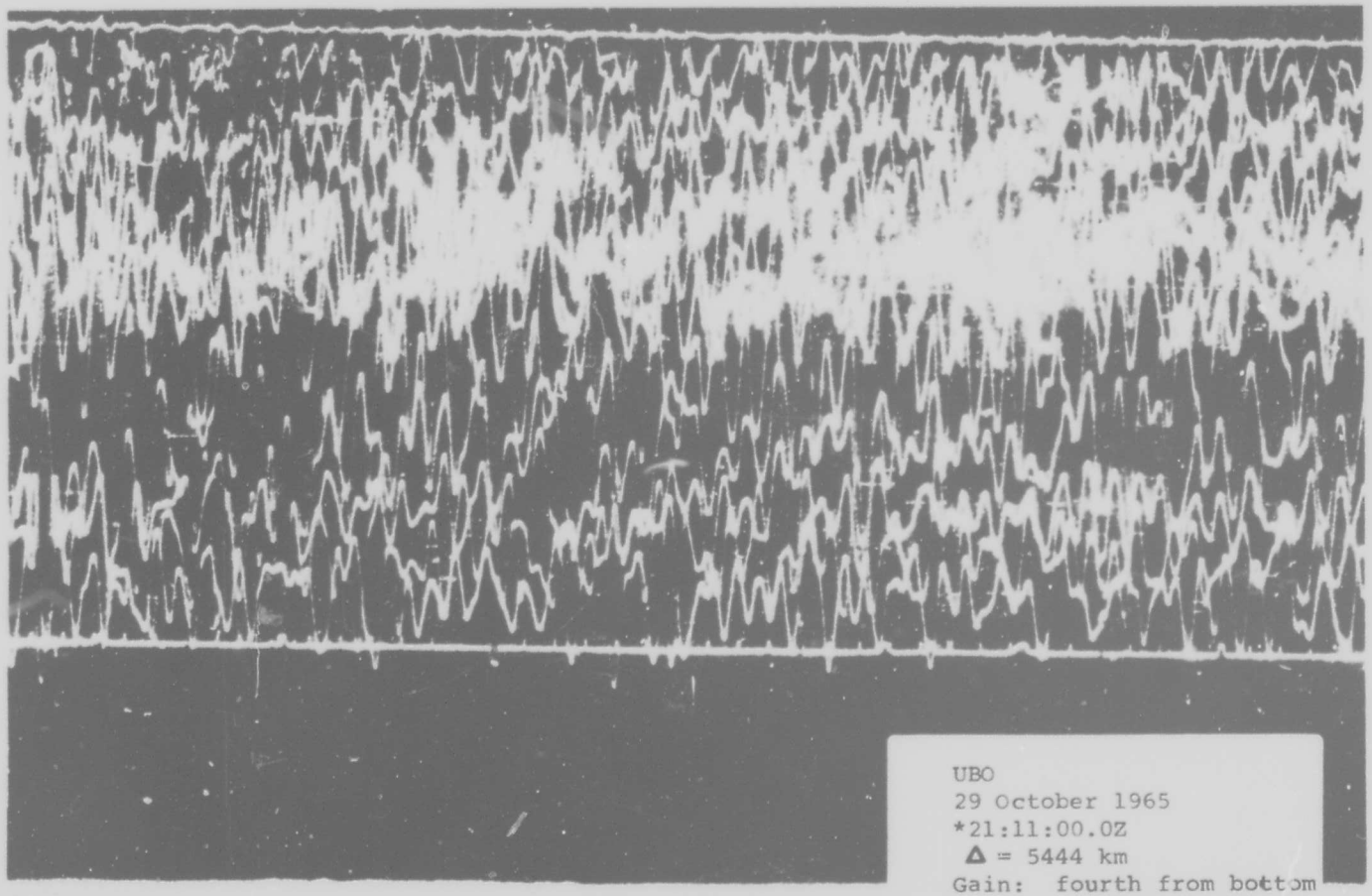


TUC
29 October 1965
*21:10:00.0Z
Δ = 5941 km
Gain: 490K
Instrument: SPZ

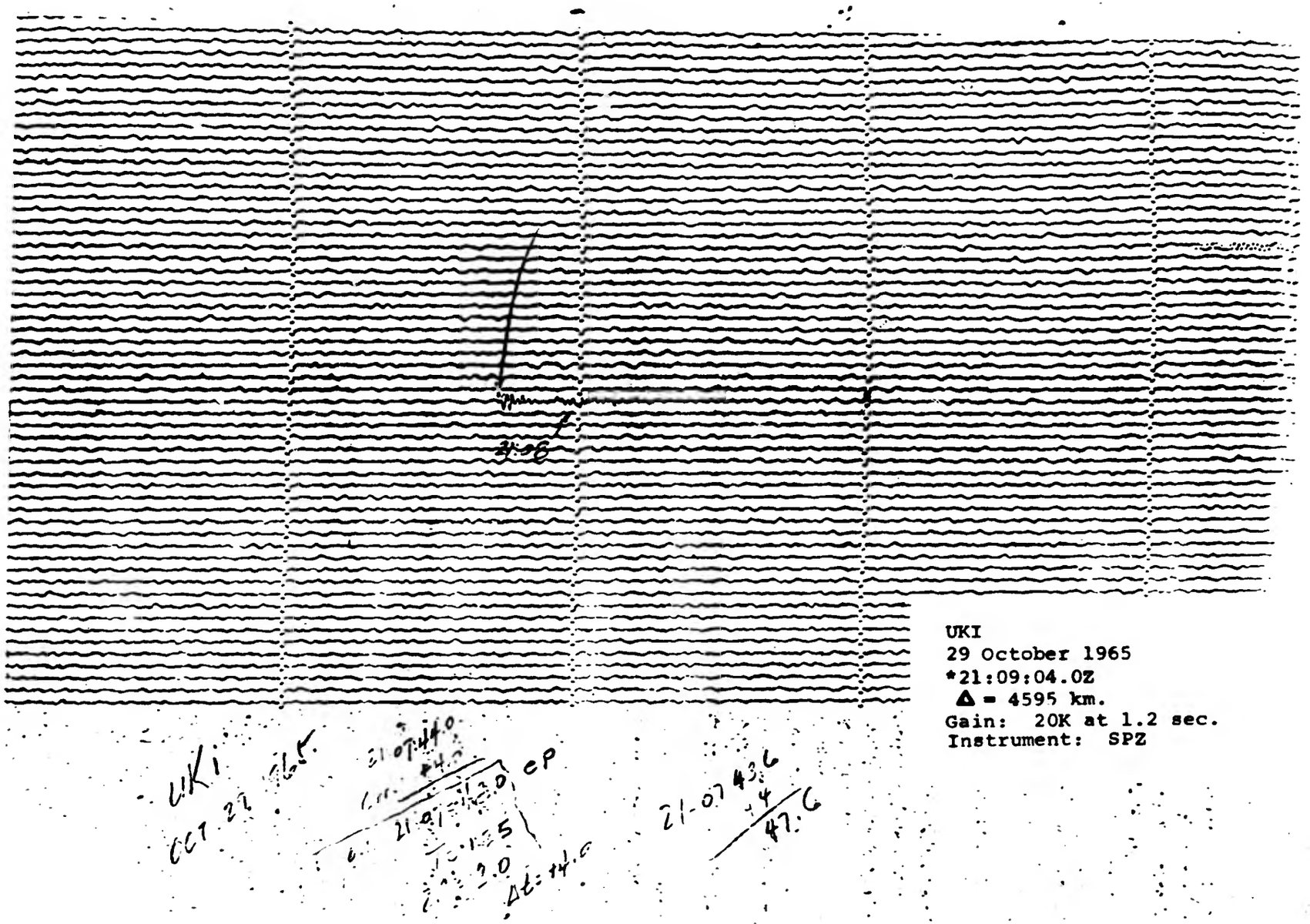

TUM
29 October 1965
*21:07:59.8Z
Δ = 4139 km
Gain: unknown
Instrument: SPZ

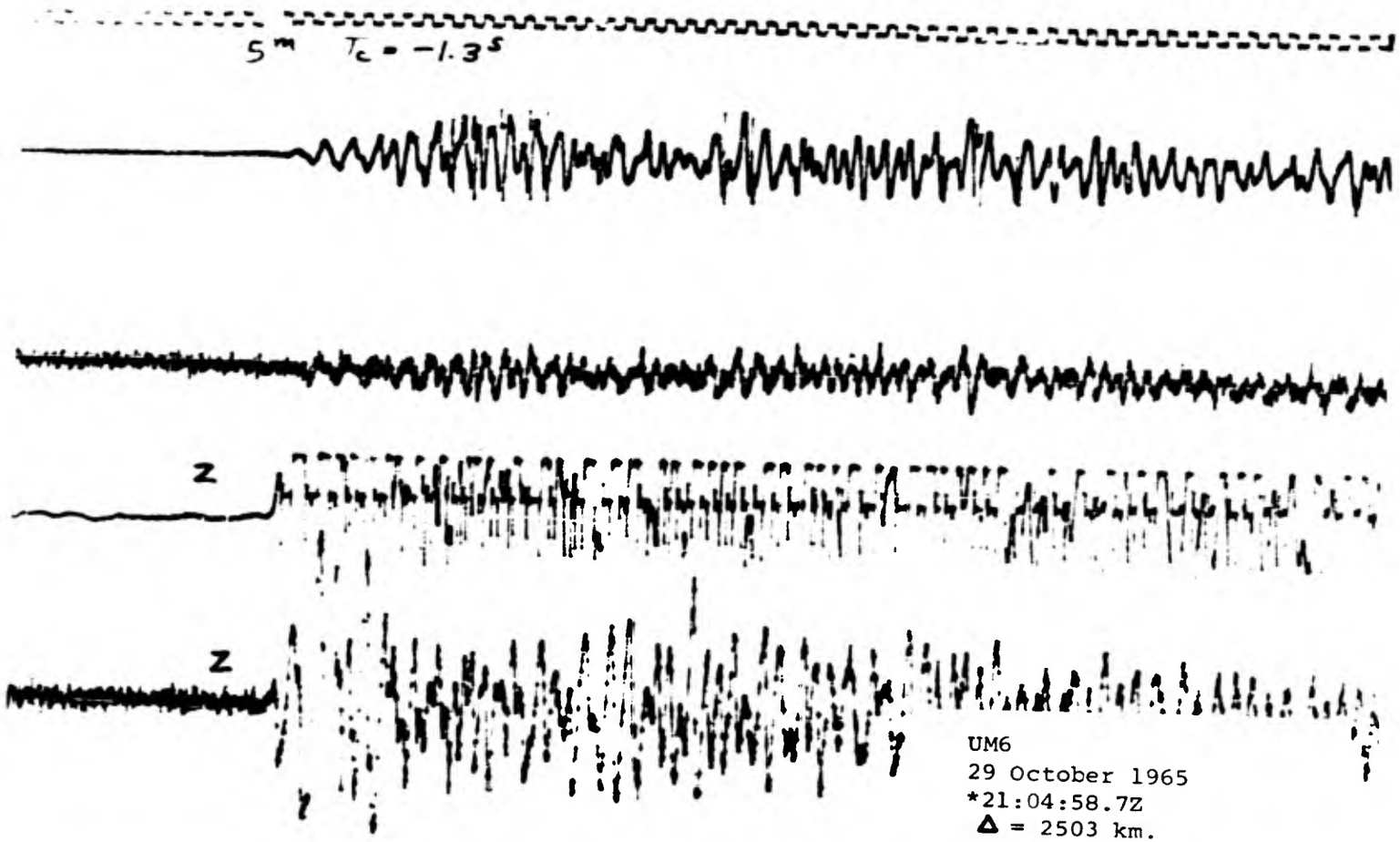
21 09
UBO
29 October 1965
*21:08:50.0Z
Δ = 5444 km
Gain: top trace - 17.3K
Instrument: SPV


UBO
29 October 1965
*21:10:20.0Z
Δ = 5444 km
Gain: top trace - 17.3K
Instrument: SPV

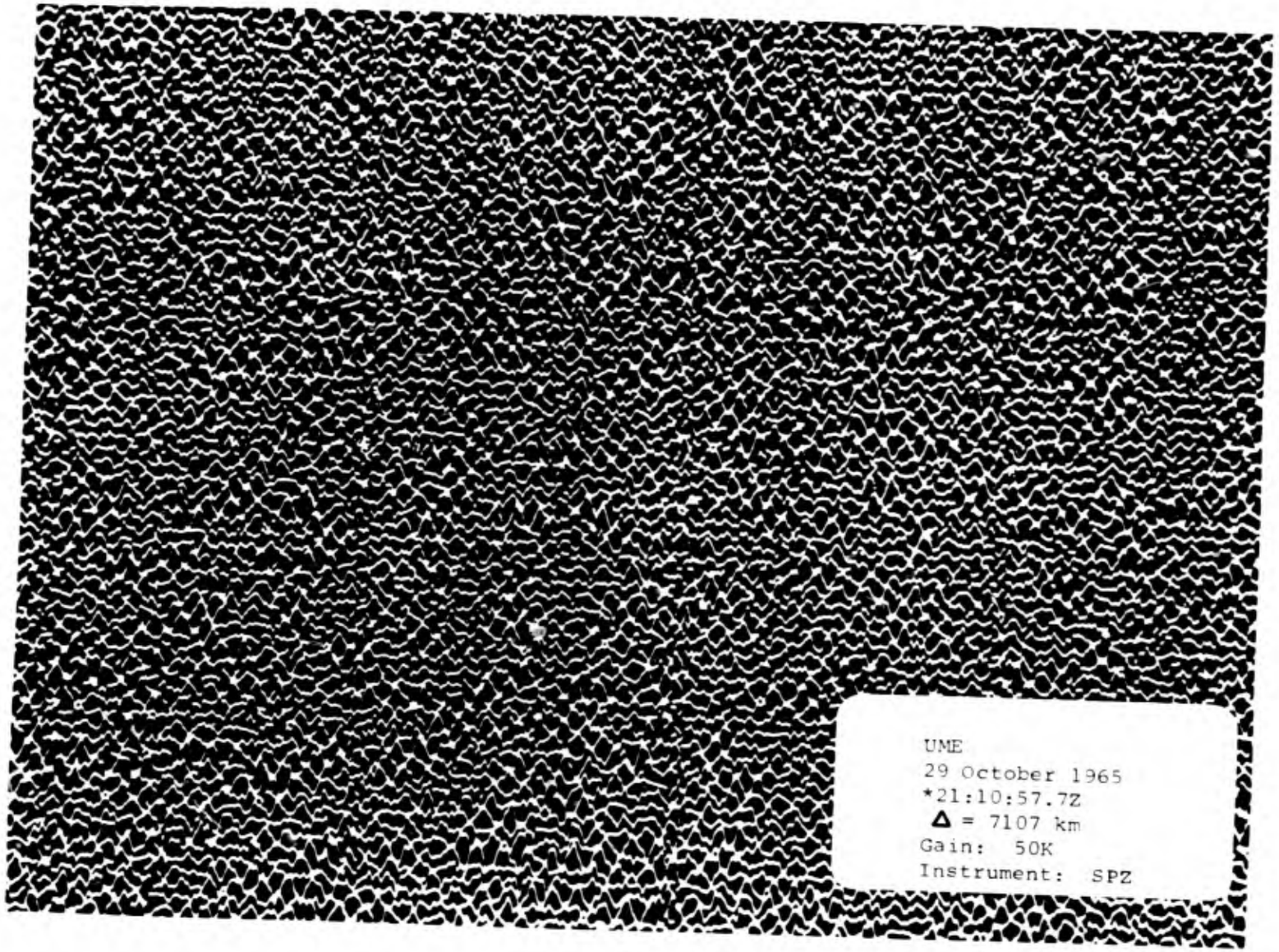


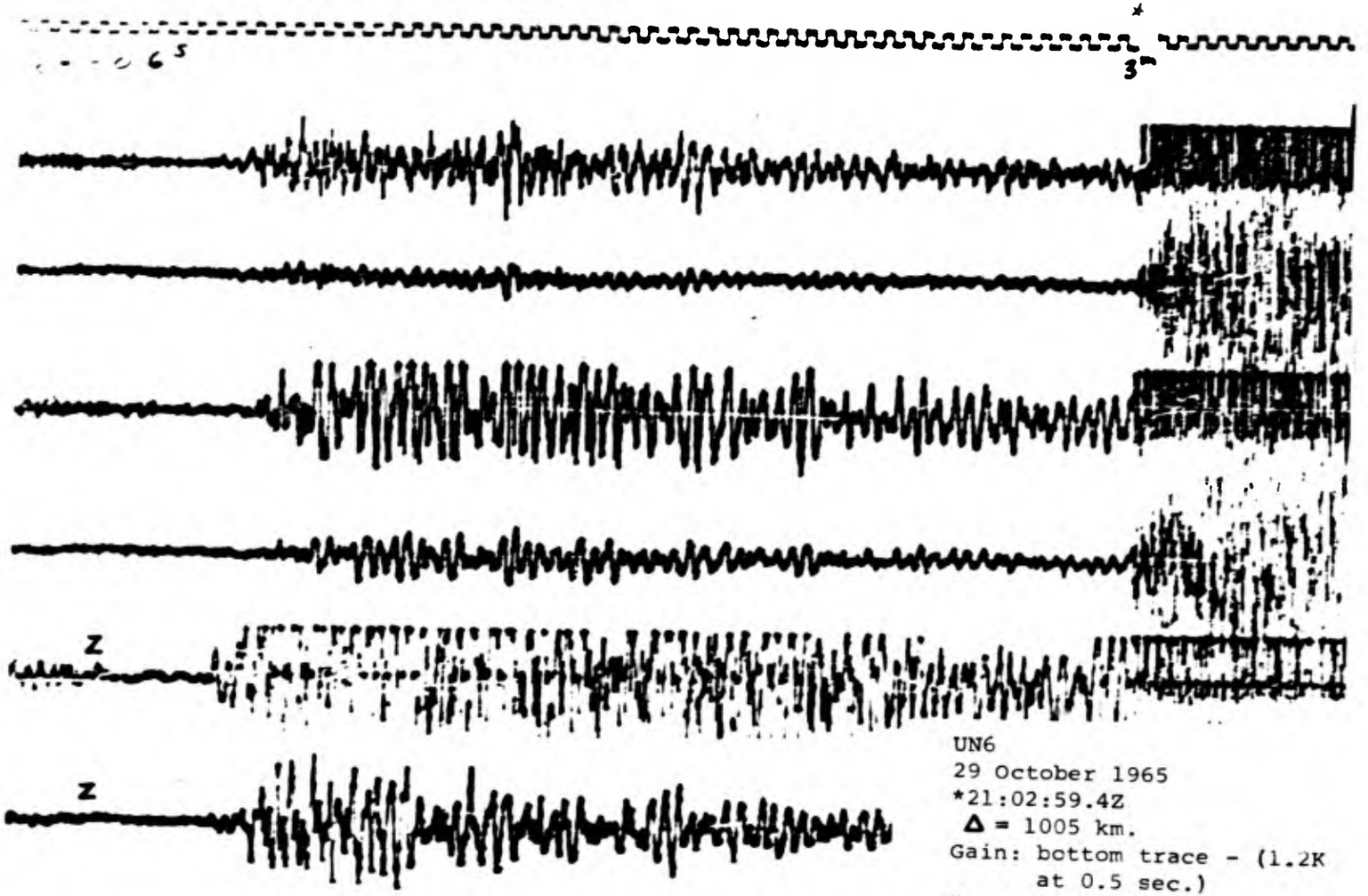
UBO
29 October 1965
*21:11:00.0Z
Δ = 5444 km
Gain: fourth from bottom
- 647K
Instrument: SPZ10


UKI
29 October 1965
*21:09:04.0Z
Δ = 4595 km.
Gain: 20K at 1.2 sec.
Instrument: SPZ

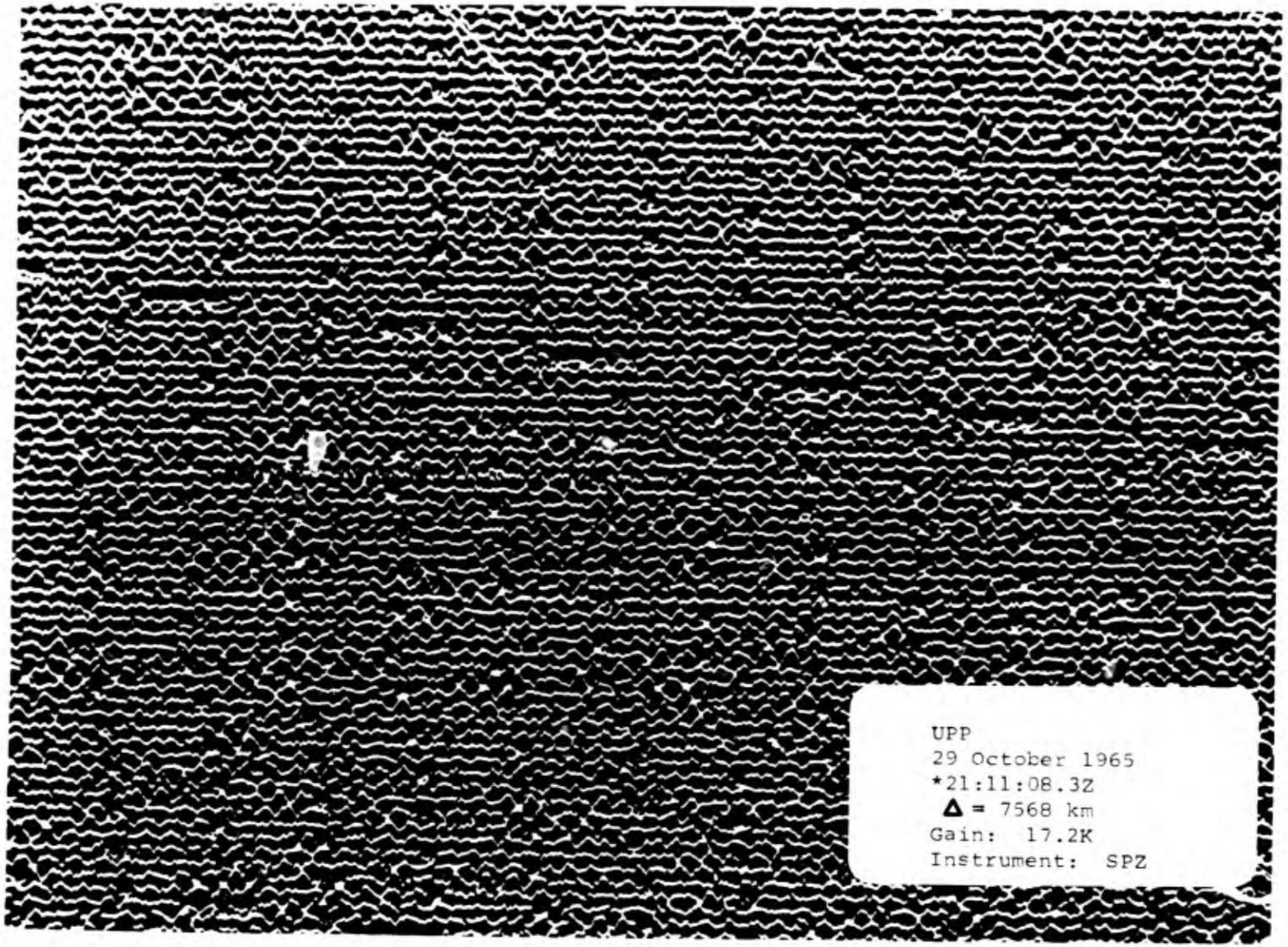


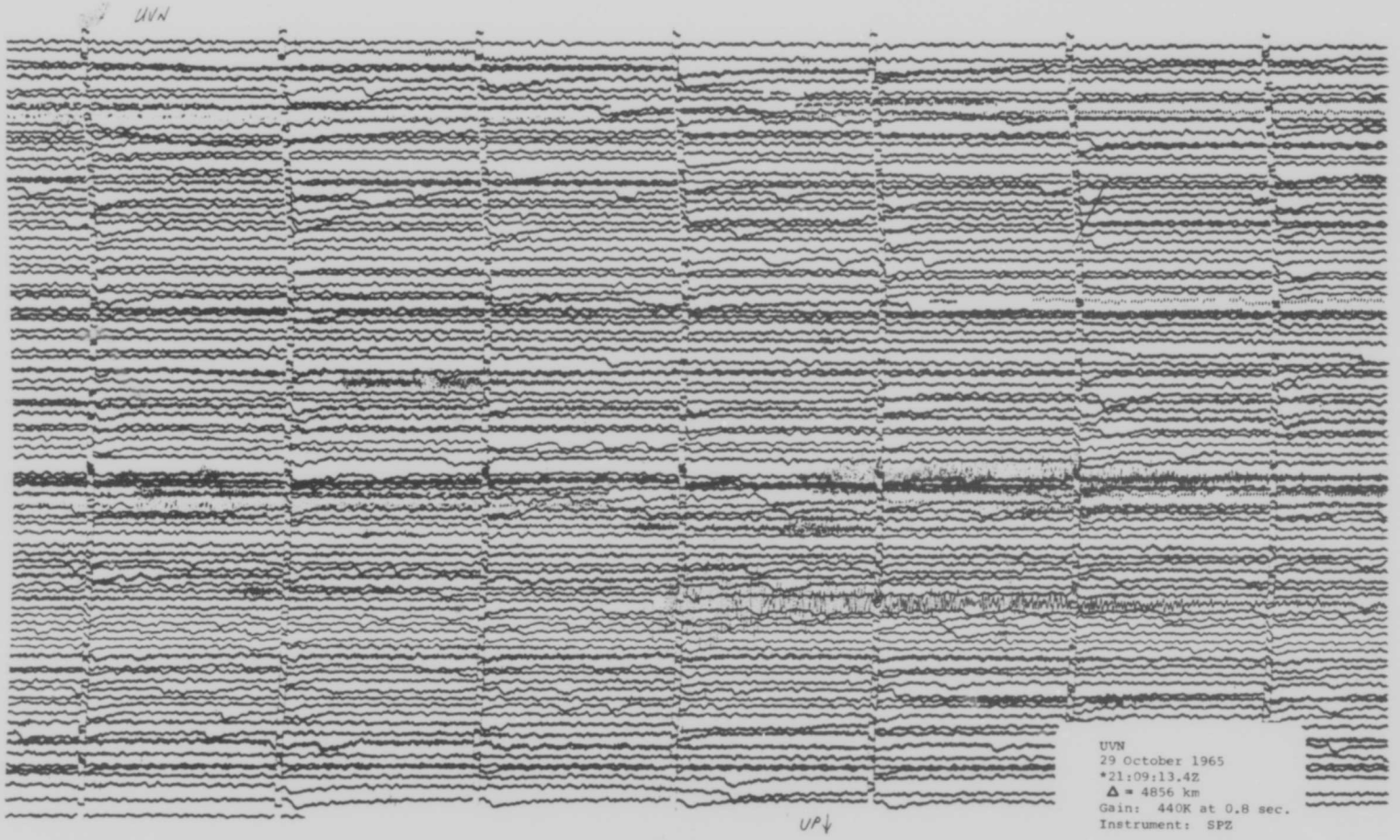
UM6
29 October 1965
*21:04:58.7Z
Δ = 2503 km.
Gain: bottom trace - (92K at 0.8 sec.)
Instrument: SPZ

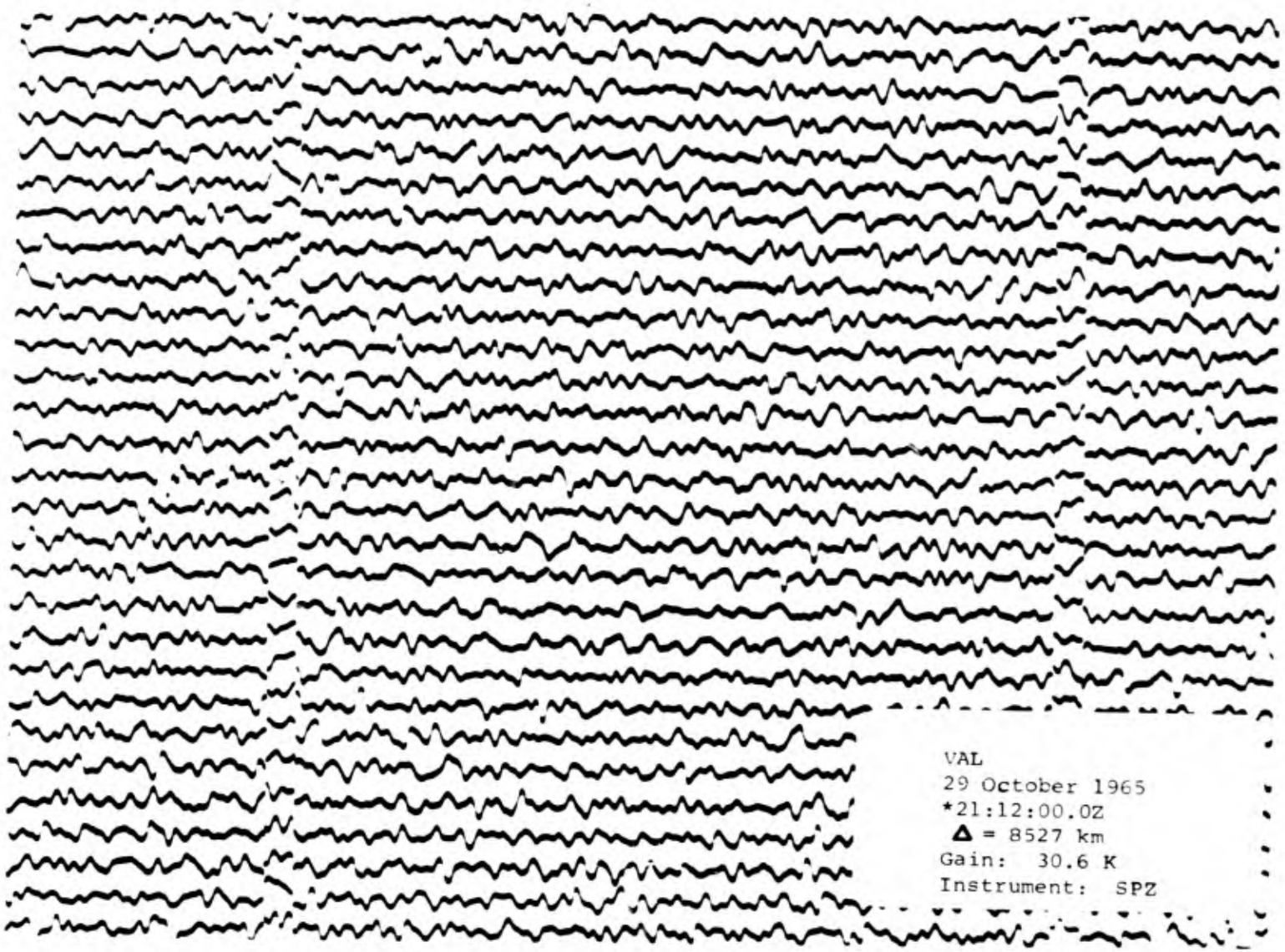

UME
29 October 1965
*21:10:57.7Z
Δ = 7107 km
Gain: 50K
Instrument: SPZ

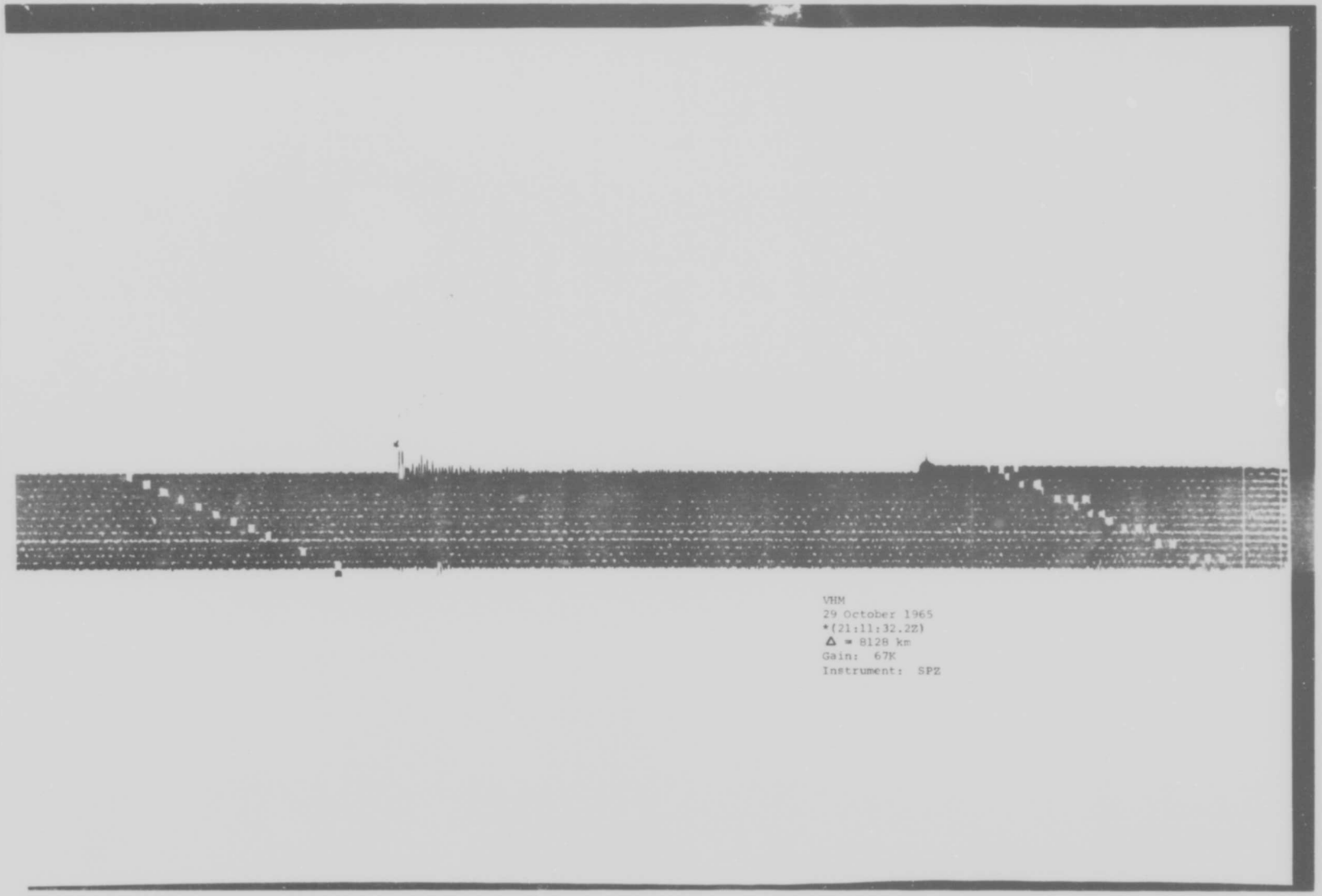


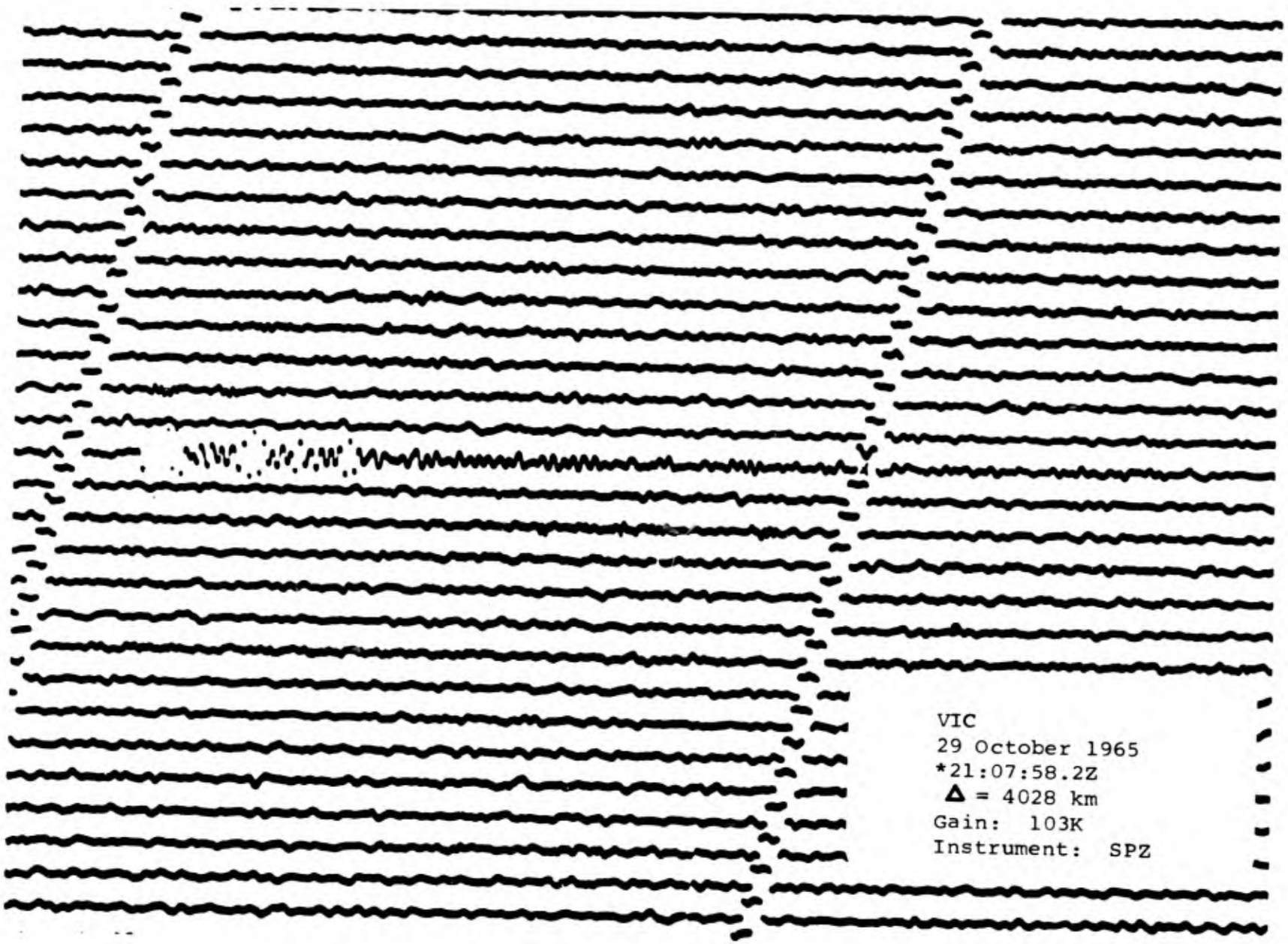
UN6
29 October 1965
*21:02:59.4Z
Δ = 1005 km.
Gain: bottom trace - (1.2K at 0.5 sec.)
Instrument: SPZ

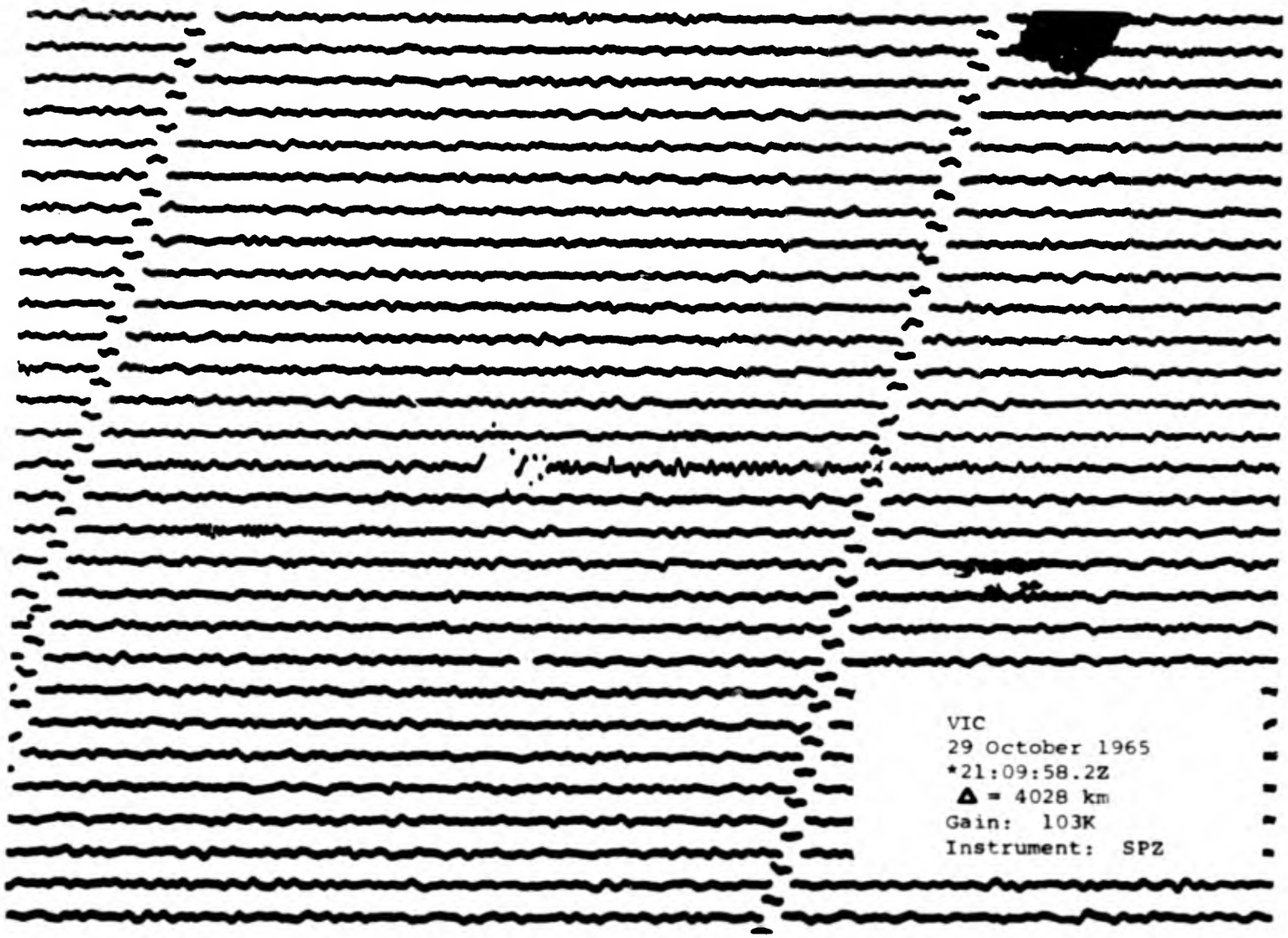

UPP
29 October 1965
*21:11:08.3Z
Δ = 7568 km
Gain: 17.2K
Instrument: SPZ

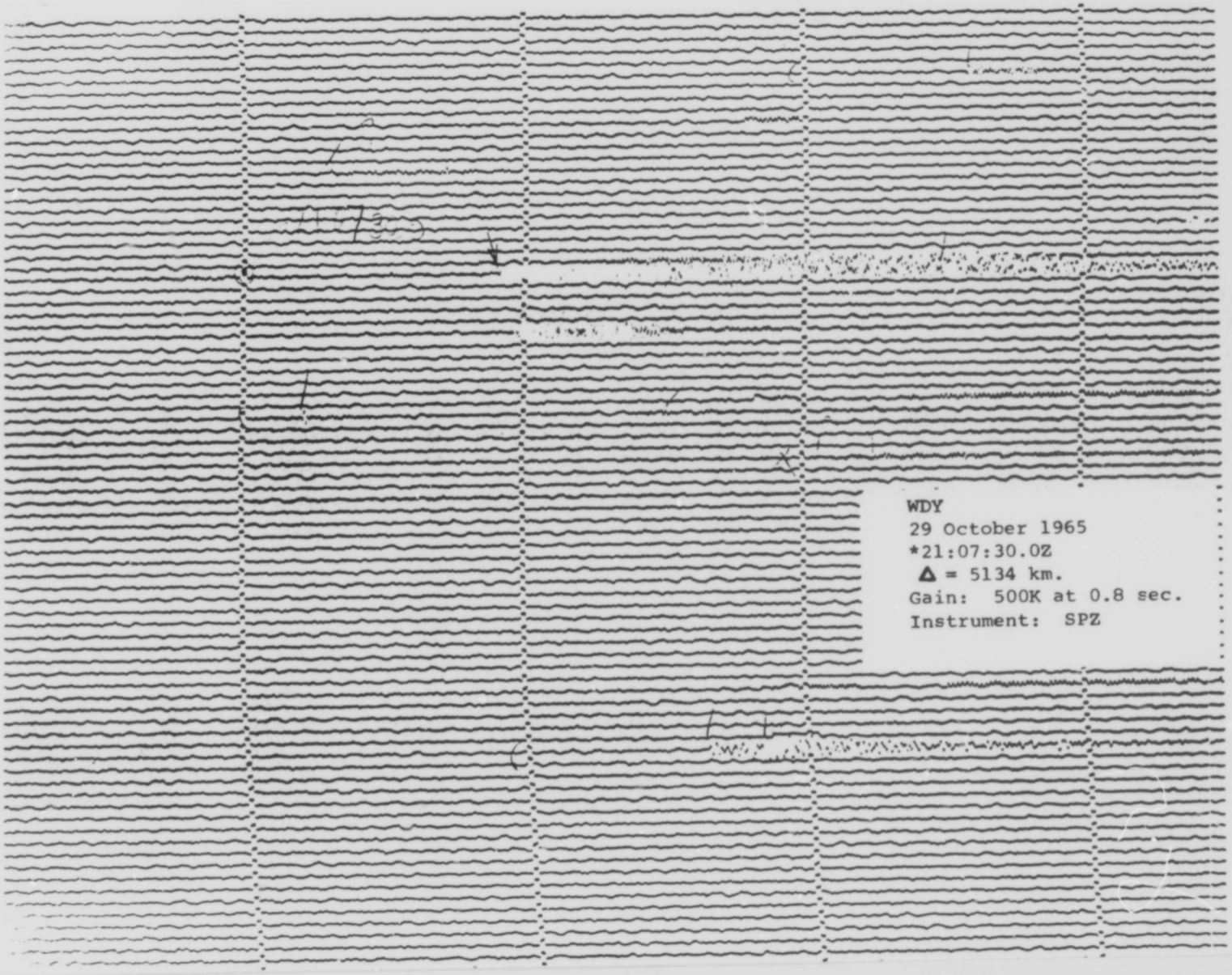

UVN
UVN
29 October 1965
*21:09:13.4Z
Δ = 4856 km
Gain: 440K at 0.8 sec.
Instrument: SPZ
UP
Δt = +13.√ sec
at 22-02

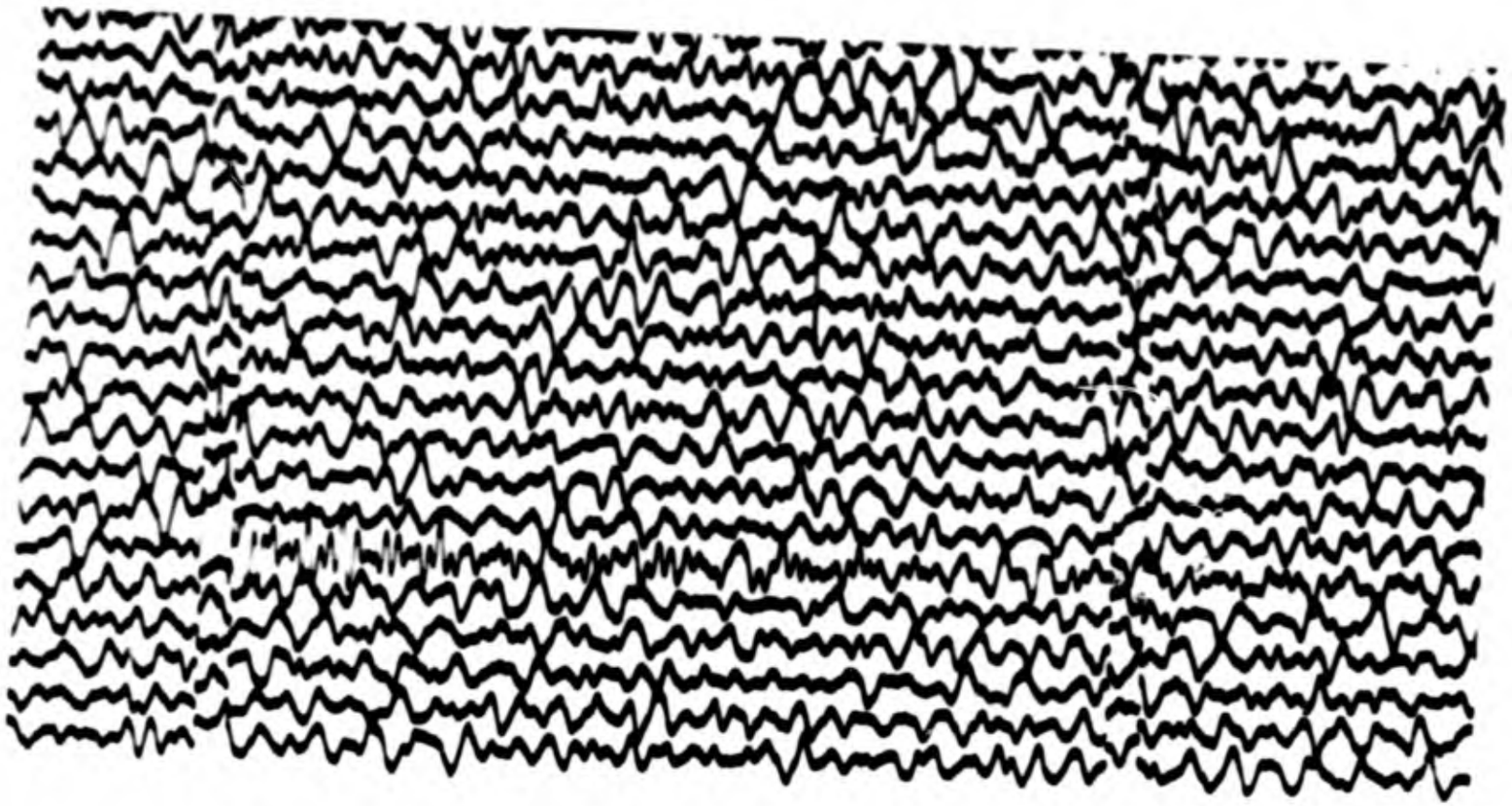

VAL
29 October 1965
*21:12:00.0Z
Δ = 8527 km
Gain: 30.6 K
Instrument: SPZ


VHM
29 October 1965
*(21:11:32.2Z)
Δ = 8128 km
Gain: 67K
Instrument: SPZ

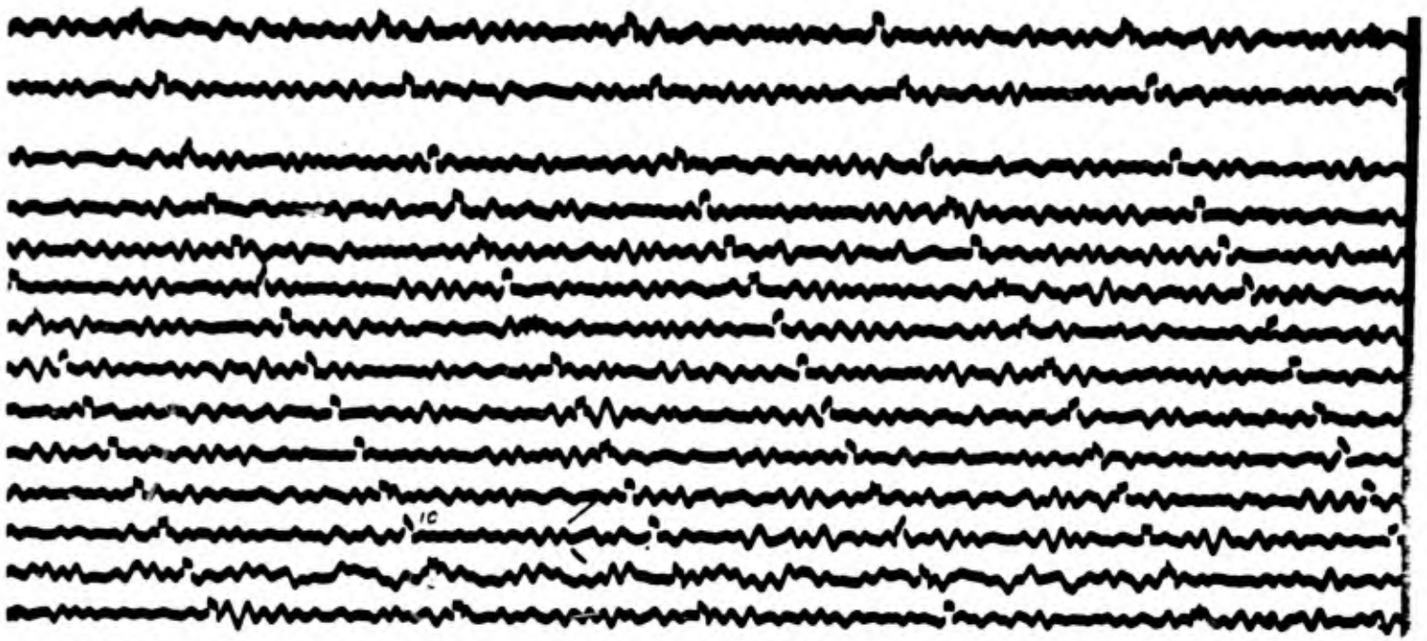

VIC
29 October 1965
*21:07:58.2Z
Δ = 4028 km
Gain: 103K
Instrument: SPZ


VIC
29 October 1965
*21:09:58.2Z
Δ = 4028 km
Gain: 103K
Instrument: SPZ

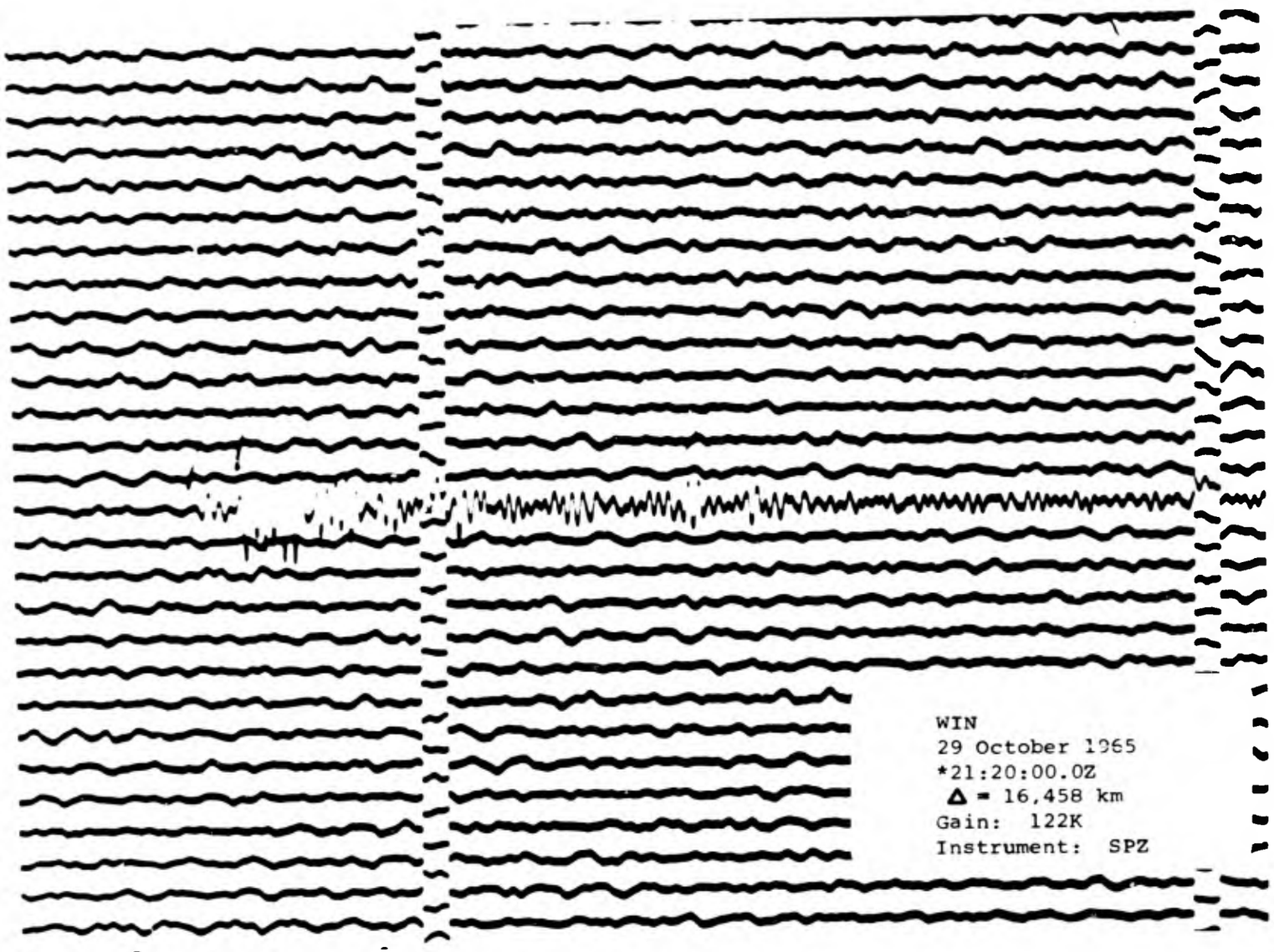

WDY
29 October 1965
*21:07:30.0Z
Δ = 5134 km.
Gain: 500K at 0.8 sec.
Instrument: SPZ

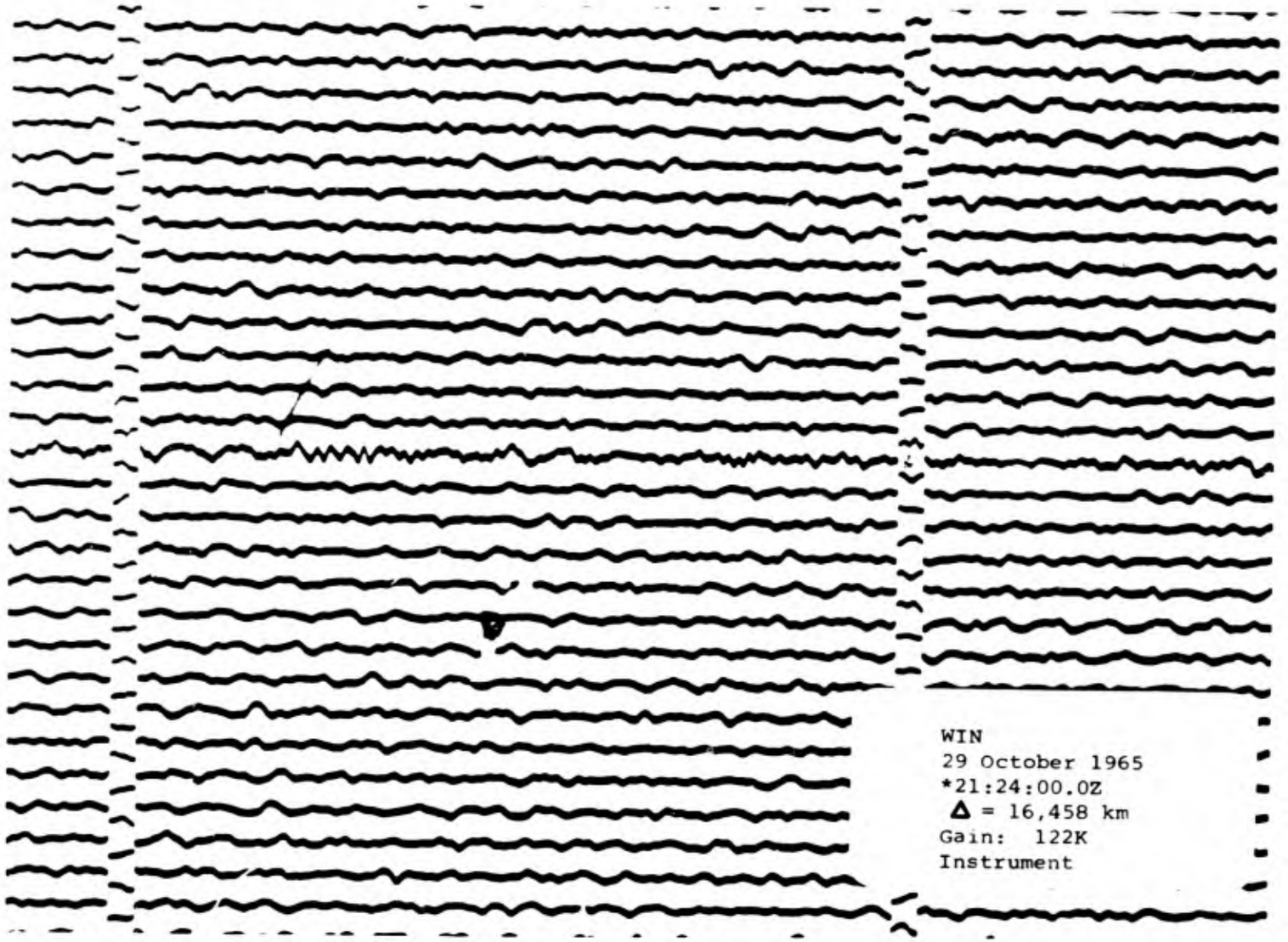


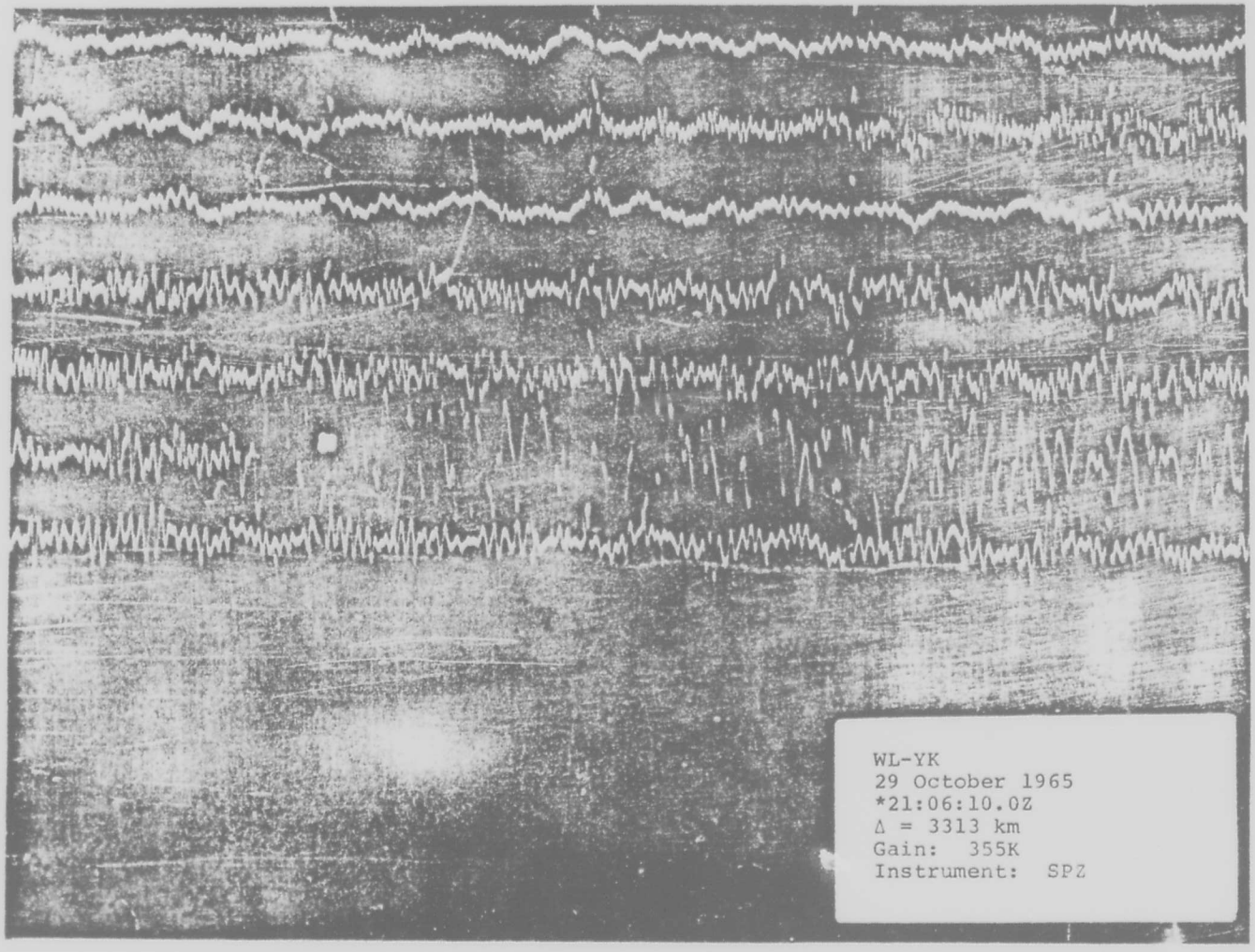
WES
29 October 1965
*21:12:00.0Z
Δ = 7600 km
Gain: 122K
Instrument: SPZ

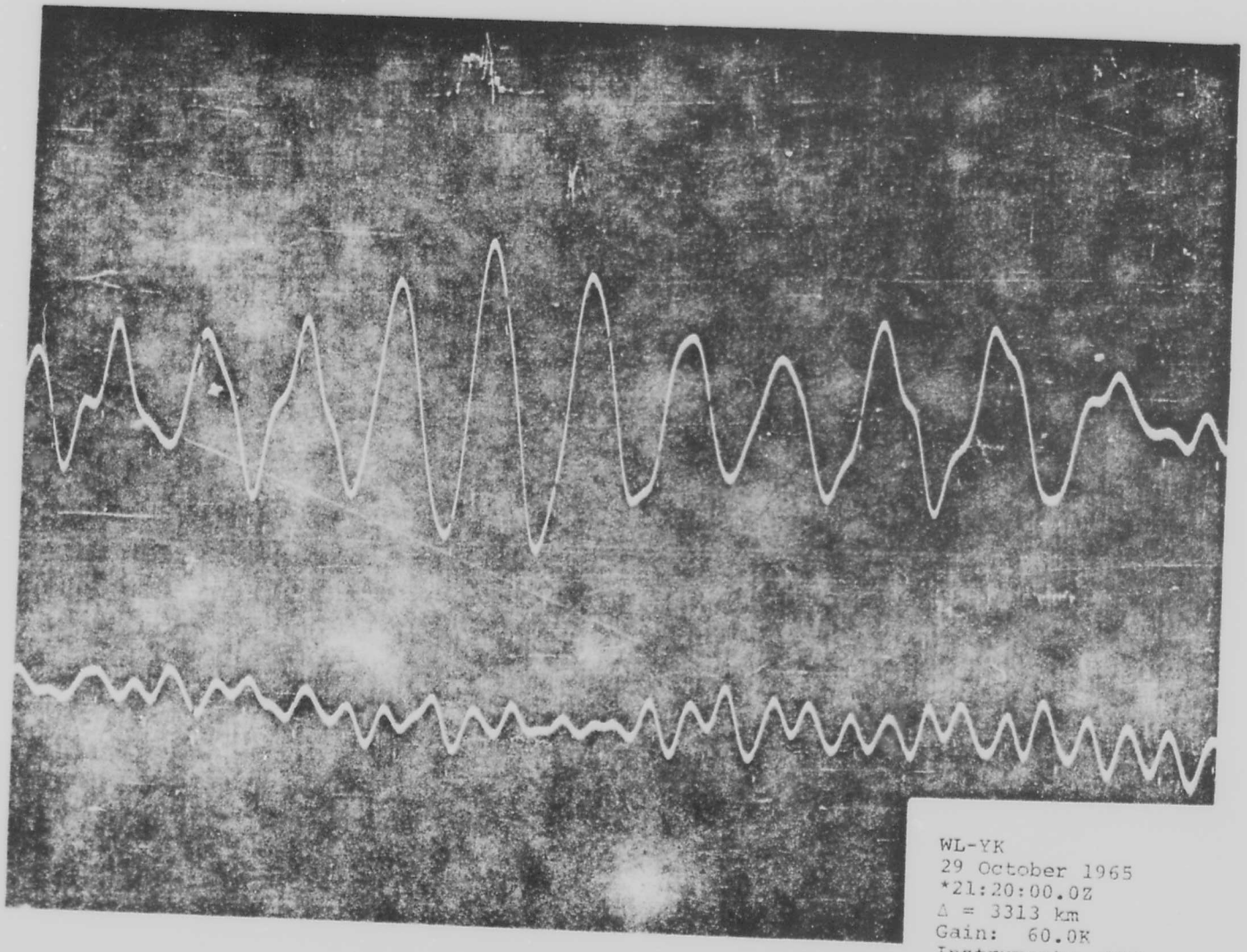


WES
29 October 1968
*21:40:00.0Z
Δ = 7600 km
Gain: 3.5K at 16 sec.
Instrument: LPZ

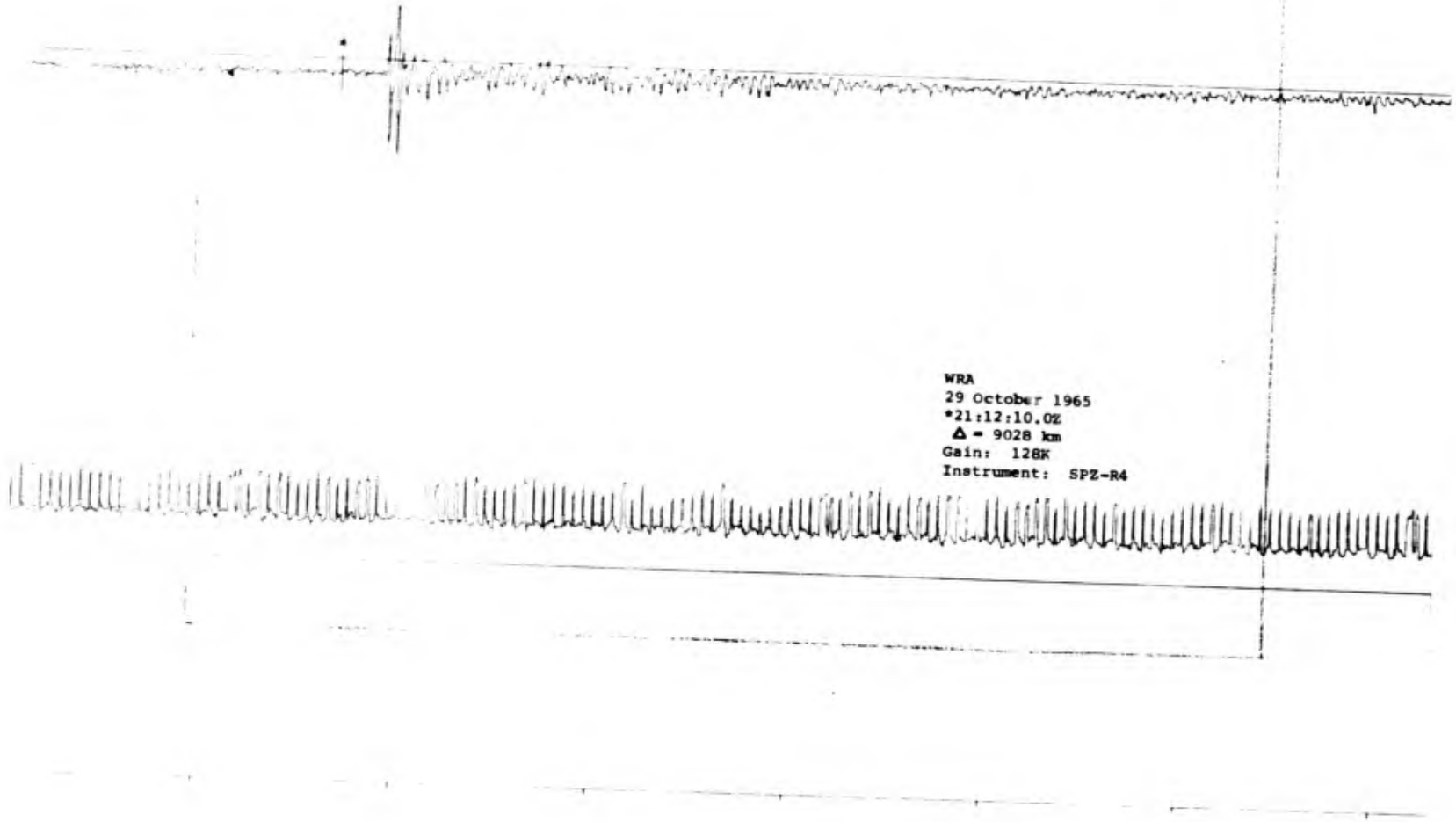

WIN
29 October 1965
*21:20:00.0Z
Δ = 16,458 km
Gain: 122K
Instrument: SPZ


WIN
29 October 1965
*21:24:00.0Z
Δ = 16,458 km
Gain: 122K
Instrument


WL-YK
29 October 1965
*21:06:10.0Z
Δ = 3313 km
Gain: 355K
Instrument: SPZ



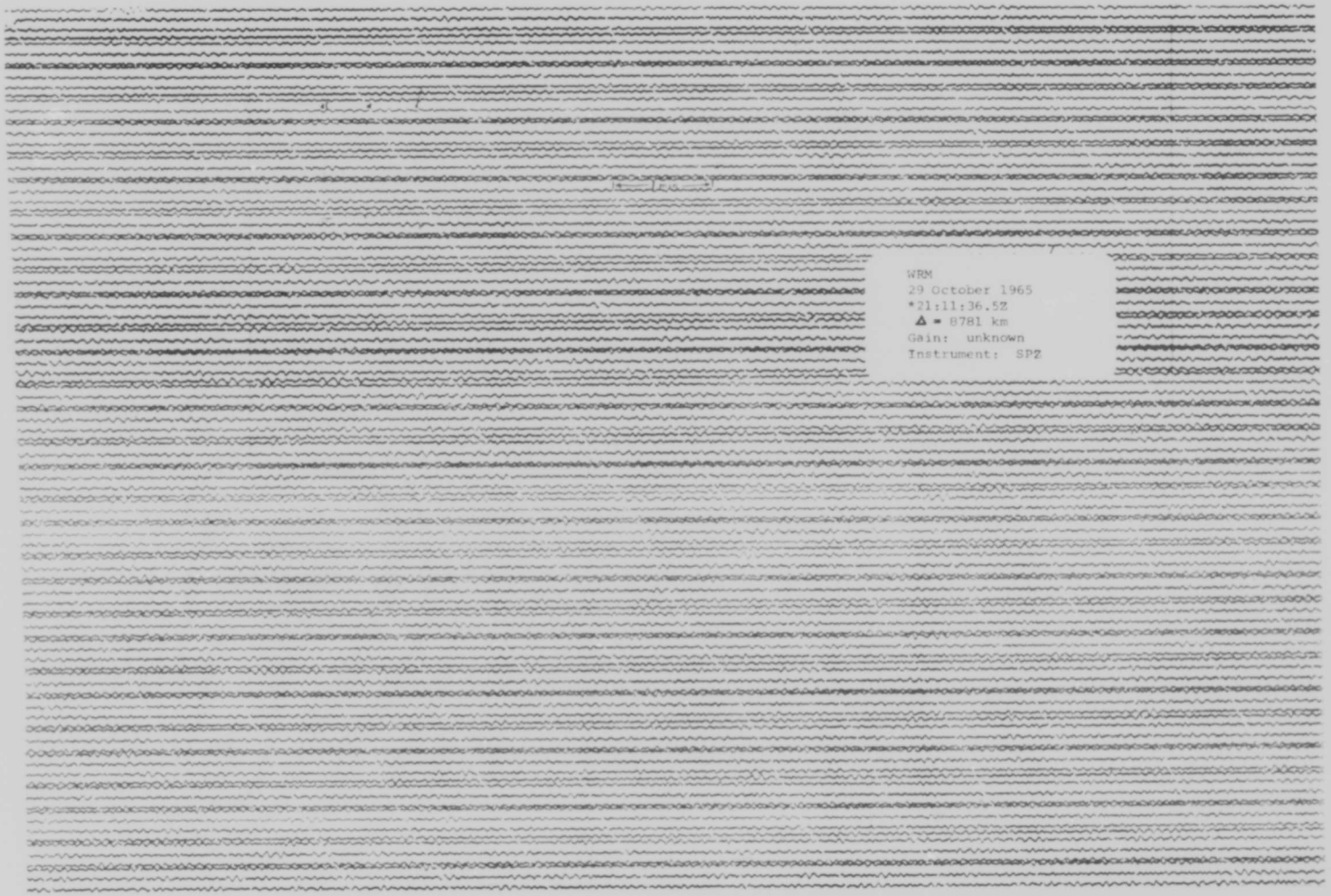
WL-YK
29 October 1965
*21:20:00.0Z
Δ = 3313 km
Gain: 60.0K
Instrument: LPZ

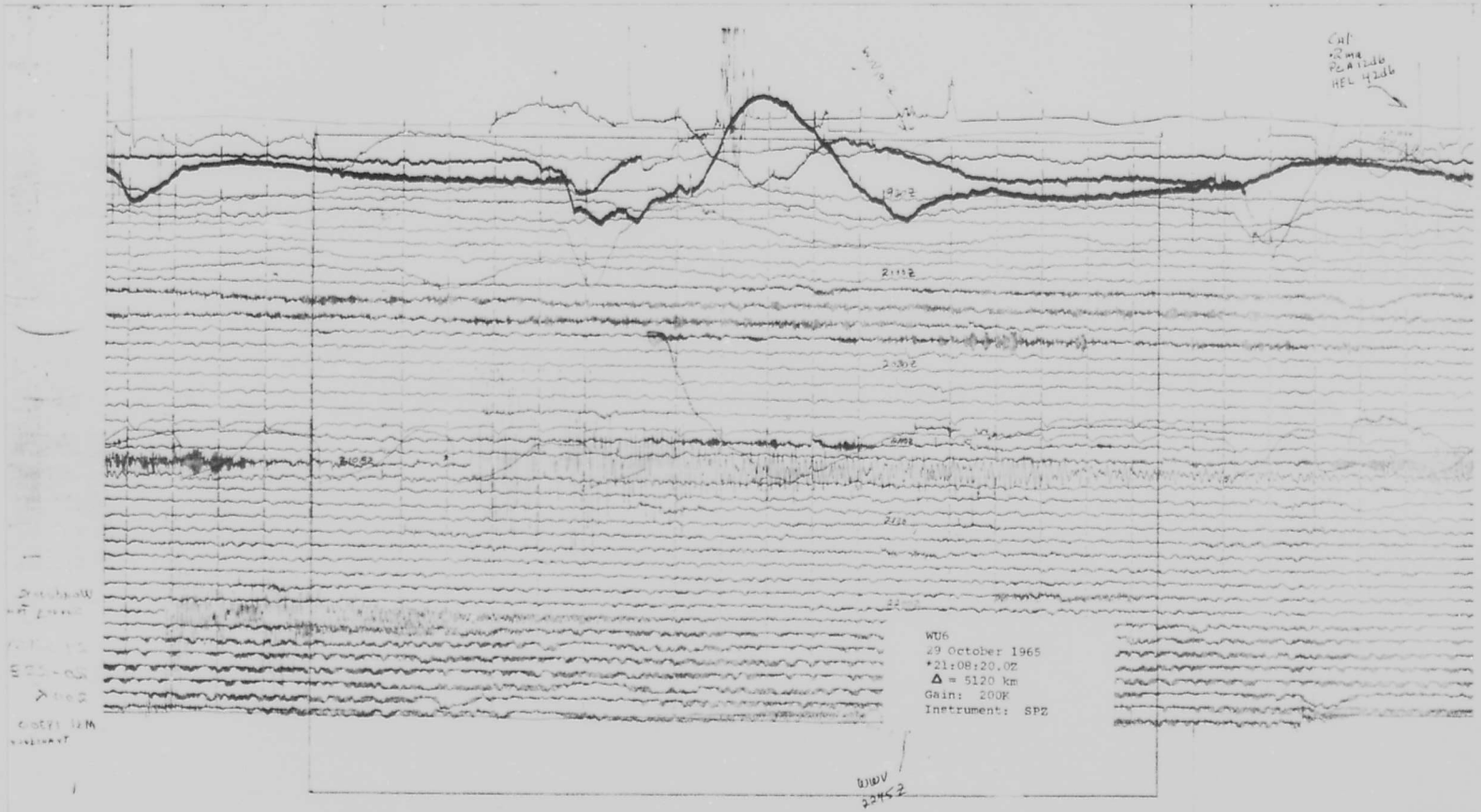

WRA
29 October 1965
*21:12:10.0Z
Δ = 9028 km
Gain: 128K
Instrument: SPZ-R4

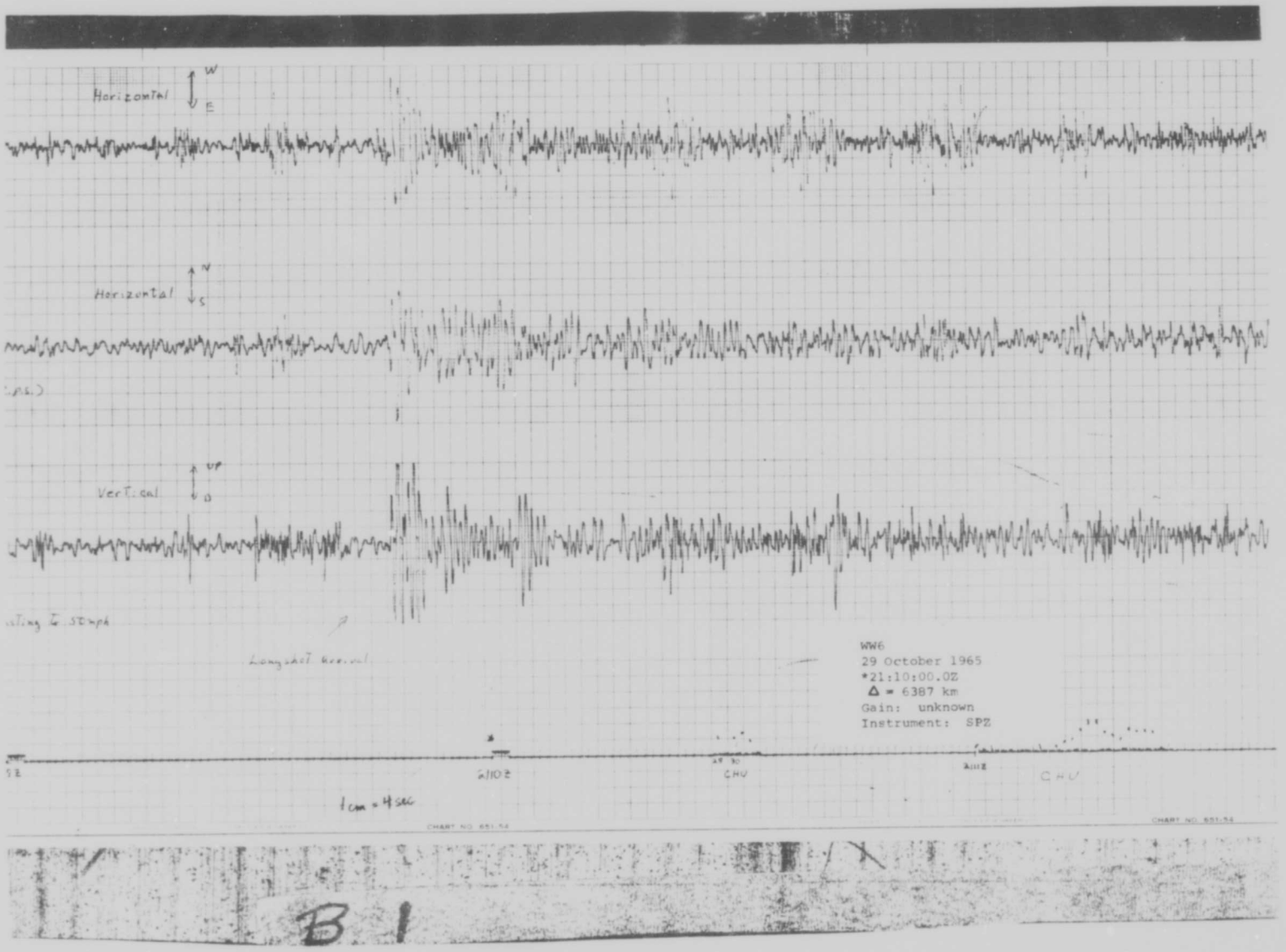
OBSERVATOIRE ROYAL DE BELGIQUE
SERVICE SEISMOLOGIQUE
3, AVENUE CIRCULAIRE, UCCLE

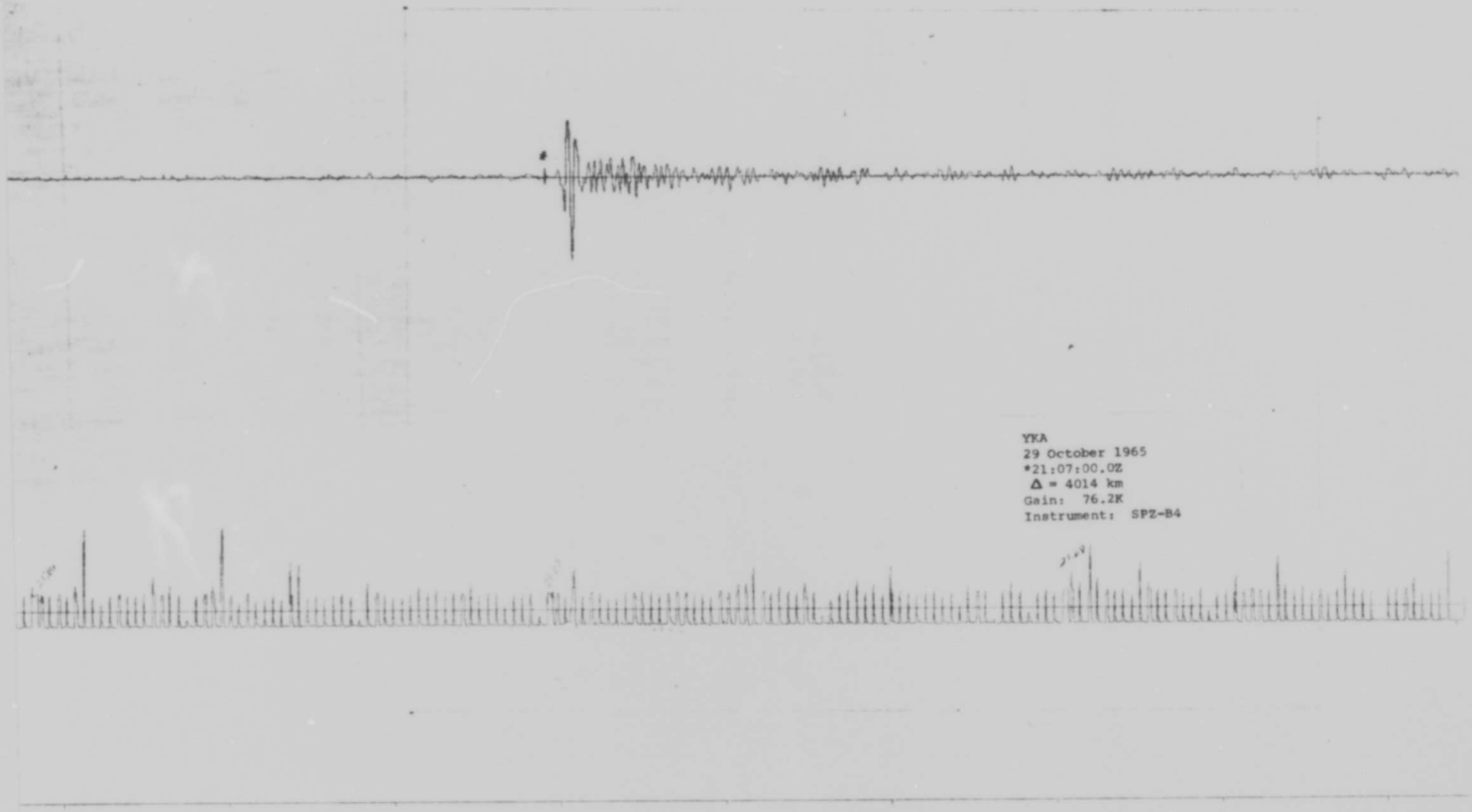
Station: Wanne-Fontaine
$\lambda = 05°22'50"E$
$\varphi = 49°50'N$

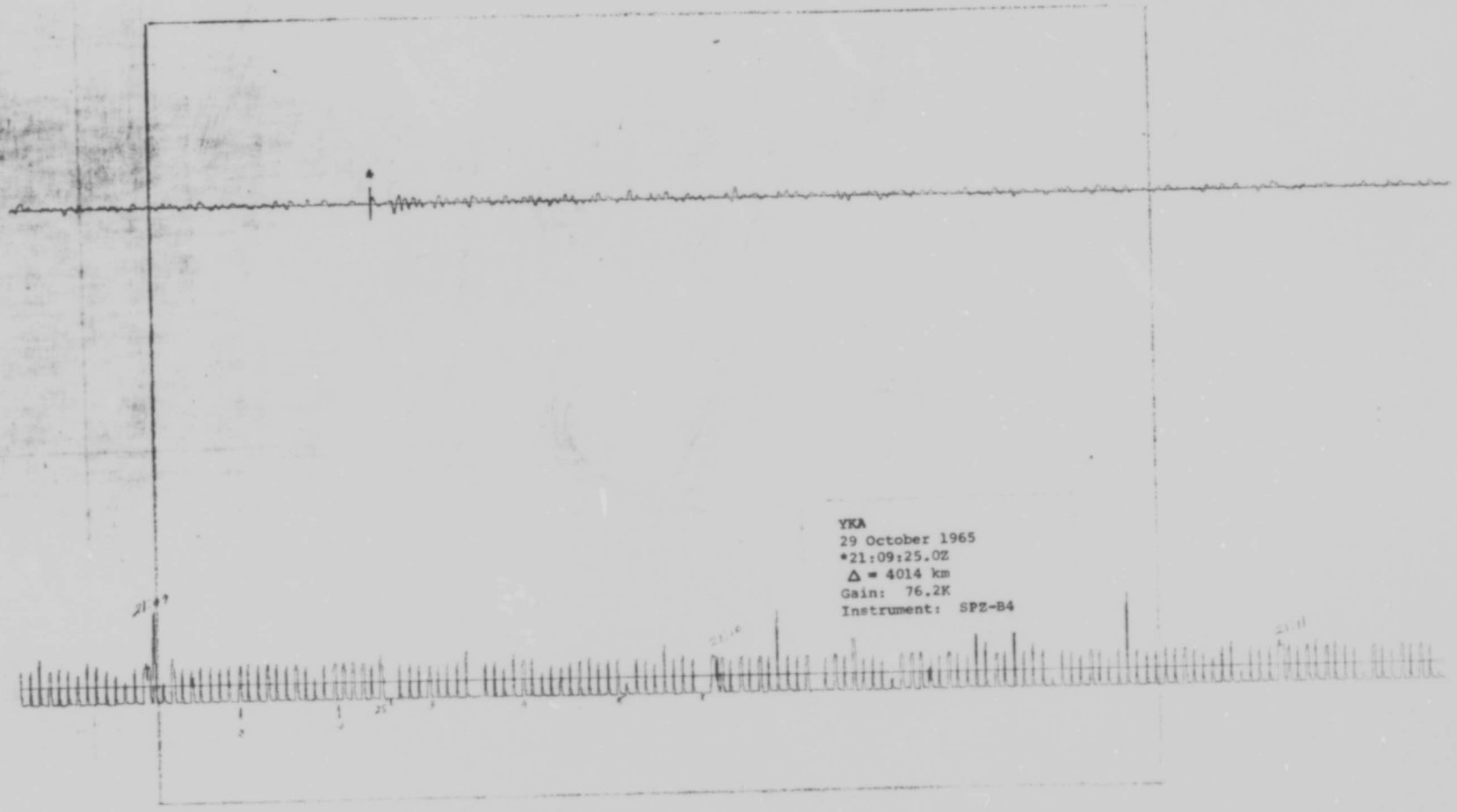
V Sprengather $T = 0^s,3$
fC fD
time correction: $-3^m 59^s,5$
magnification: unknown.



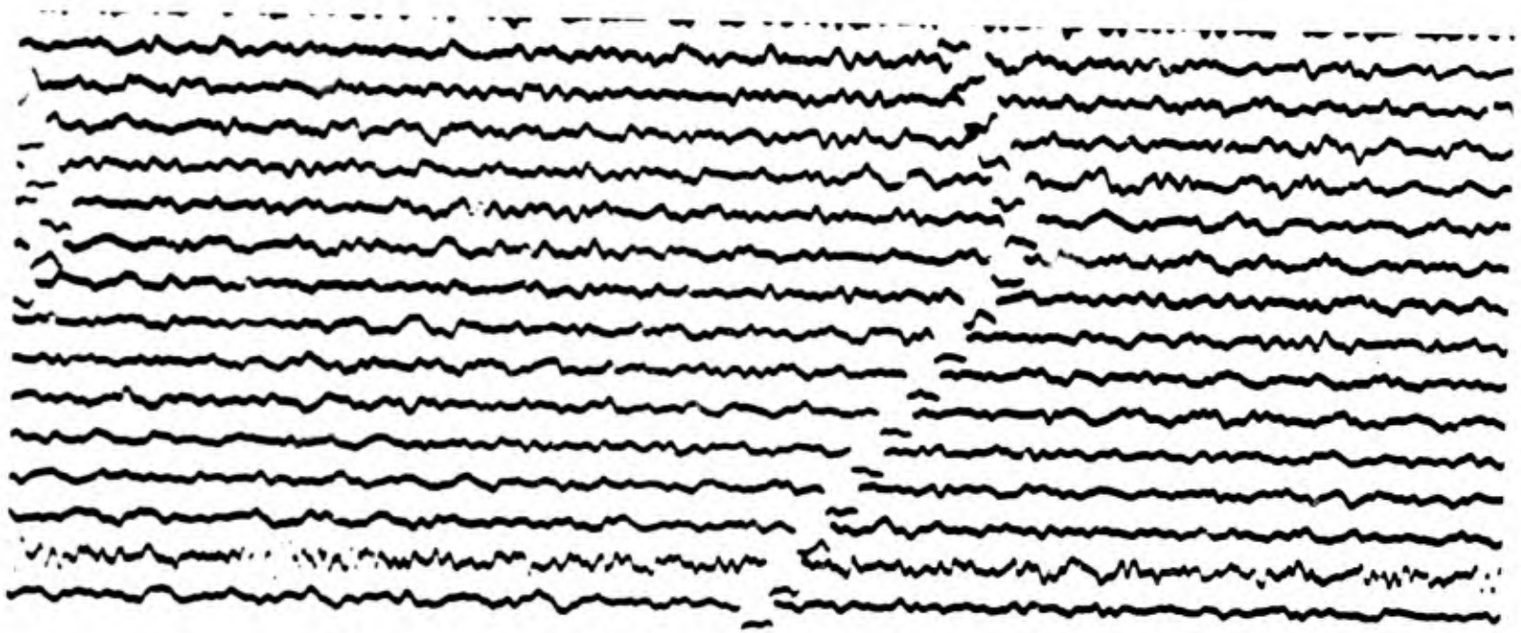

WU6
29 October 1965
*21:08:20.0Z
Δ ≈ 5120 km
Gain: 200K
Instrument: SPZ


Horizontal
W
E
Horizontal
N
S
Vertical
UP
D
WW6
29 October 1965
*21:10:00.0Z
Δ = 6387 km
Gain: unknown
Instrument: SPZ
1 cm = 4 sec
CHART NO. 651-54
B 1

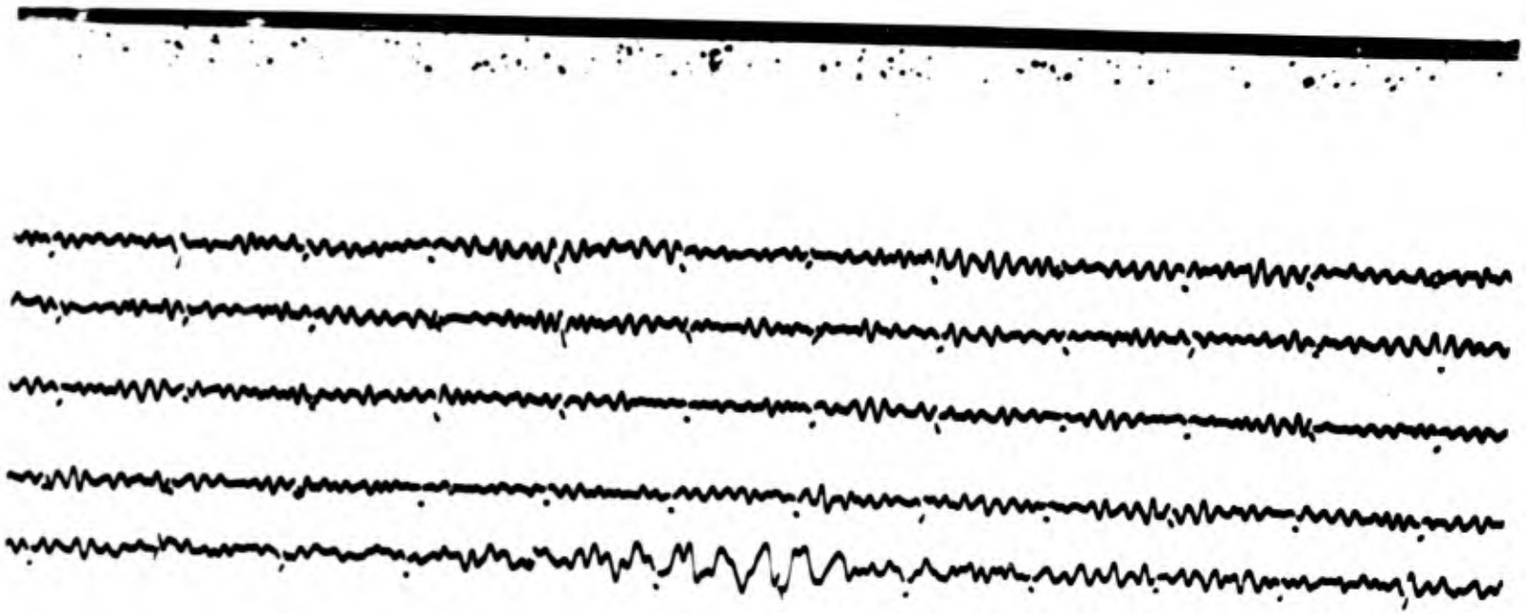

YKA
29 October 1965
*21:07:00.0Z
Δ = 4014 km
Gain: 76.2K
Instrument: SPZ-B4


YKA
29 October 1965
*21:09:25.0Z
Δ = 4014 km
Gain: 76.2K
Instrument: SPZ-B4

YKC
29 October 1965
*21:08:00.0Z
Δ = 4022 km
Gain: 122K
Instrument: SPZ



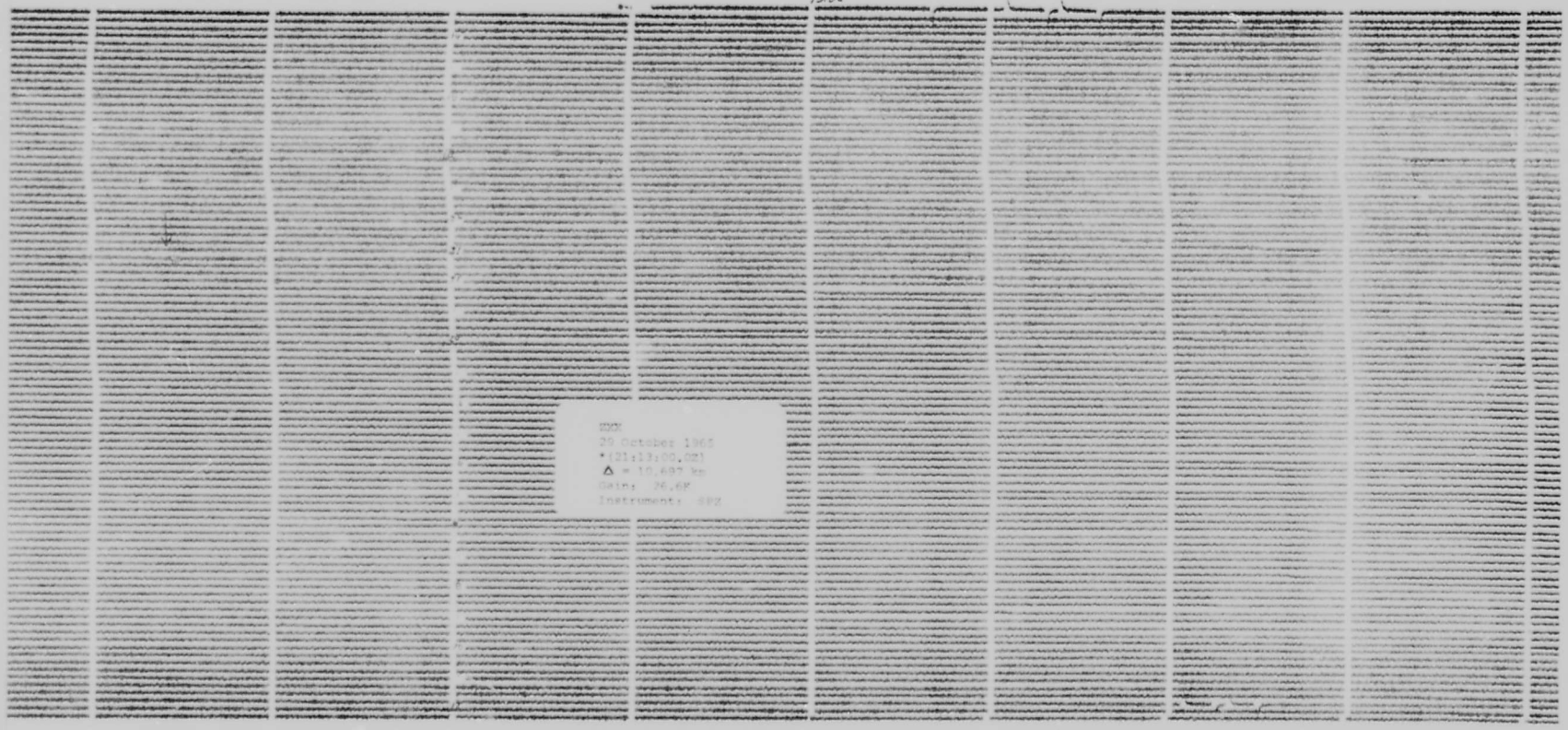
YKC
29 October 1965
*21:10:00.0Z
Δ = 4022 km
Gain: 122K
Instrument: SPZ



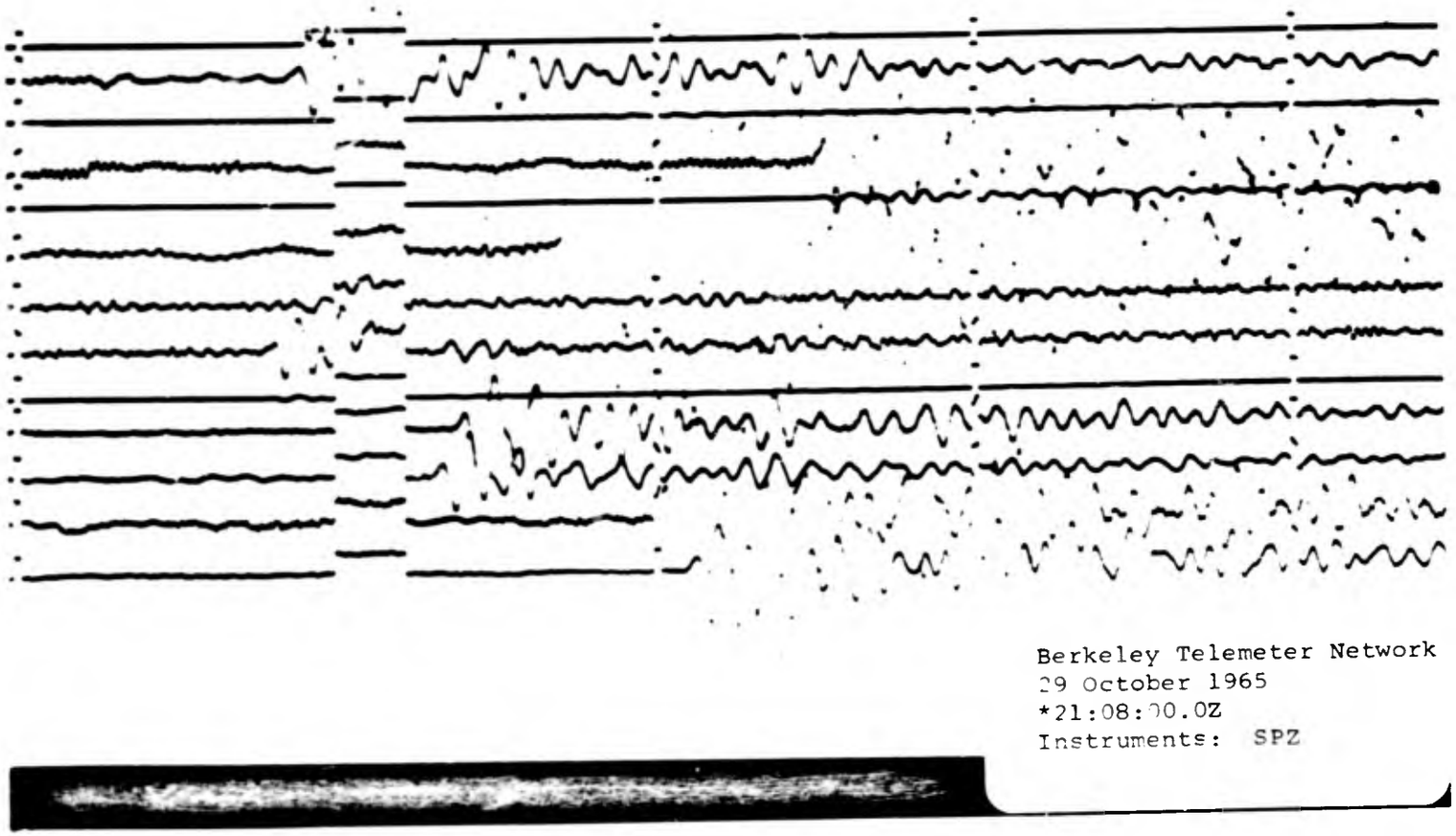
YKC
29 October 1965
*21:21:00.0Z
Δ = 4022 km
Gain: 3.8K at 15 sec.
Instrument: LPZ

P 21:13:27 P

13.02

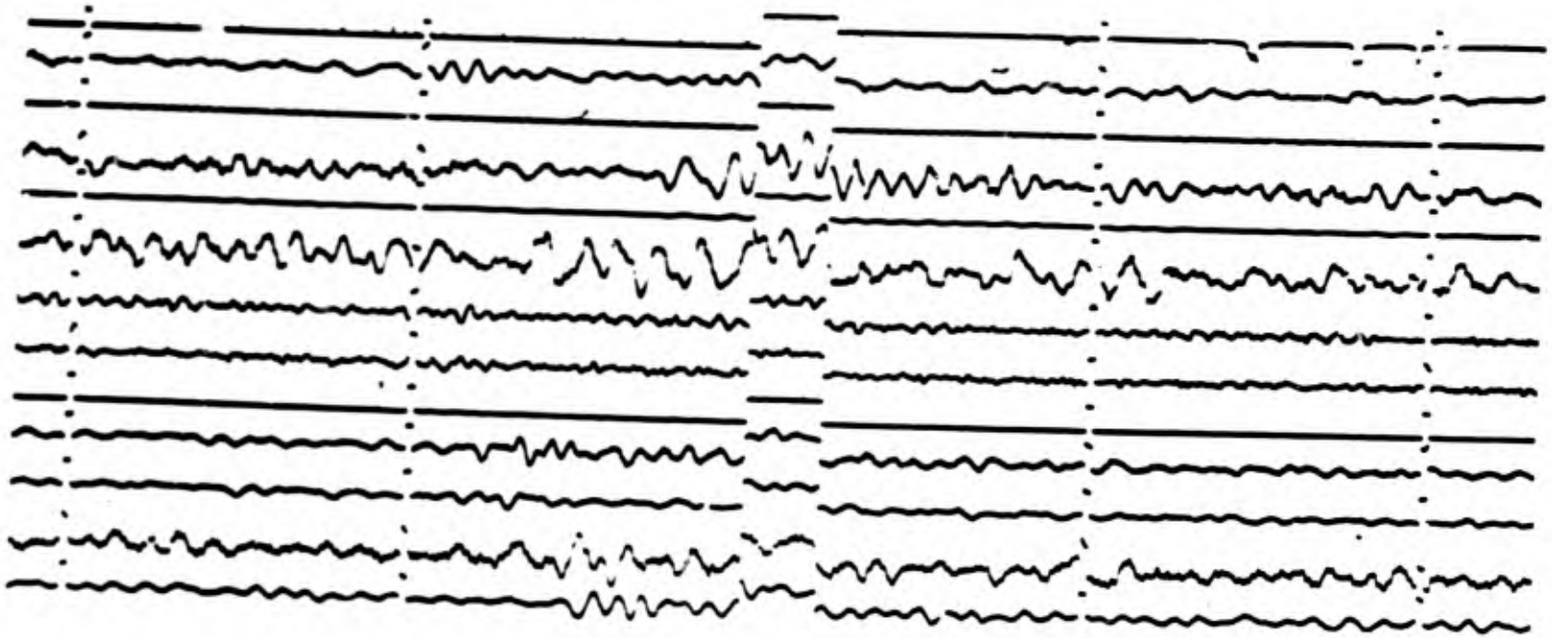


1) Radio
2) PCC 4762 km. 75K
3) VIN 4884 km. unknown
4) PRI 4977 km. 120K
5) Priest Strong Motion
6) JAS 4867 km. 400K
7) CNC 4752 km. 10K
8) BRK 4746 km. 40K
9) Berkeley Strong Motion
10) MHC 4825 km. 90K
11) GCC 4822 km. 75K
12) PRS 4915 km. 115K
13) LLA 4924 km. 105K

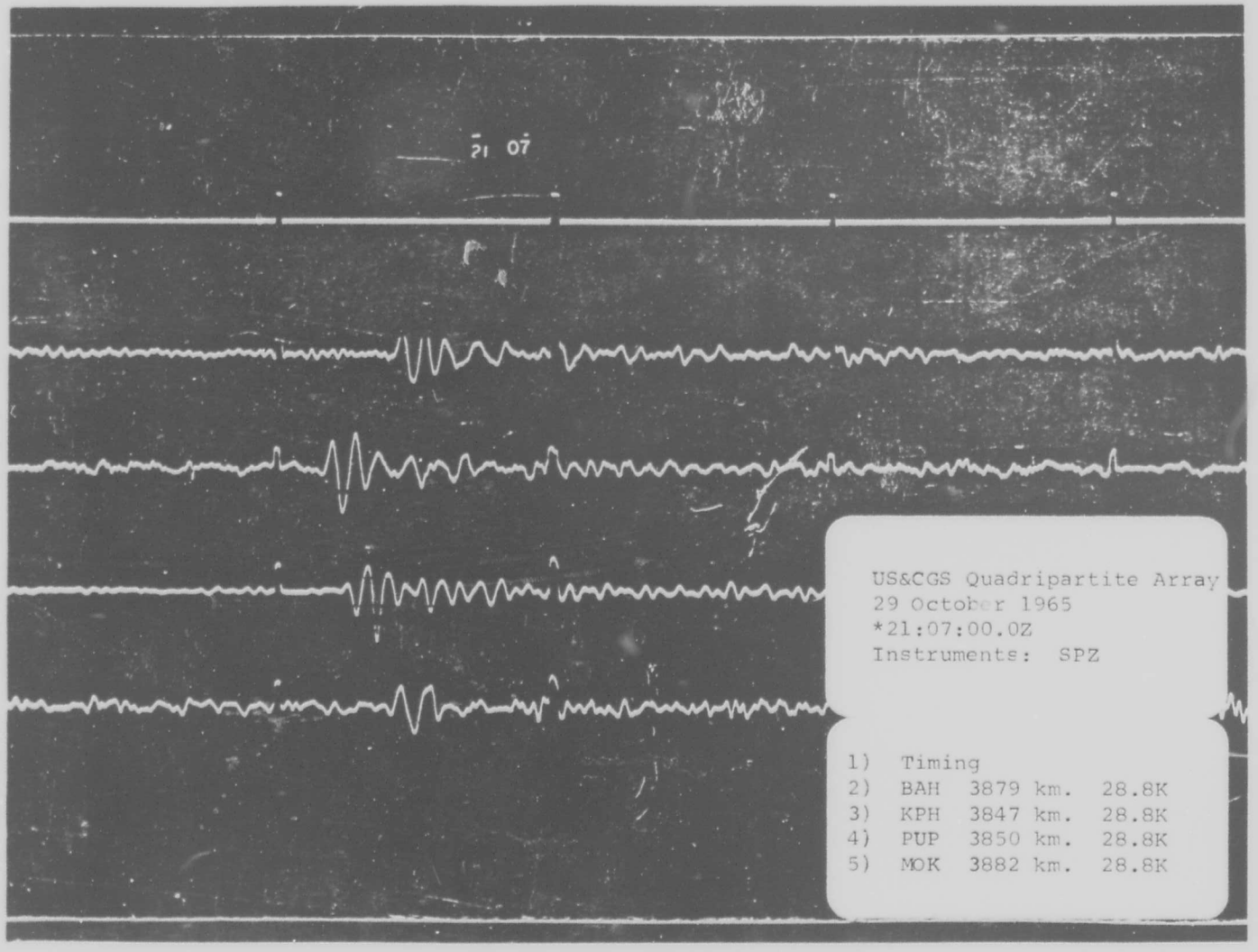


Berkeley Telemeter Network
29 October 1965
*21:08:00.0Z
Instruments: SPZ

1) Radio
2) PCC 4762 km. 75K
3) VIN 4884 km. unknown
4) PRI 4977 km. 120K
5) Priest Strong Motion
6) JAS 4867 km. 400K
7) CNC 4752 km. 10K
8) BRK 4746 km. 40K
9) Berkeley Strong Motion
10) MHC 4825 km. 90K
11) GCC 4822 km. 75K
12) PRS 4915 km. 115K
13) LLA 4924 km. 105K



Berkeley Telemeter Network
29 October 1965
*21:10:00.0Z
Instruments: SPZ


21 07
US&CGS Quadripartite Array
29 October 1965
*21:07:00.0Z
Instruments: SPZ
1) Timing
2) BAH 3879 km. 28.8K
3) KPH 3847 km. 28.8K
4) PUP 3850 km. 28.8K
5) MOK 3882 km. 28.8K

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

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Alexander, S.S. (The Penn. State Univ.)
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11 SUPPLEMENTARY NOTES	12 SPONSORING MILITARY ACTIVITY ADVANCED RESEARCH PROJECTS AGENCY NUCLEAR MONITORING RESEARCH OFFICE WASHINGTON, D. C.

13 ABSTRACT

14 KEY WORDS

Unclassified
Security Classification

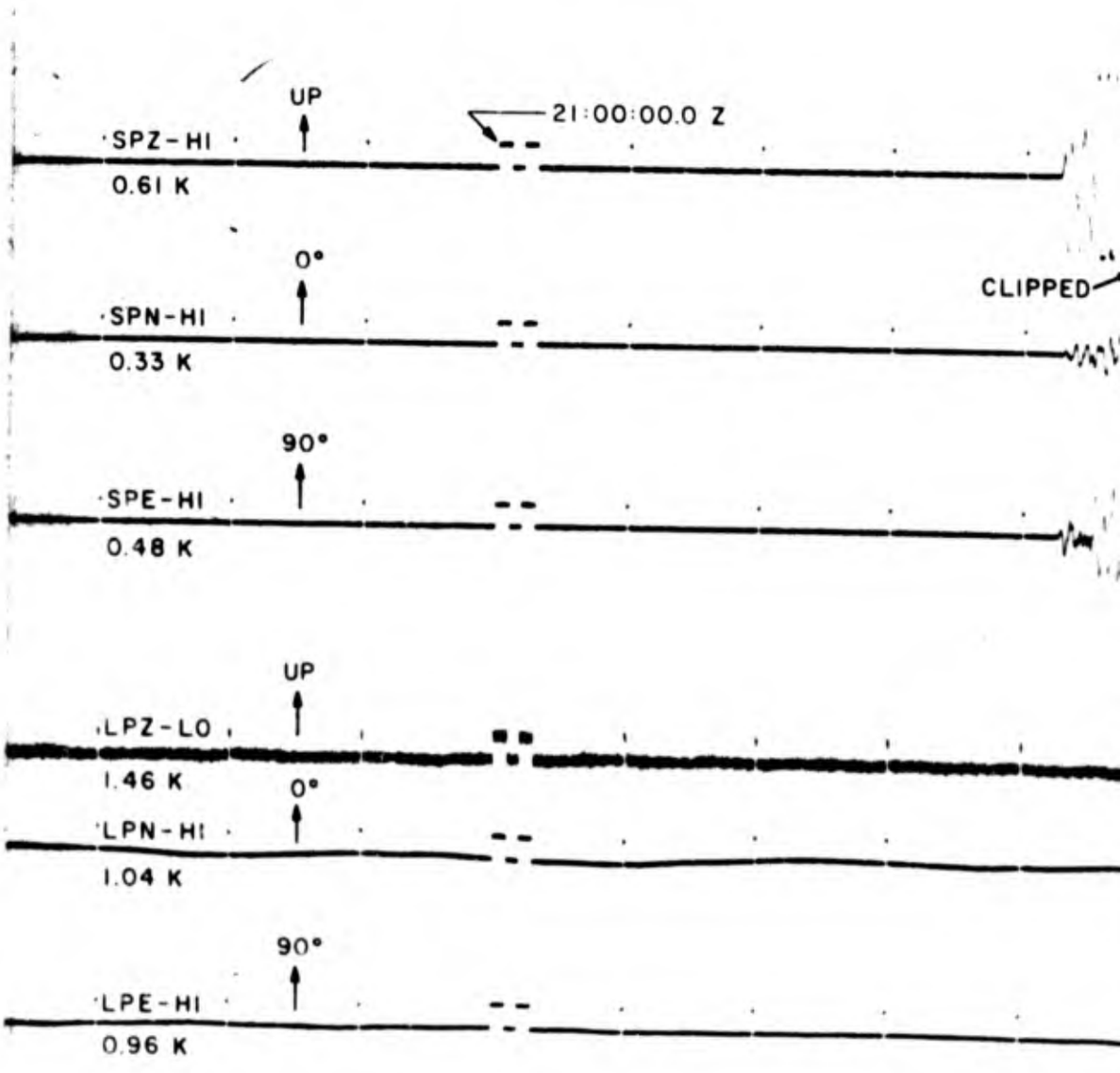
LONG SHOT

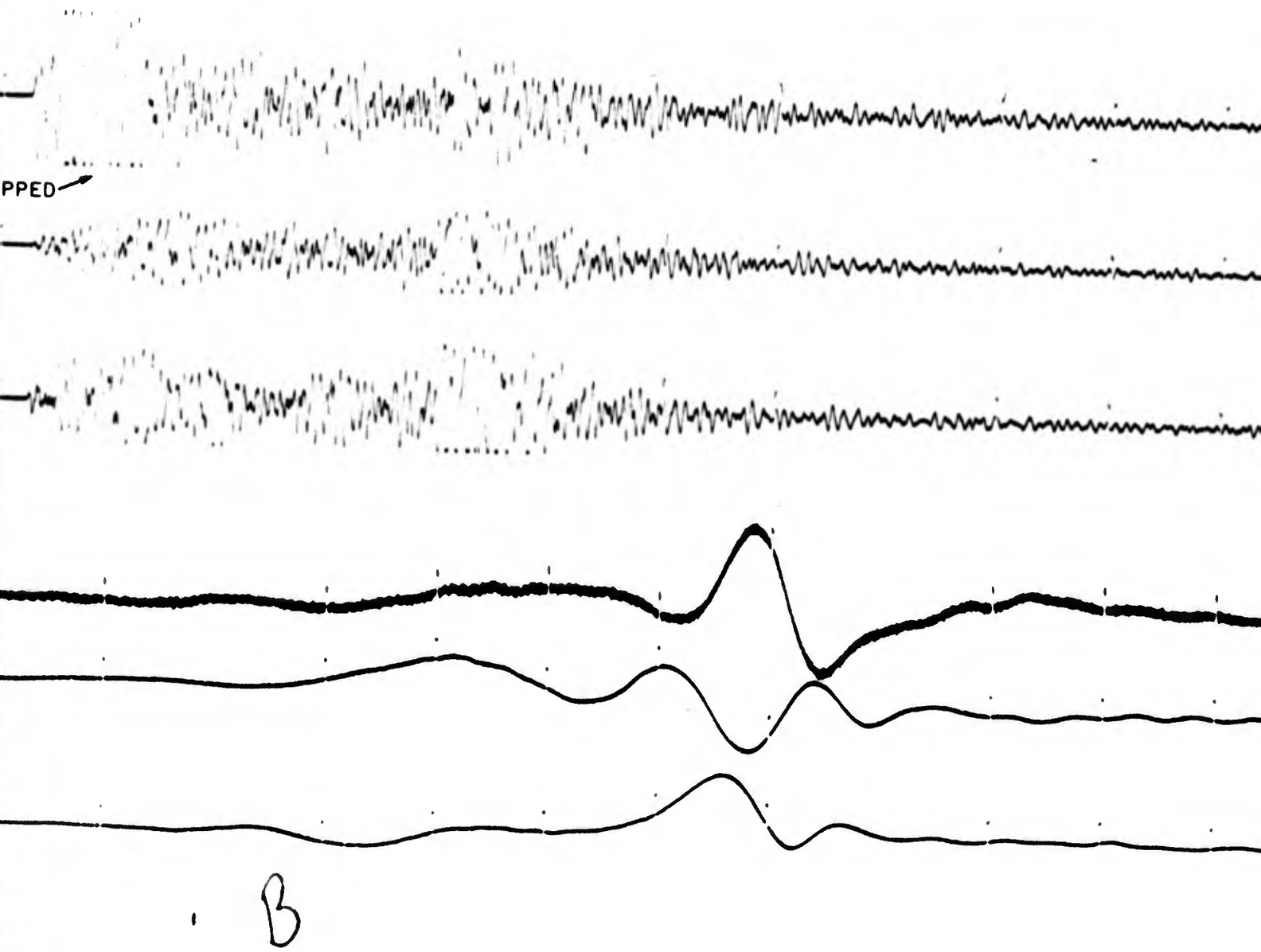
AD-IS

ADAK ISLAND,
ALASKA

29 OCTOBER 1965

Δ=291 Km





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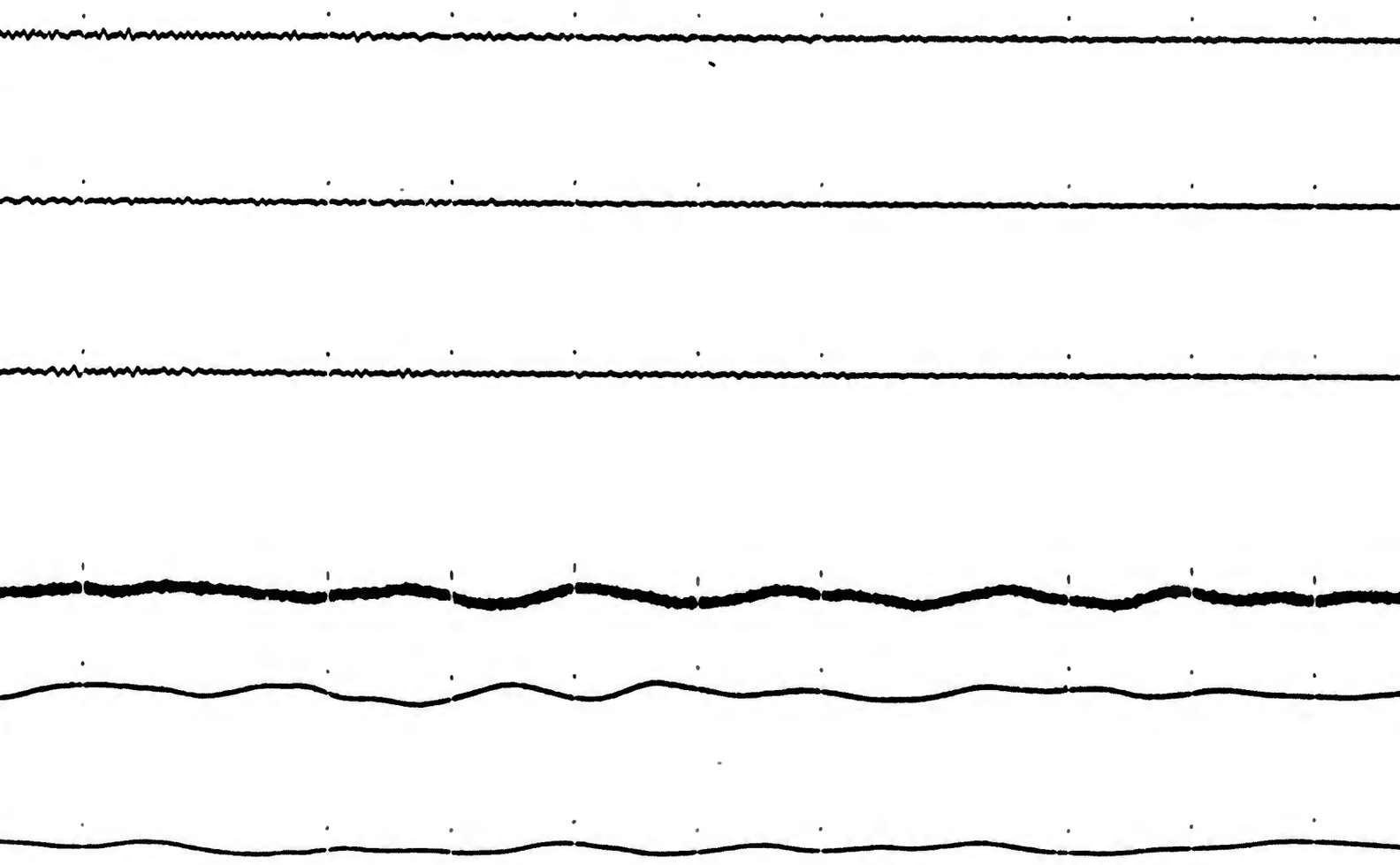

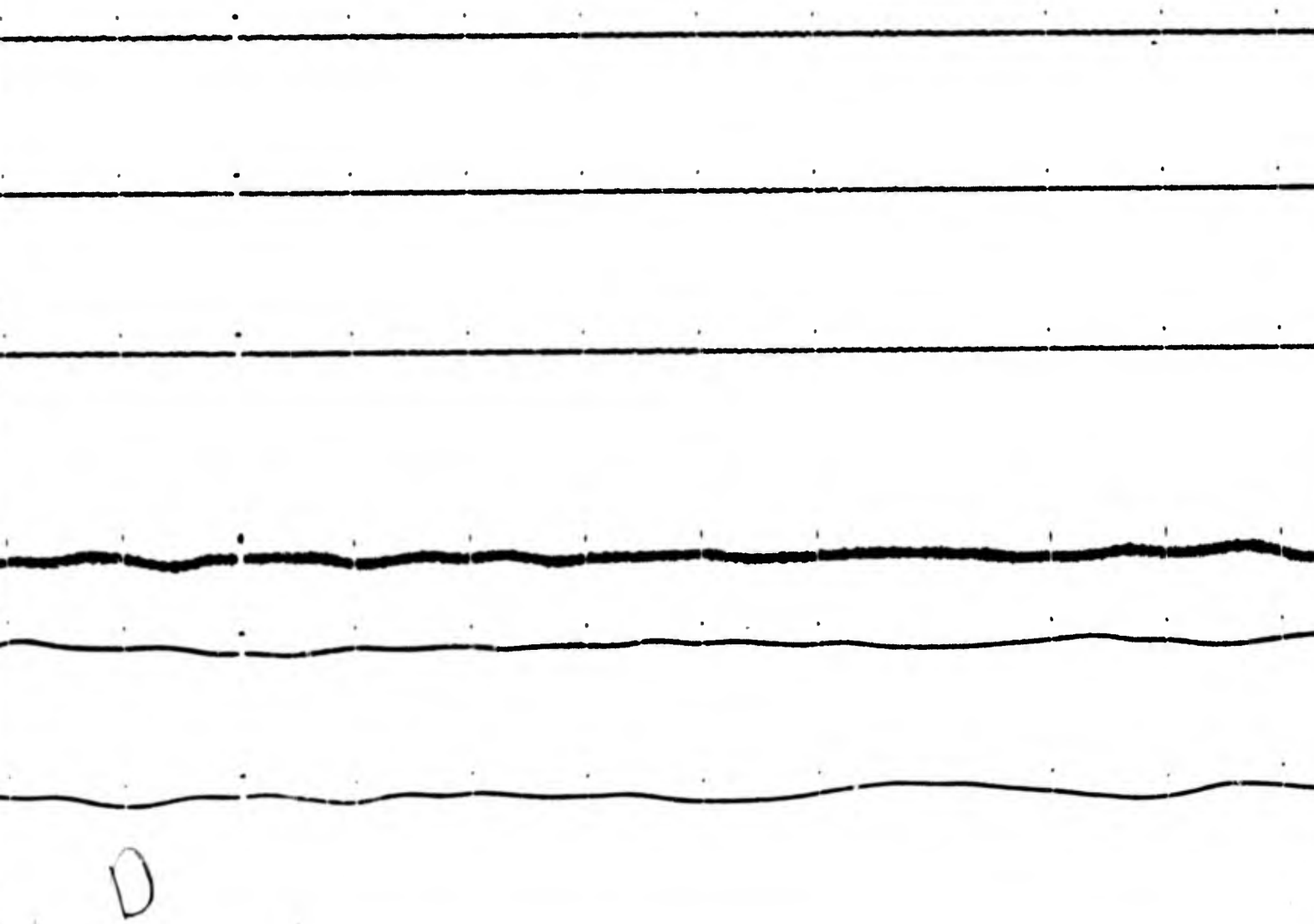

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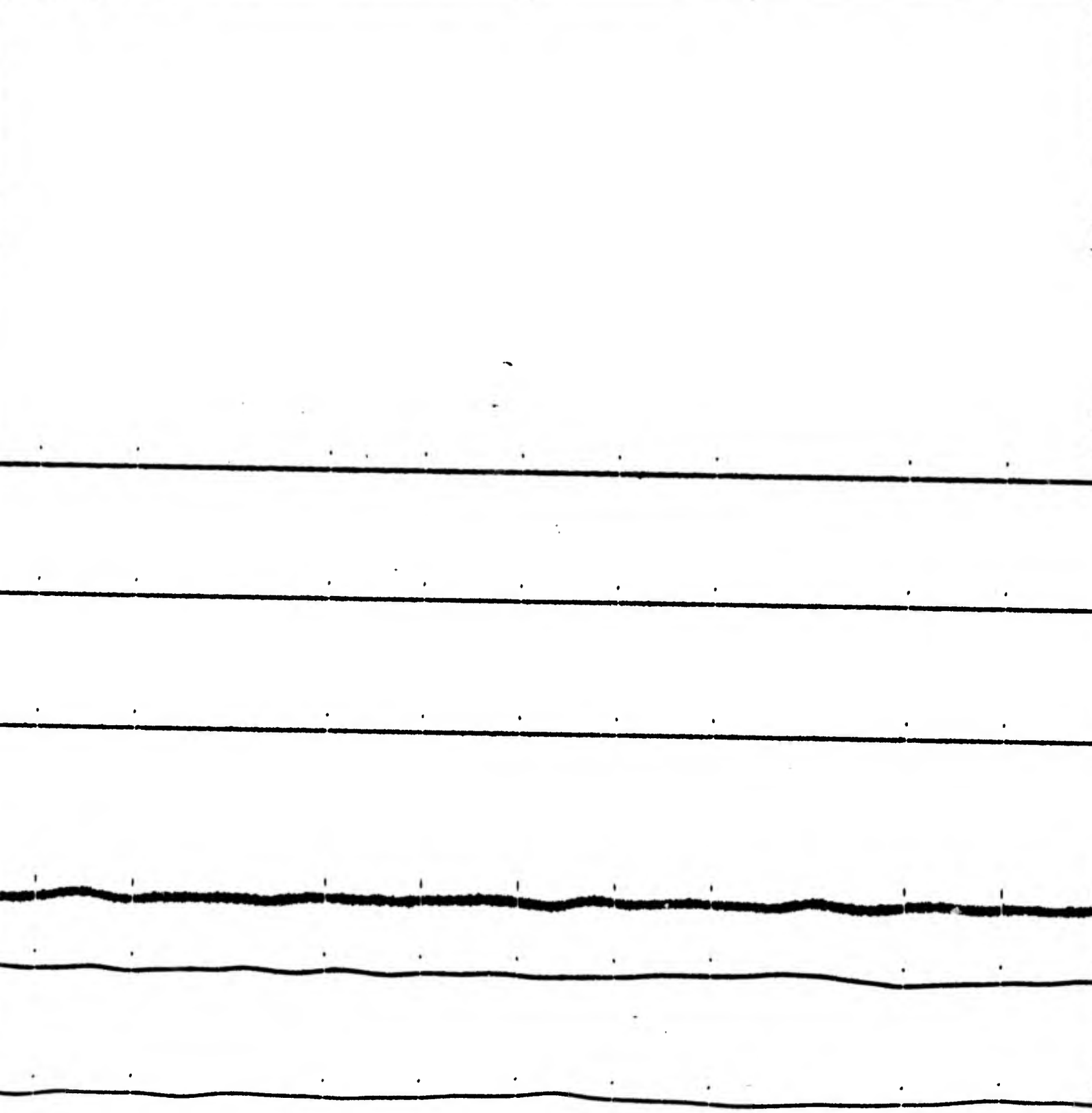

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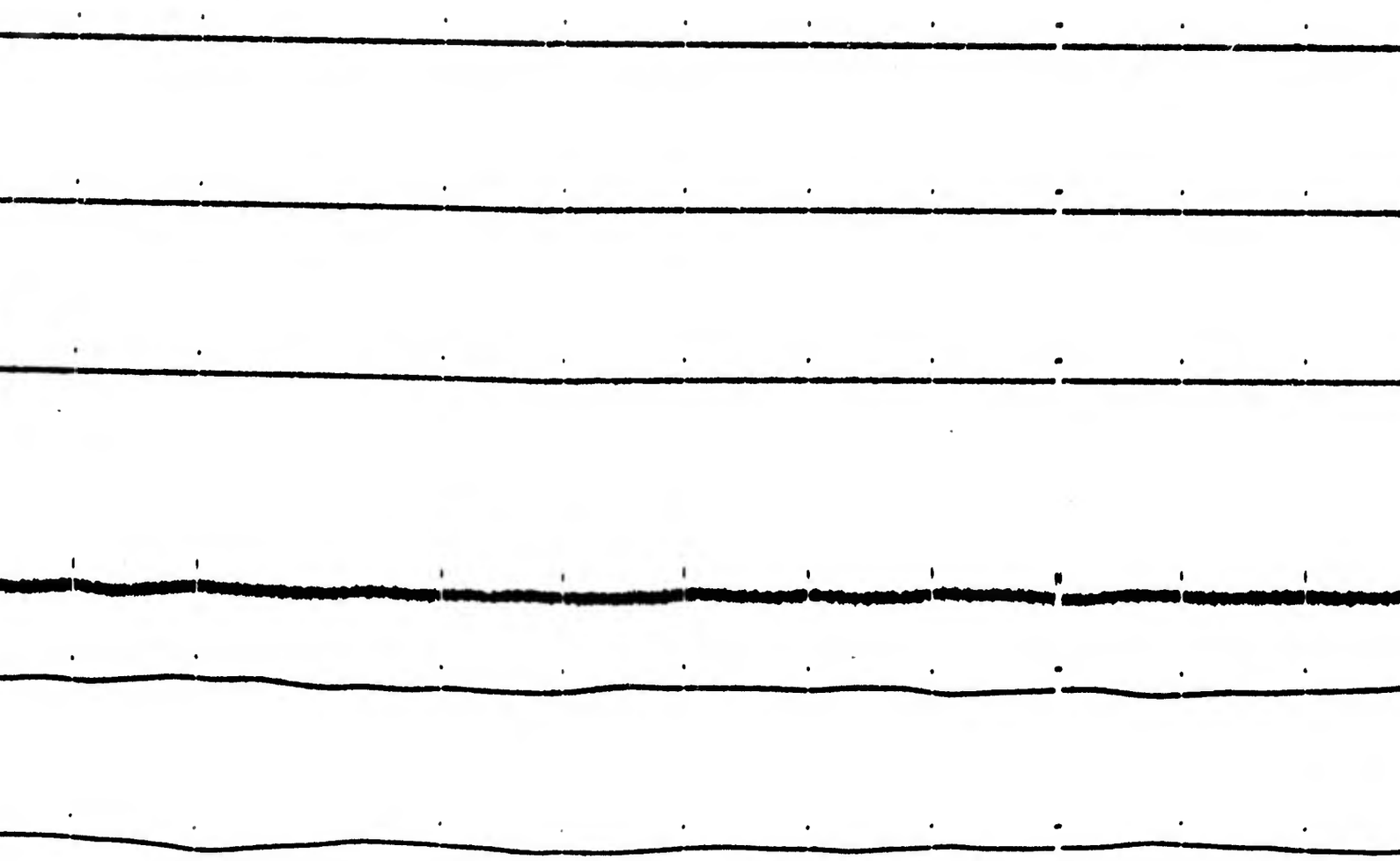


F

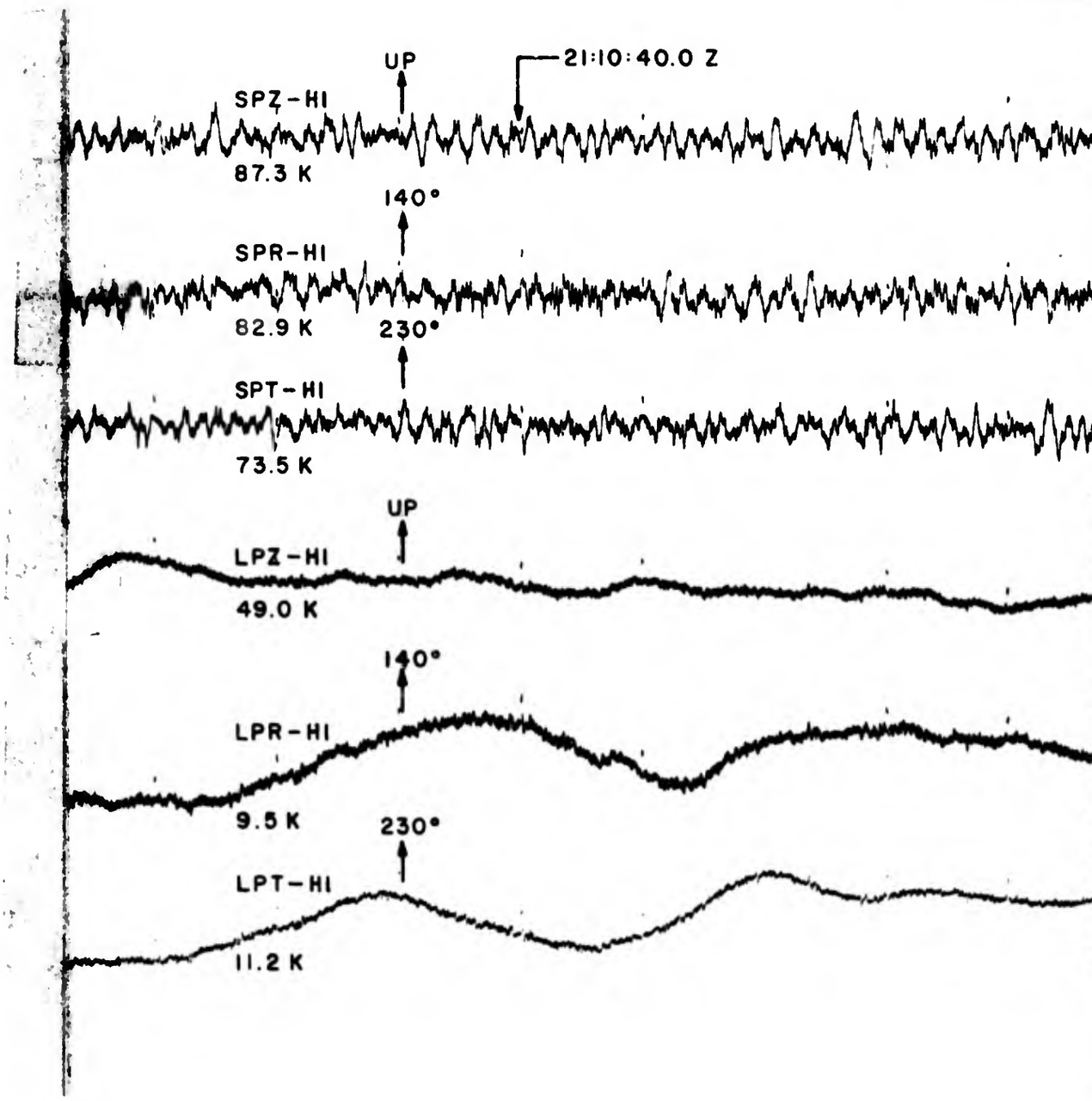
LONG SHOT

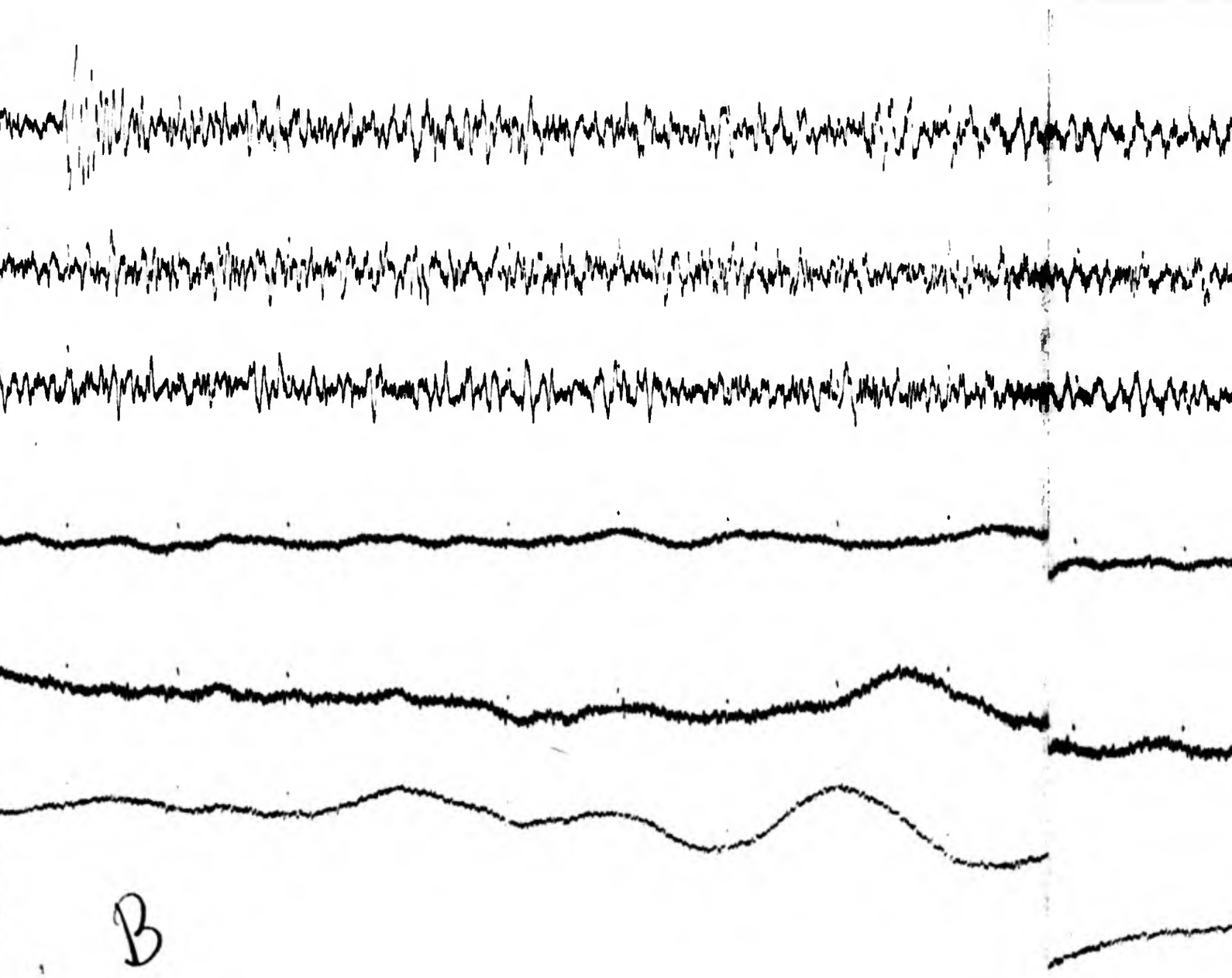
BE-FL

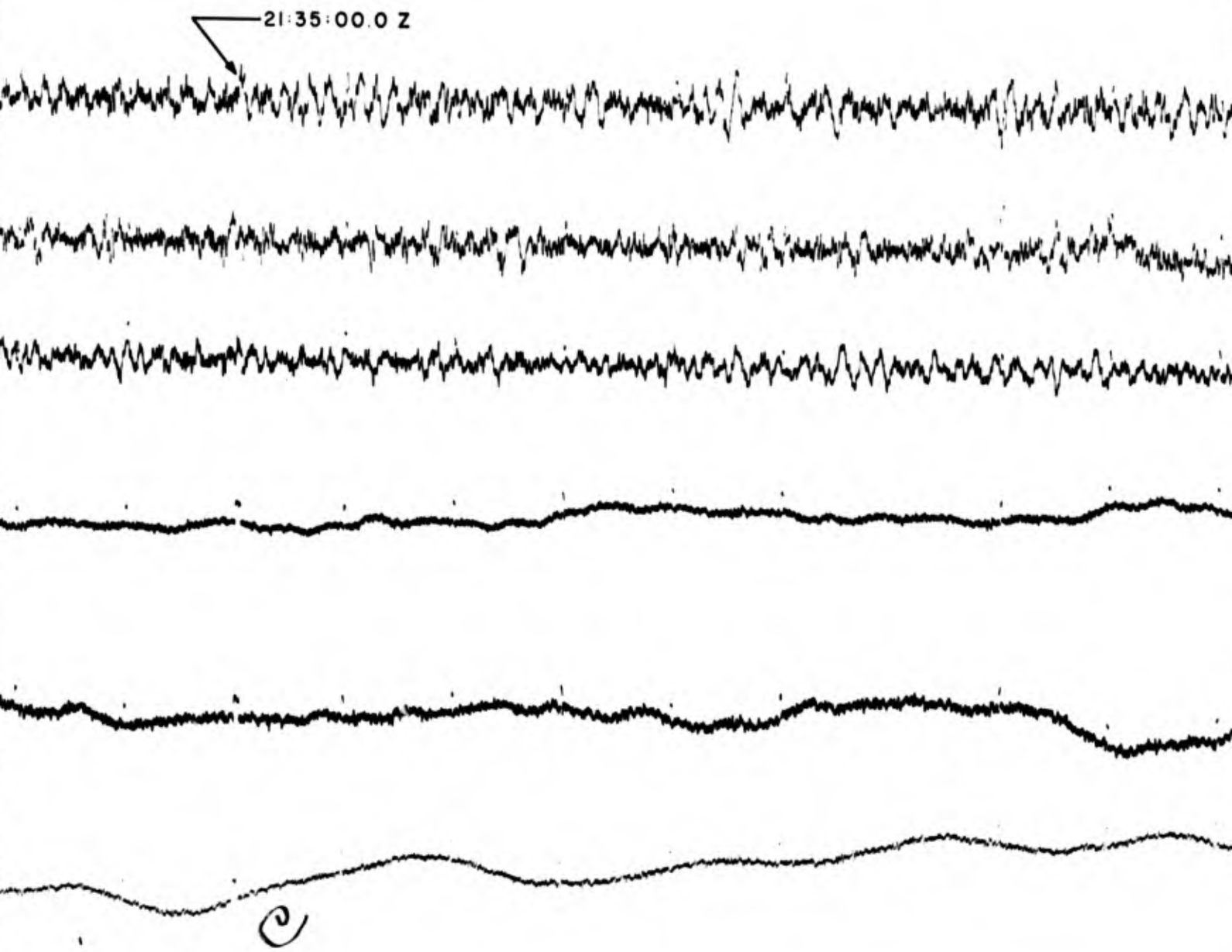
BELLVIEW, FLORIDA

29 OCTOBER 1965

Δ=8123 Km




B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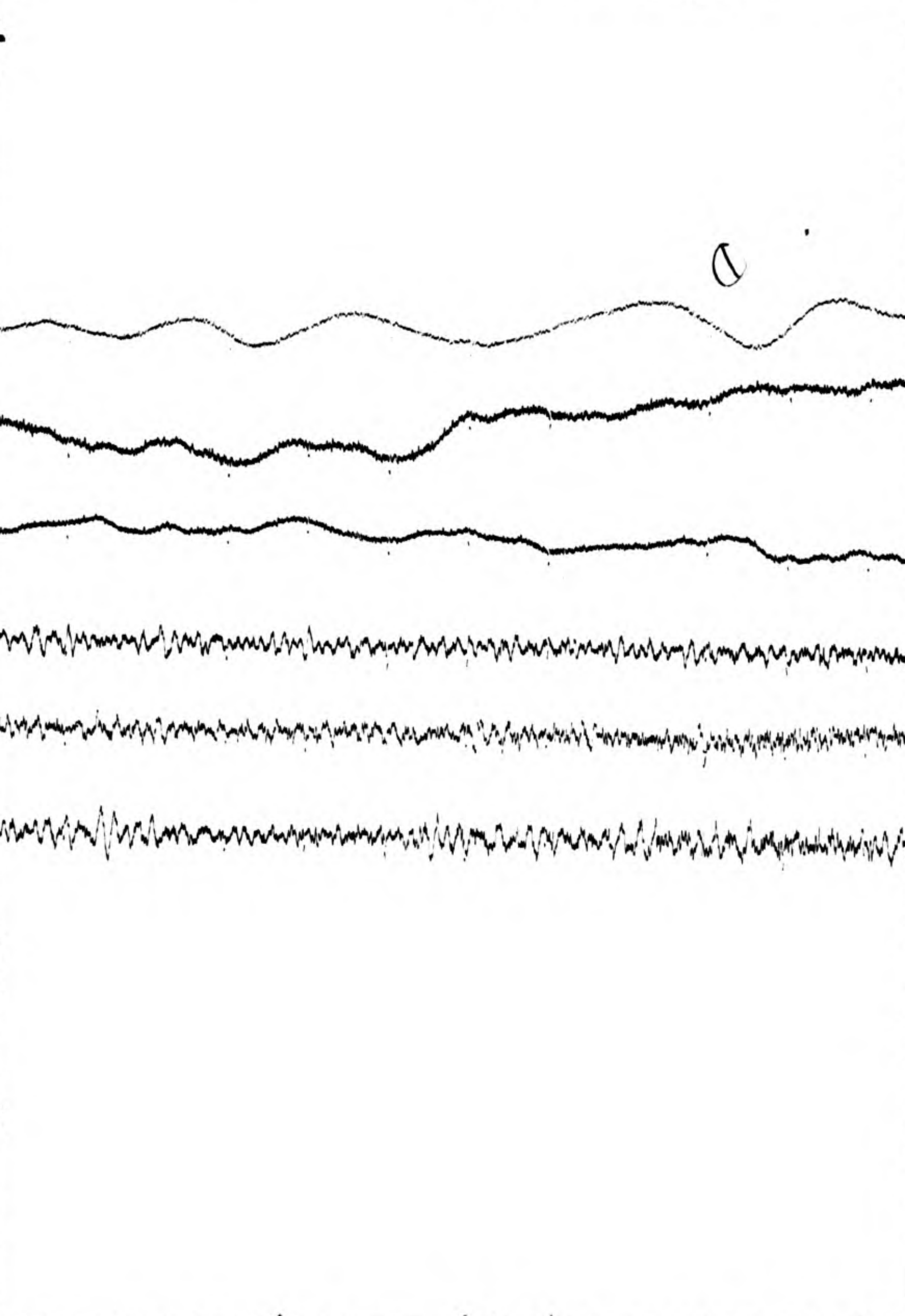

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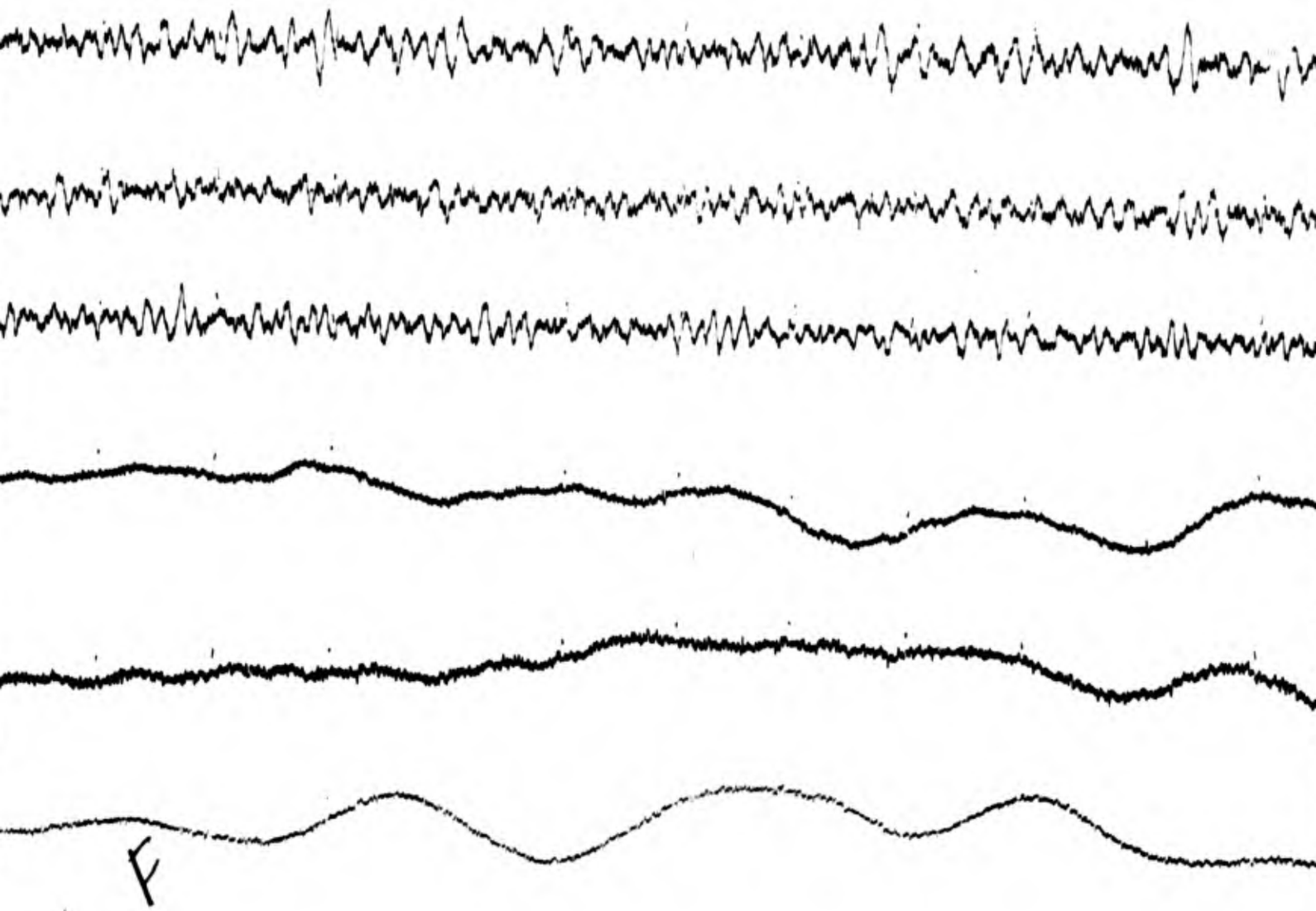
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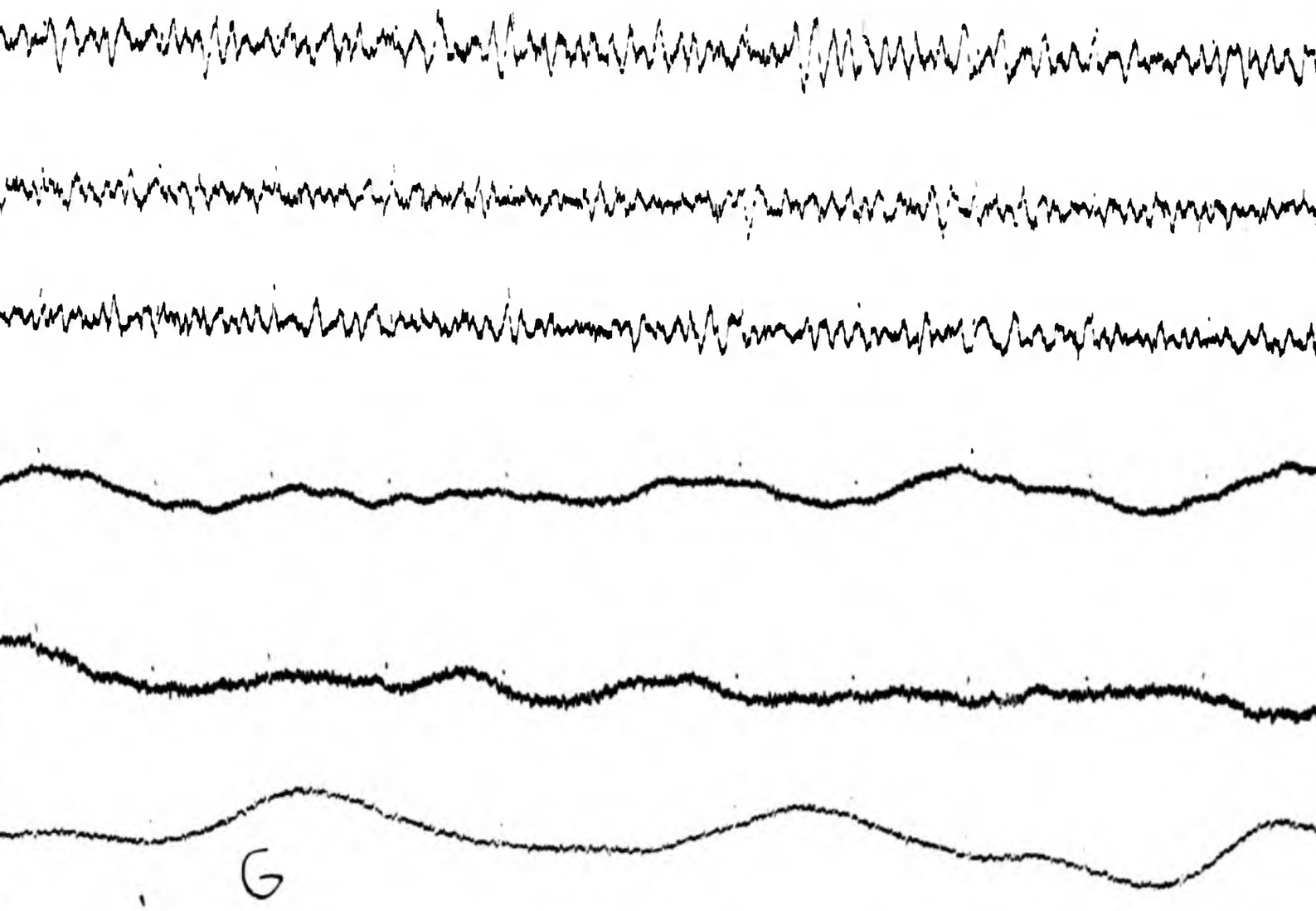
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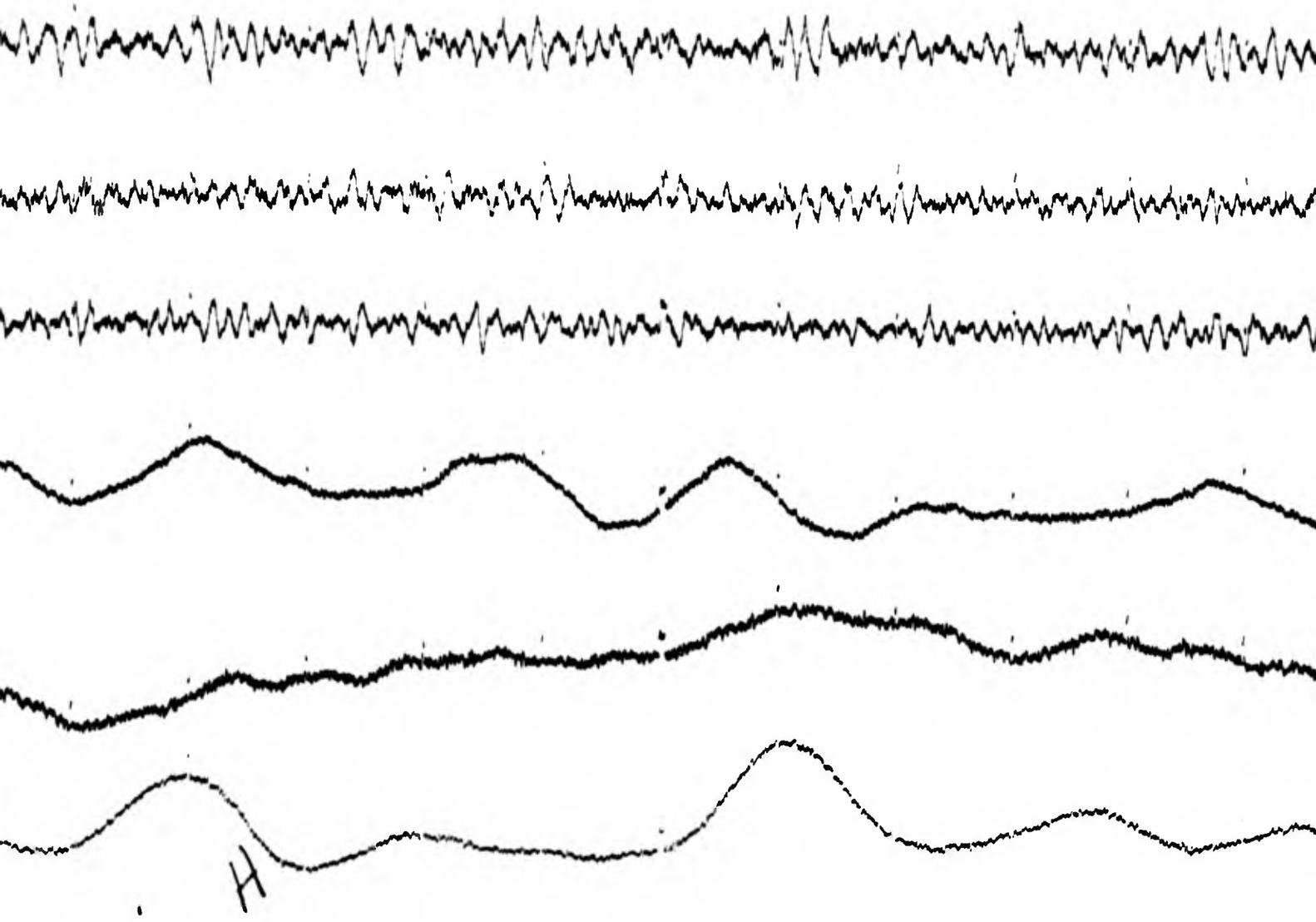
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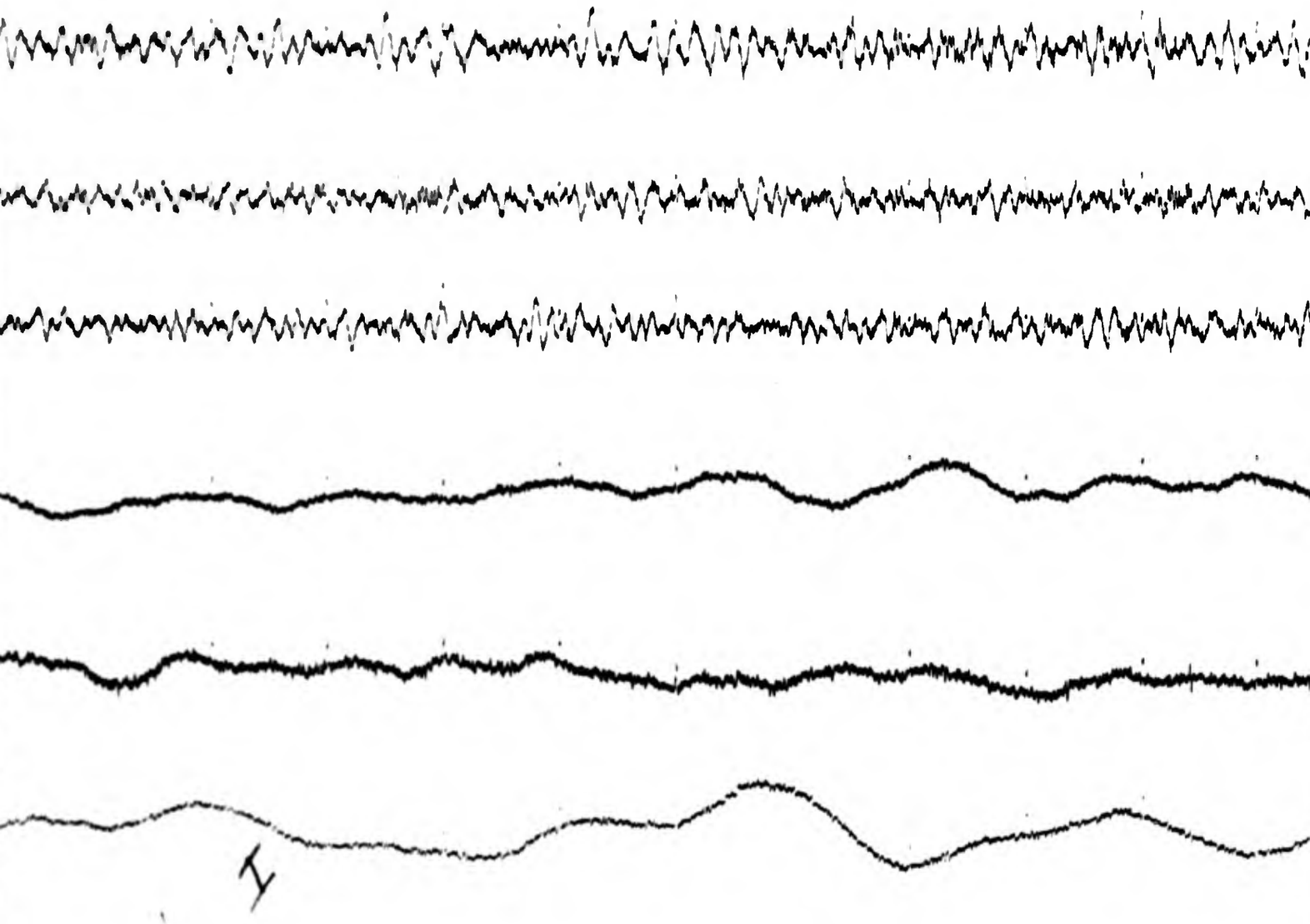
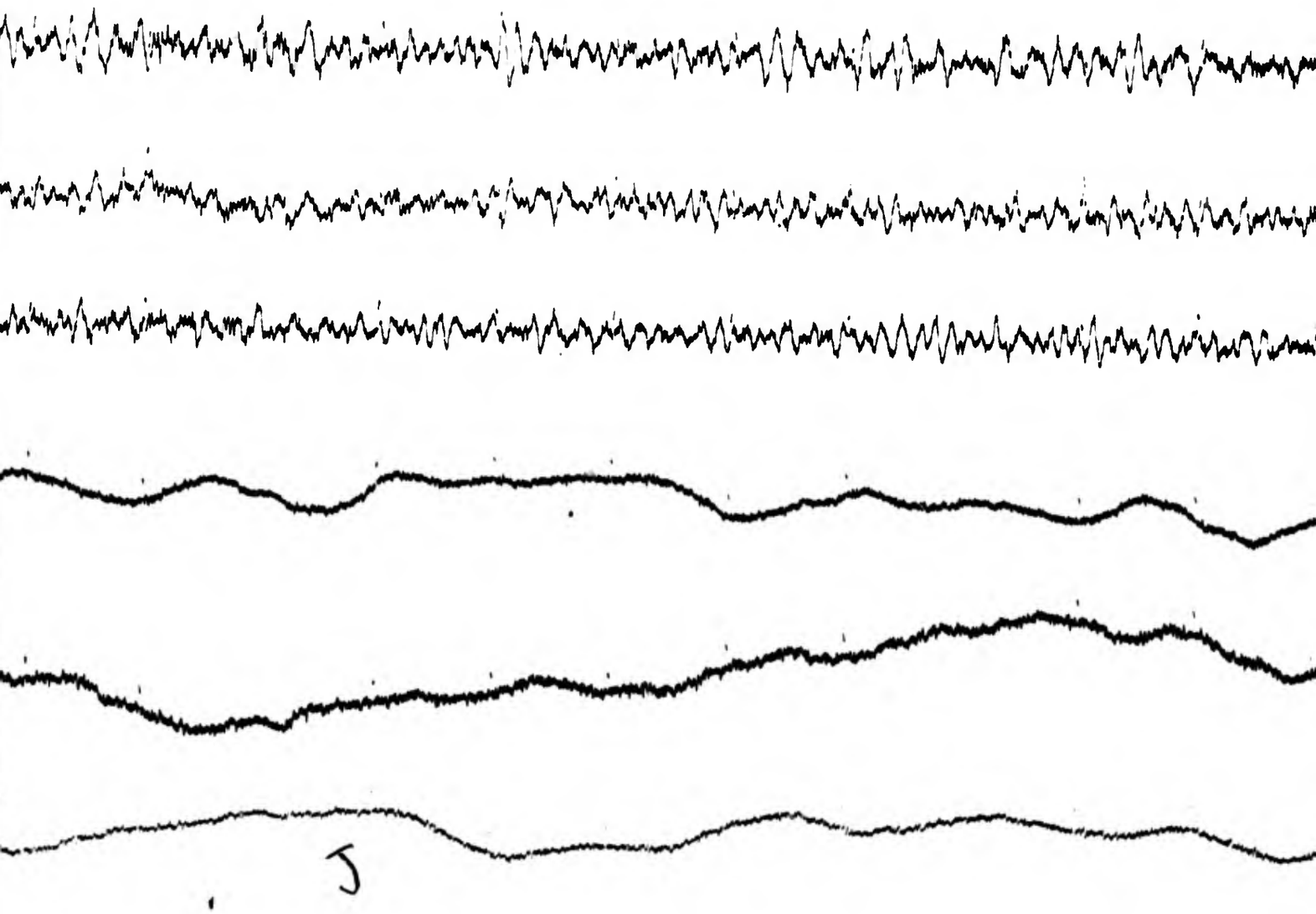
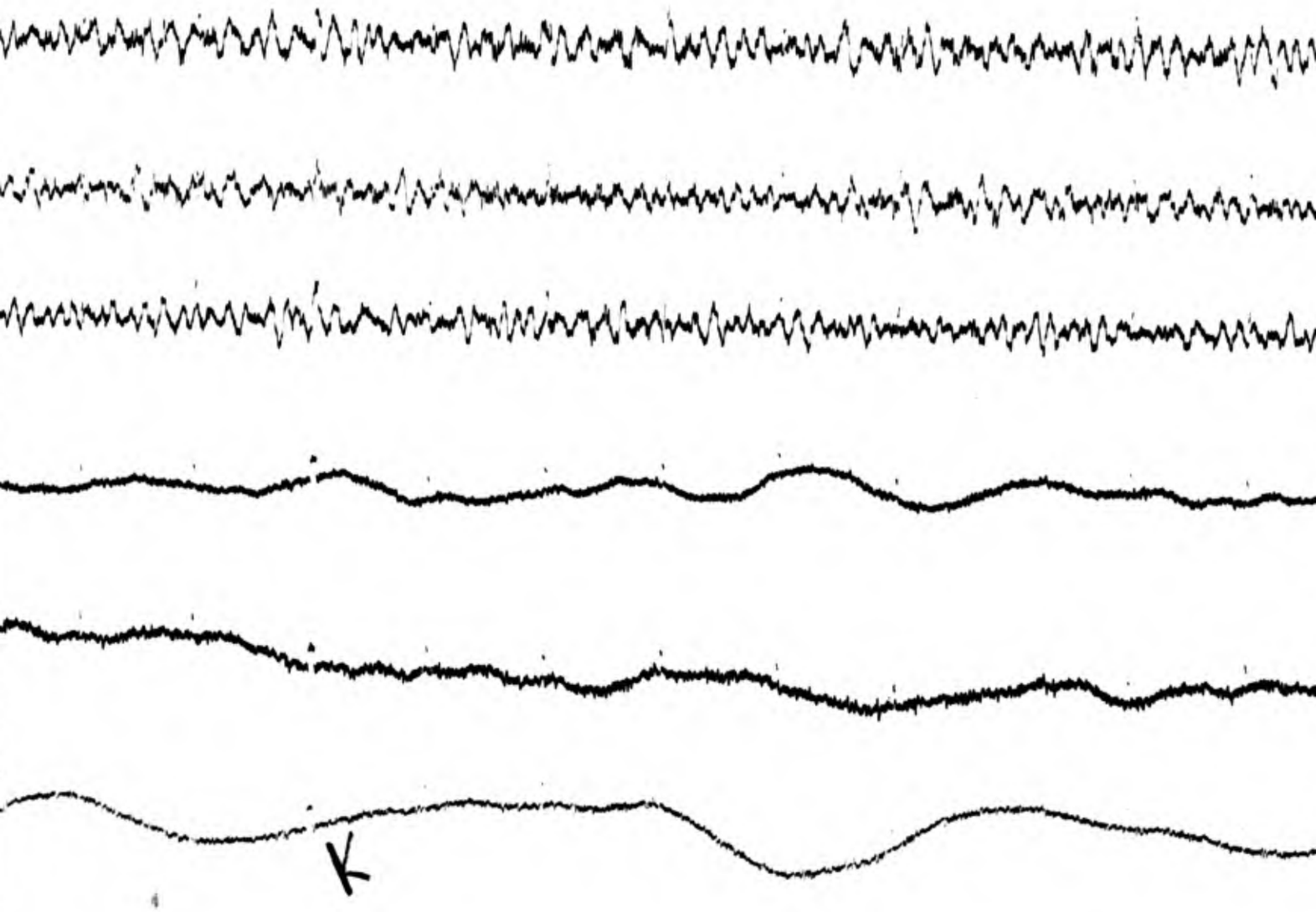
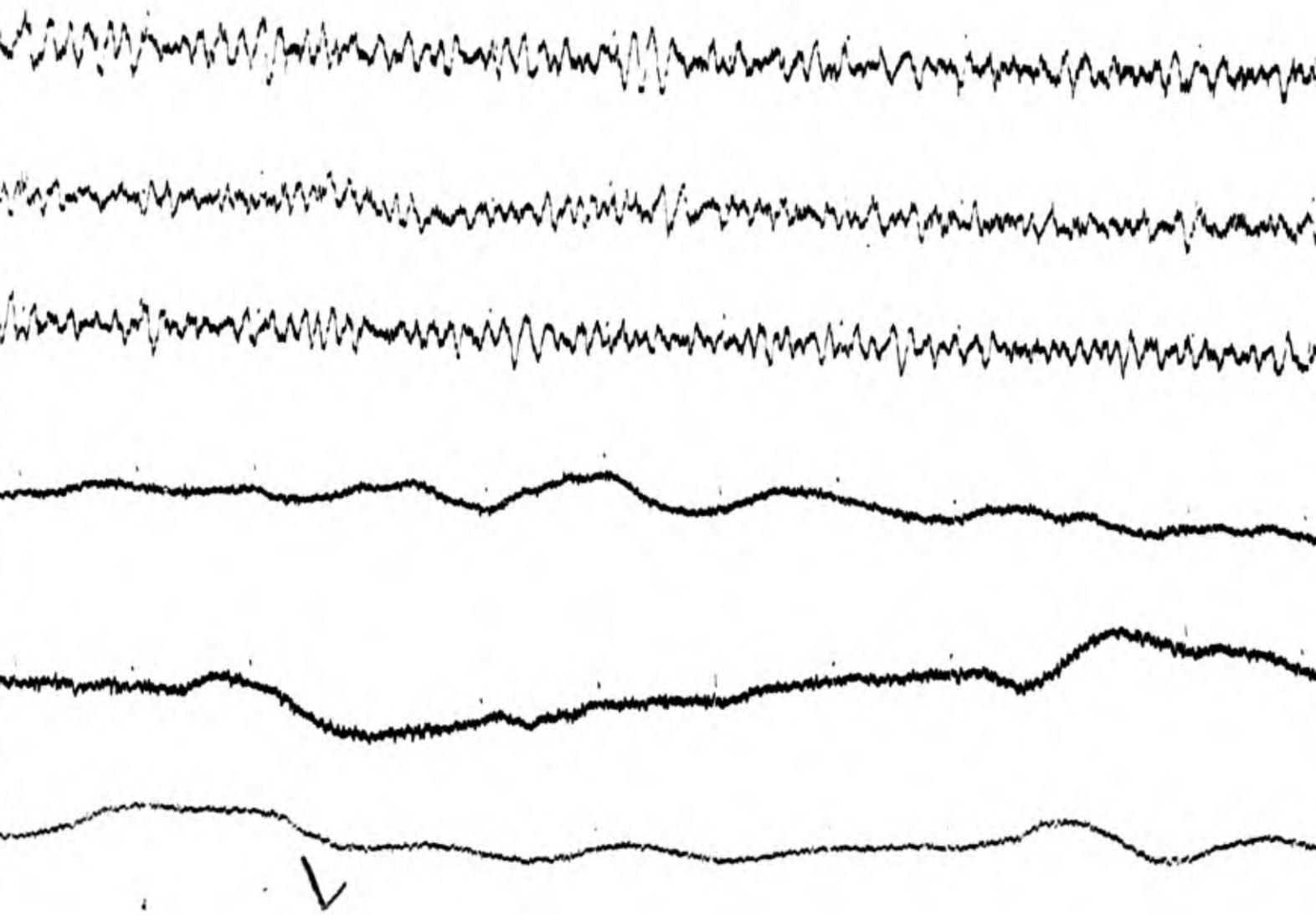
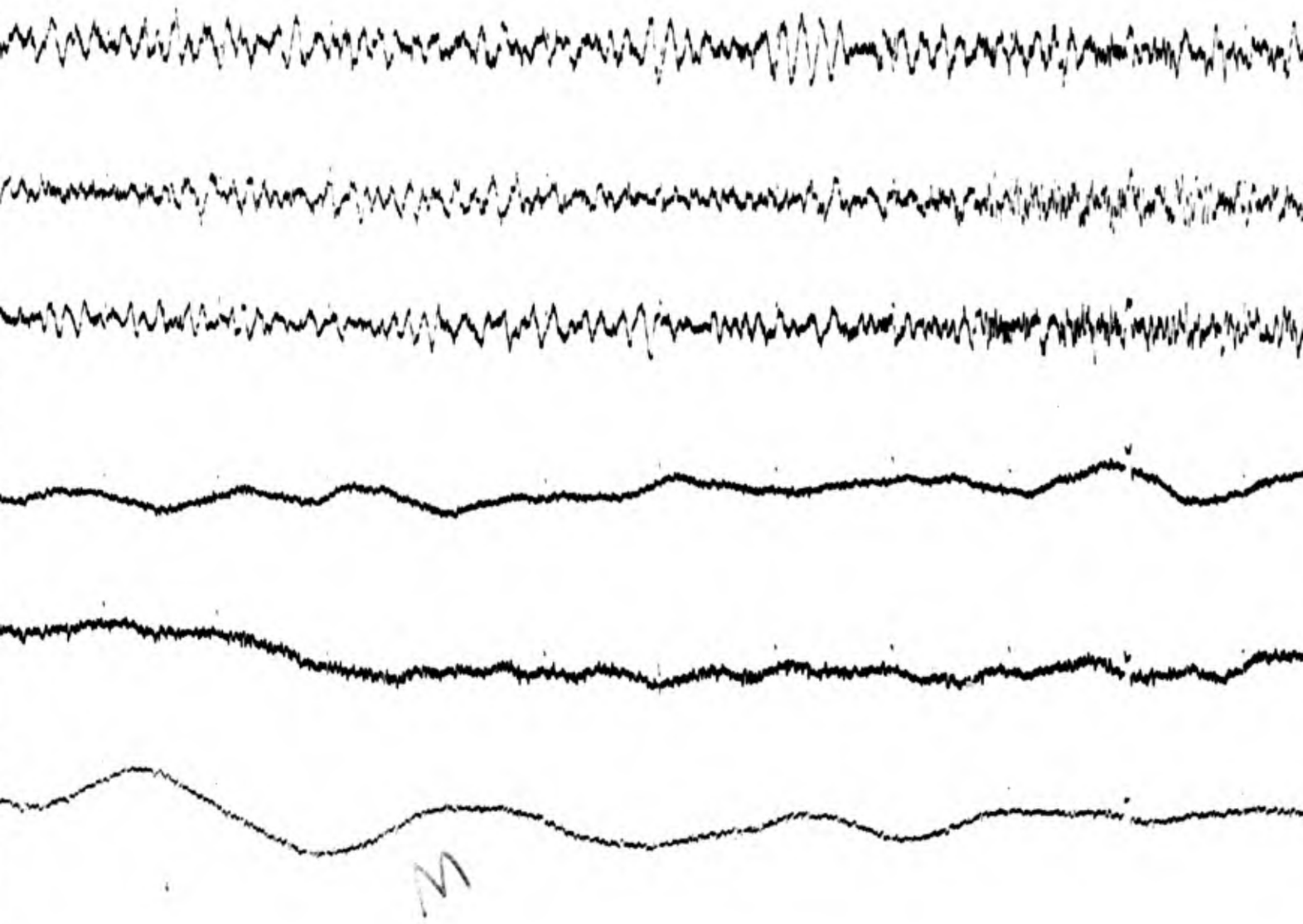





K





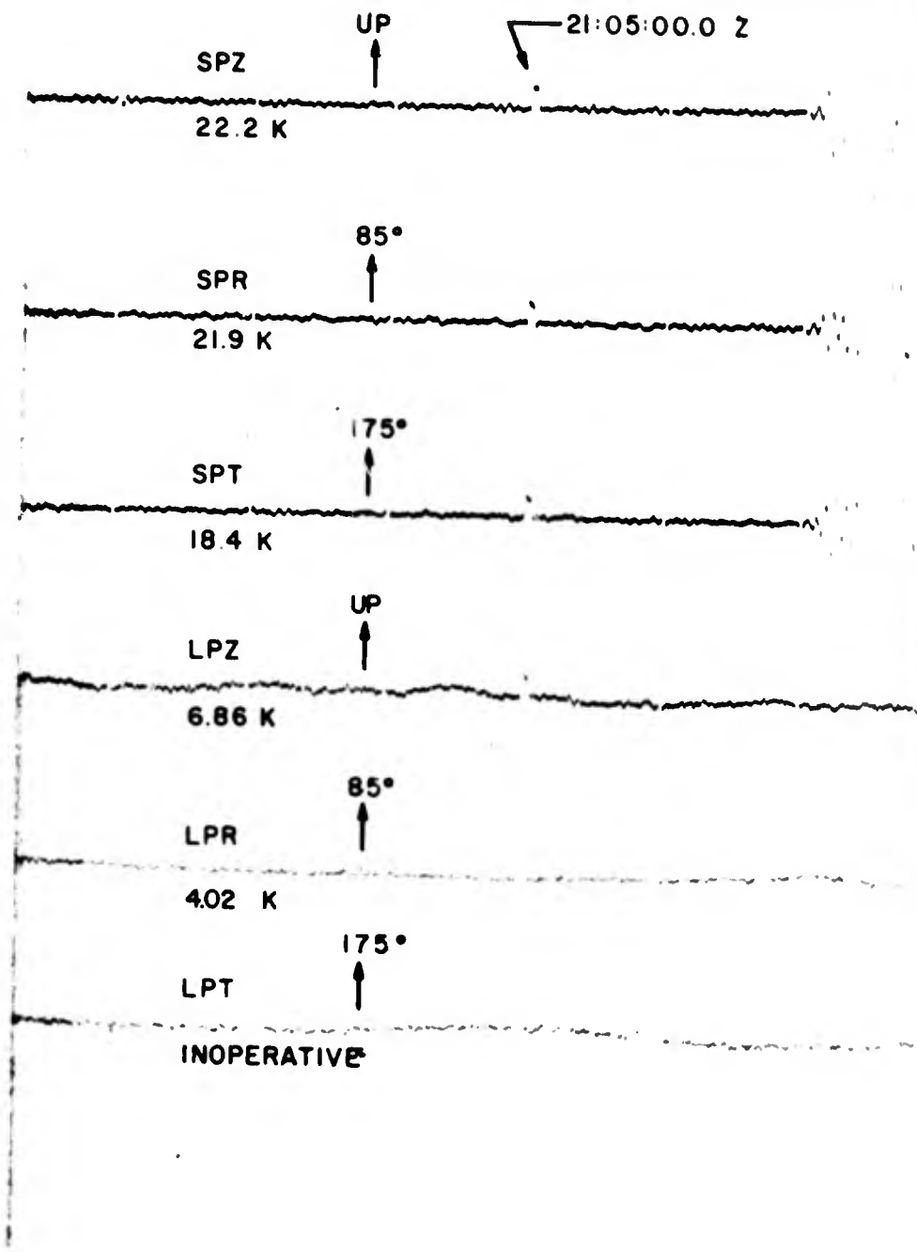
LONG SHOT

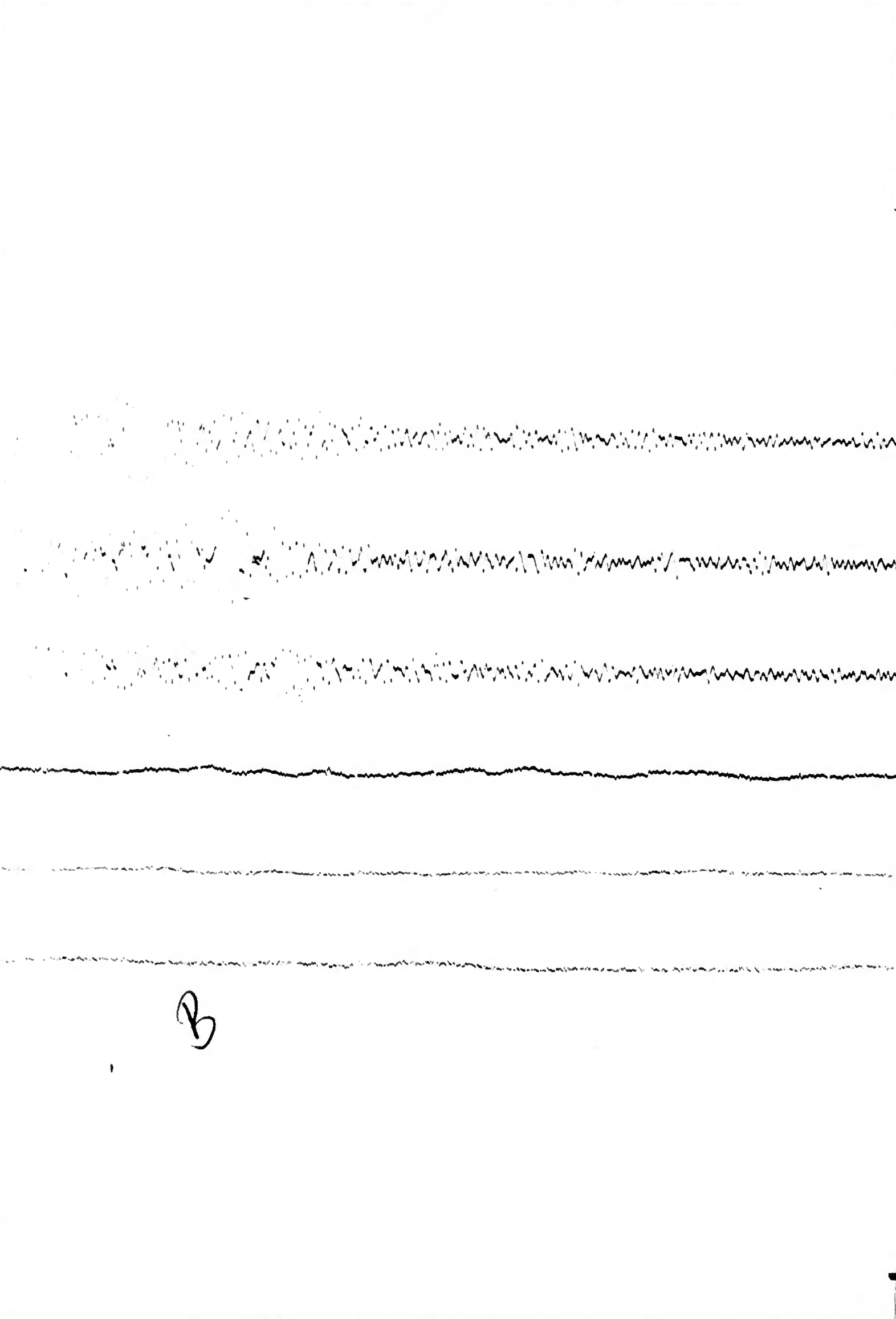
BH-YK

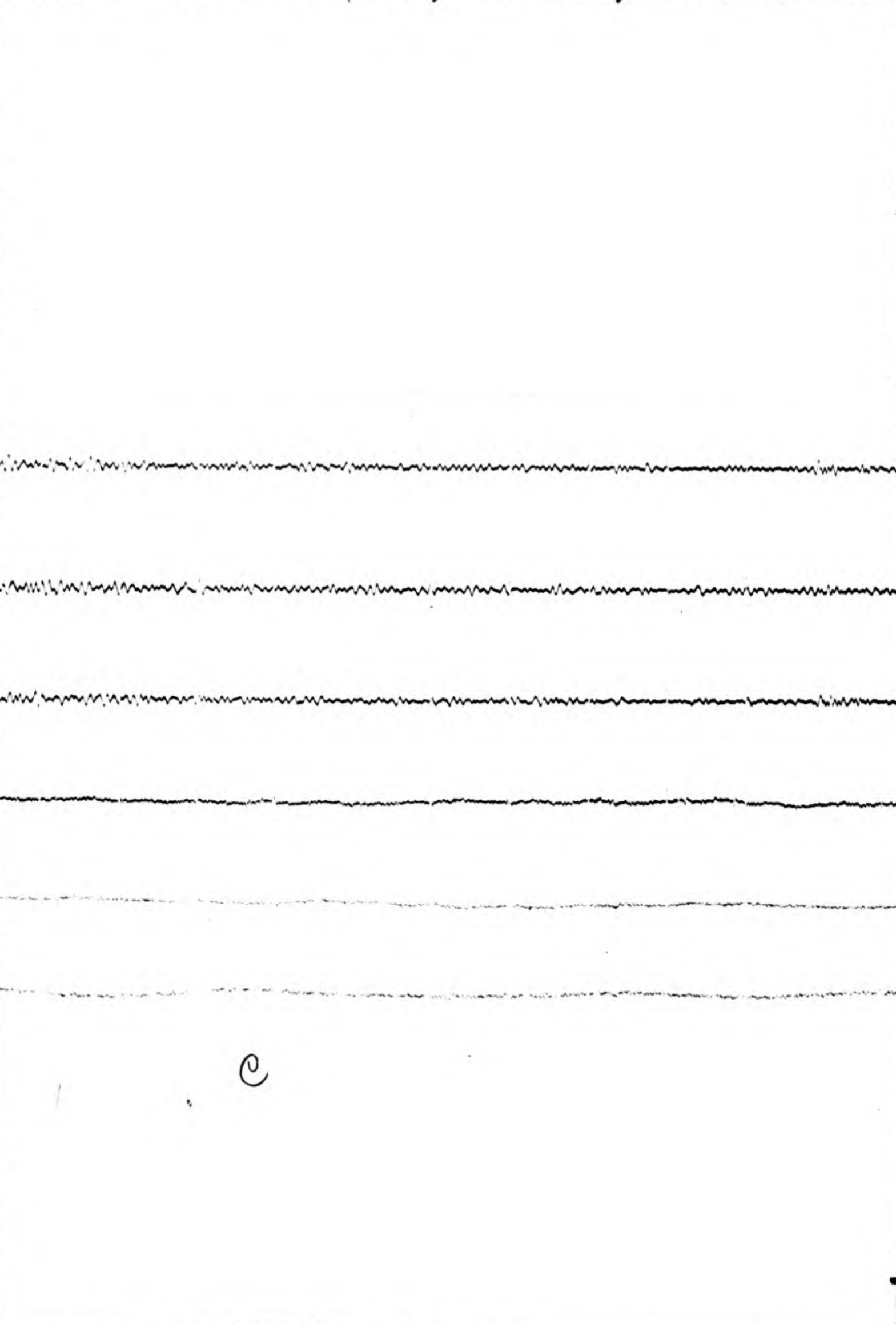
BURWASH LANDING, YUKON, CANADA

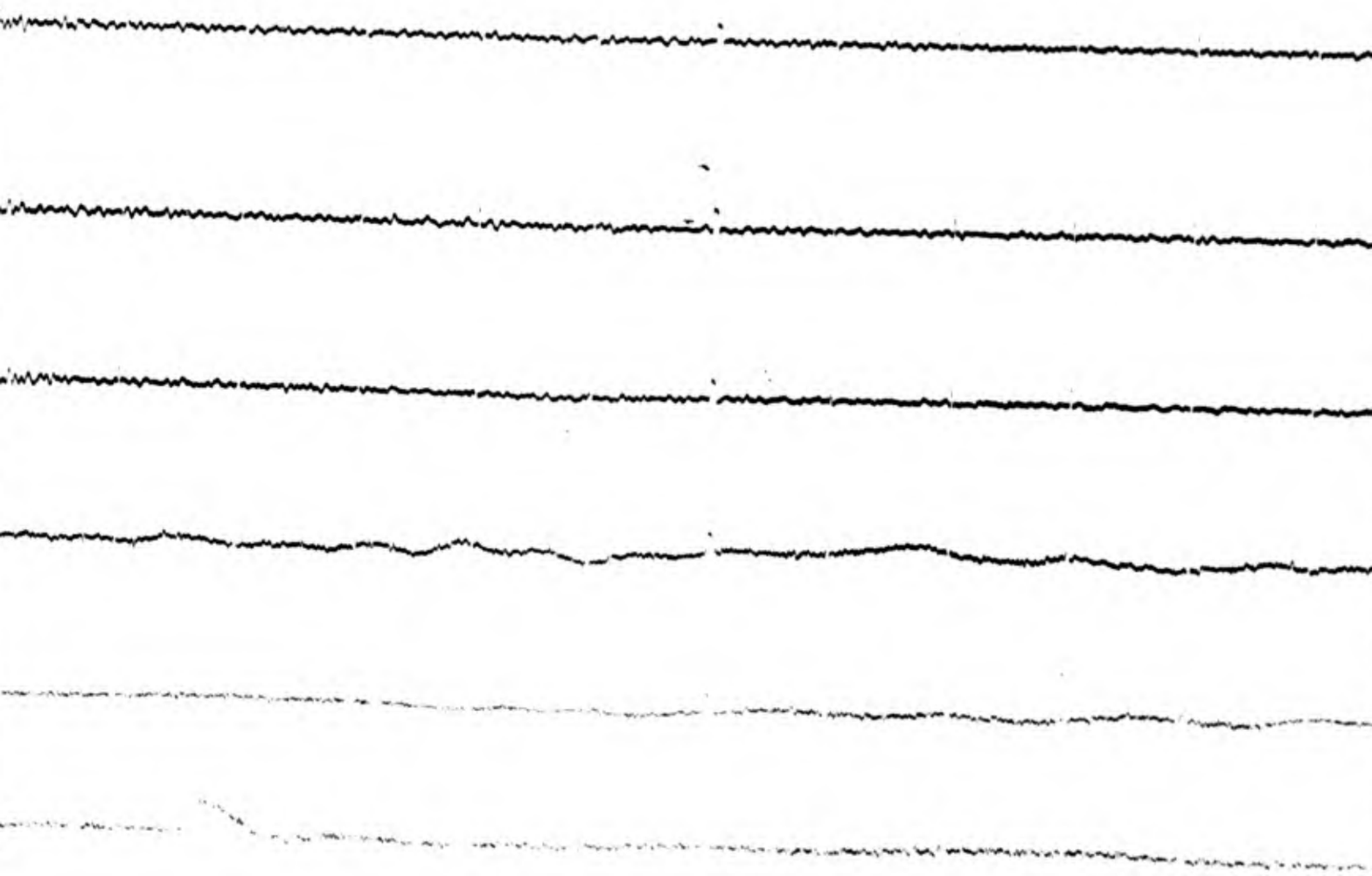
29 OCTOBER 1965

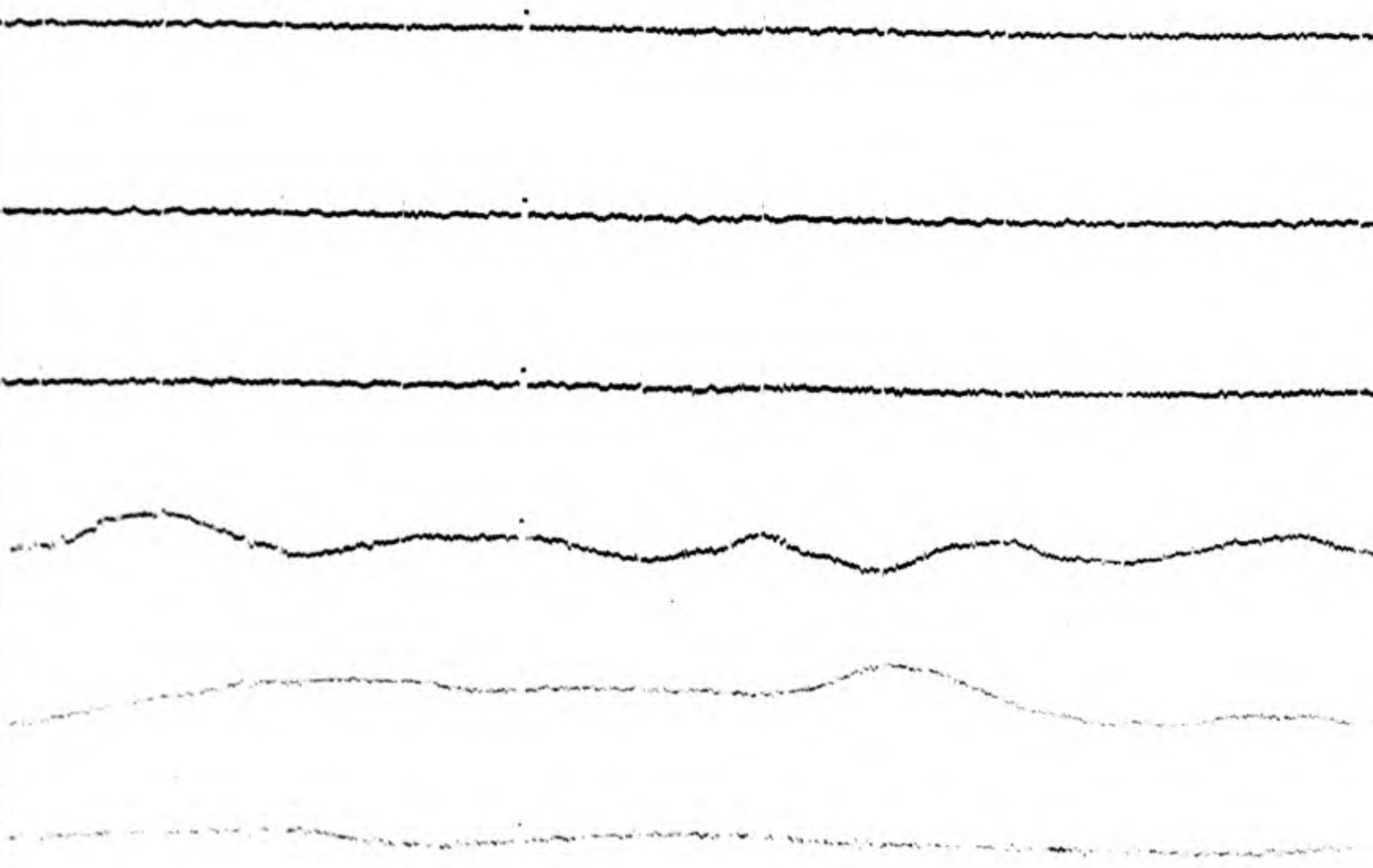
Δ=2745 Km











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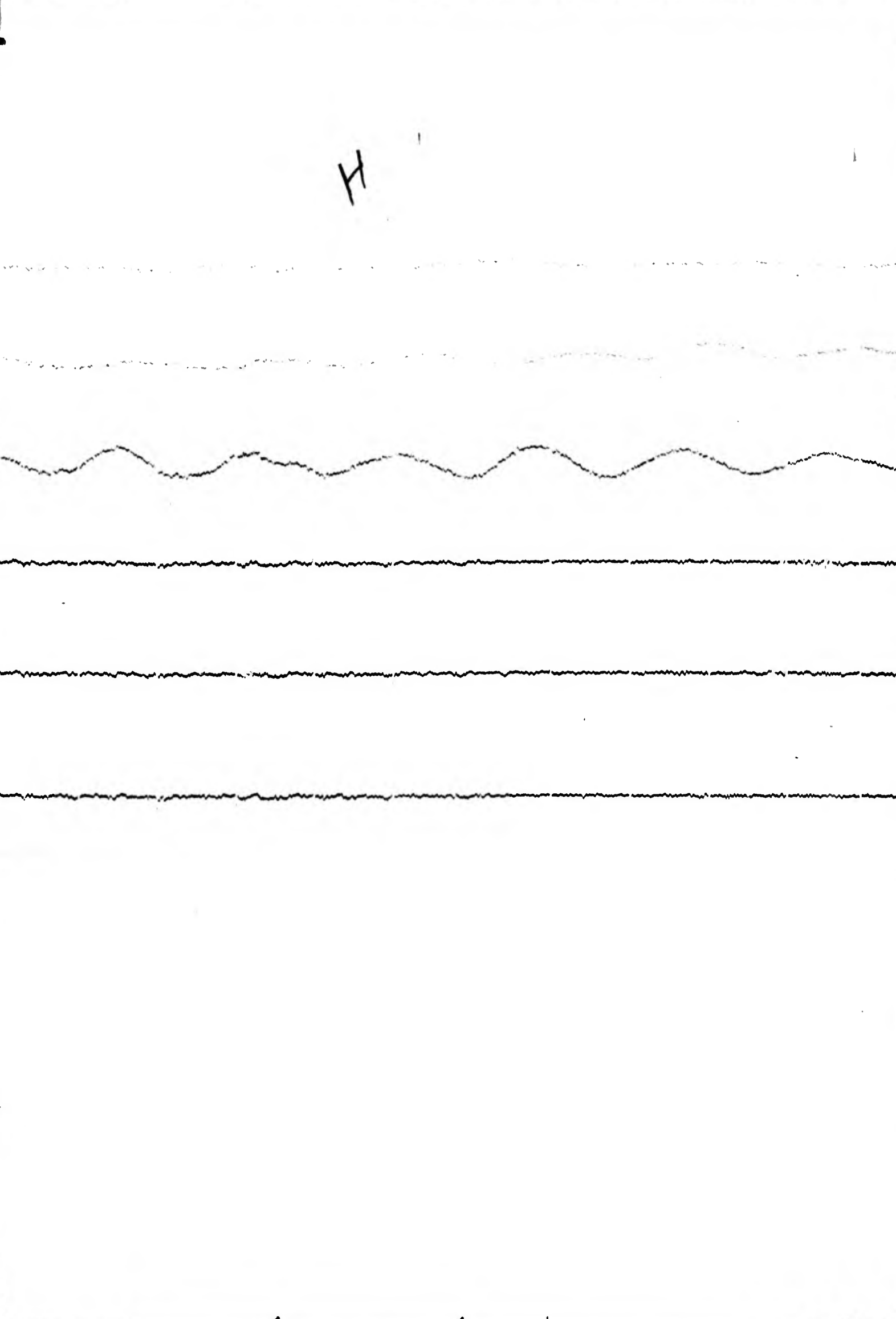
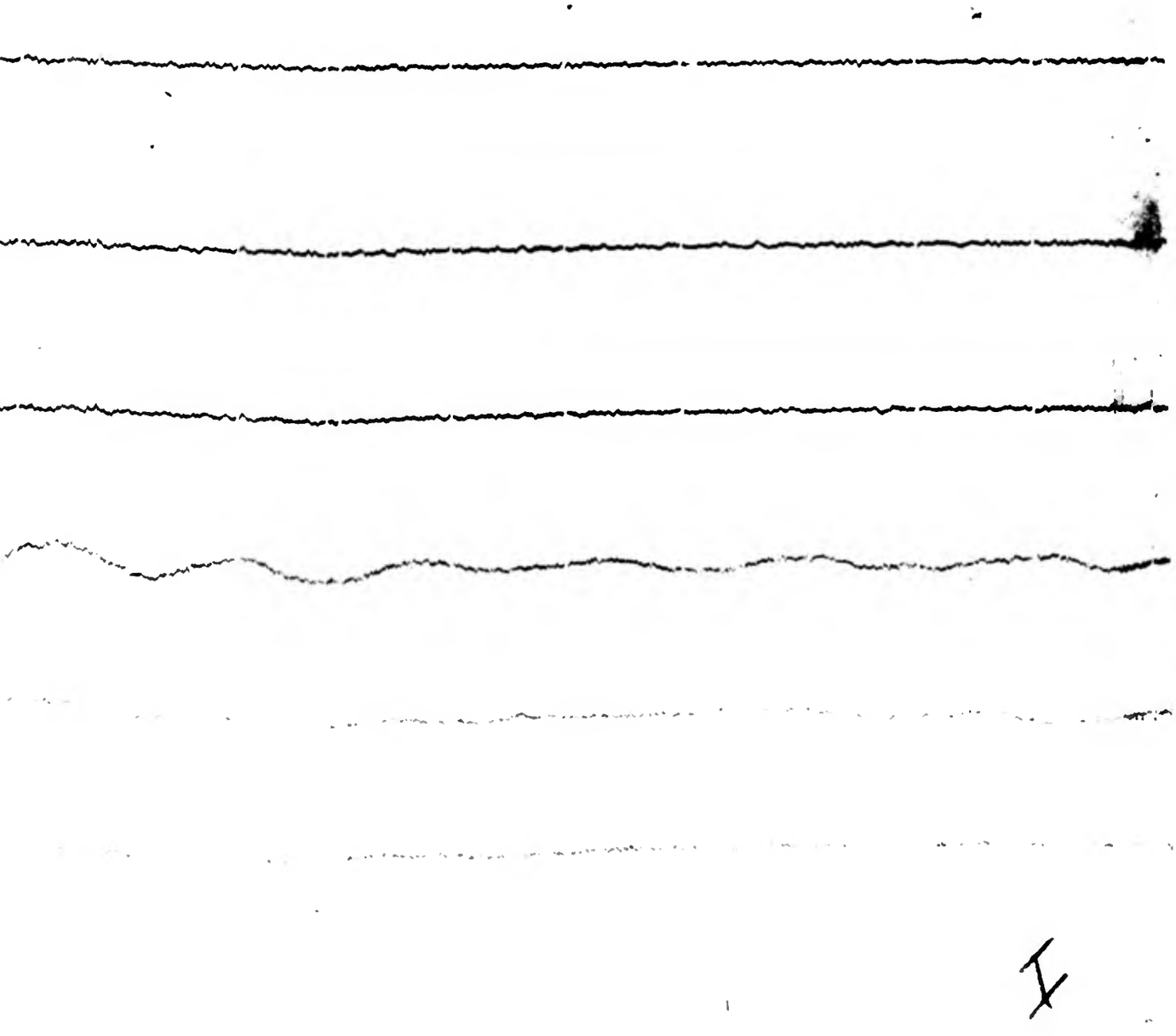




I

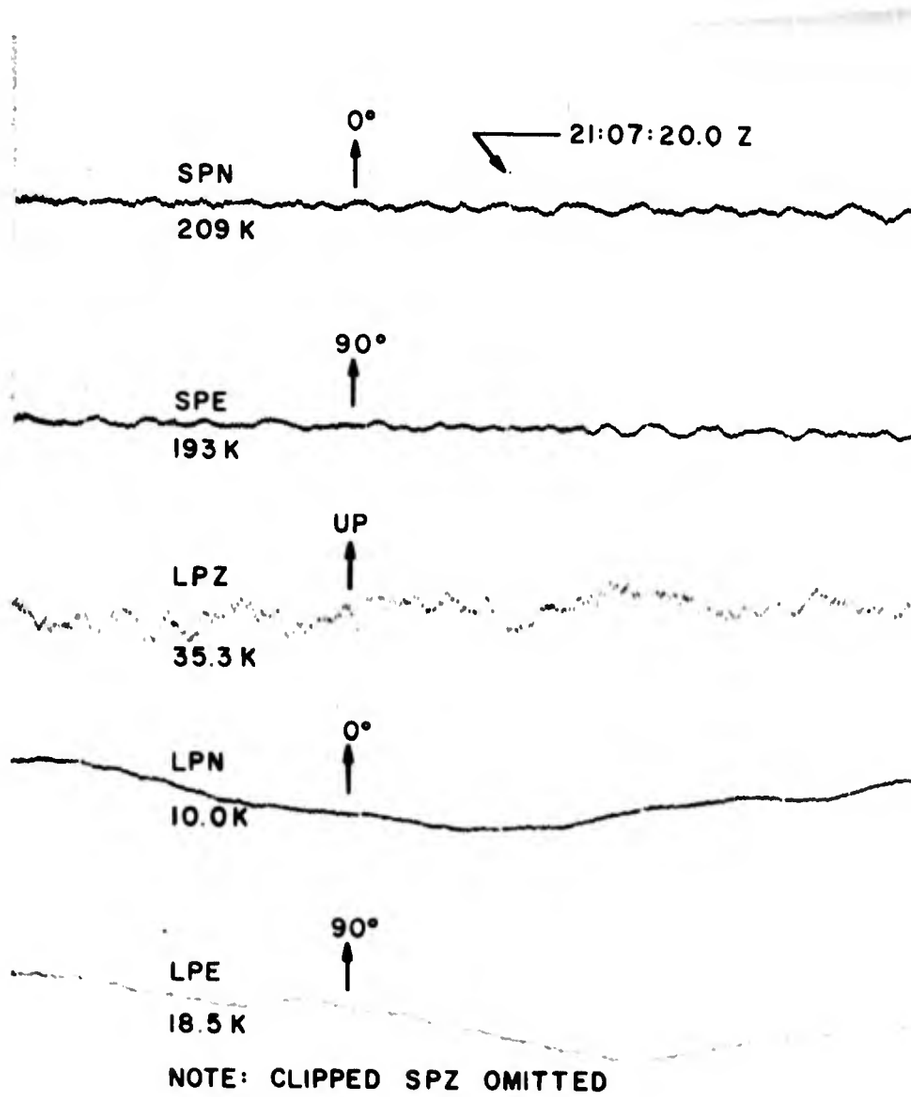
LONG SHOT

BMSO

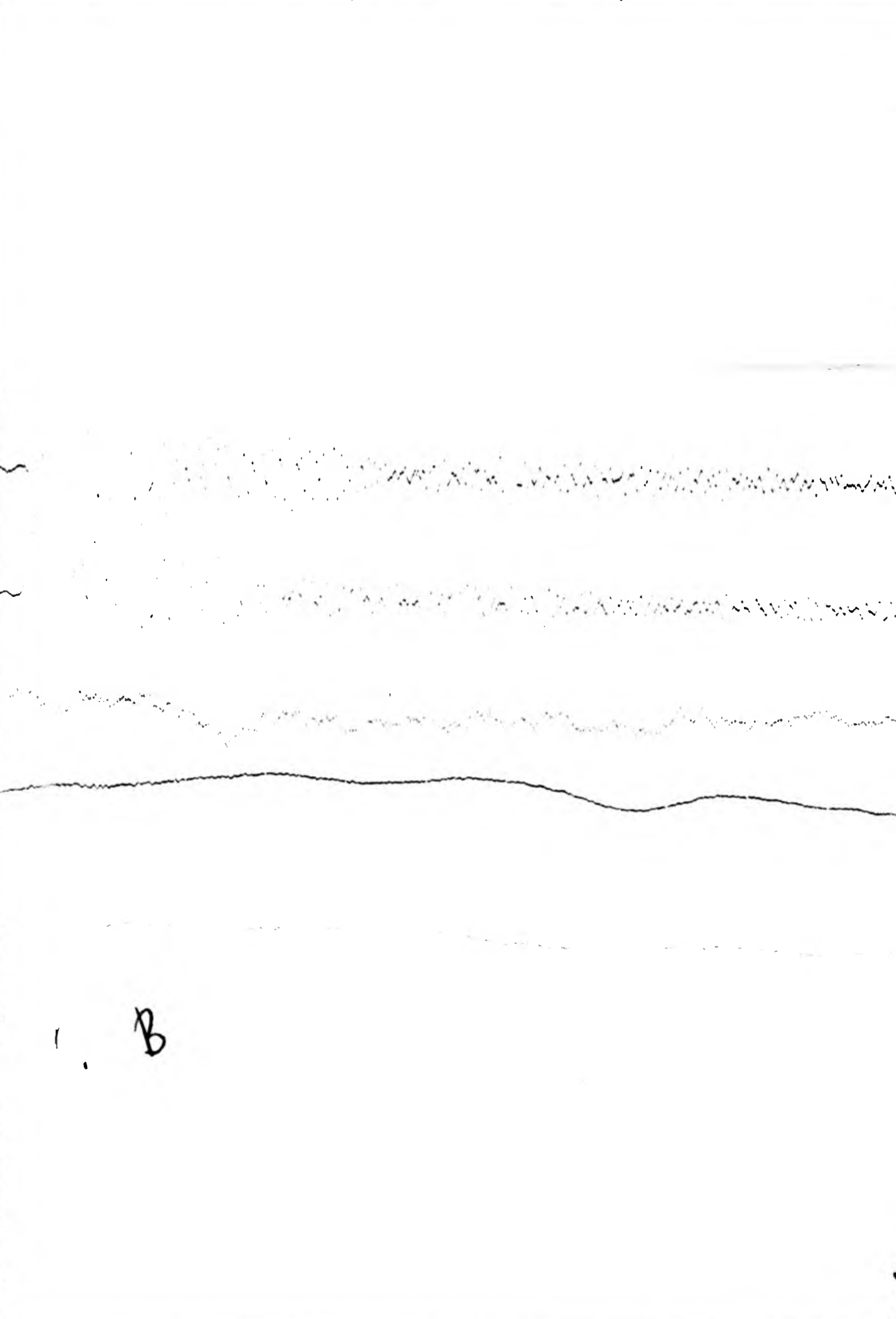
BLUE MOUNTAIN SEISMOLOGICAL OBSERVATORY, OREGON

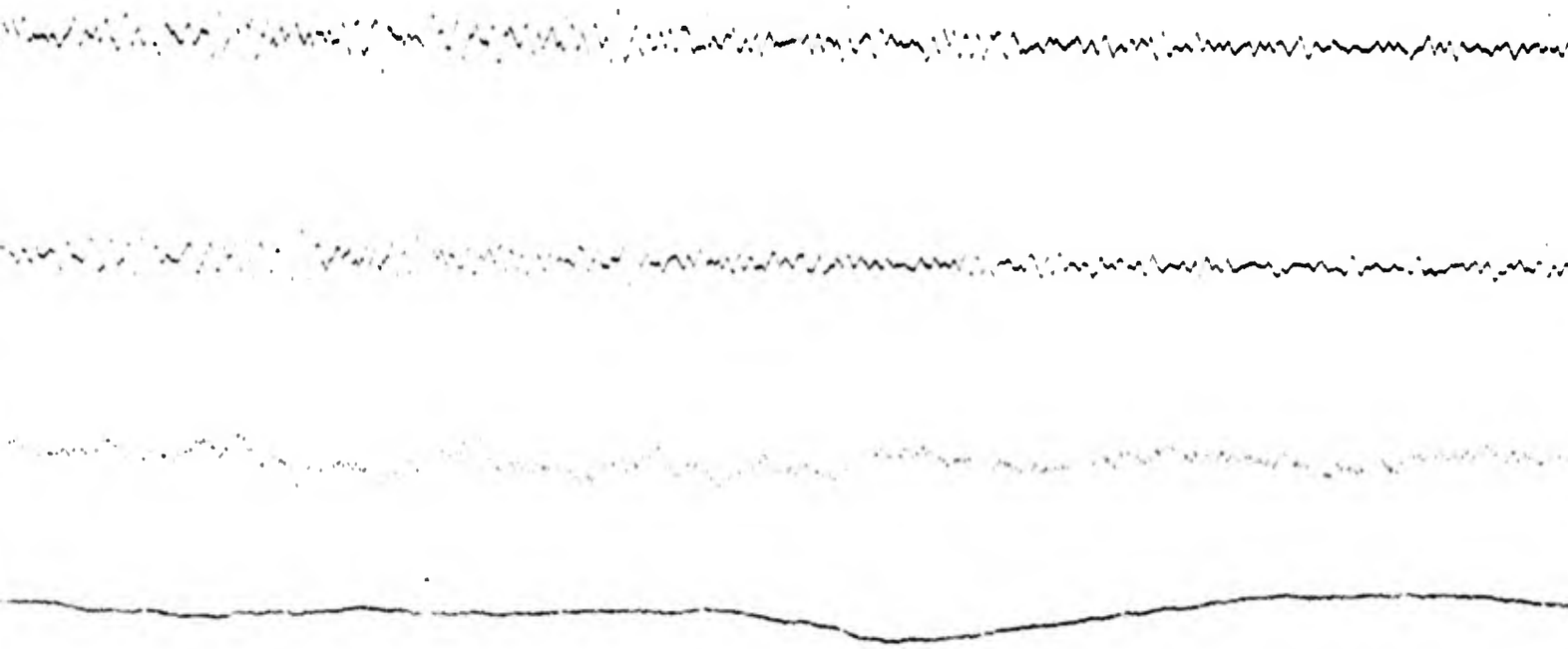
29 OCTOBER 1965

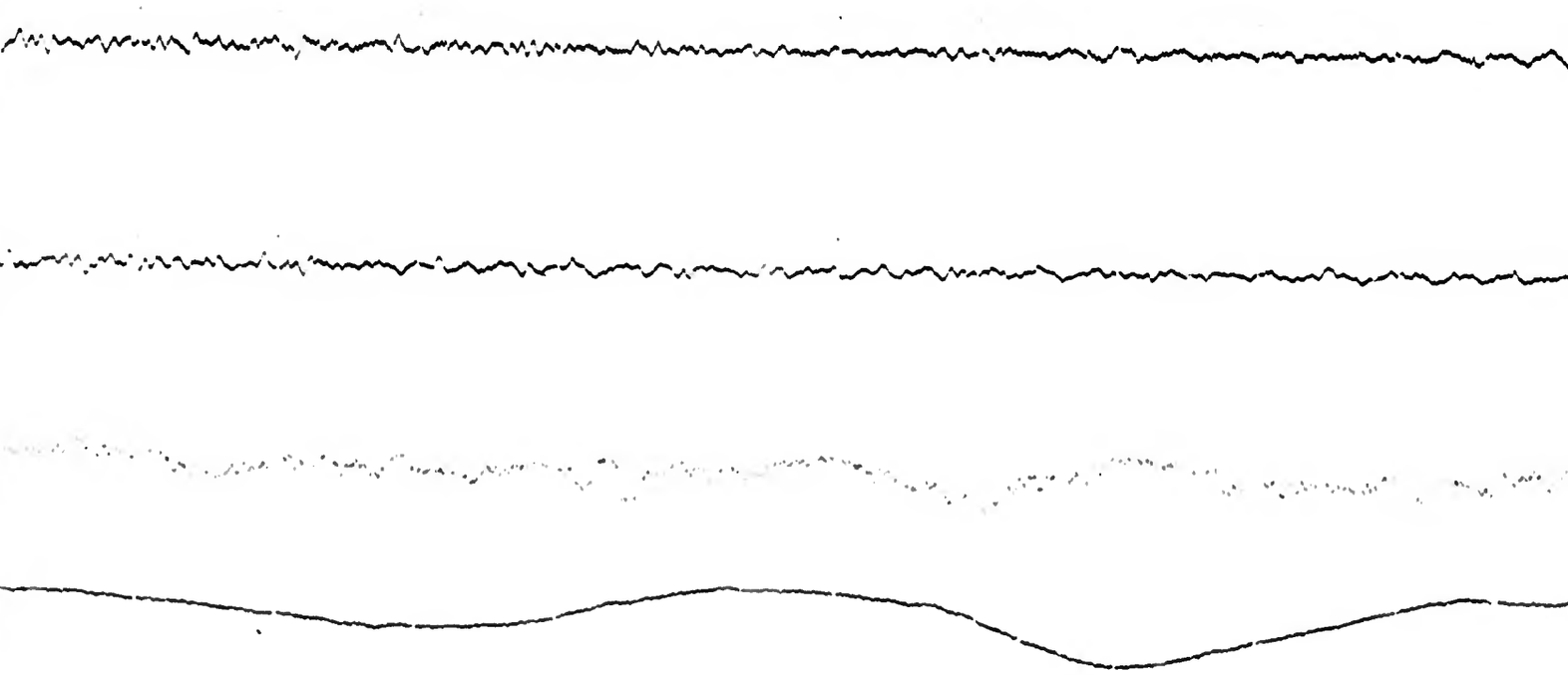
Δ=4636 Km

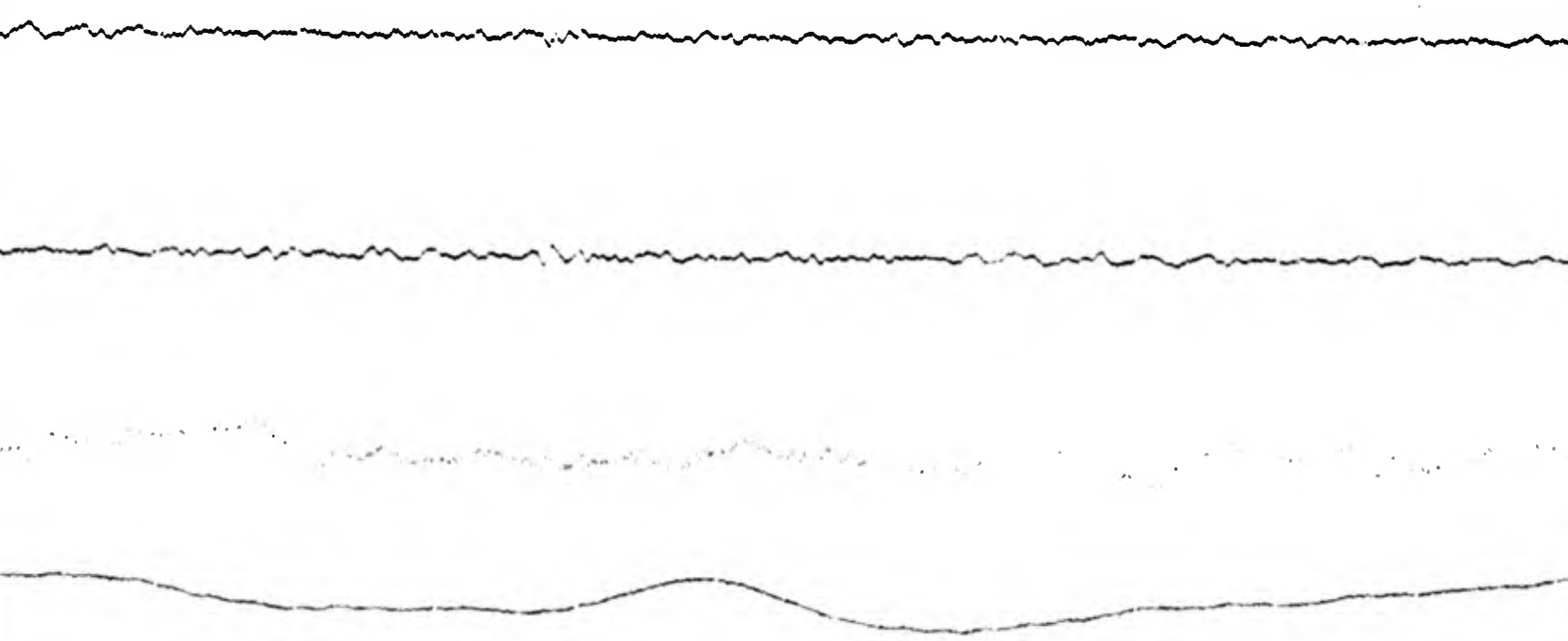


NOTE: CLIPPED SPZ OMITTED

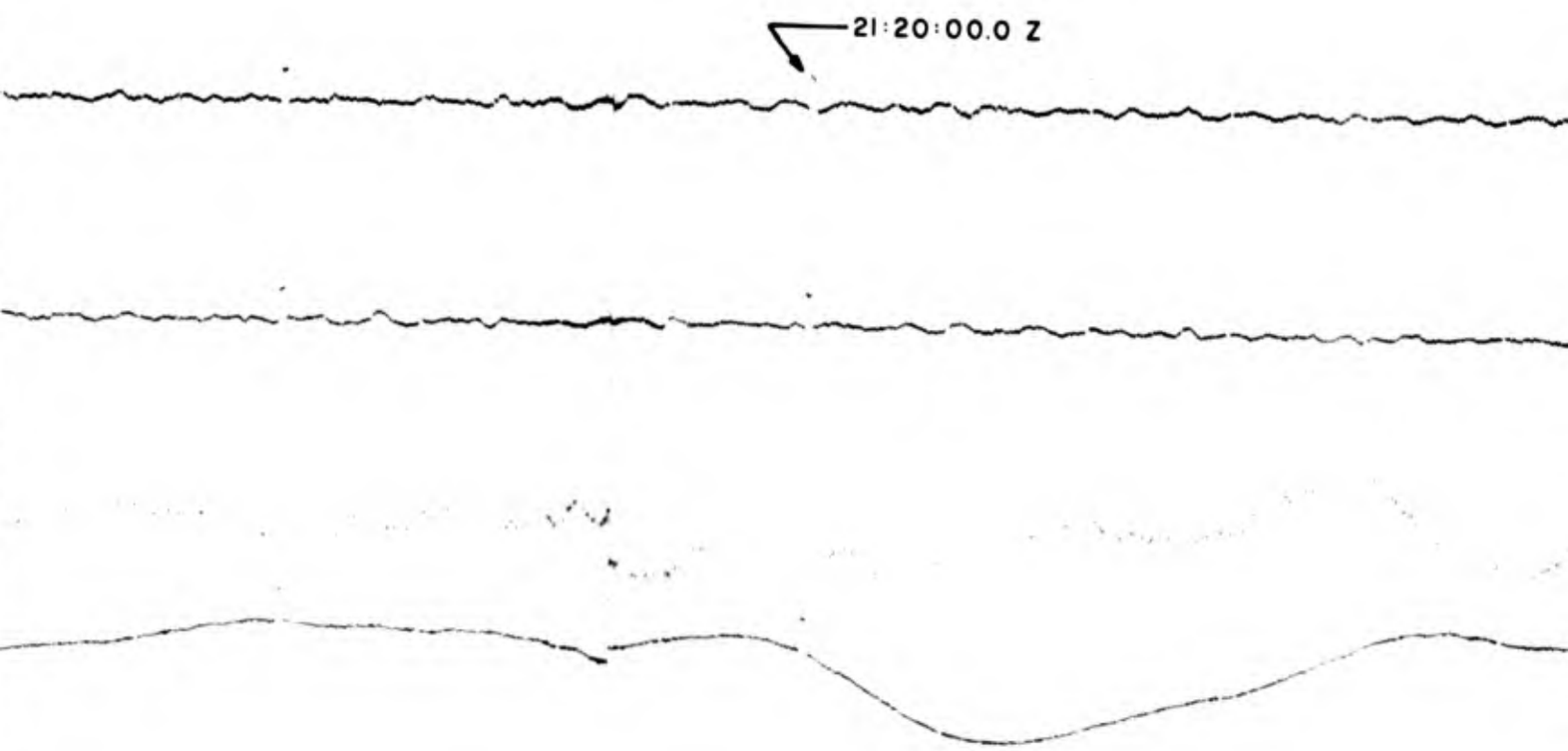








E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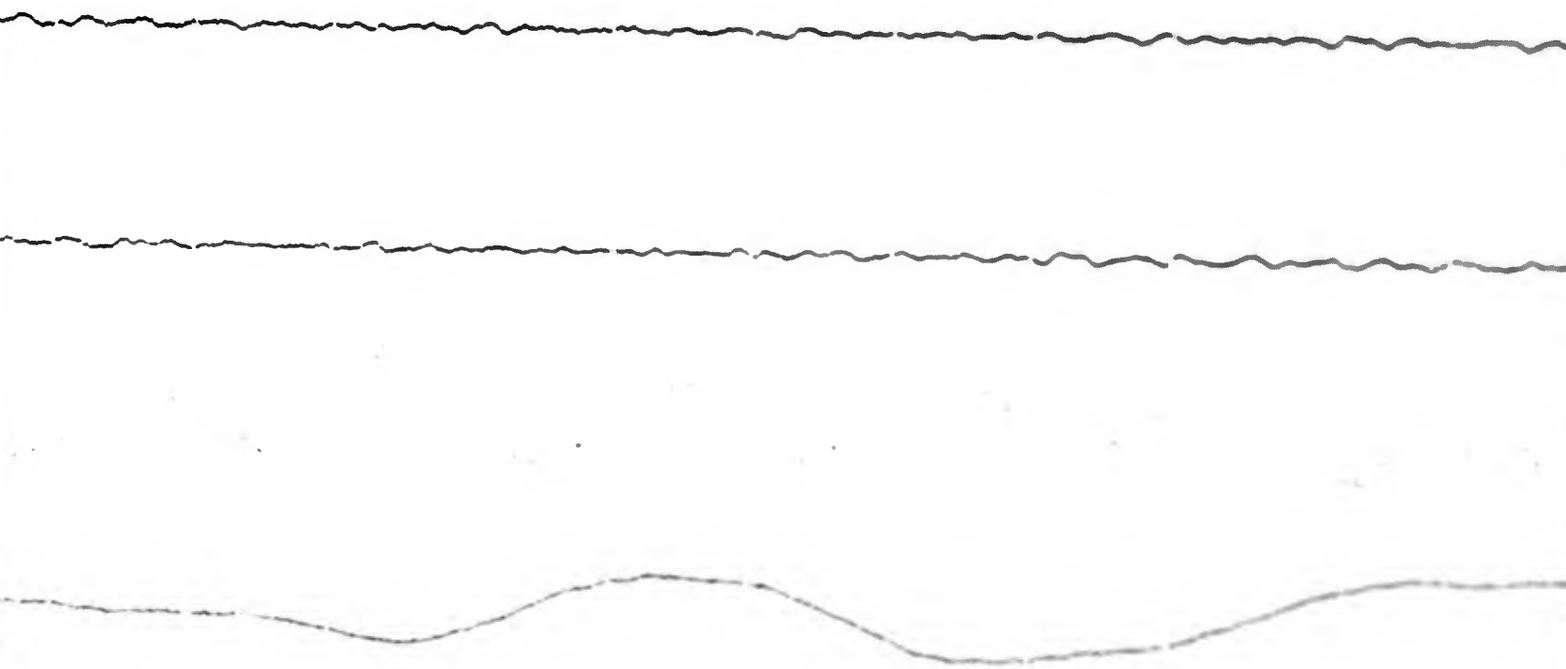

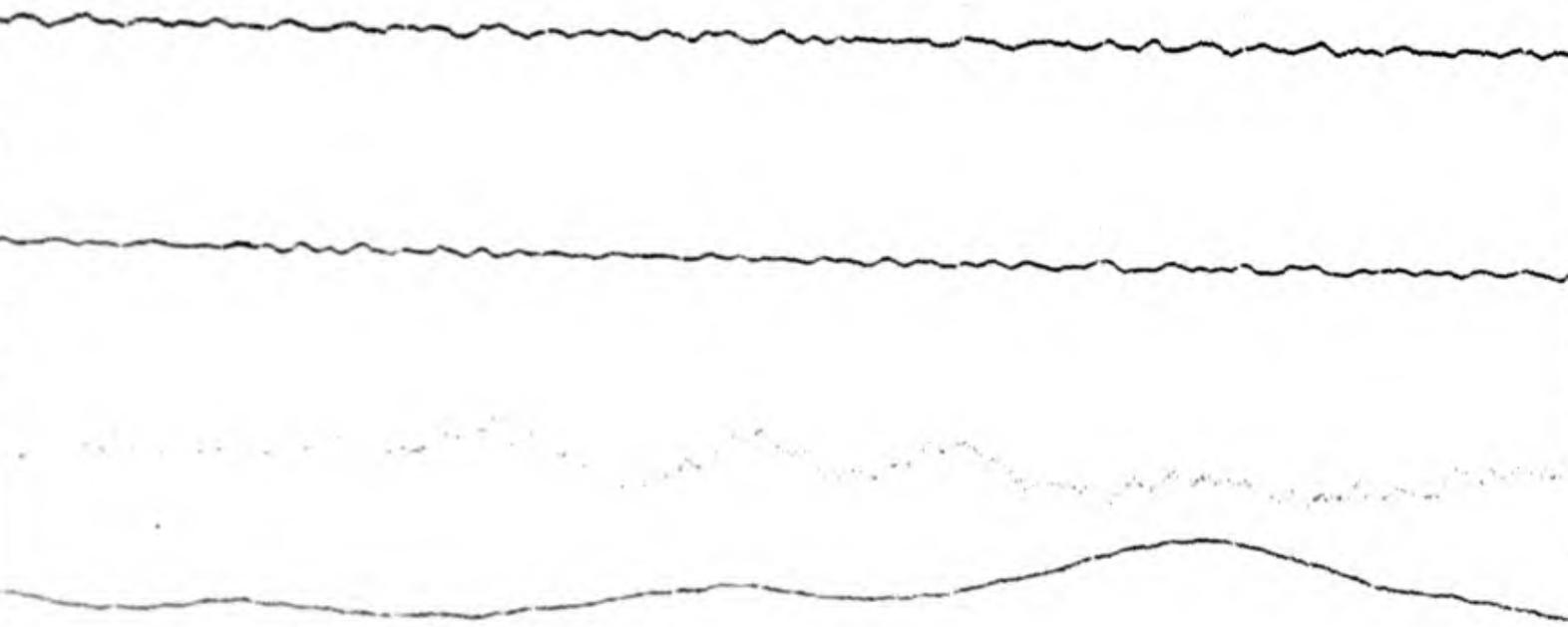

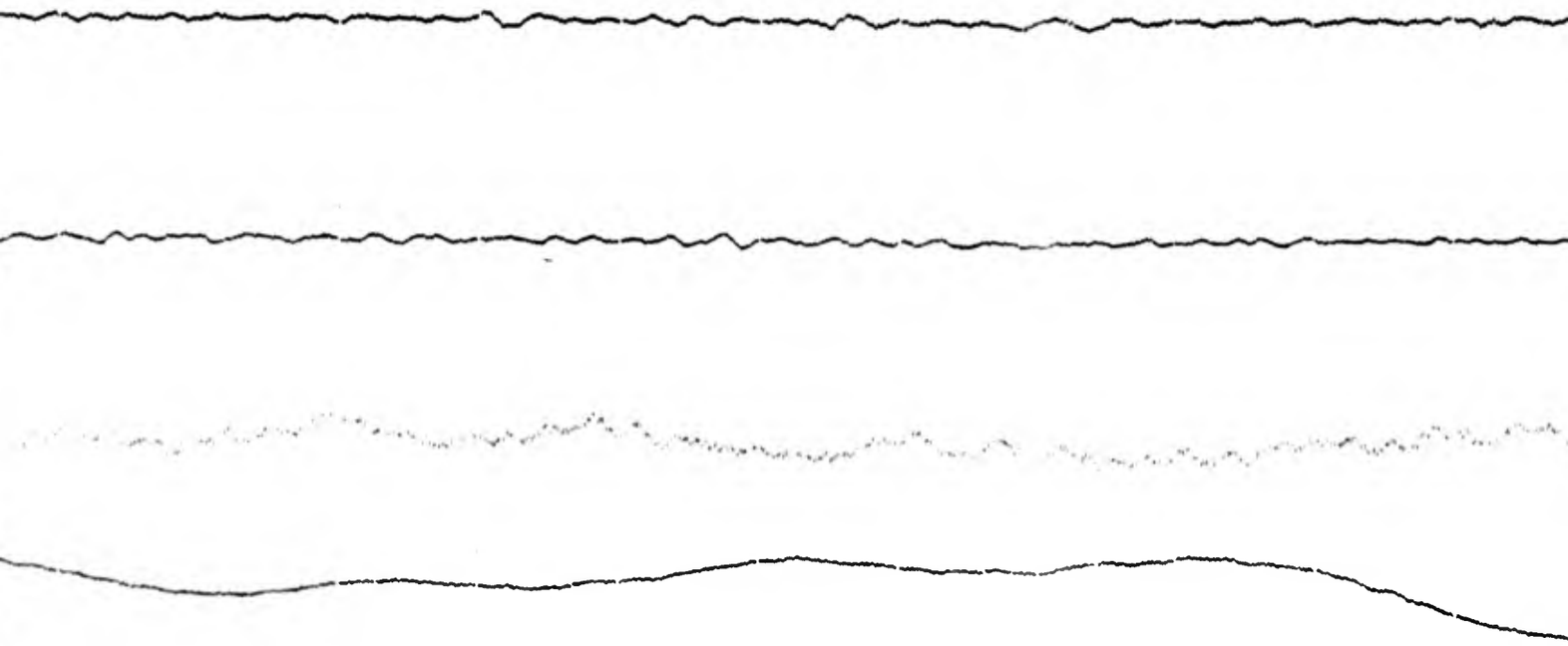

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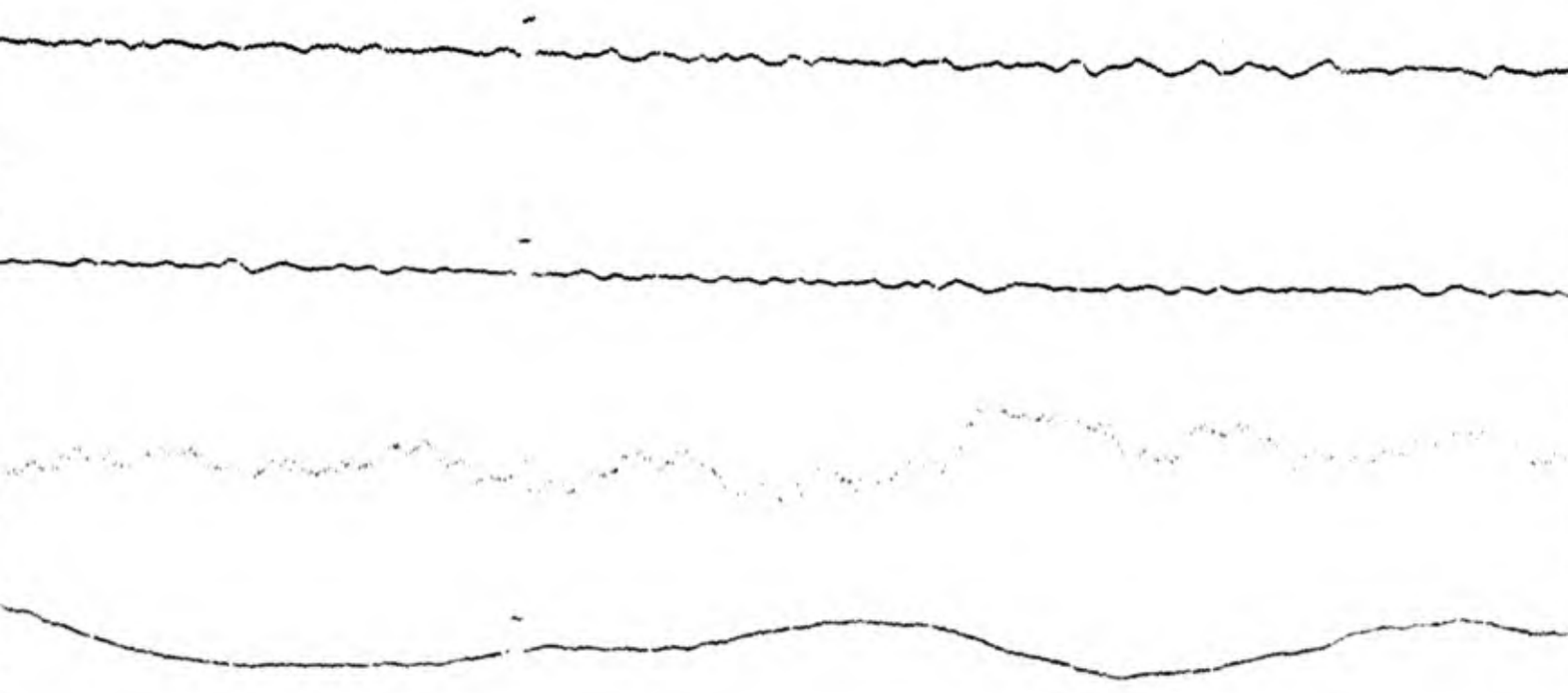
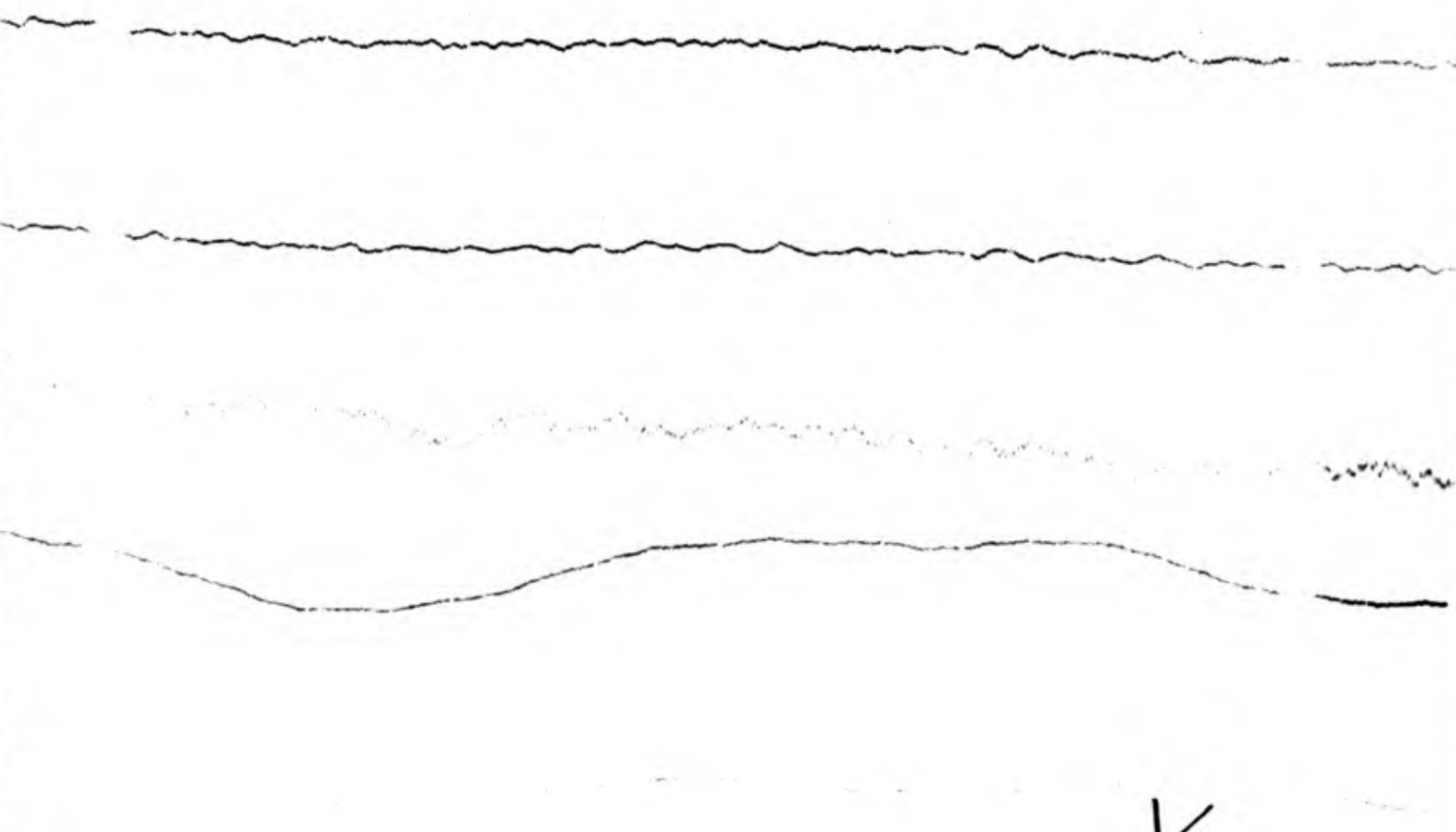




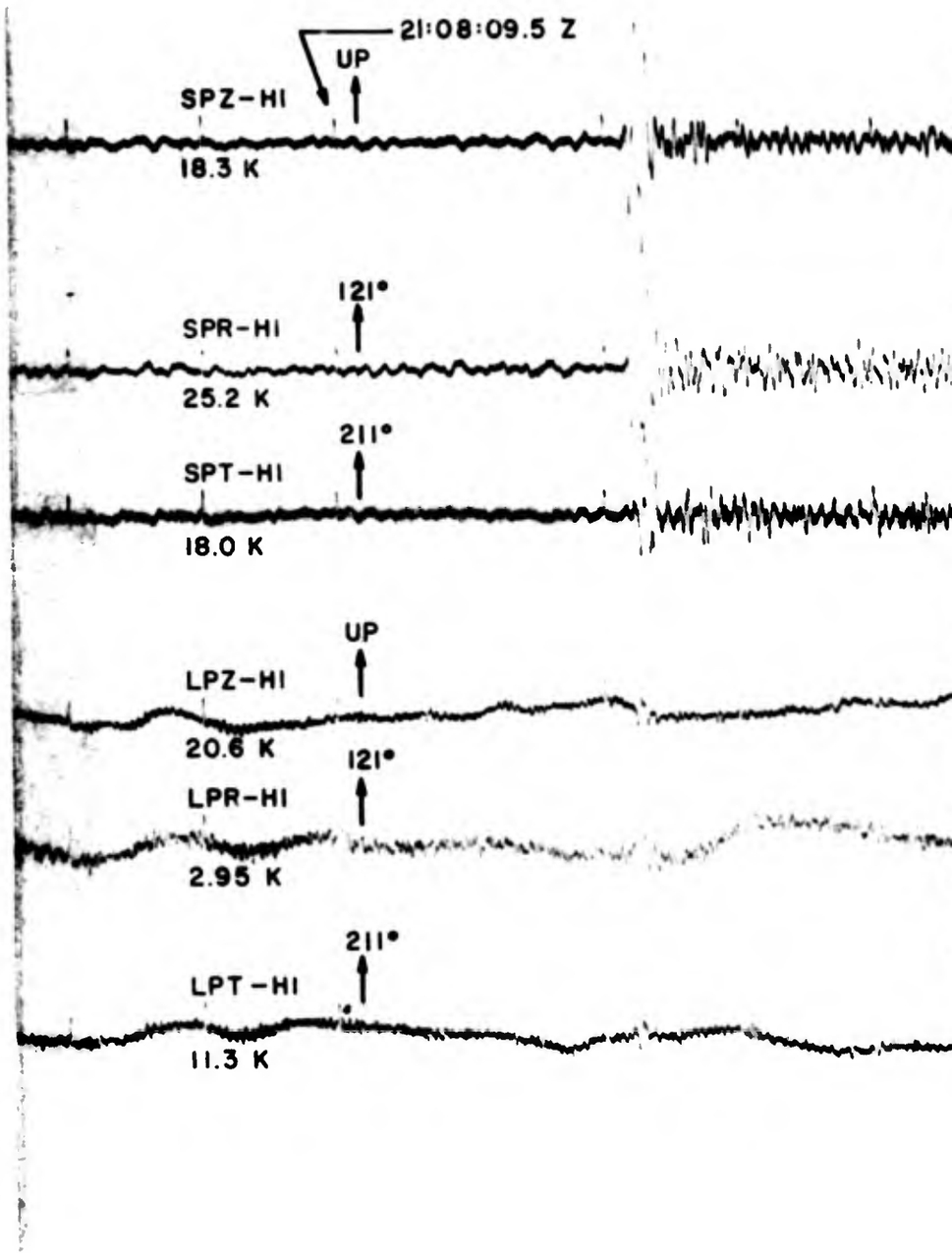
LONG SHOT

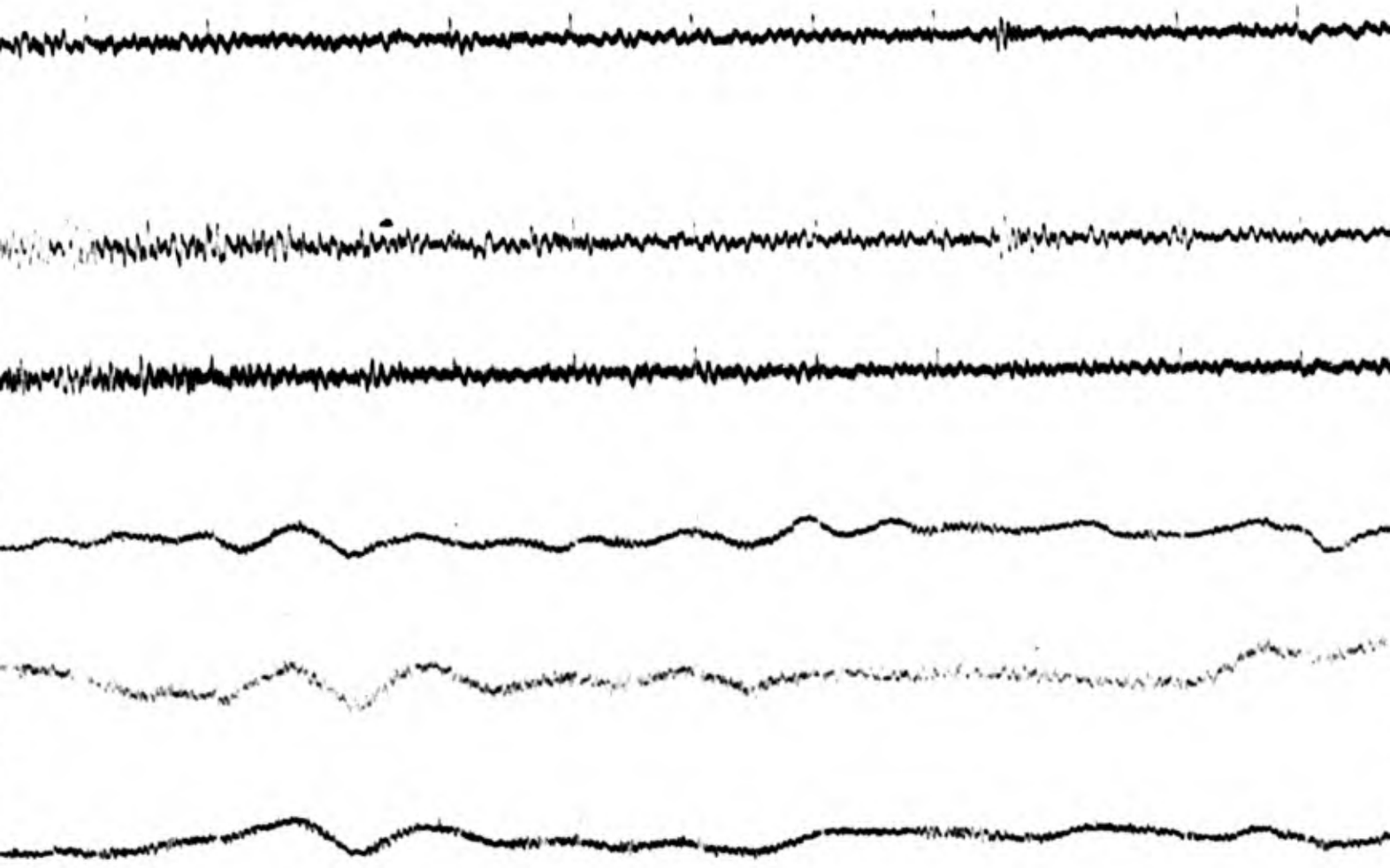
CH-MT

CHURCHILL, MANITOBA, CANADA

29 OCTOBER 1965

Δ=5229 Km





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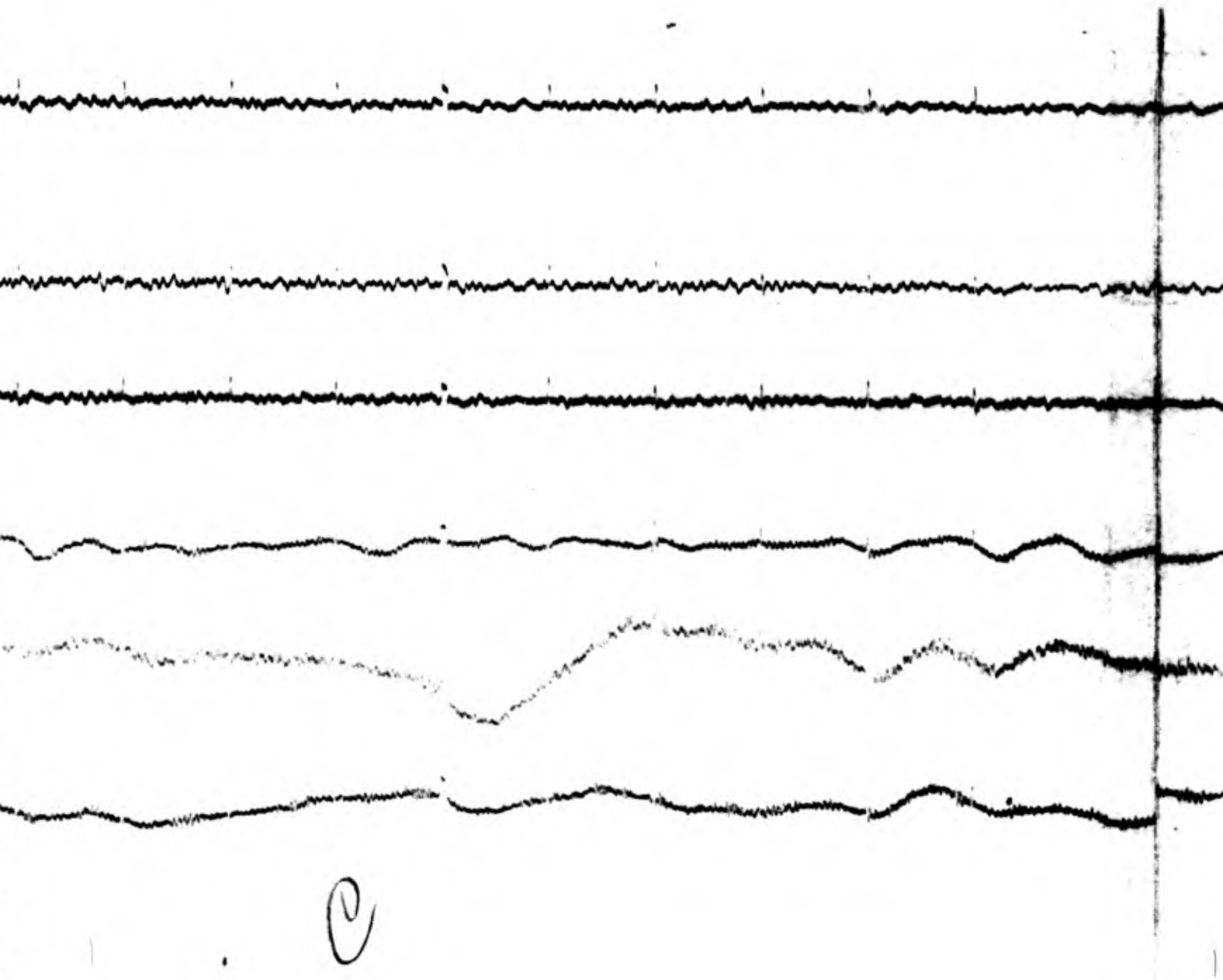

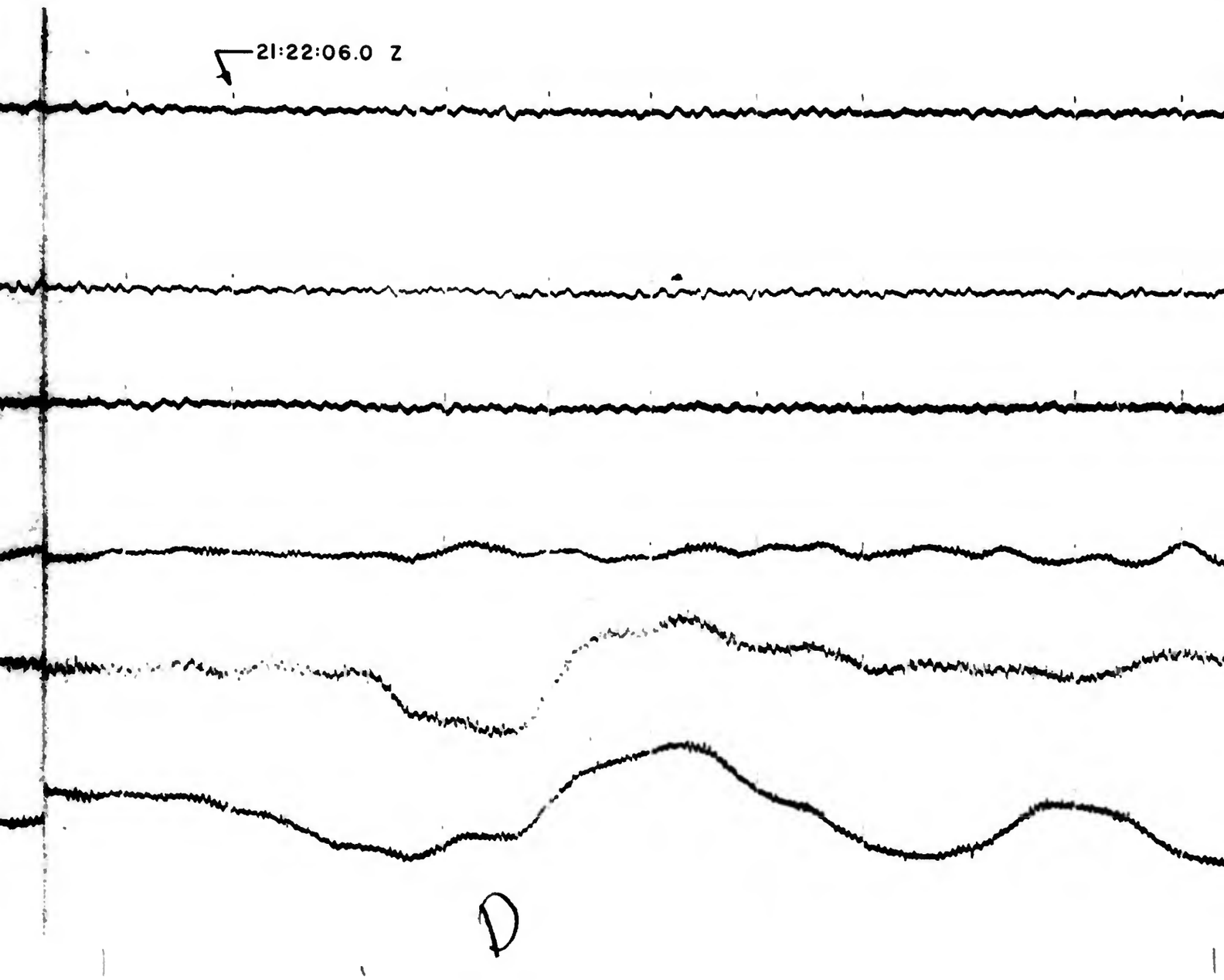
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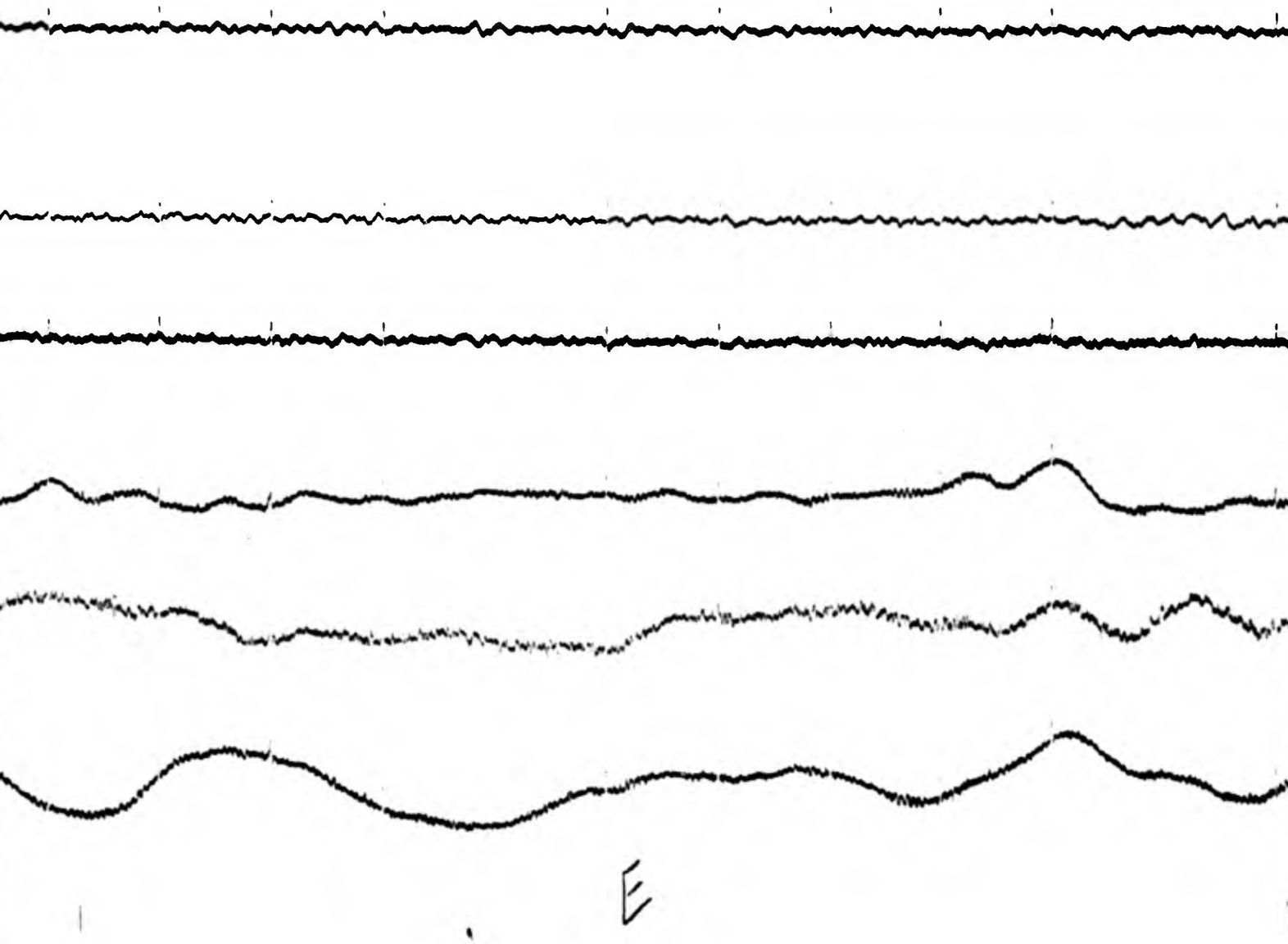
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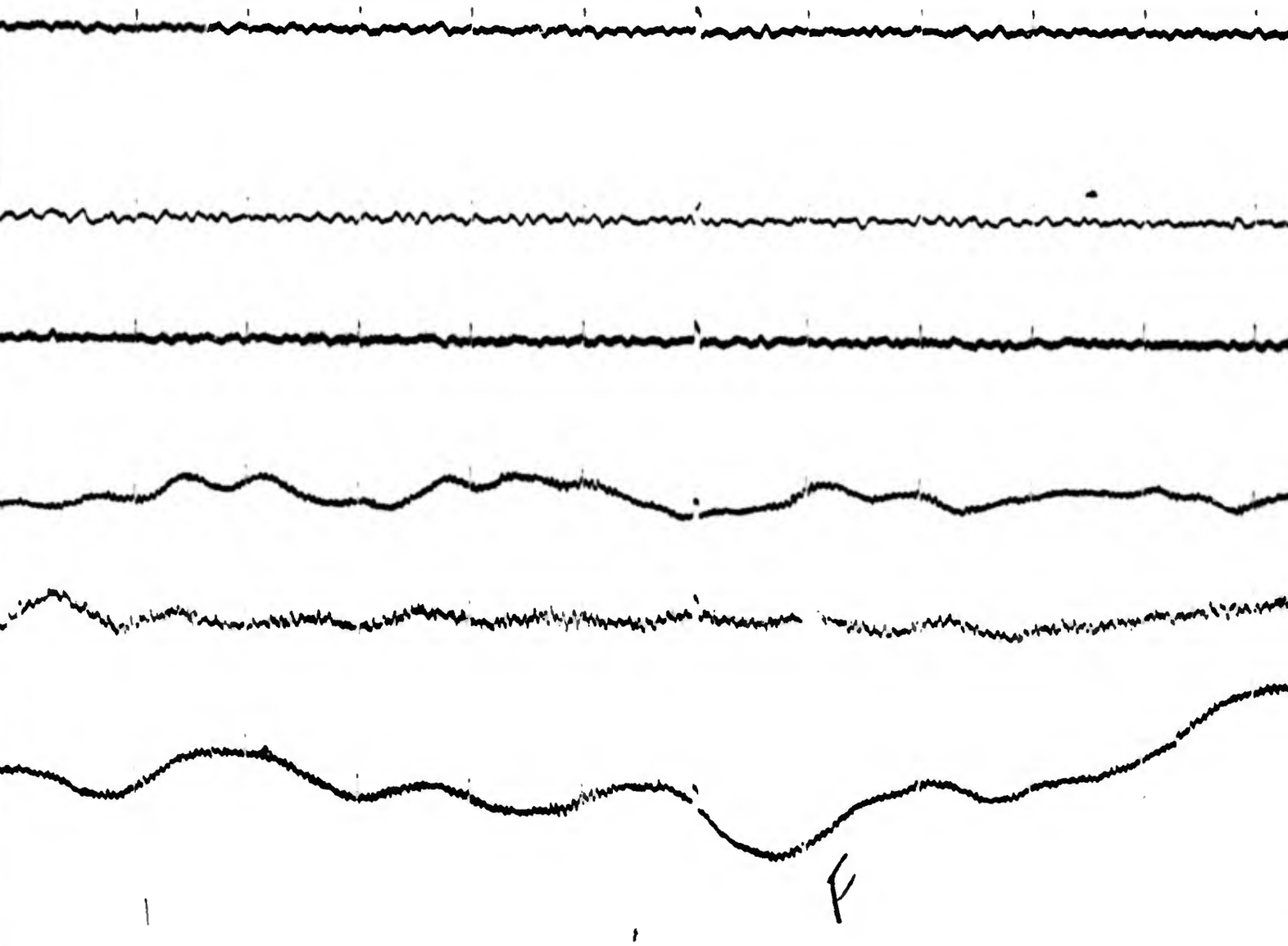
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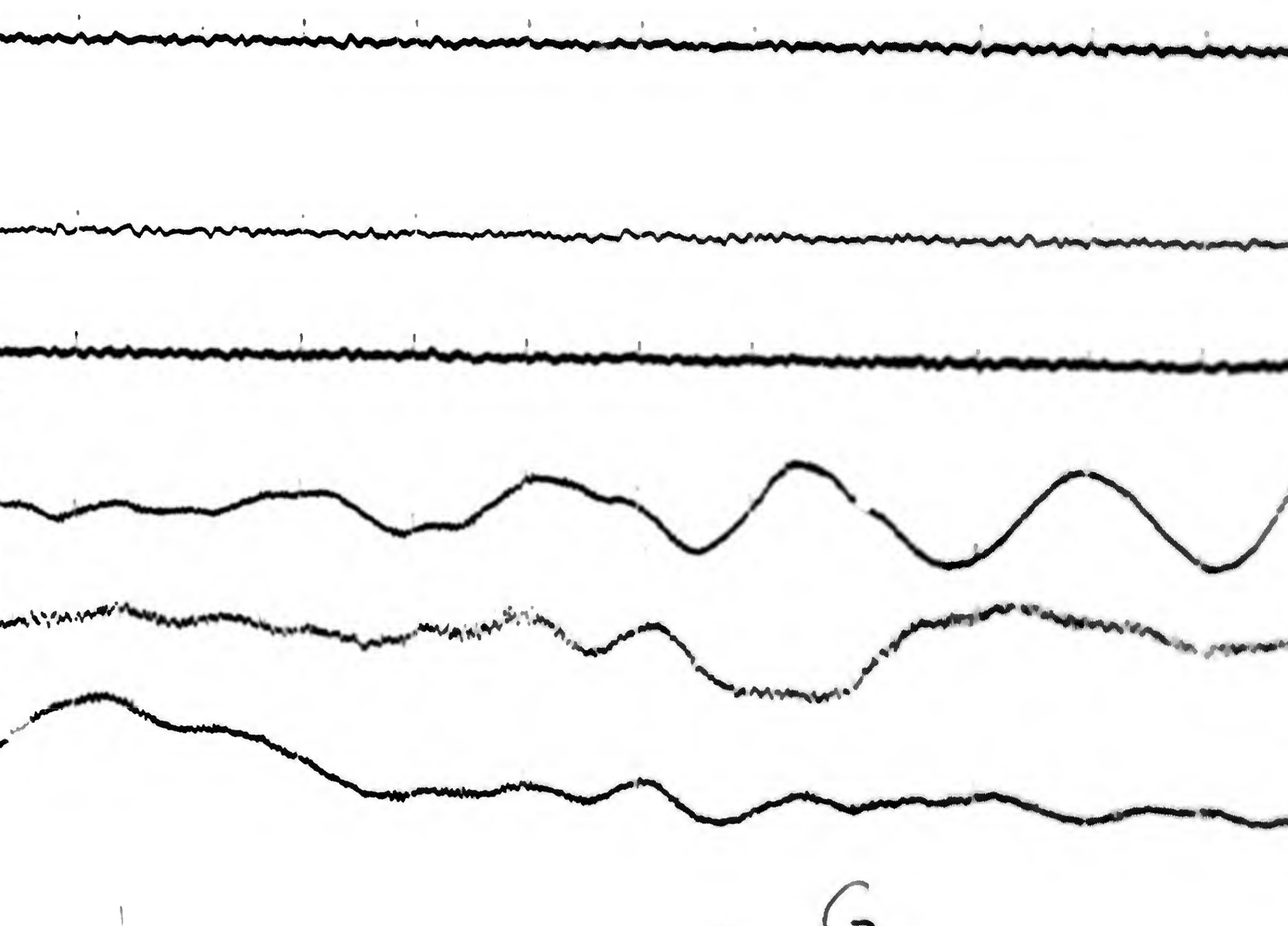
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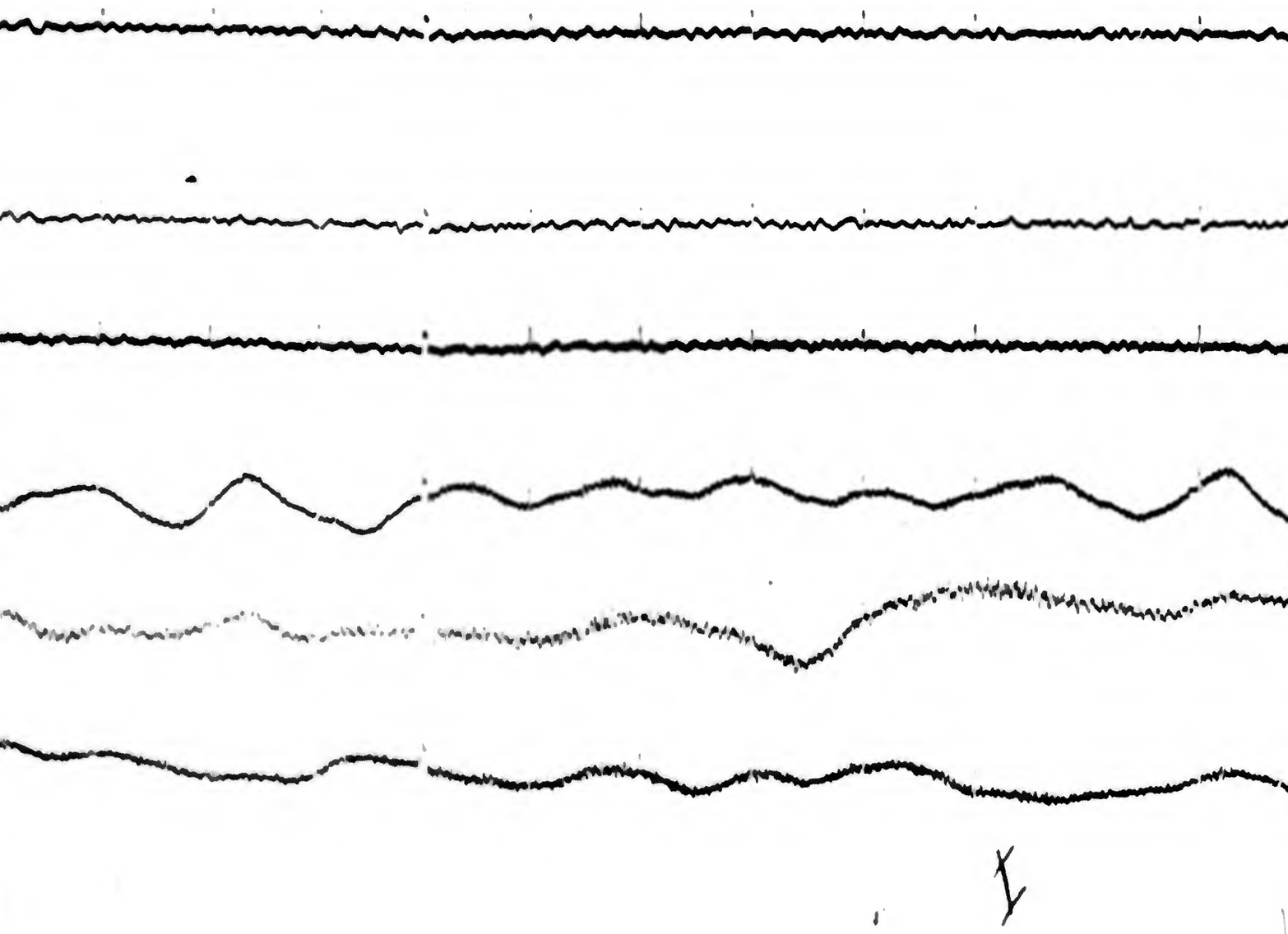
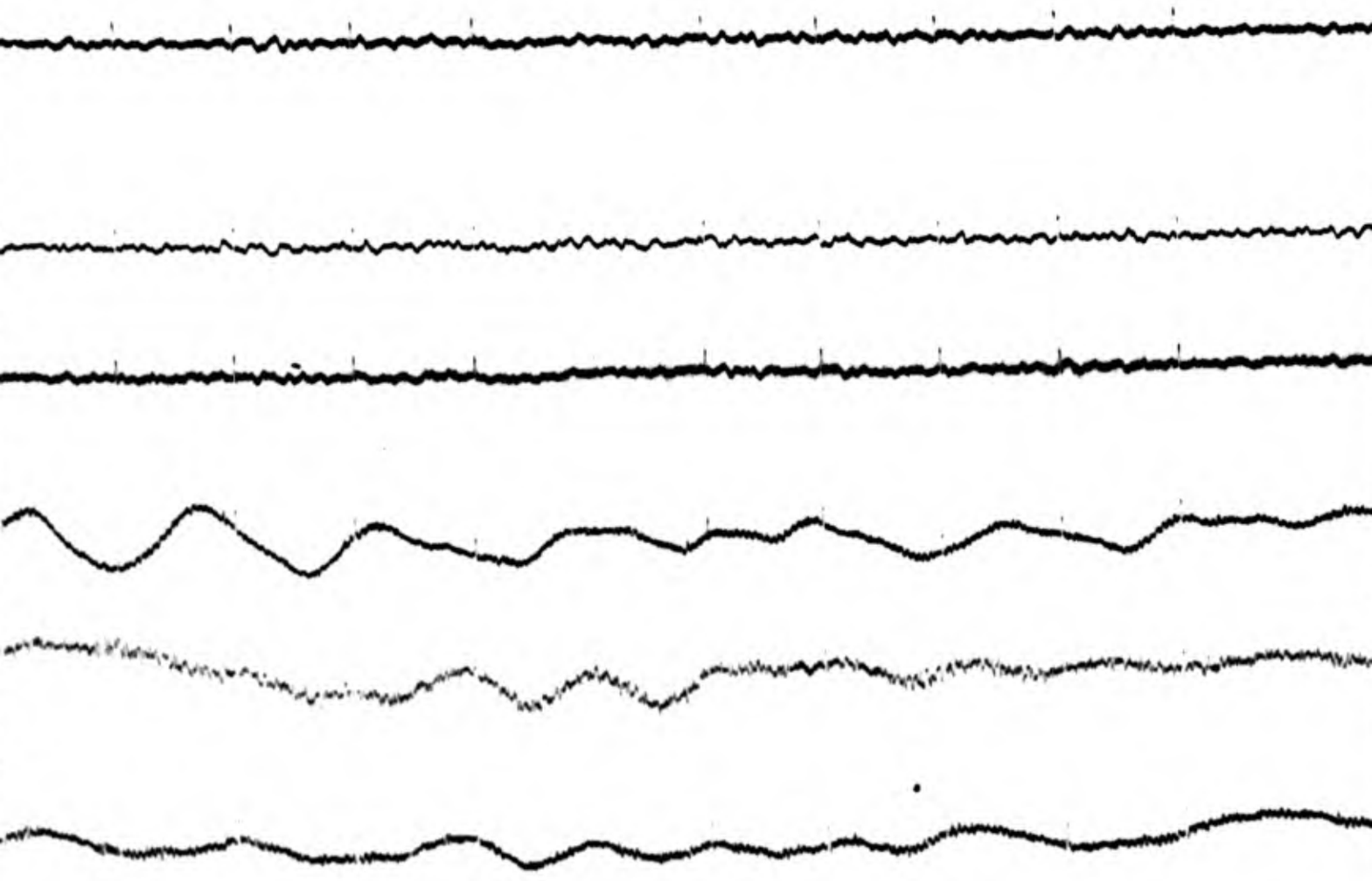
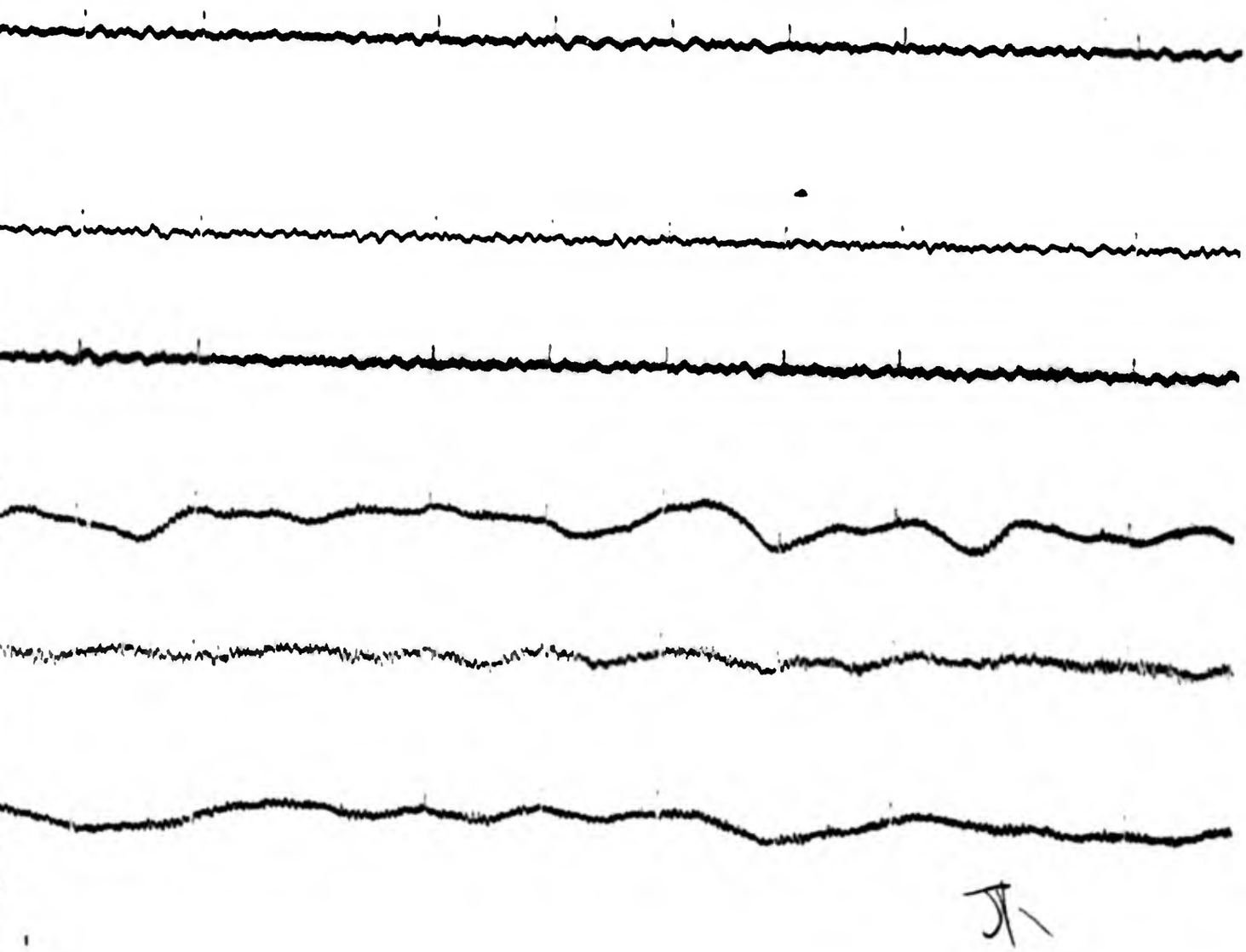






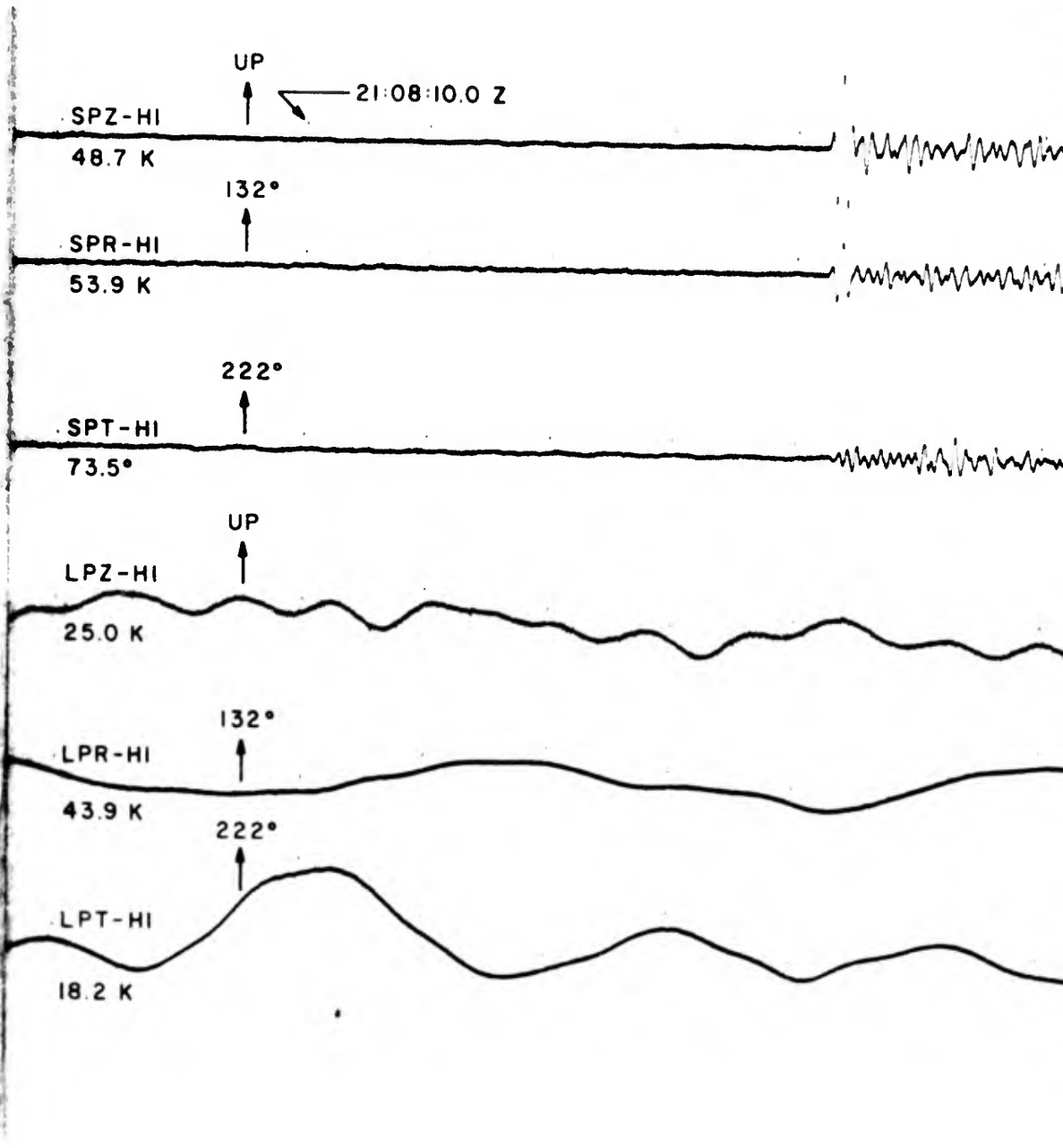
LONG SHOT

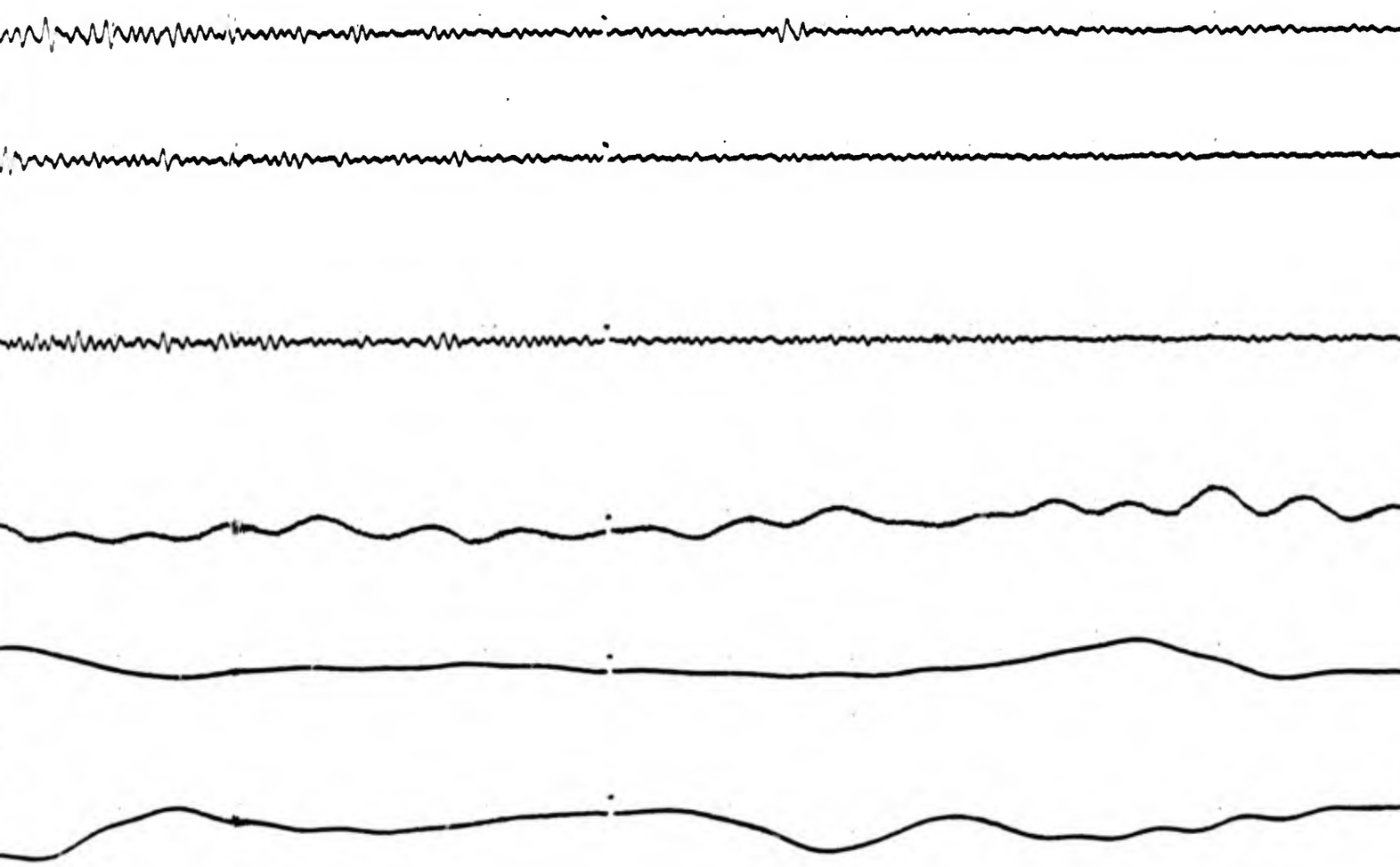
CP-CL

CAMPO, CALIFORNIA

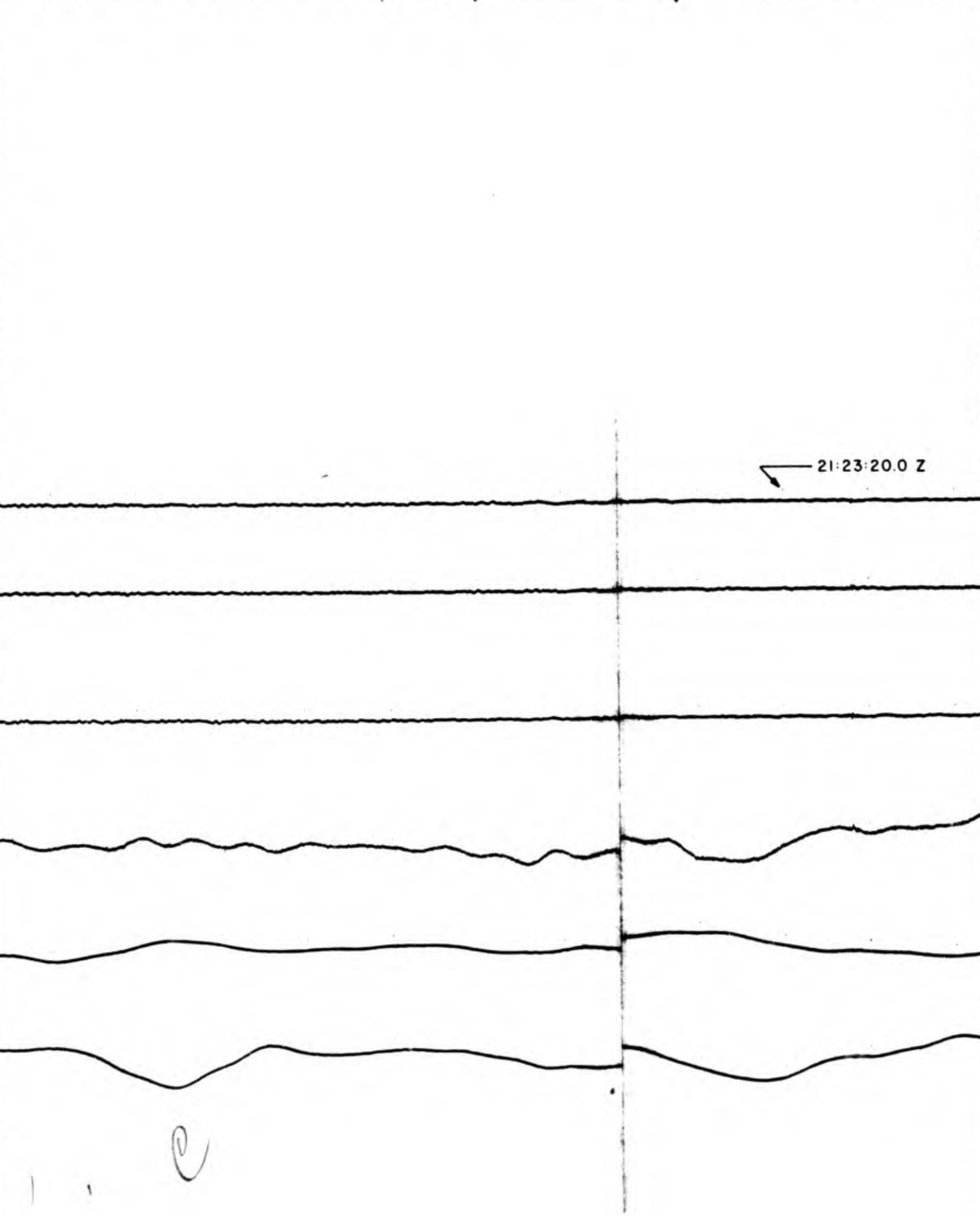
29 OCTOBER 1965

Δ=5523 Km





B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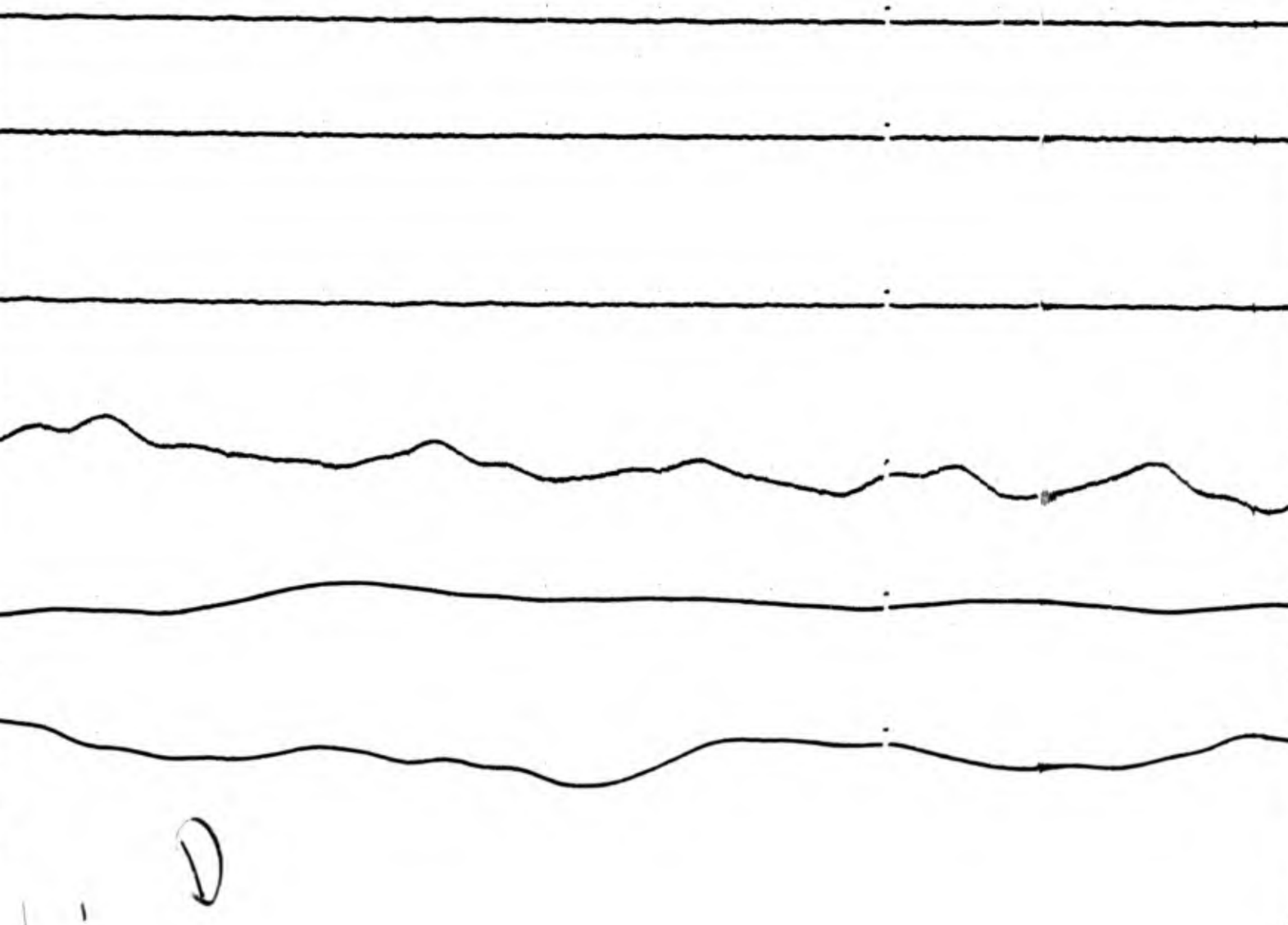
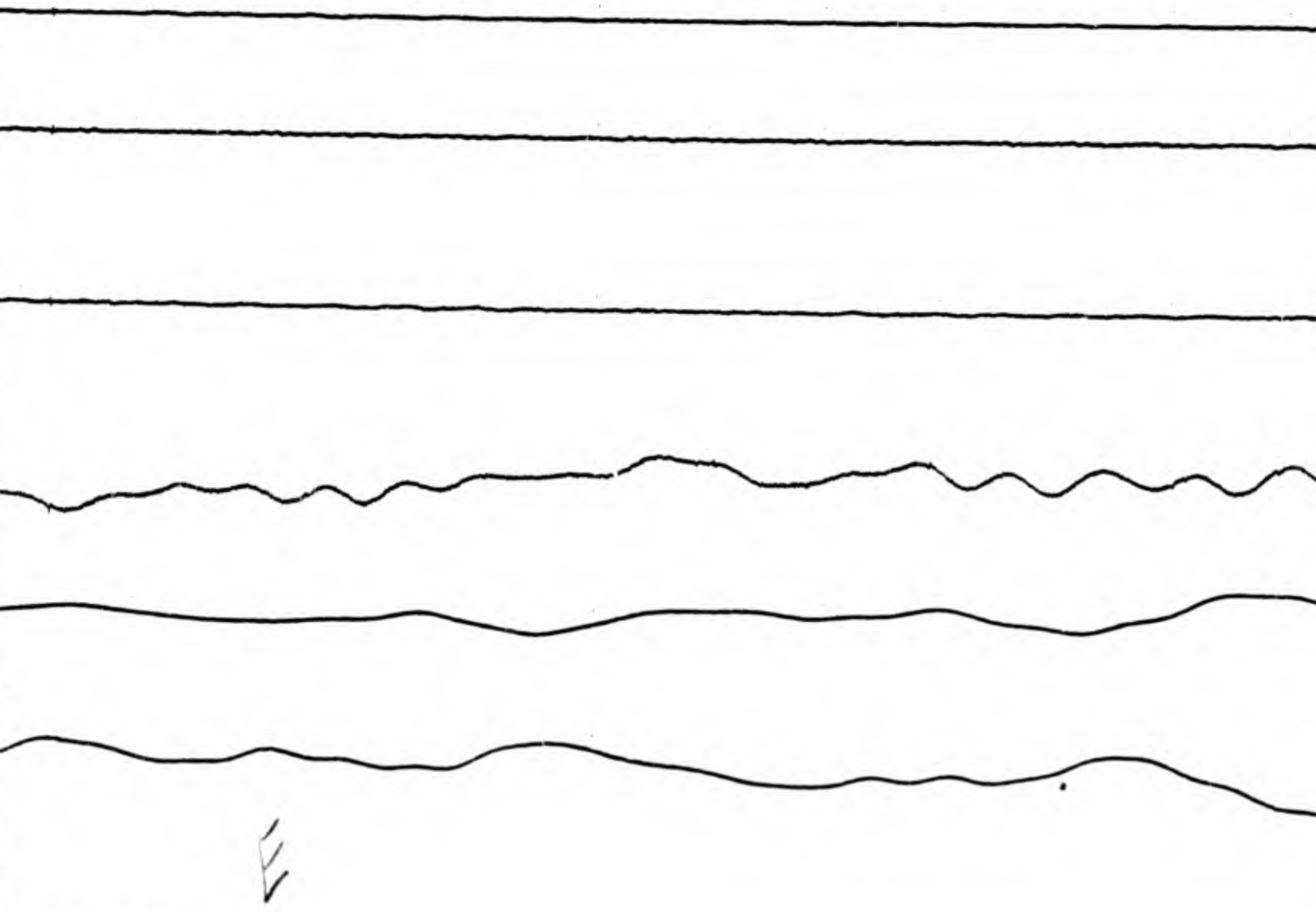
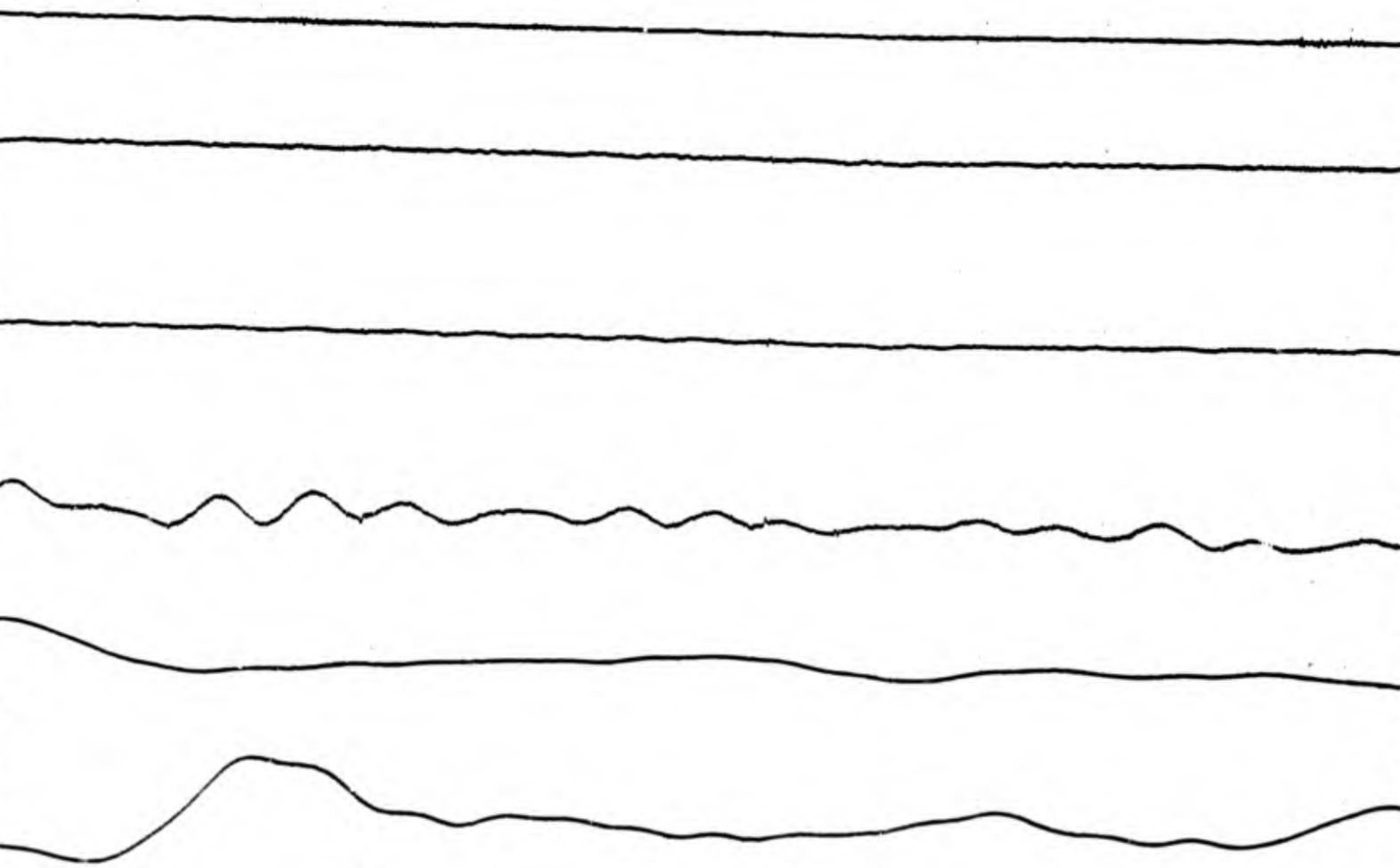
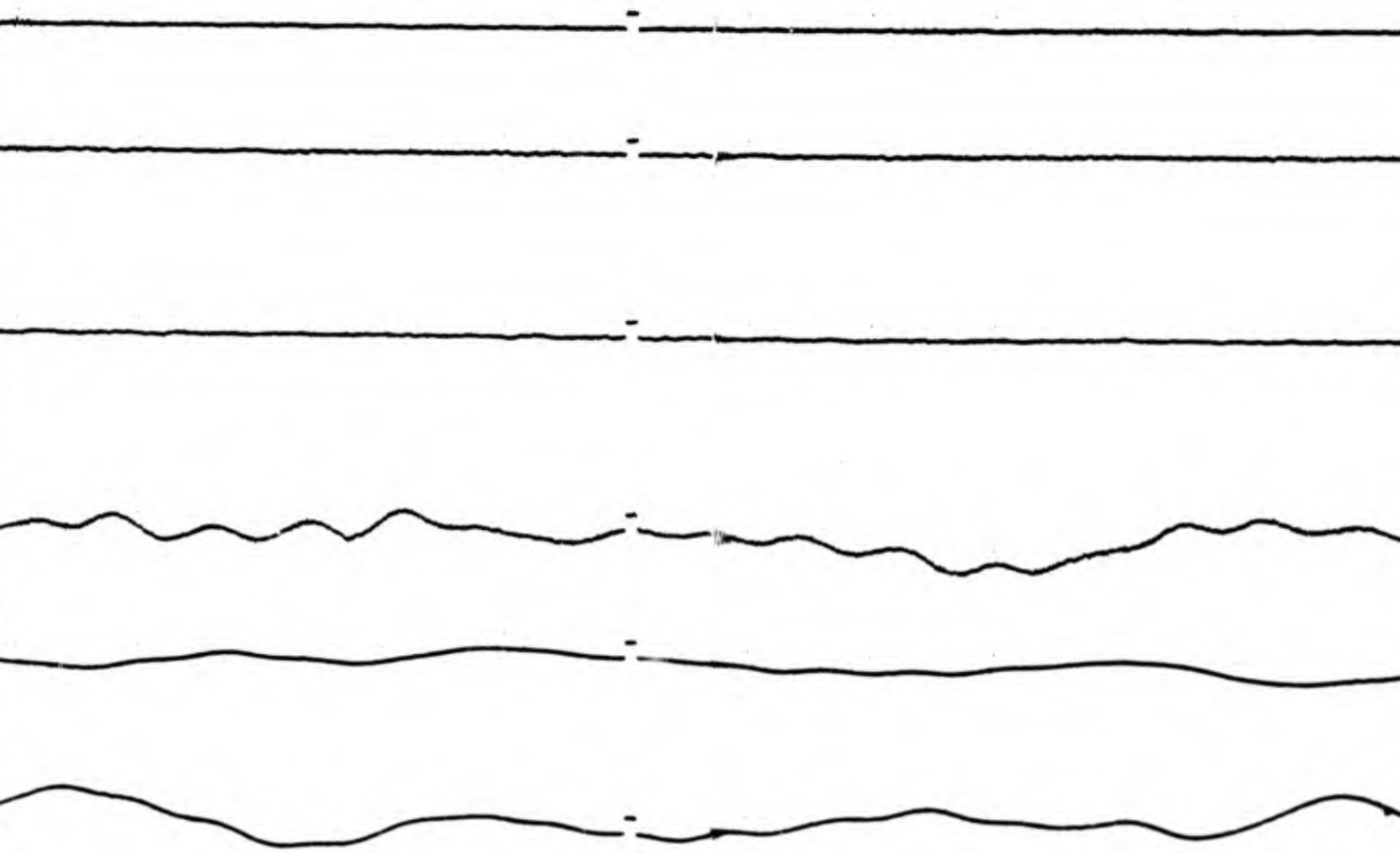
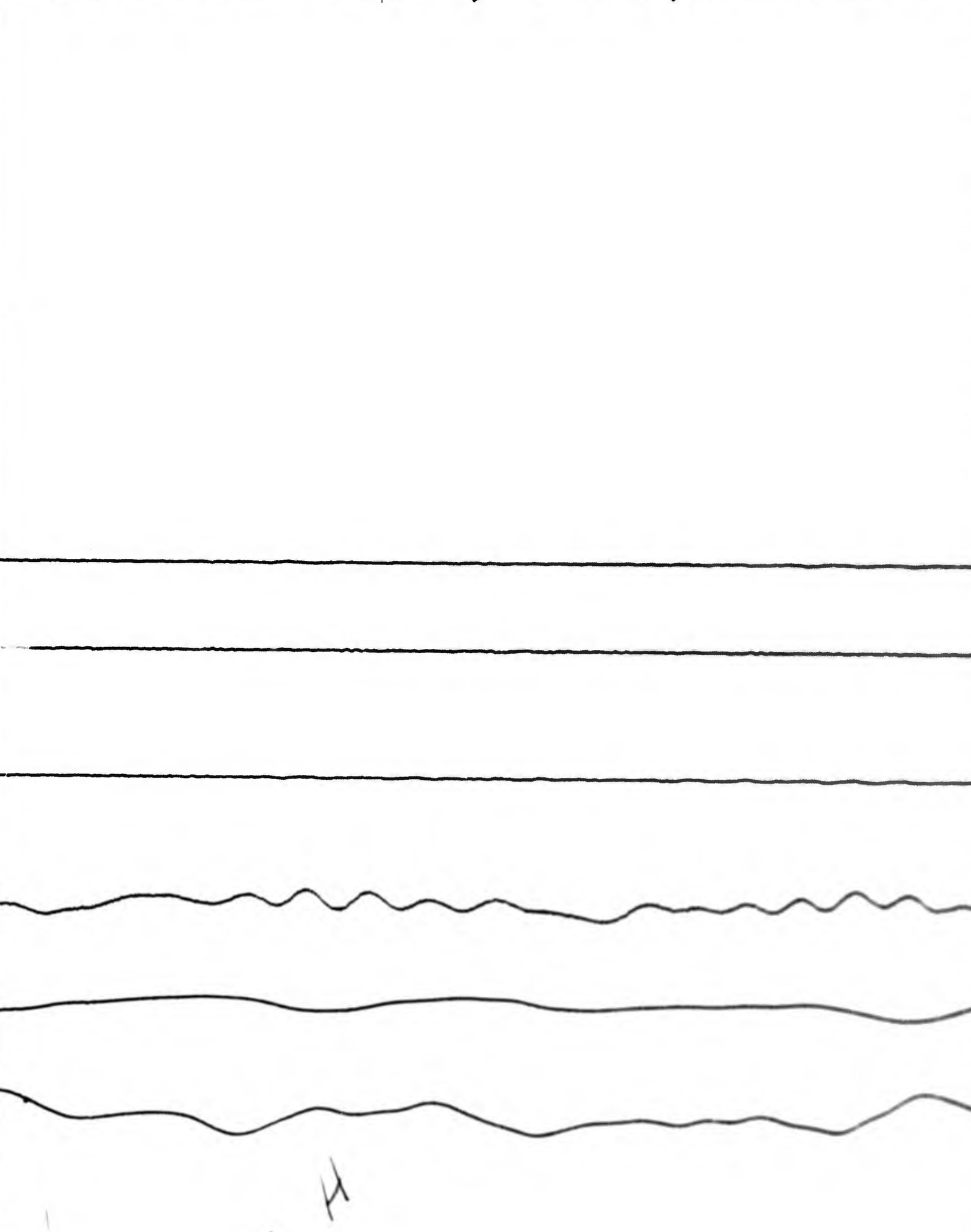


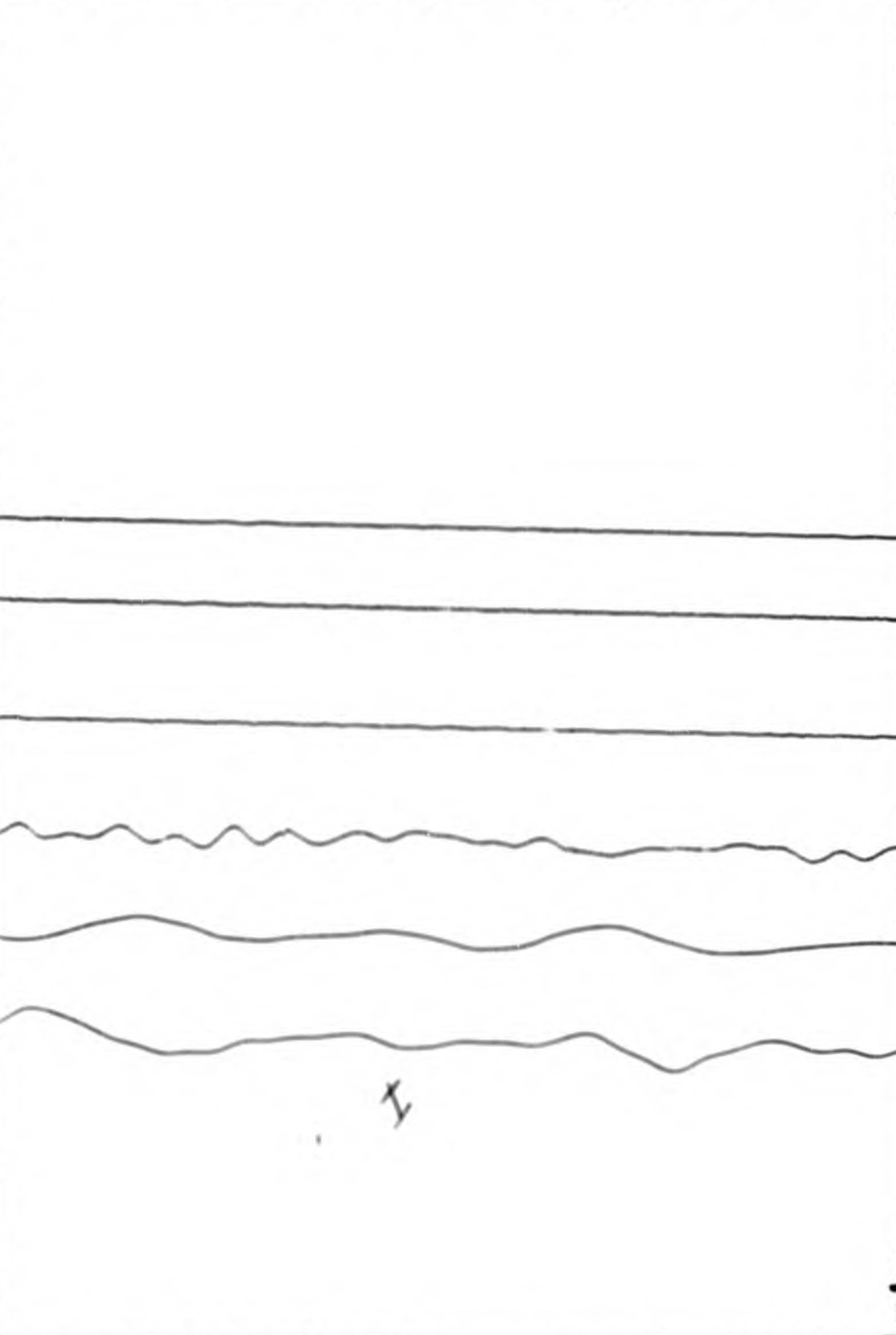






G

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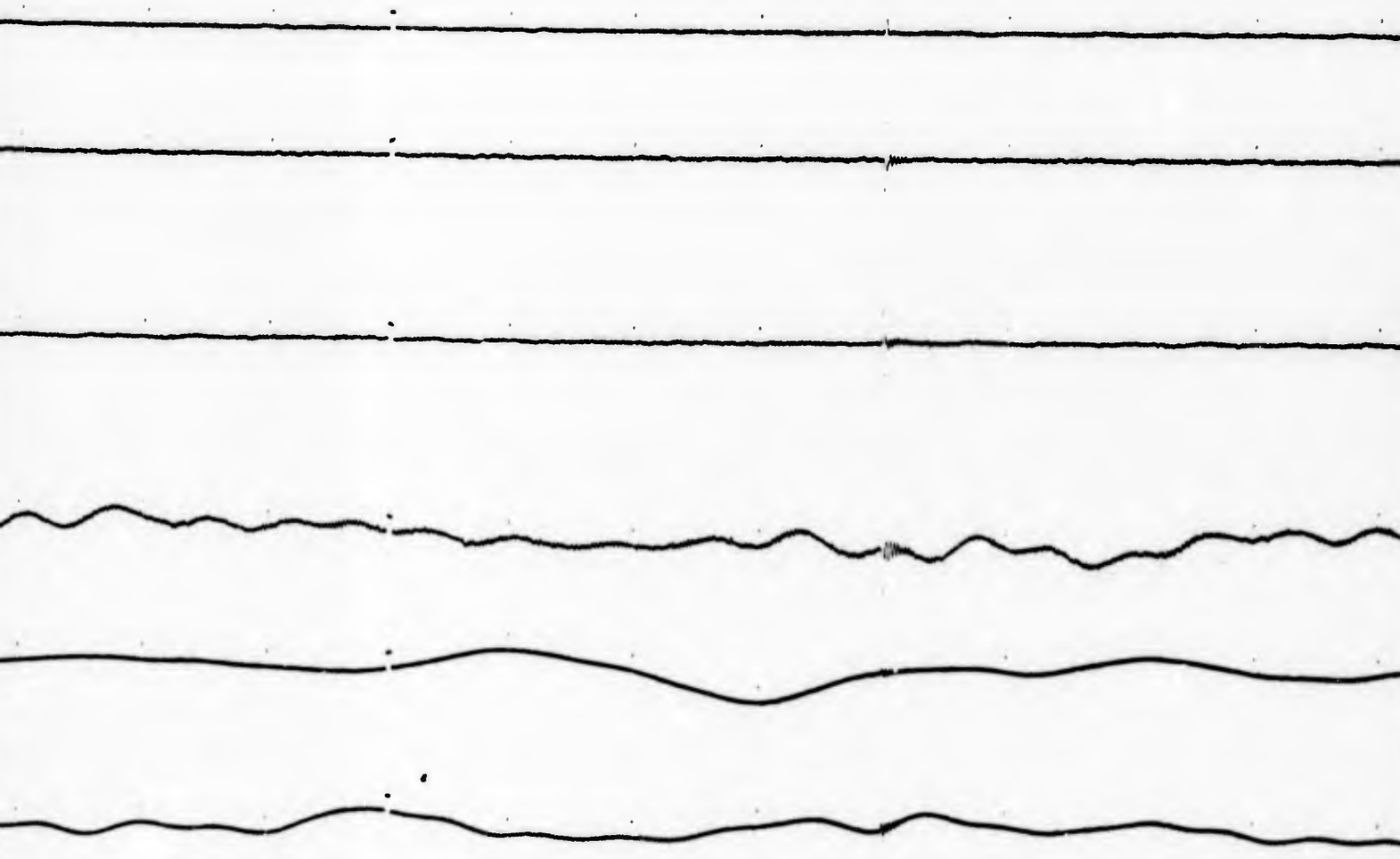
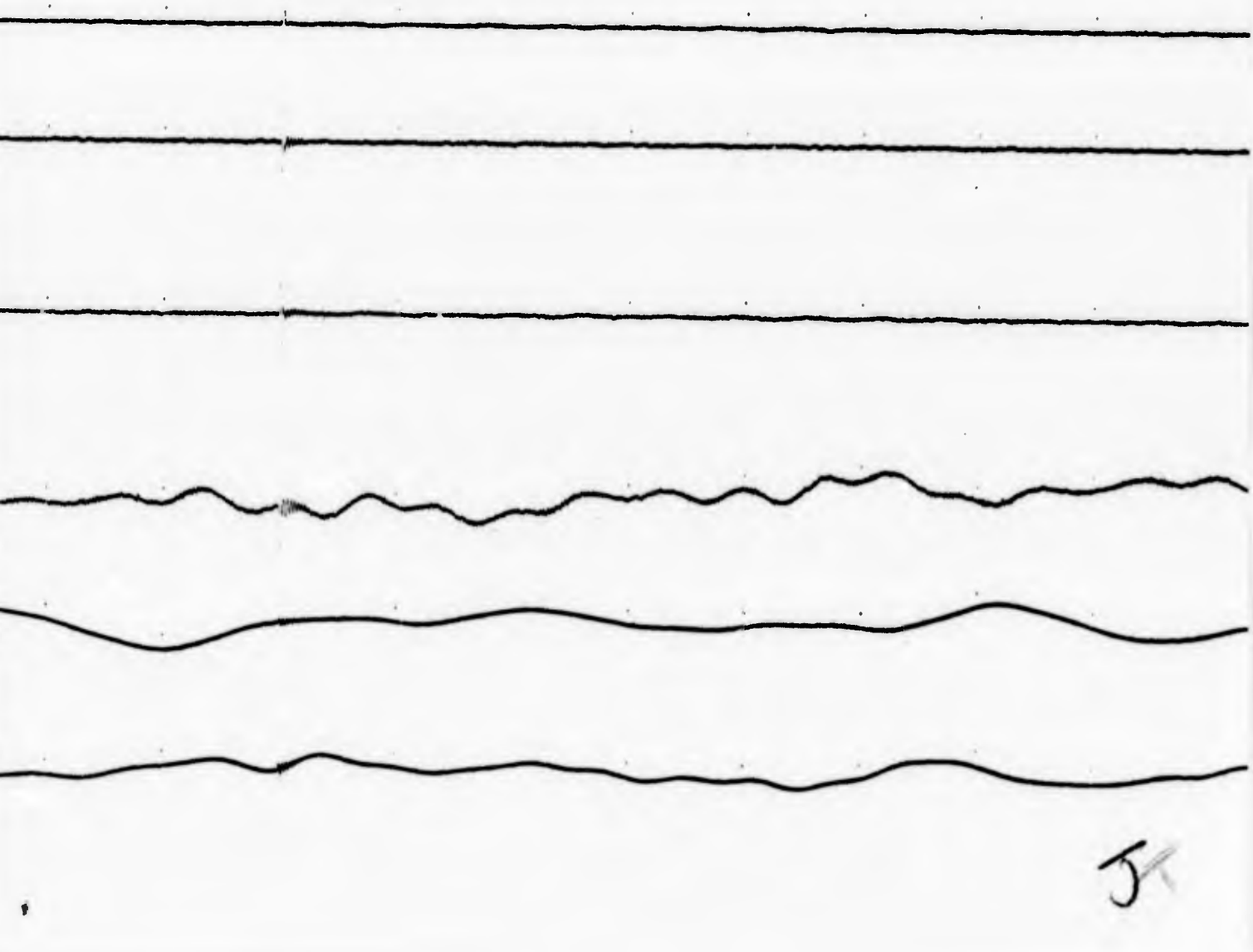




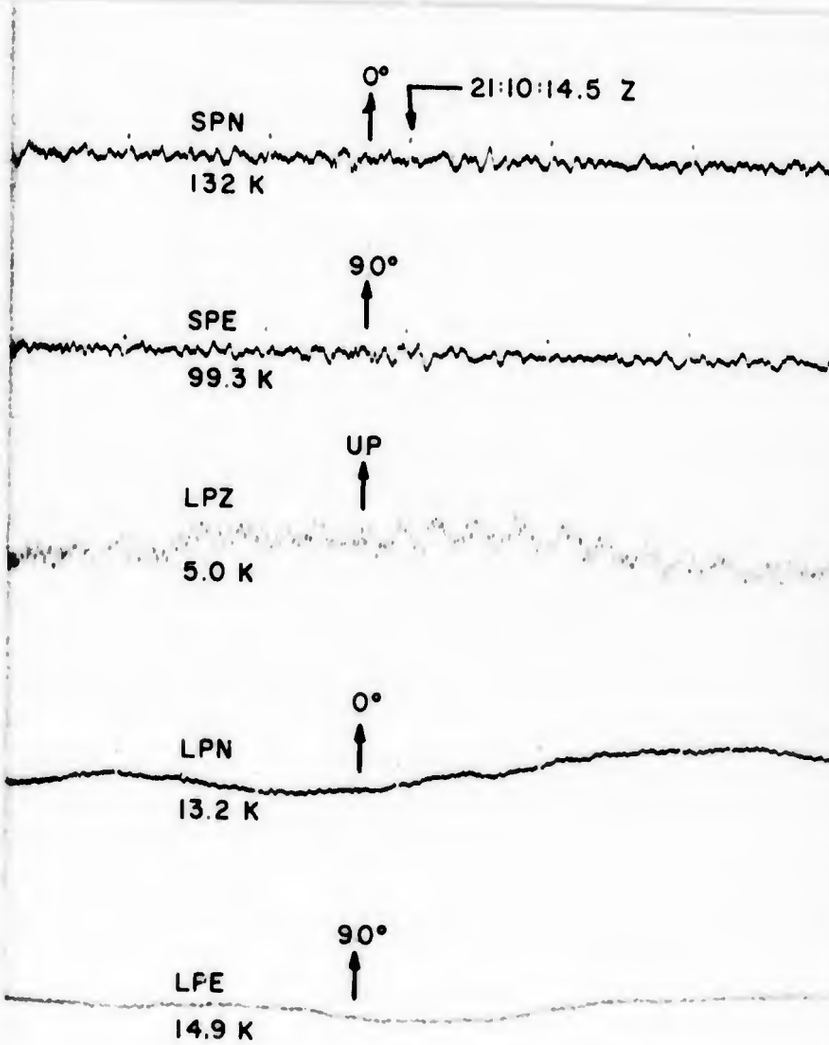
LONGSHOT

CPSO

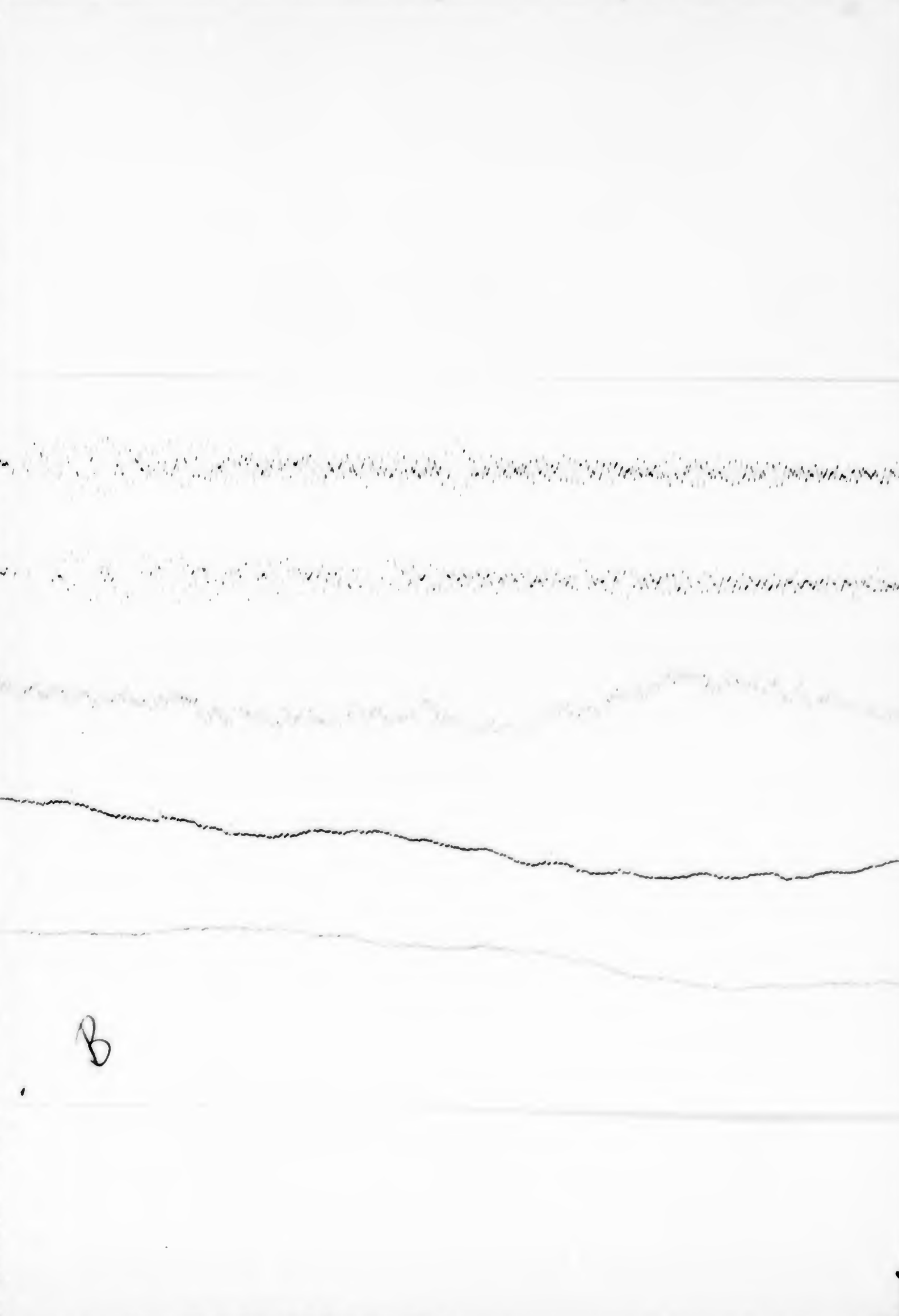
CUMBERLAND PLATEAU SEISMOLOGICAL OBSERVATORY, TENNESSEE

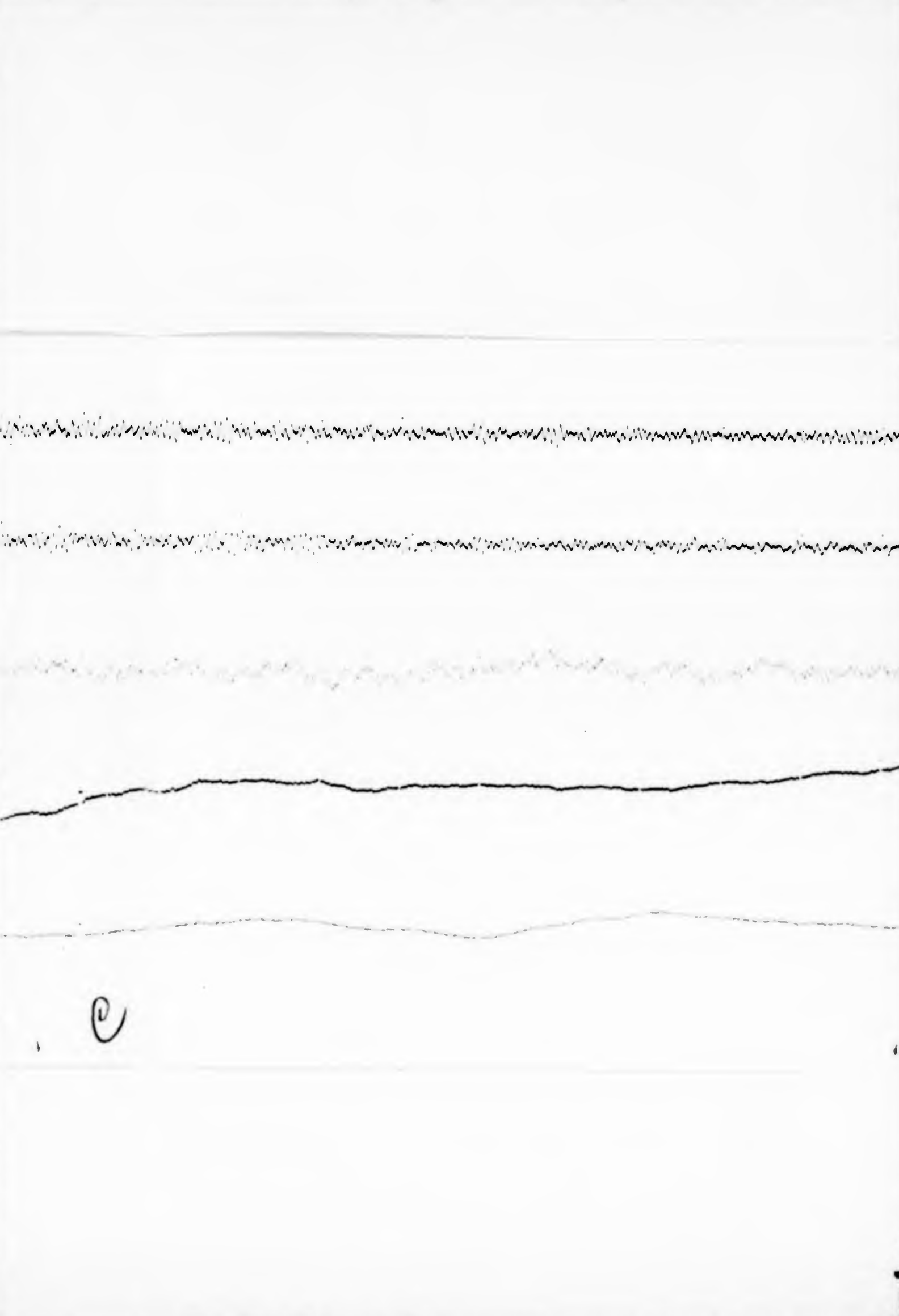
29 OCTOBER 1965

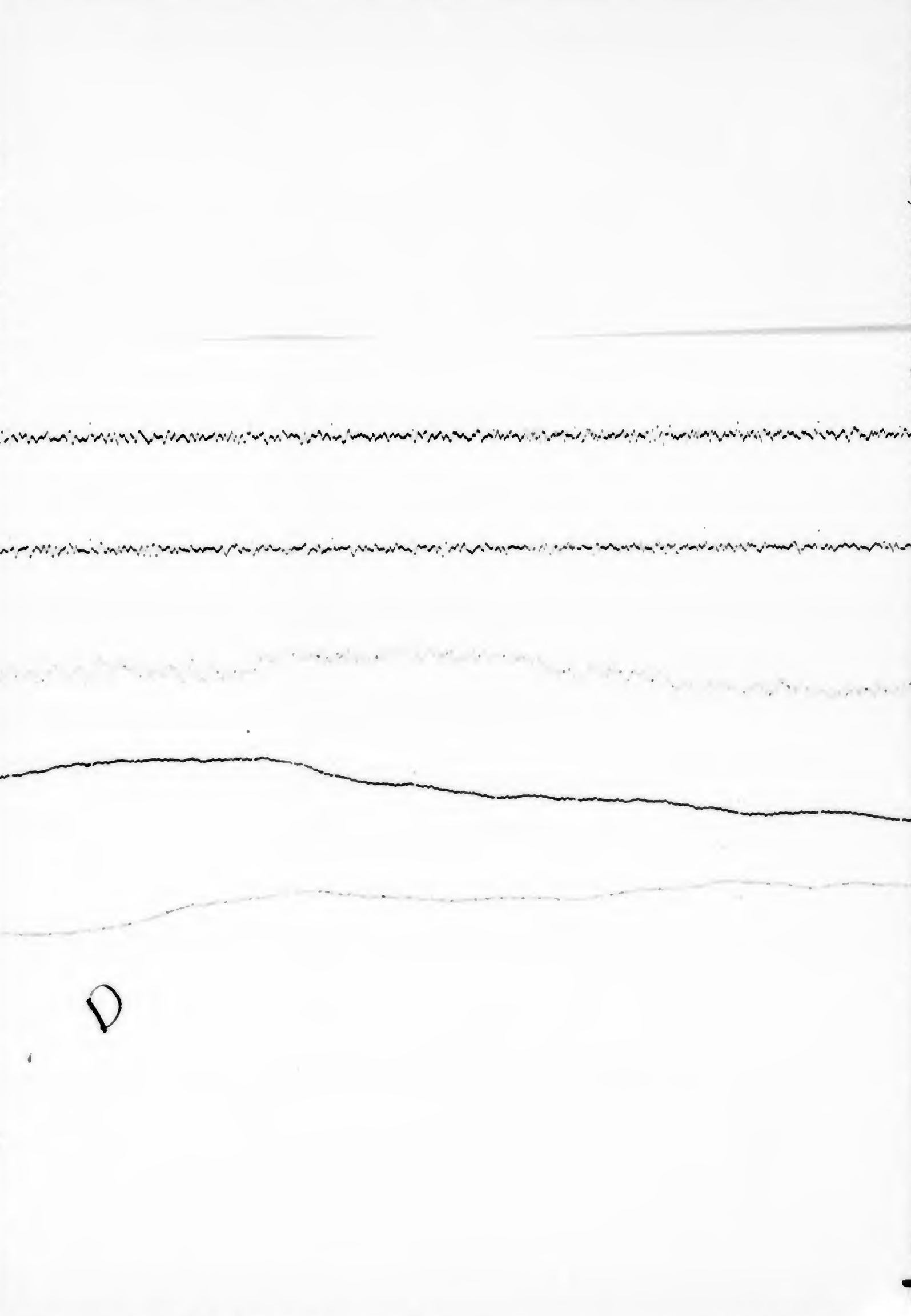
Δ= 7349 Km

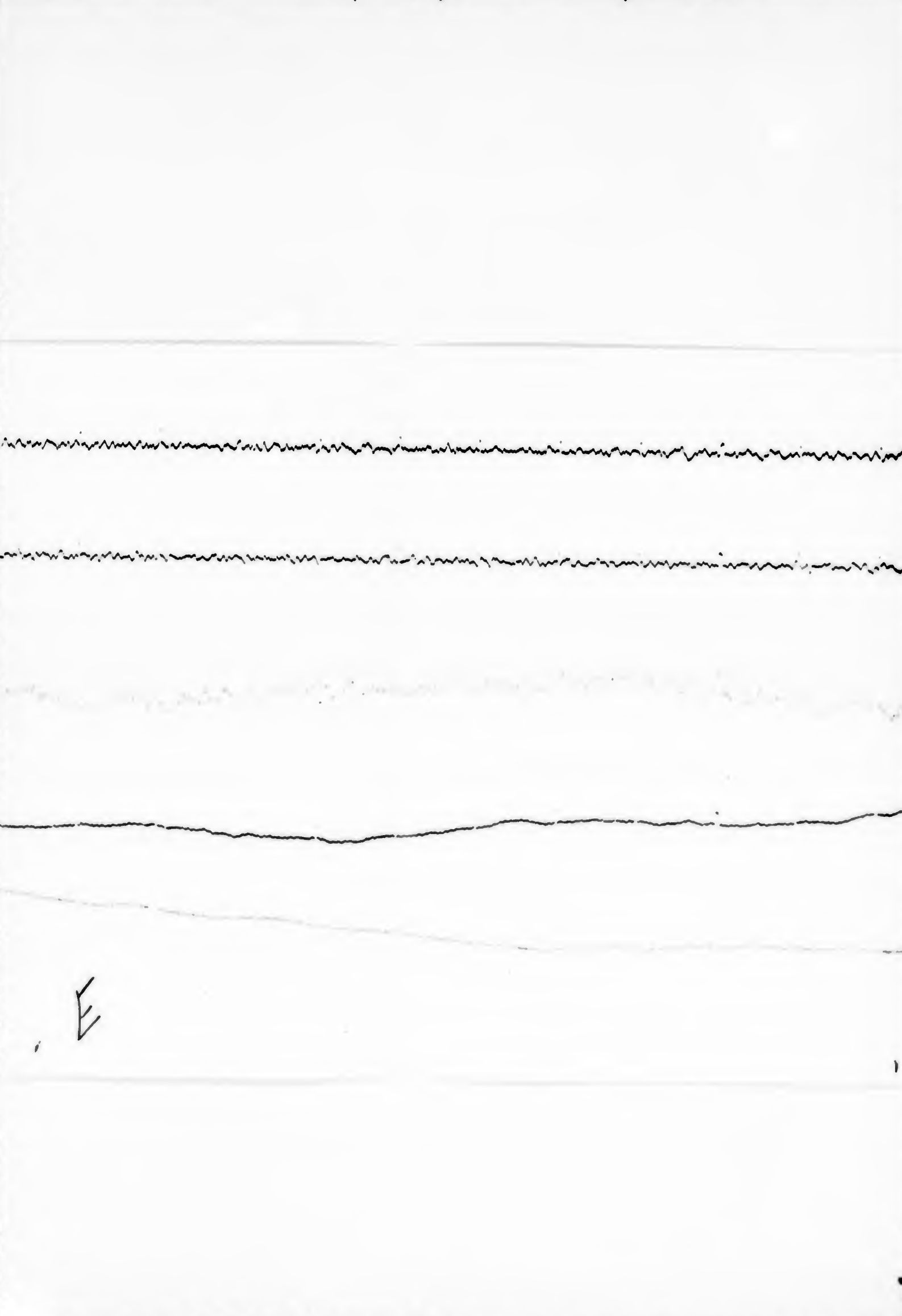


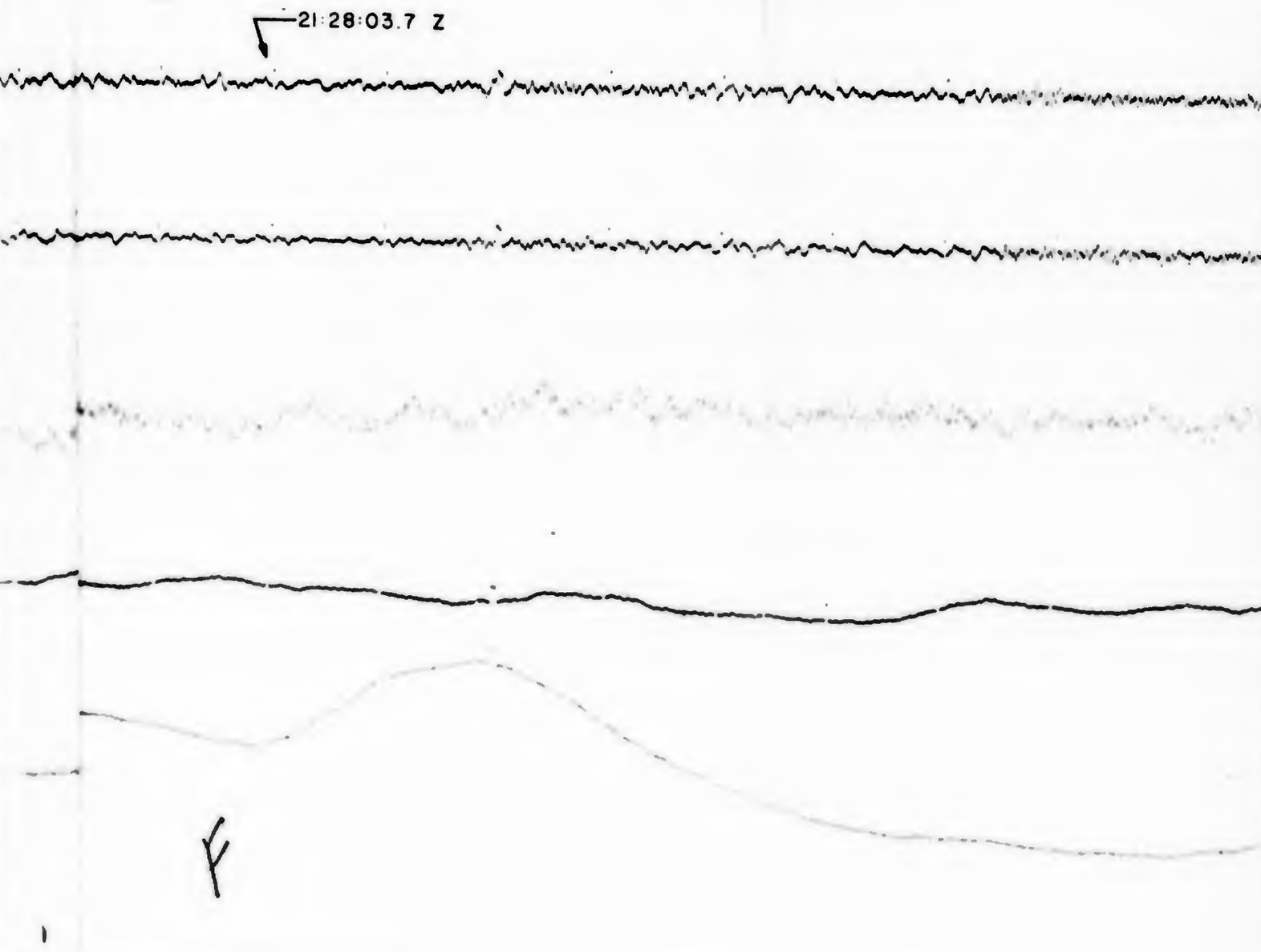
NOTE: CLIPPED SPZ OMITTED

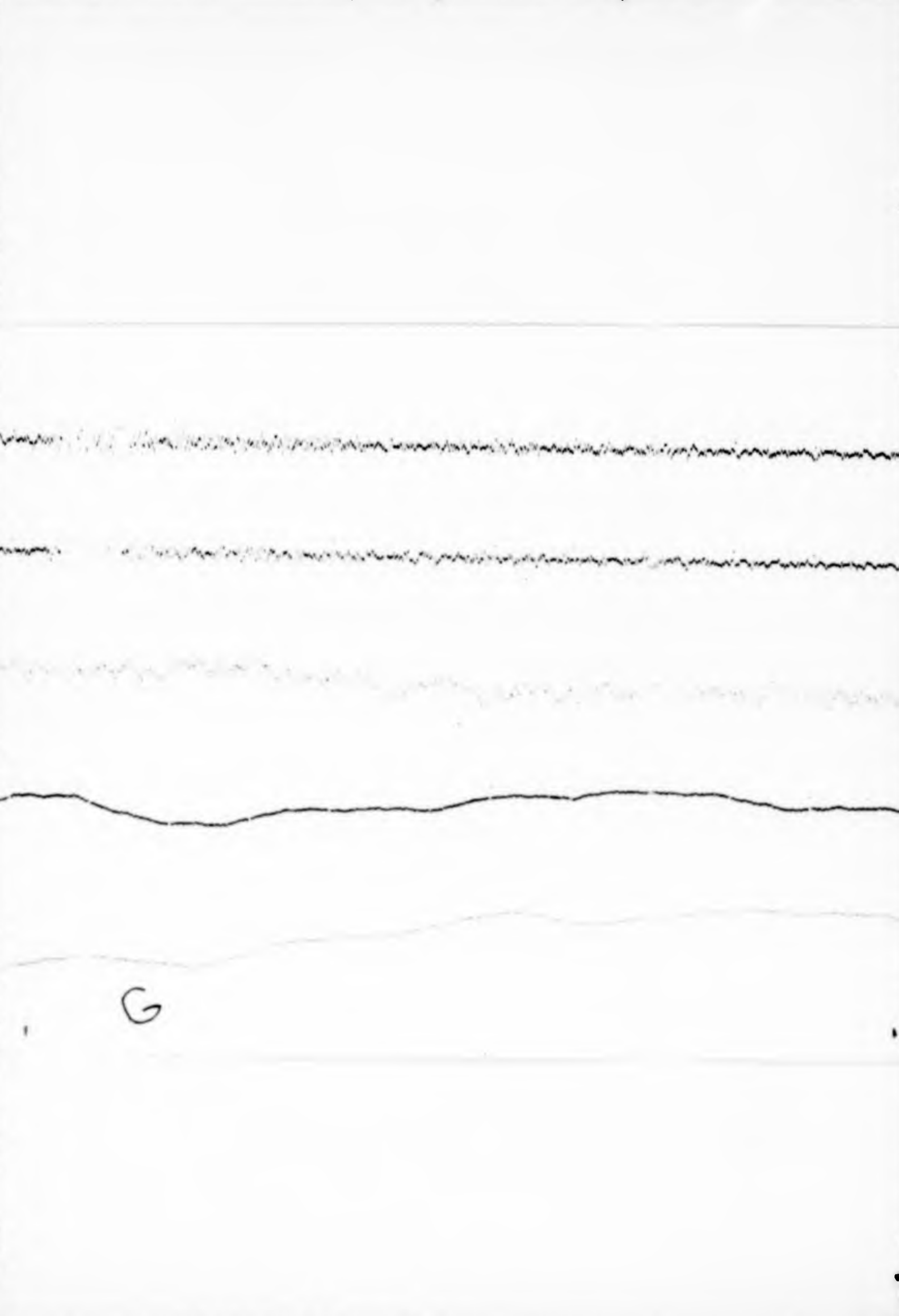


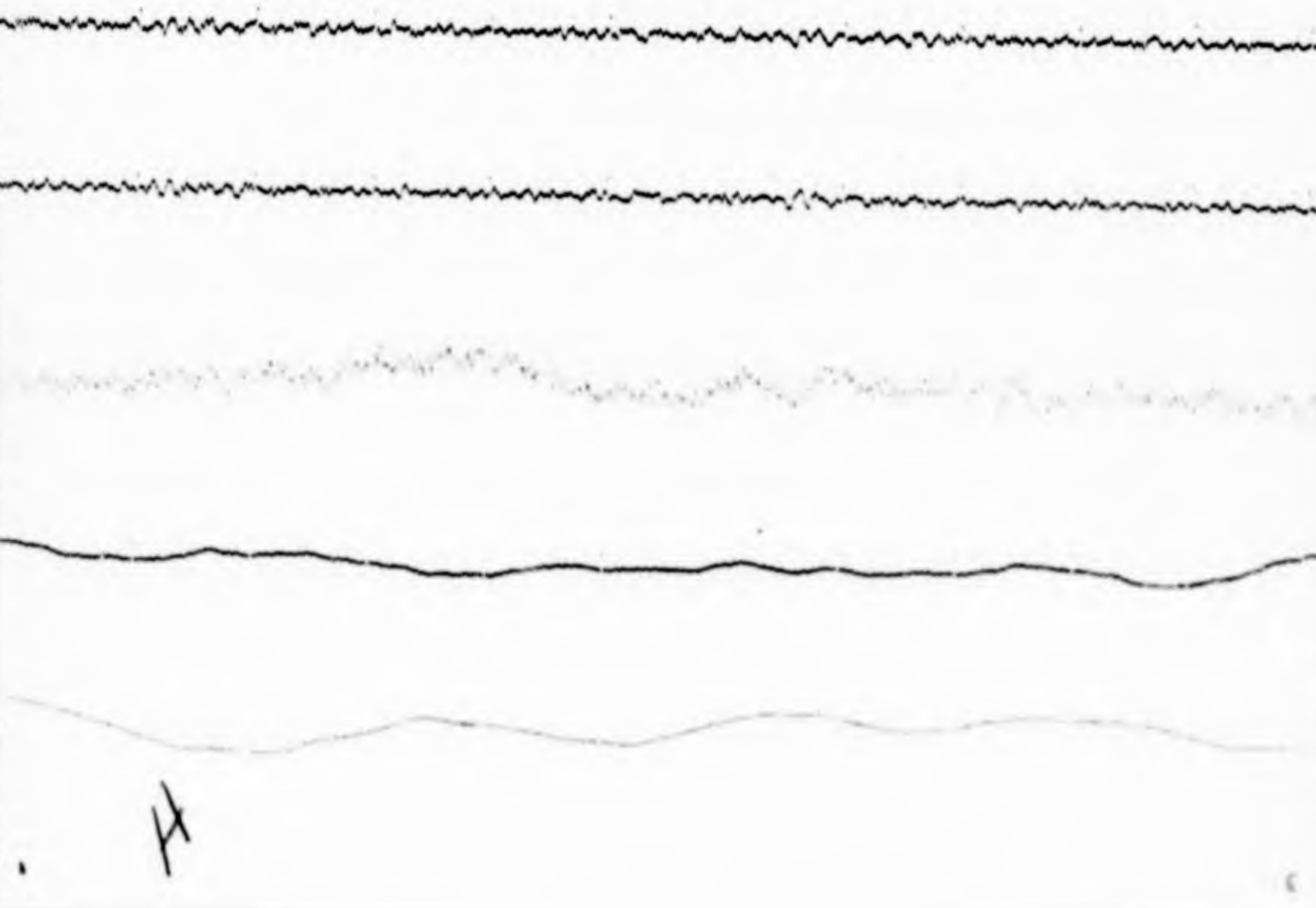


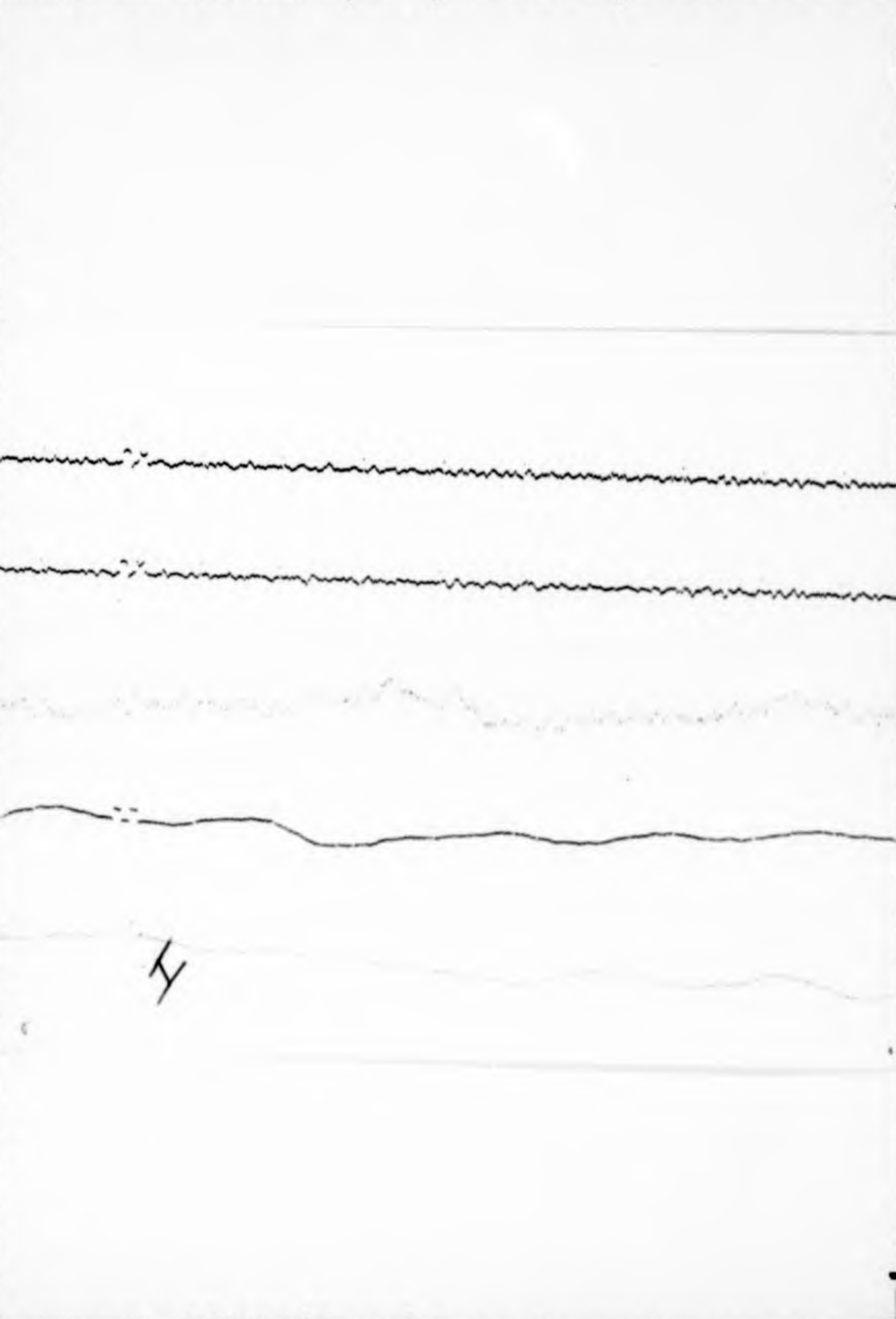


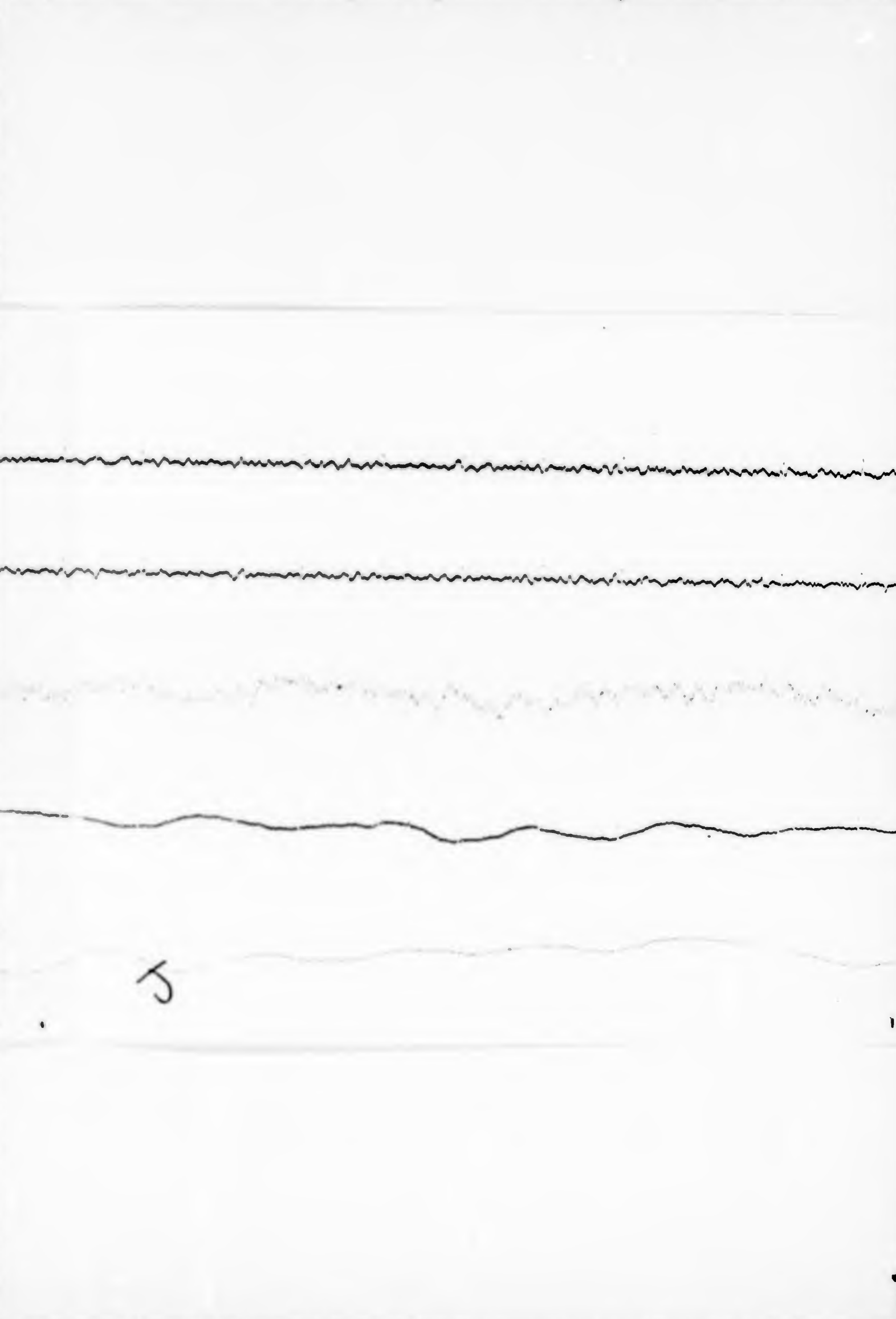

E

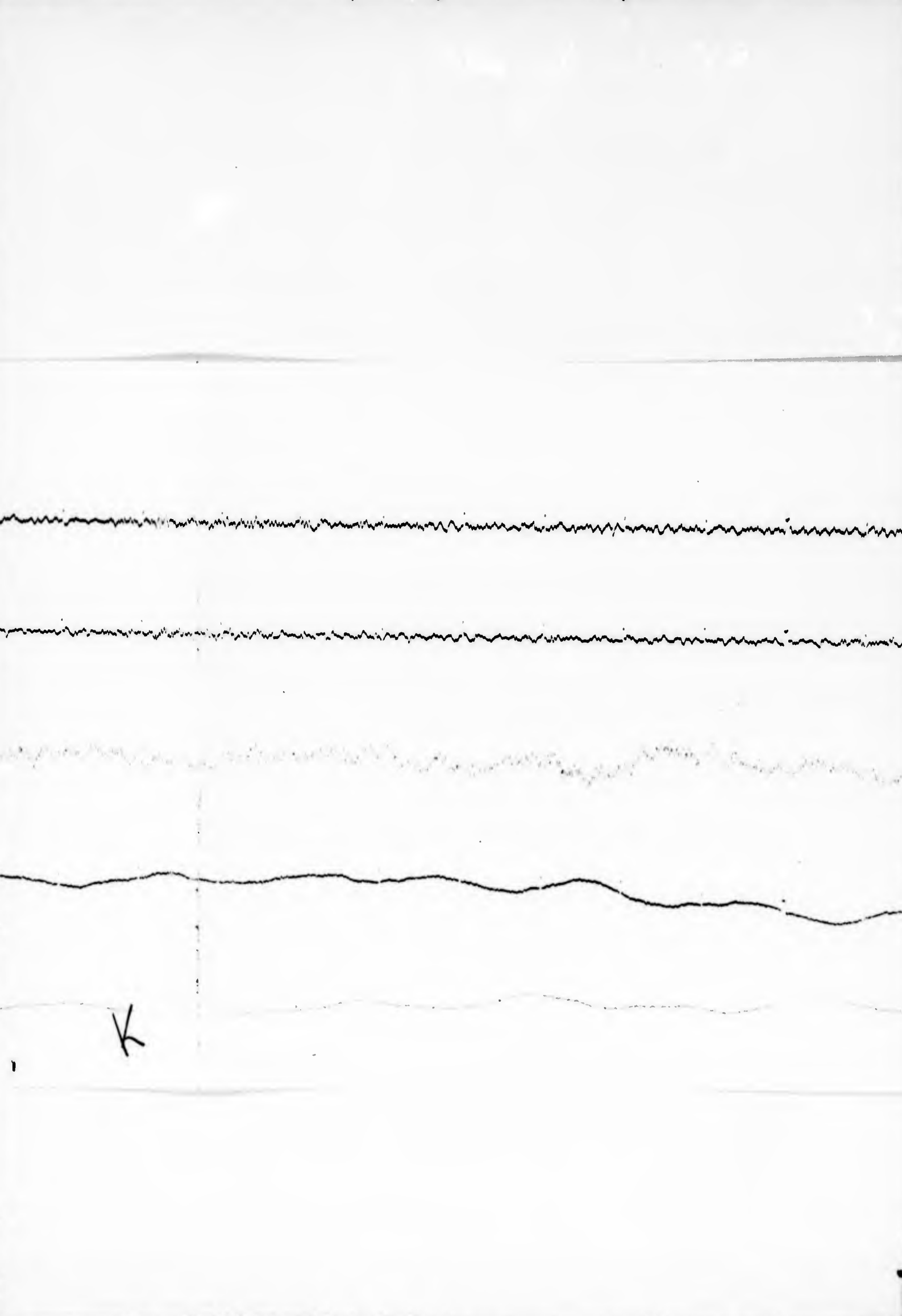

21:28:03.7 Z

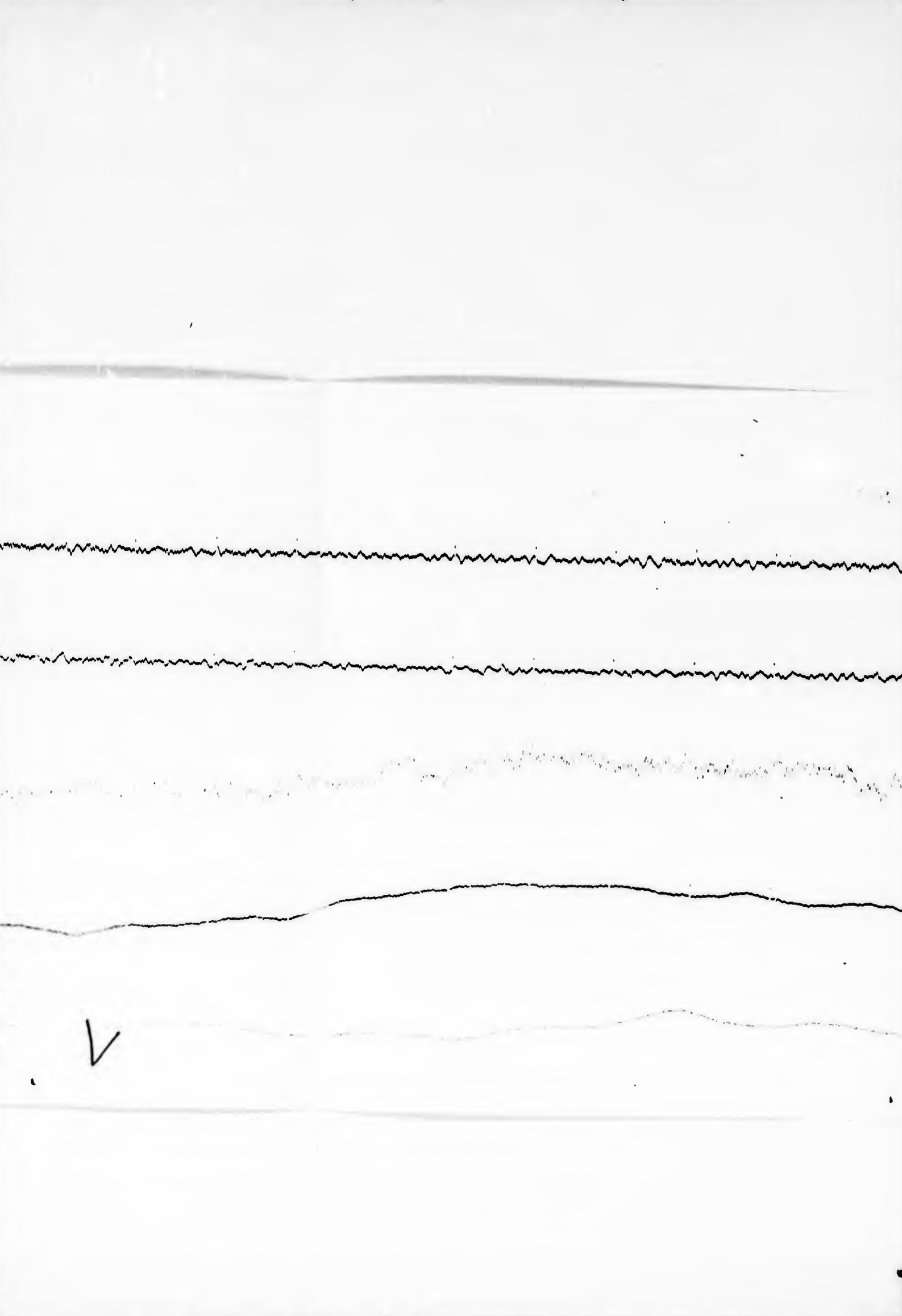

G







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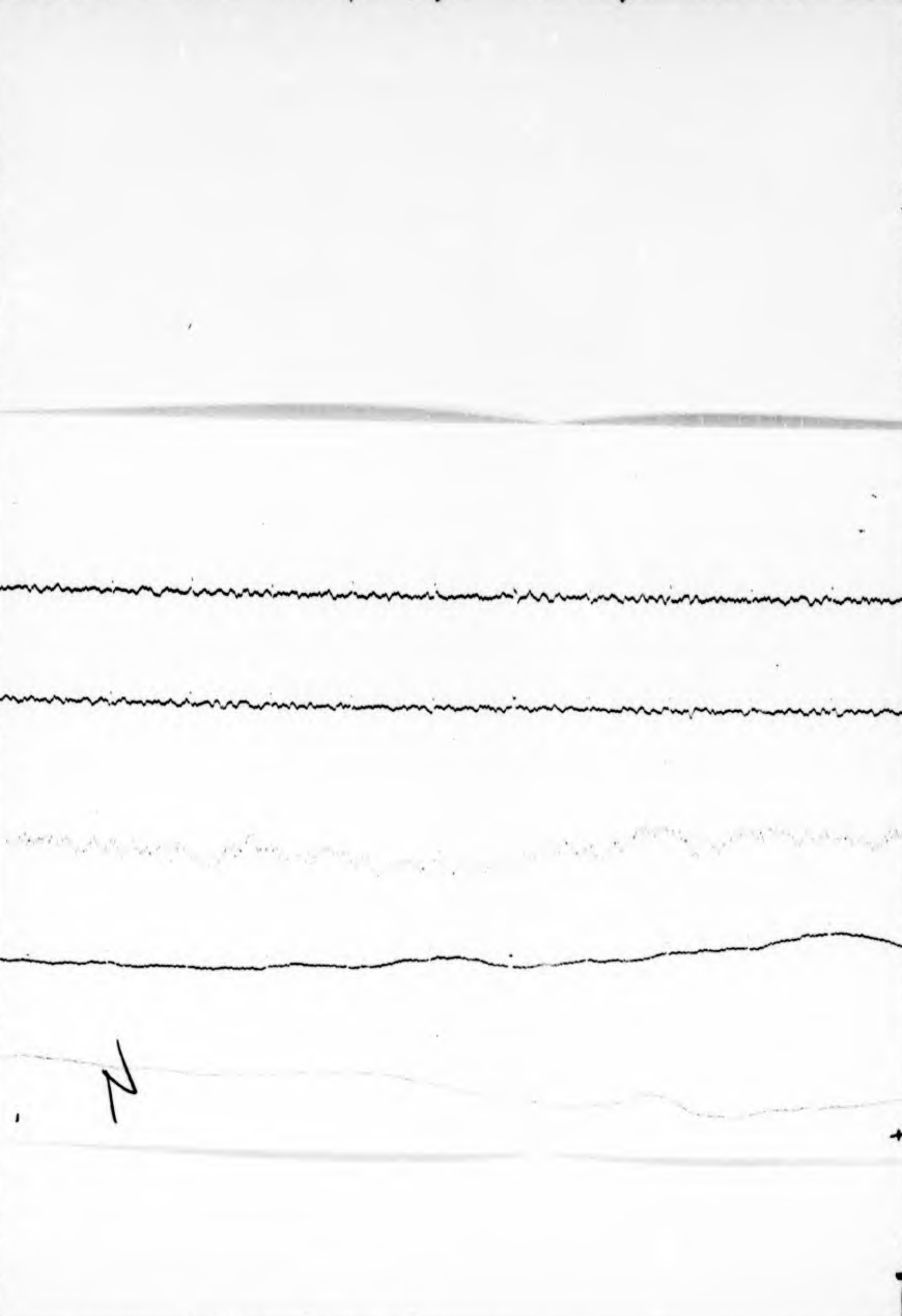
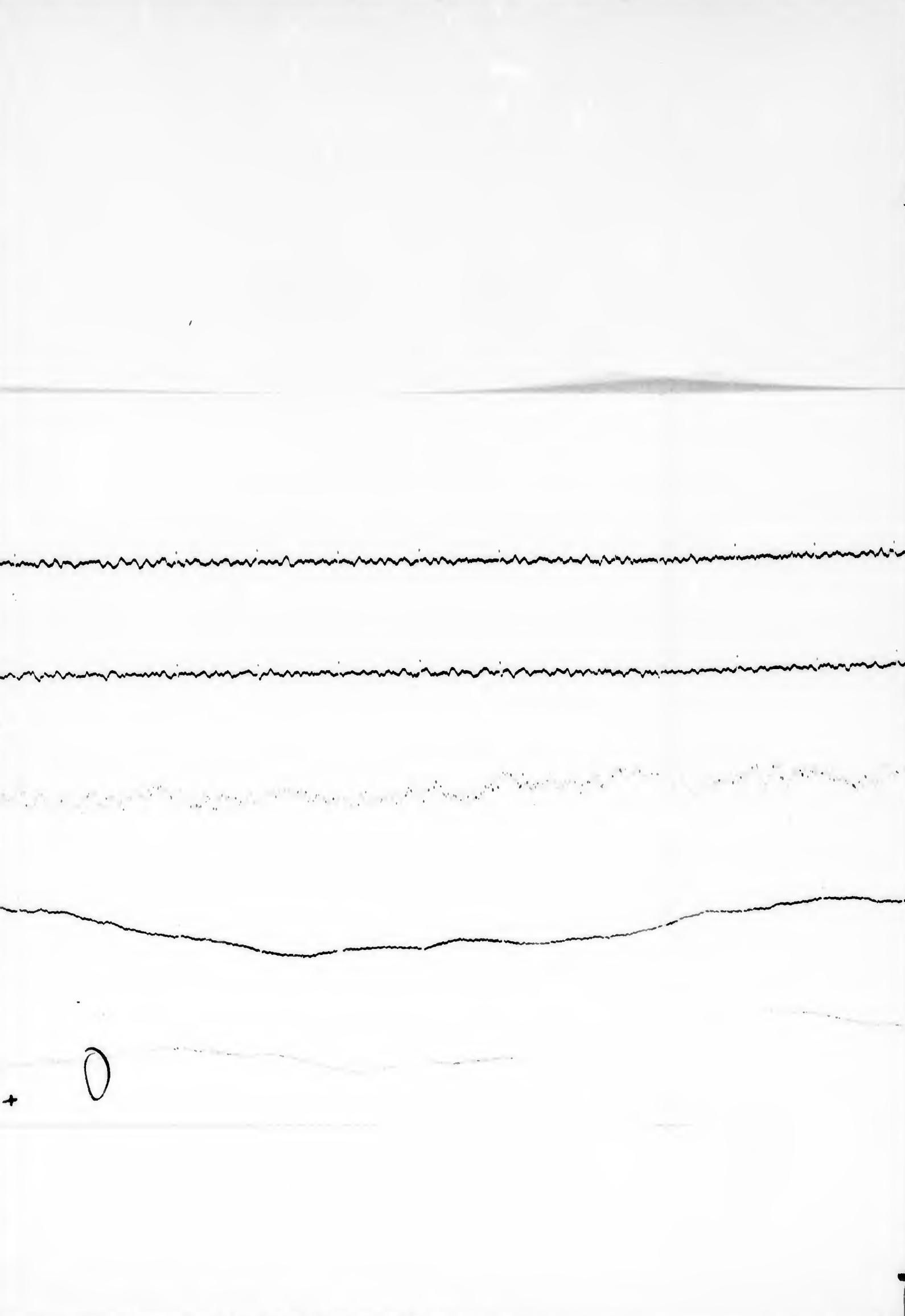
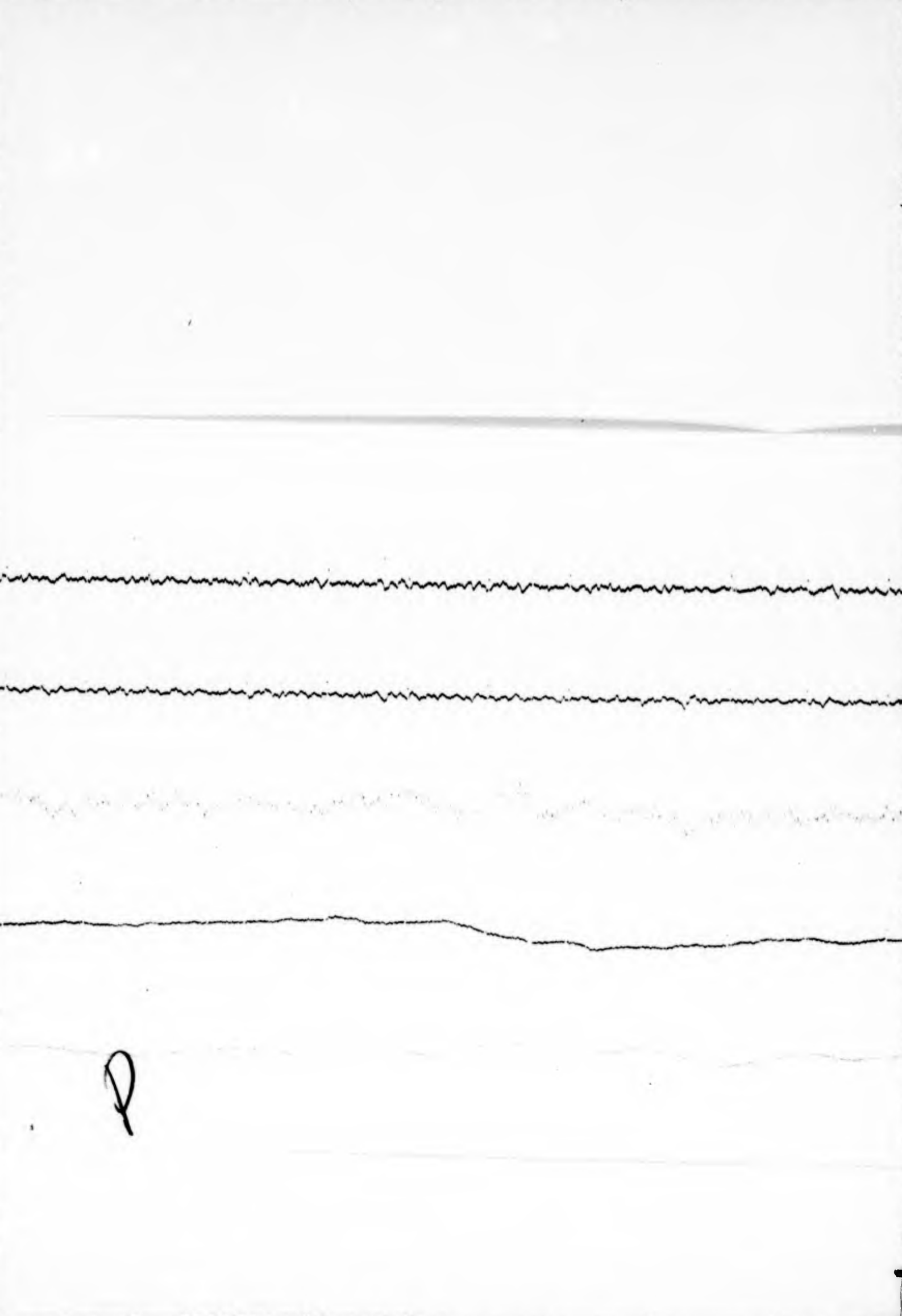
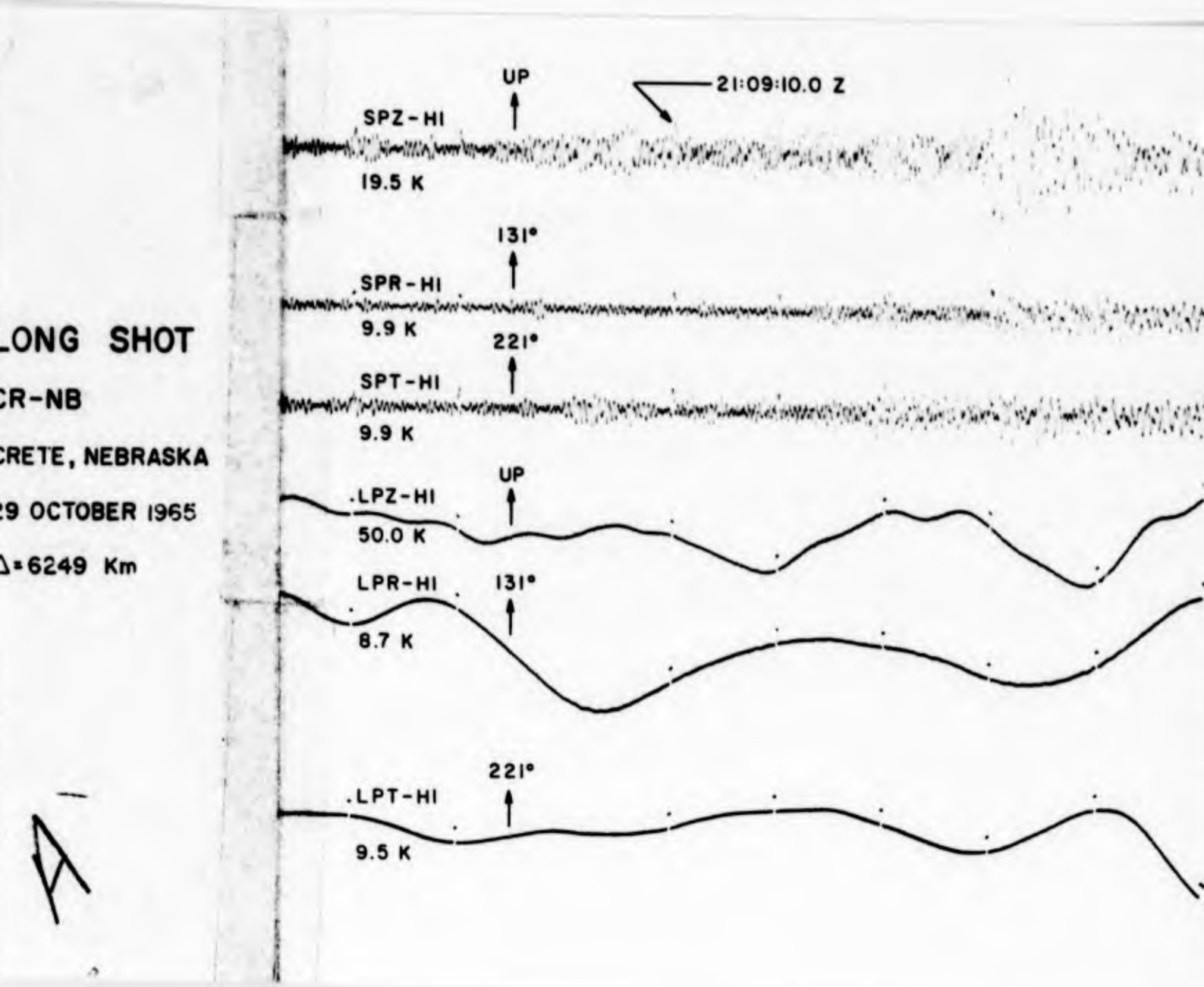
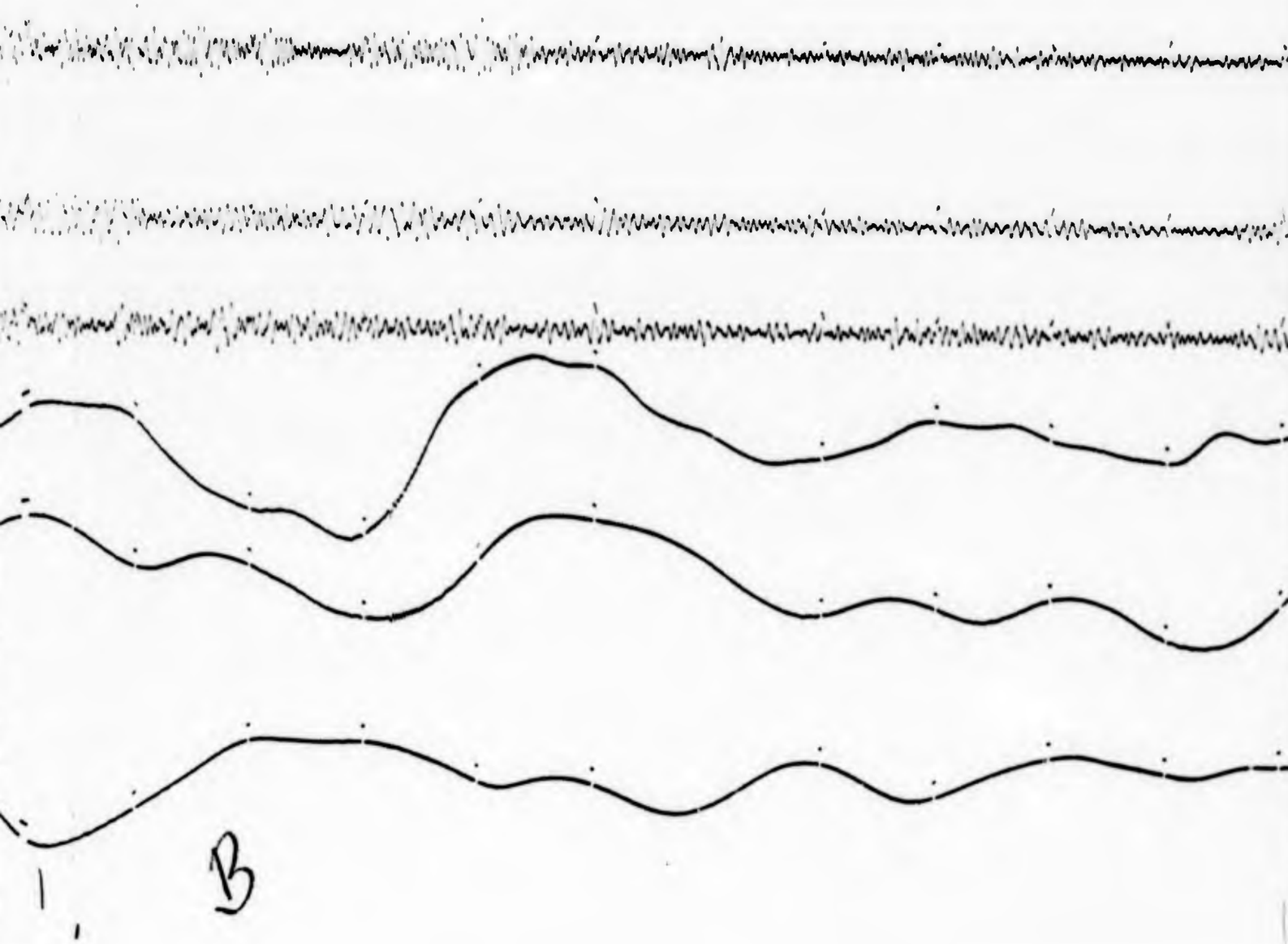






Q


LONG SHOT
CR-NB
CRETE, NEBRASKA
29 OCTOBER 1965
Δ=6249 Km
UP
21:09:10.0 Z
SPZ-HI
19.5 K
131°
SPR-HI
9.9 K
221°
SPT-HI
9.9 K
UP
LPZ-HI
50.0 K
LPR-HI
131°
8.7 K
221°
LPT-HI
9.5 K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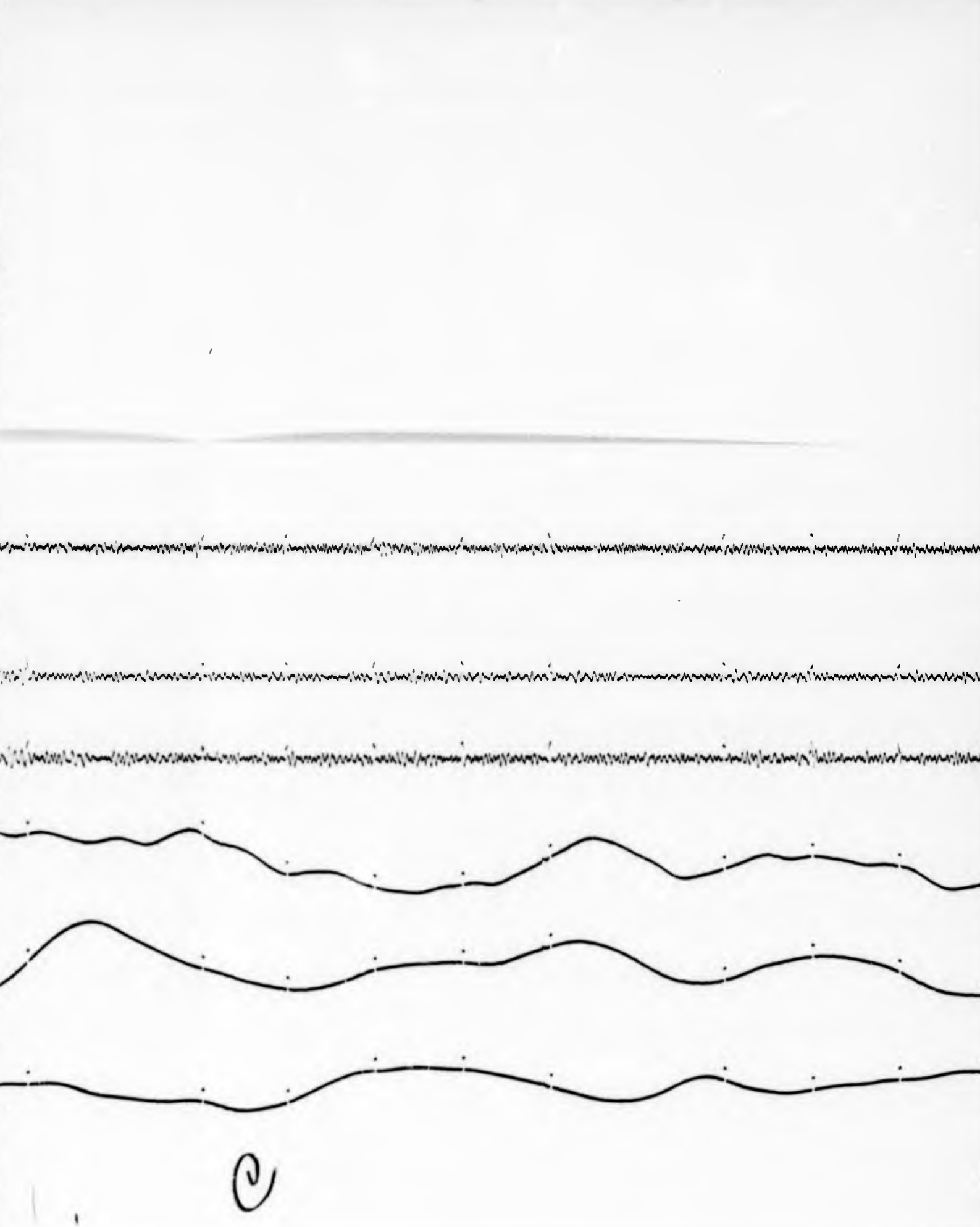
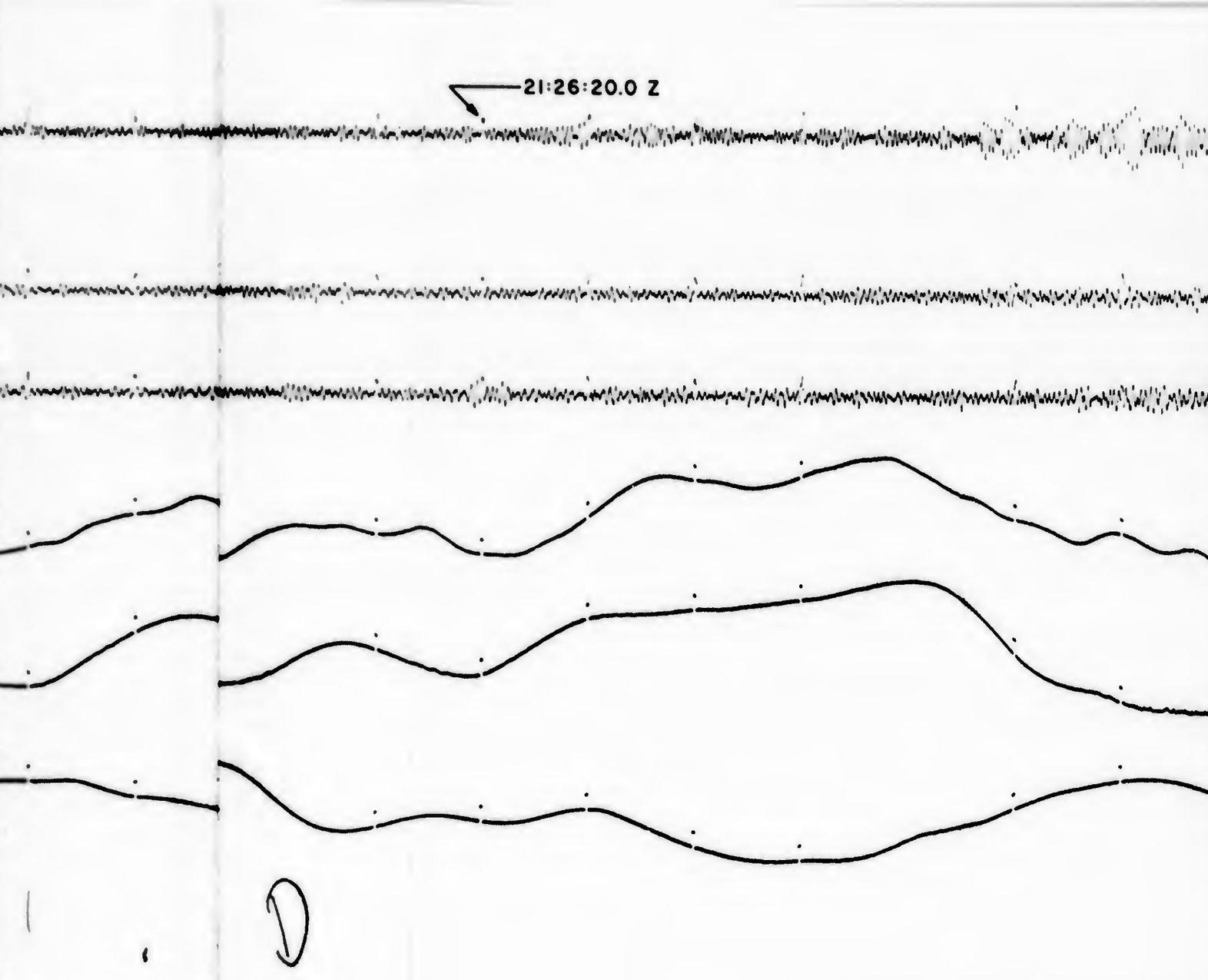
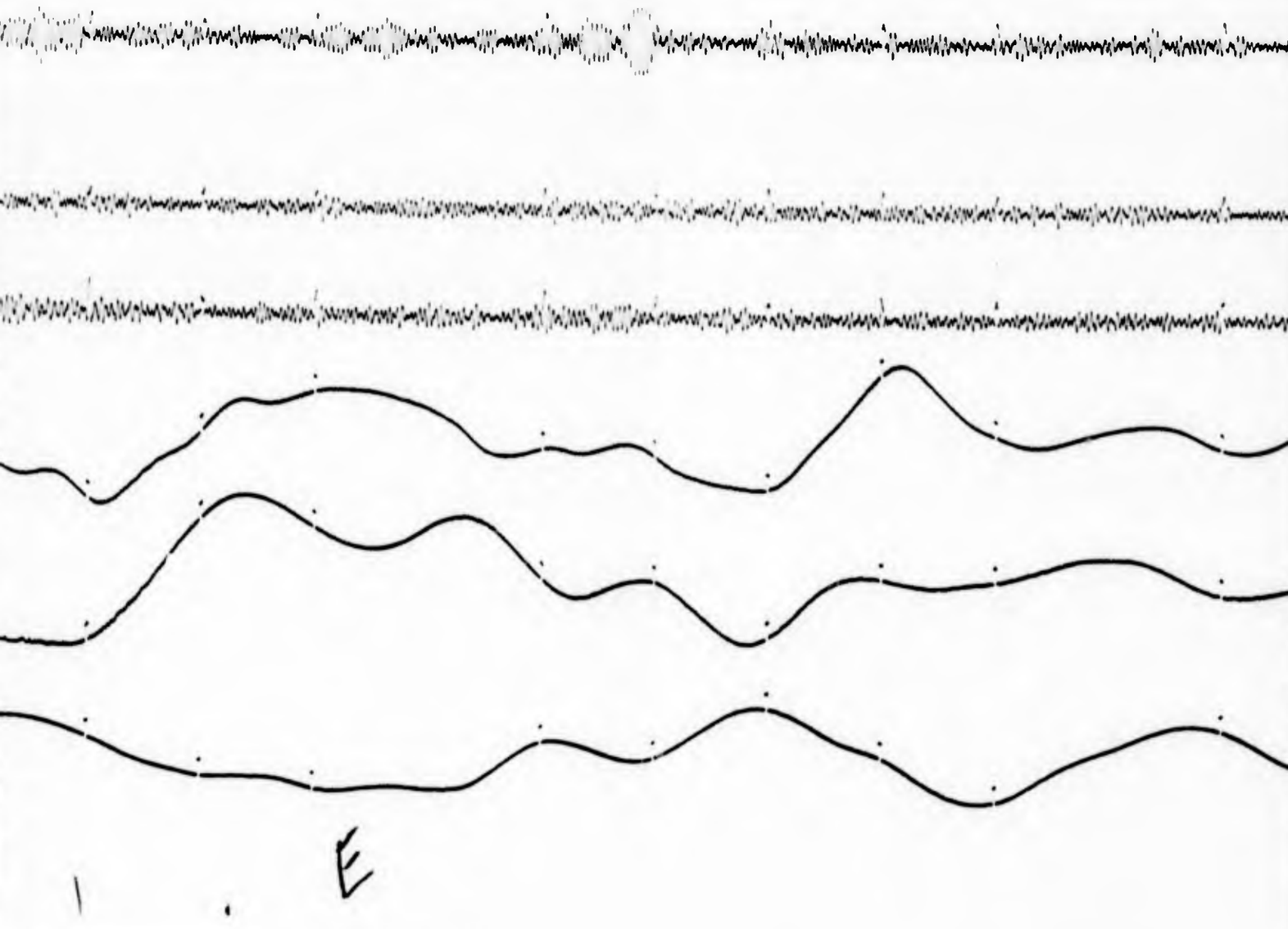



21:26:20.0 Z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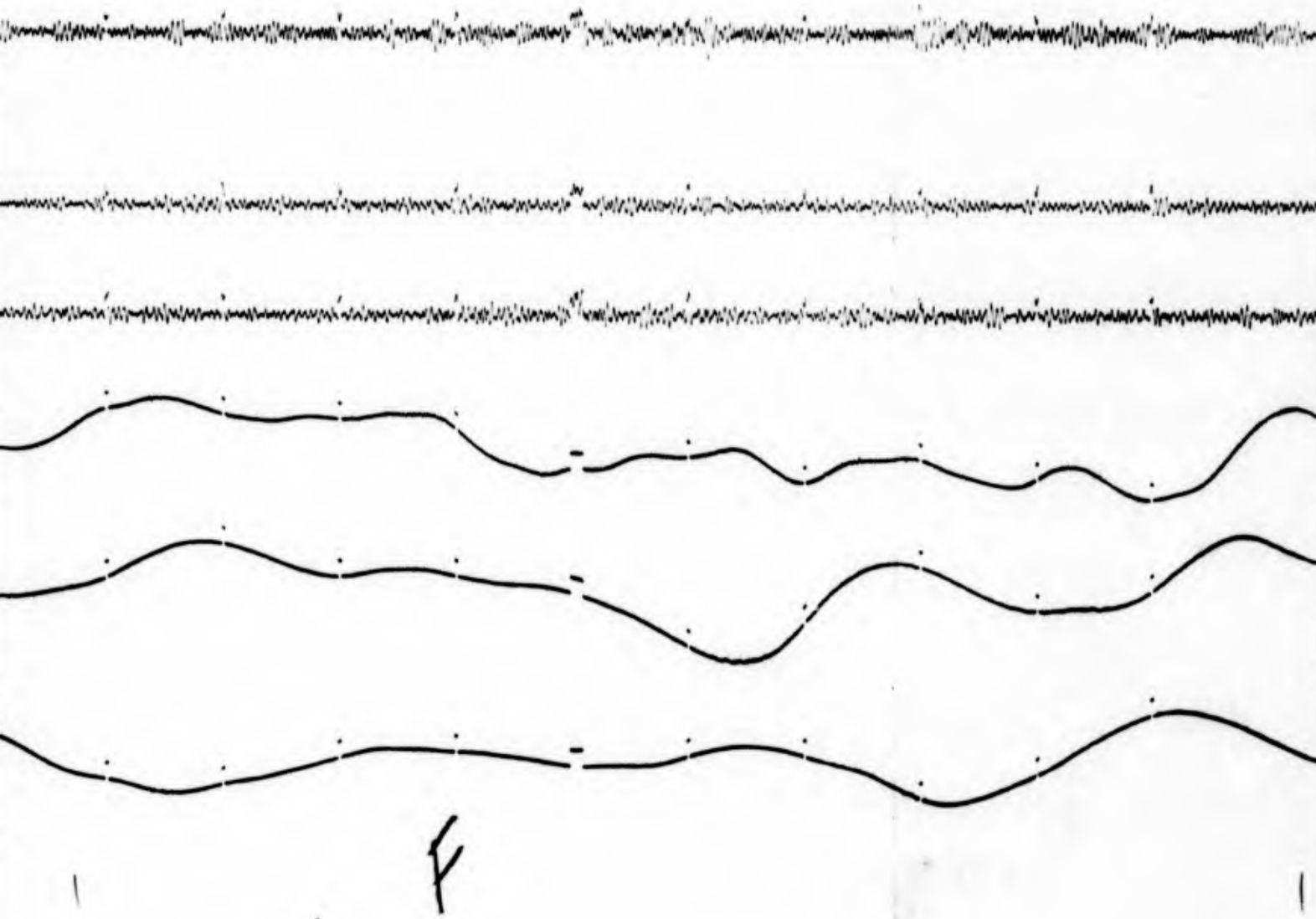
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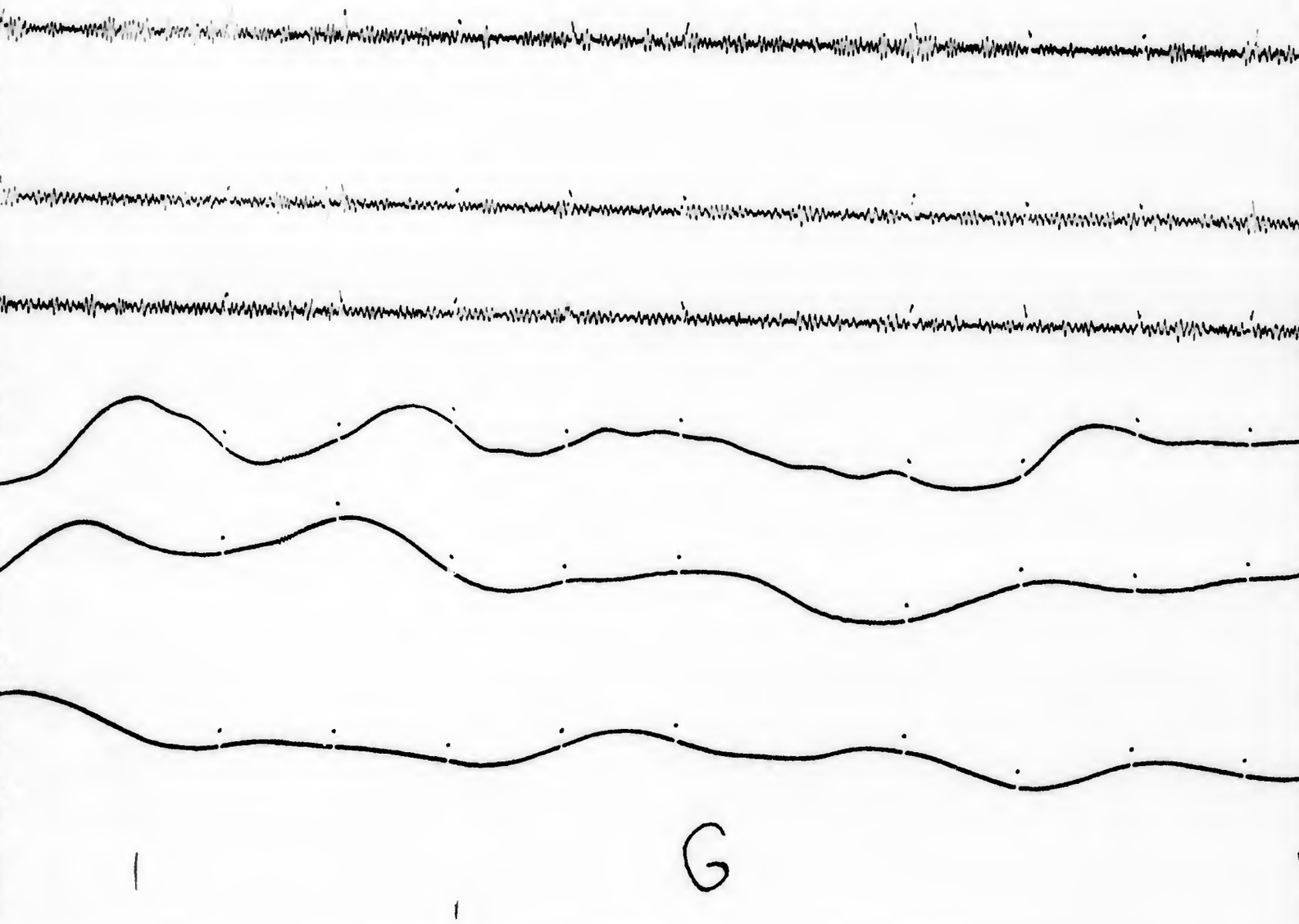
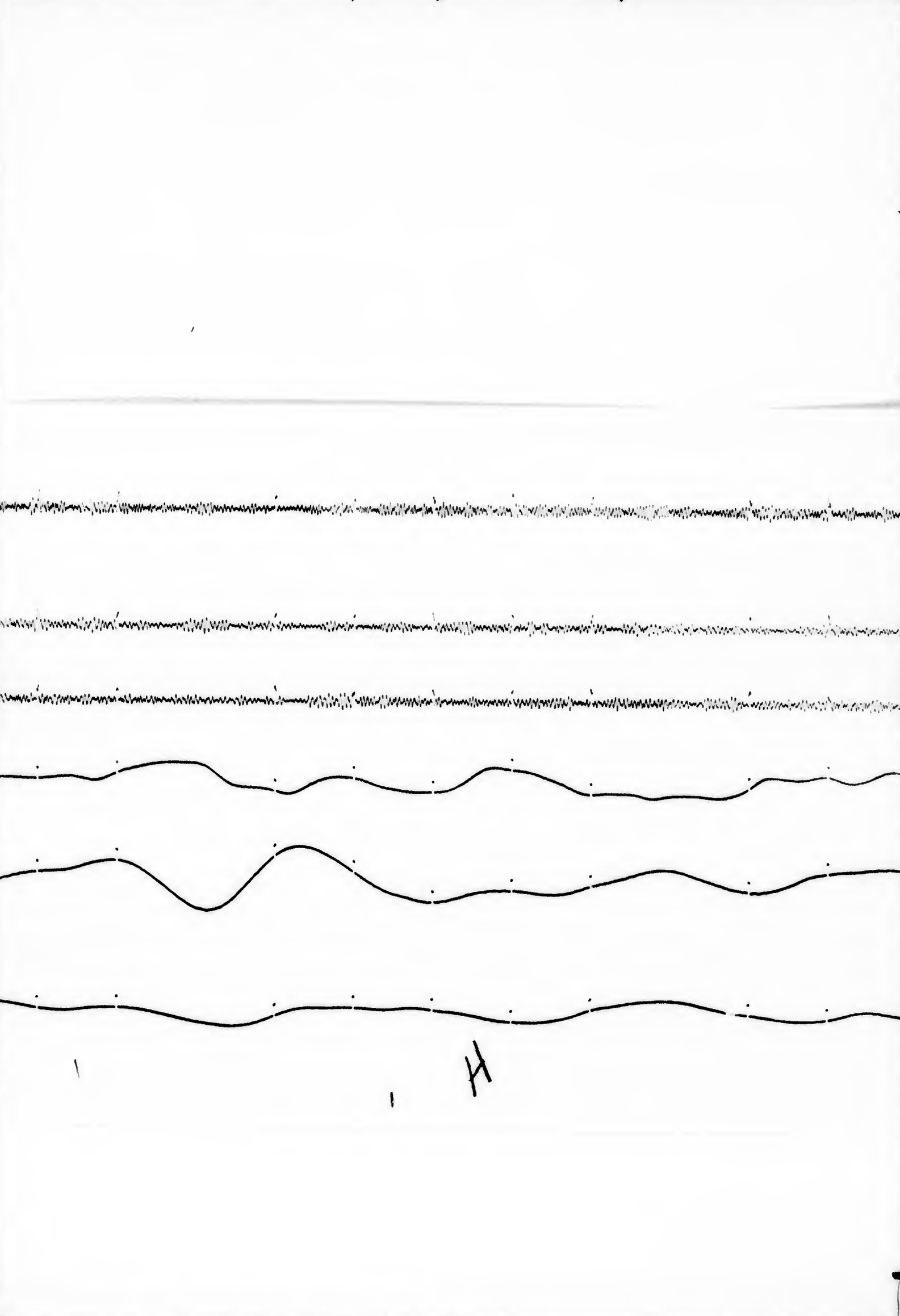
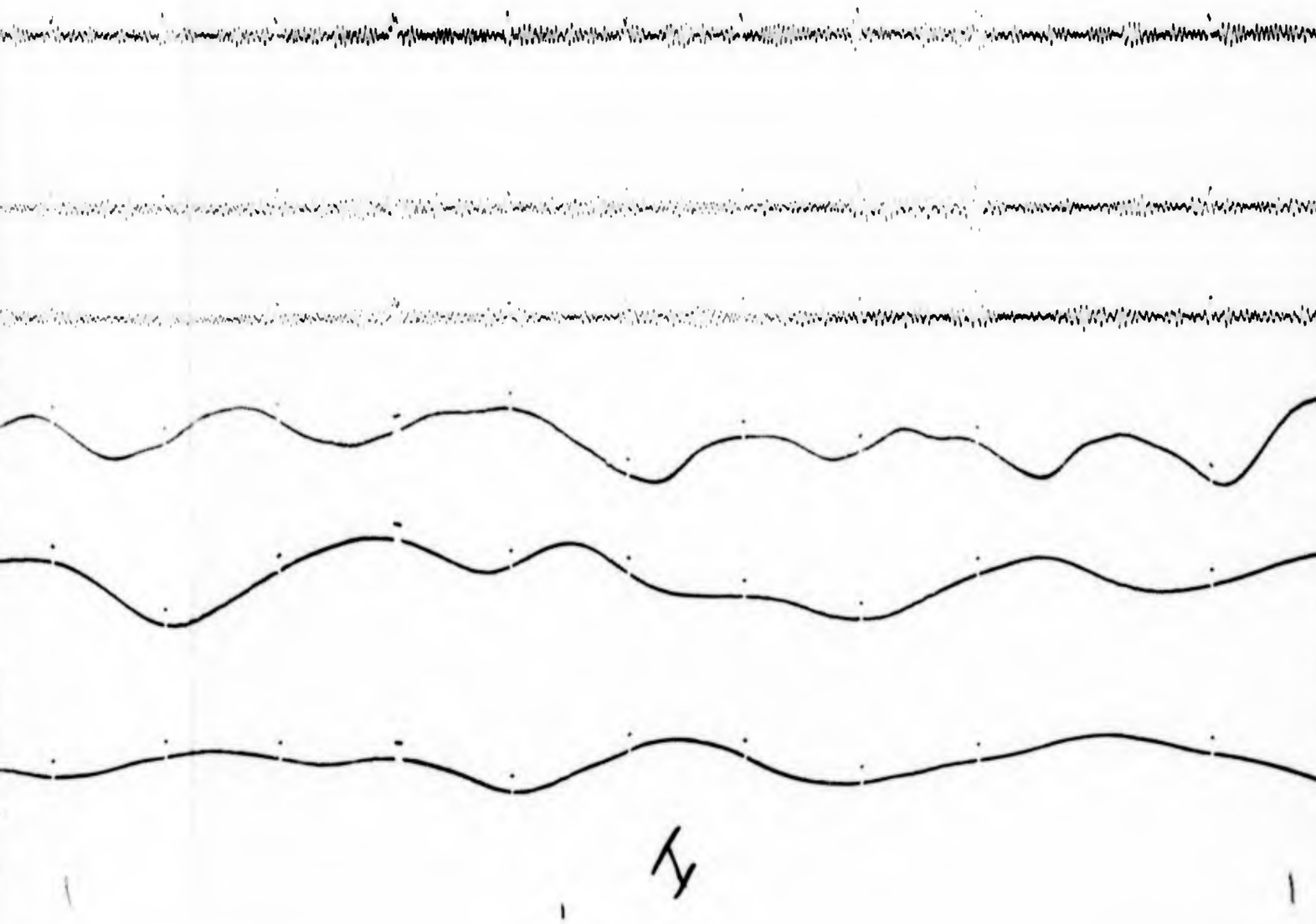
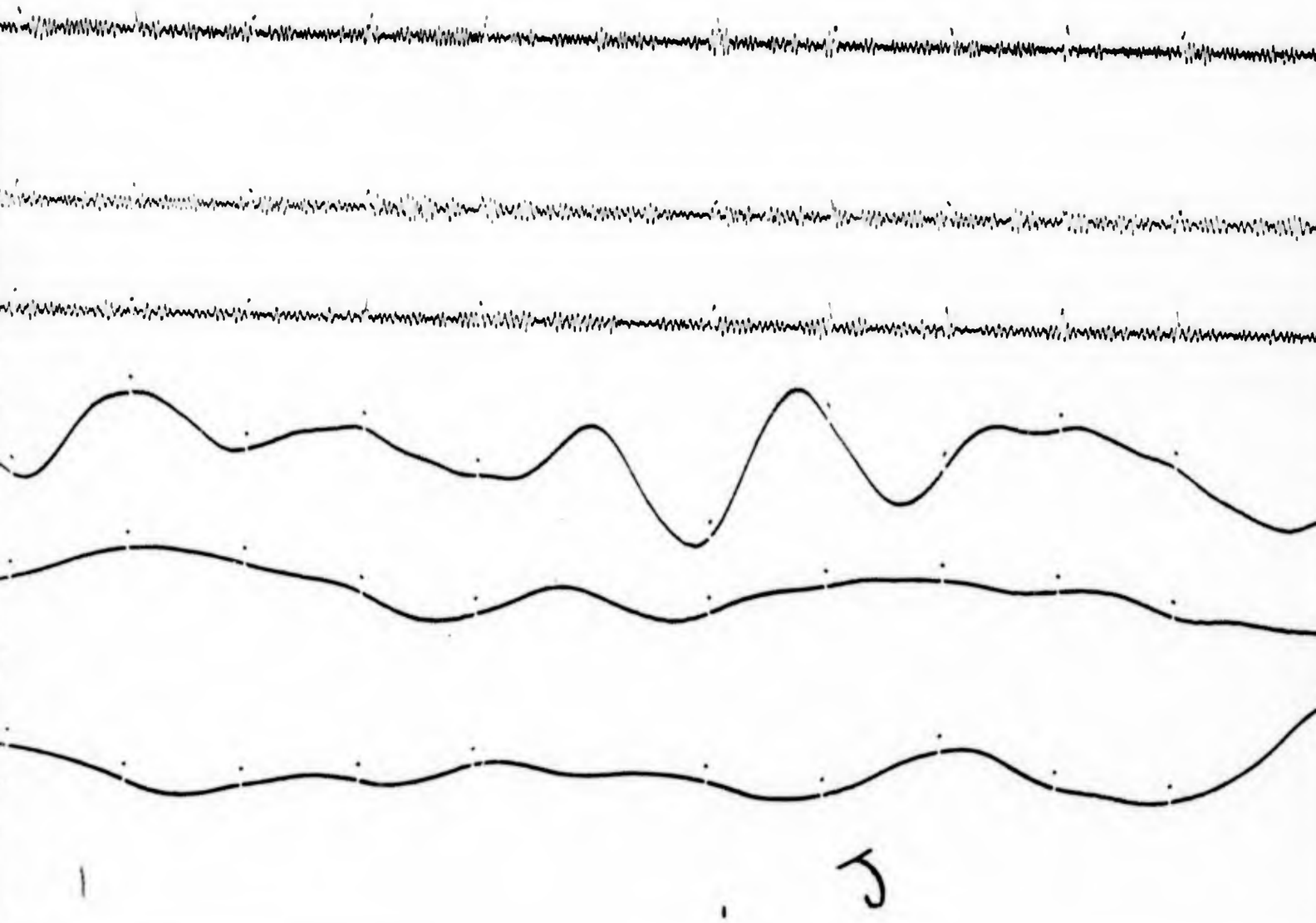
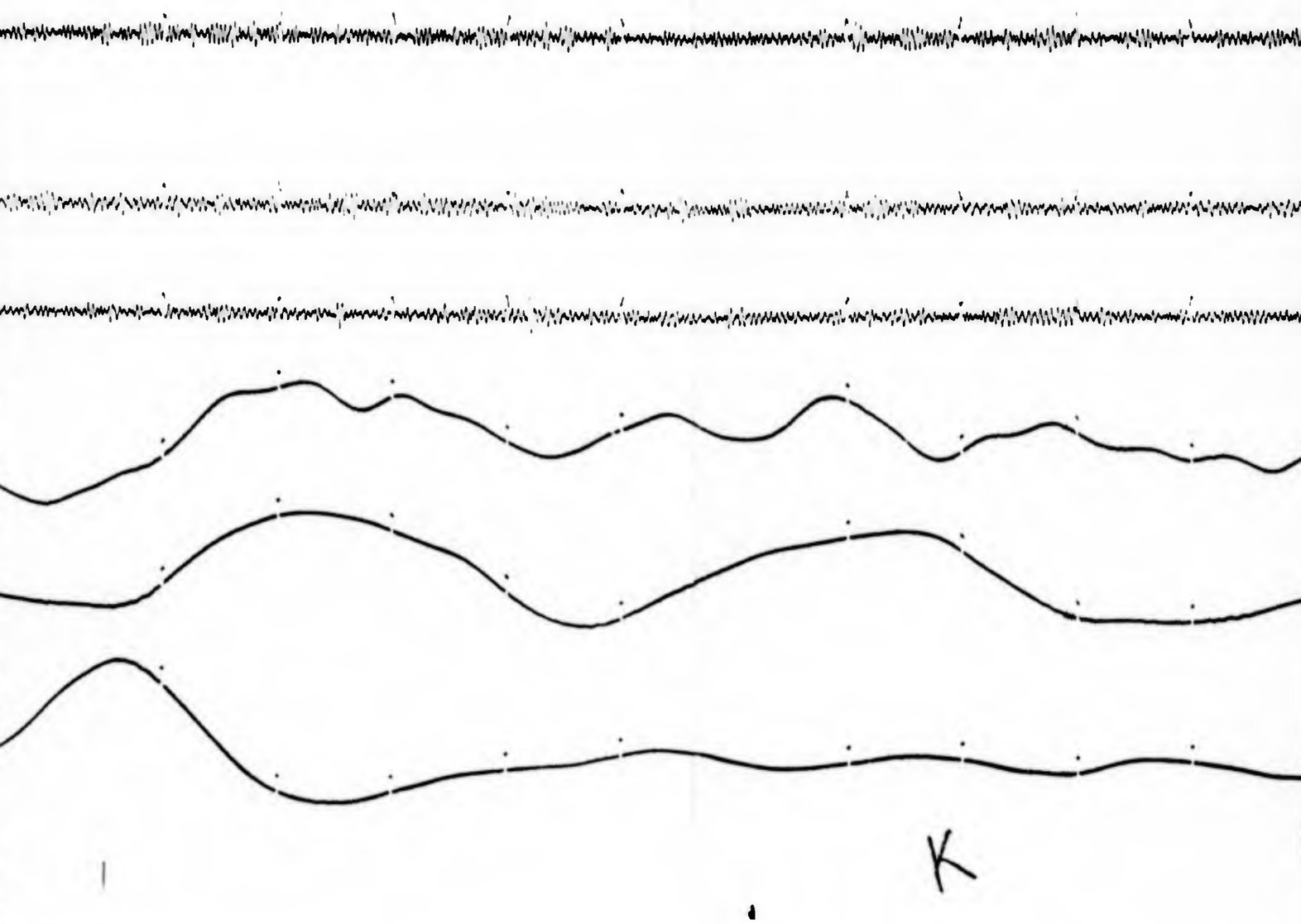

G





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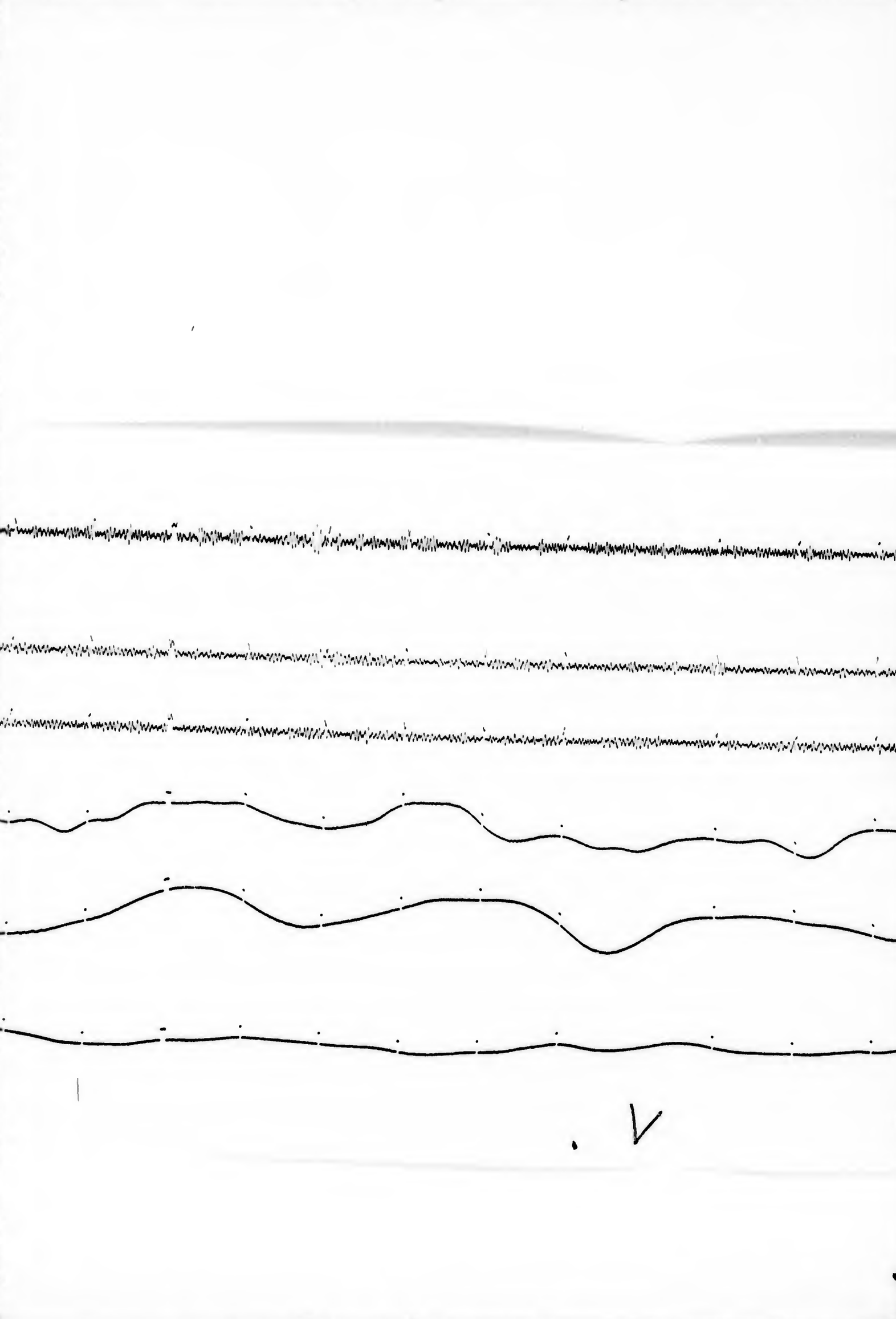
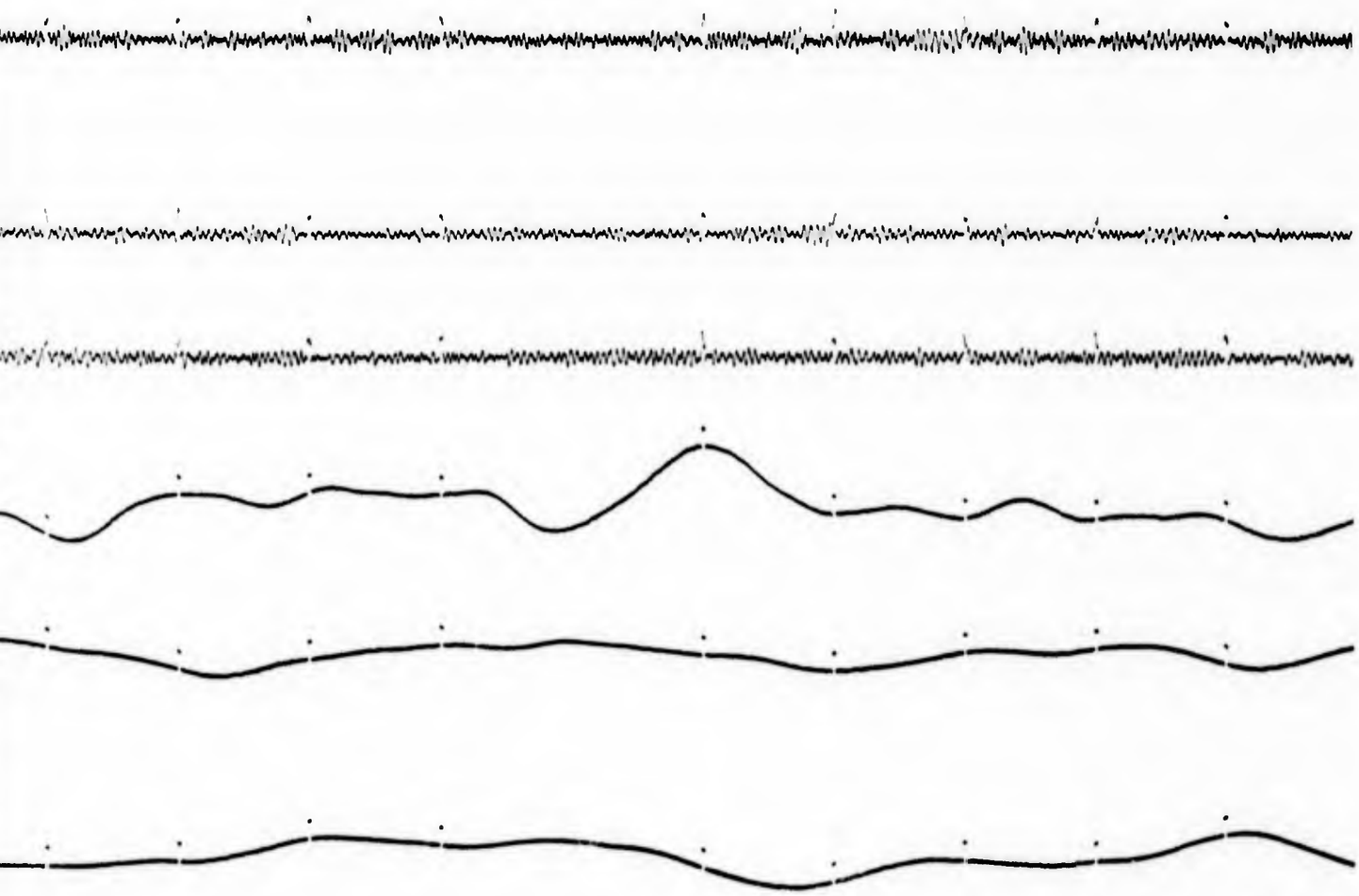




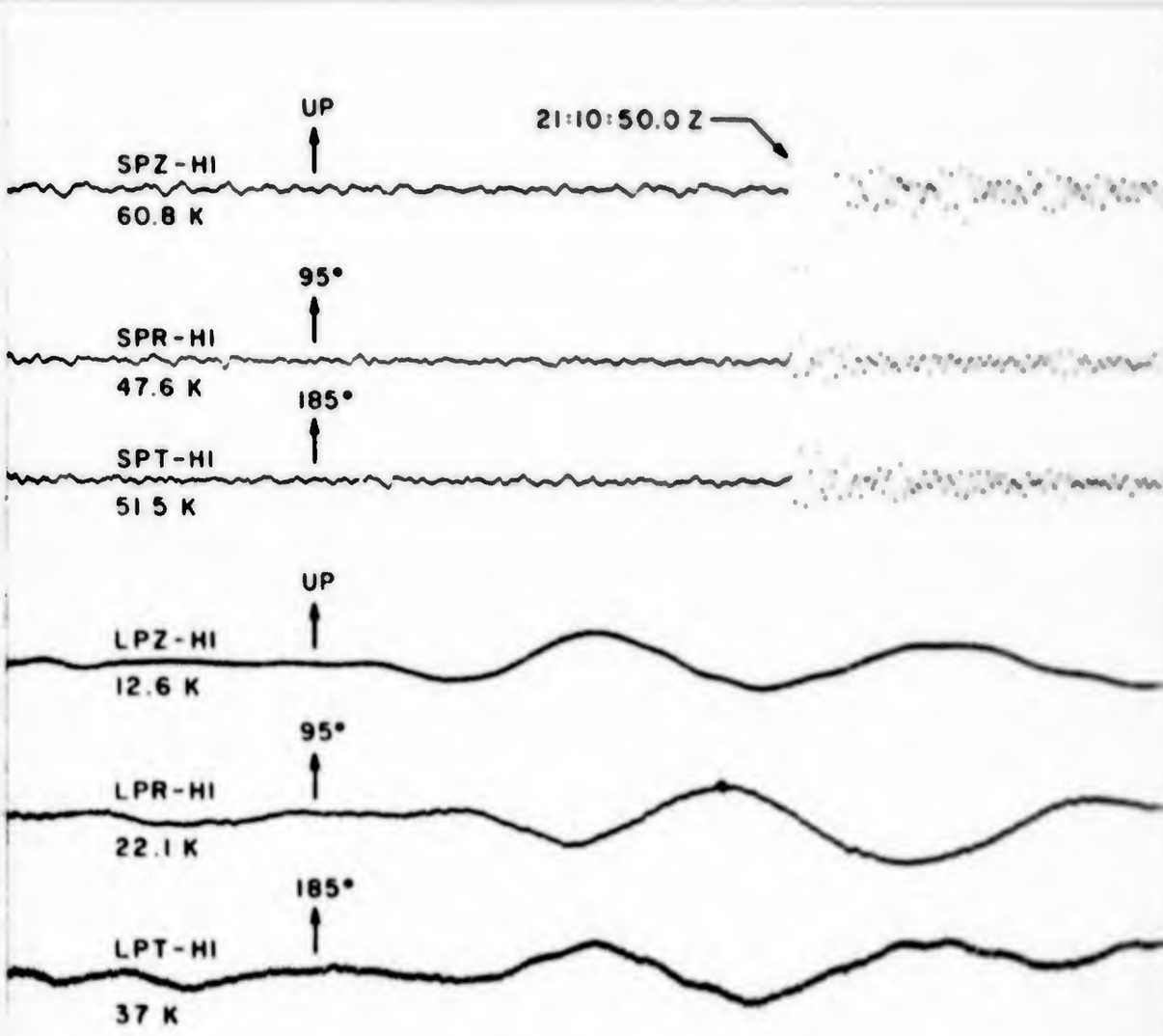
LONG SHOT

OH-NY

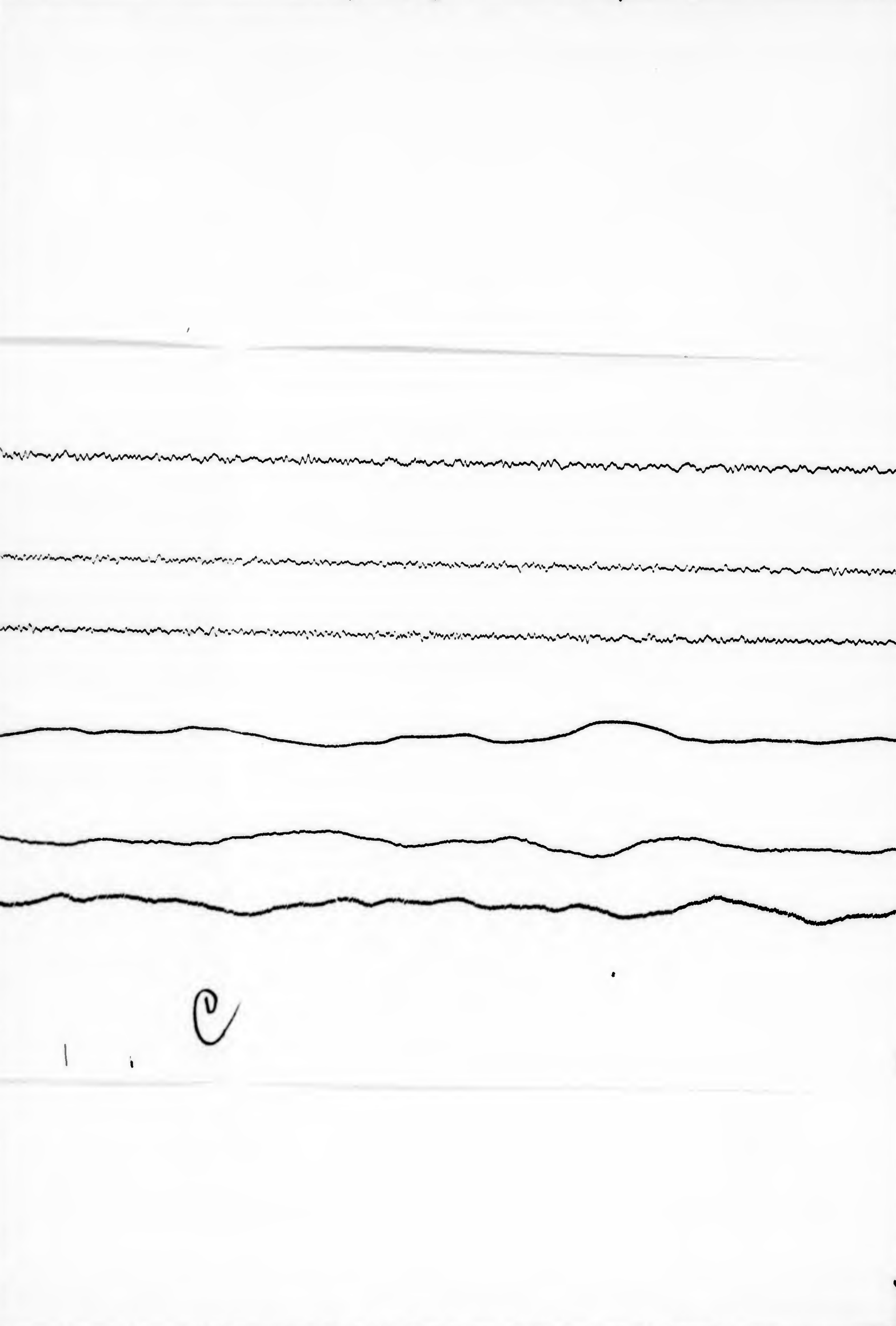
DELHI, NEW YORK

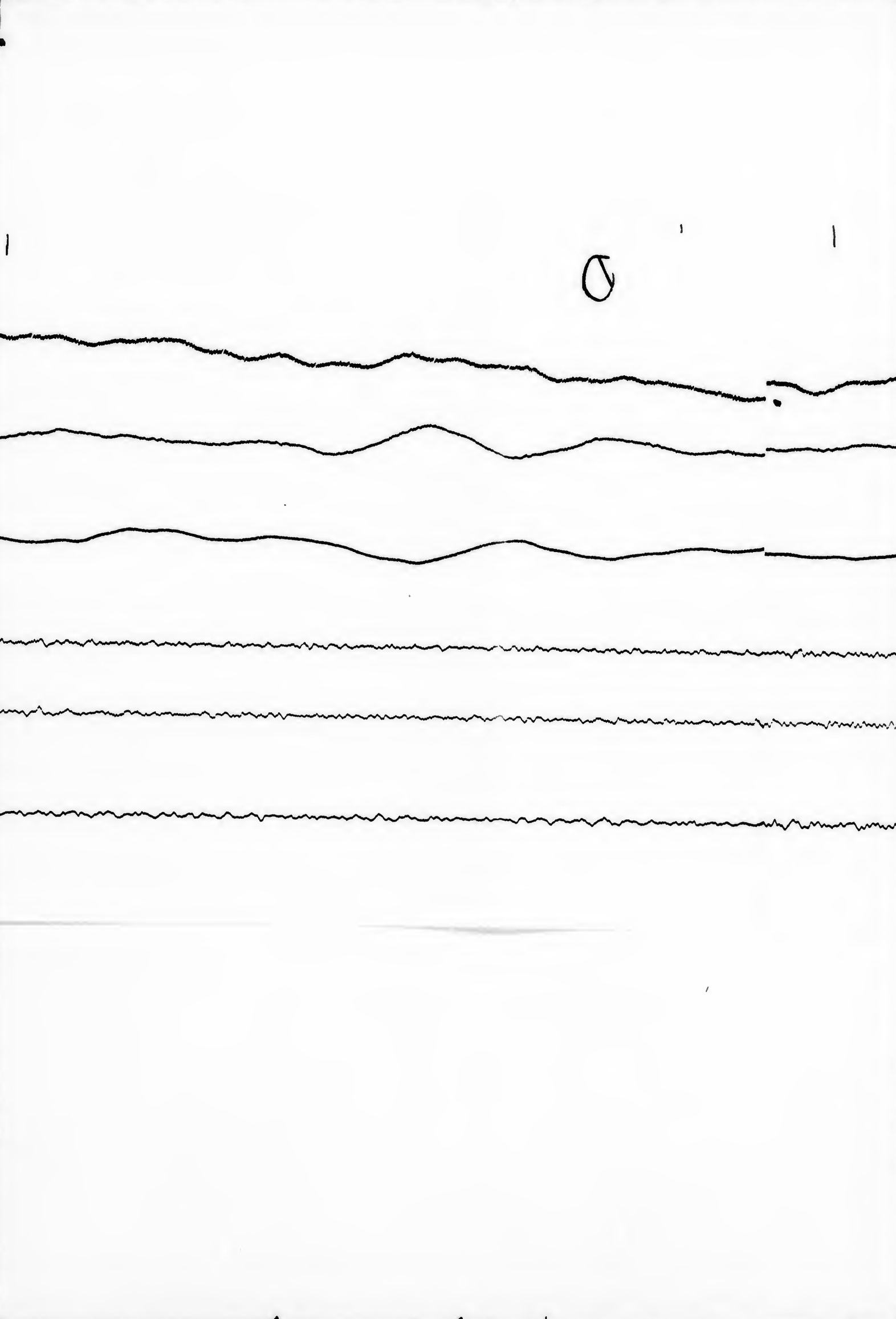
29 OCTOBER 1965

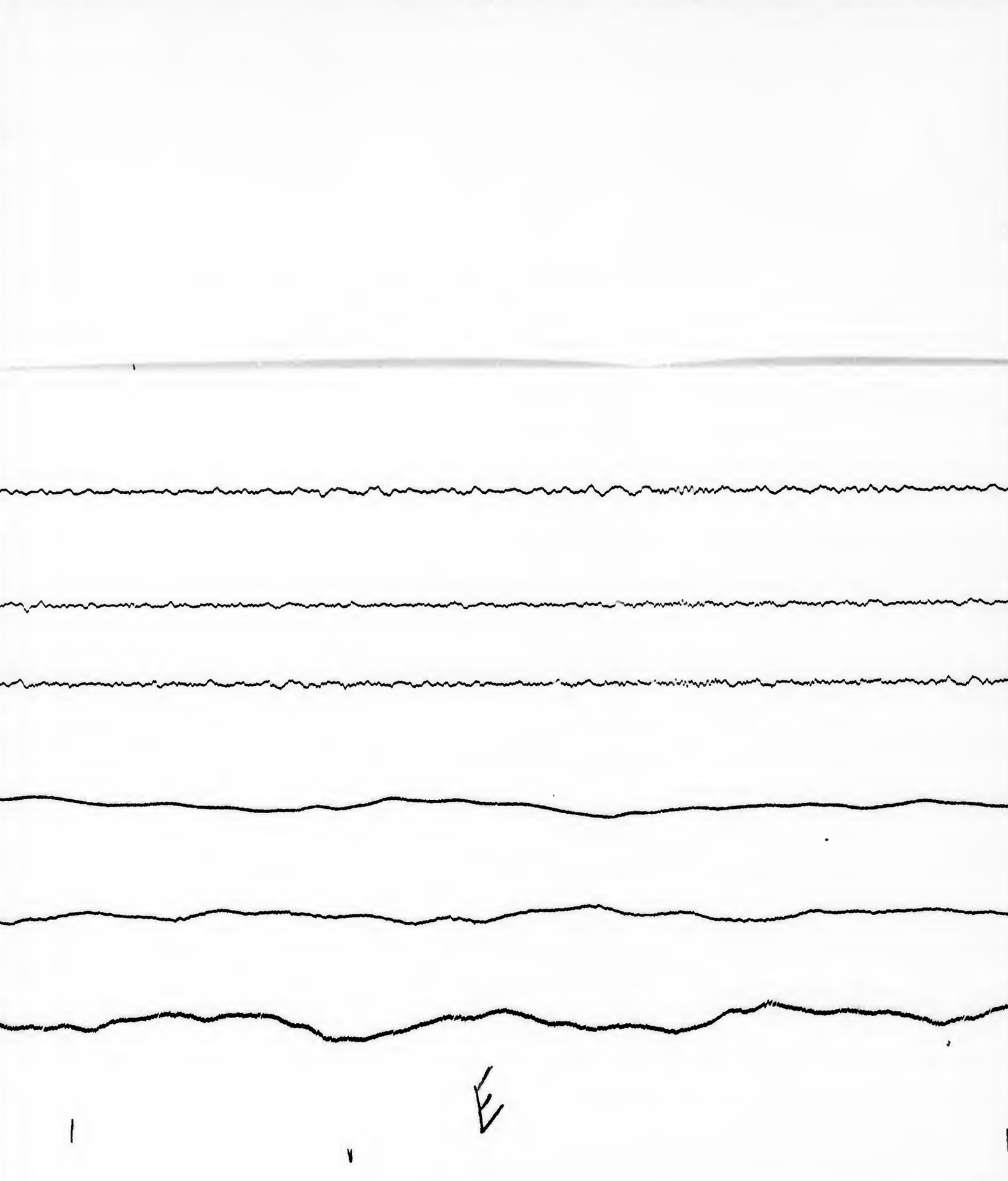
Δ=7422 Km

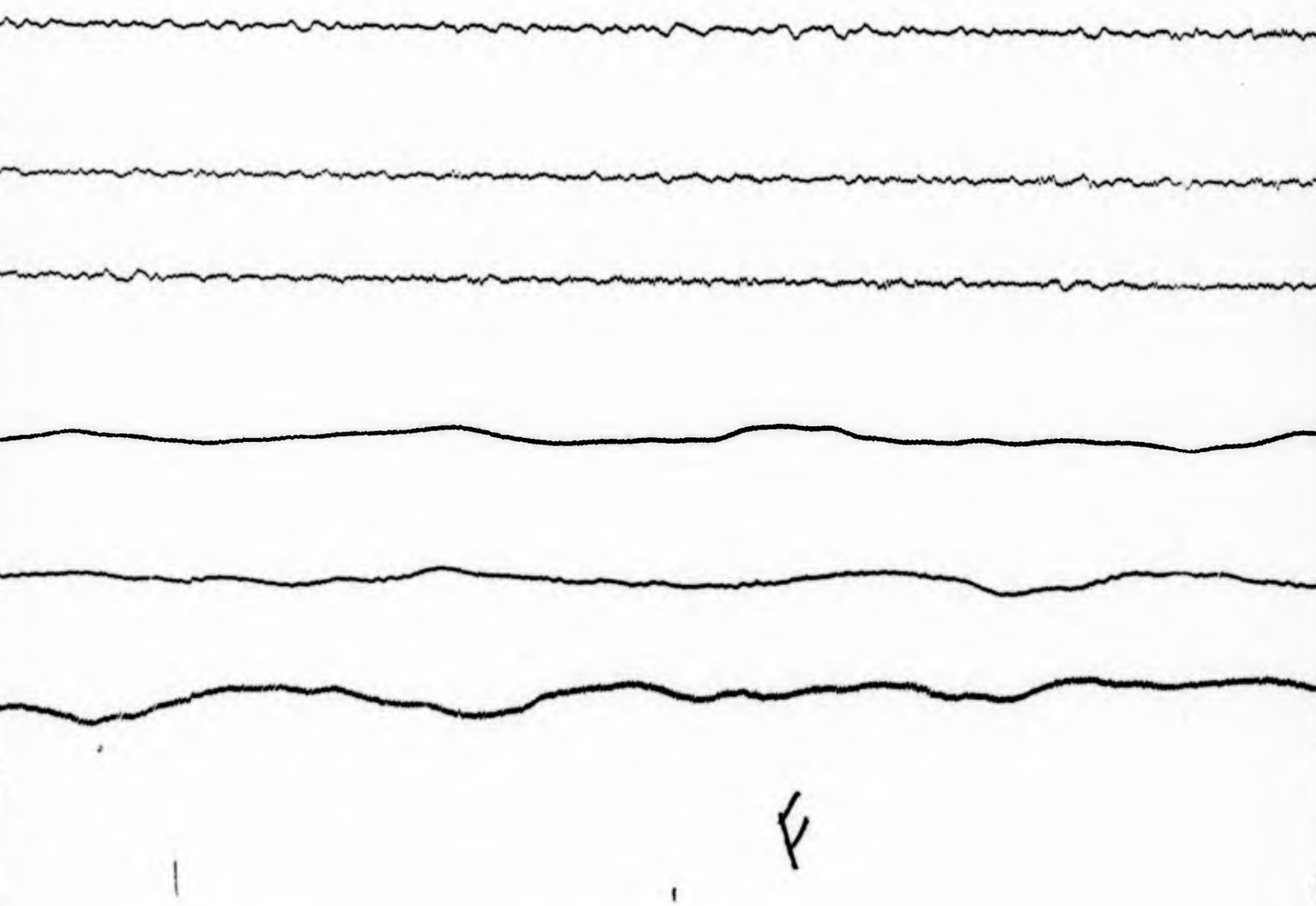


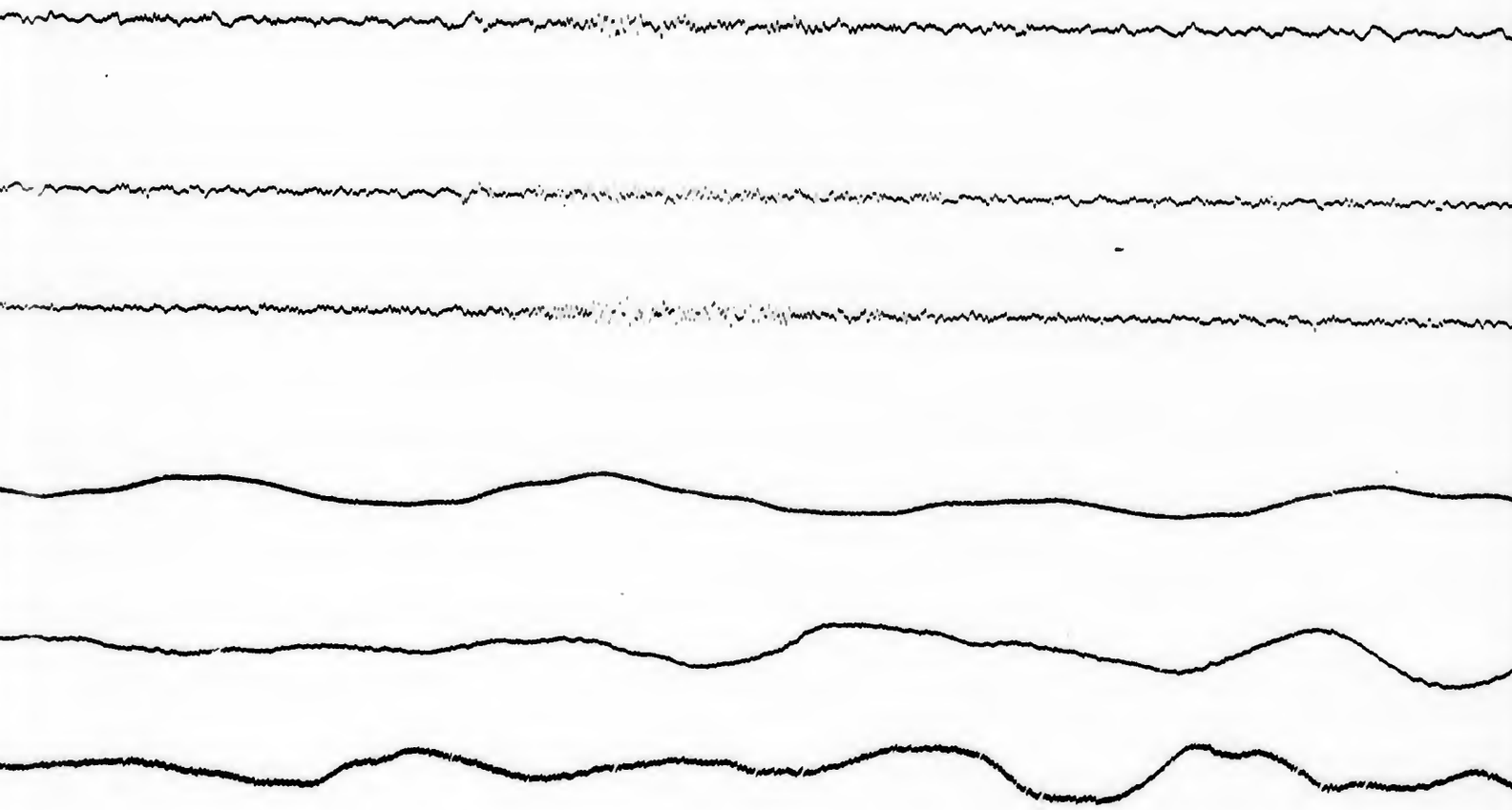
B






E

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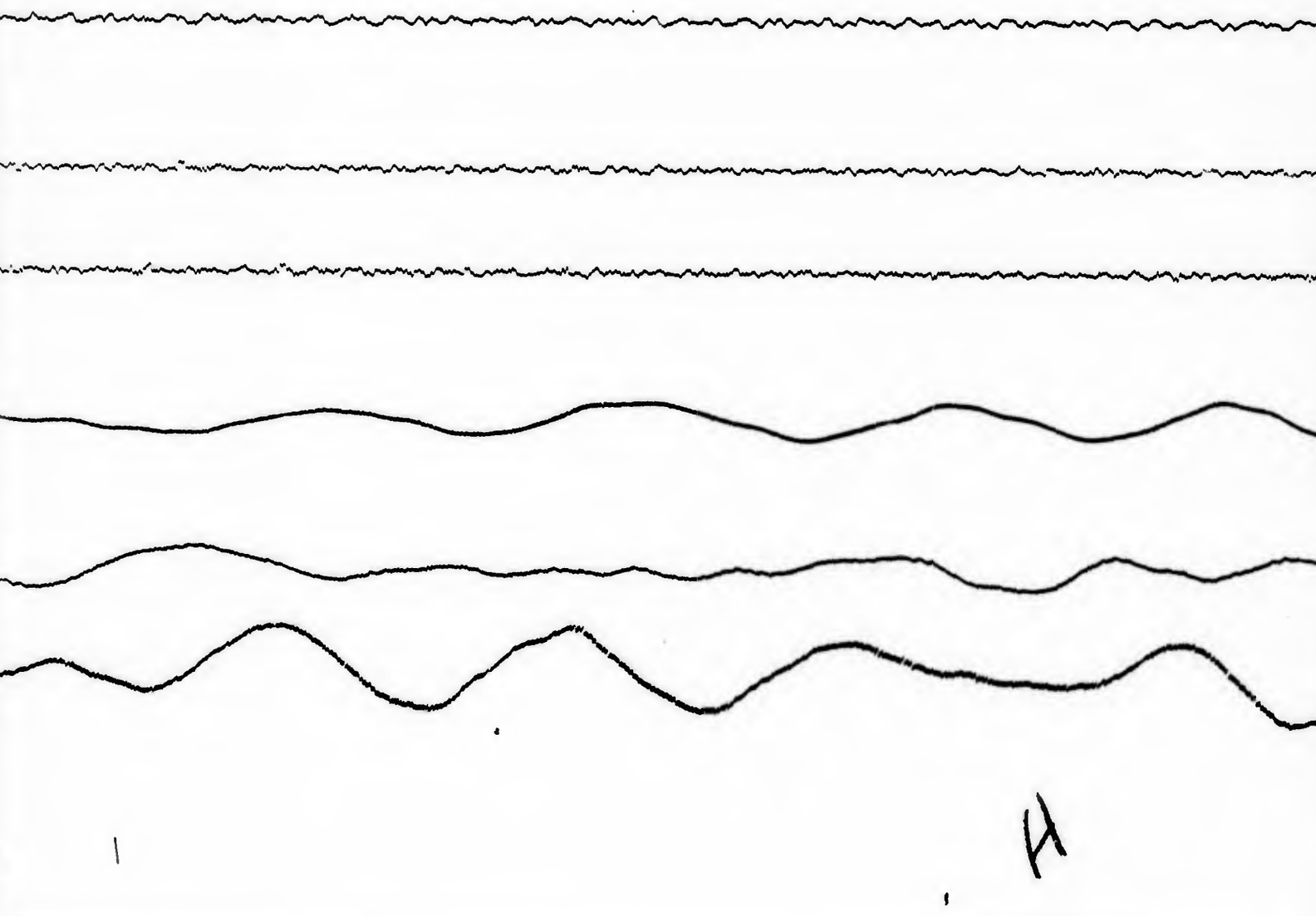

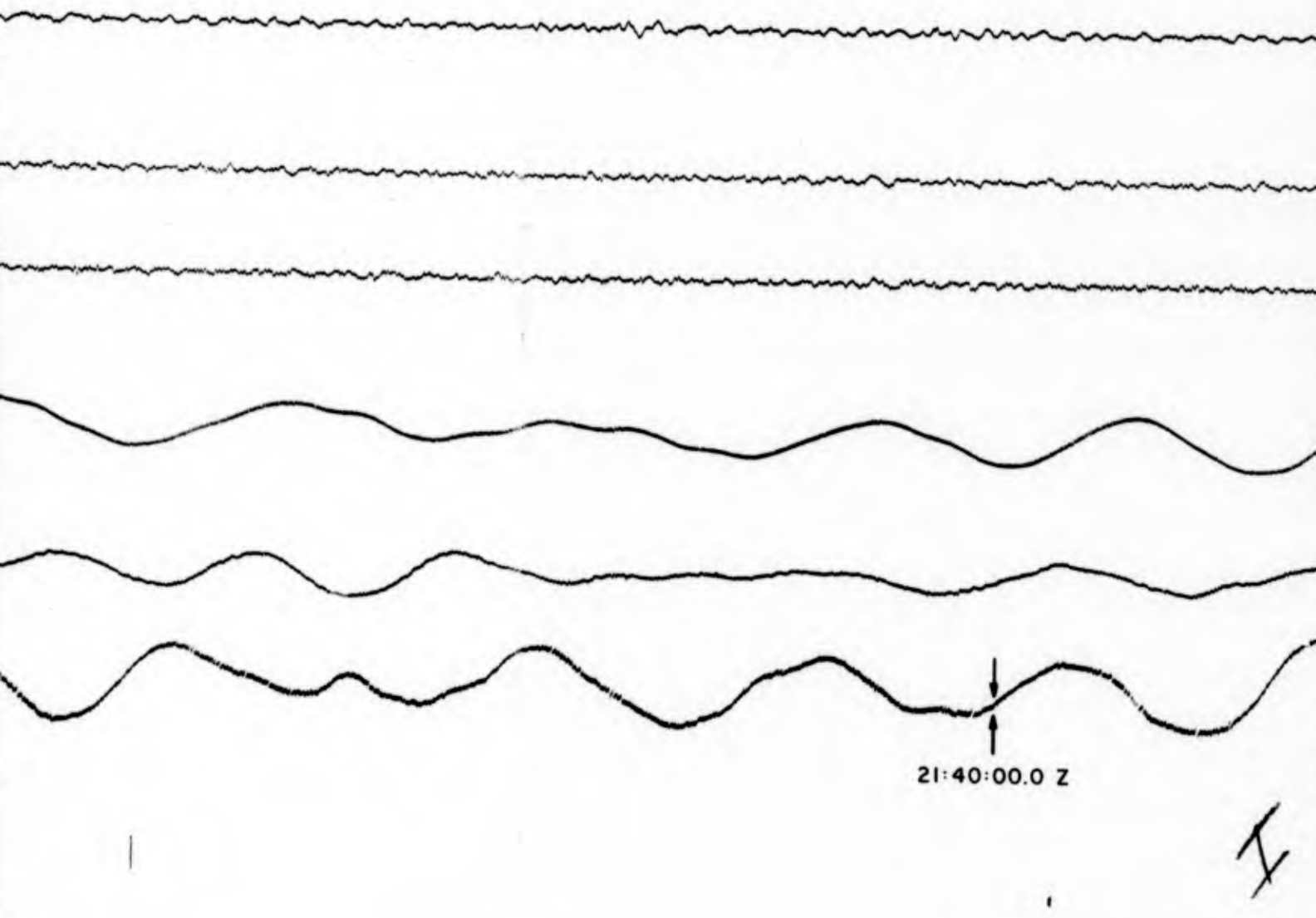
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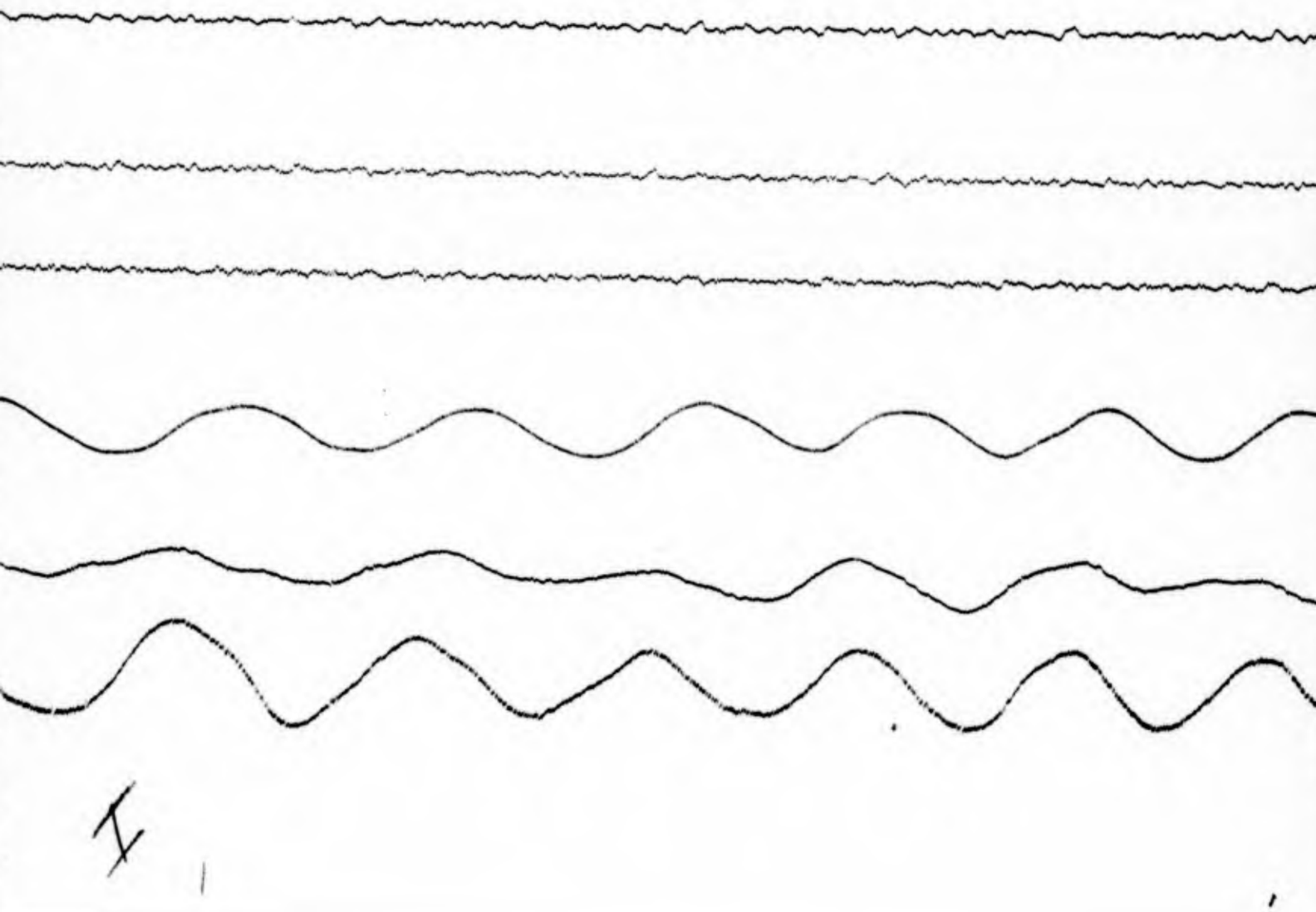
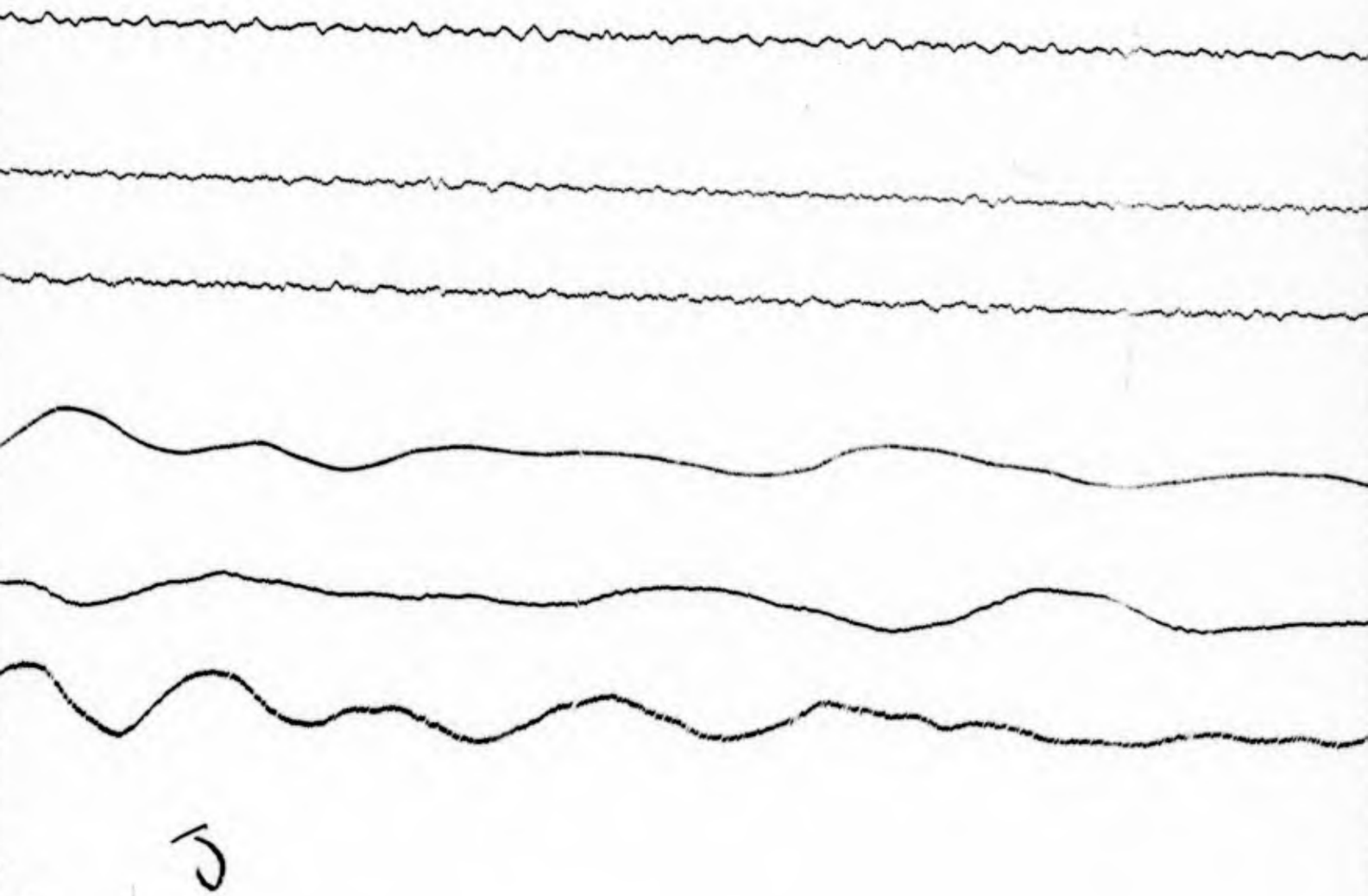
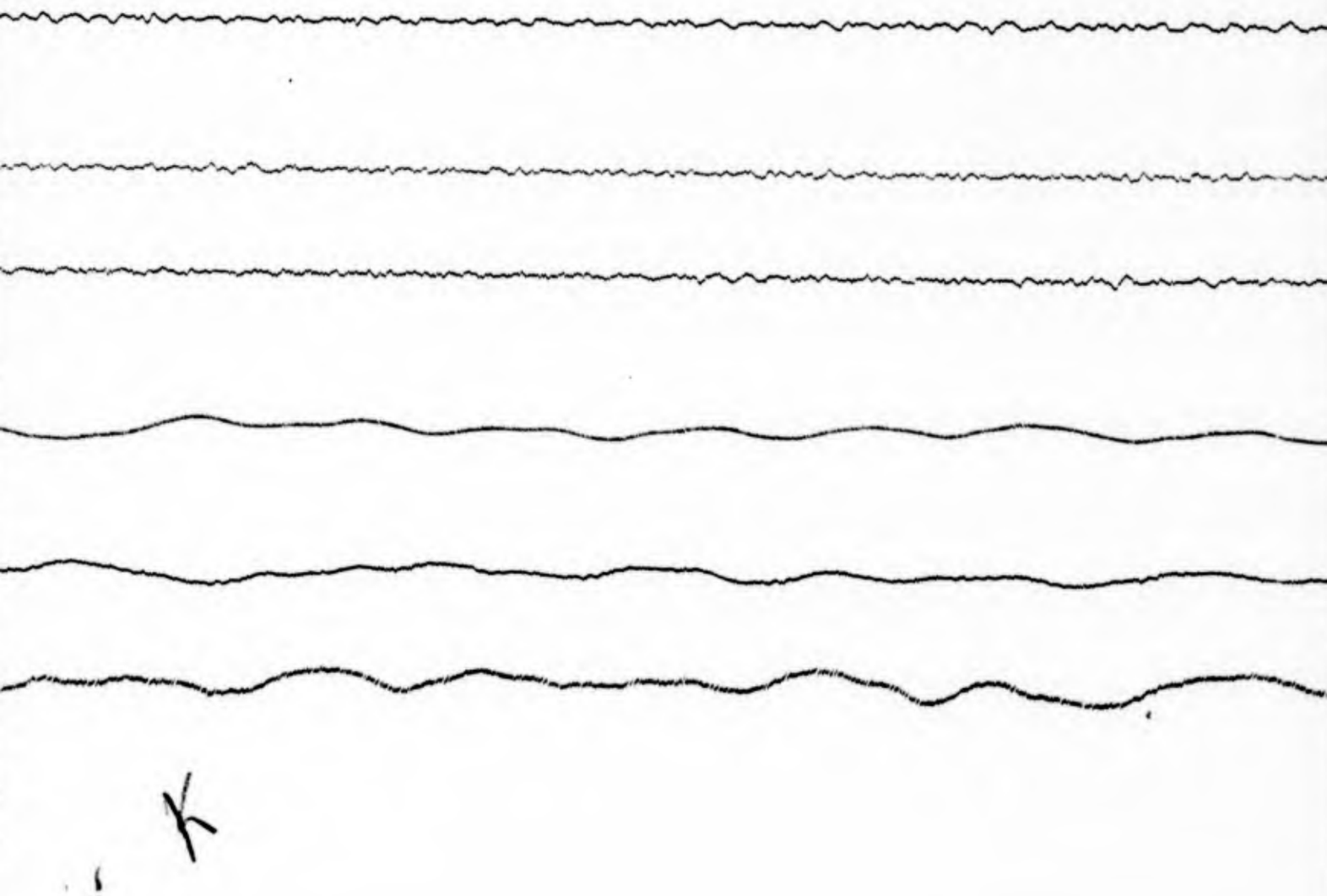
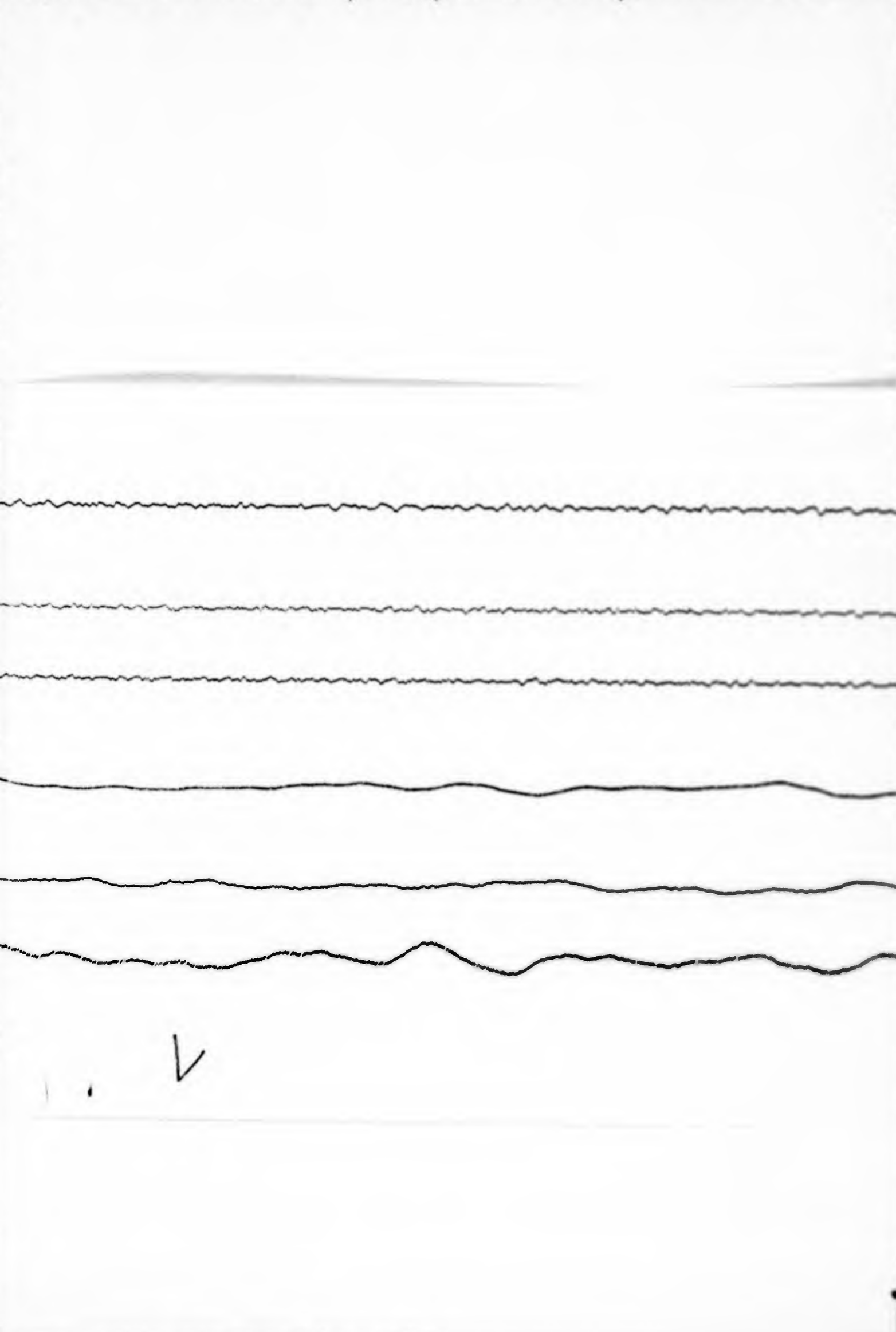
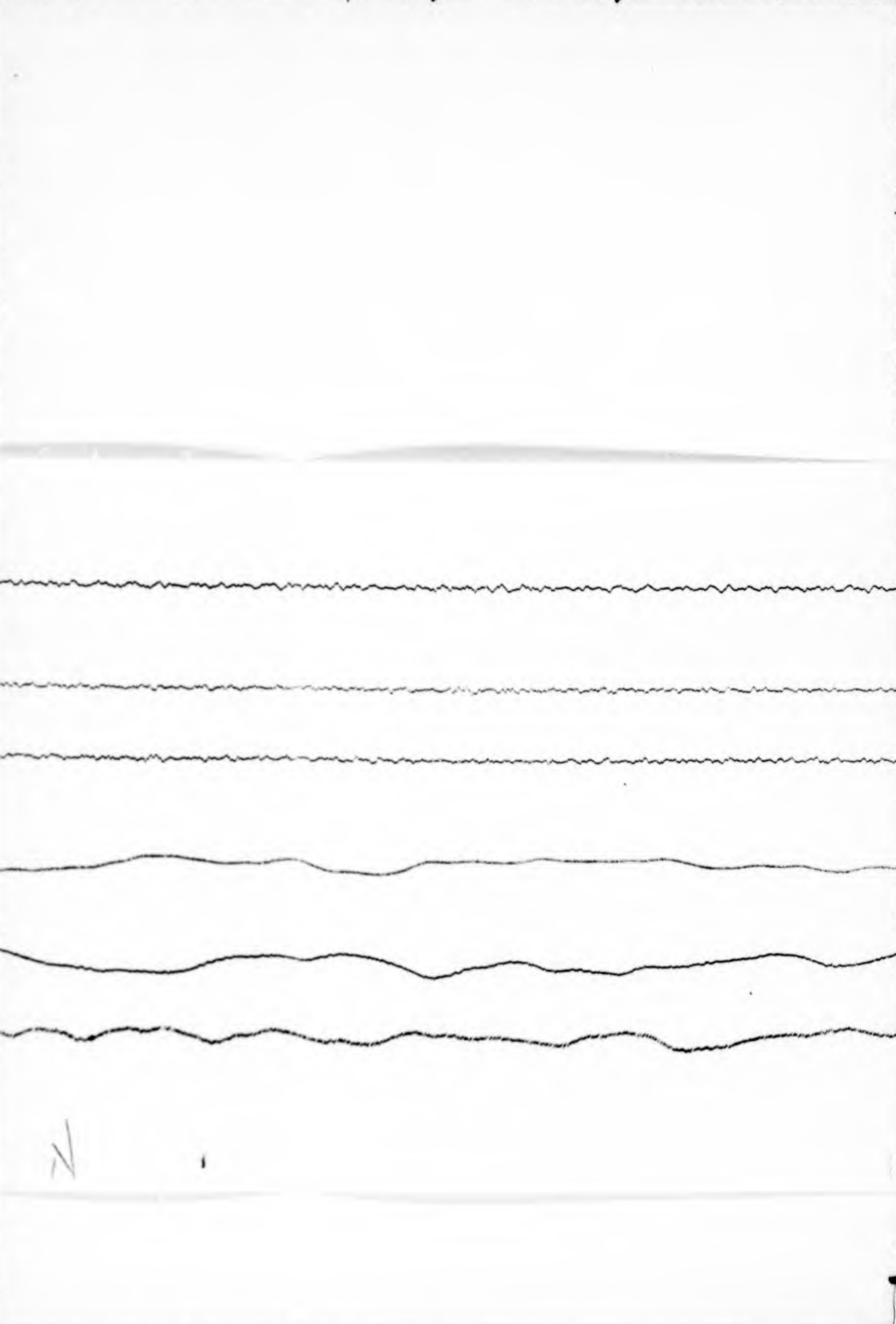
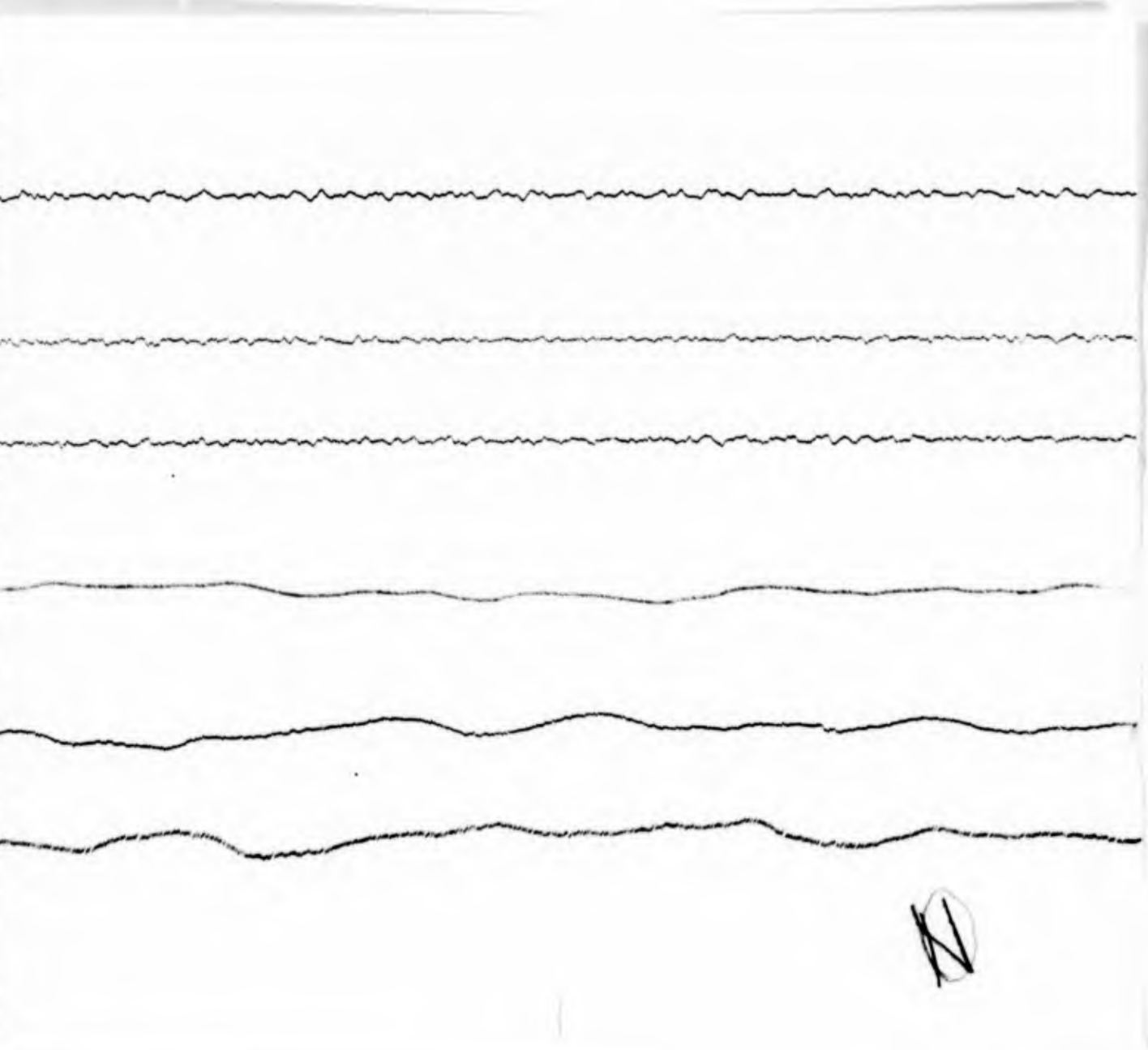












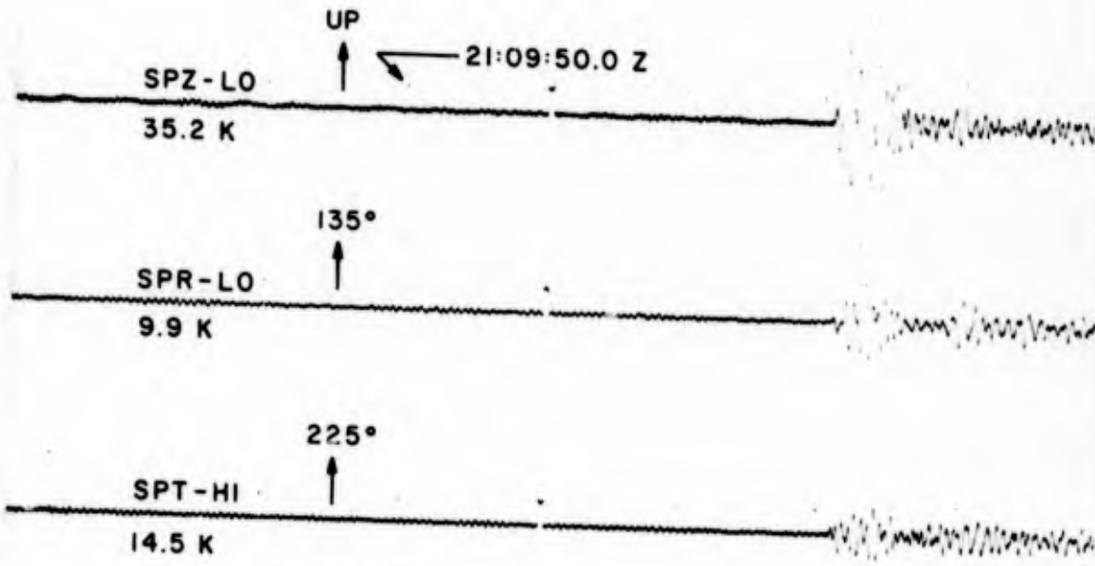
LONG SHOT

EN-MO

ELLSINORE,
MISSOURI

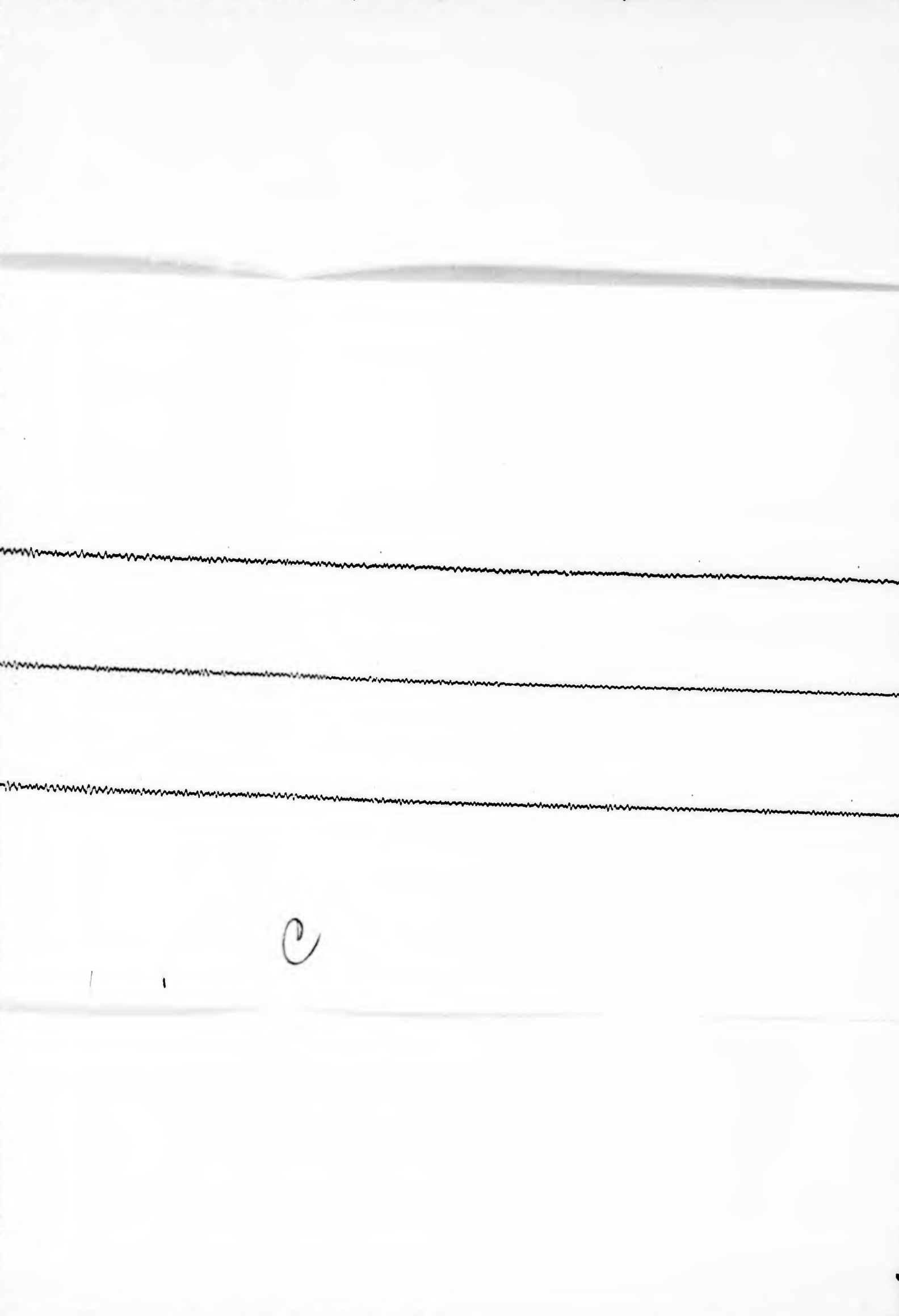
29 OCTOBER 1965

Δ=6933 Km



NOTE: NO LP INSTRUMENTS

B



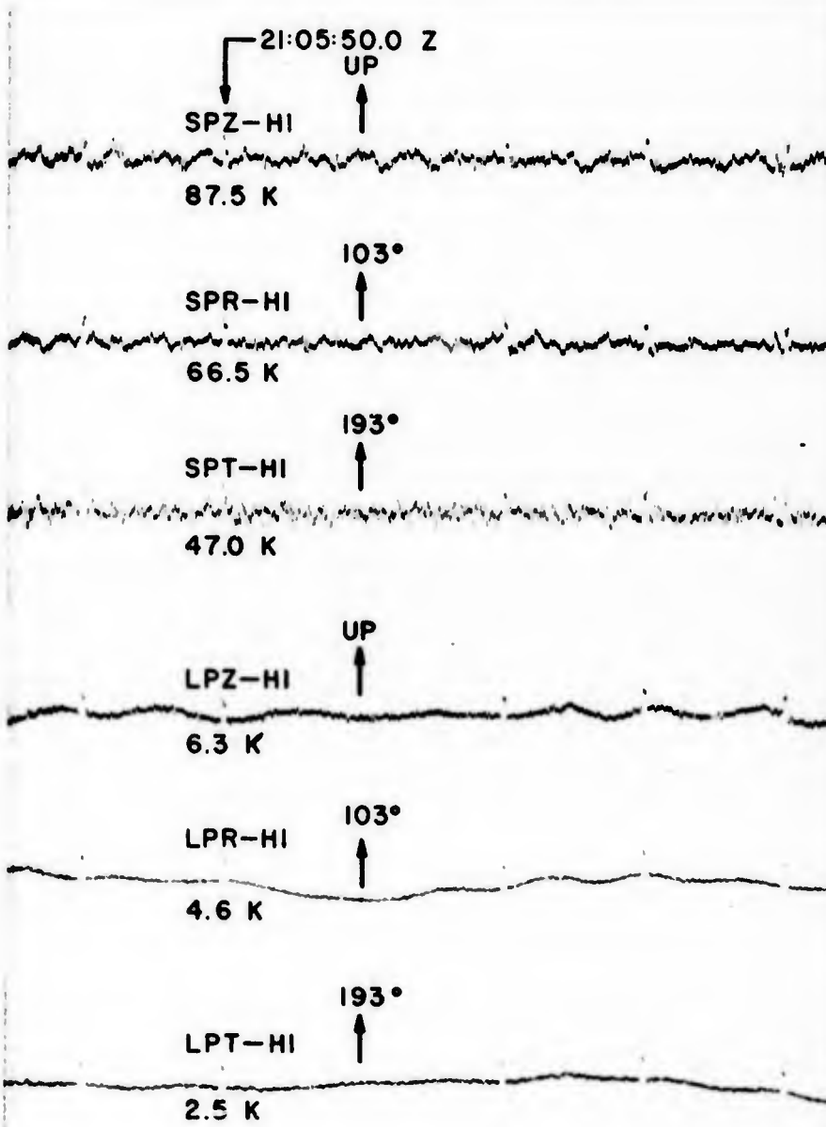
LONG SHOT

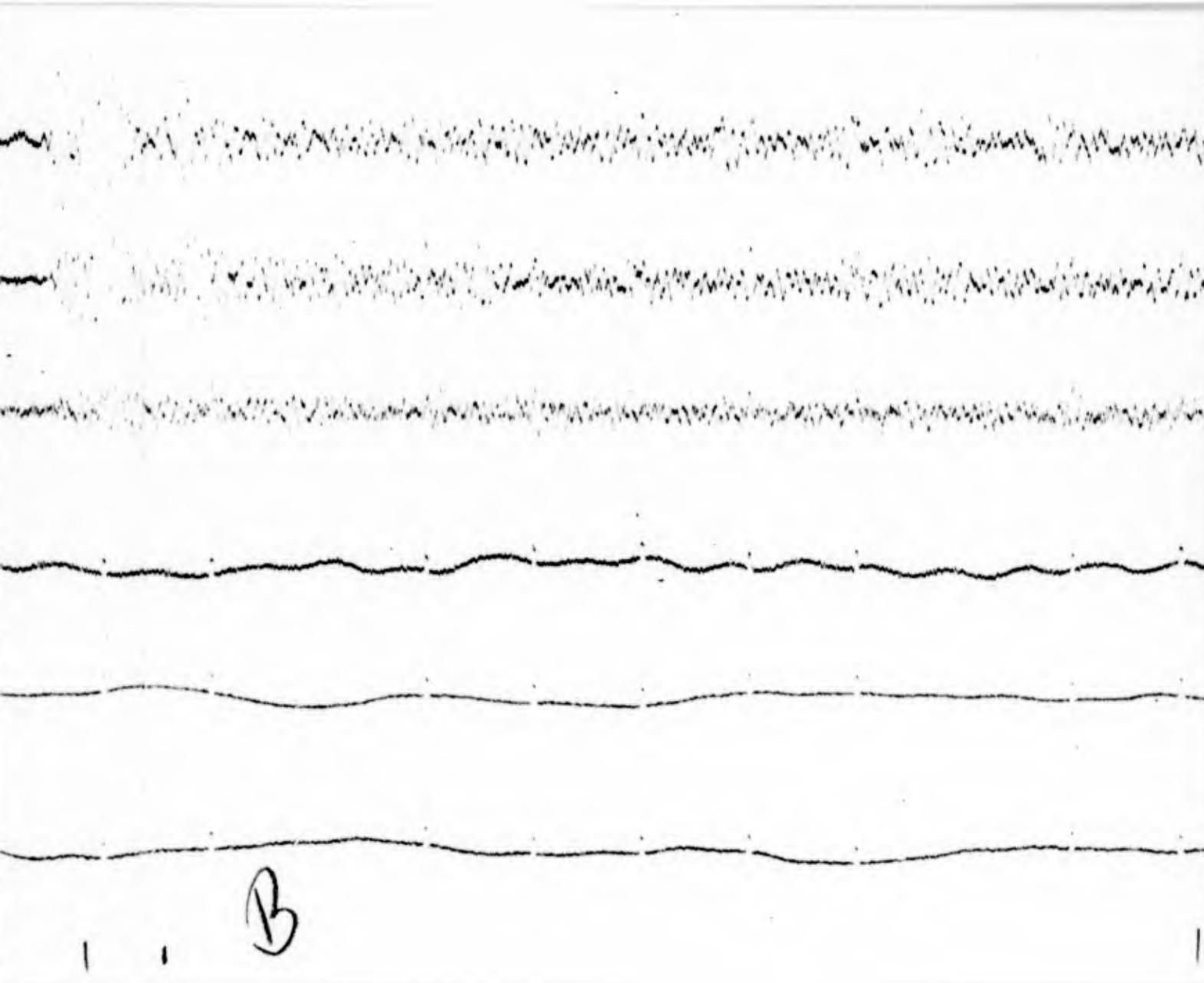
FL-BC

FORT NELSON, BRITISH COLUMBIA, CANADA

29 OCTOBER 1965

Δ=3668 Km

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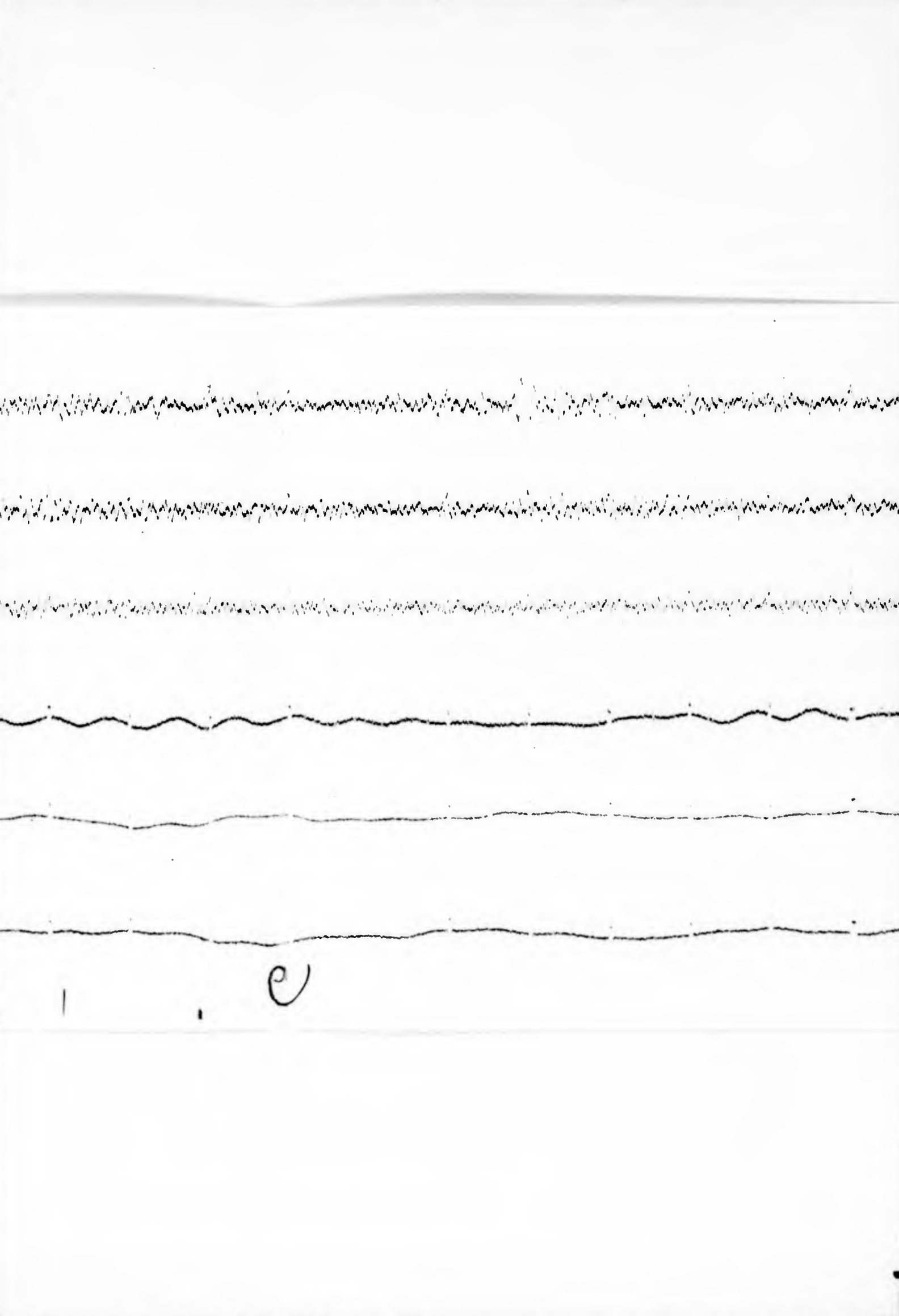

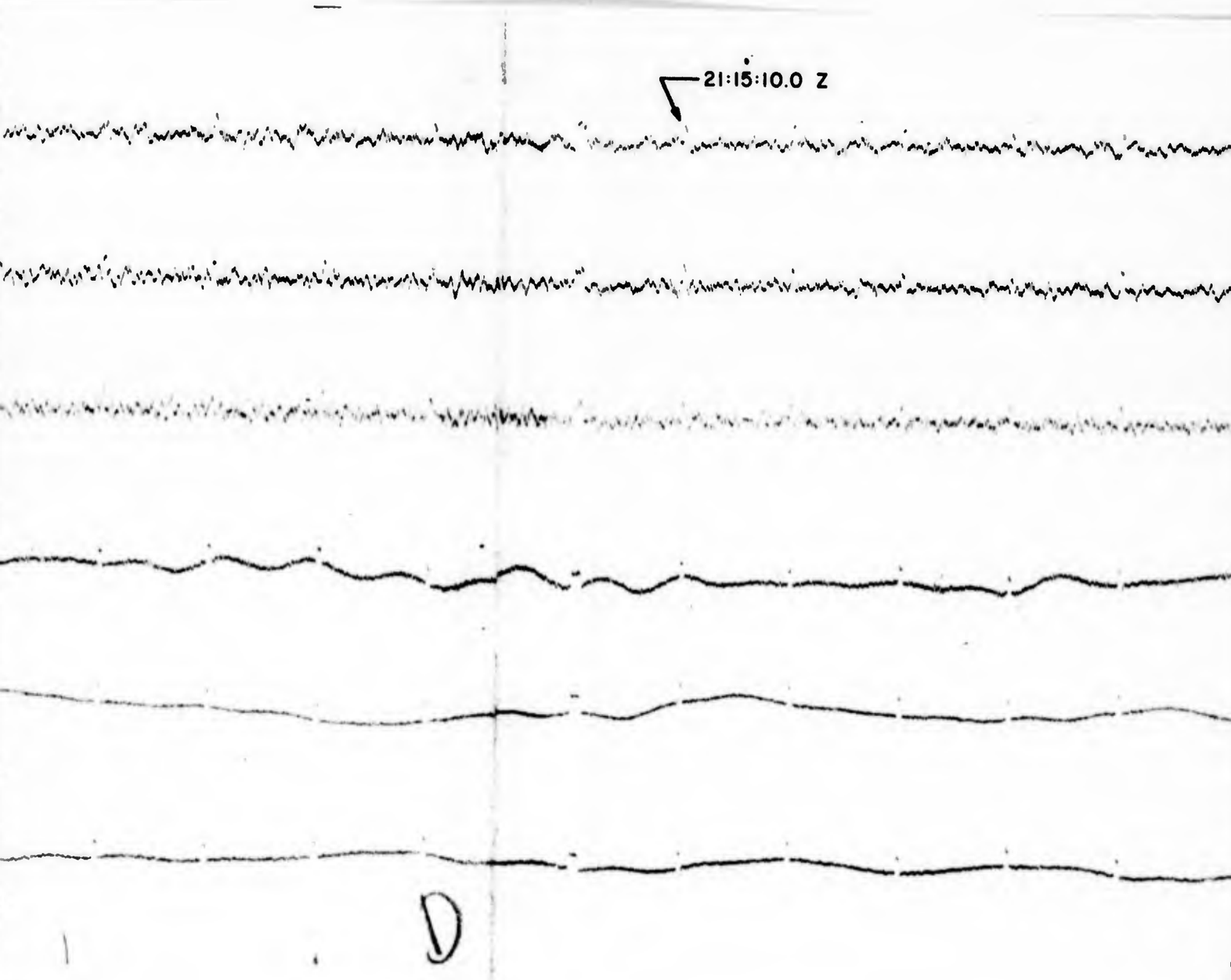
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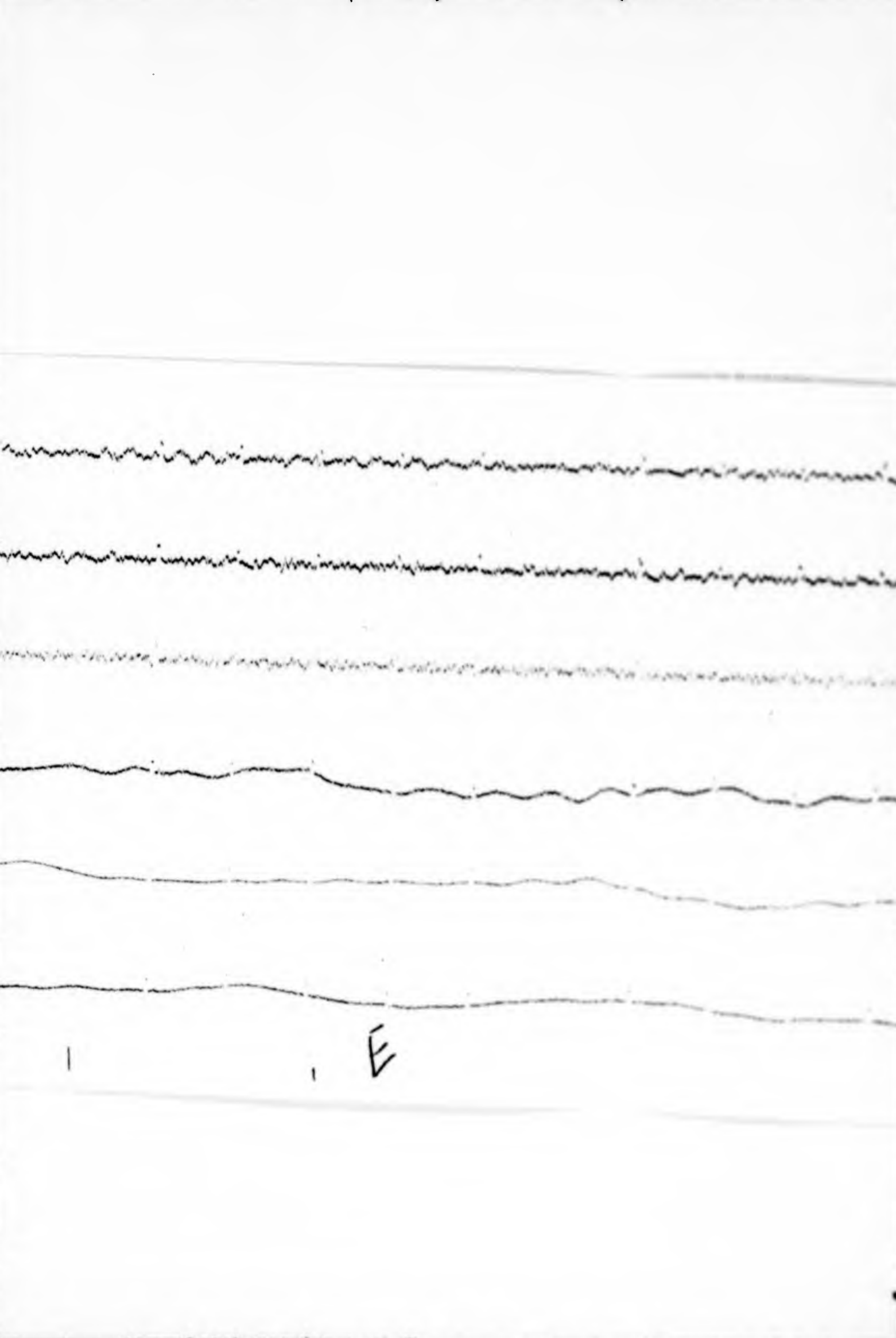
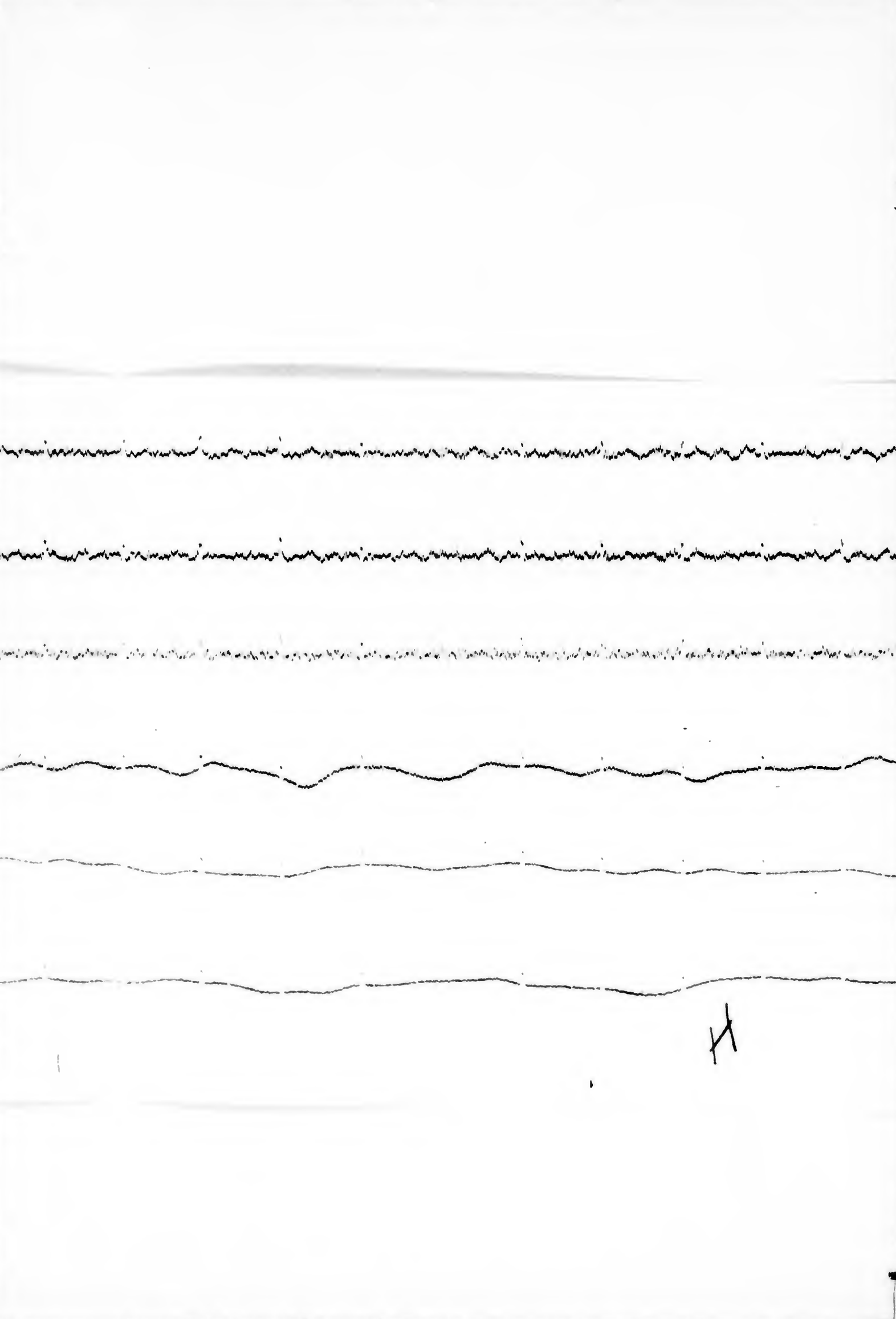
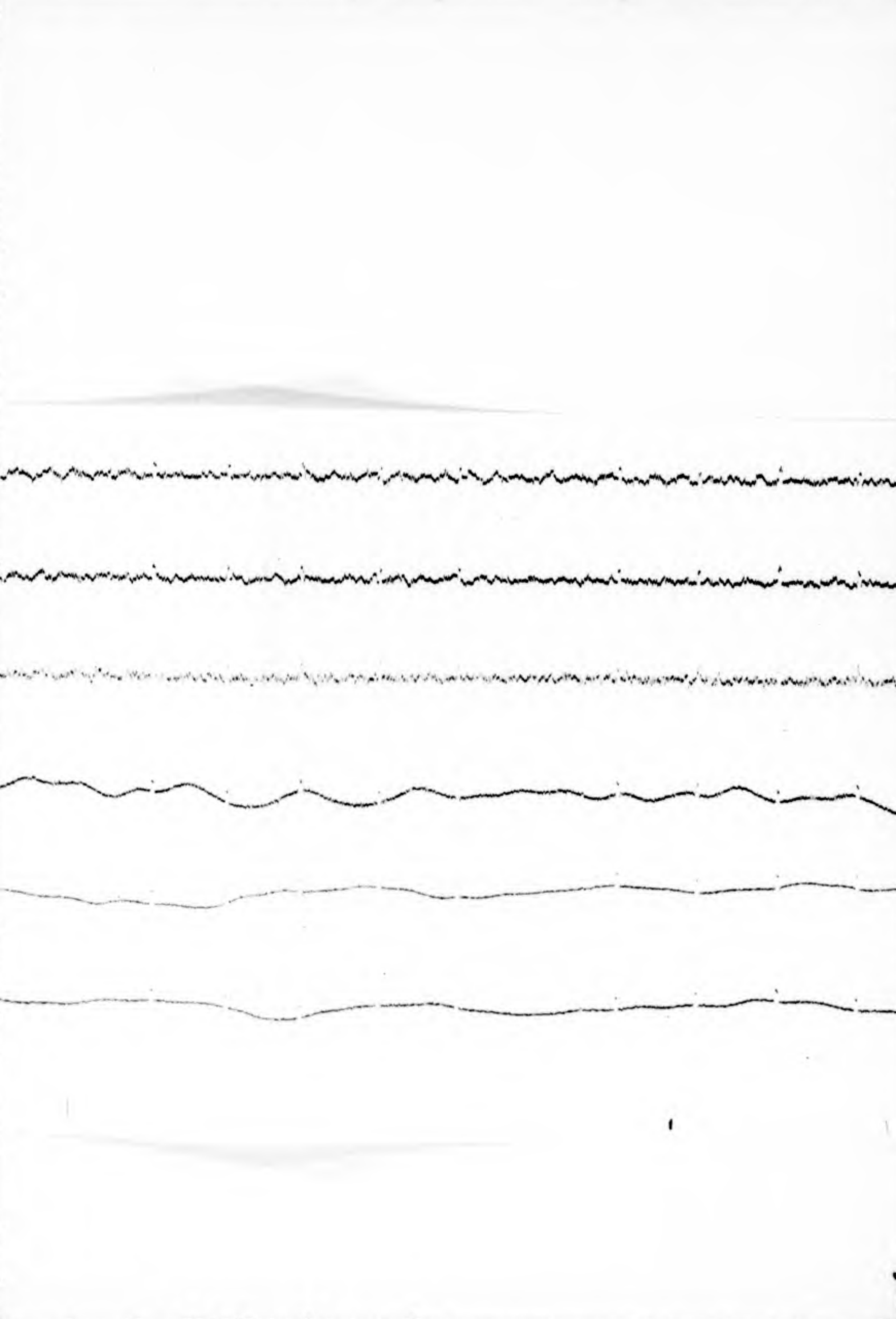
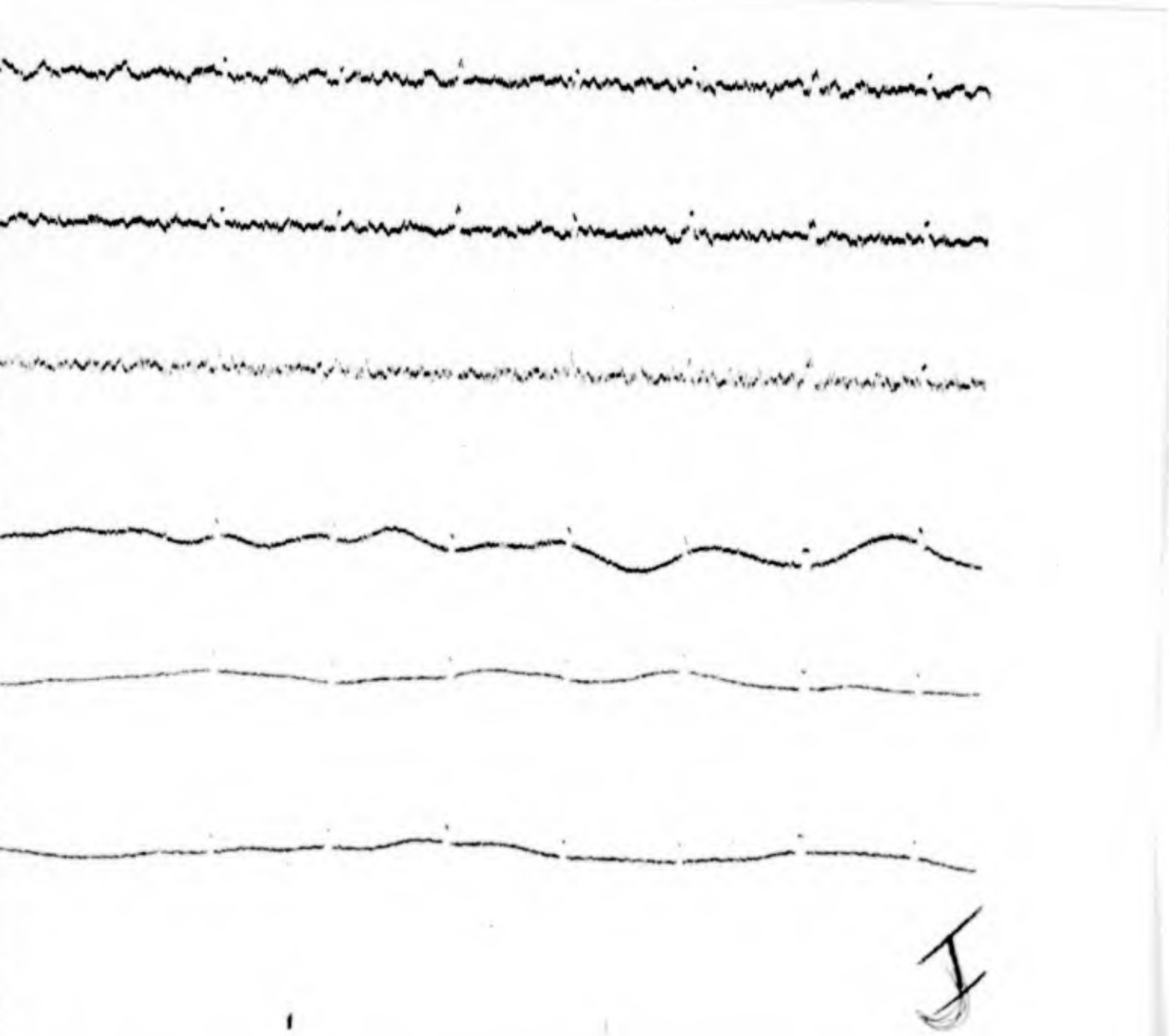
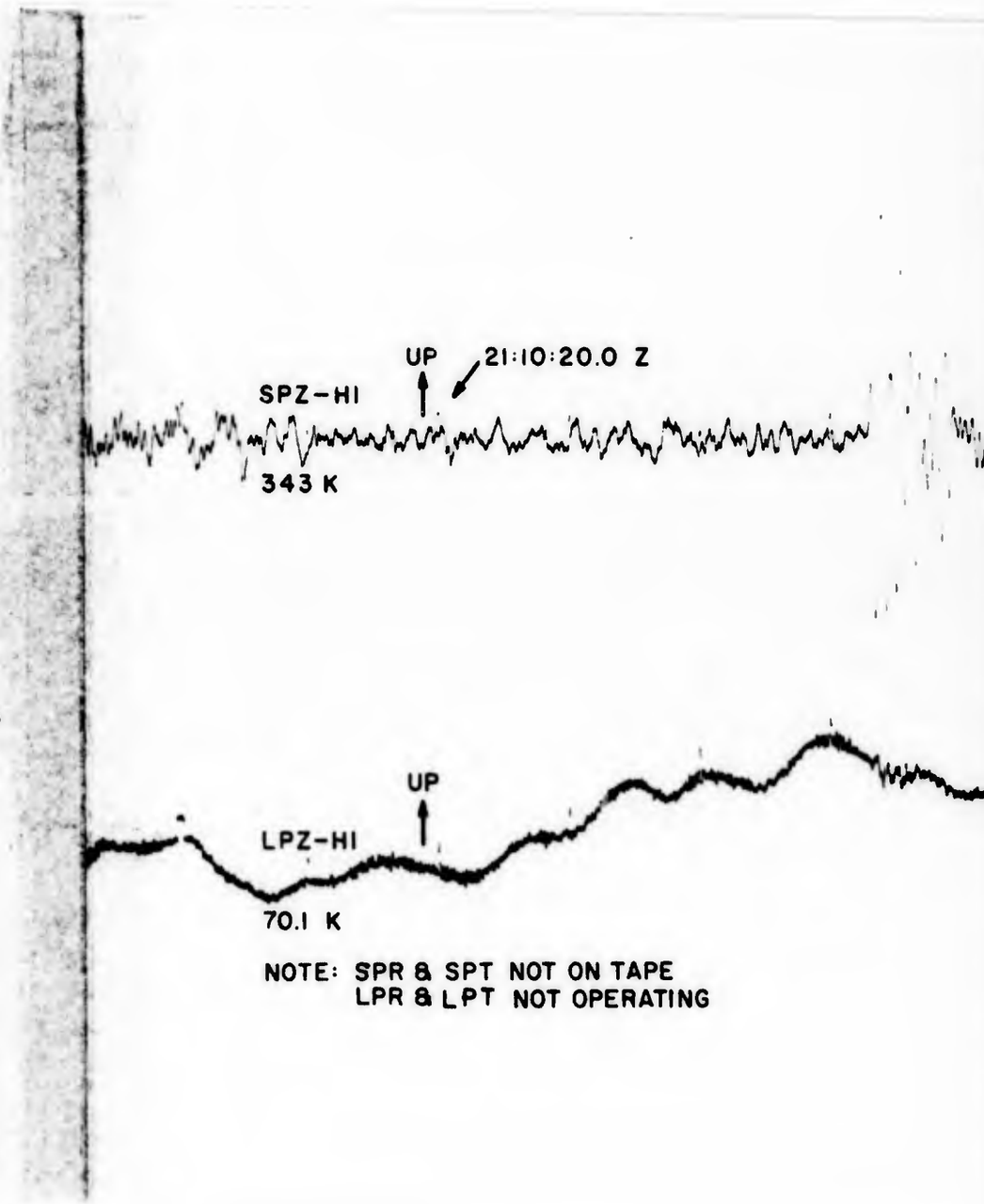










LONG SHOT

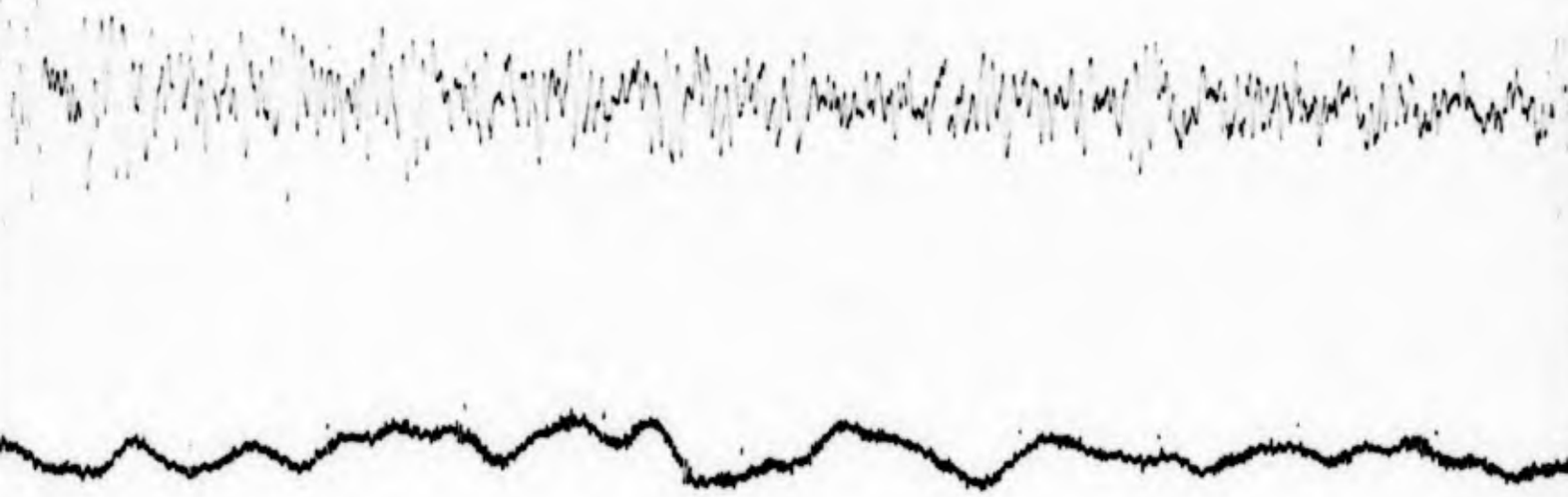
FN-WV

FRANKLIN, WEST VIRGINIA

29 OCTOBER 1965

Δ=7470 Km

NOTE: SPR & SPT NOT ON TAPE
LPR & LPT NOT OPERATING



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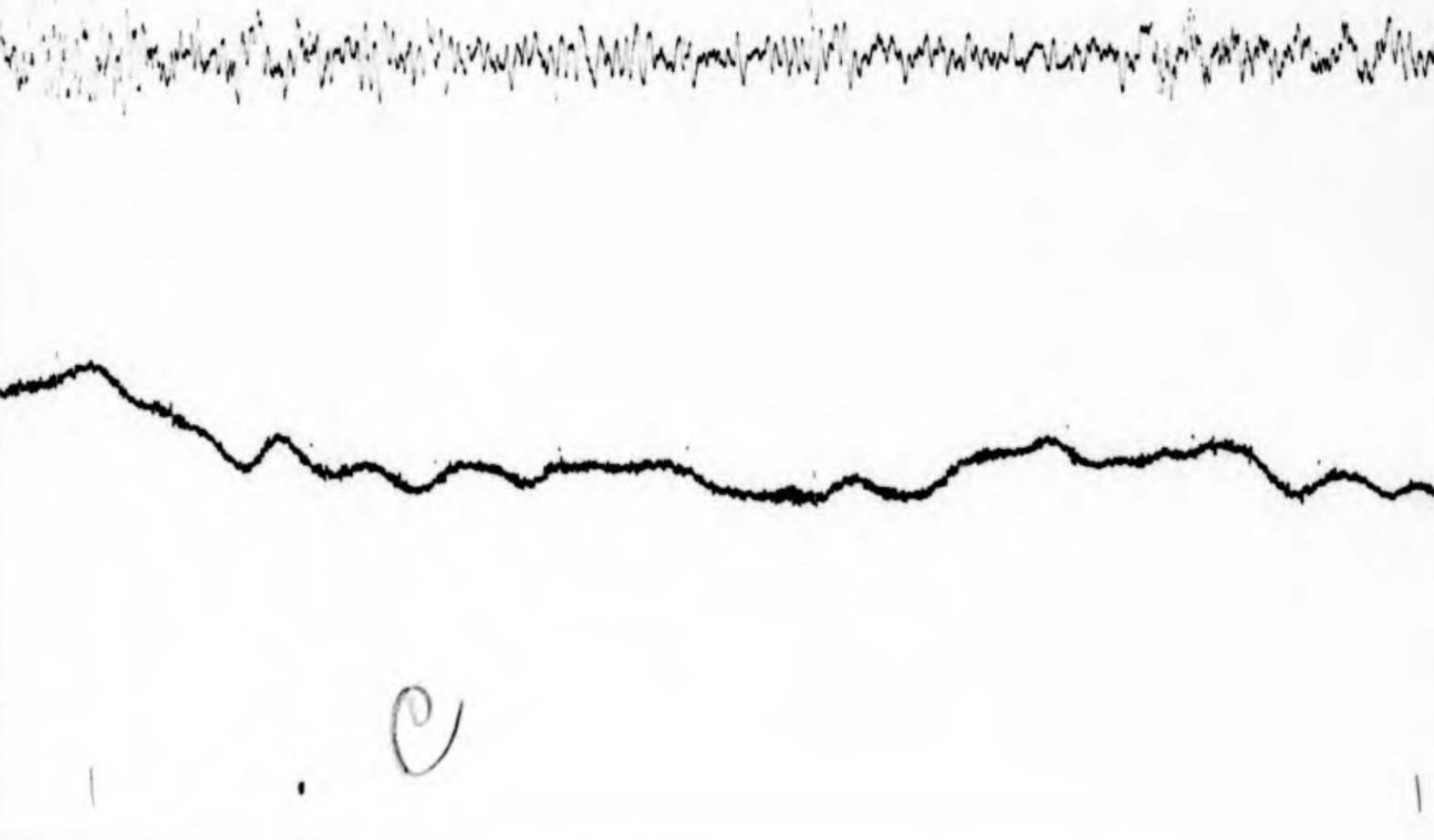

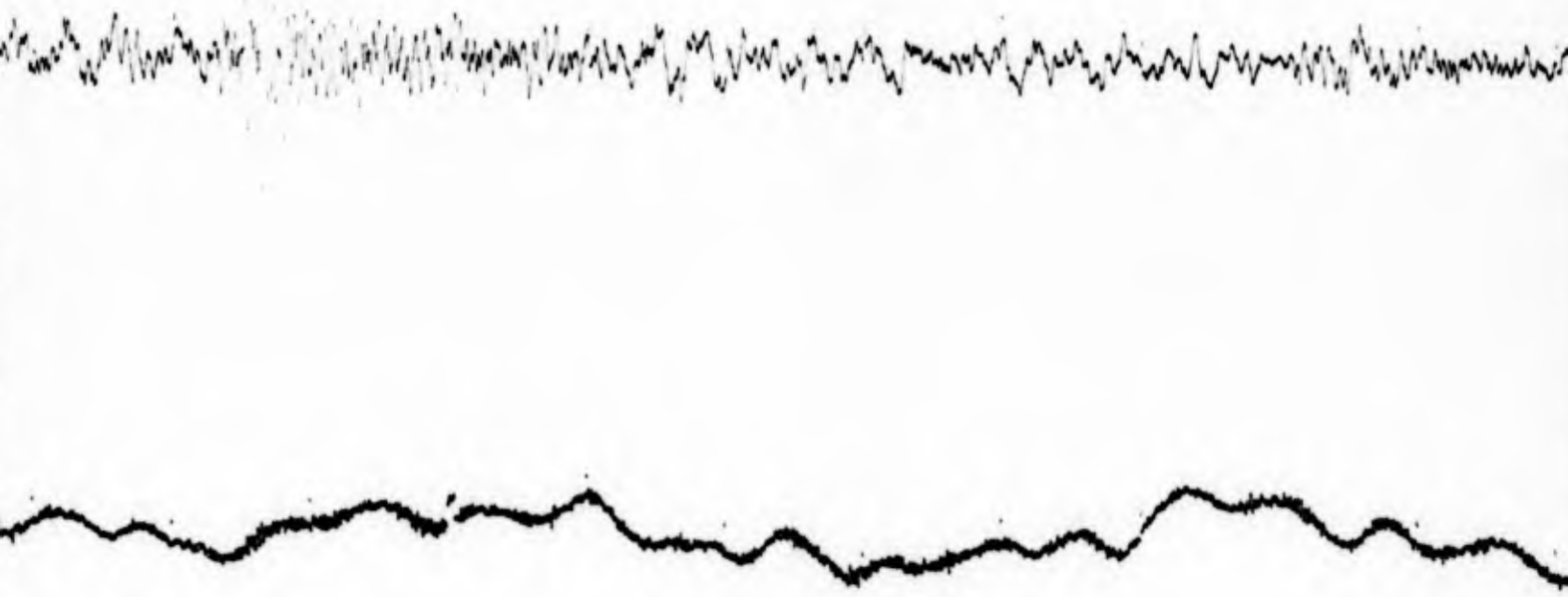

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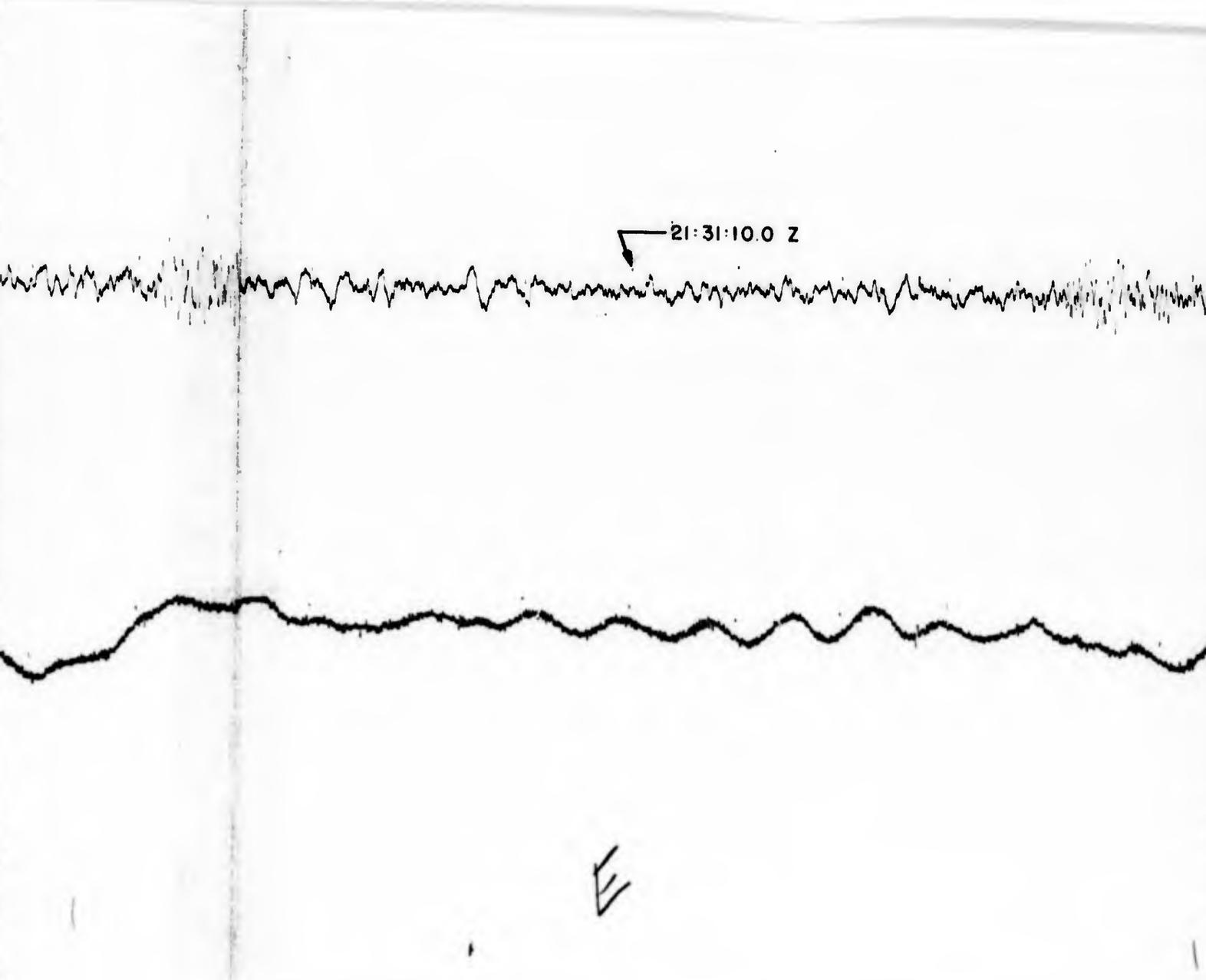
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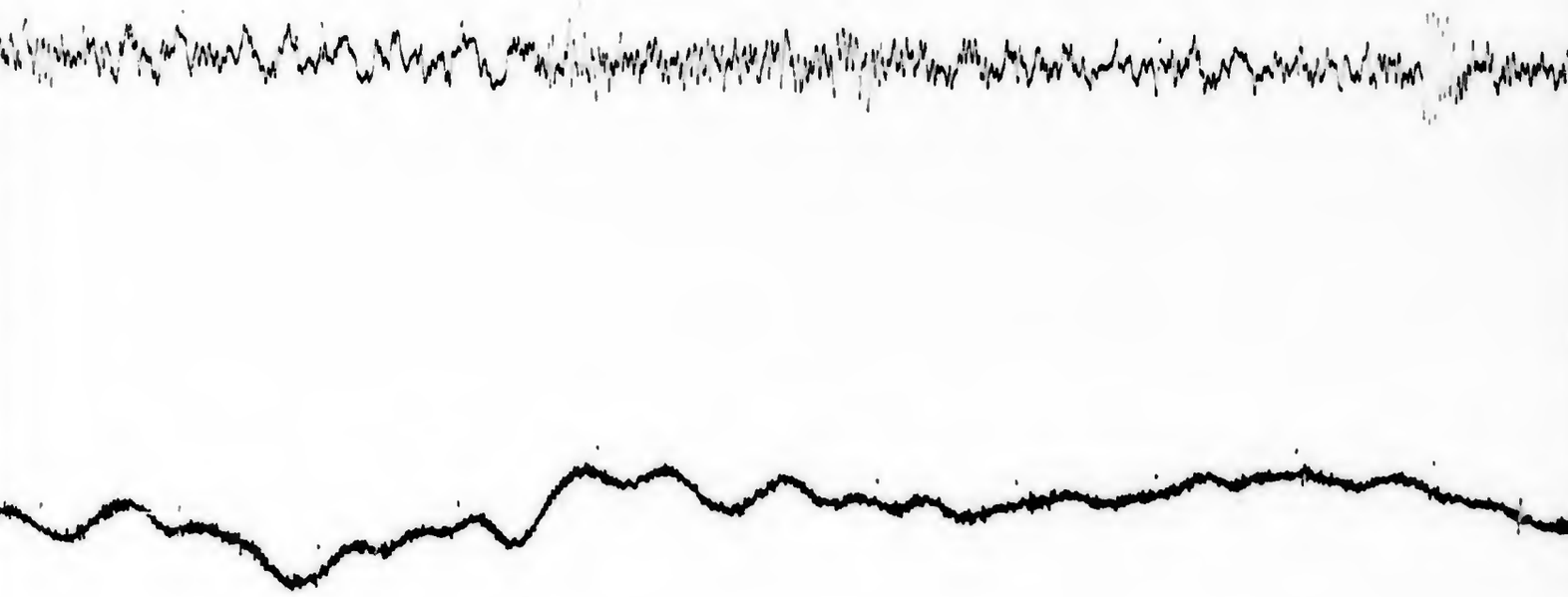

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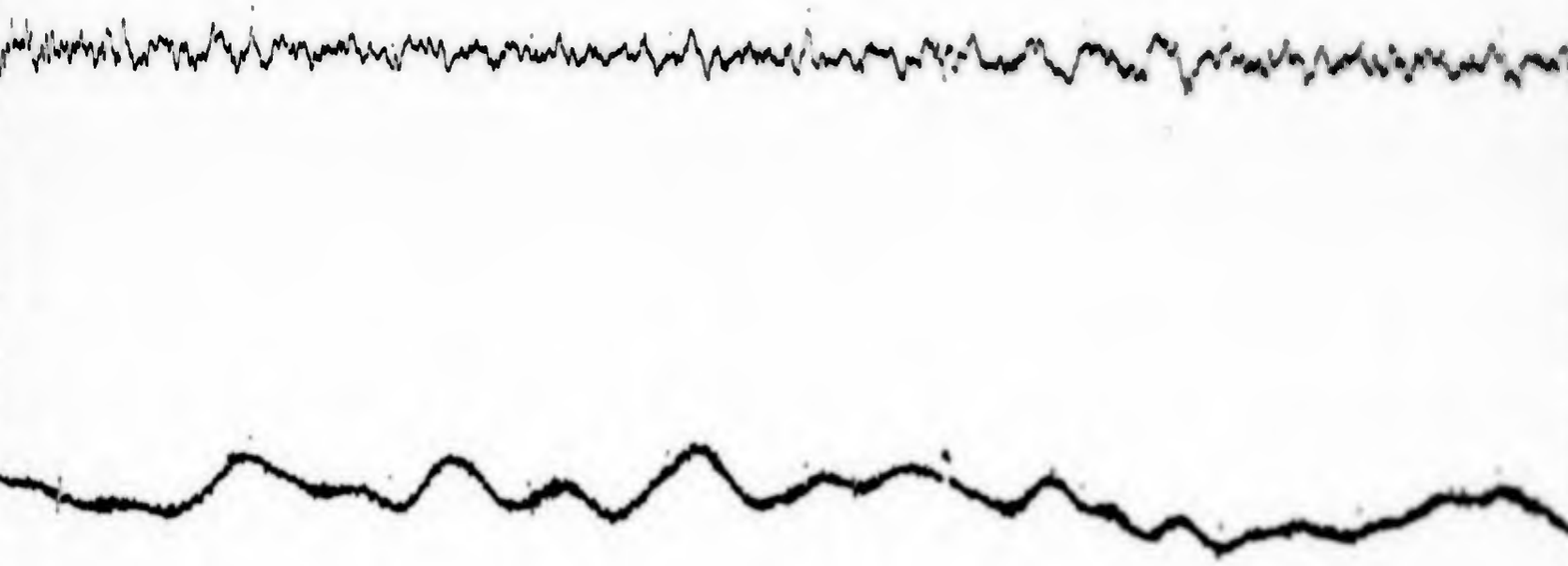

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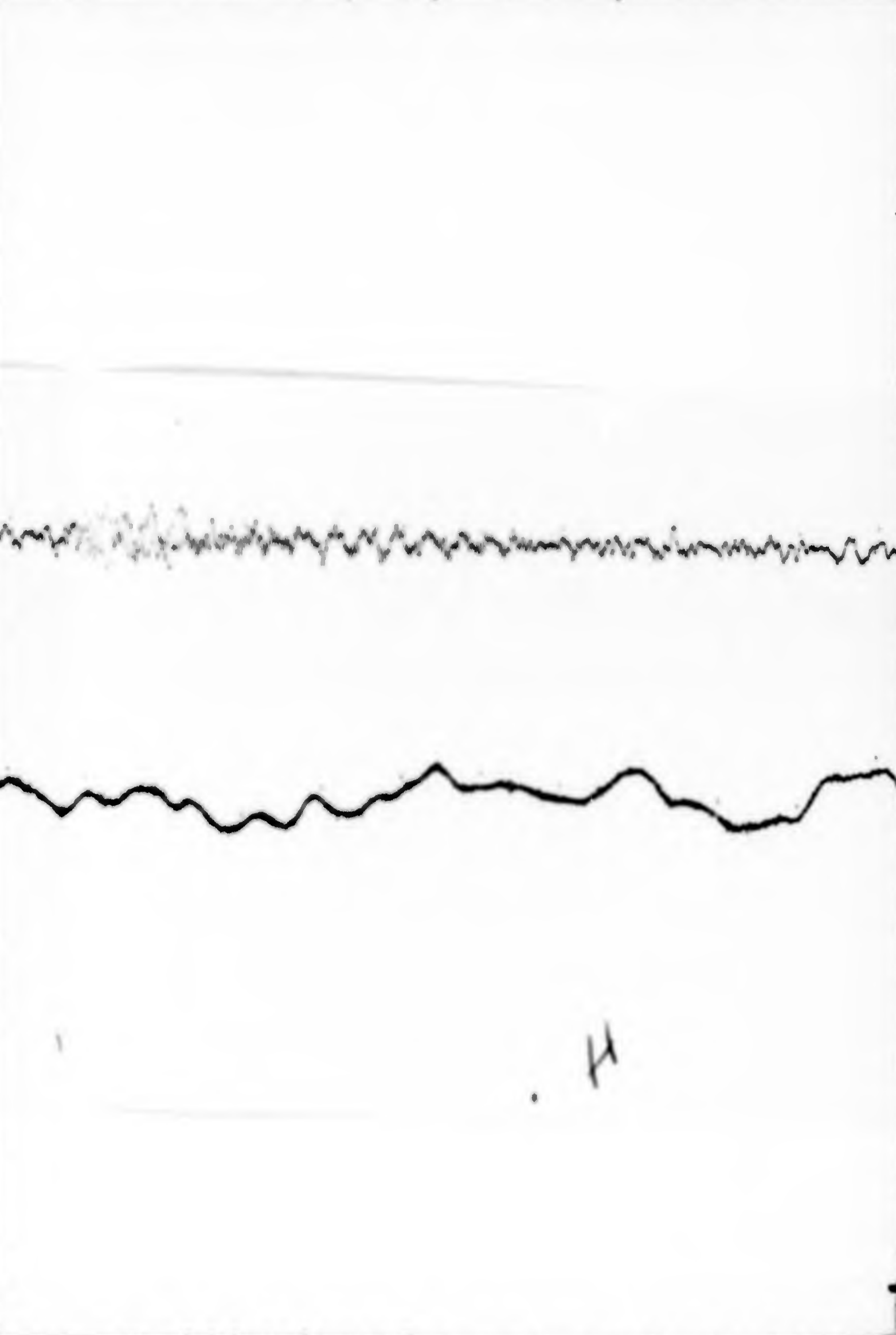

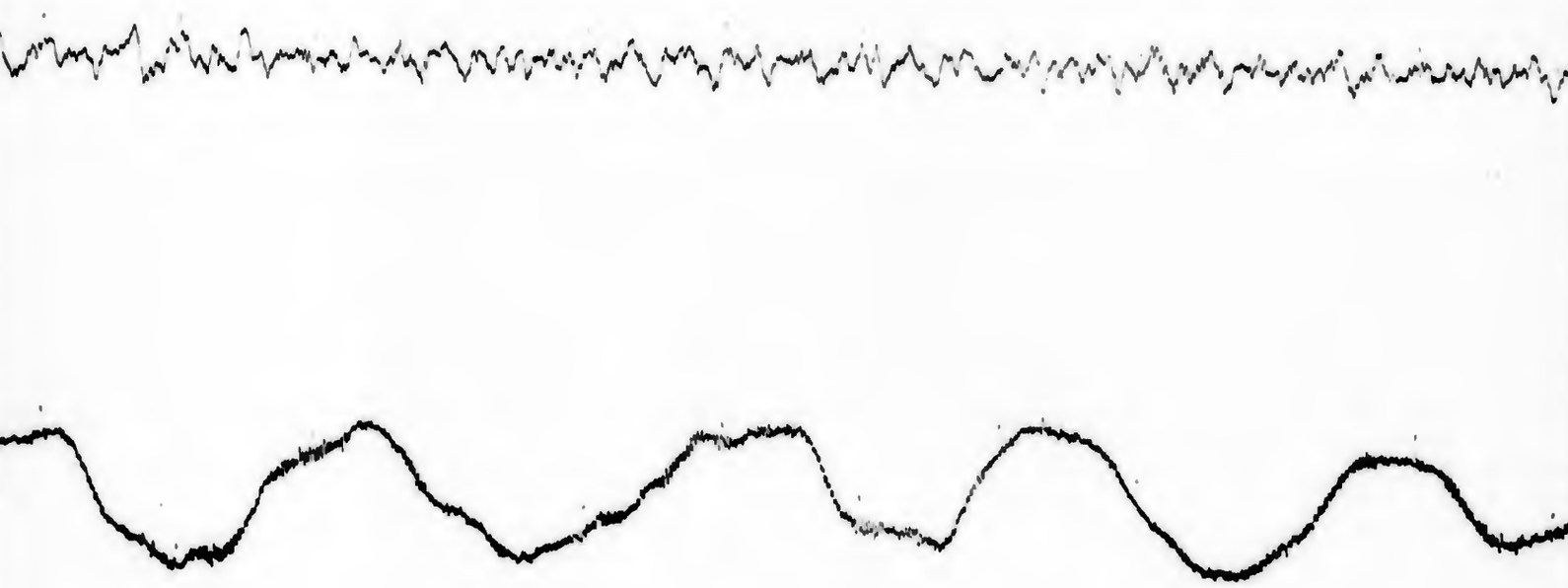

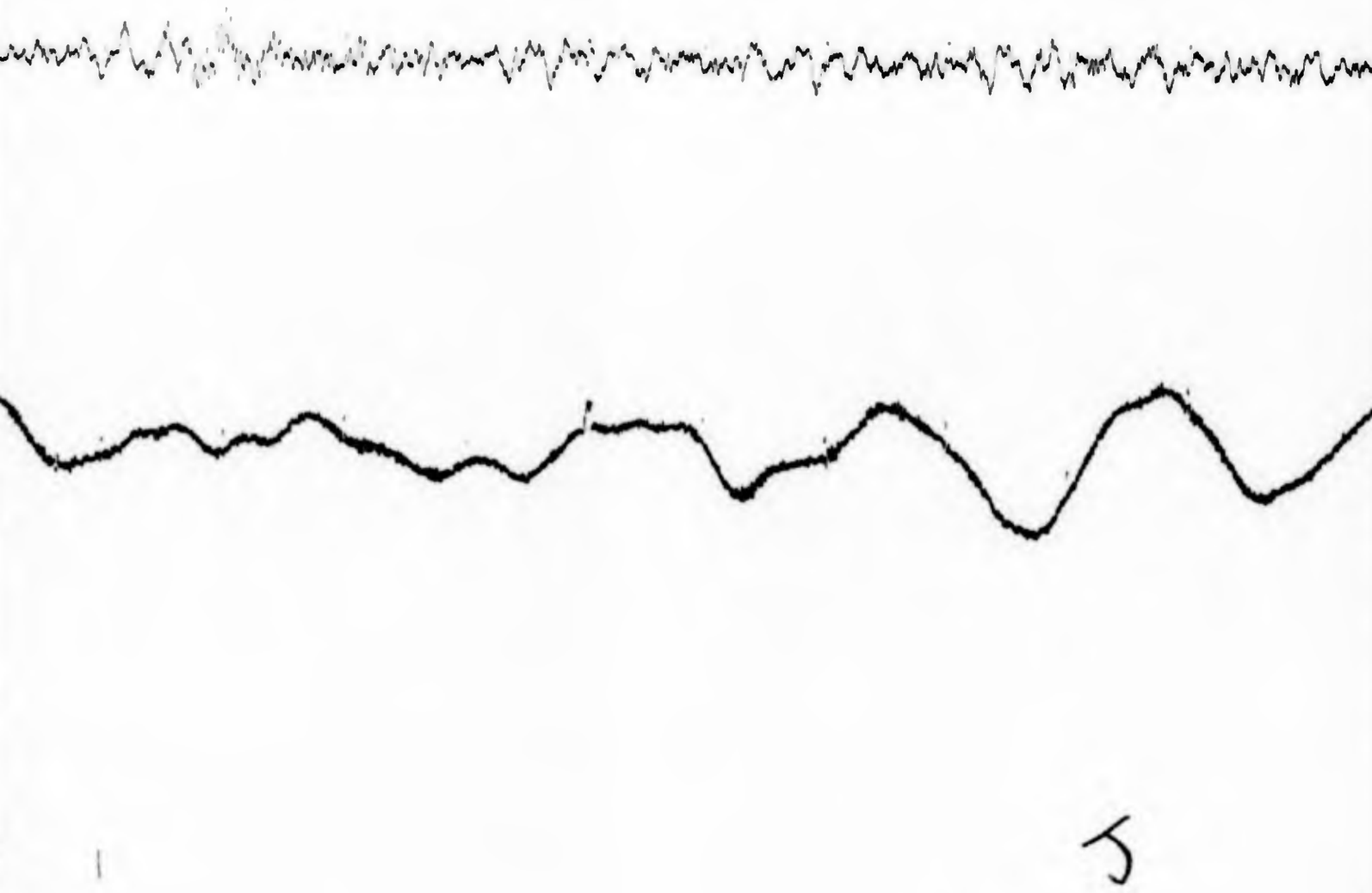

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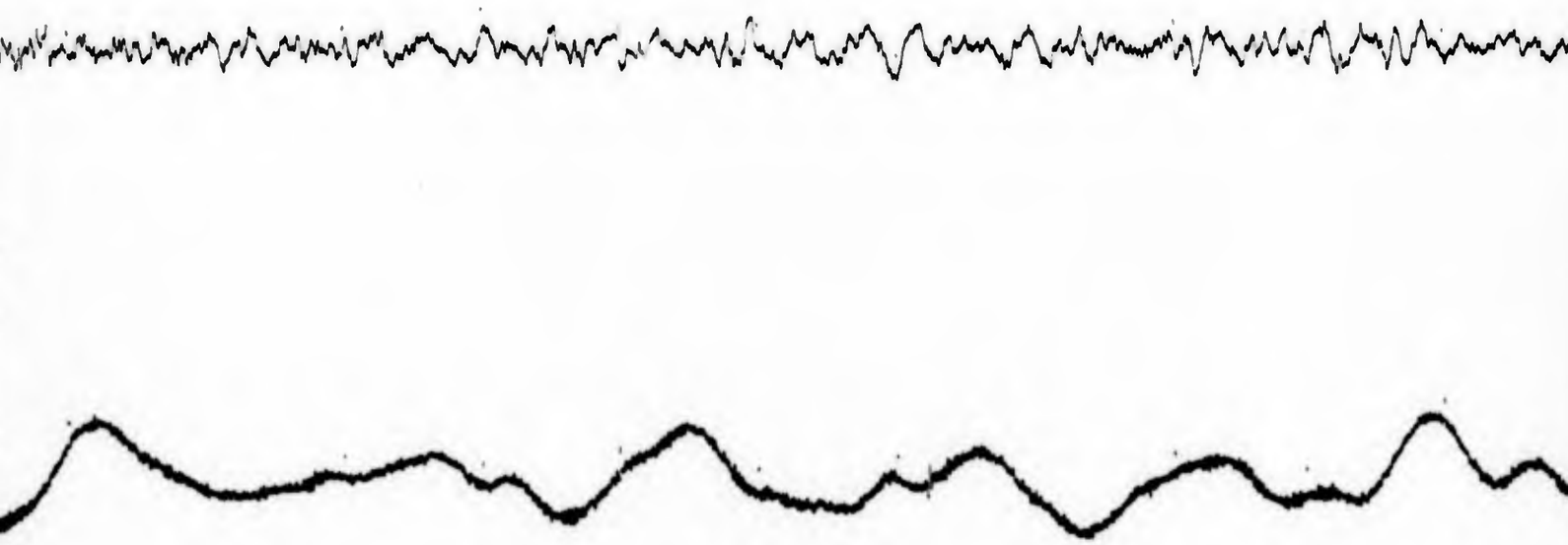
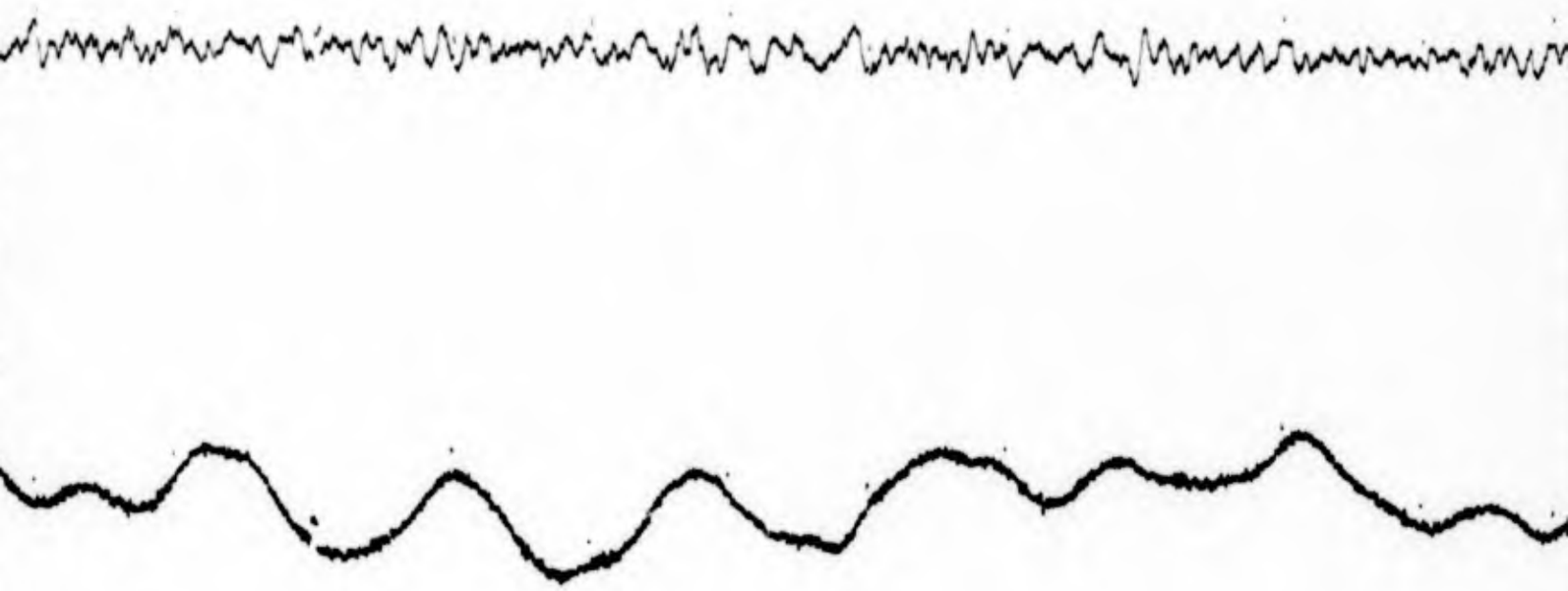
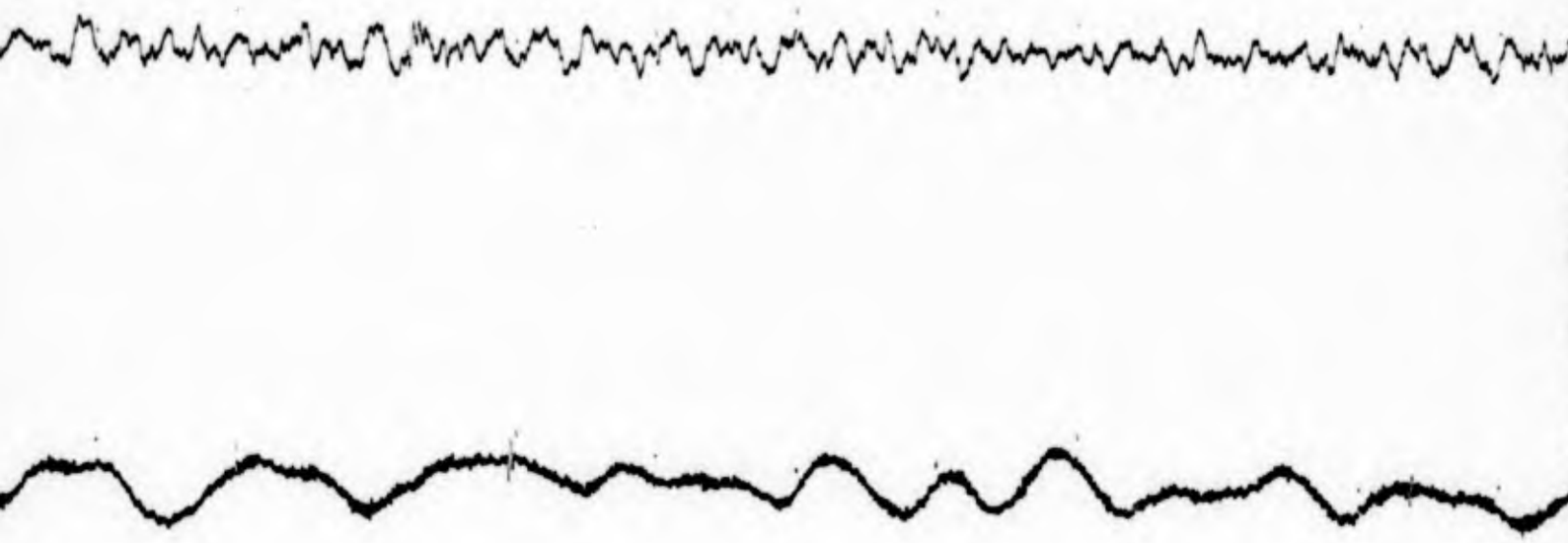
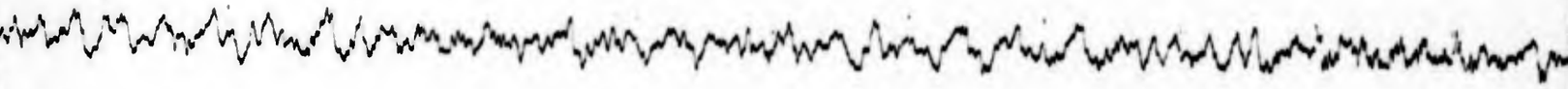
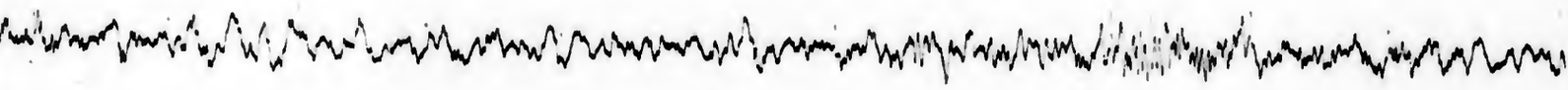










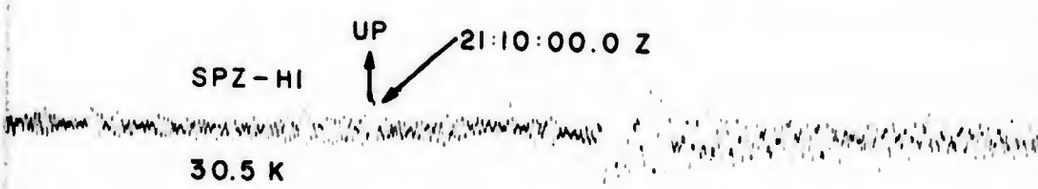
LONG SHOT

GV-TX

GRAPEVINE, TEXAS

29 OCTOBER 1965

Δ=6832 Km



NOTE: SPR & SPT NOT ON TAPE
NO LP INSTRUMENTS

A

B

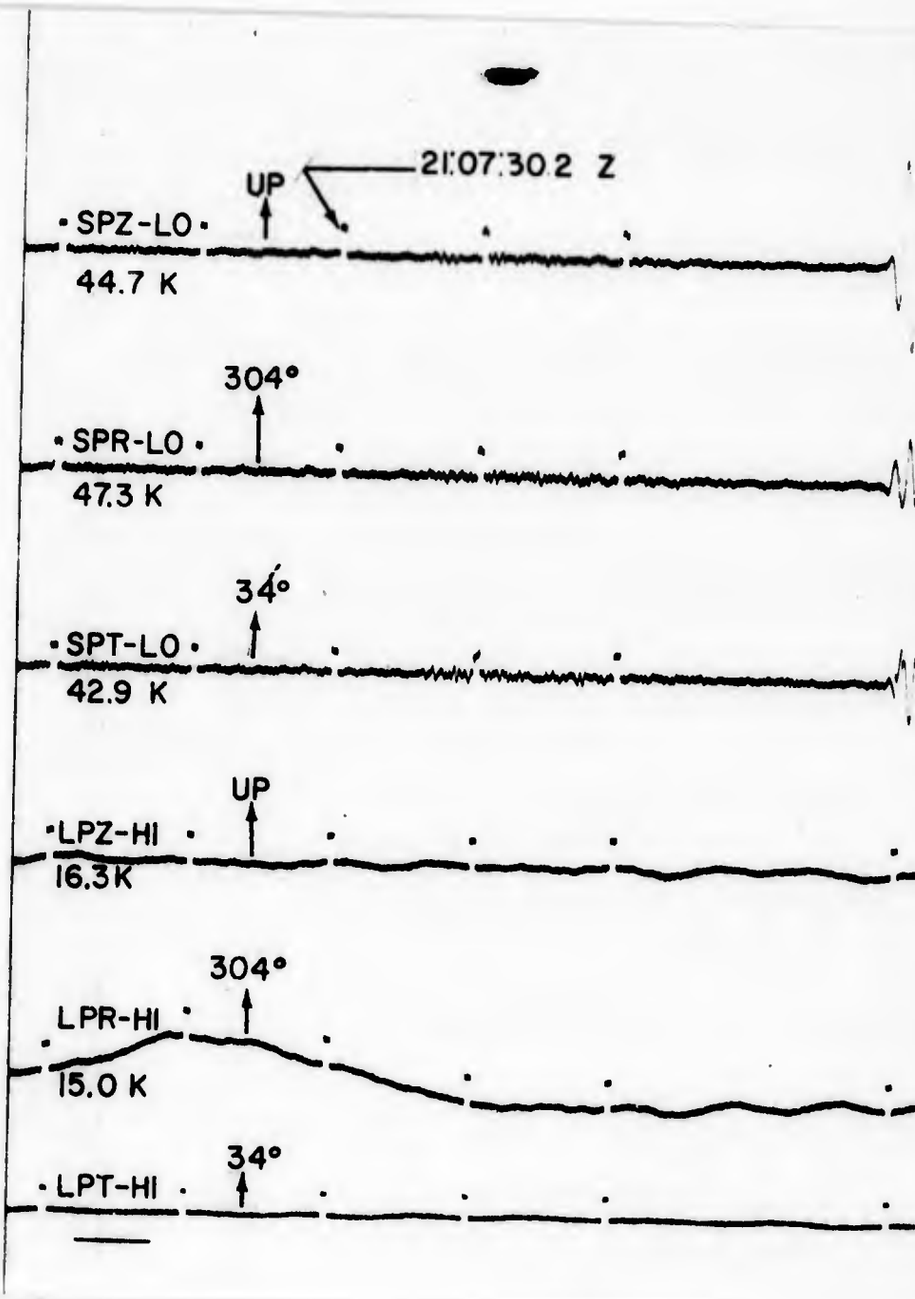
LONG SHOT

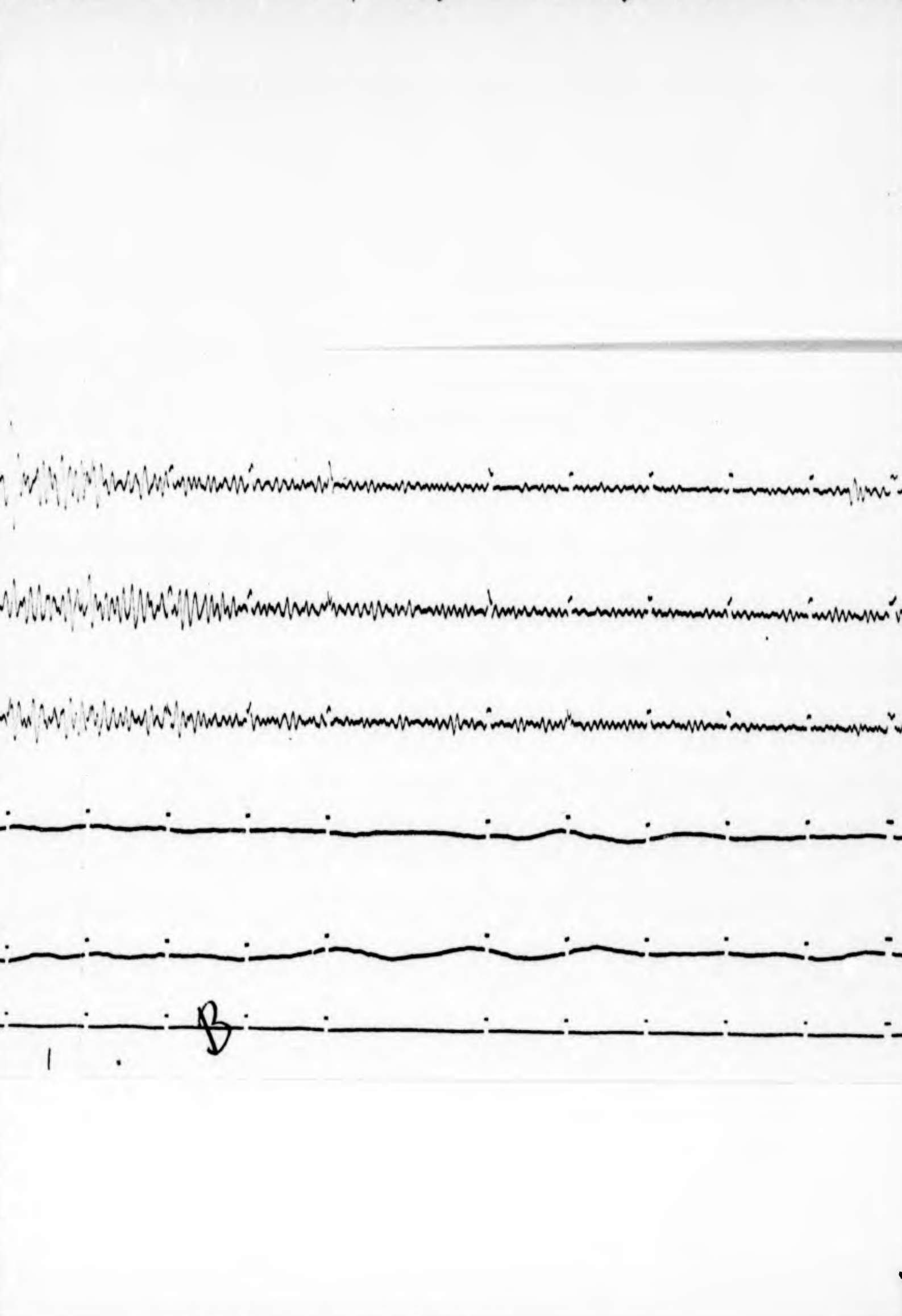
HL21D

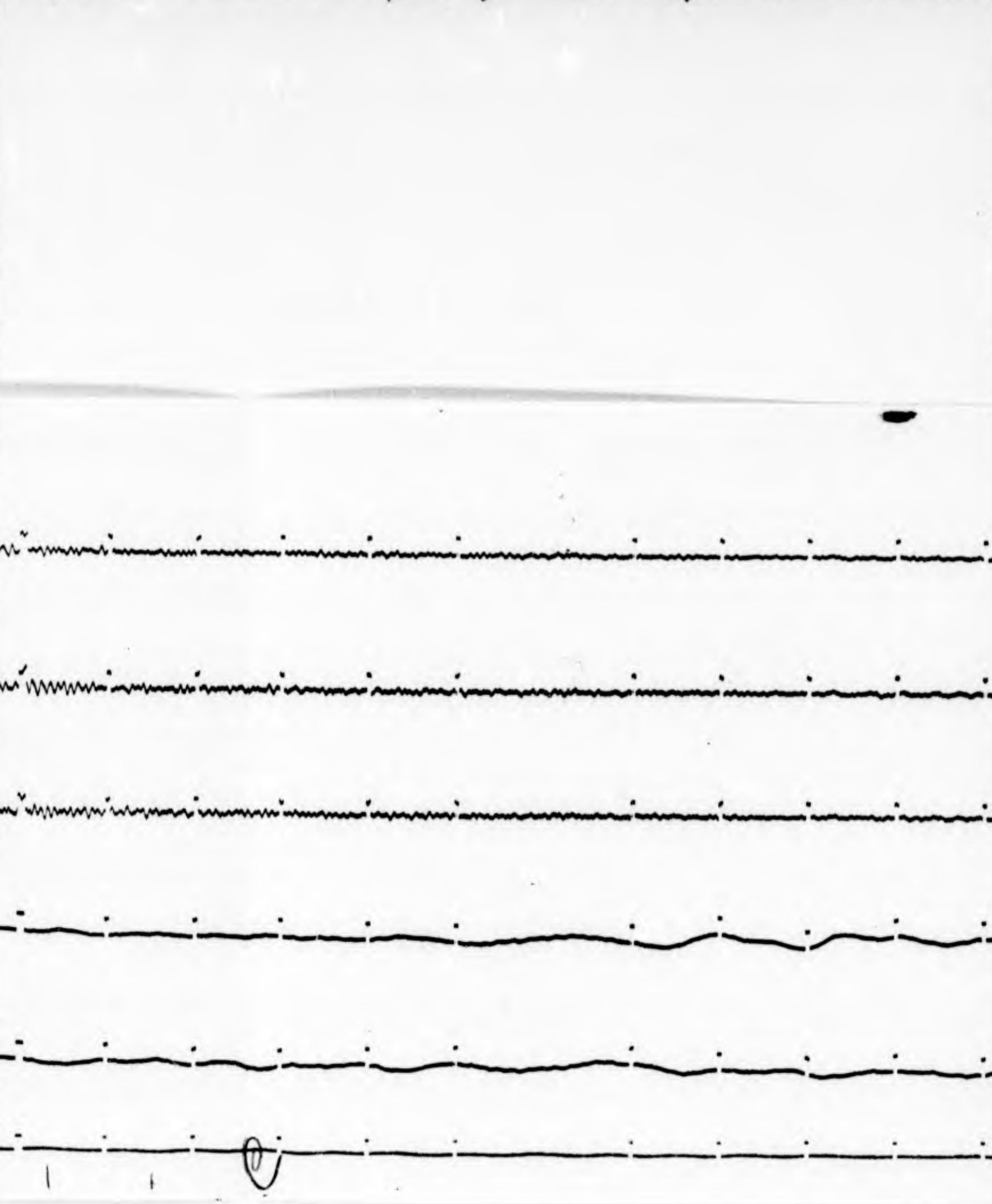
Hailey, Idaho

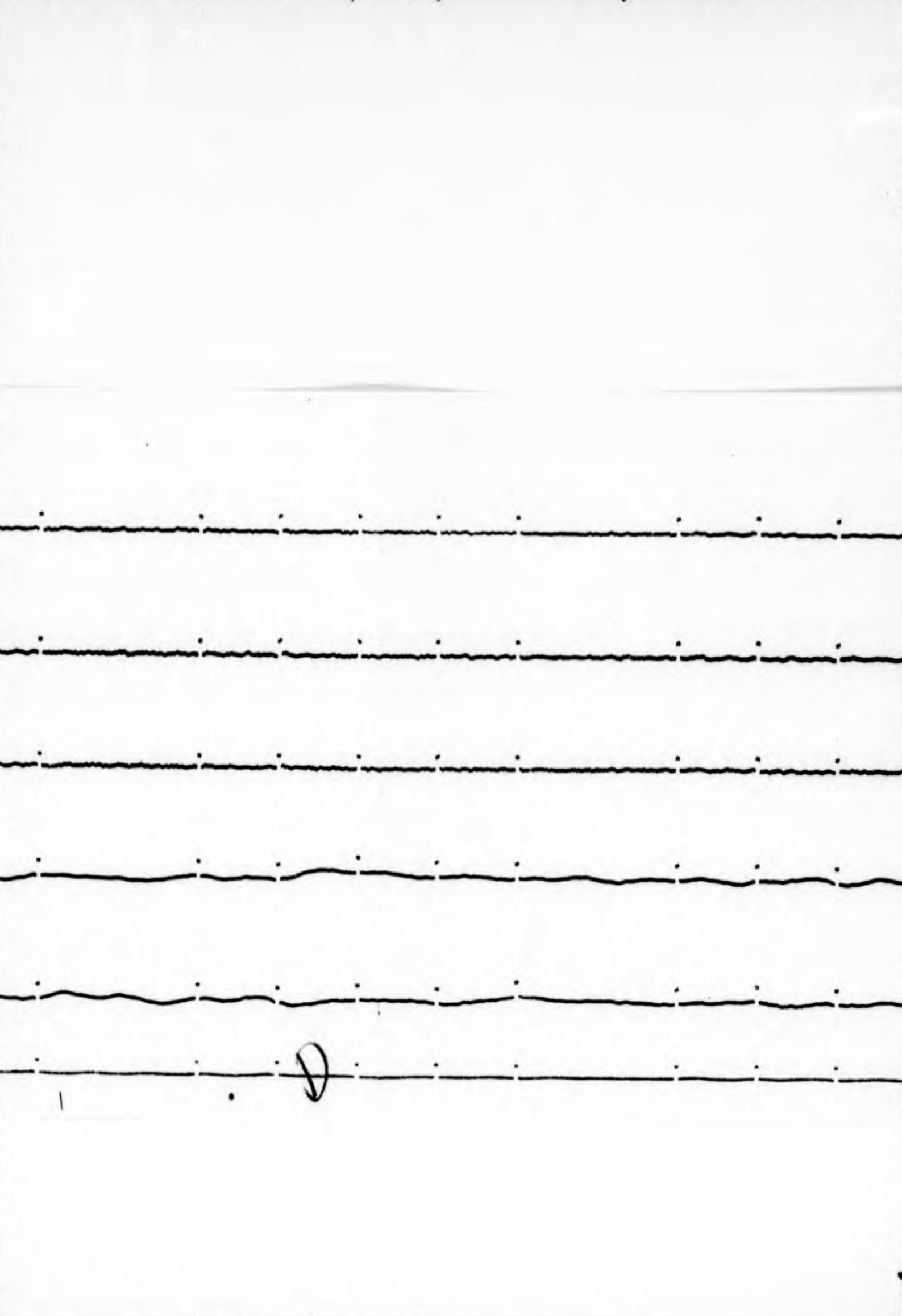
29 October 1965

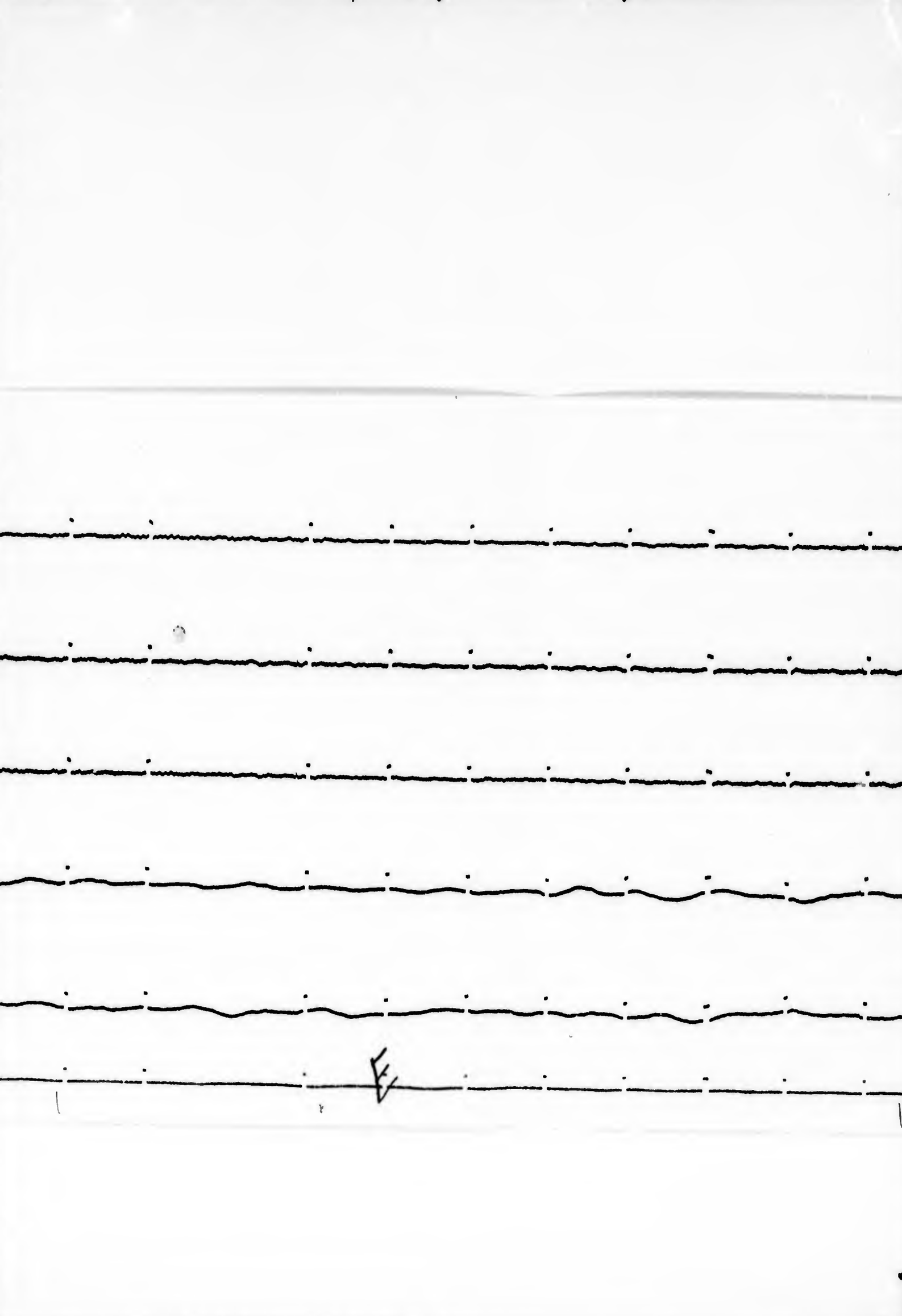
Δ = 4908 km

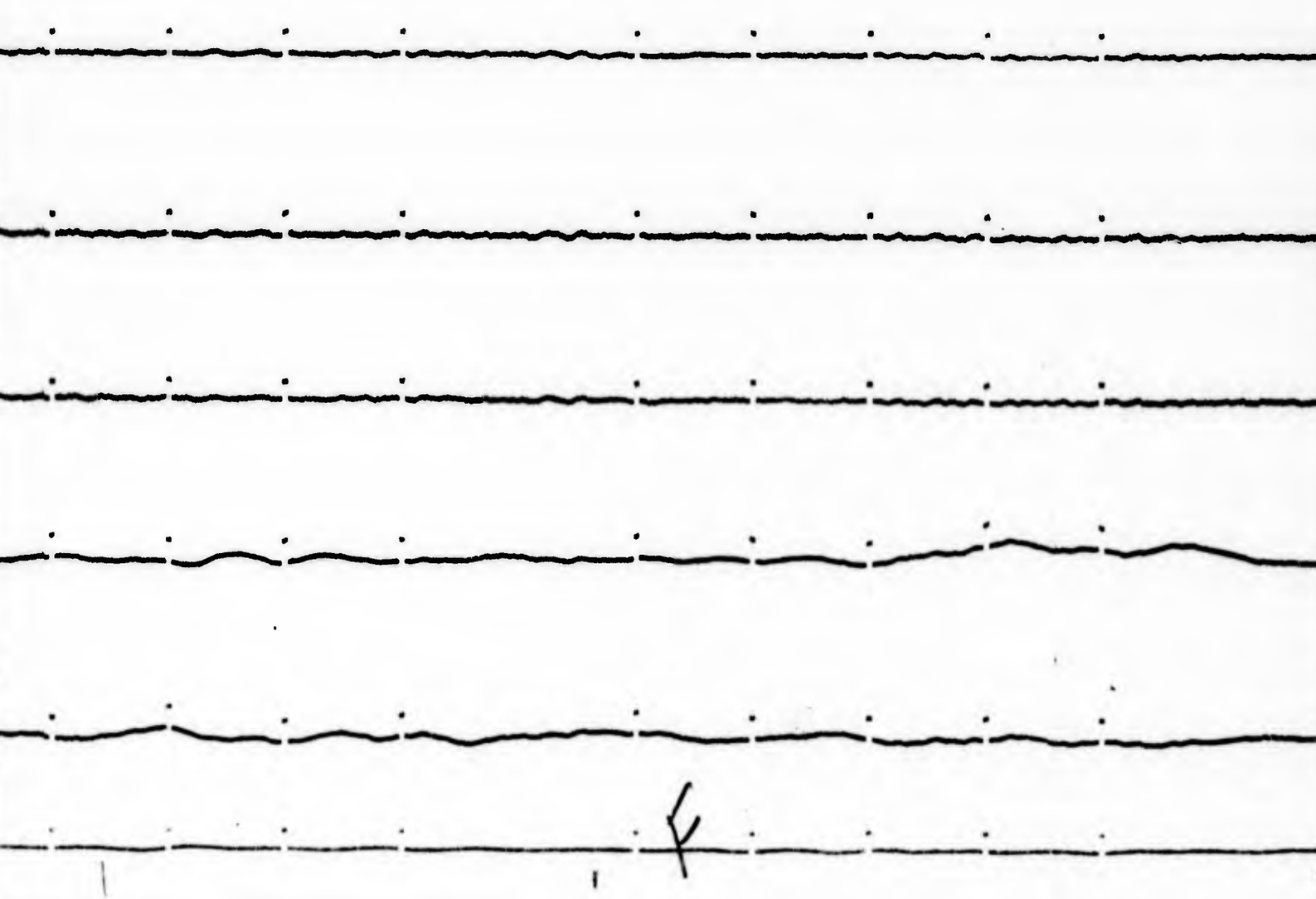


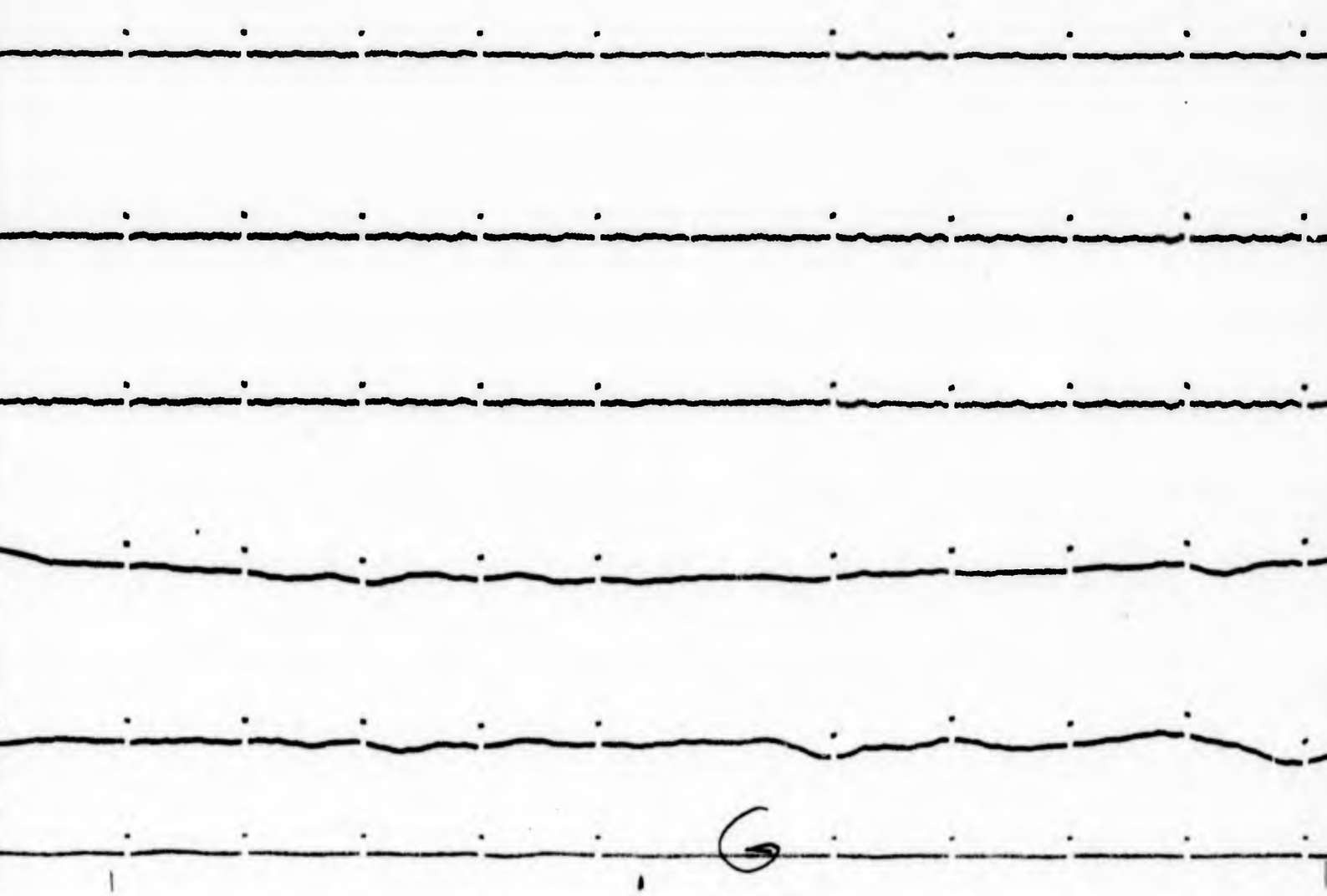








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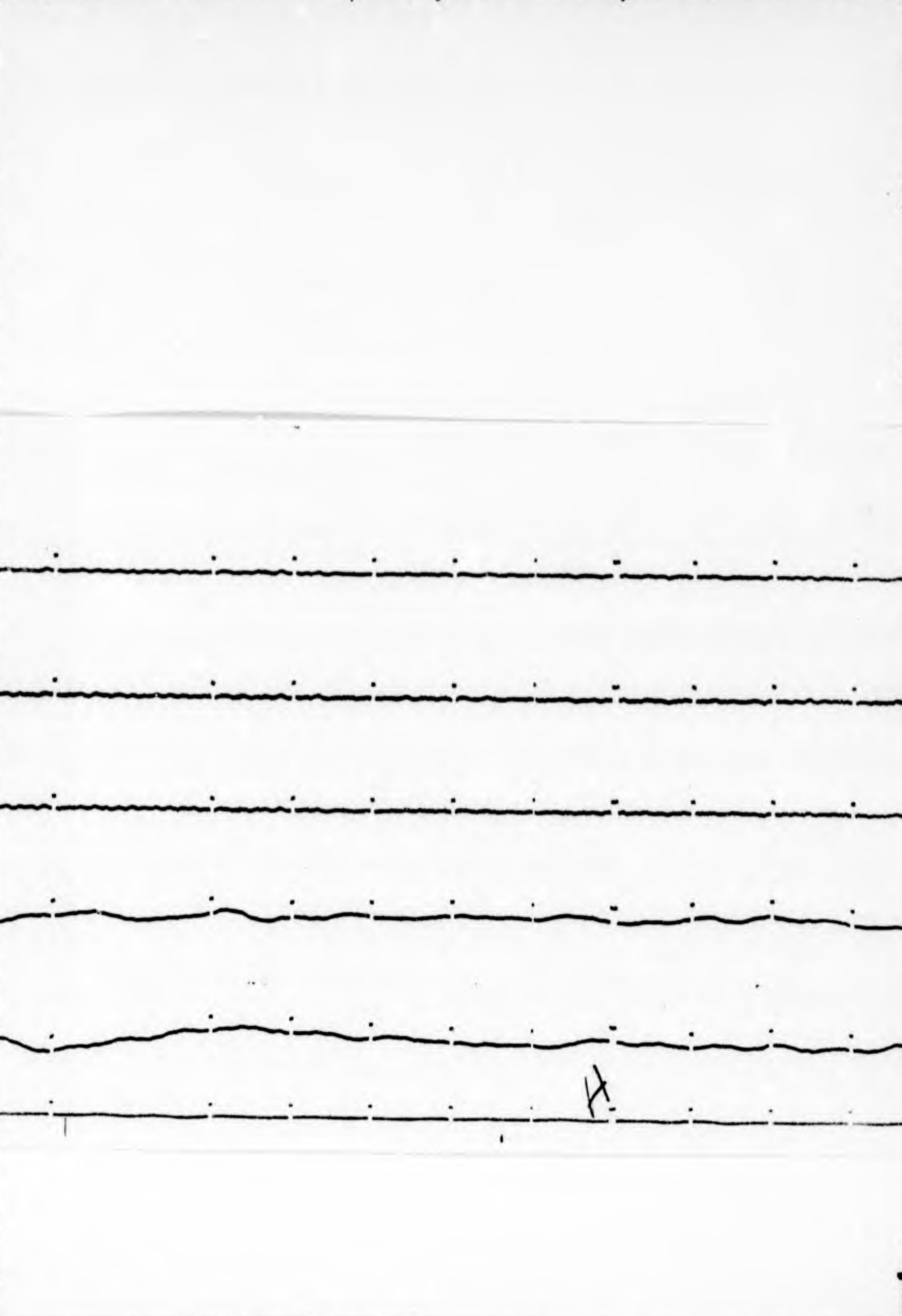

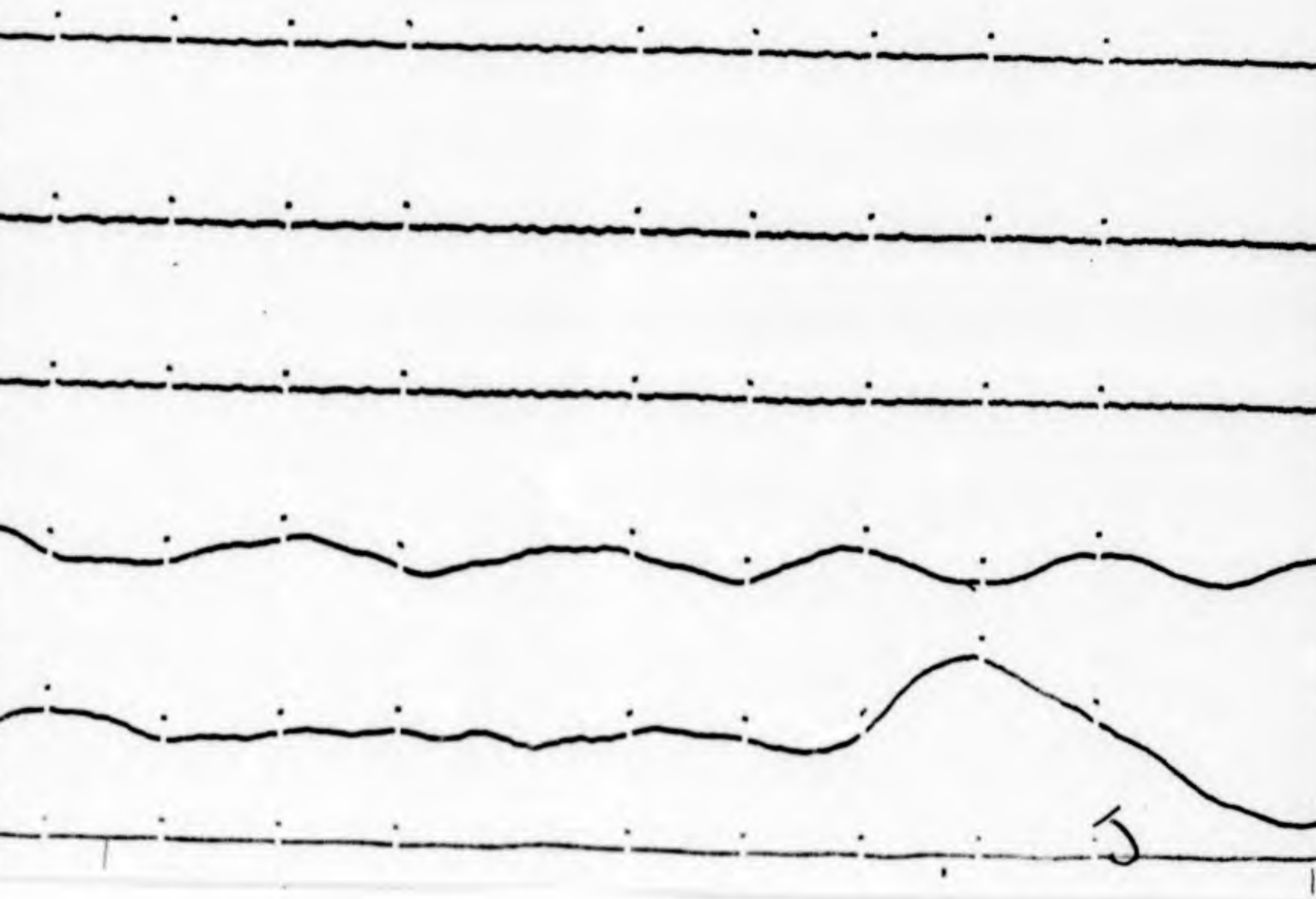

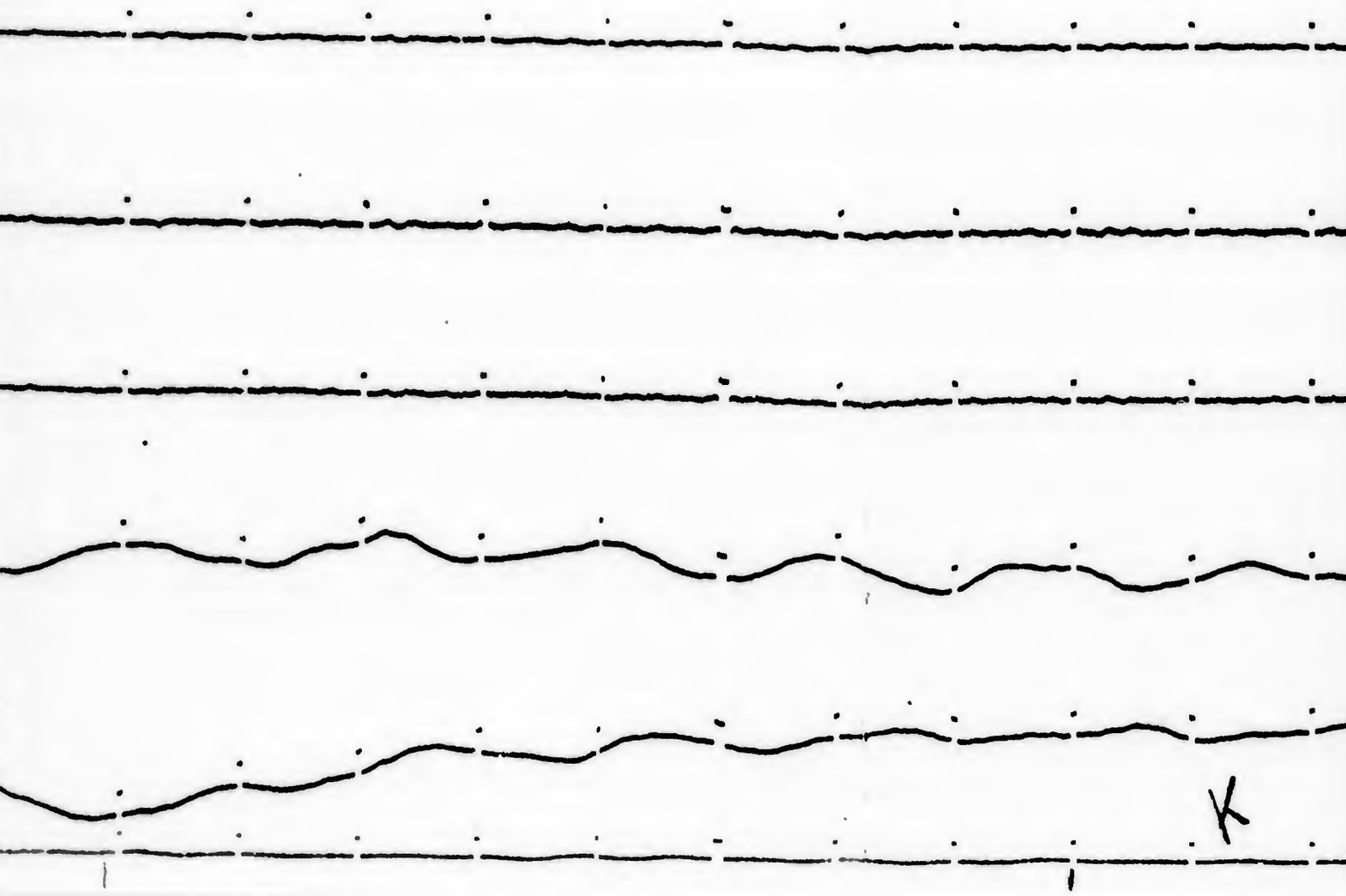
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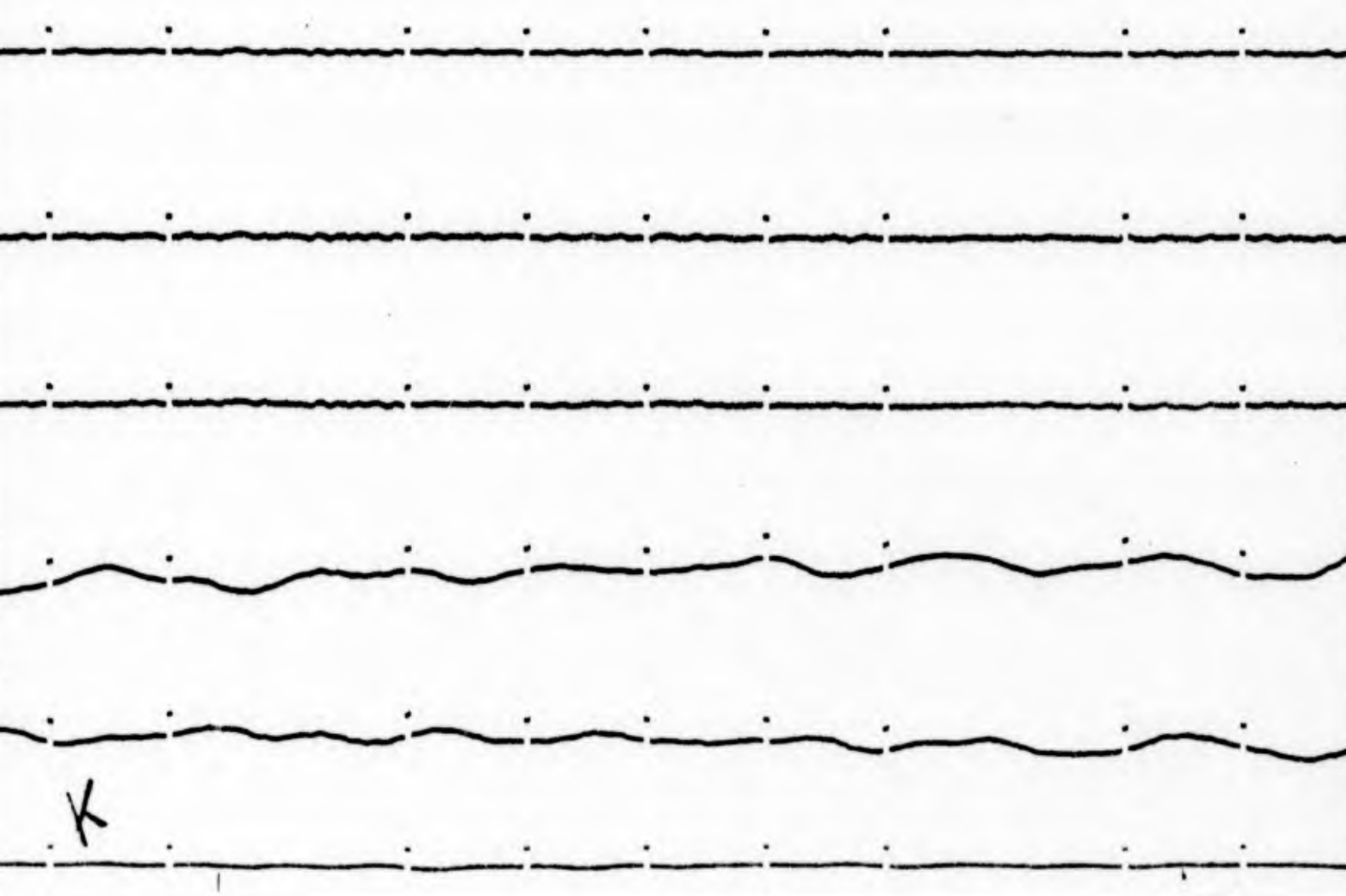
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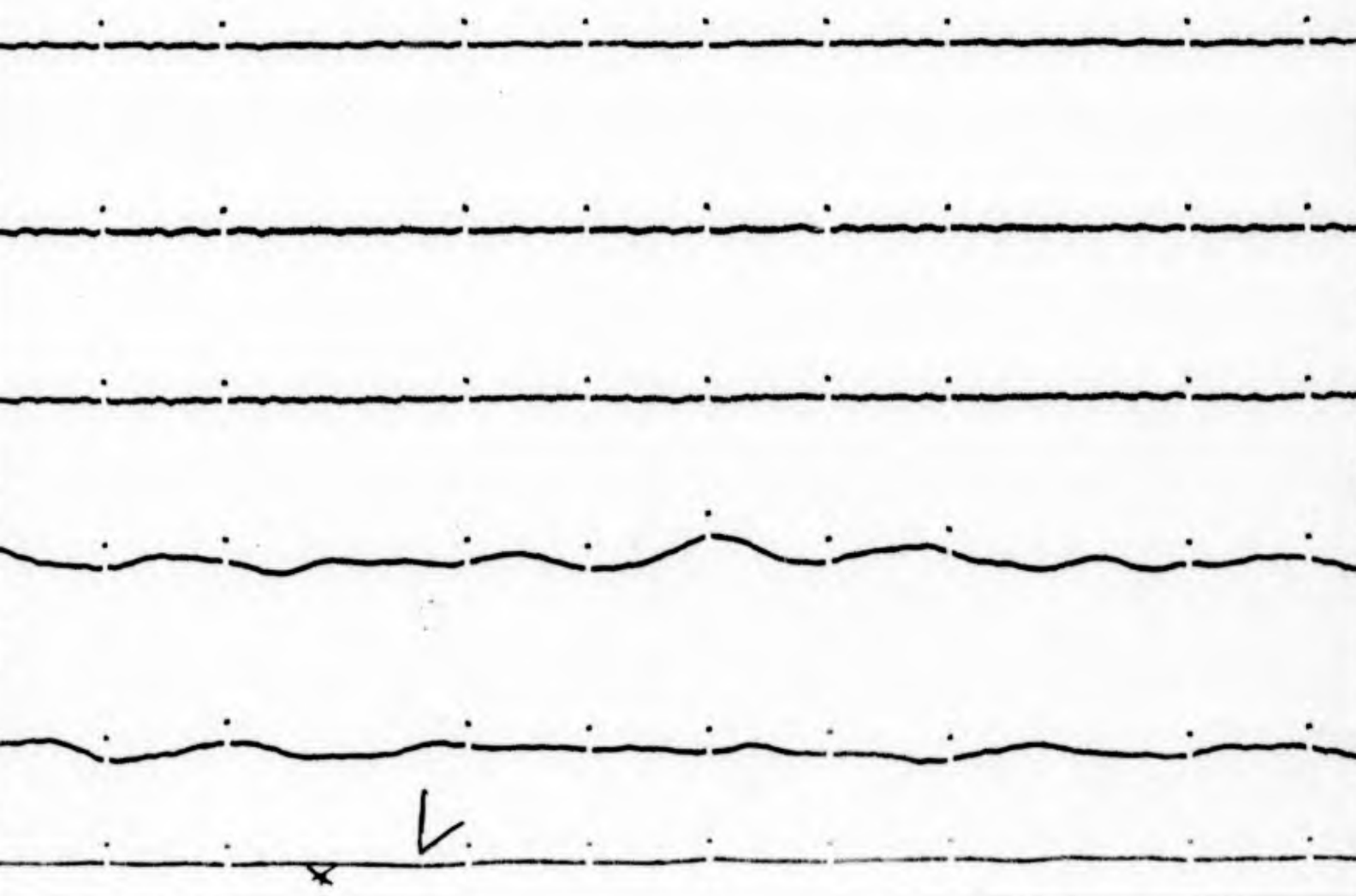


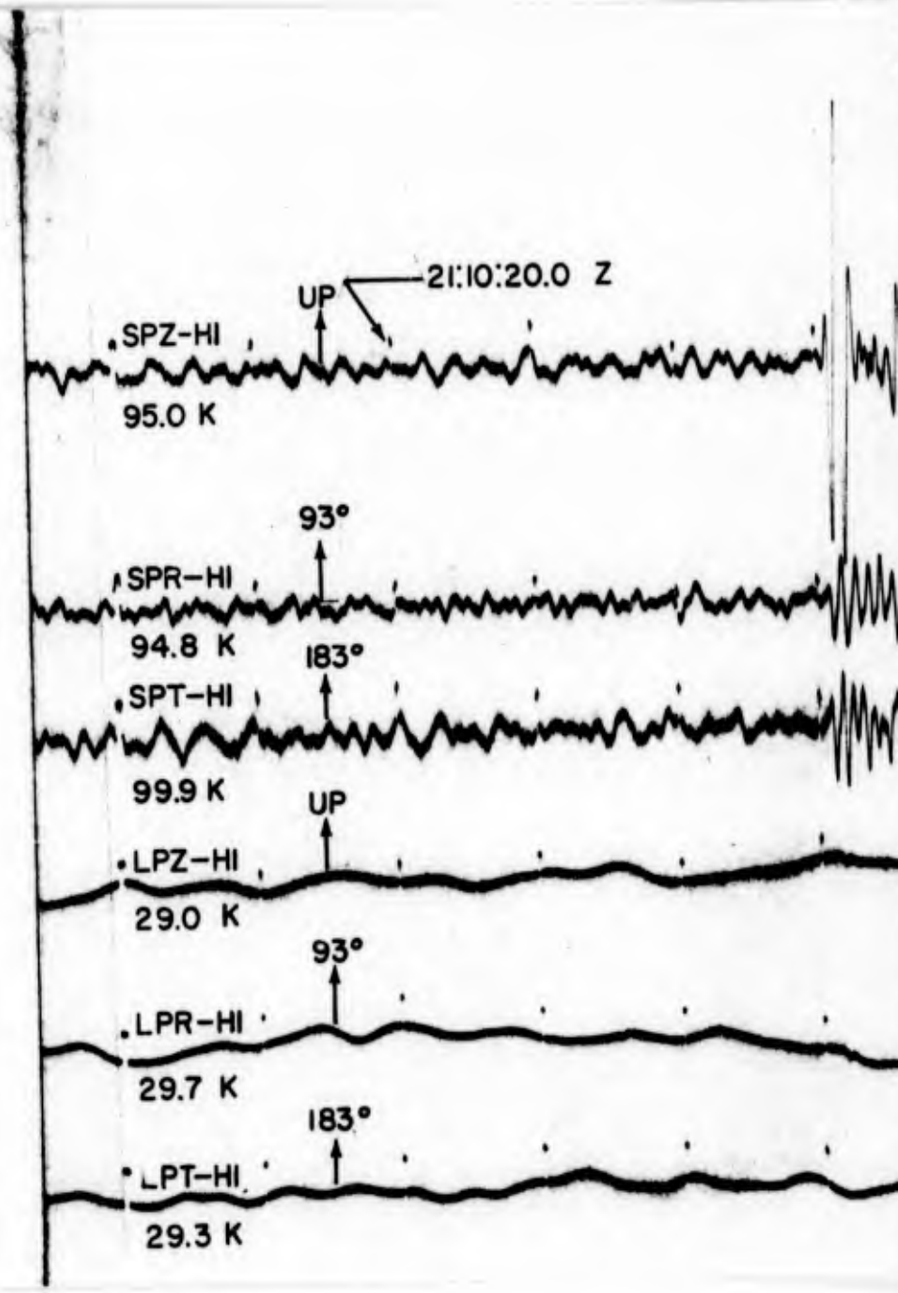
LONG SHOT

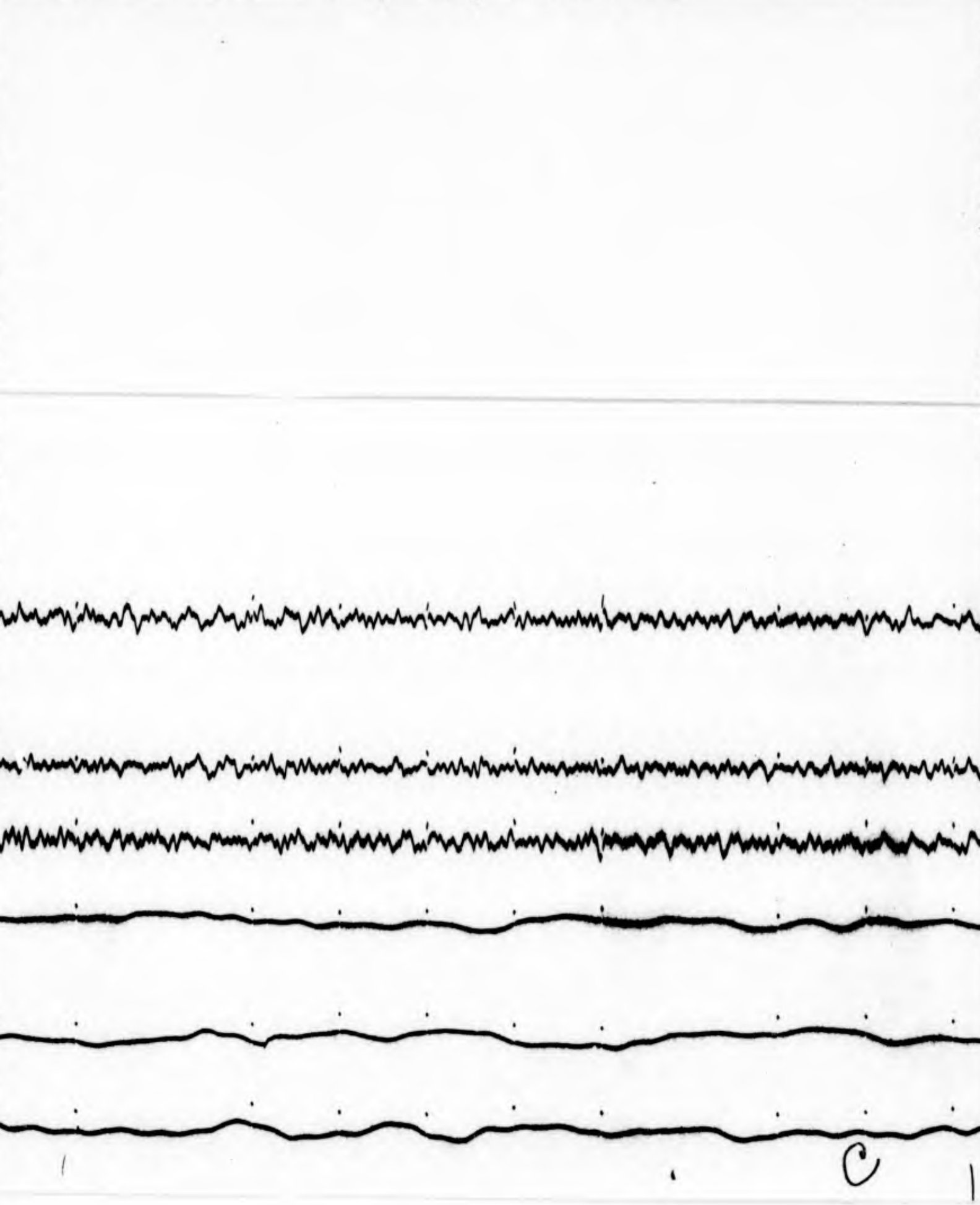
HN-ME

Houlton, Maine

29 October 1965

Δ = 7442 km

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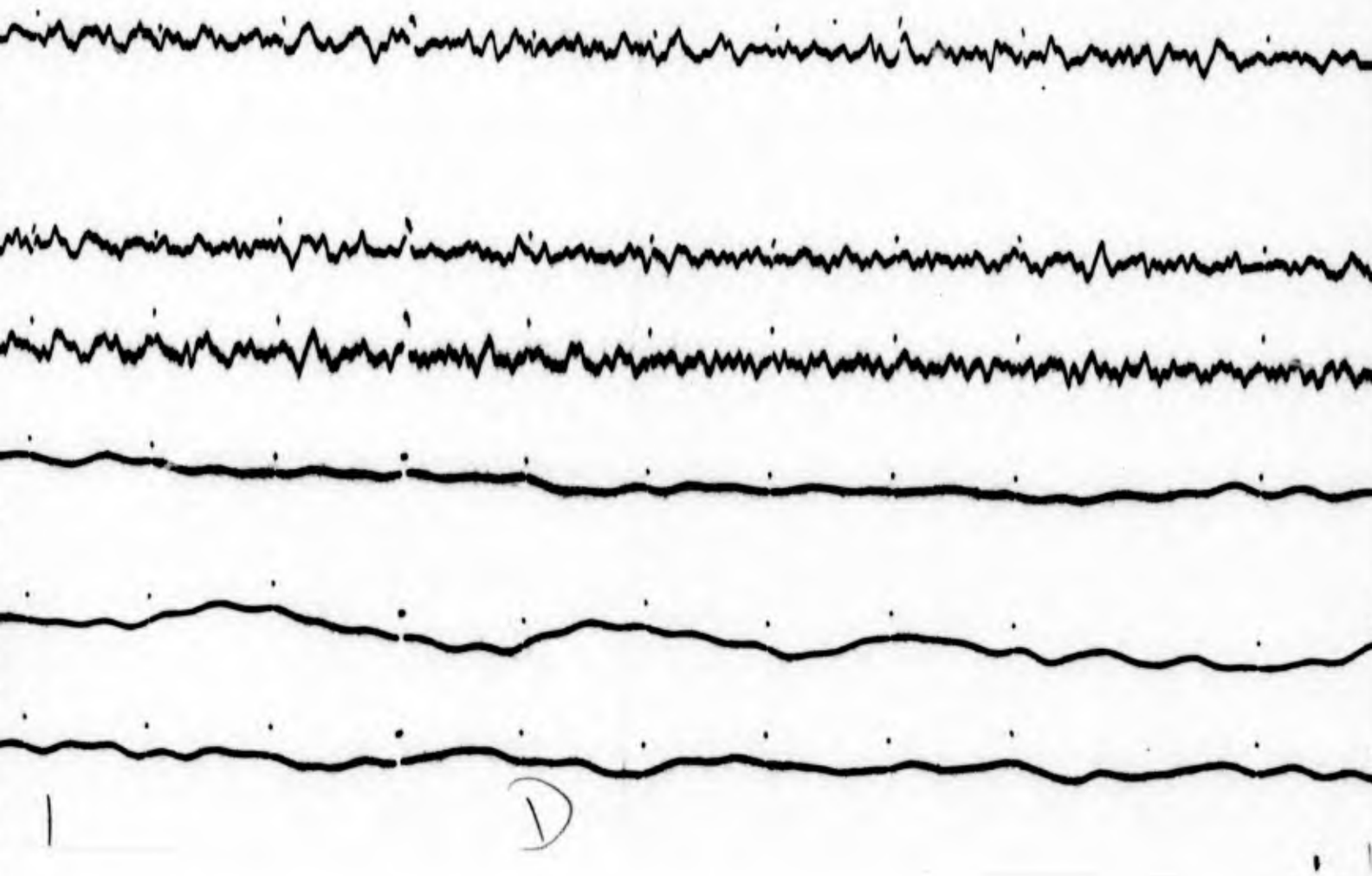
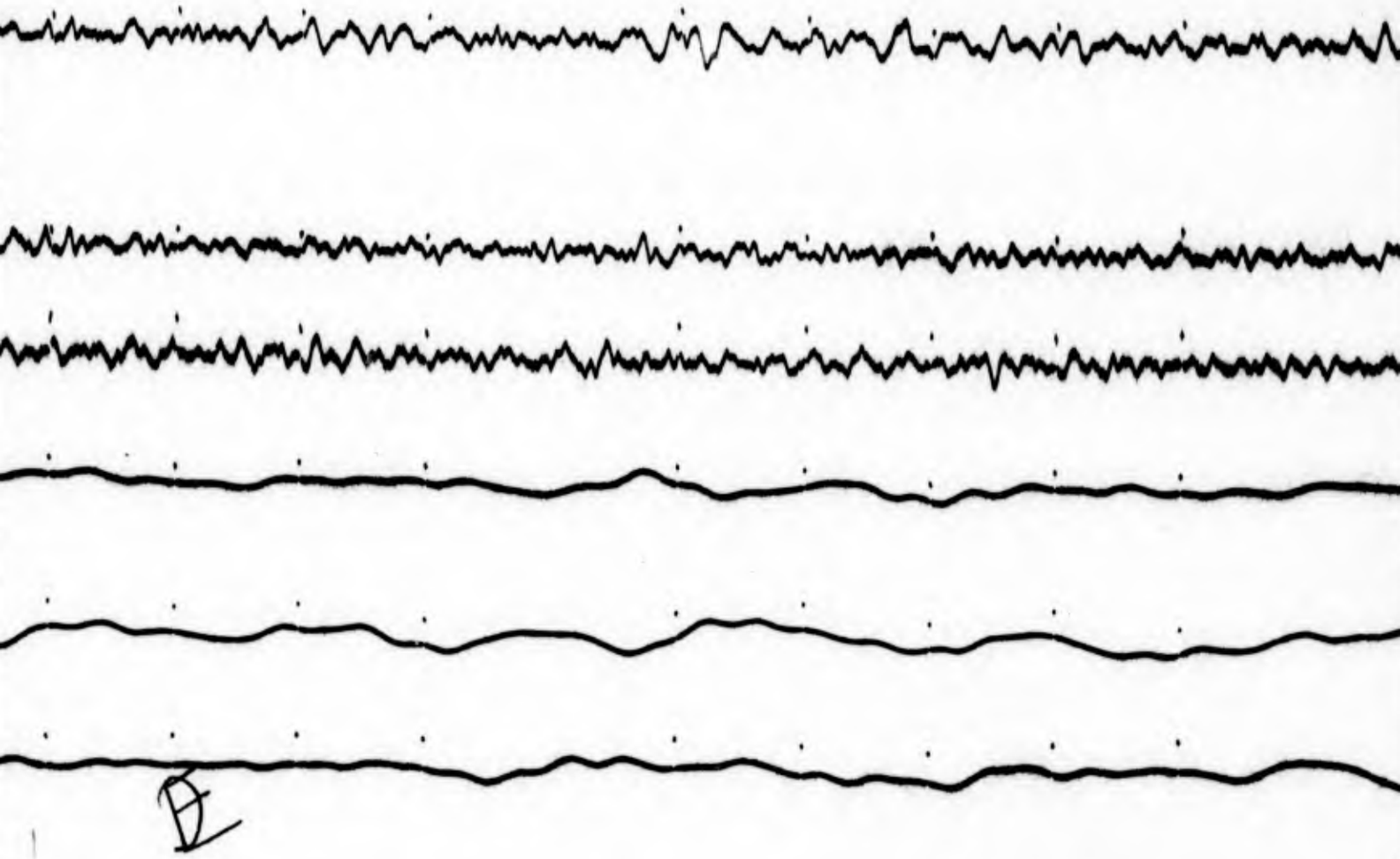

I
D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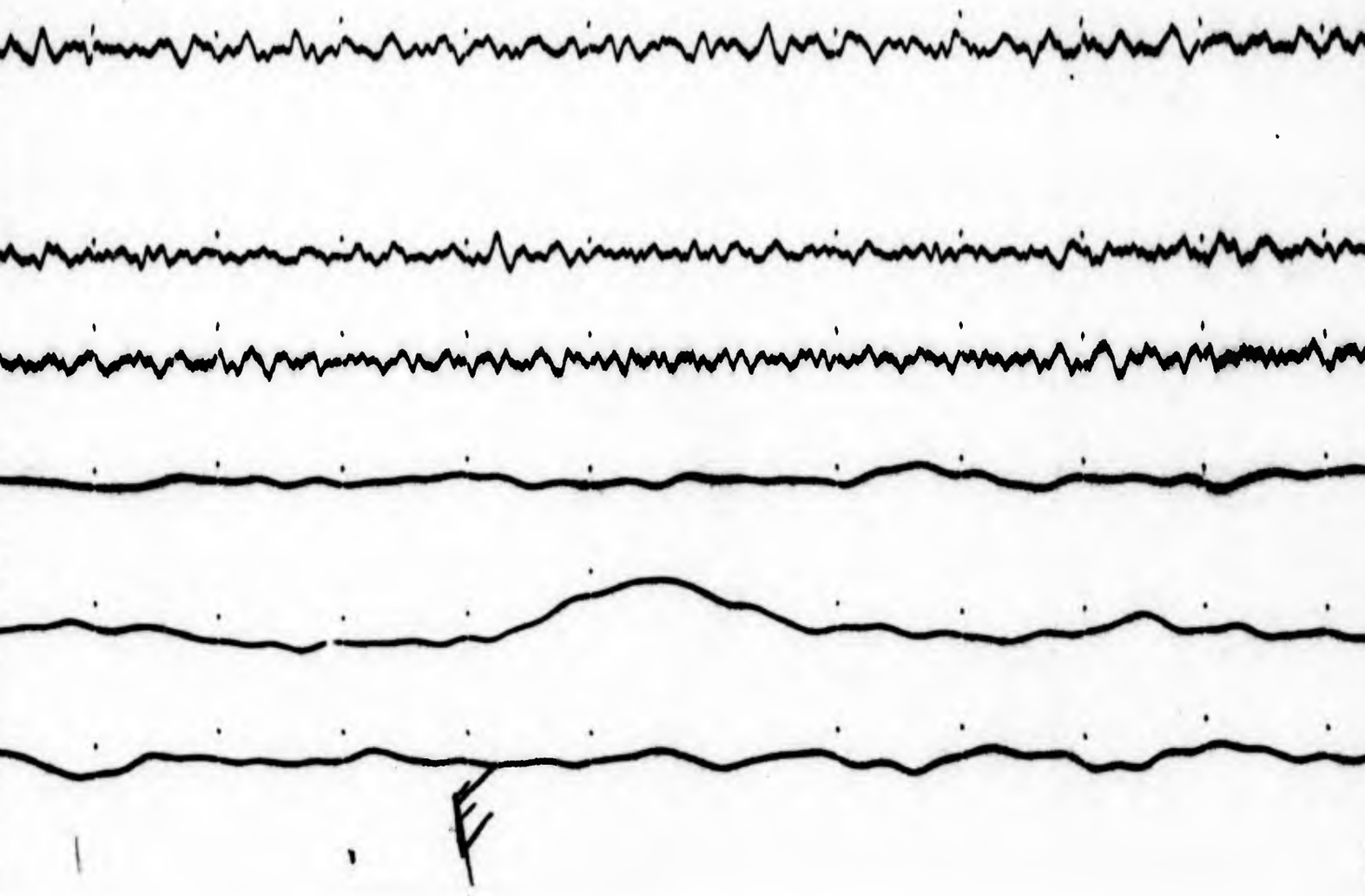
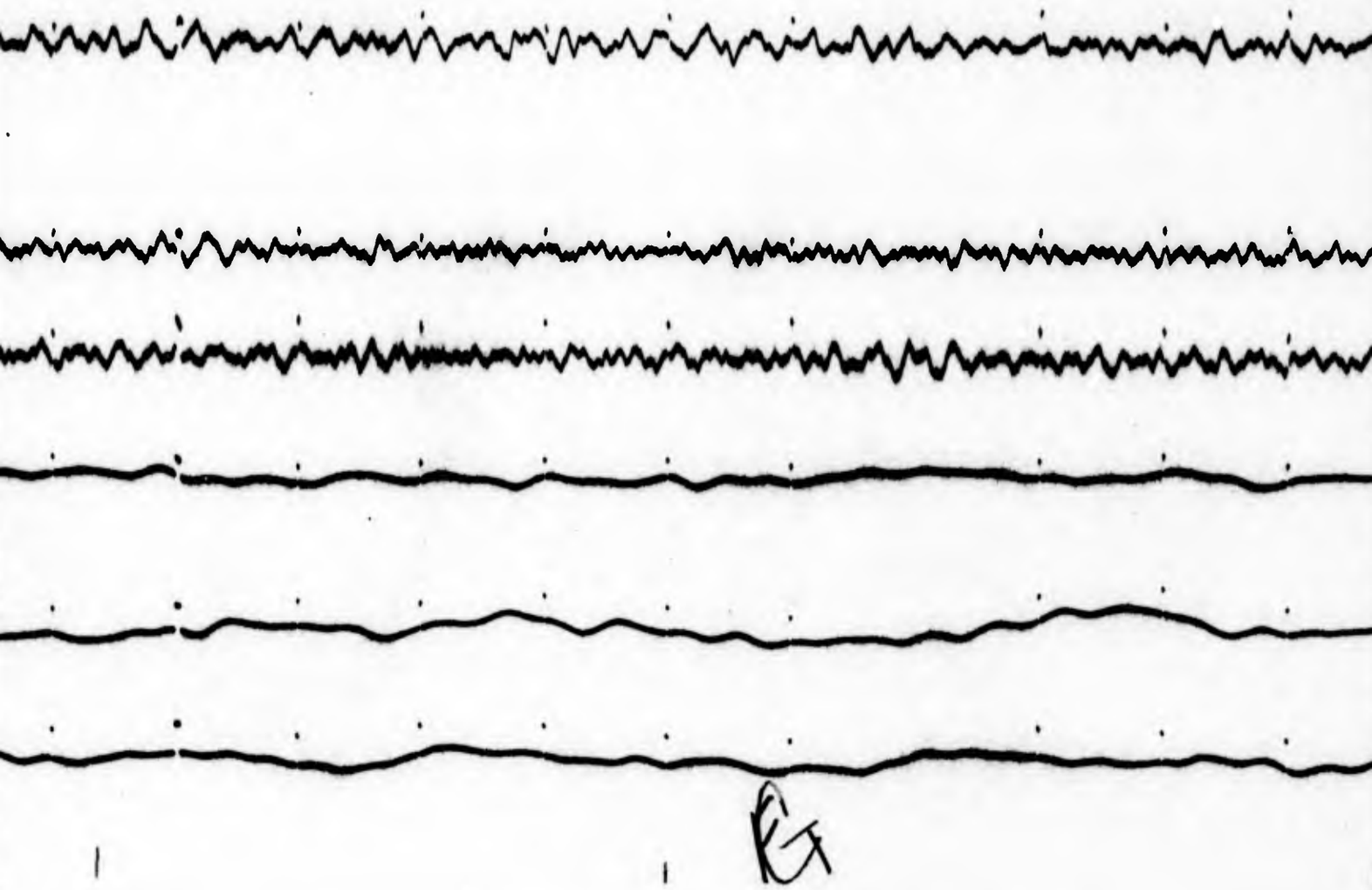
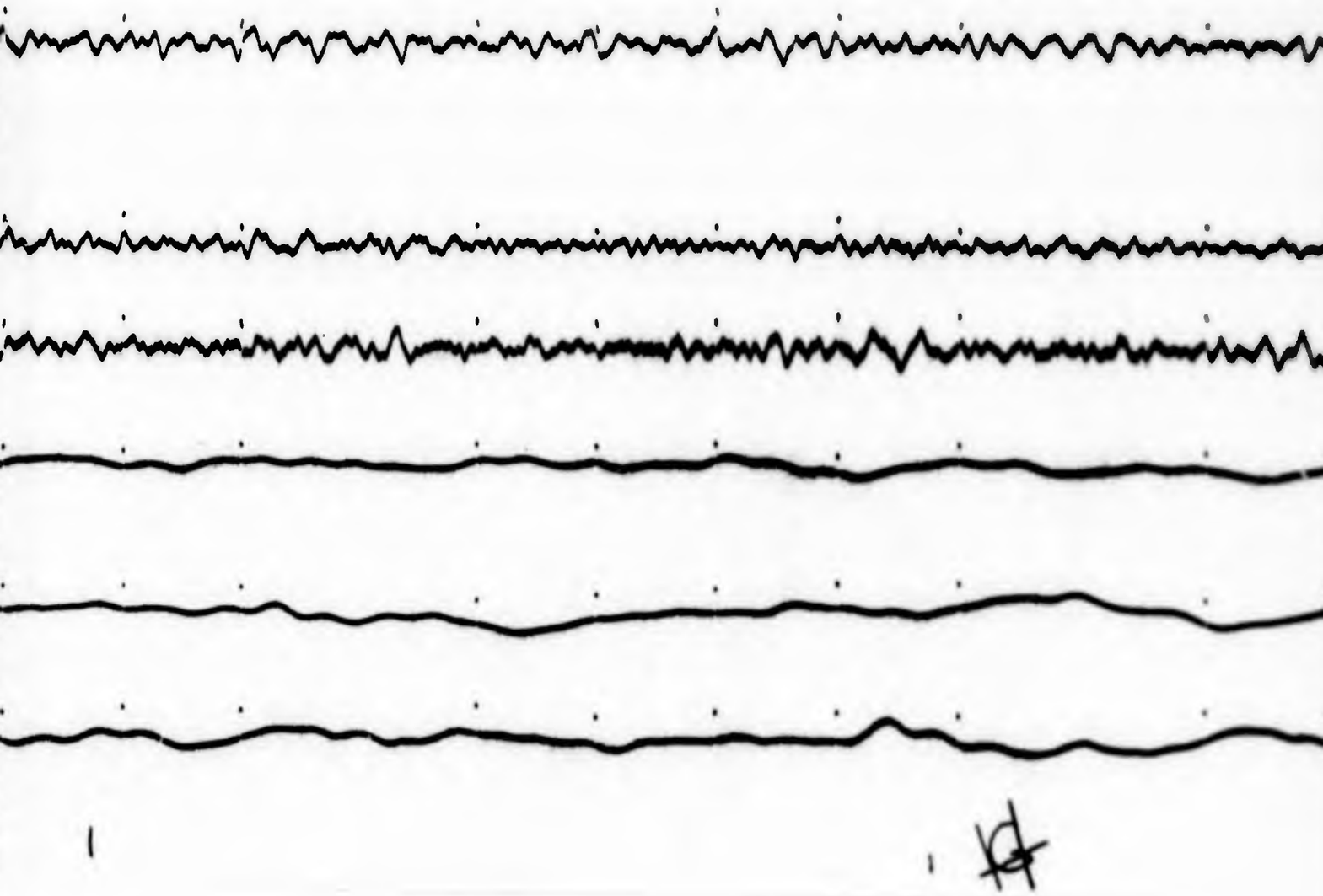
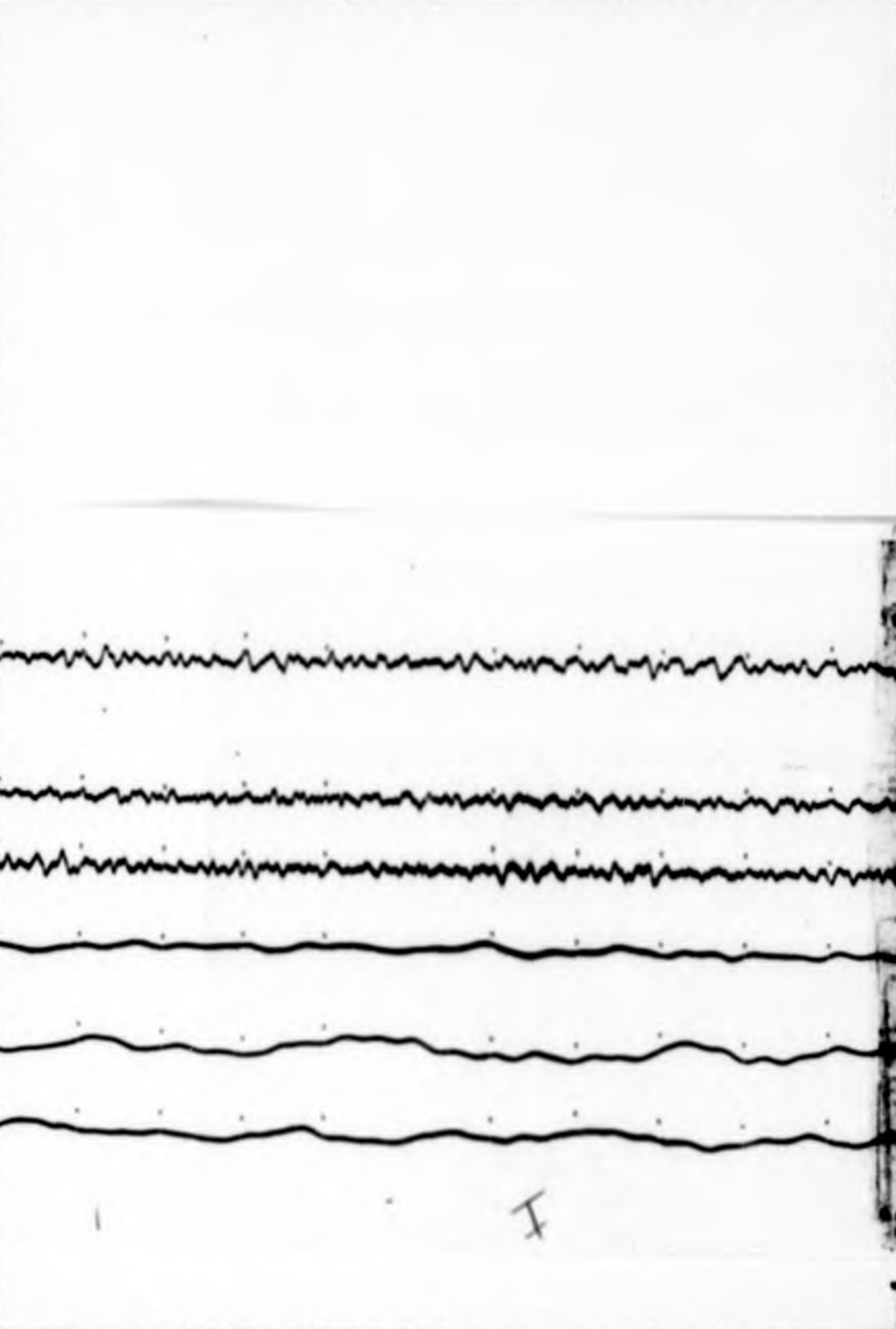
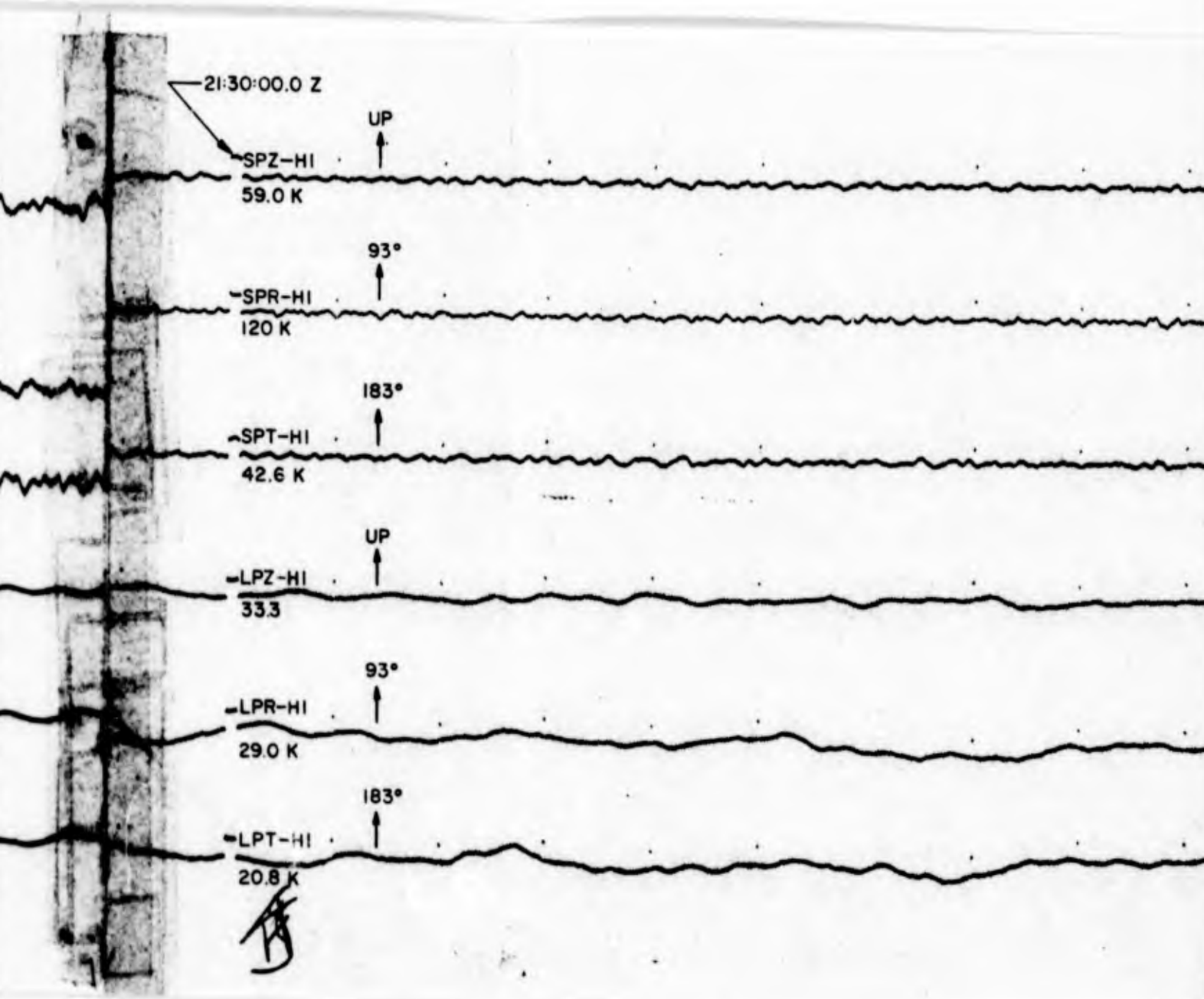
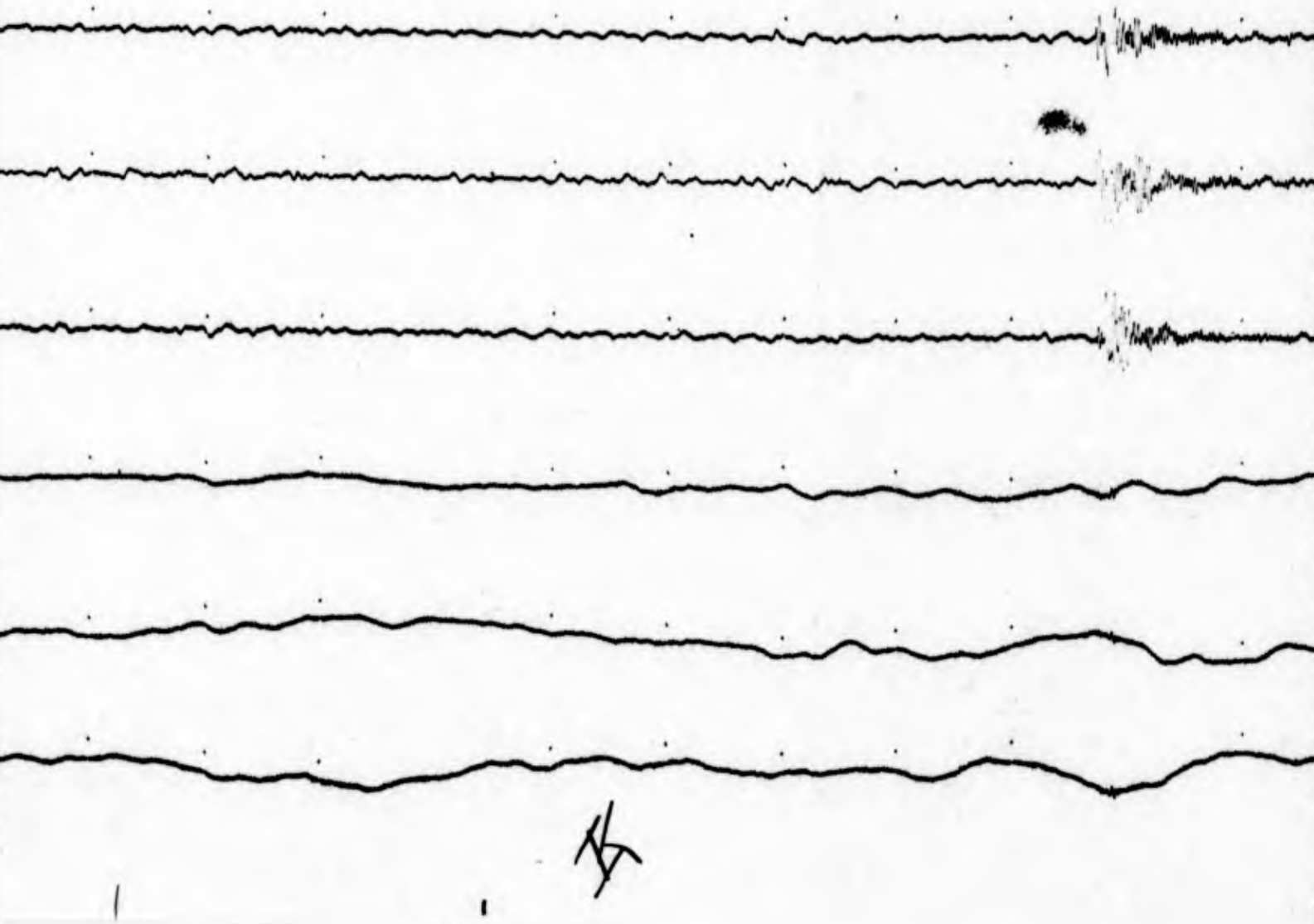


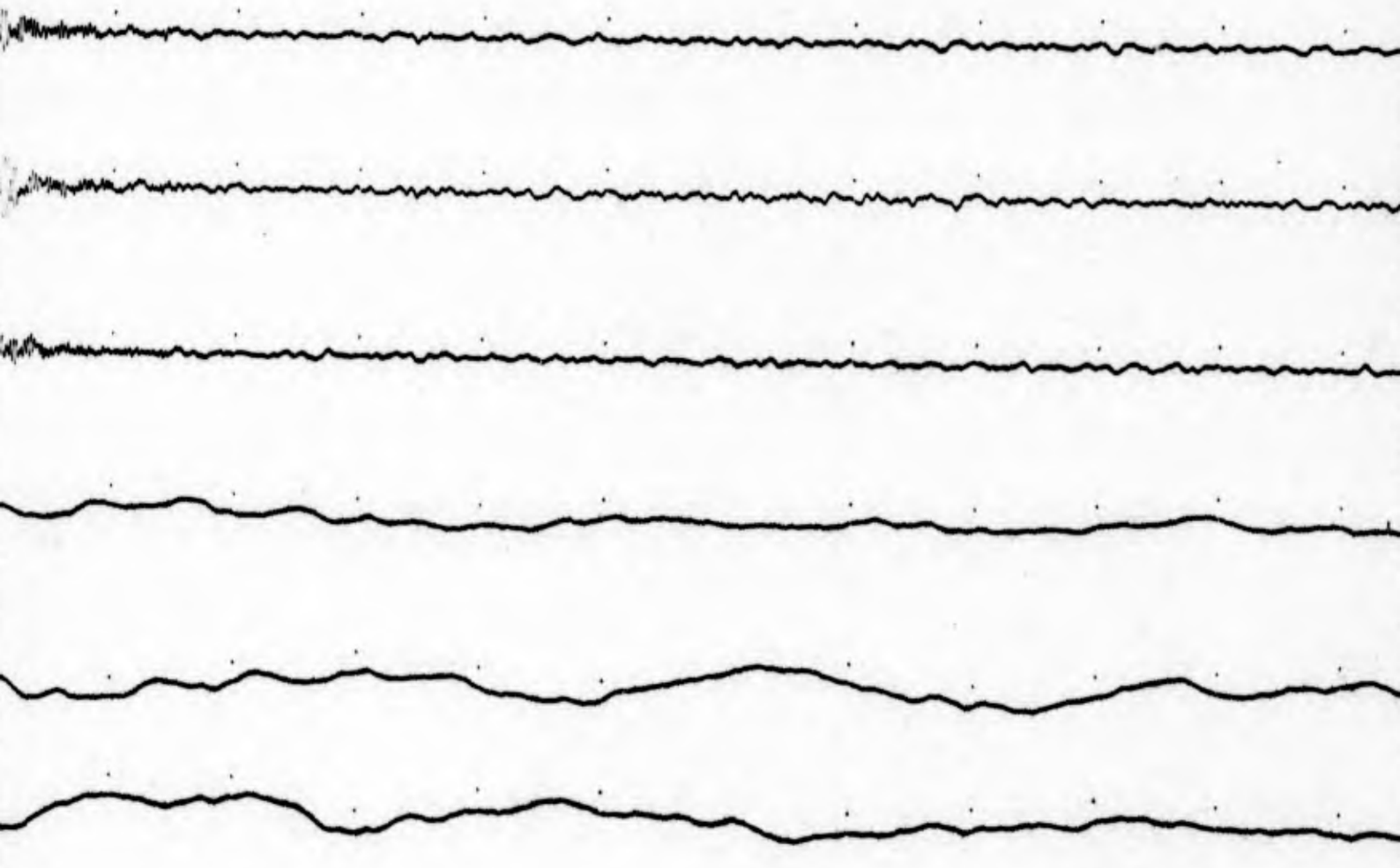


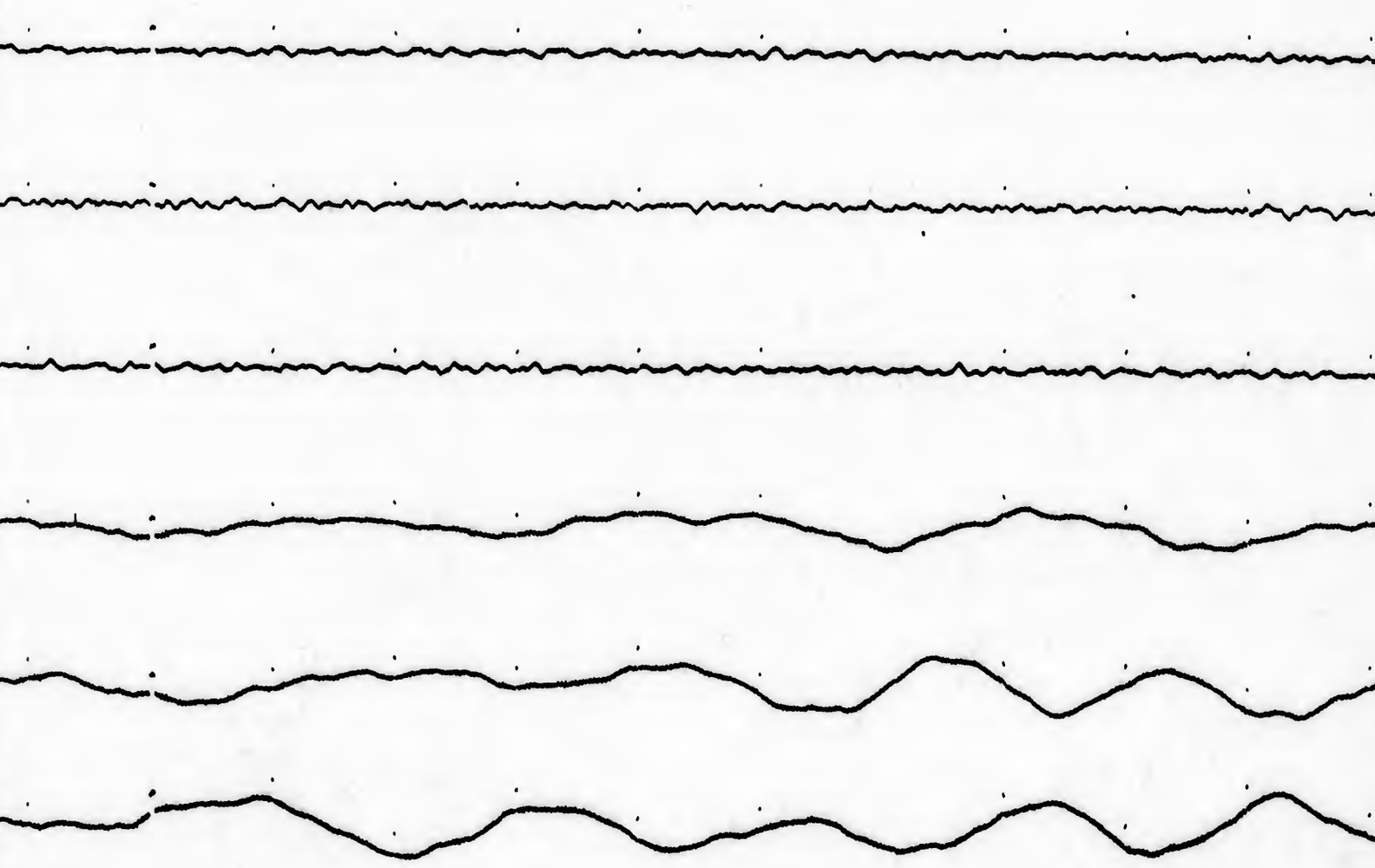


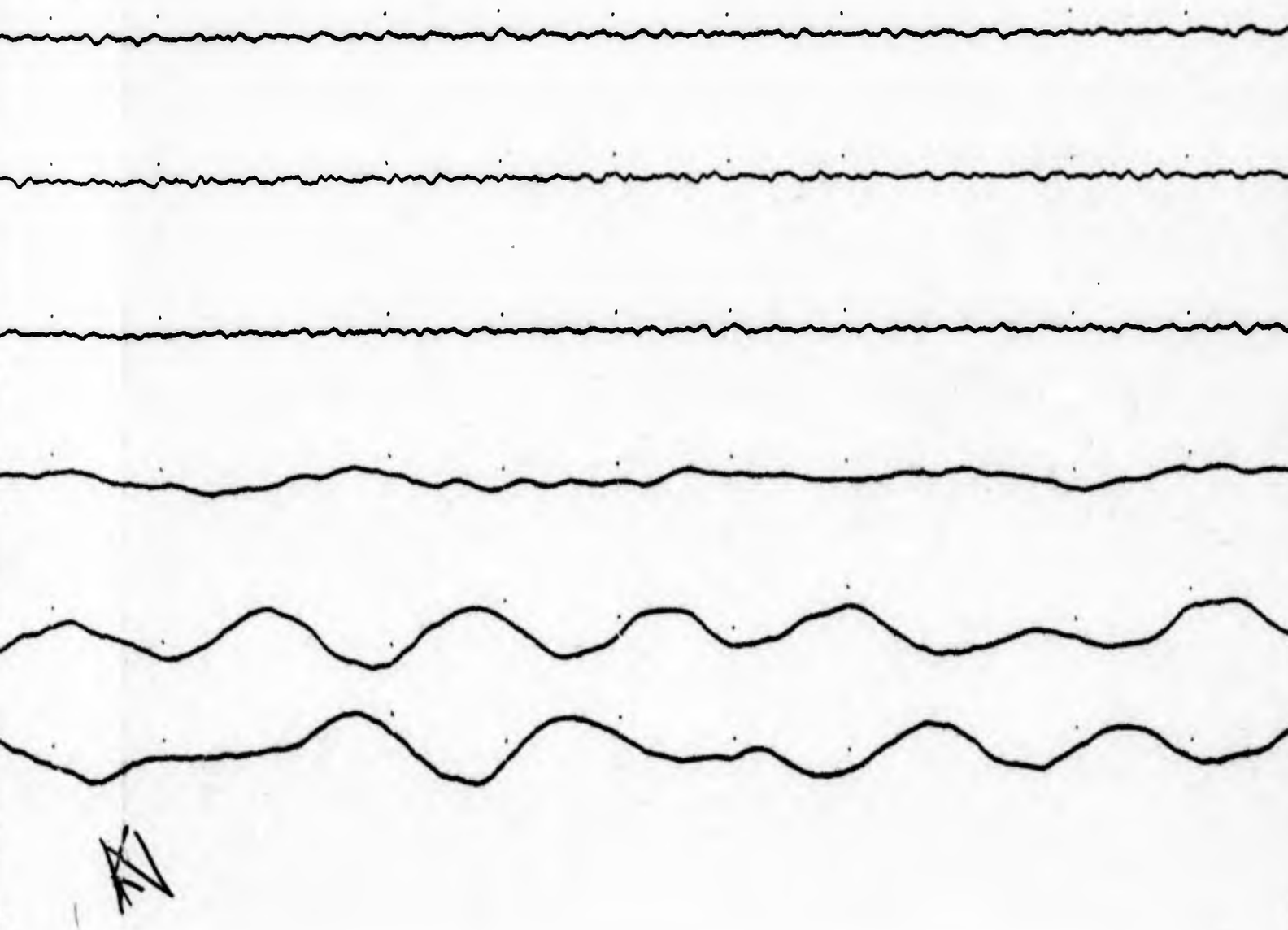


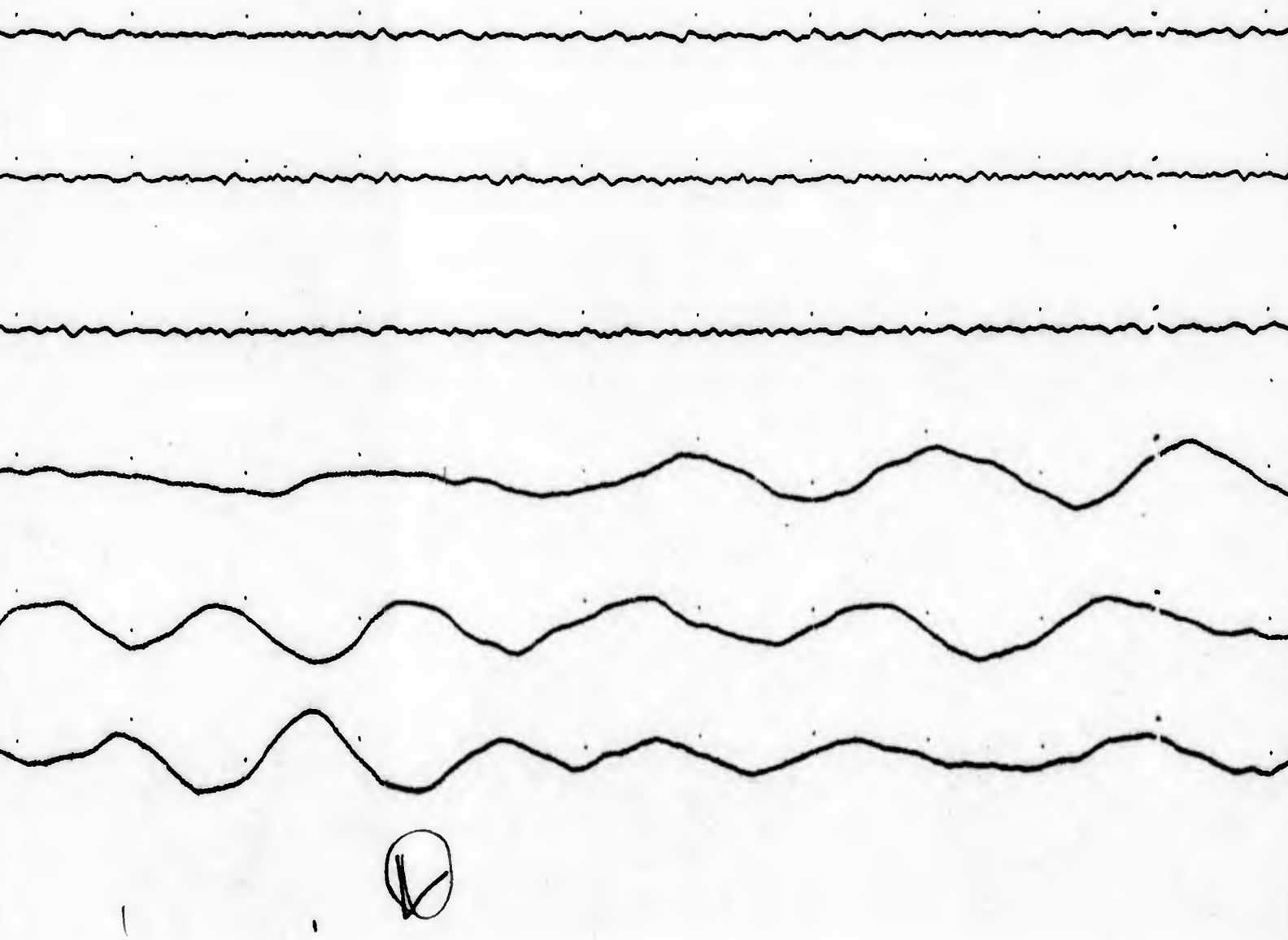

21:30:00.0 Z
UP
SPZ-HI
59.0 K
93°
SPR-HI
120 K
183°
SPT-HI
42.6 K
UP
LPZ-HI
33.3
93°
LPR-HI
29.0 K
183°
LPT-HI
20.8 K

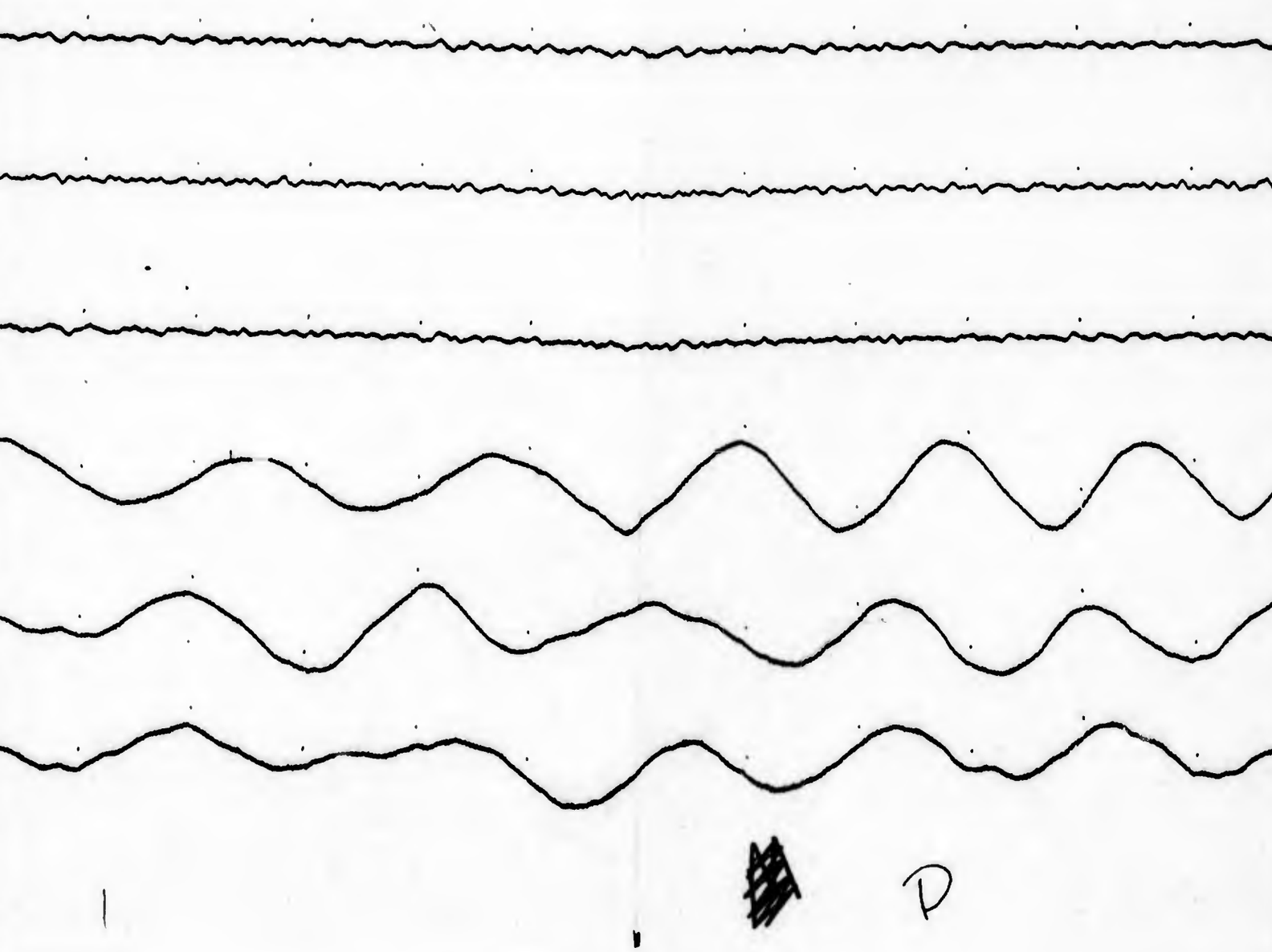








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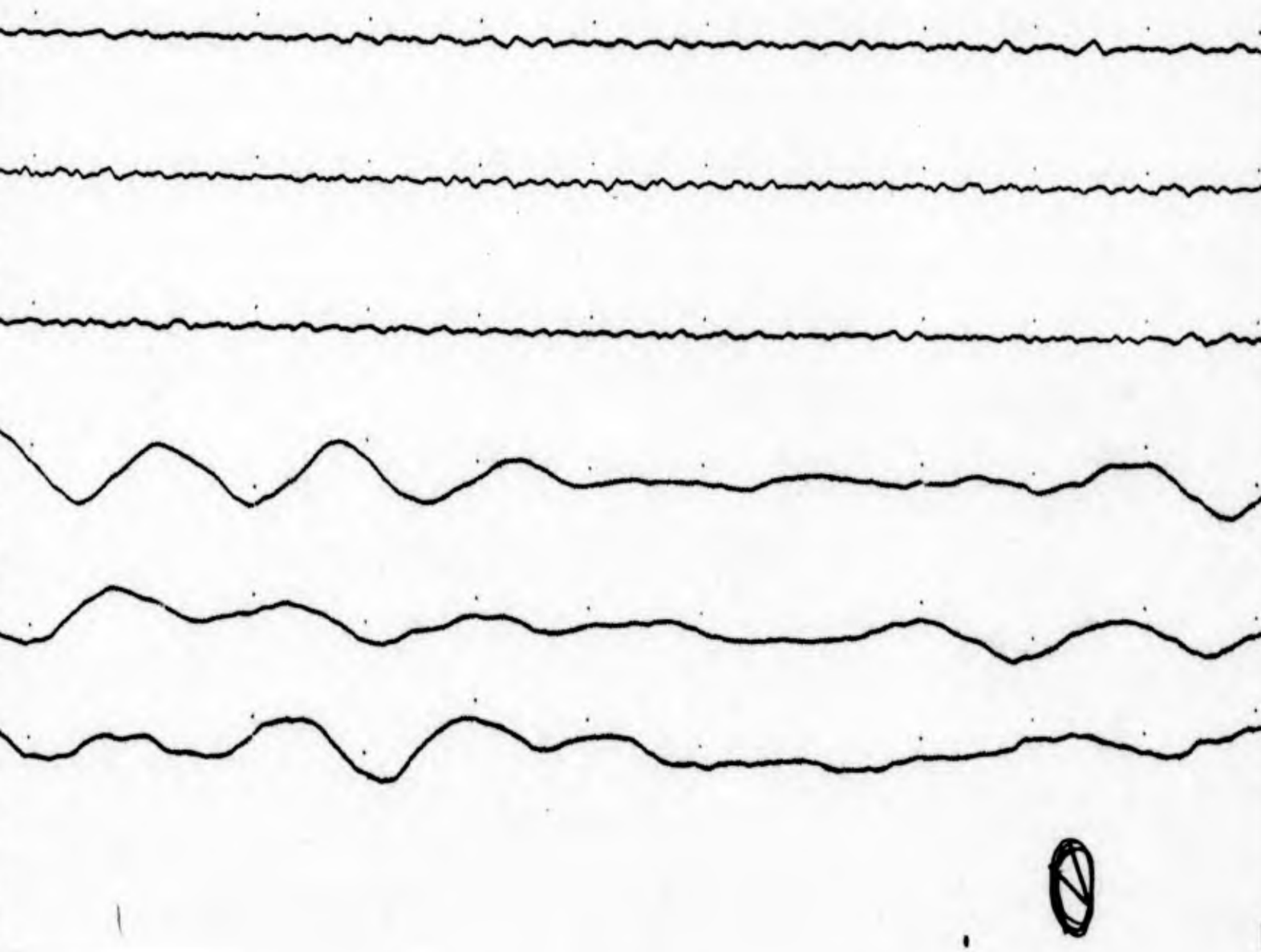

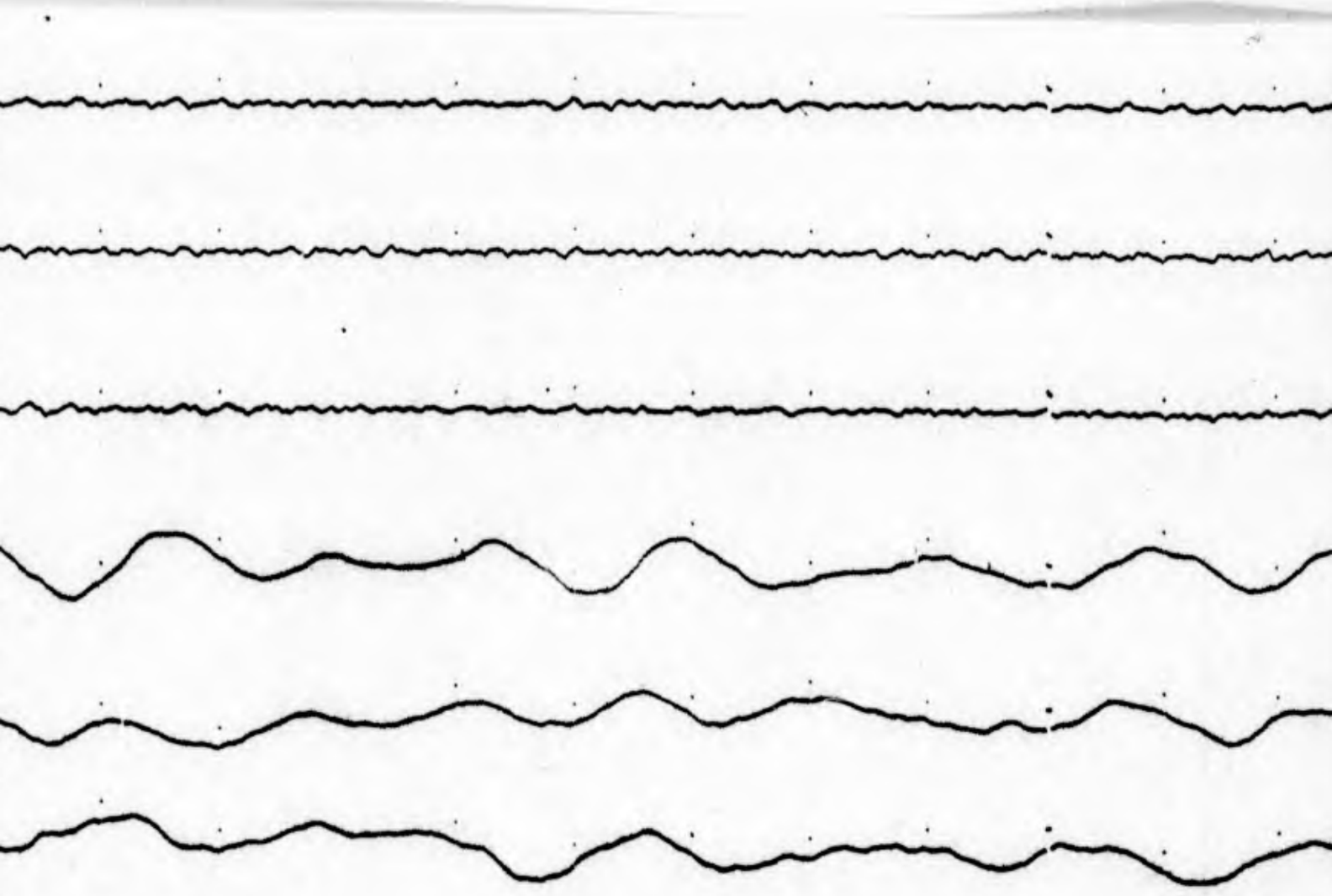

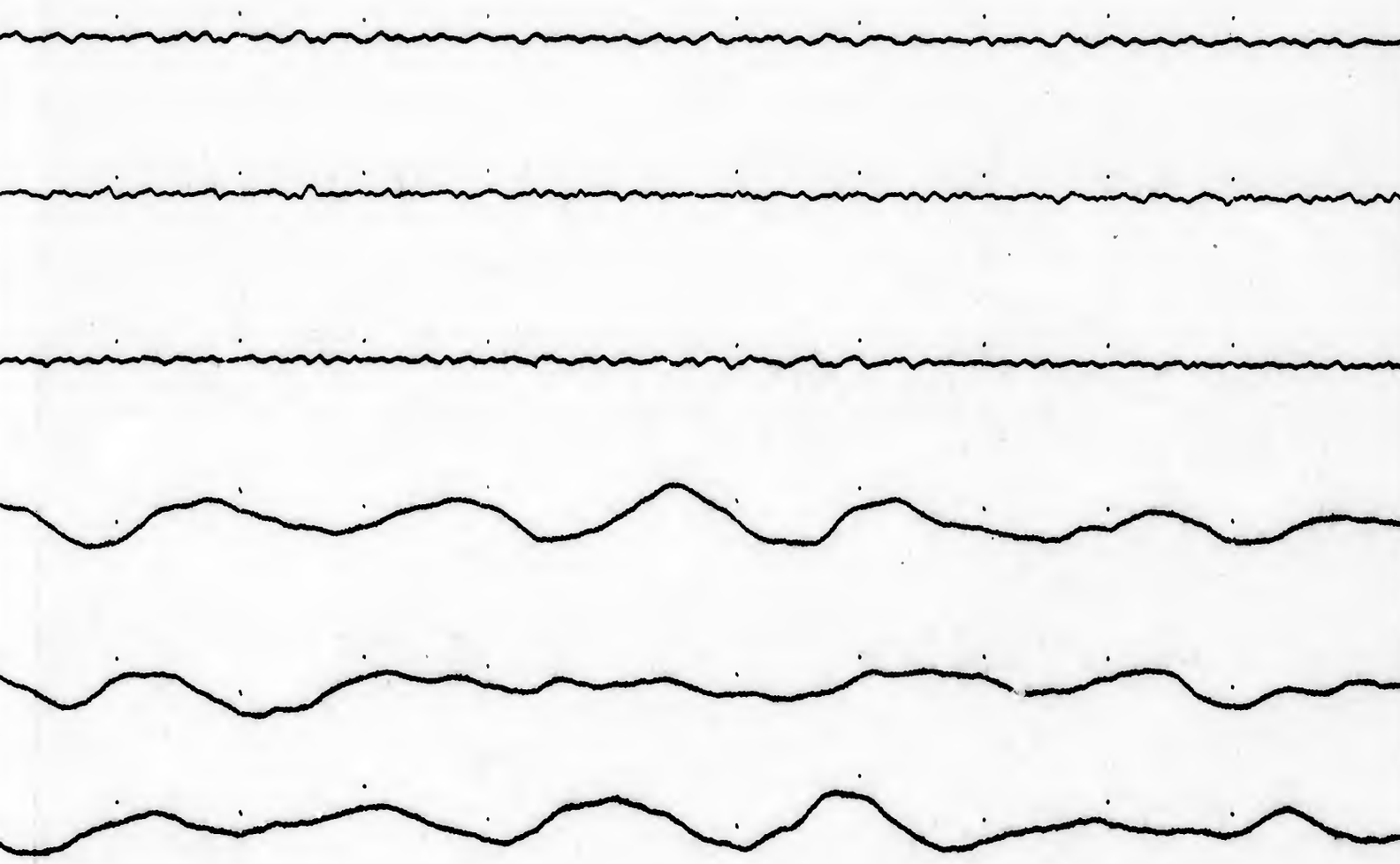
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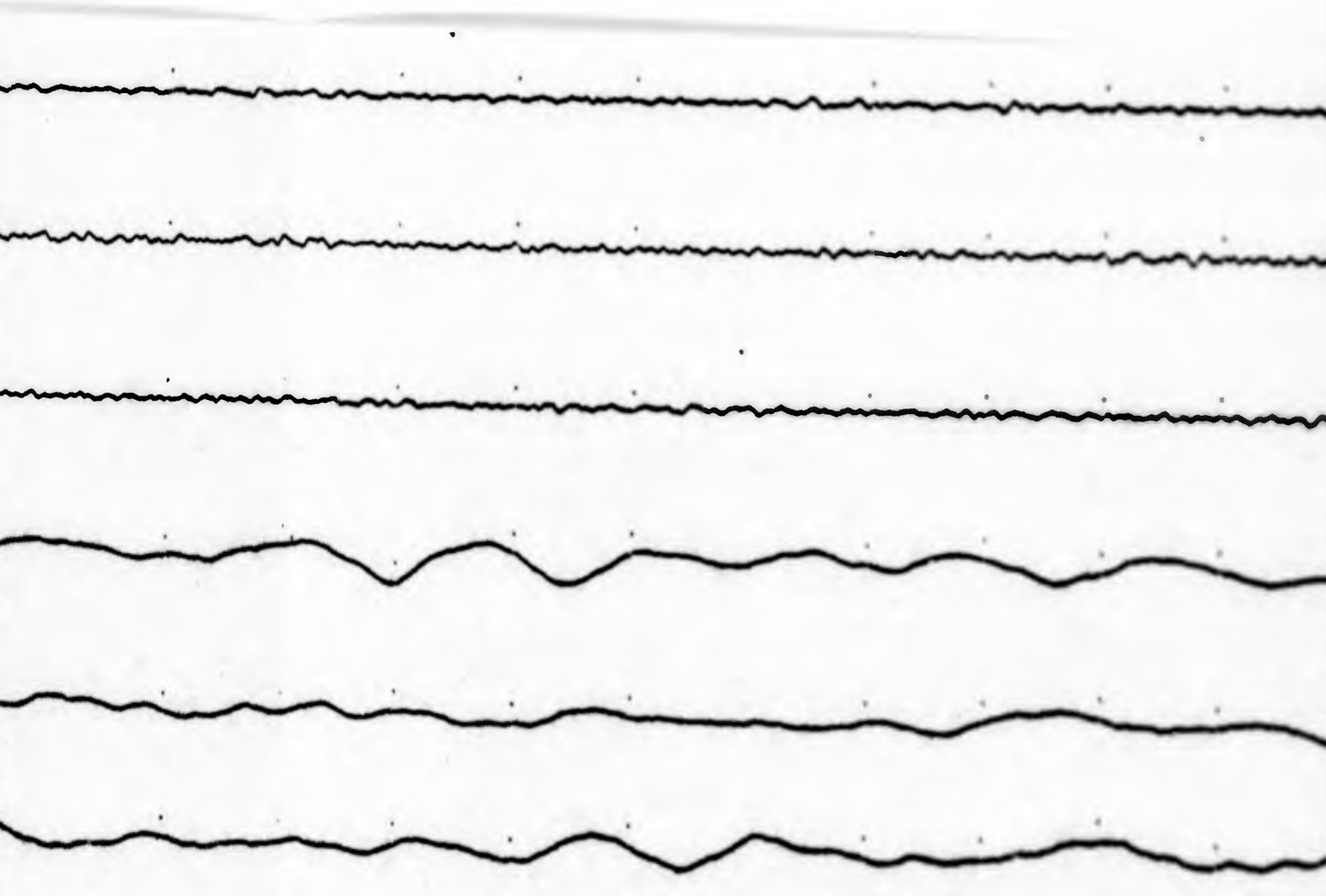

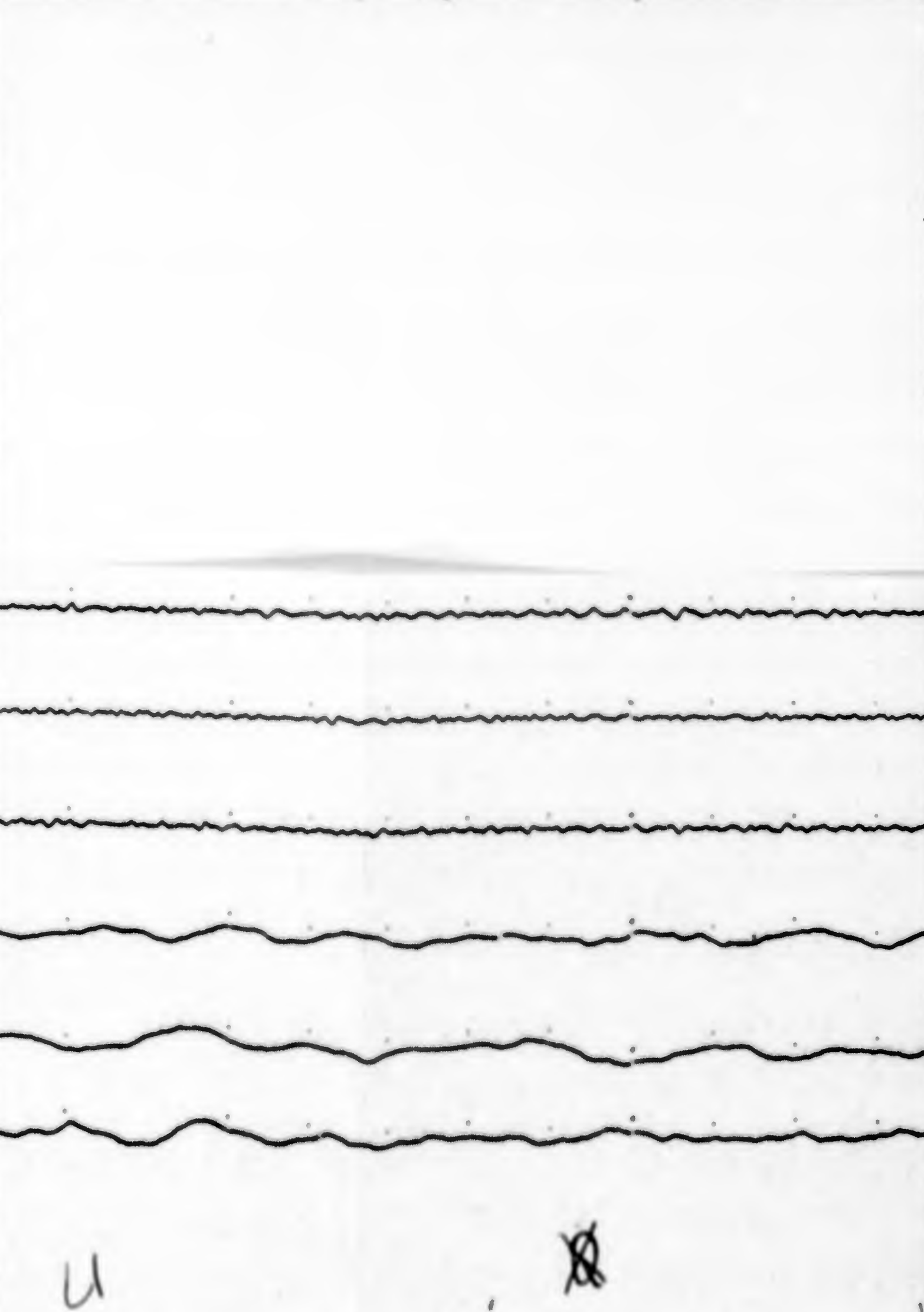

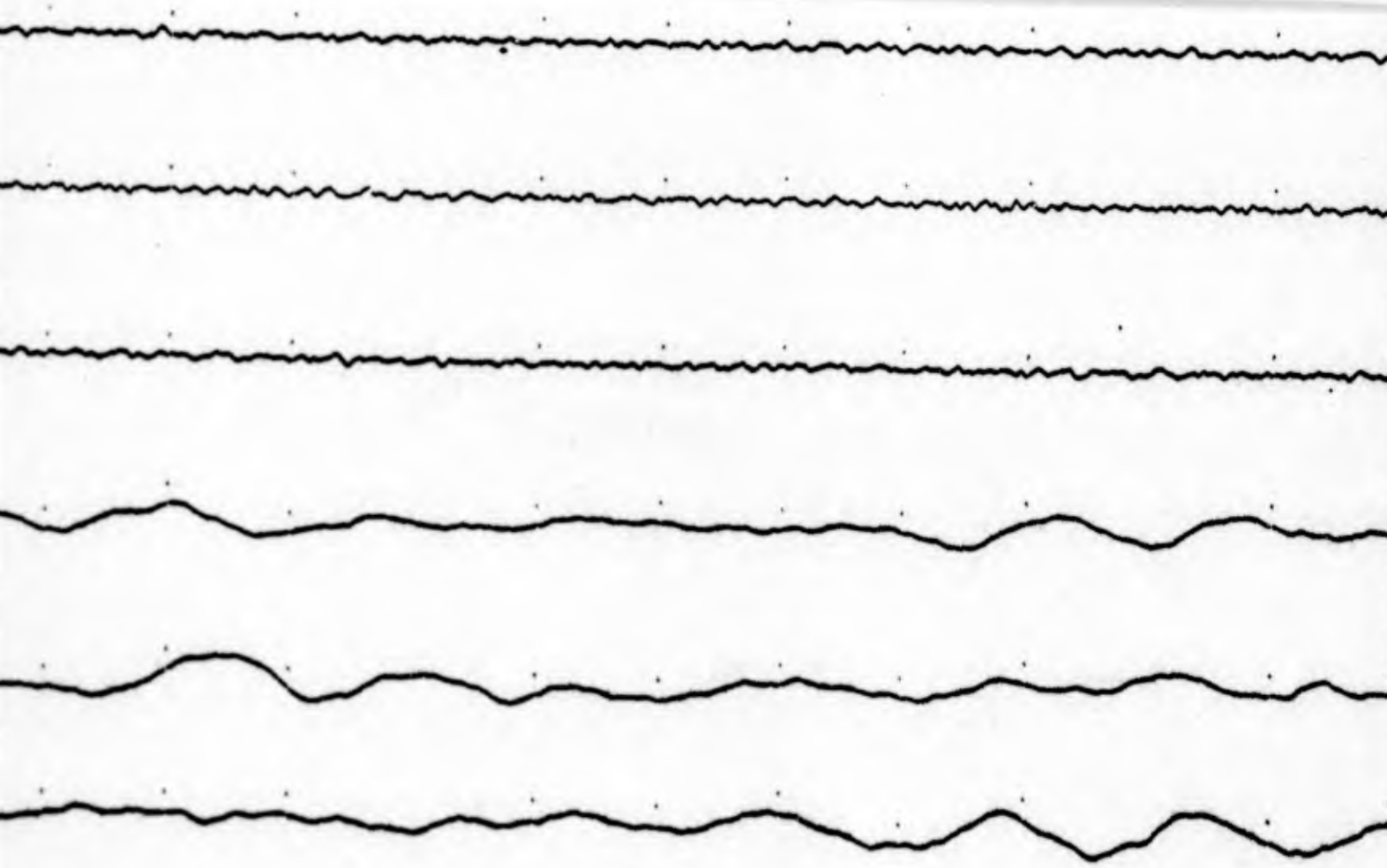

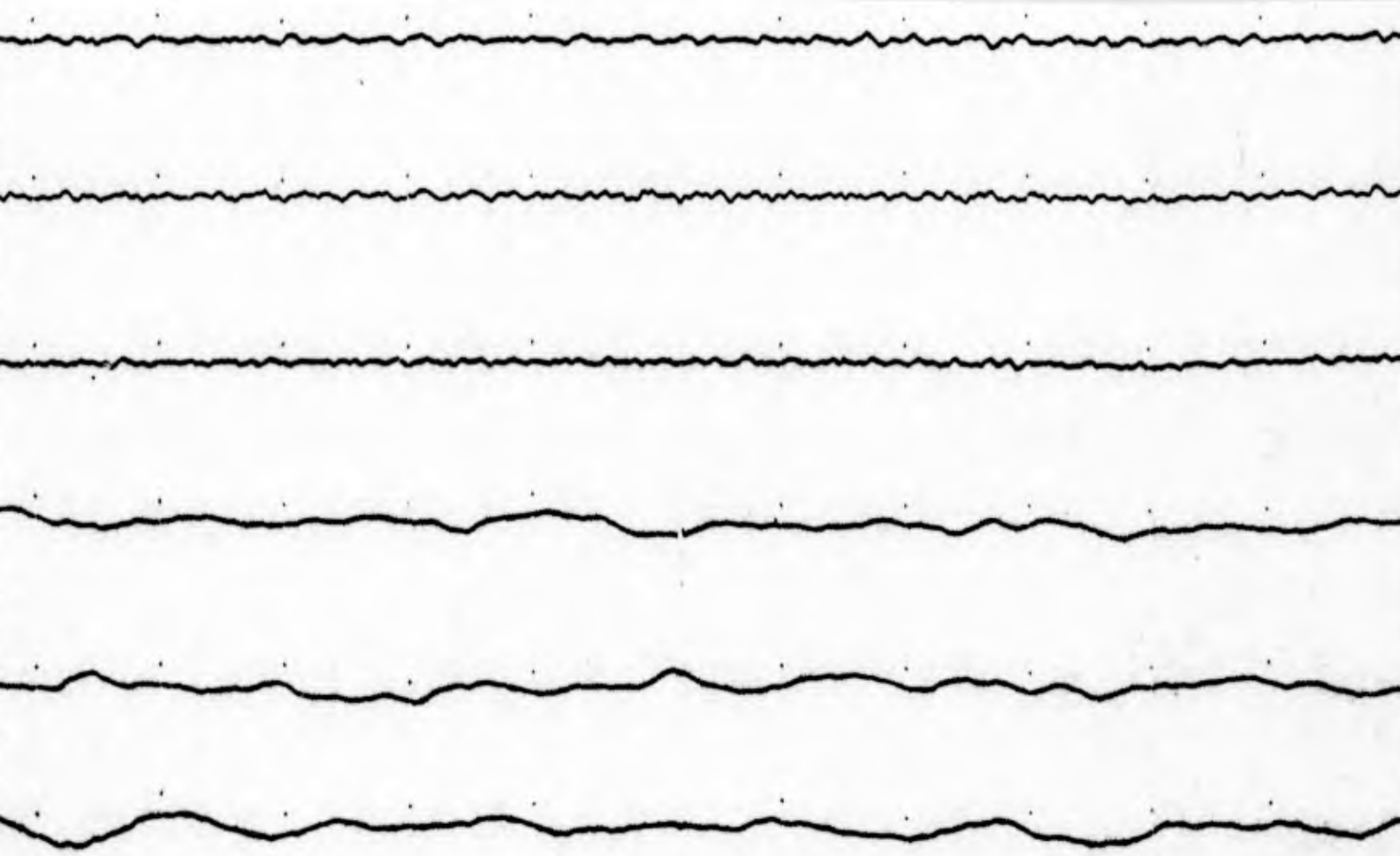

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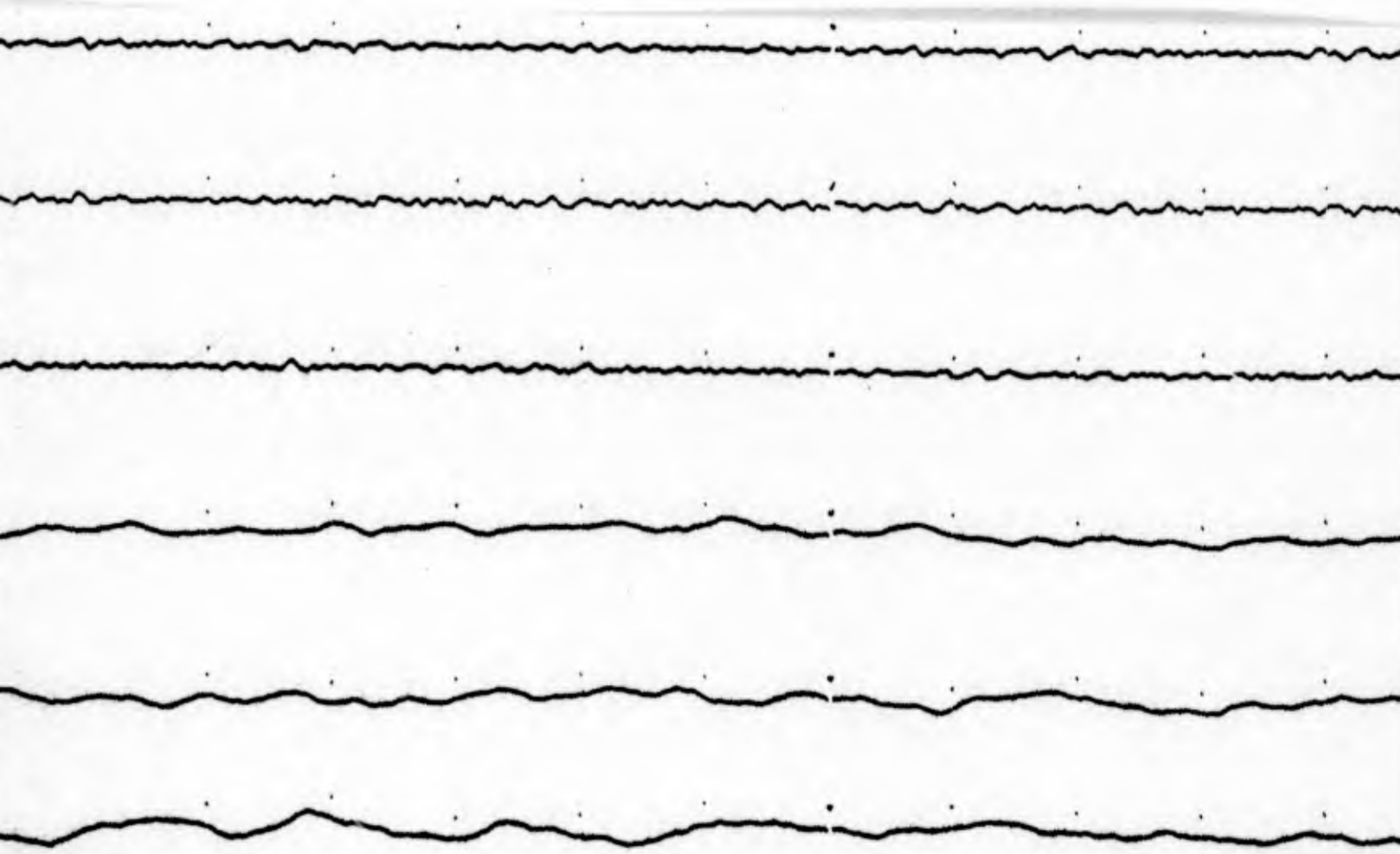

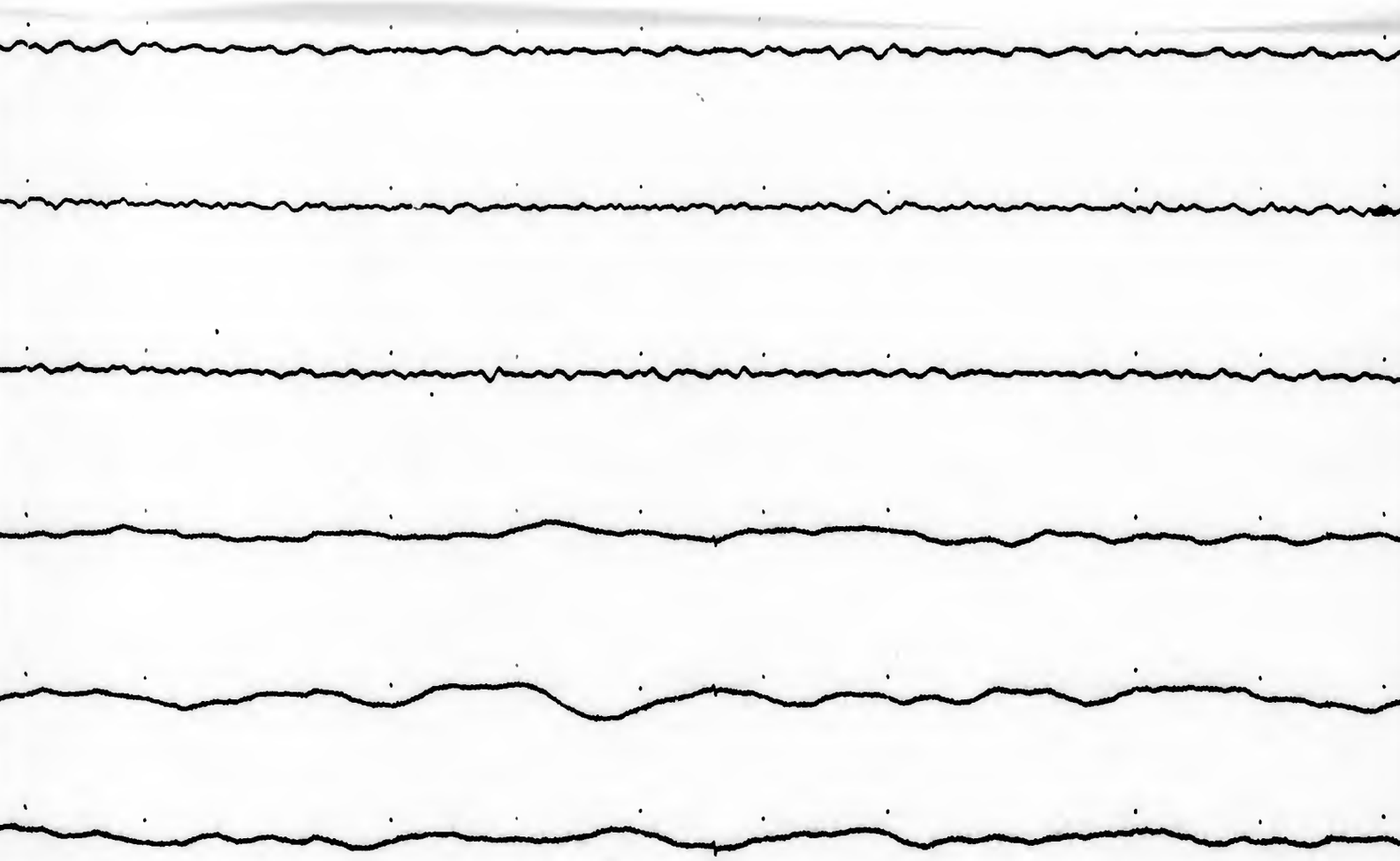

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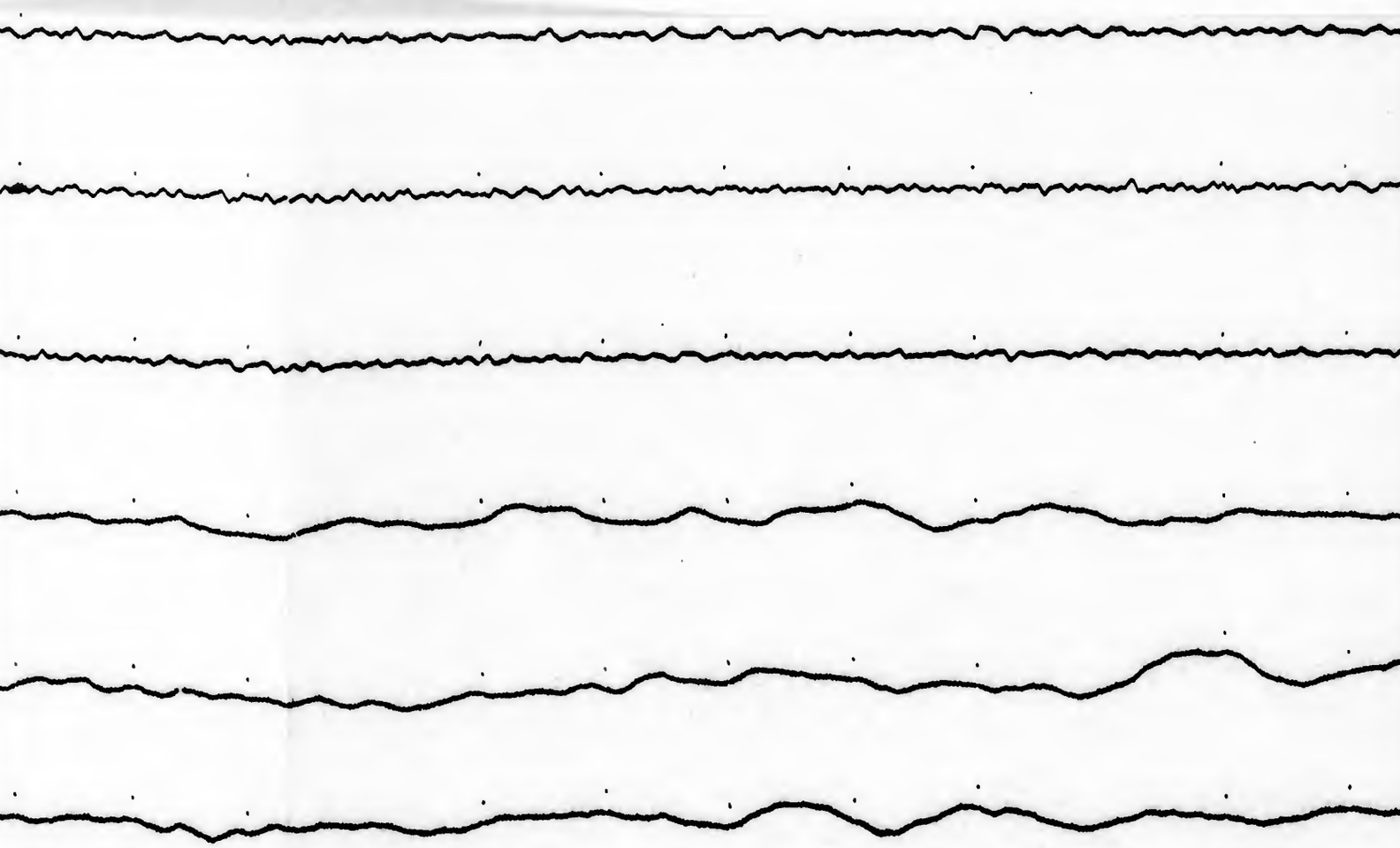

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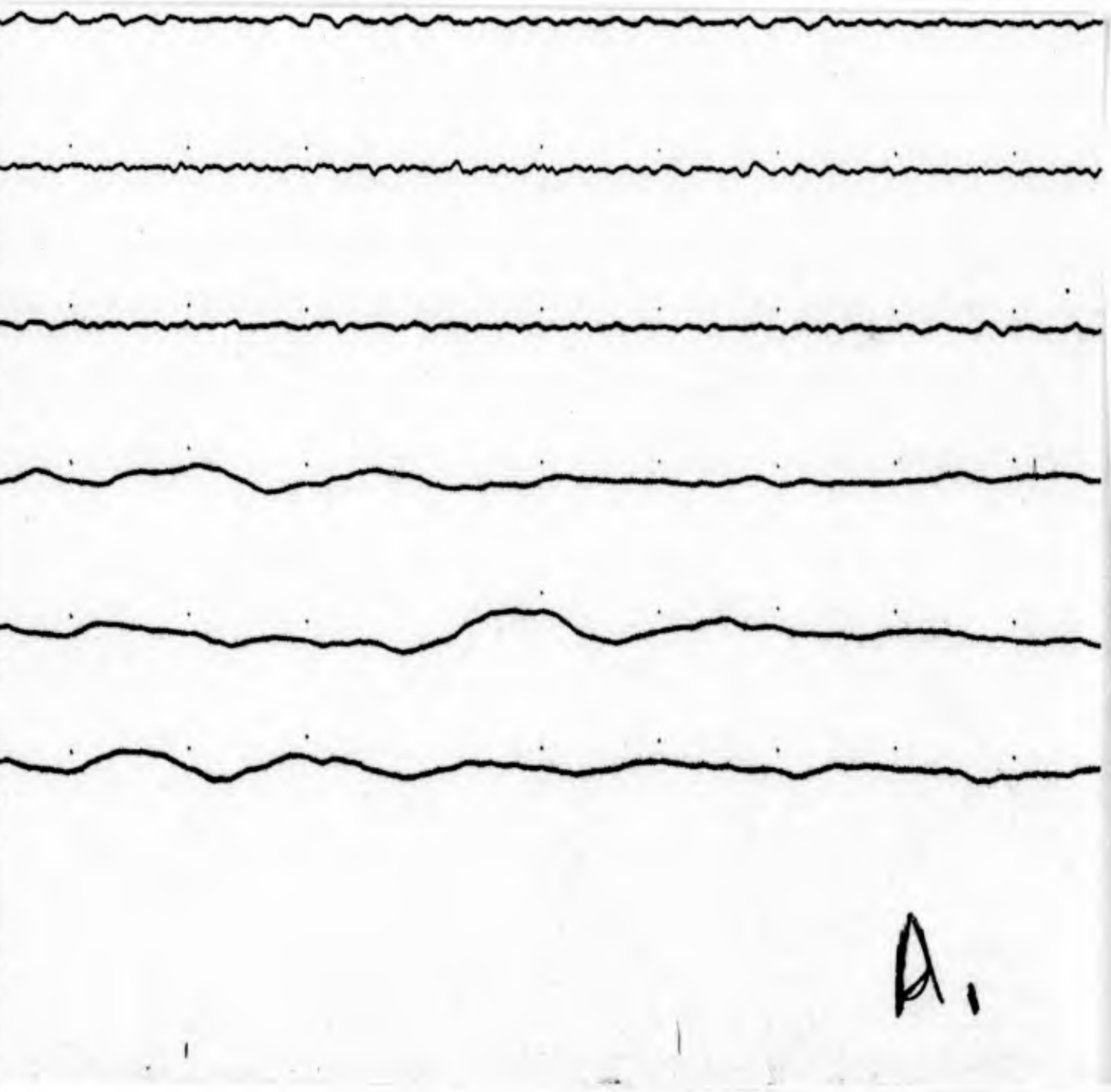
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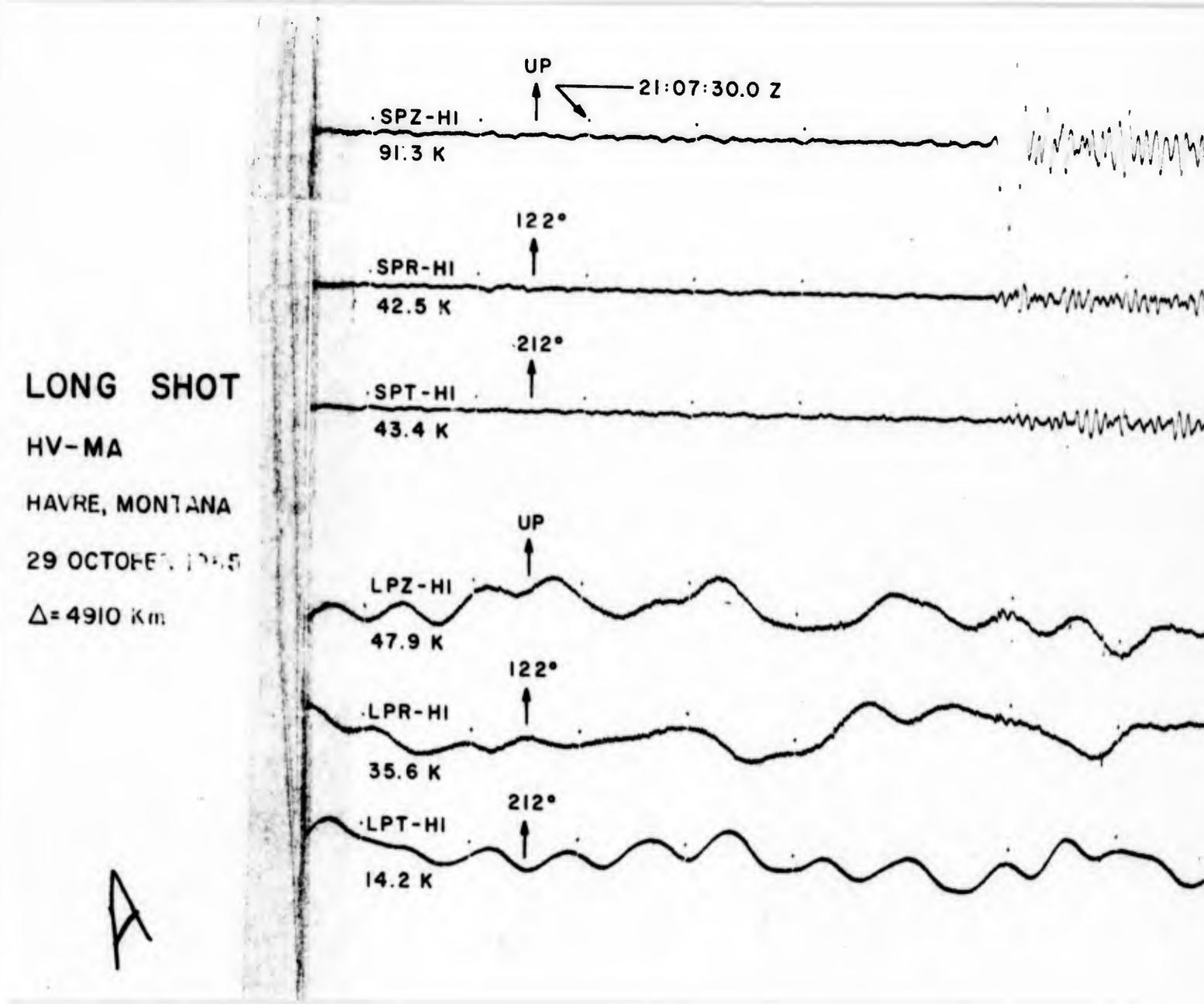
LONG SHOT
HV-MA
HAVRE, MONTANA
29 OCTOBE
Δ=4910 Km
UP
21:07:30.0 Z
SPZ-HI
91.3 K
122°
SPR-HI
42.5 K
212°
SPT-HI
43.4 K
UP
LPZ-HI
47.9 K
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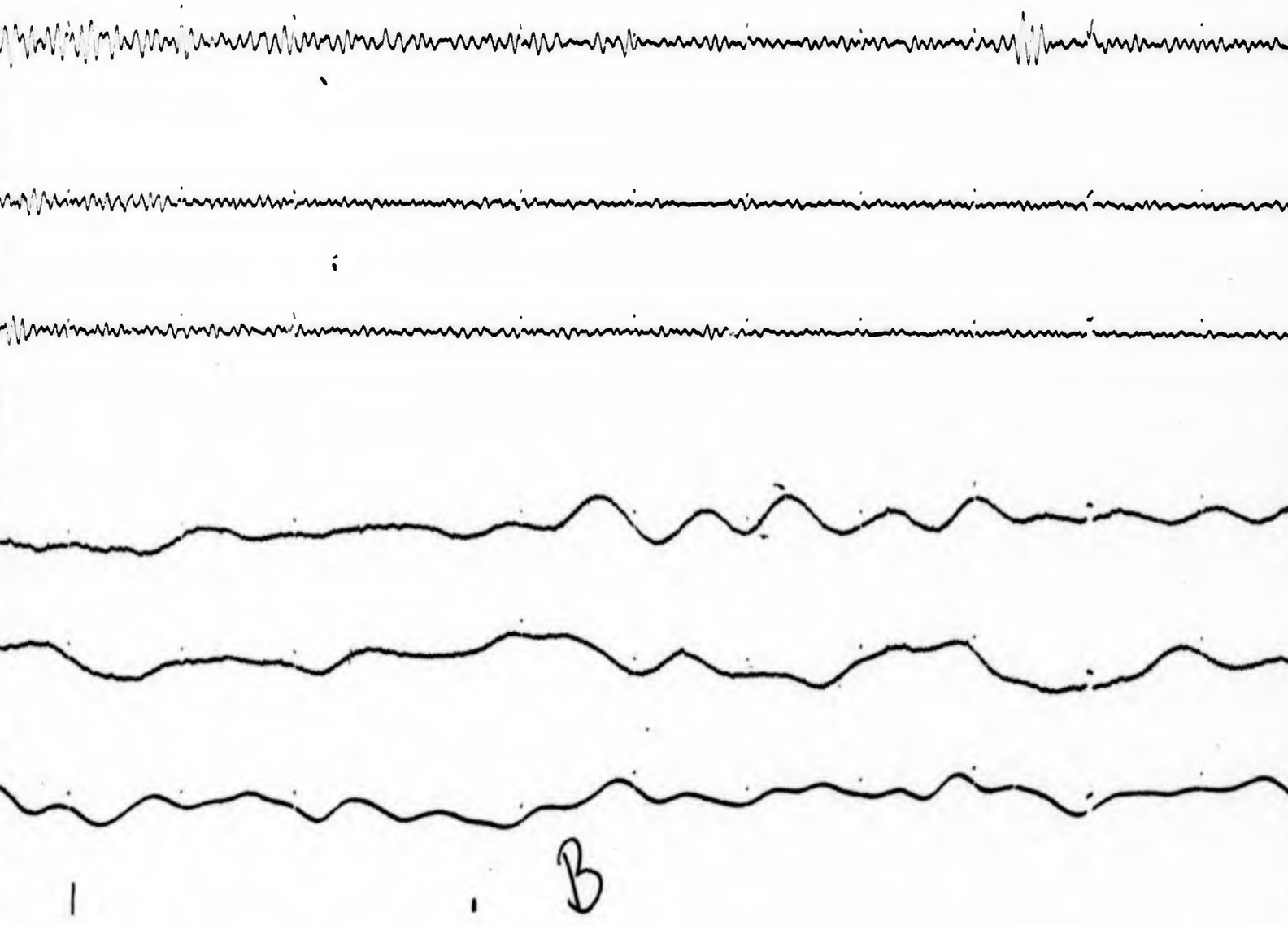
212°
LPT-HI
14.2 K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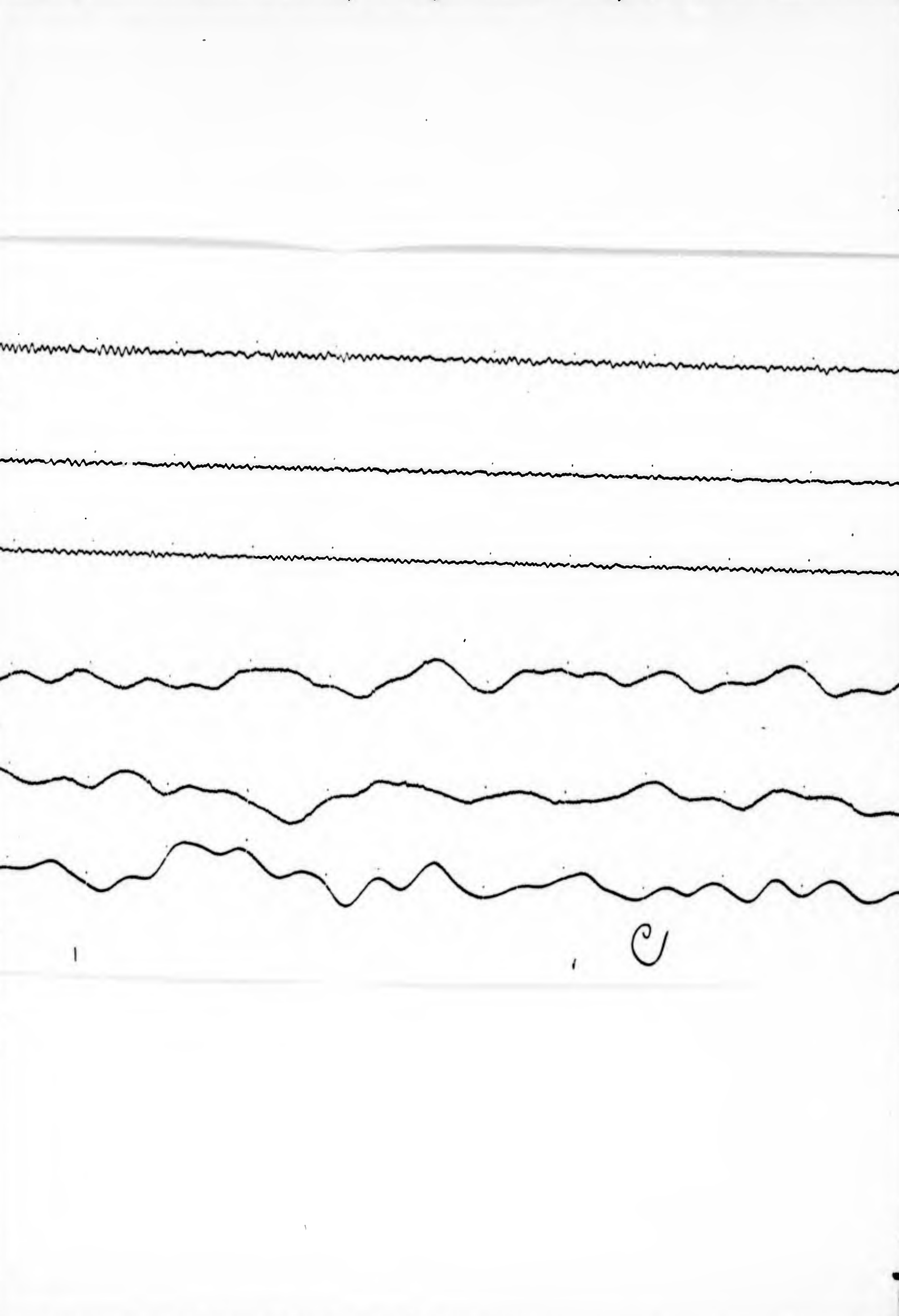

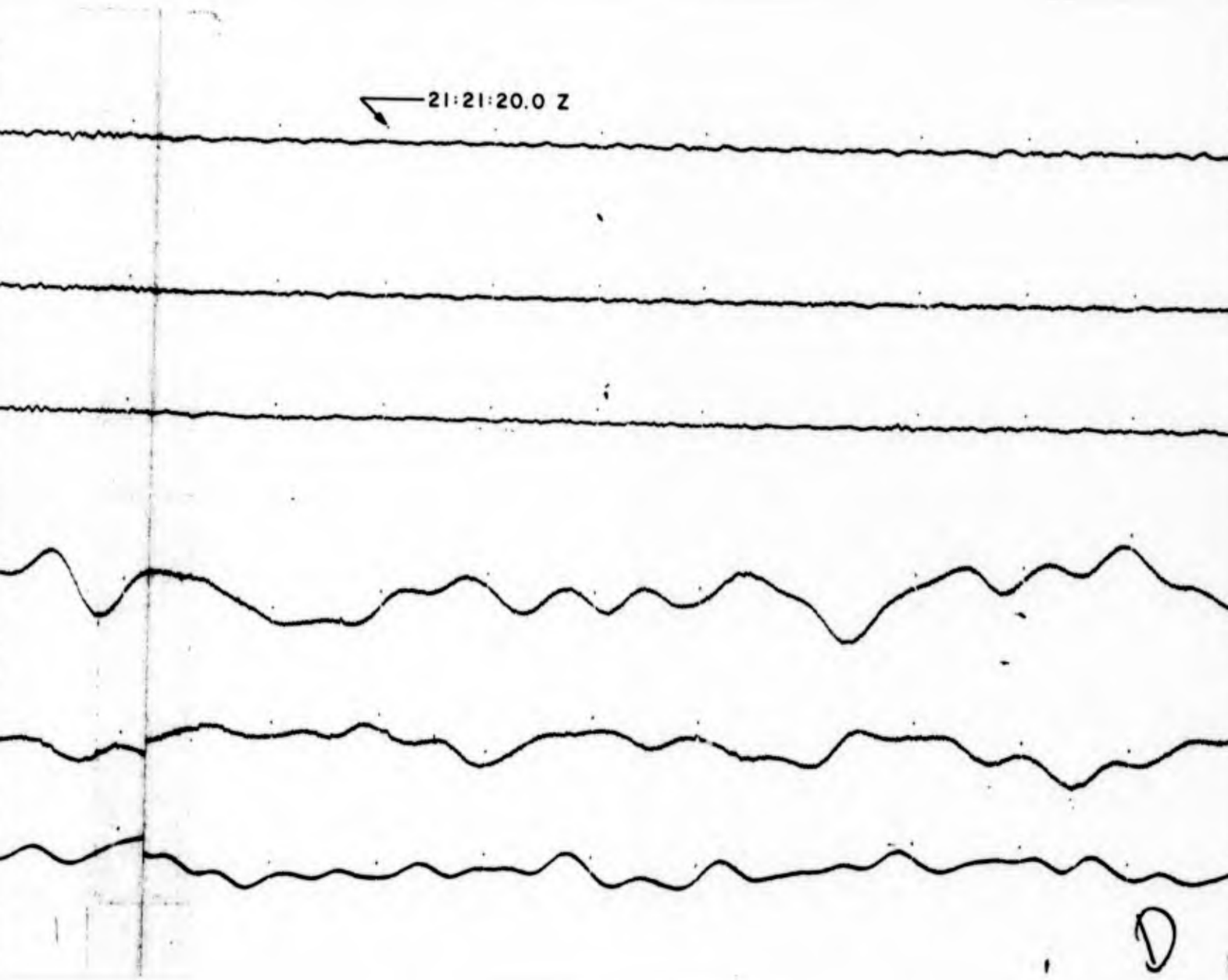
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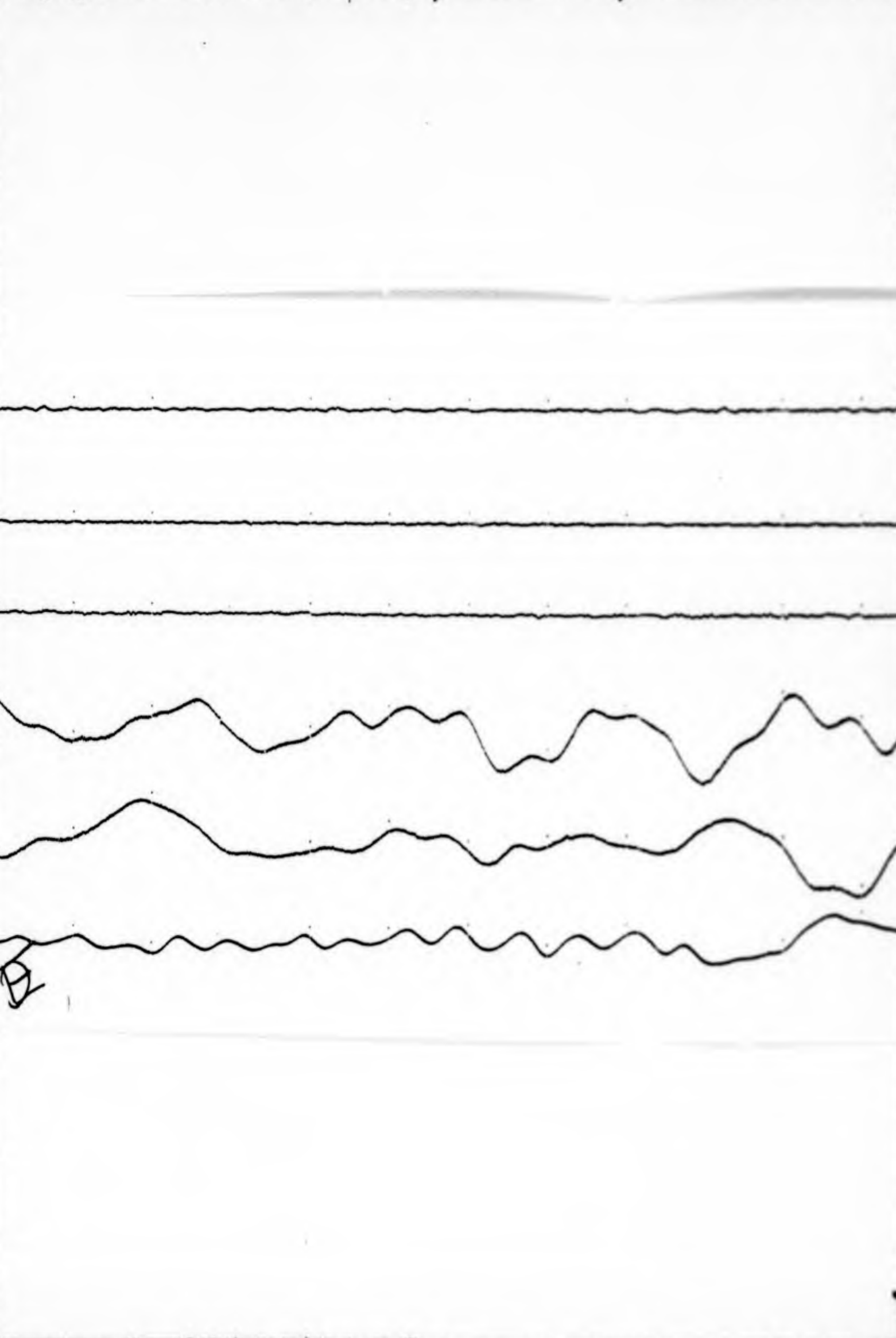
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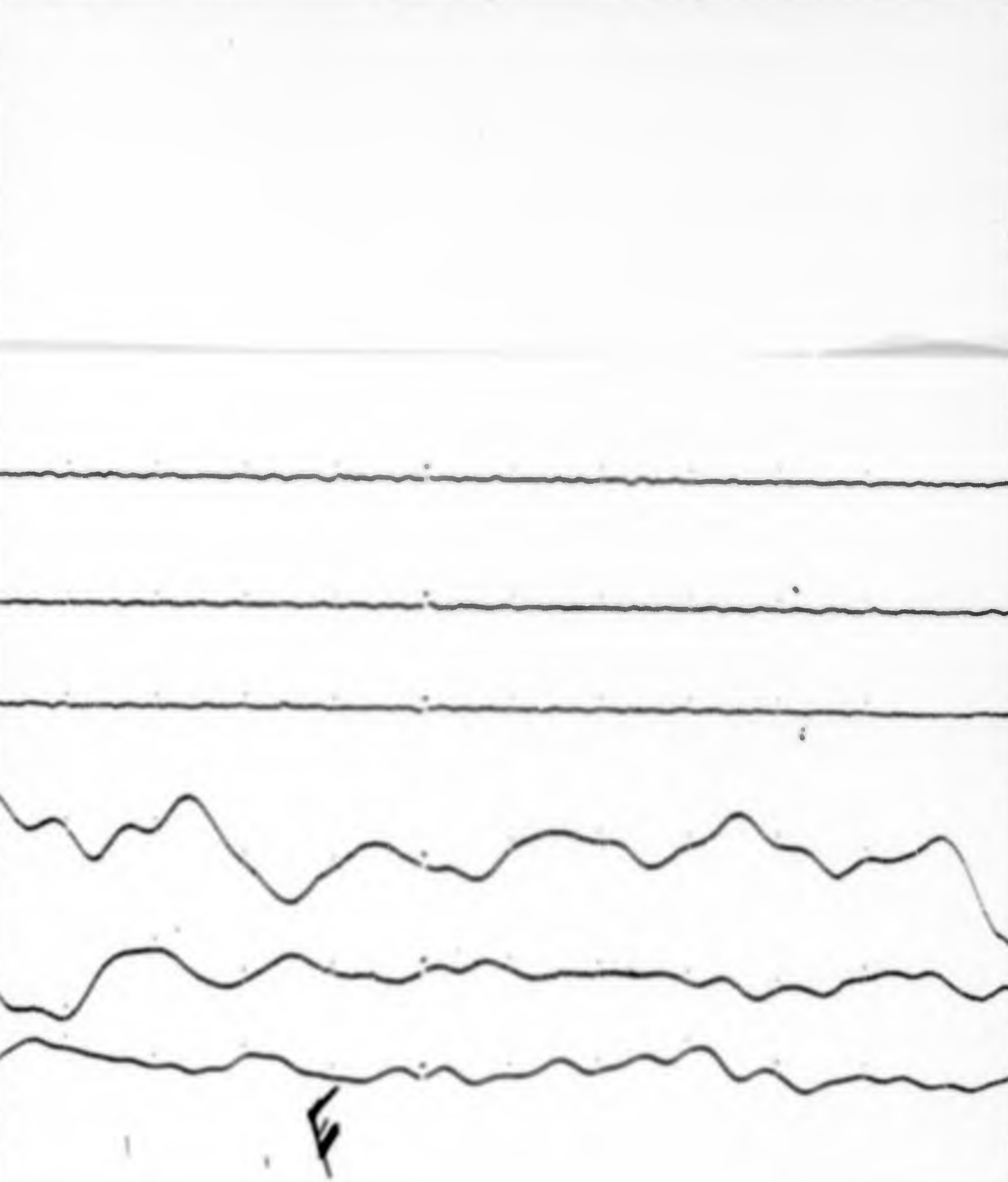
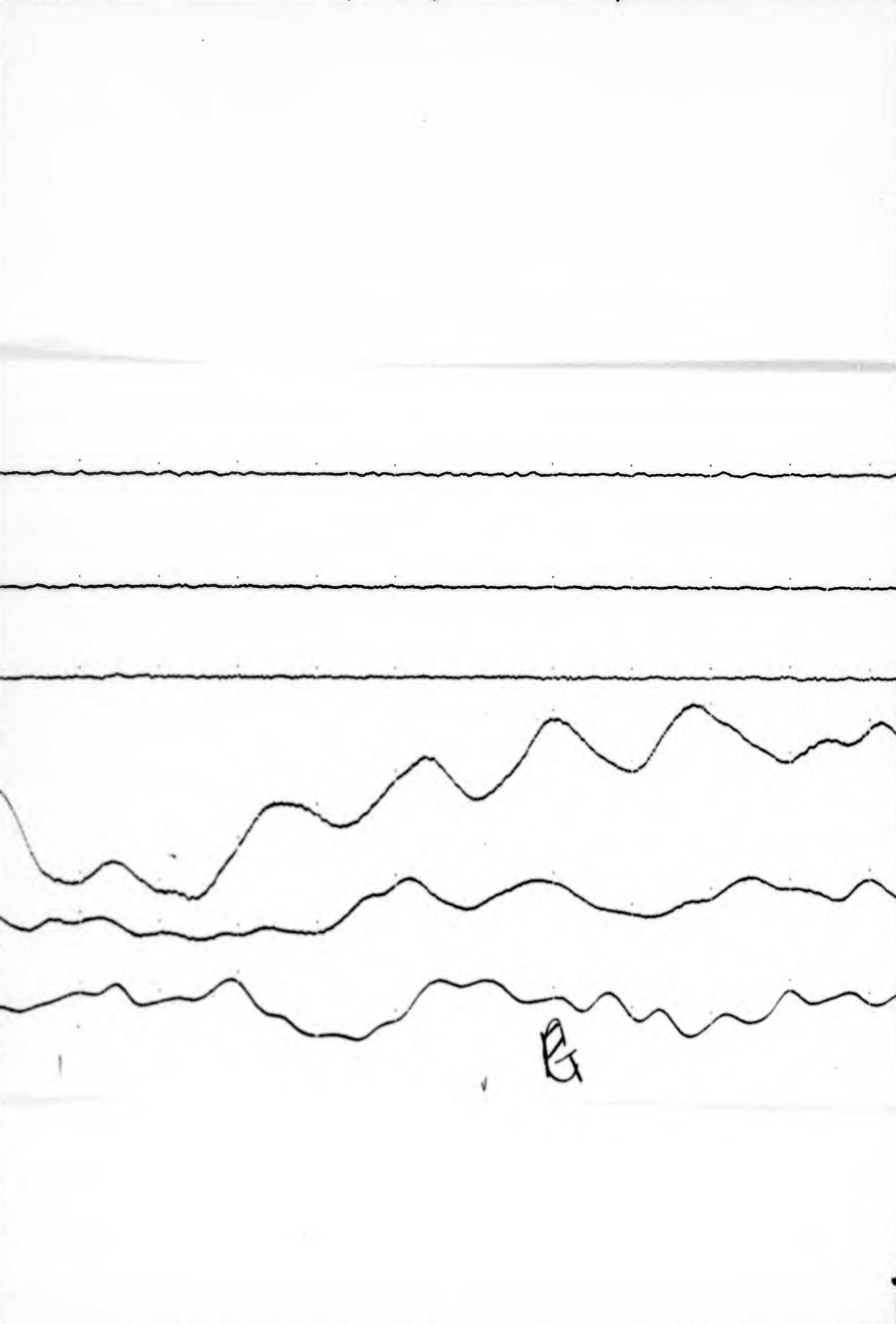
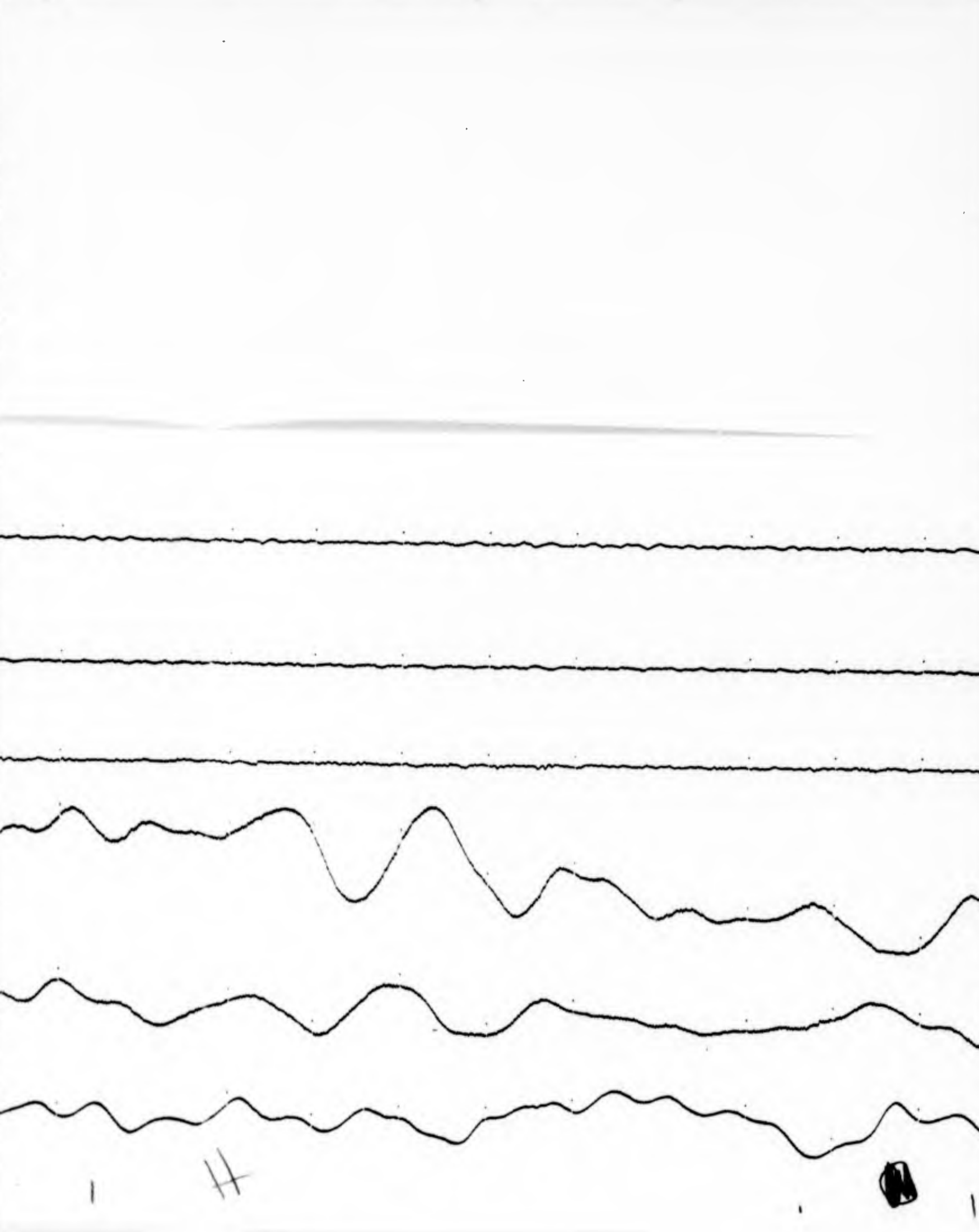
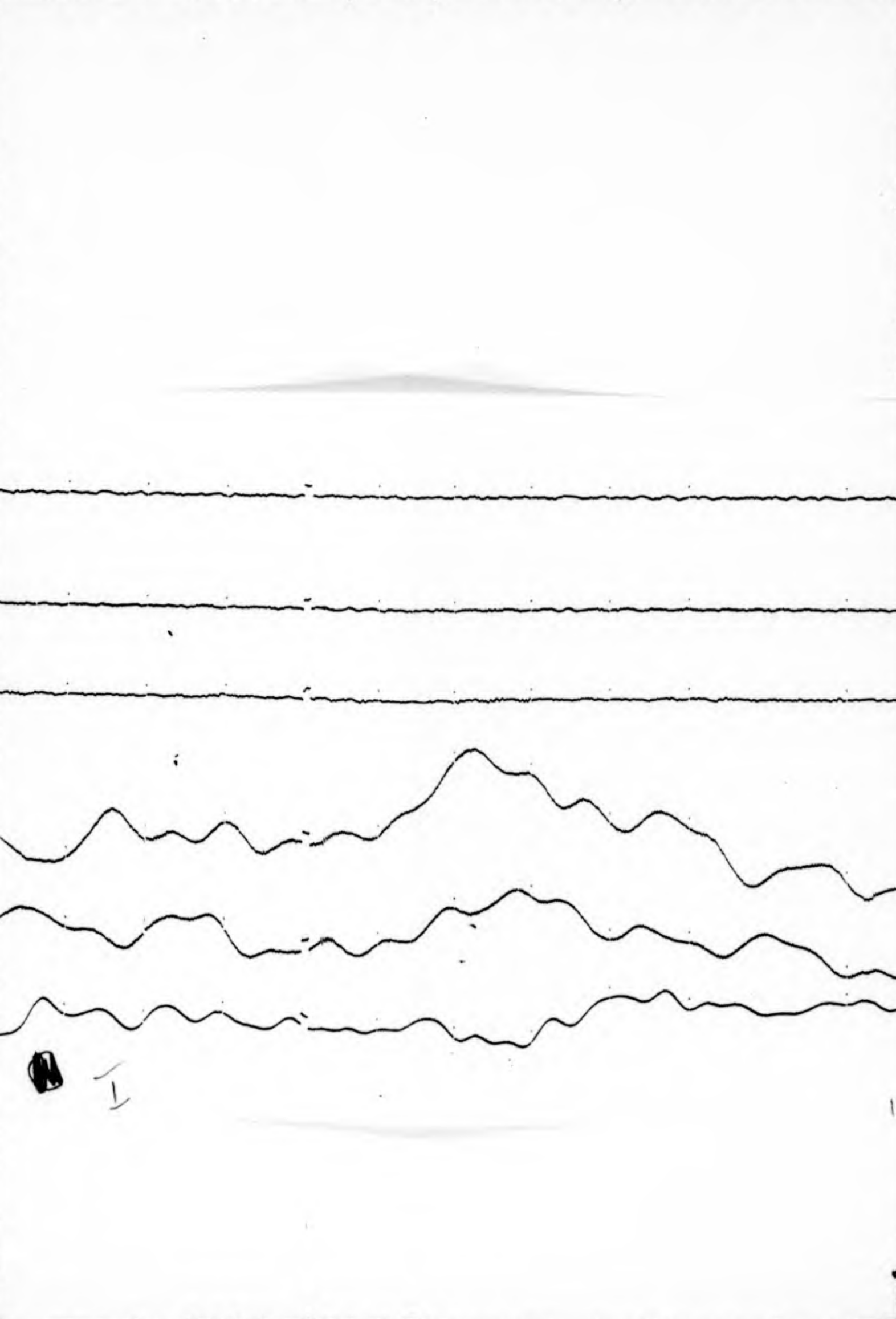
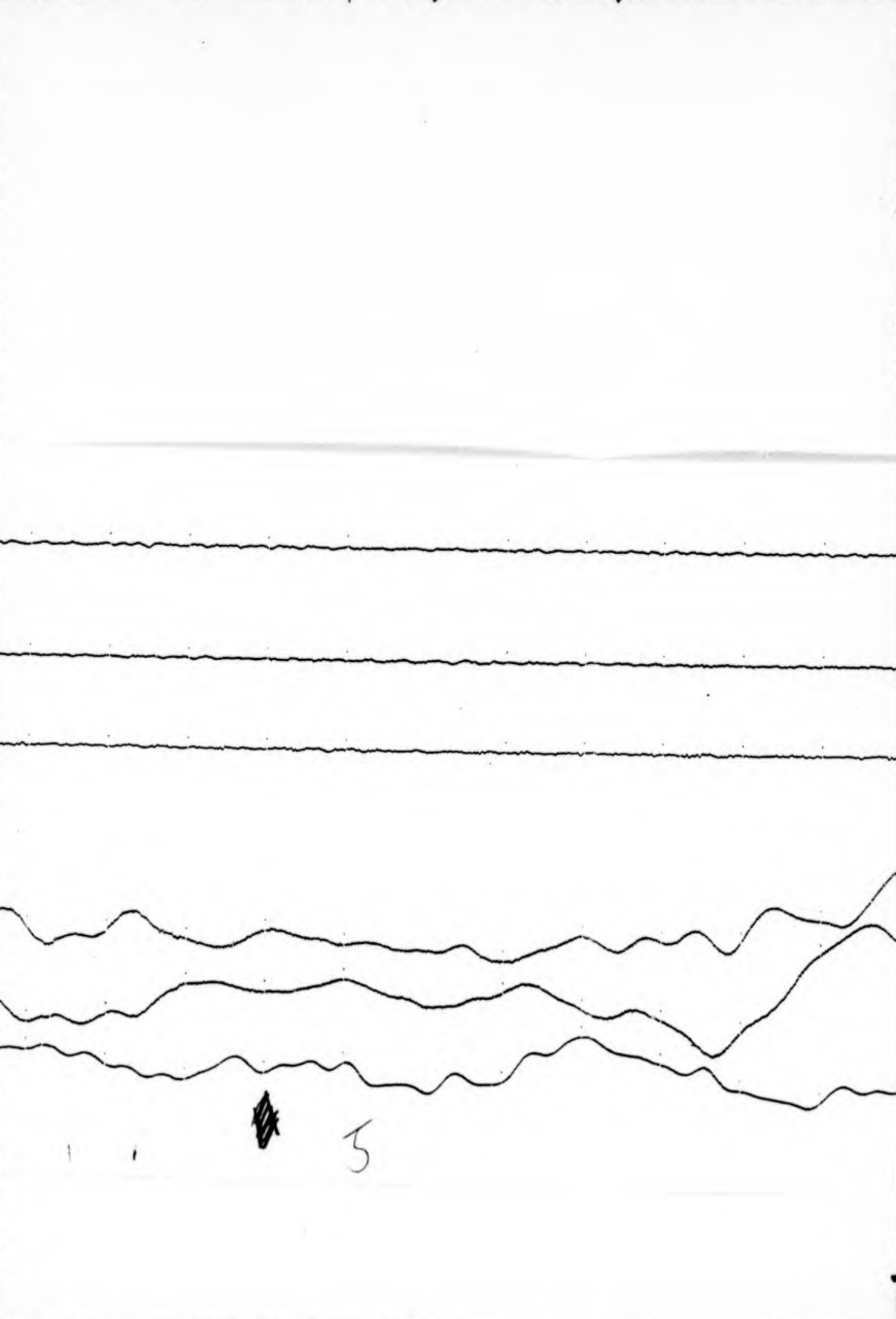
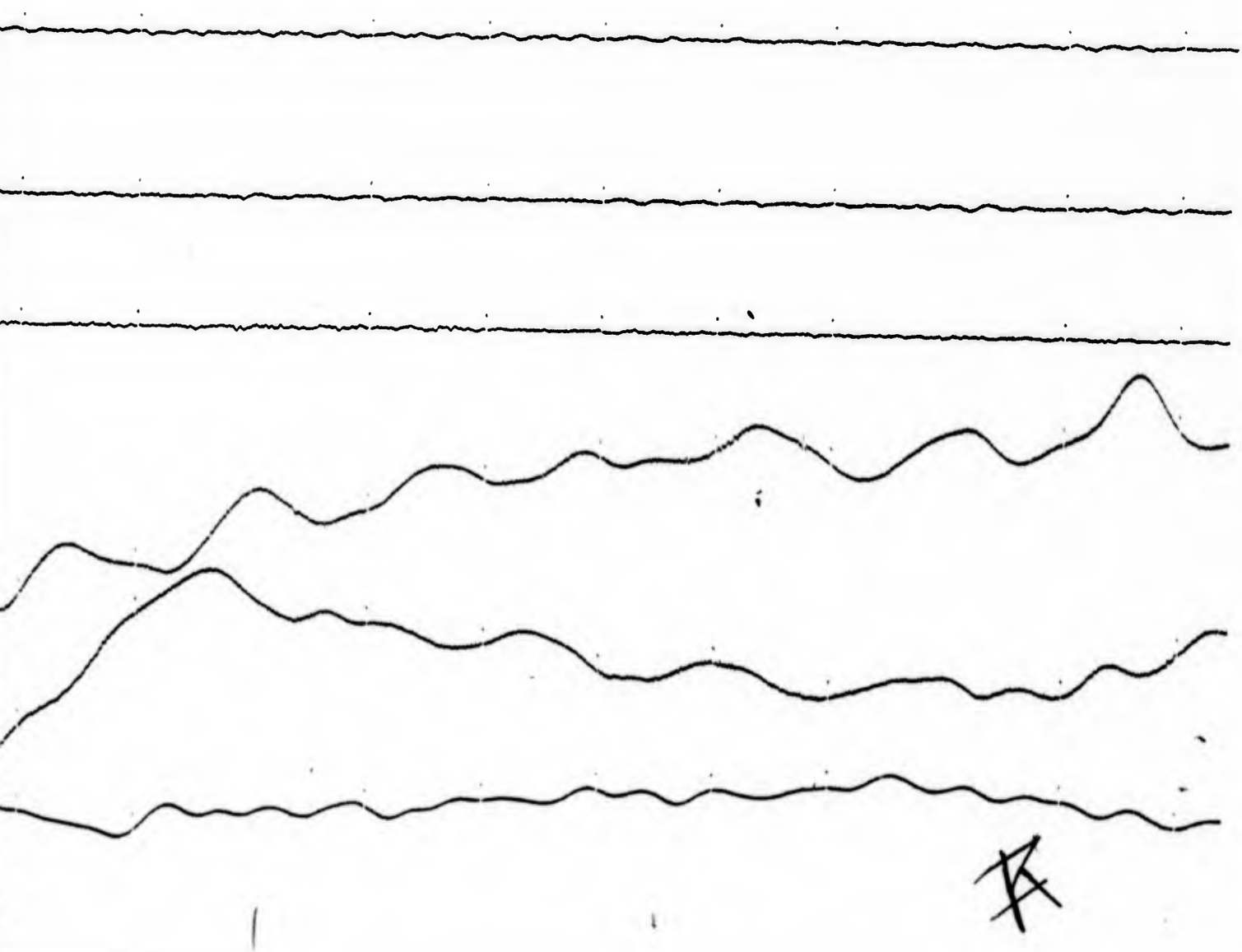












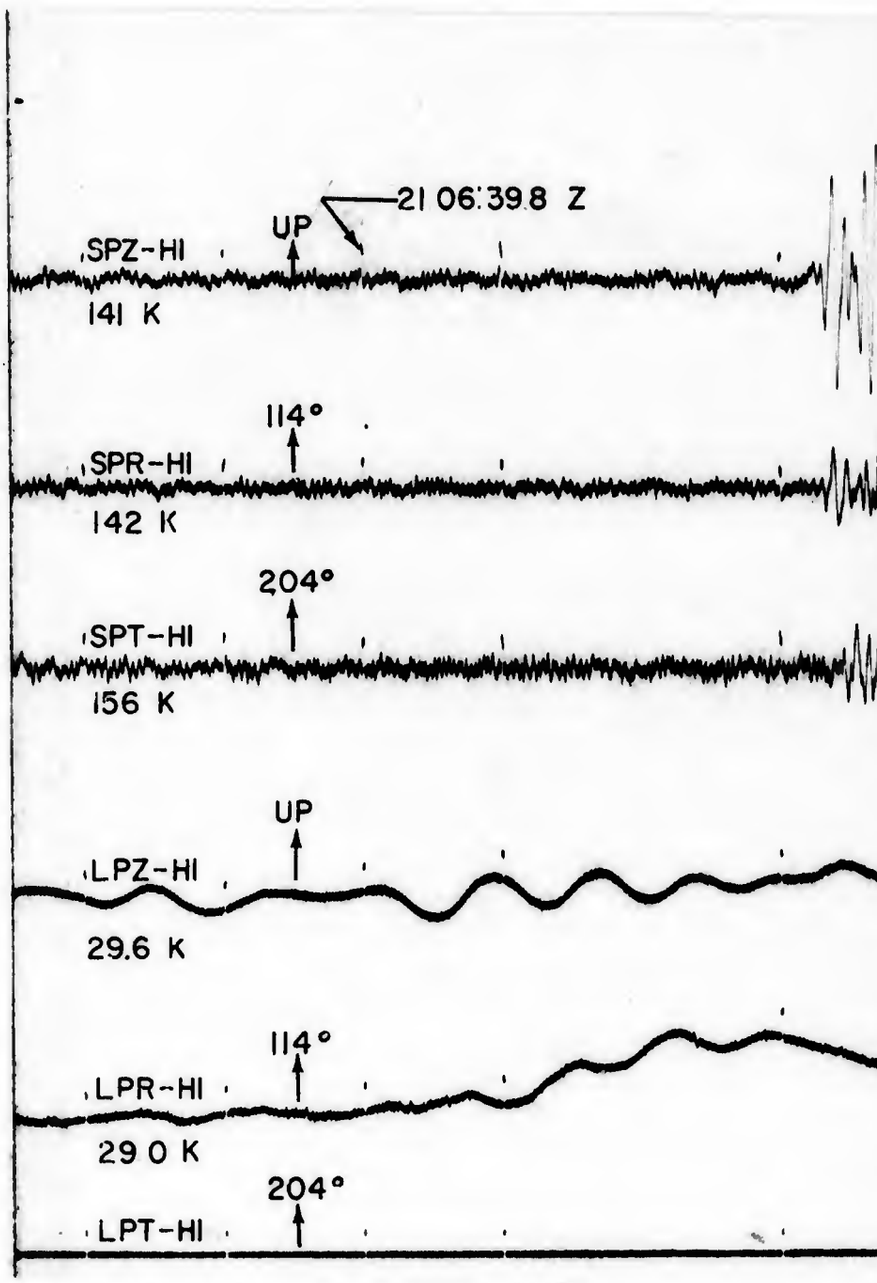
LONG SHOT

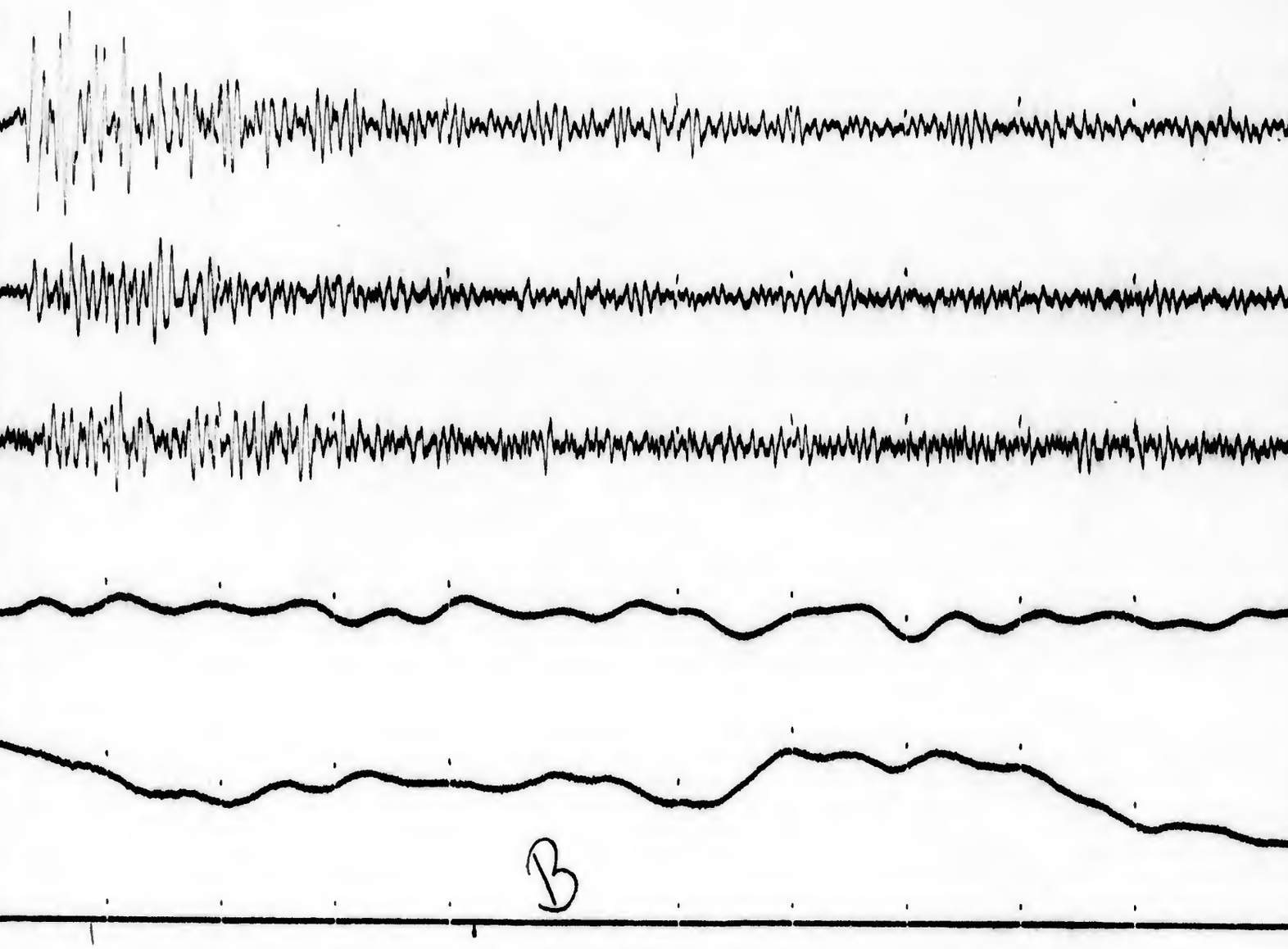
JP-AT

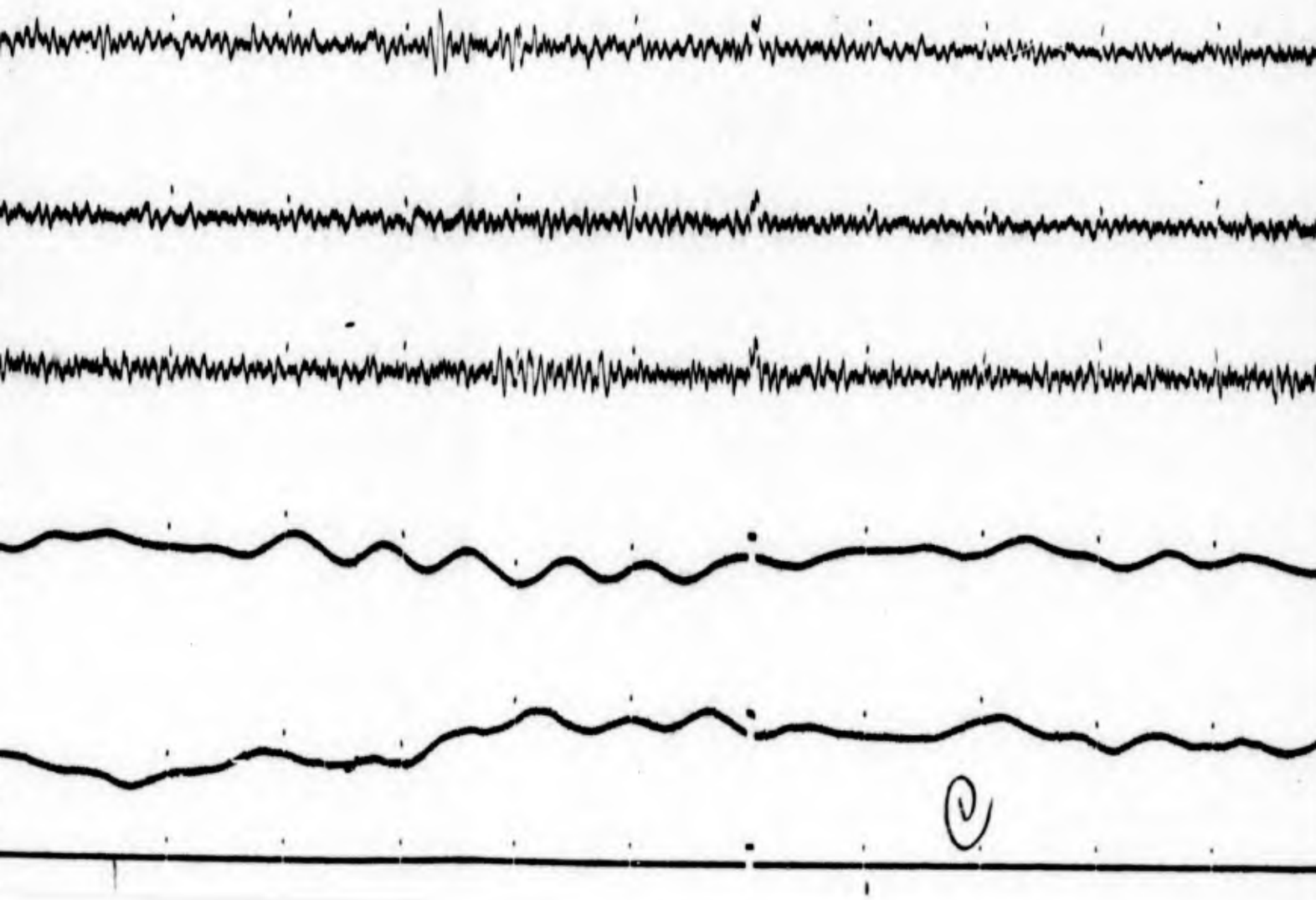
Jasper, Alberta, Canada

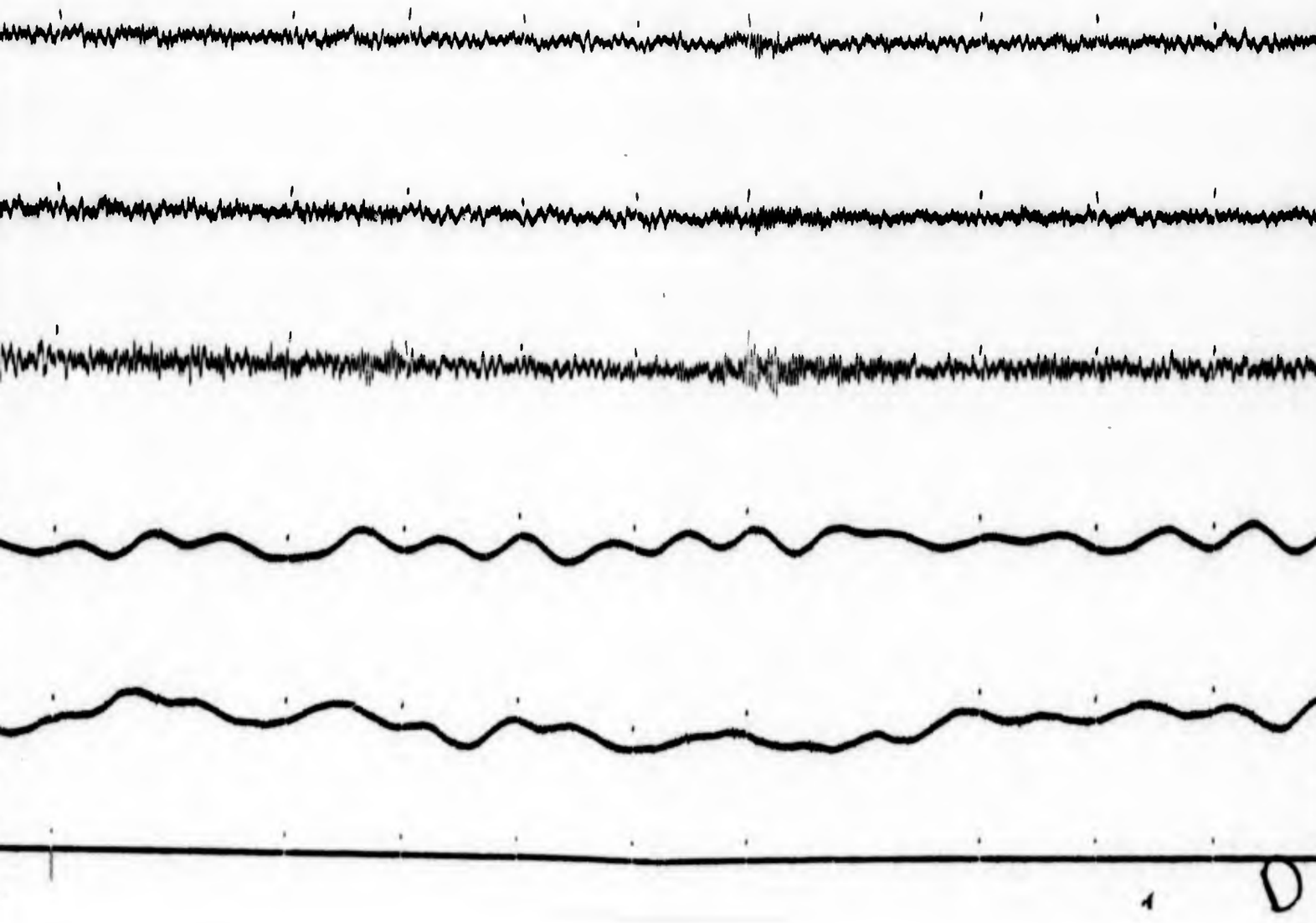
29 October 1965

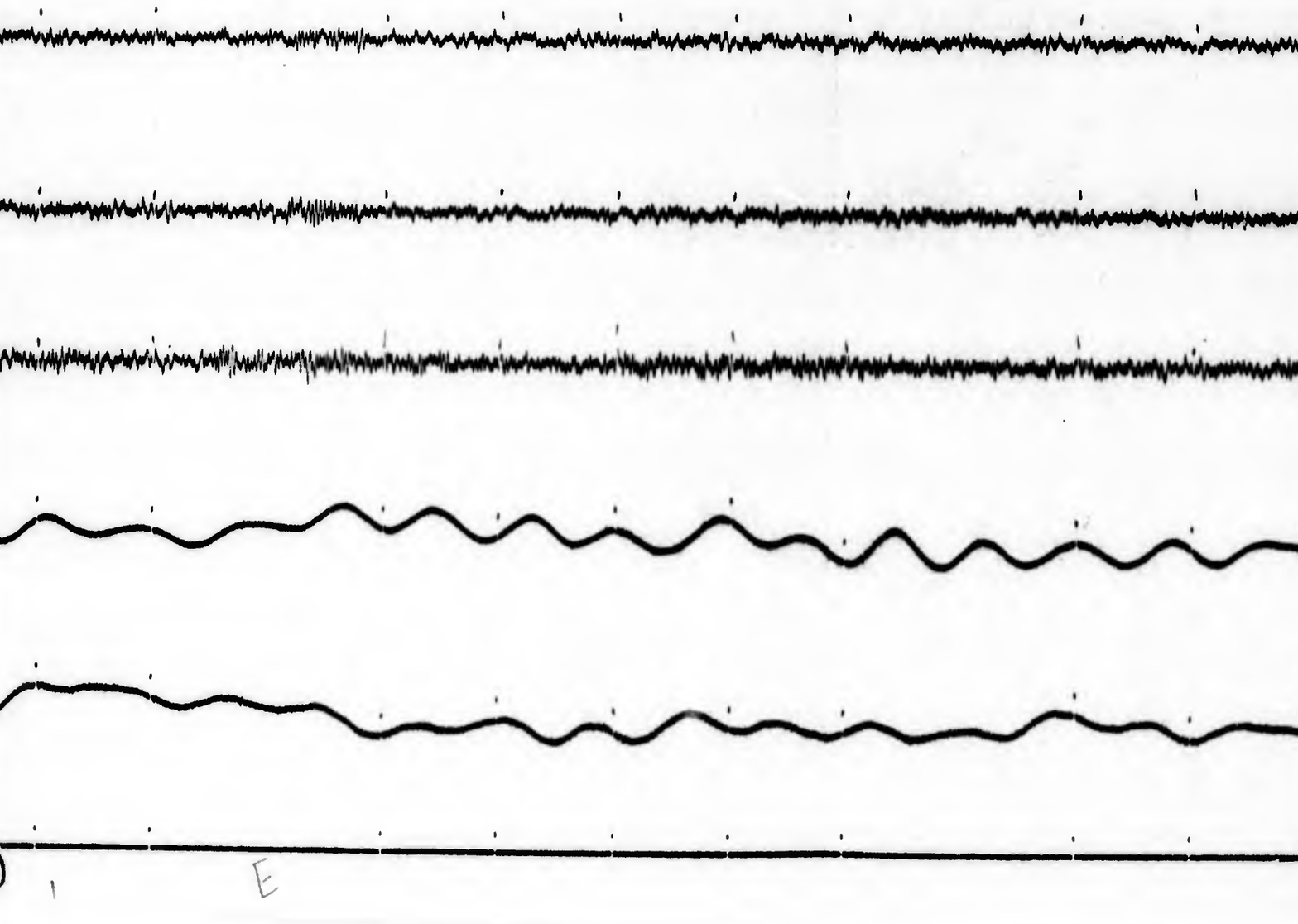
Δ = 4161 km

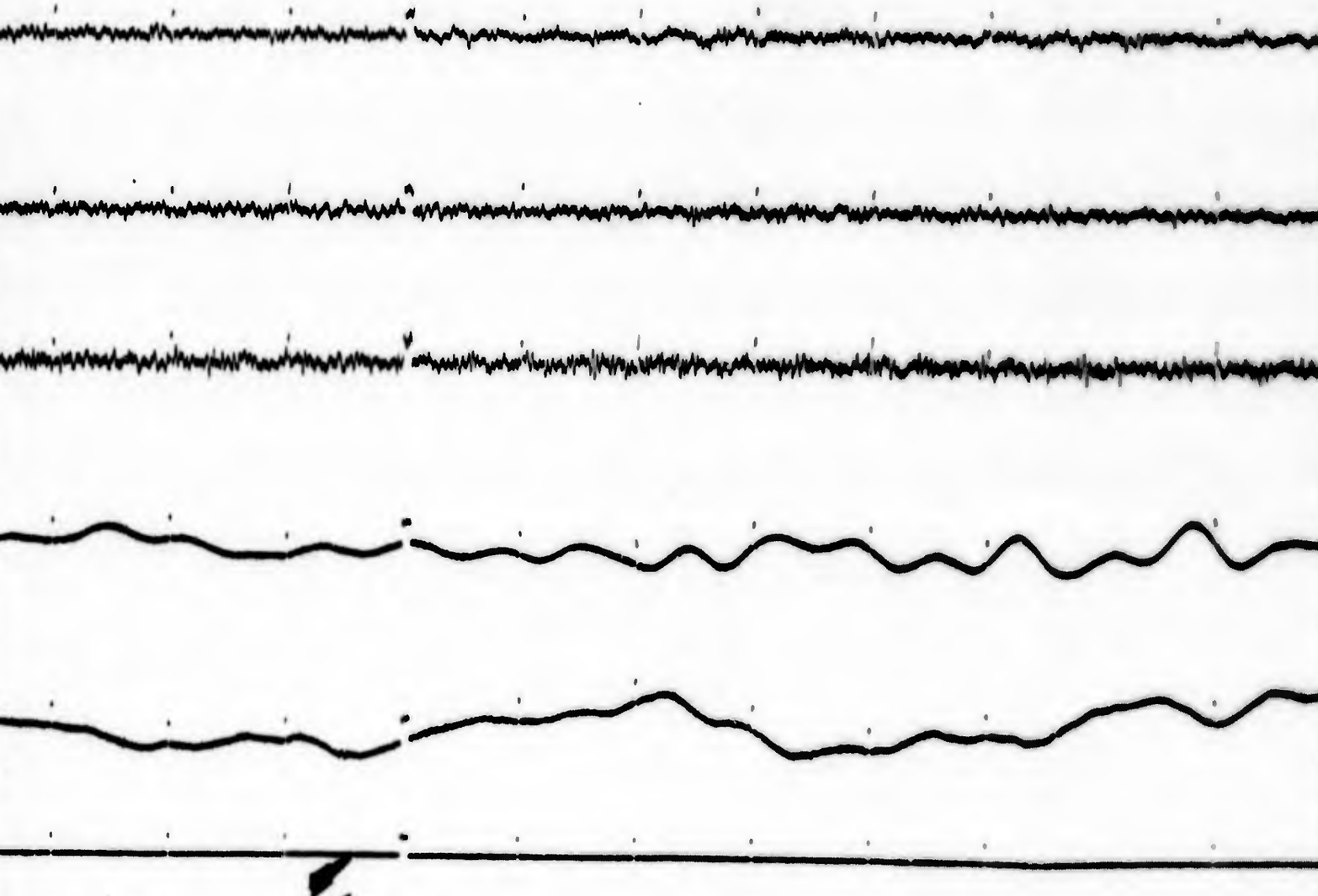


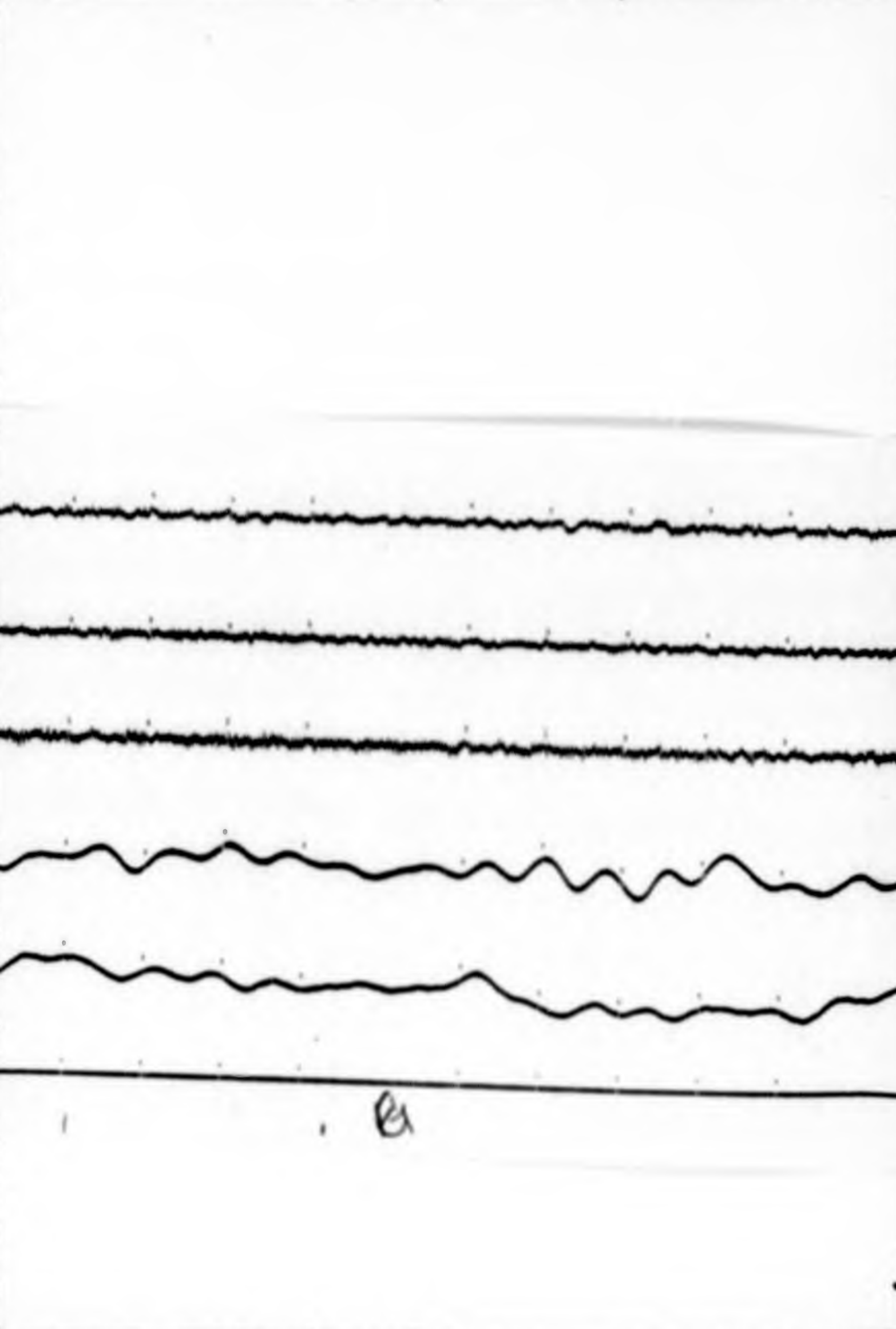

B

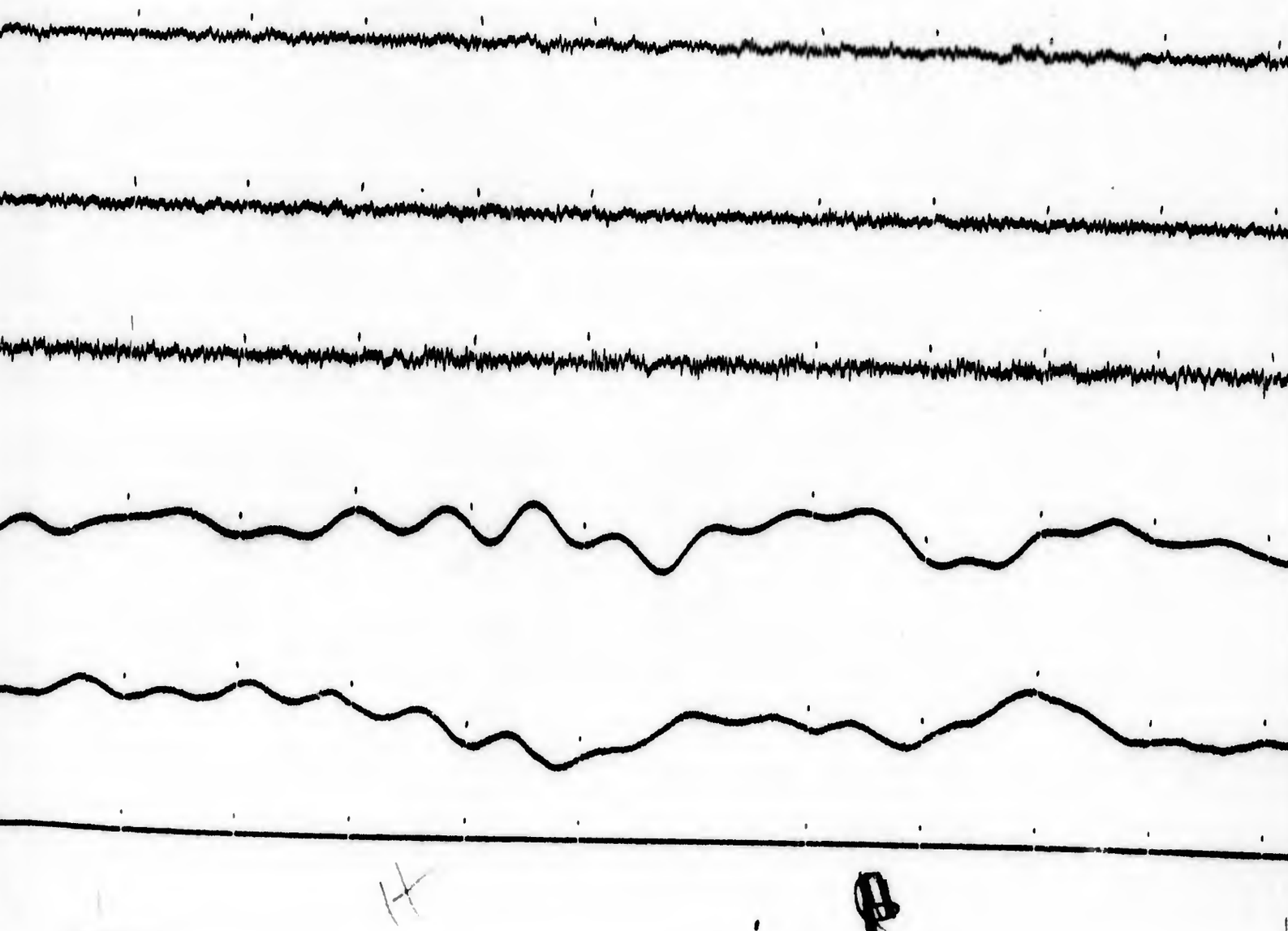


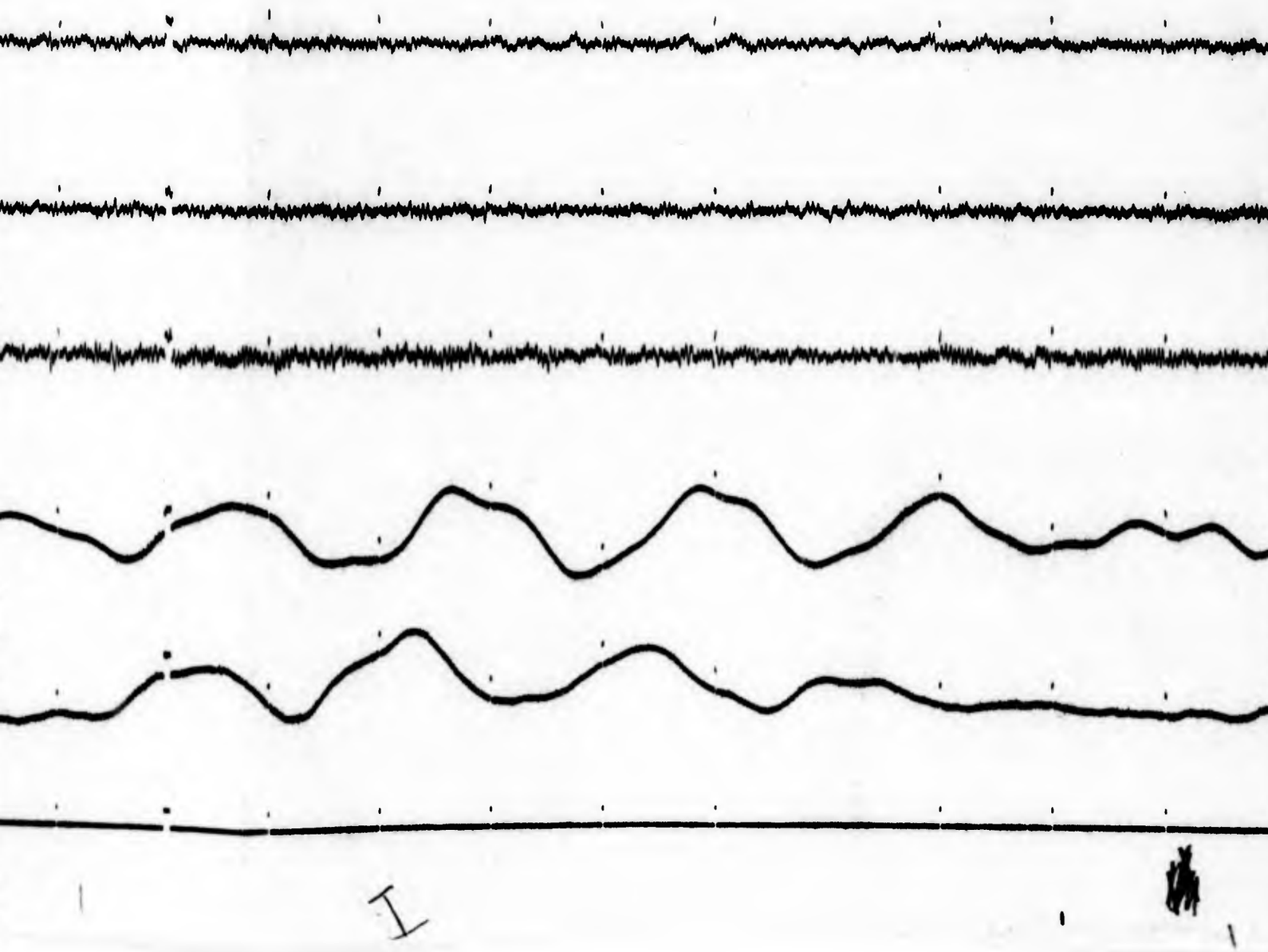


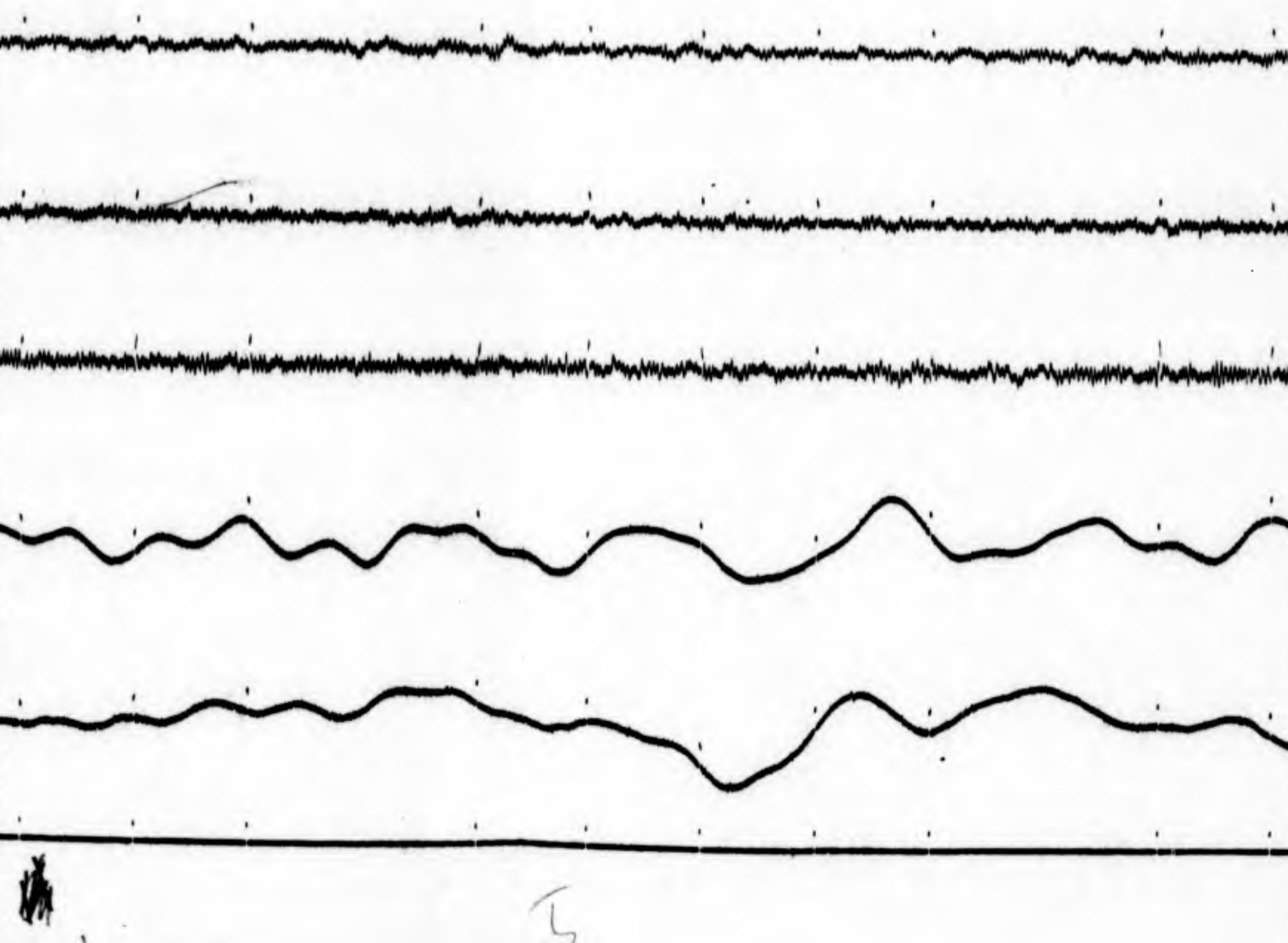


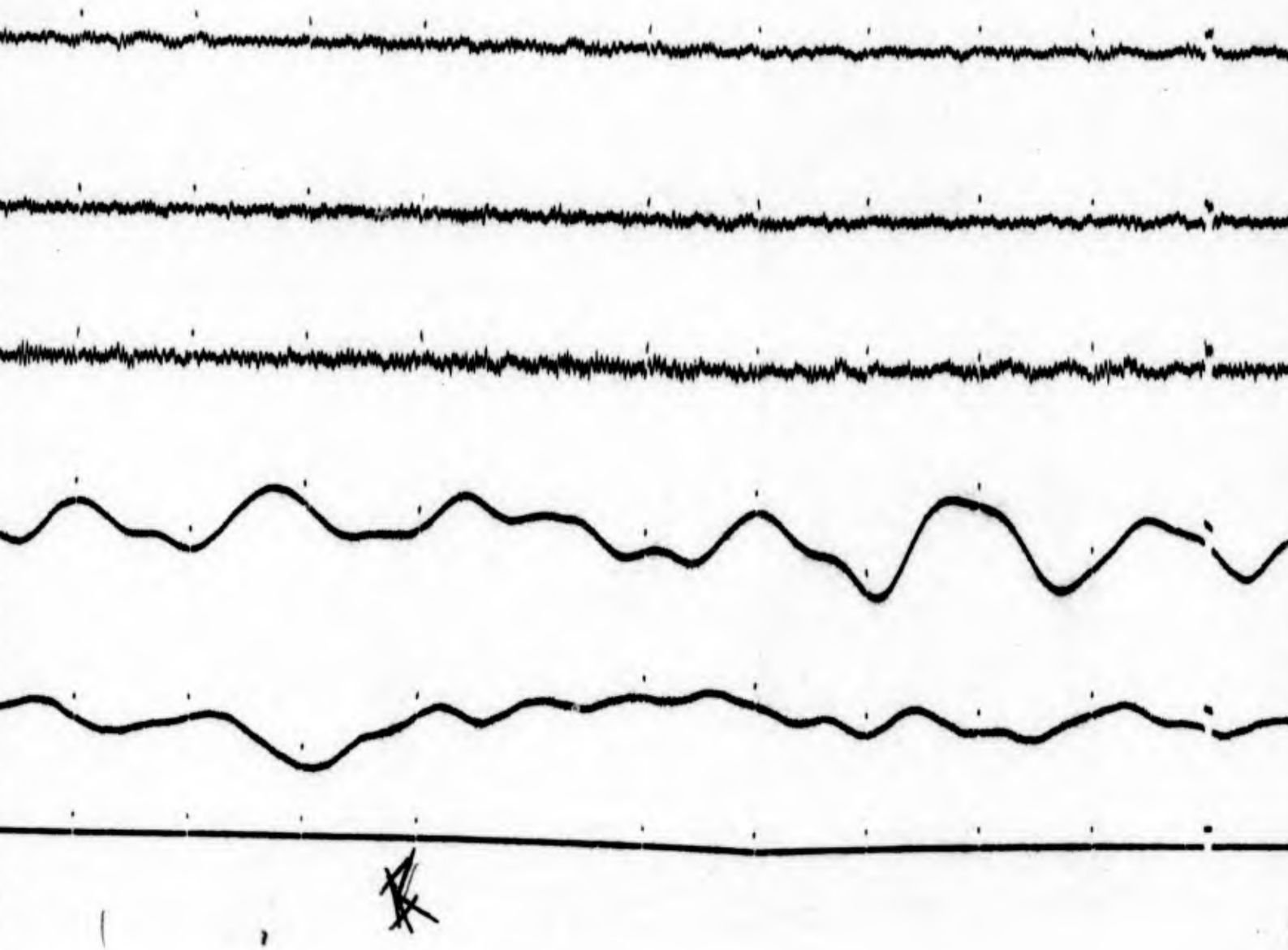


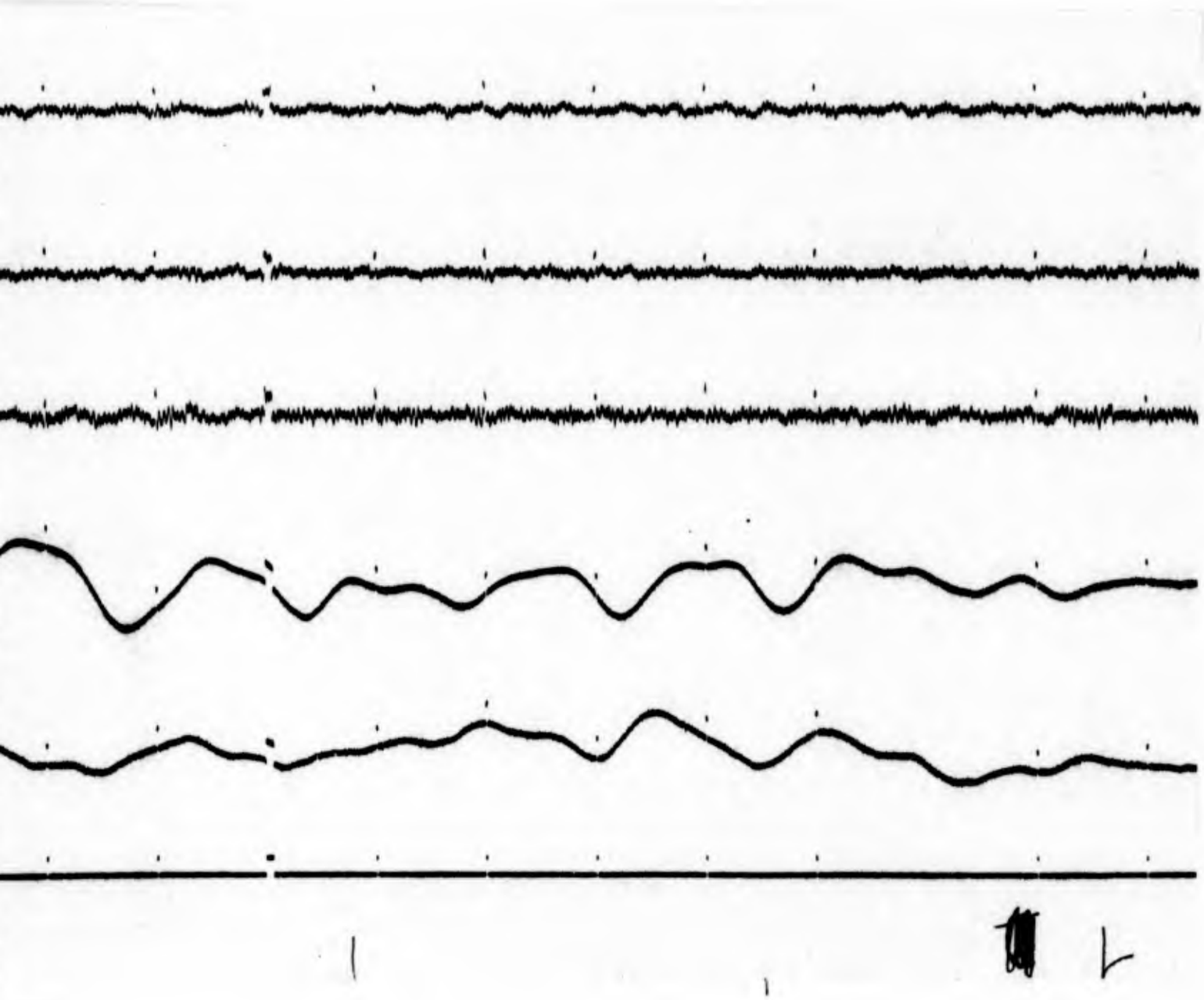












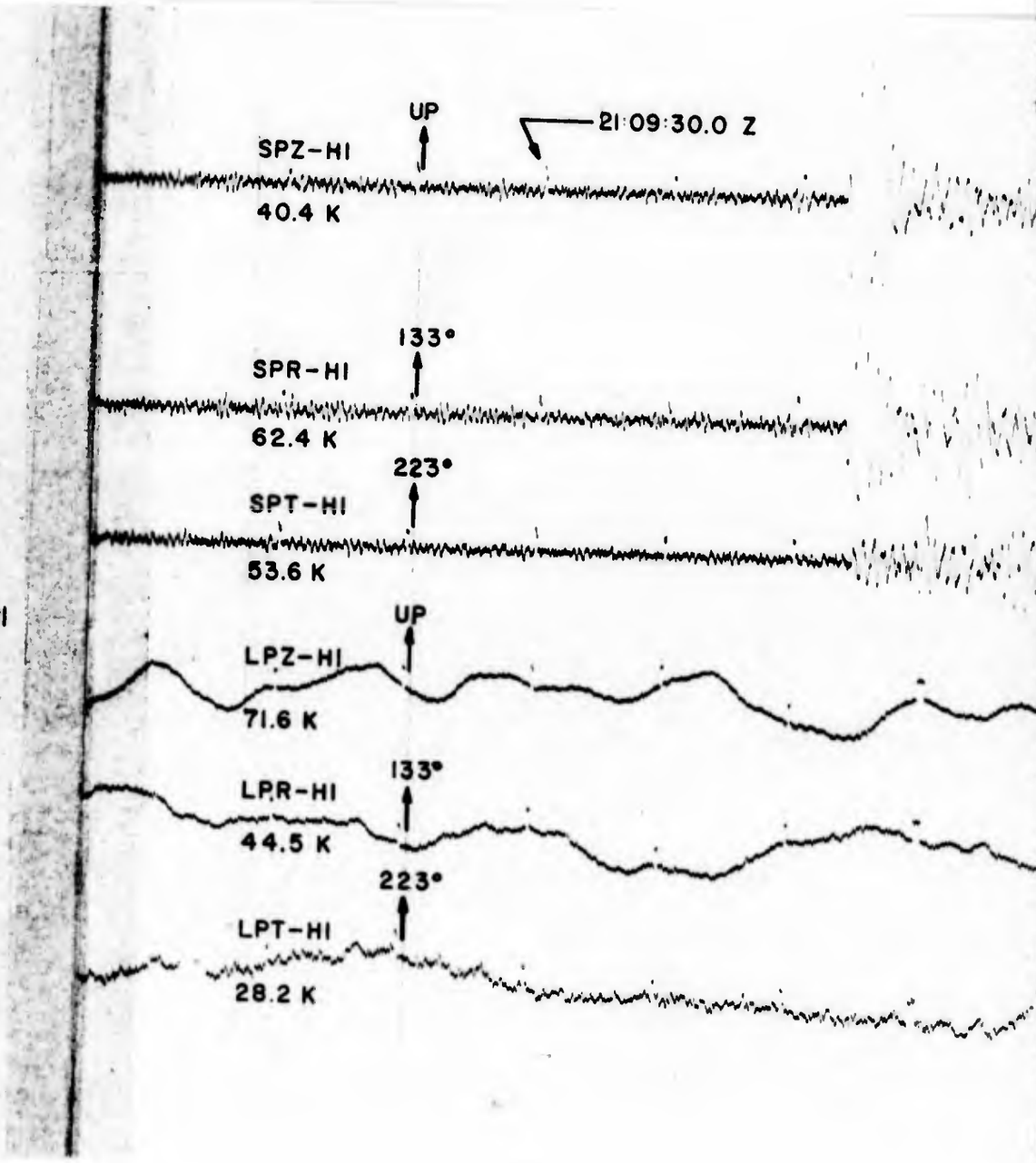
LONG SHOT

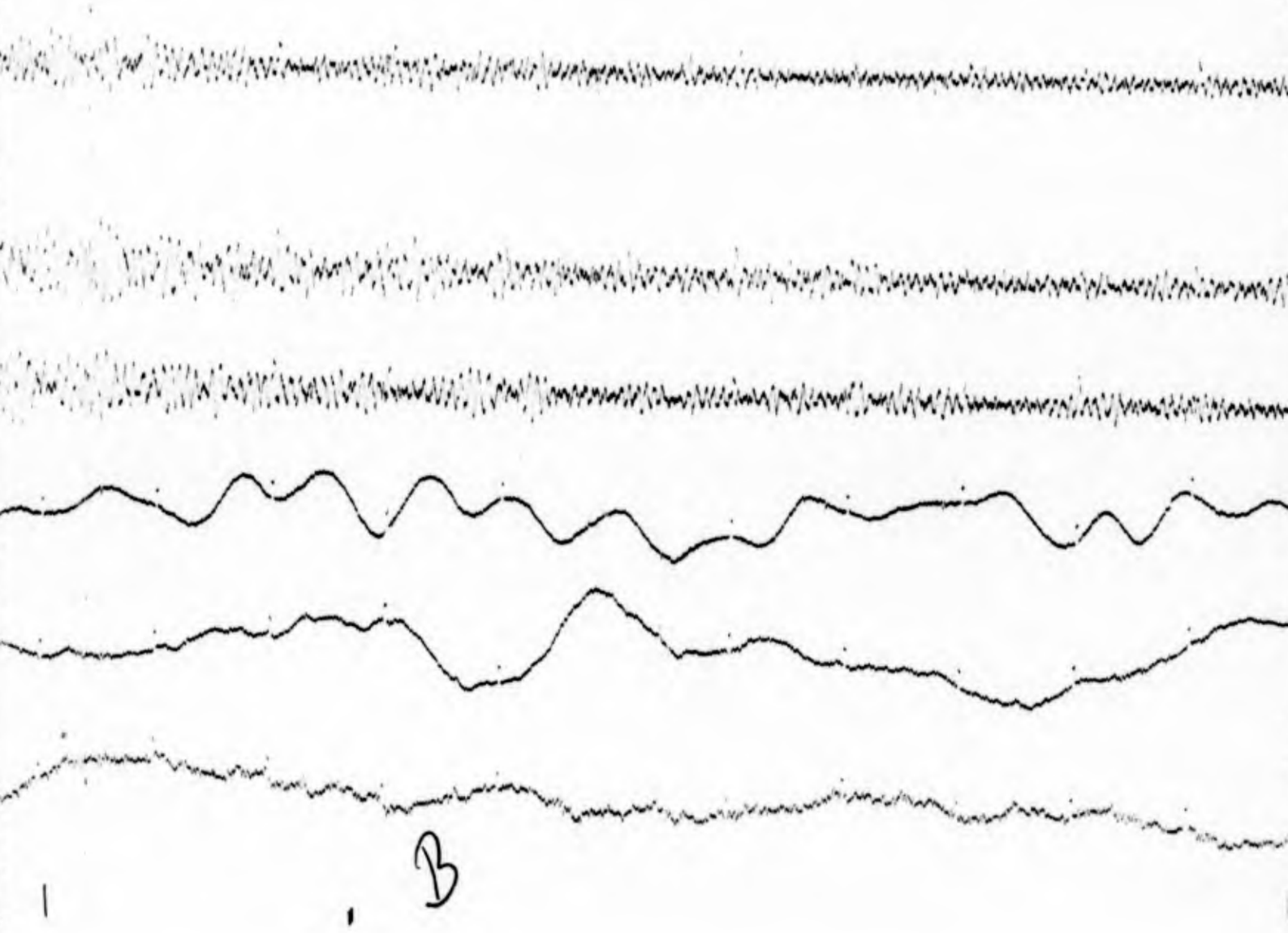
KC-MO

KANSAS CITY, MISSOURI

29 OCTOBER 1965

Δ=6485 Km

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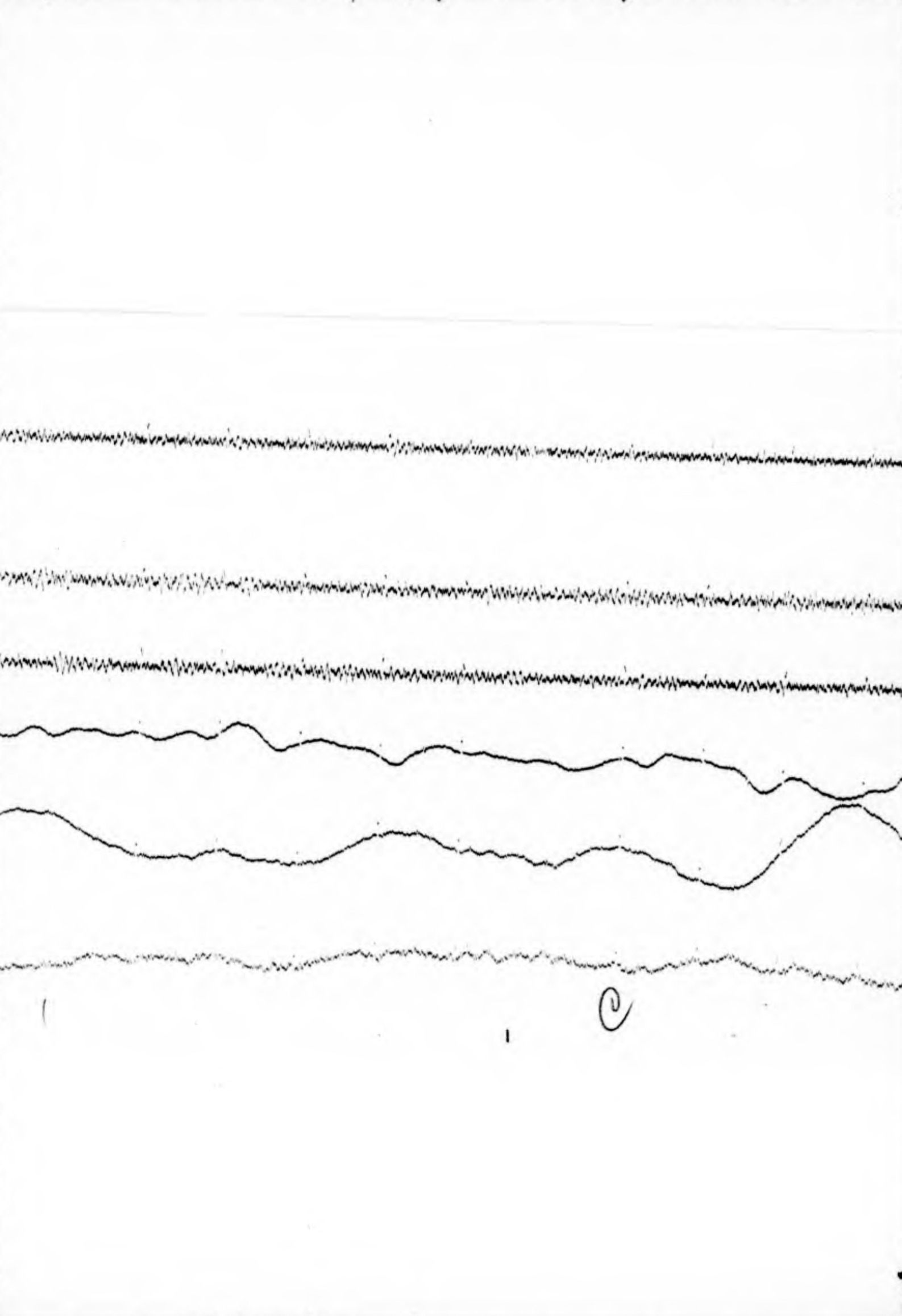

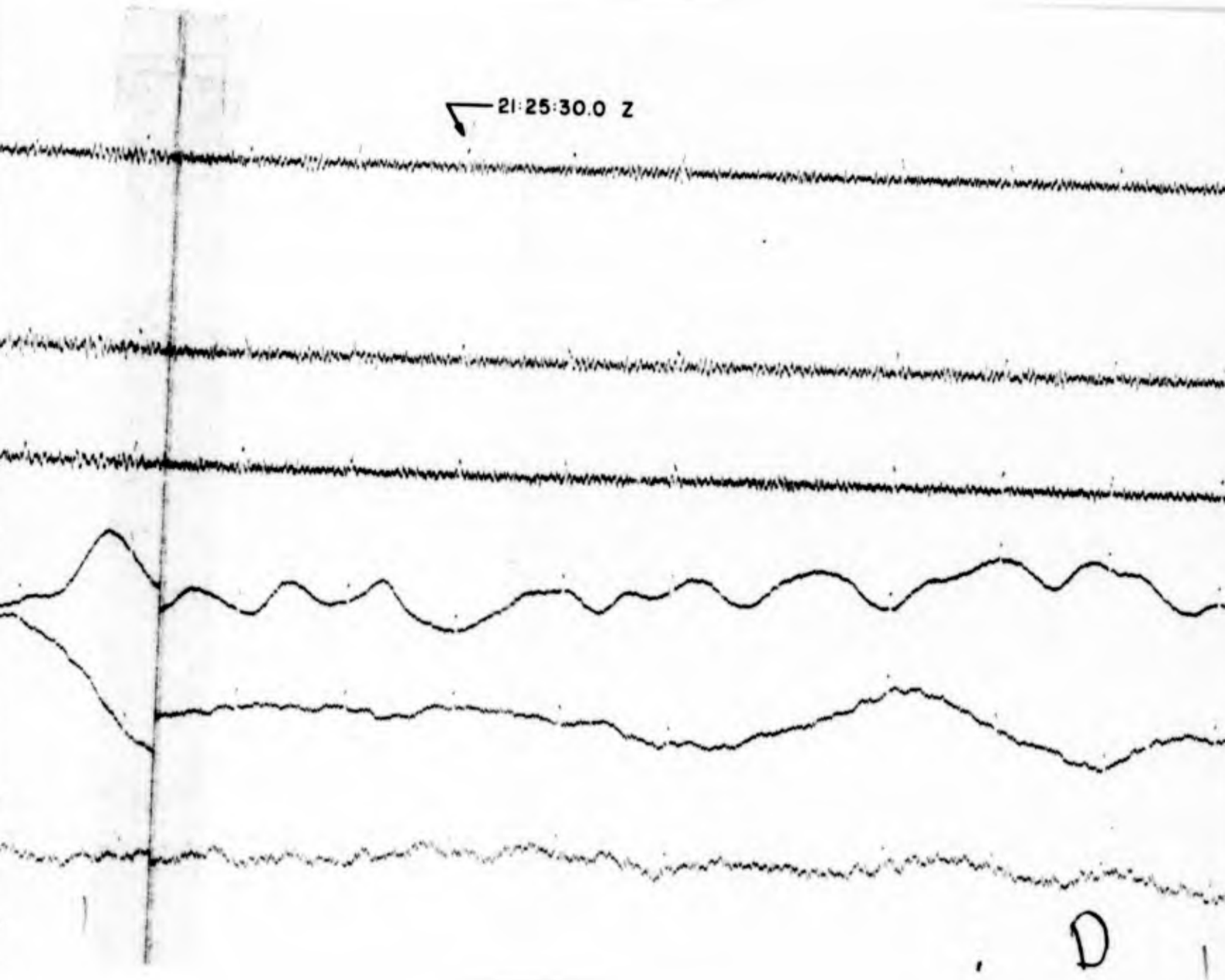
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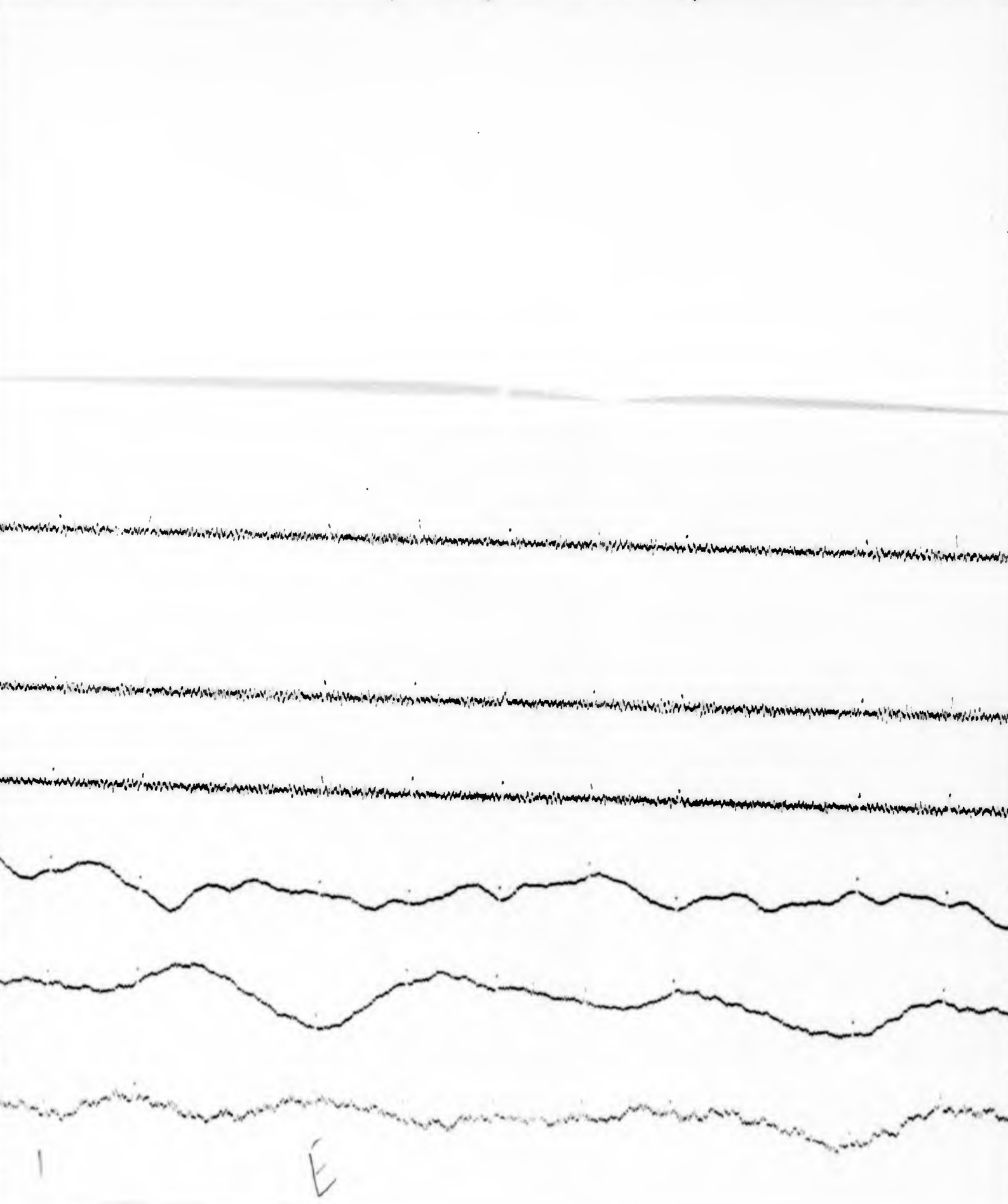
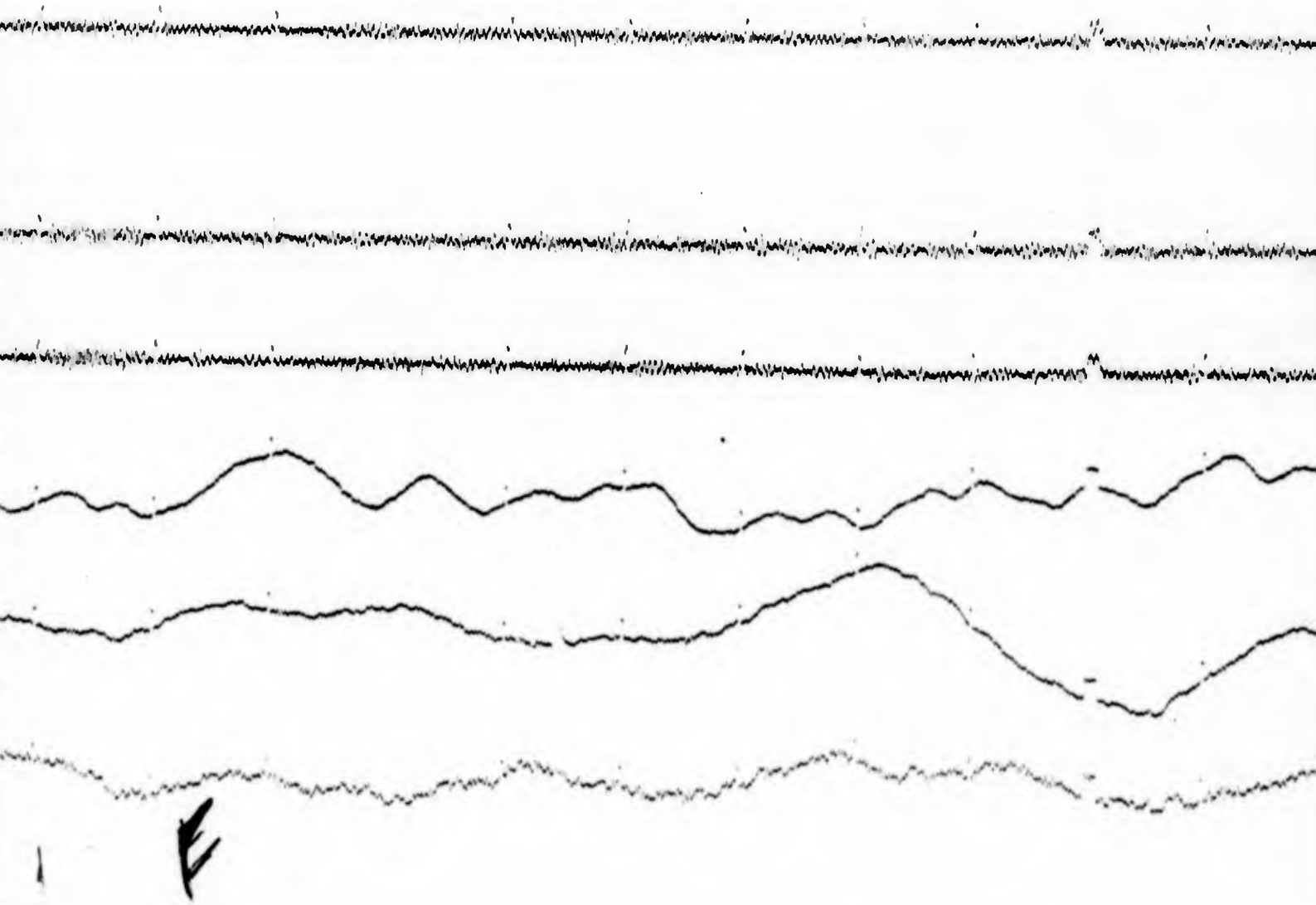
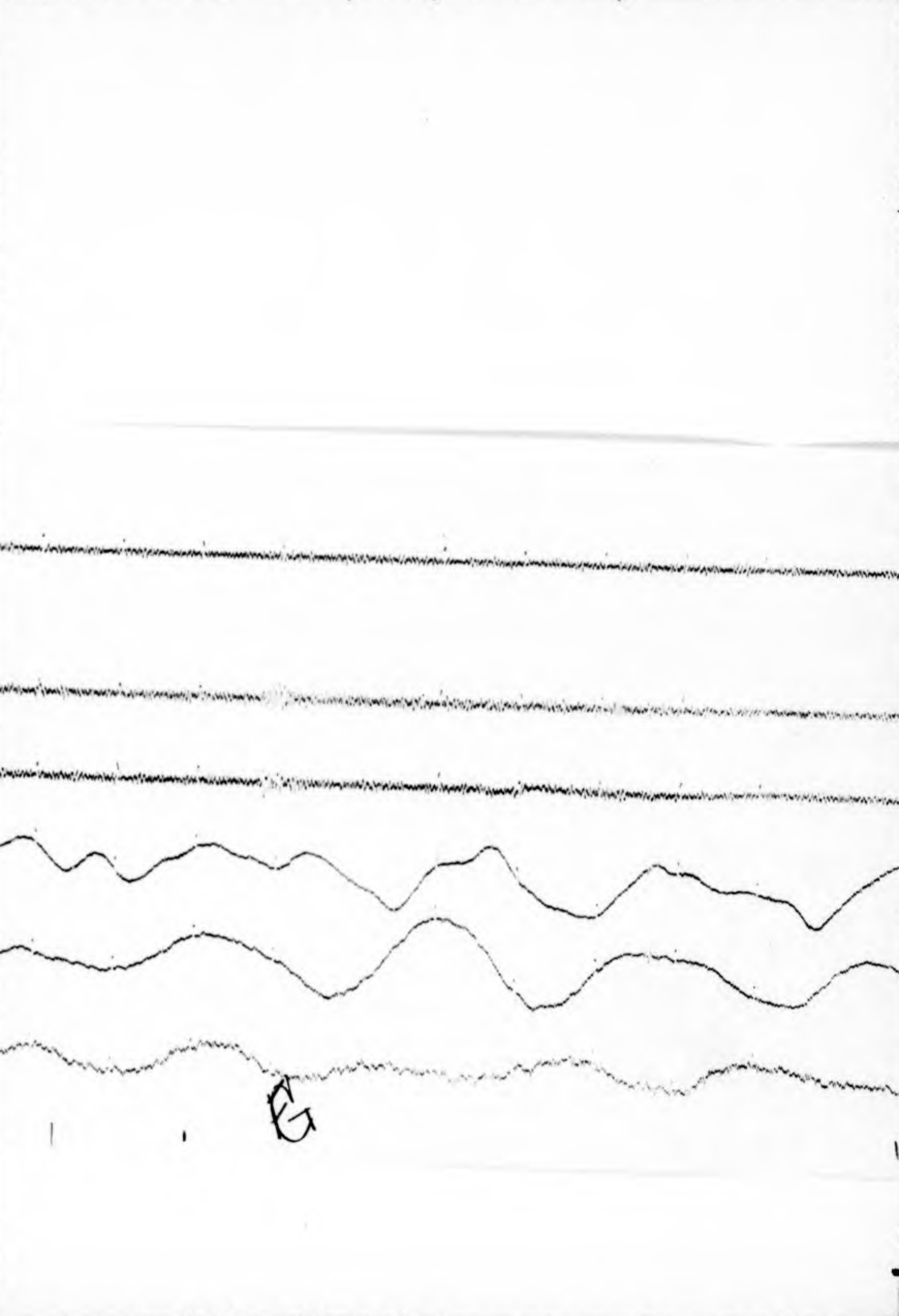
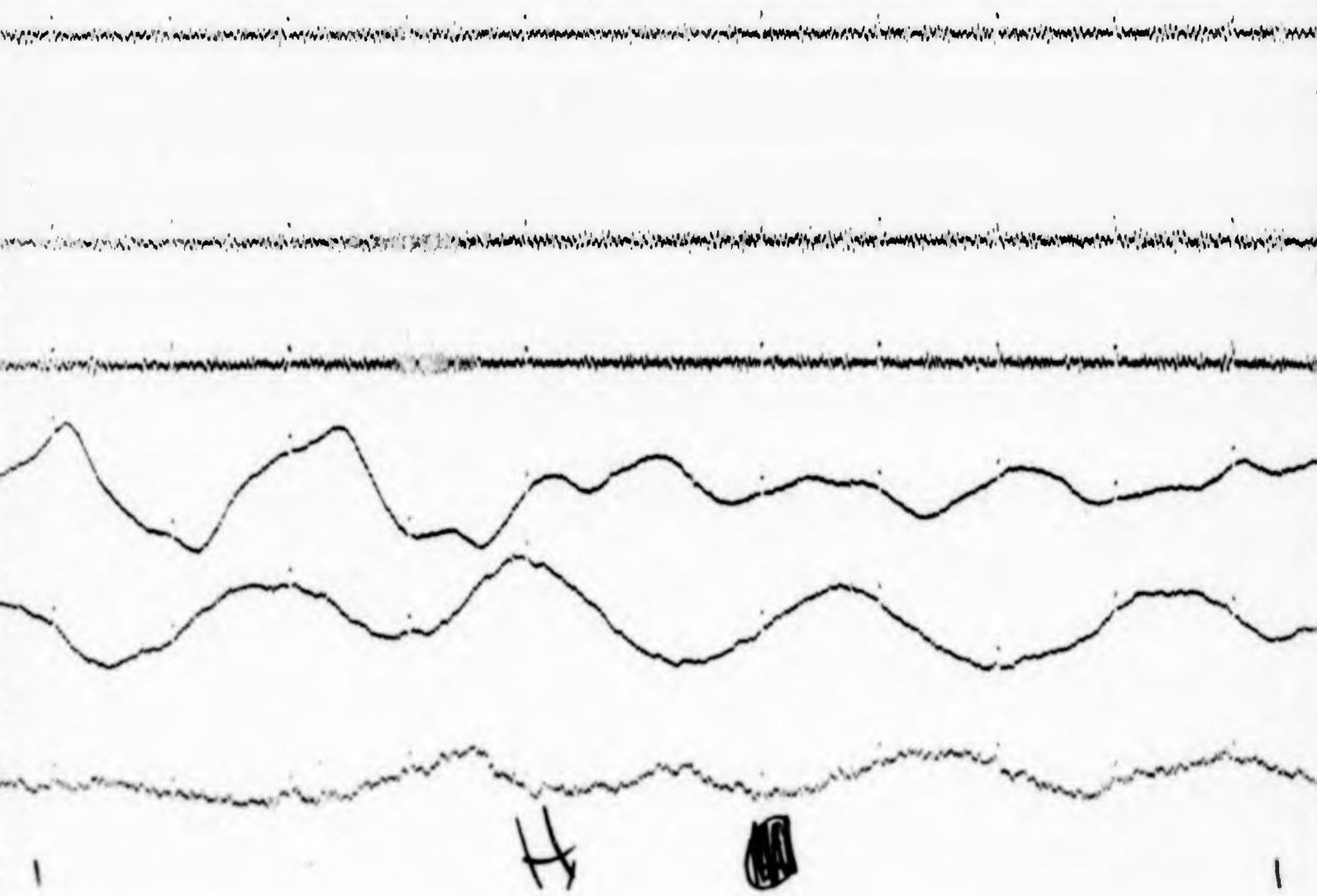
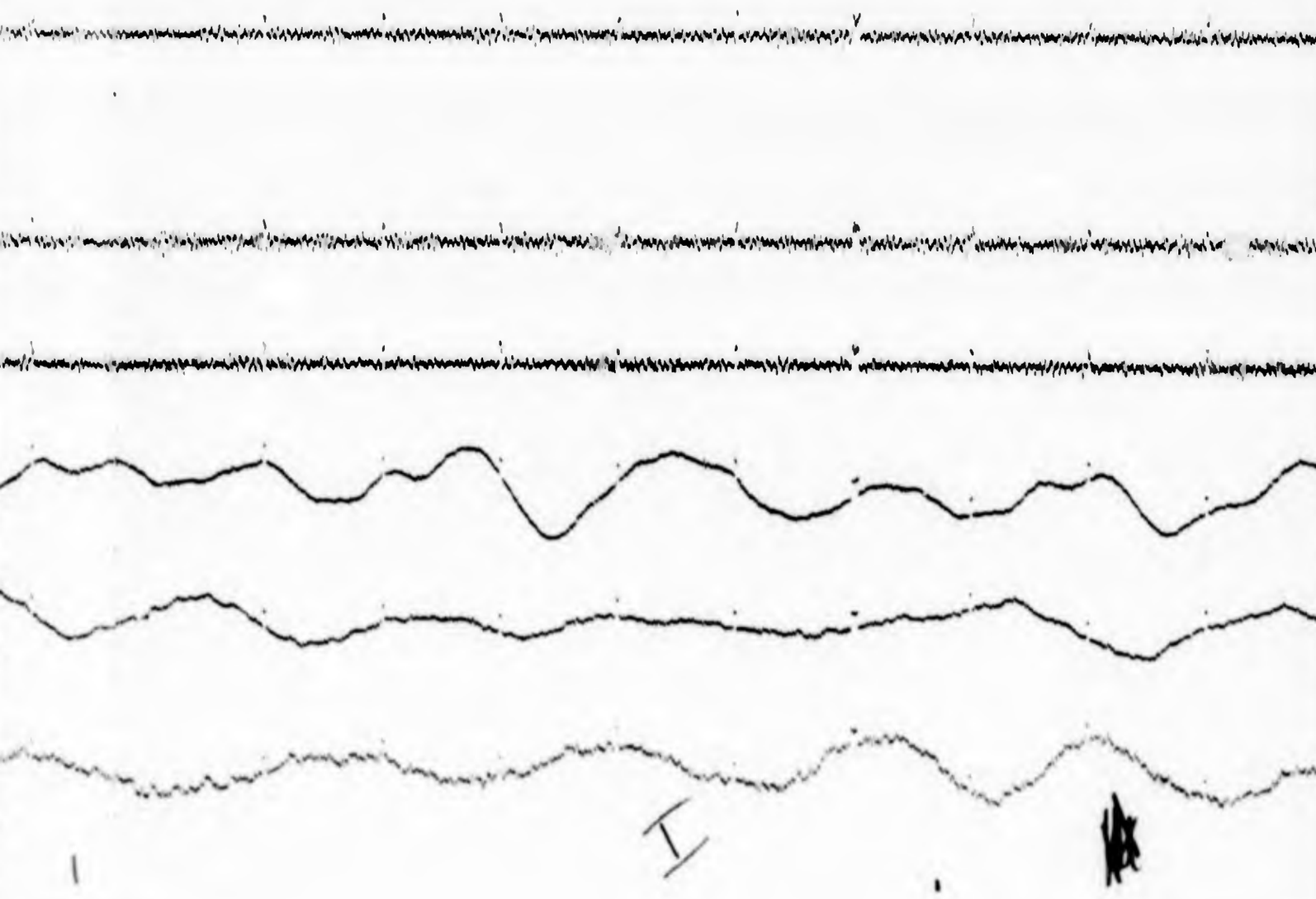
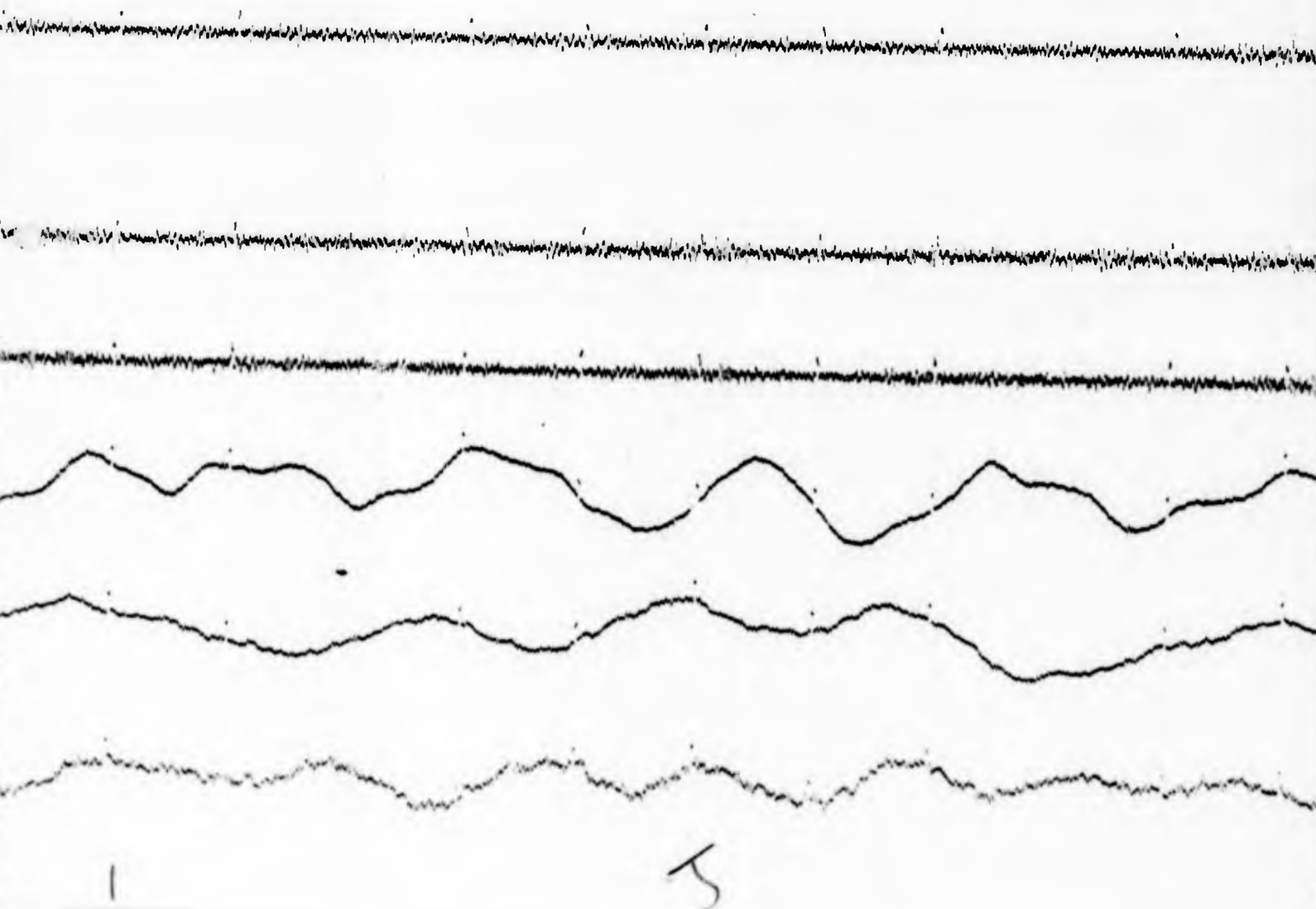

I
E

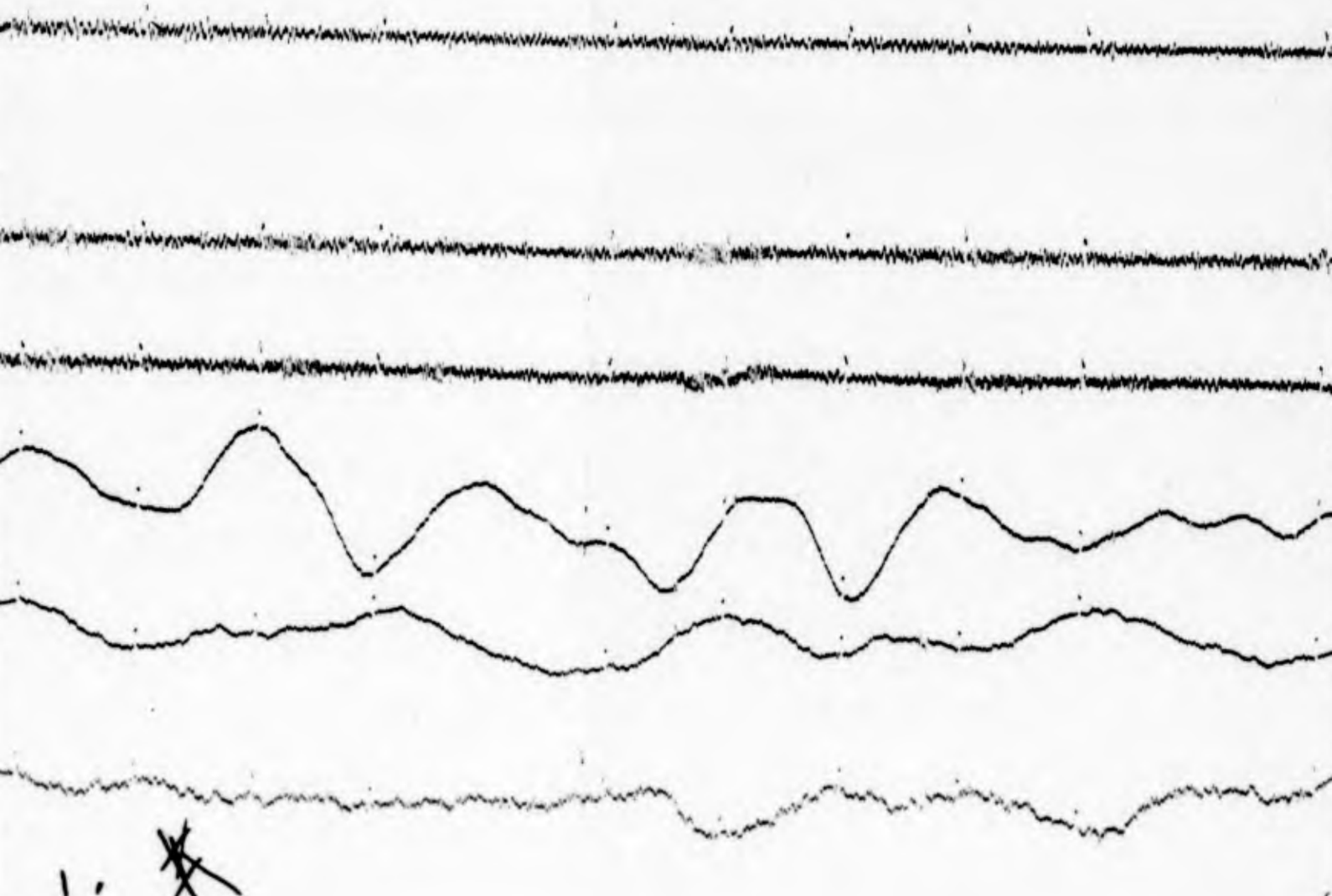


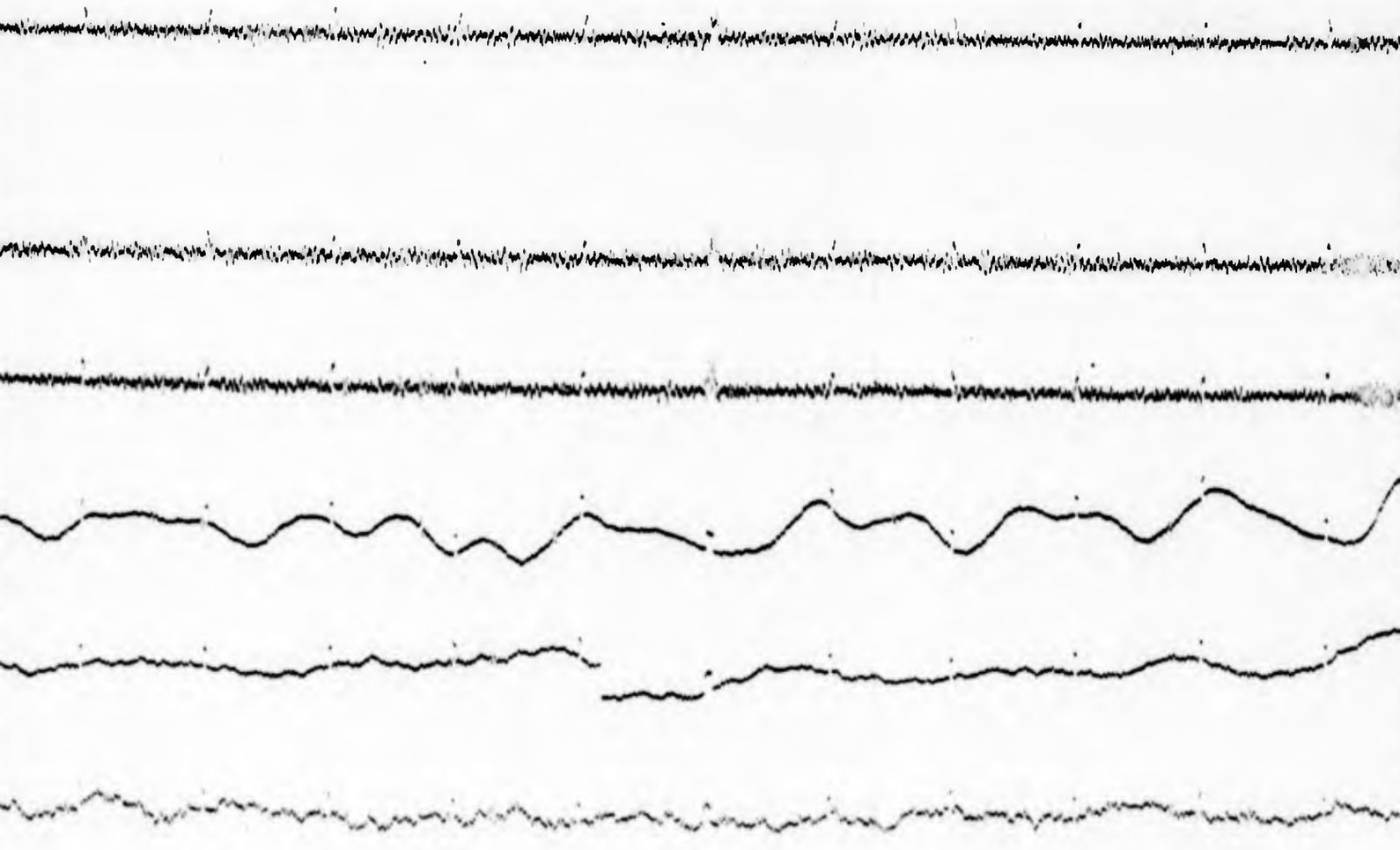


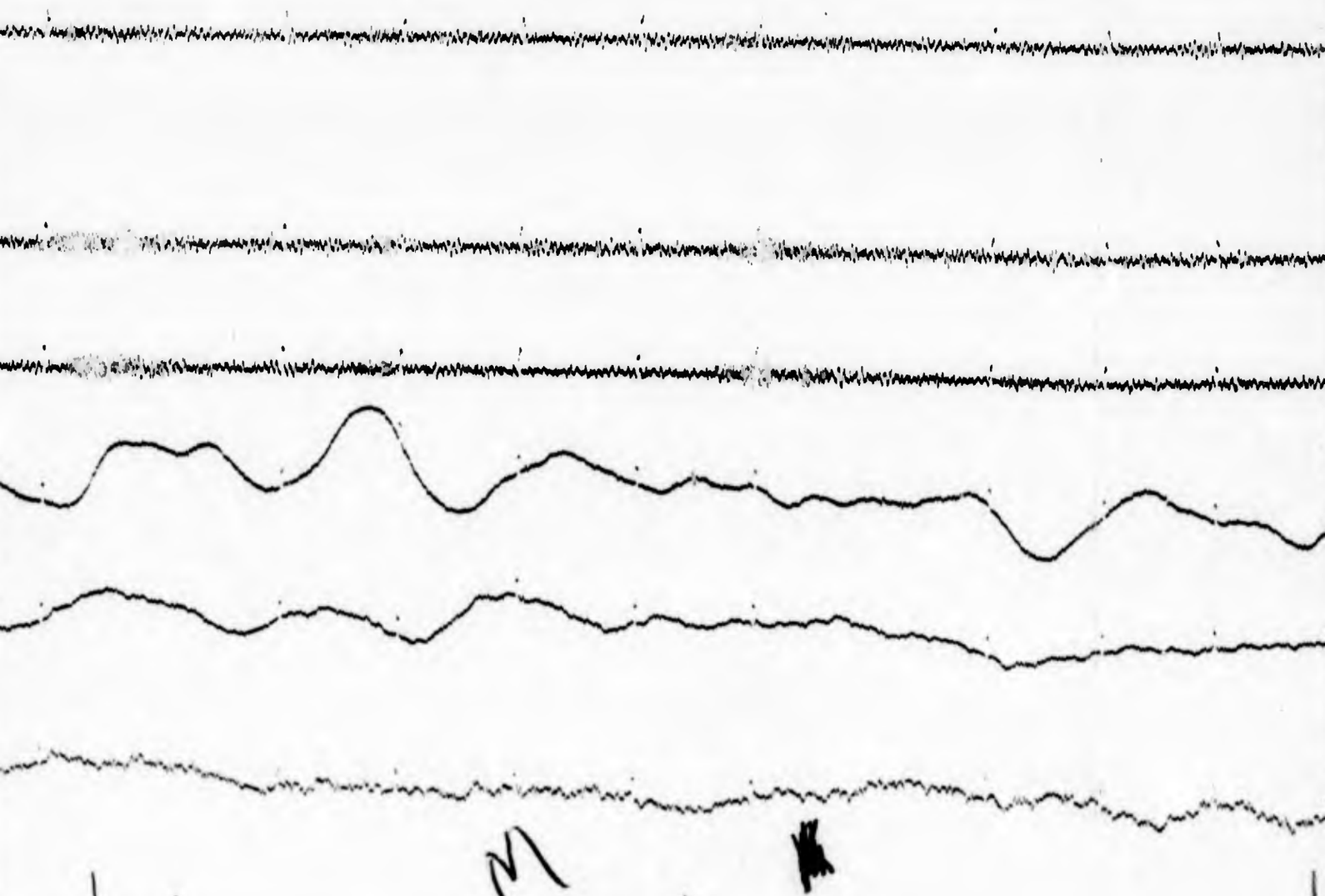


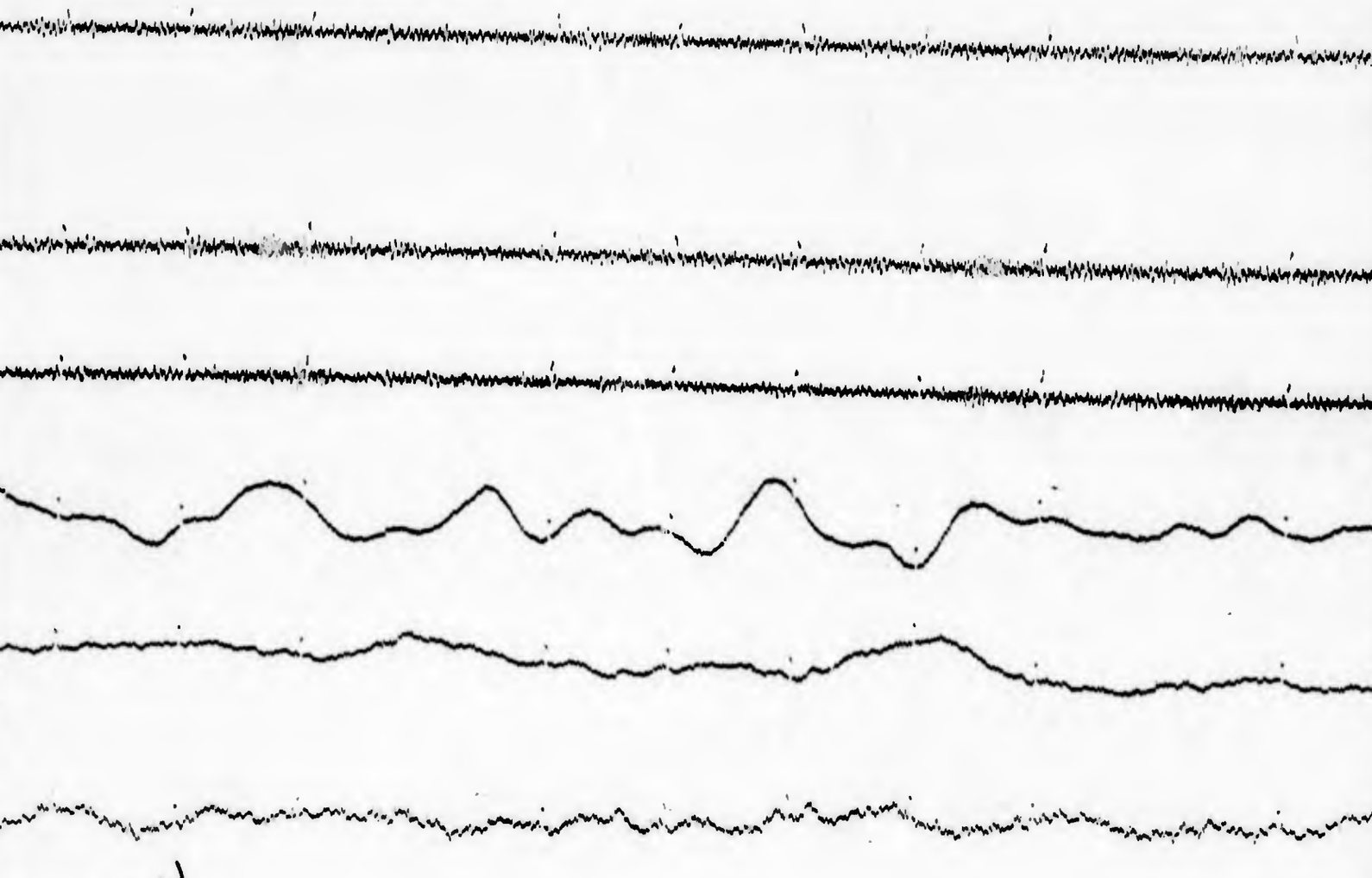


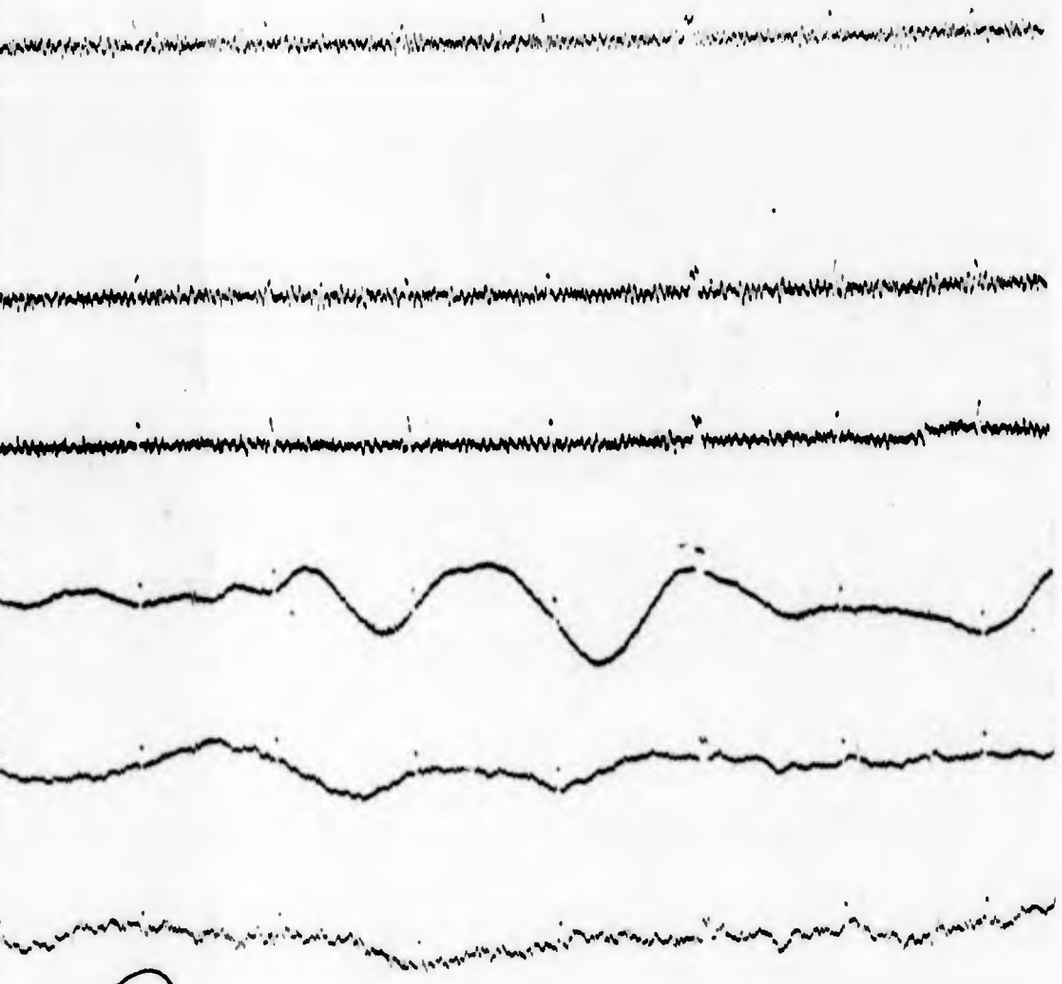


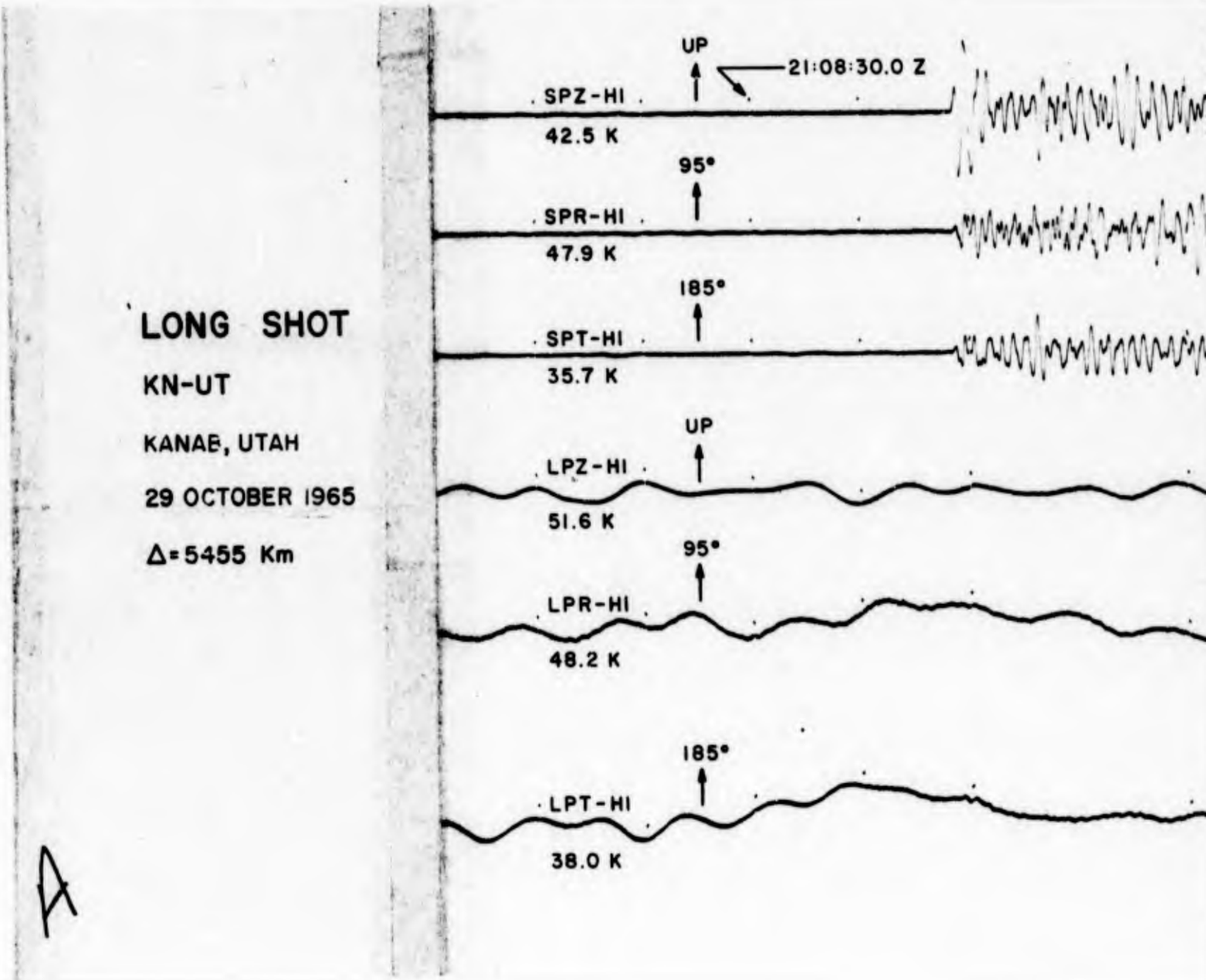


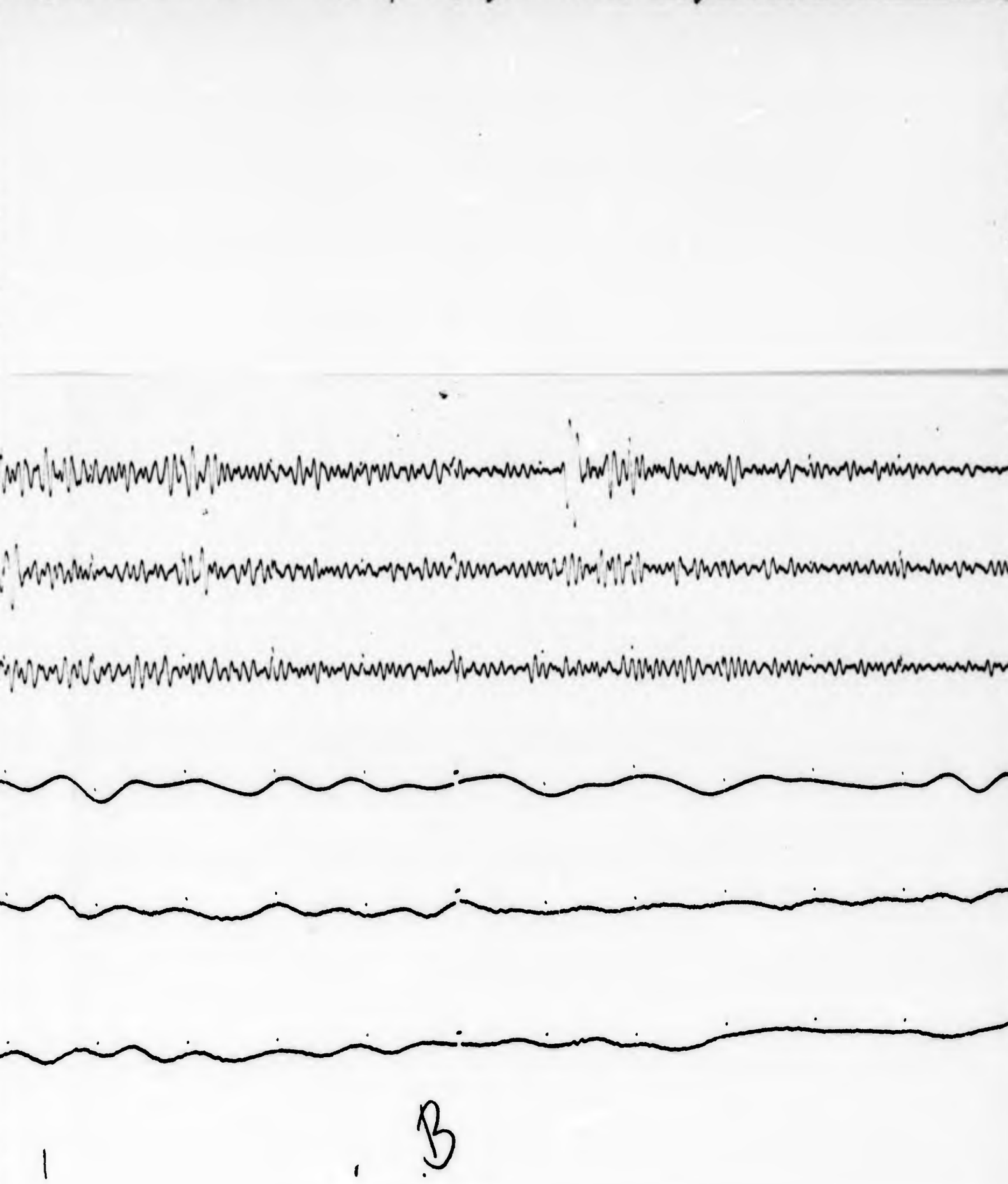









LONG SHOT
KN-UT
KANAB, UTAH
29 OCTOBER 1965
Δ=5455 Km
UP
21:08:30.0 Z
SPZ-HI
42.5 K
95°
SPR-HI
47.9 K
185°
SPT-HI
35.7 K
UP
LPZ-HI
51.6 K
95°
LPR-HI
48.2 K
185°
LPT-HI
38.0 K
A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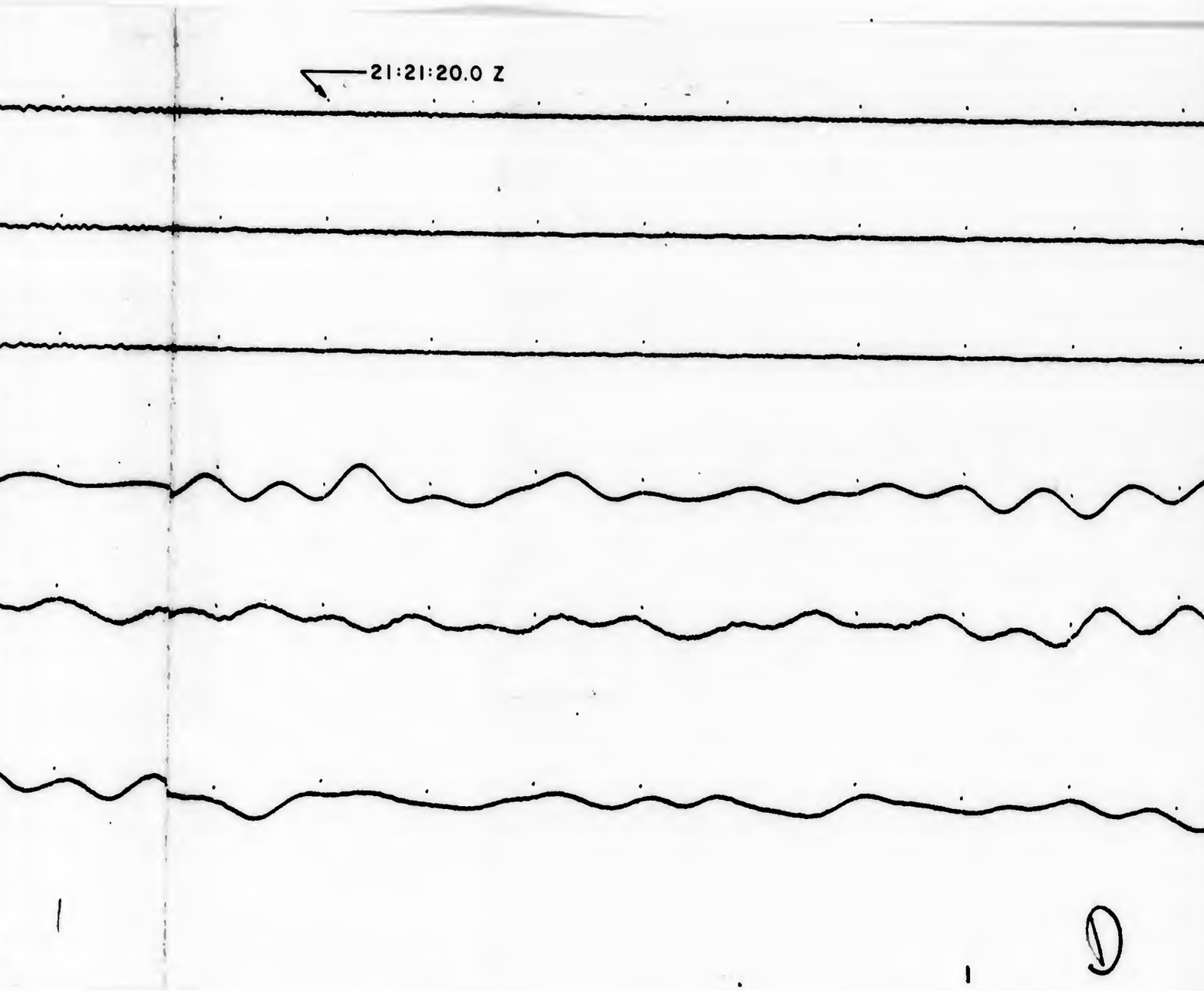
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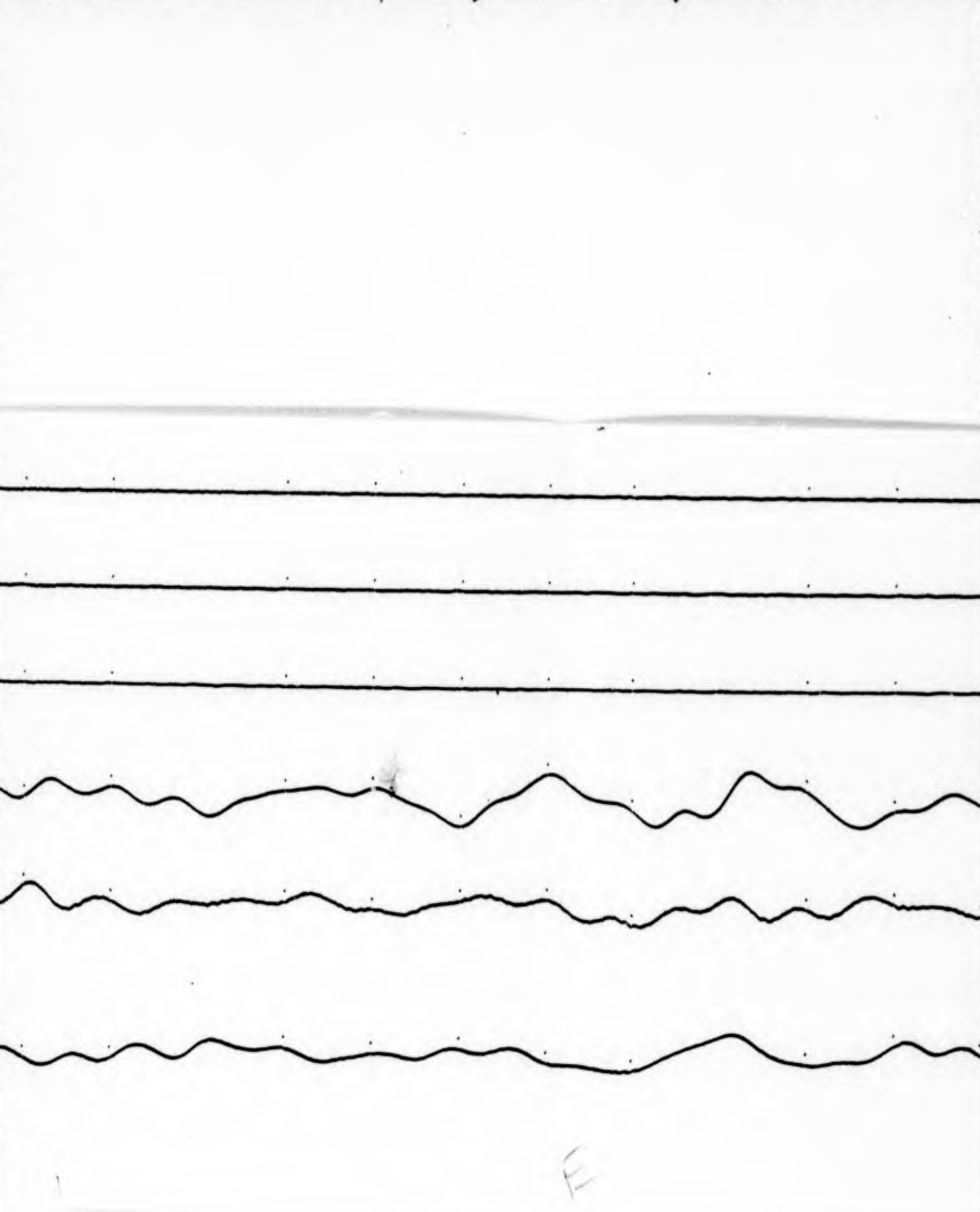
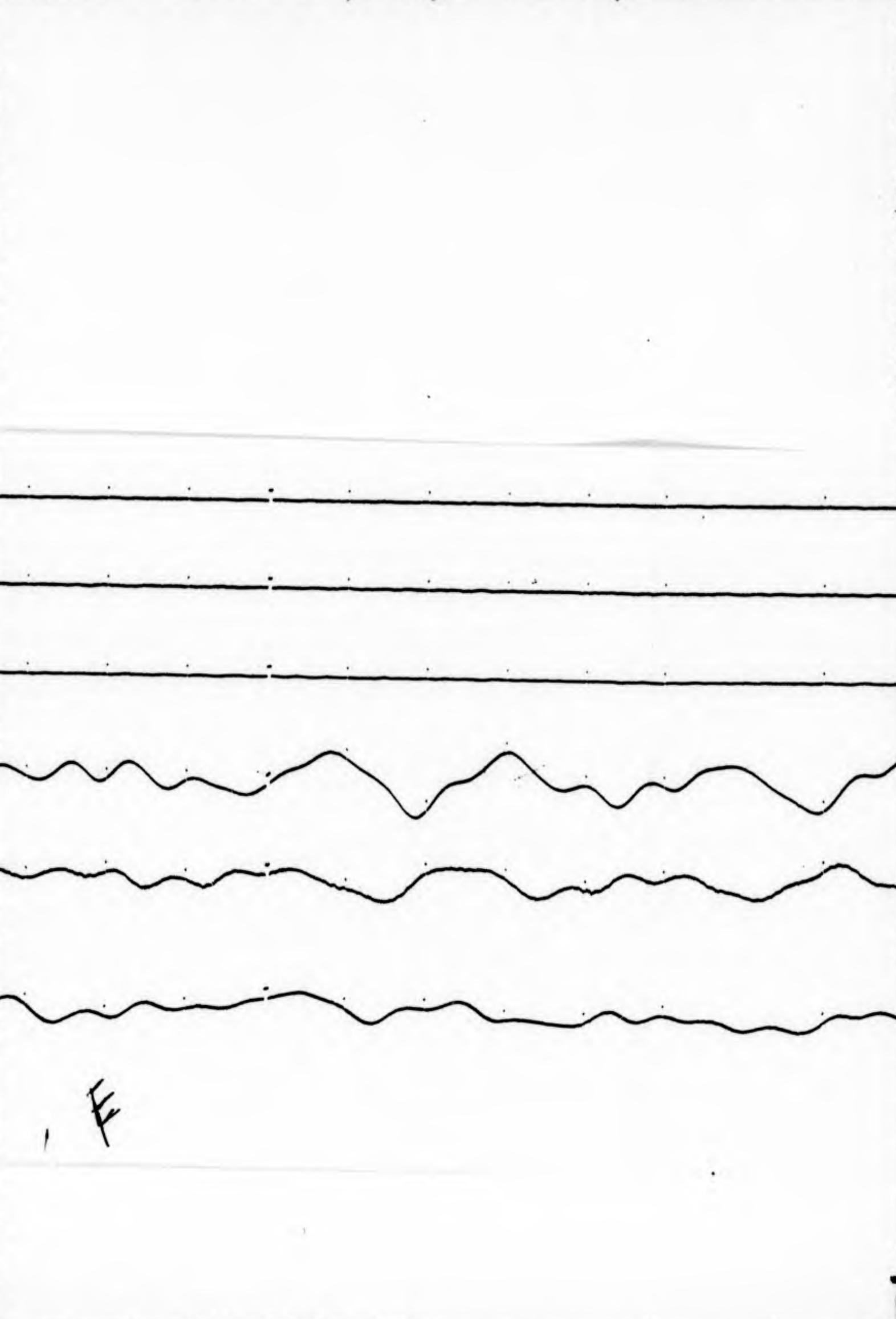
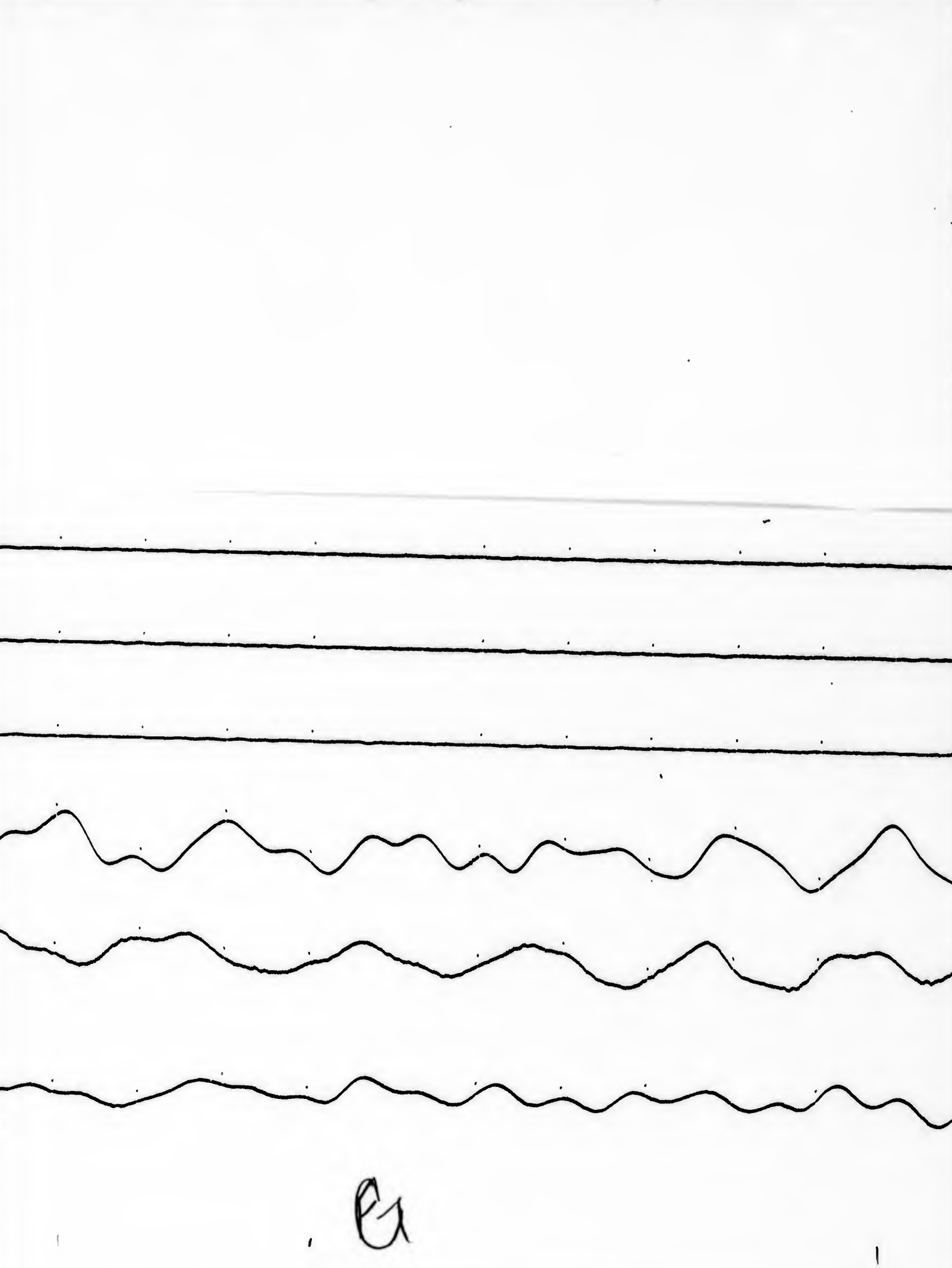
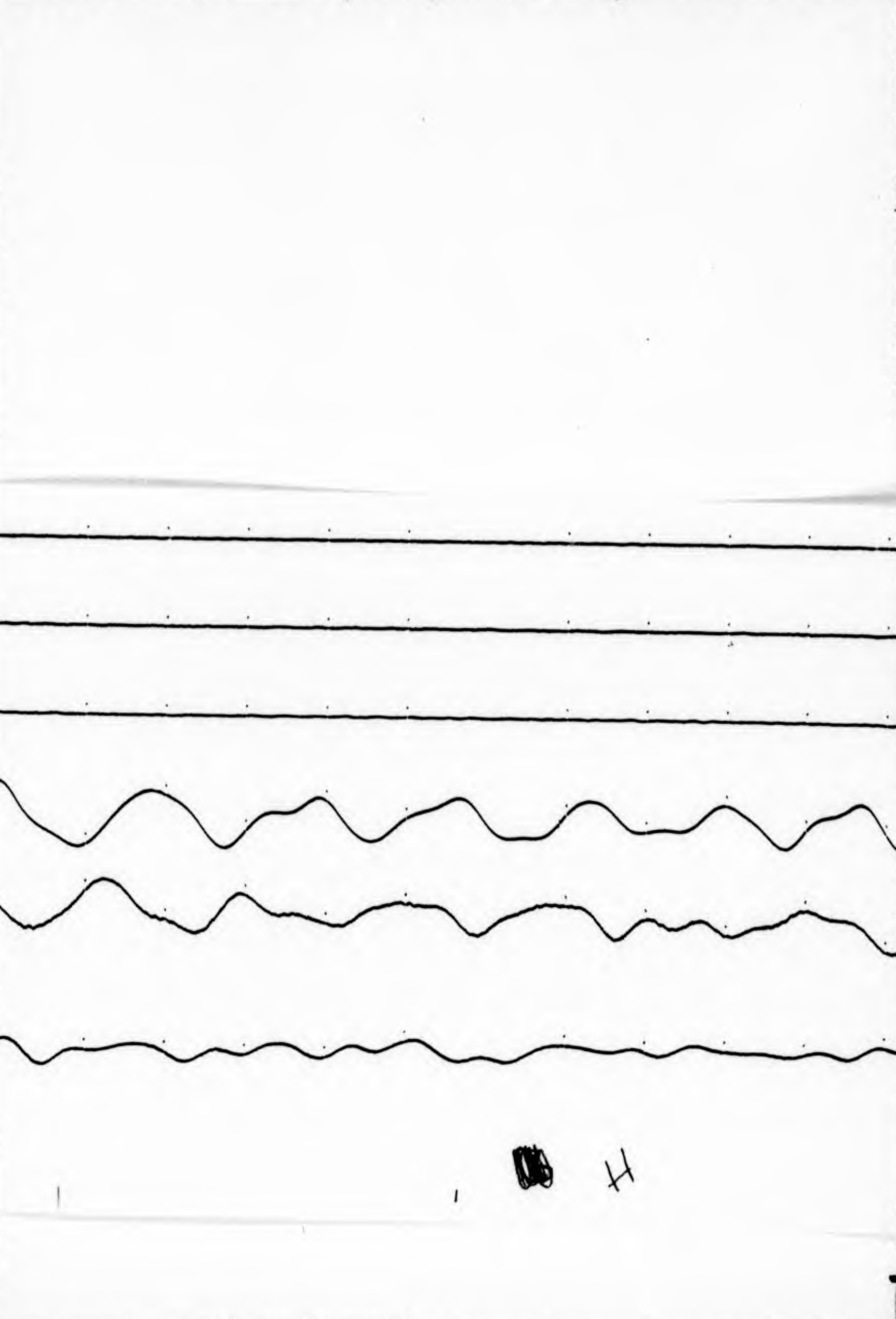
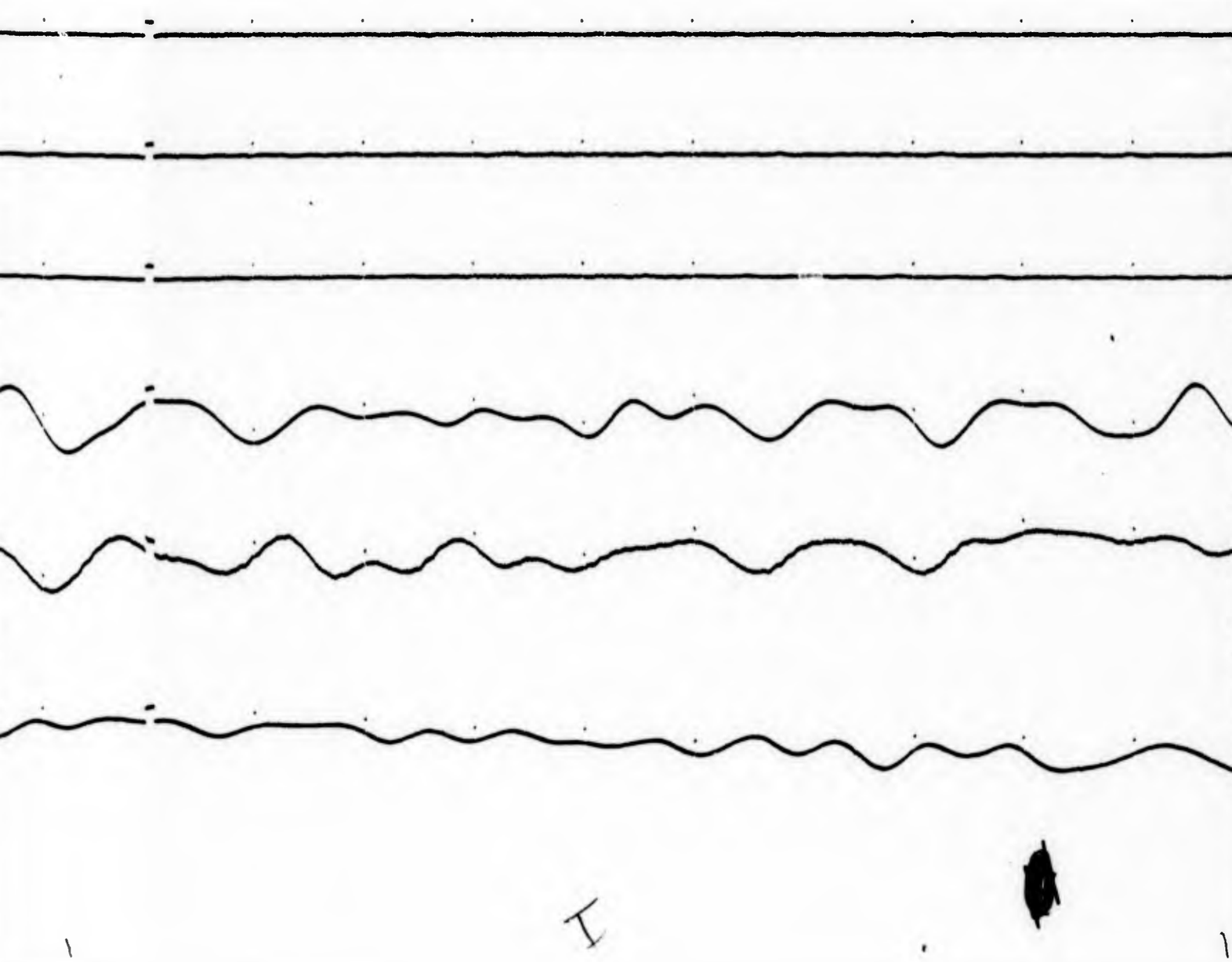
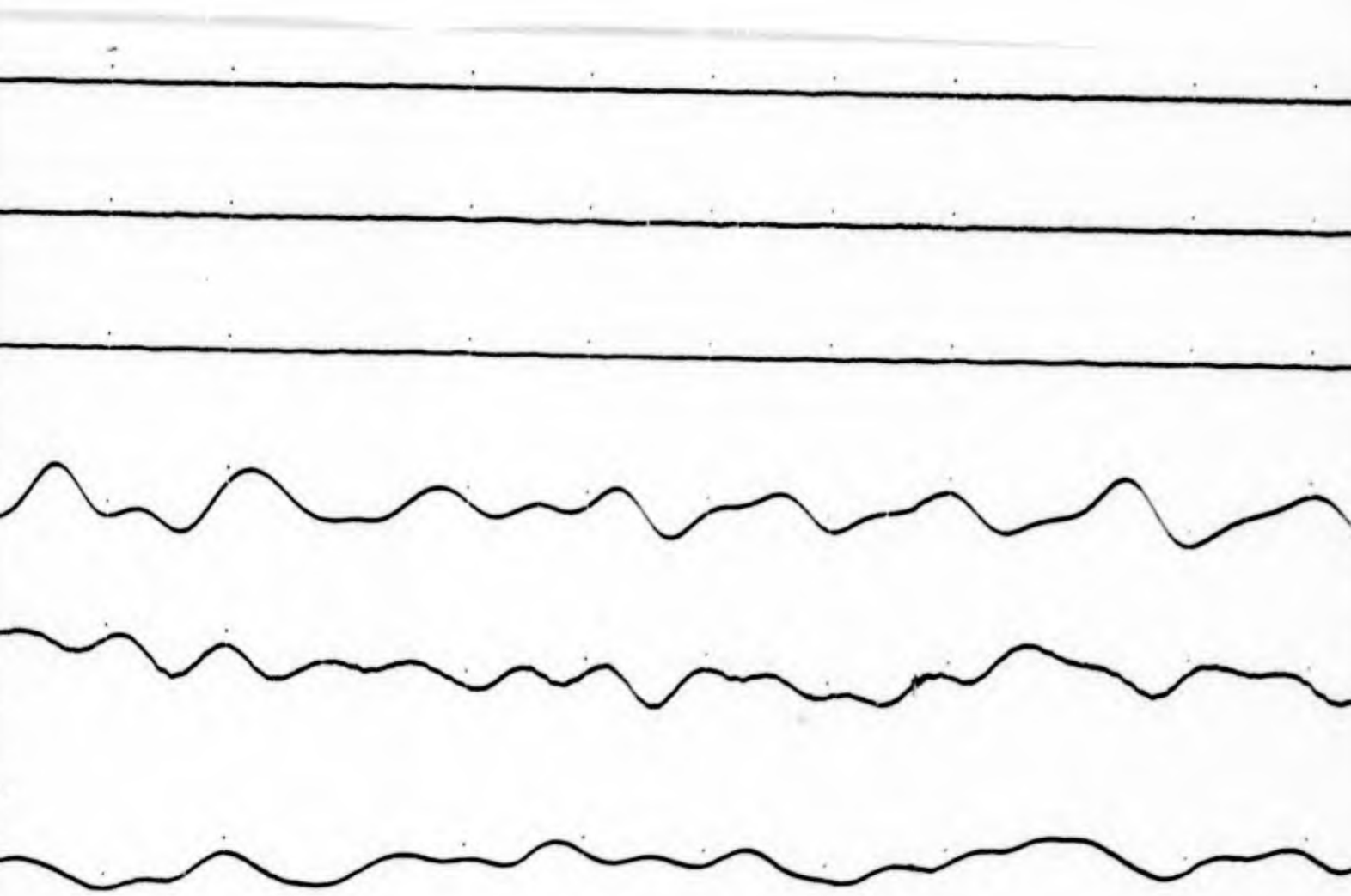


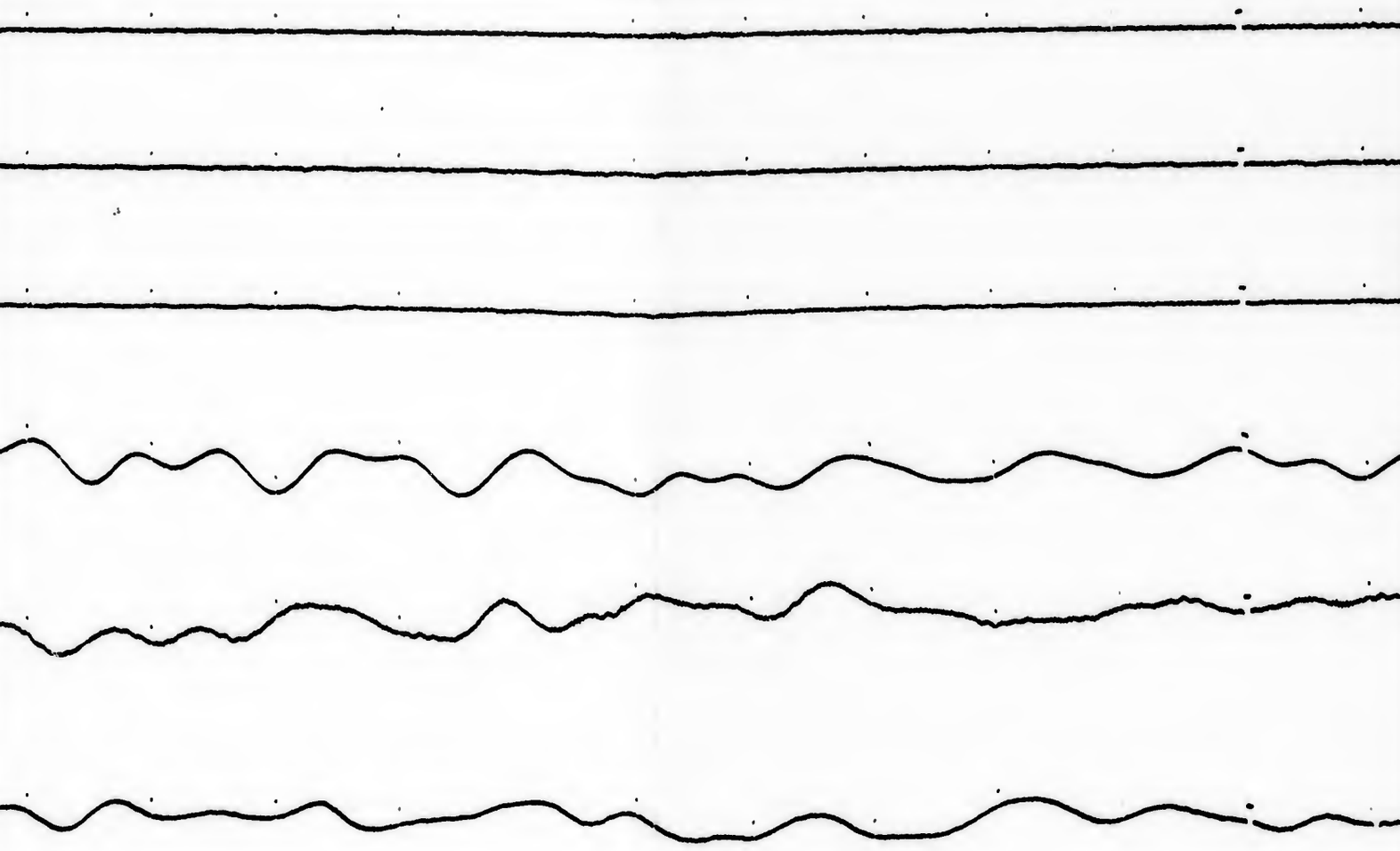


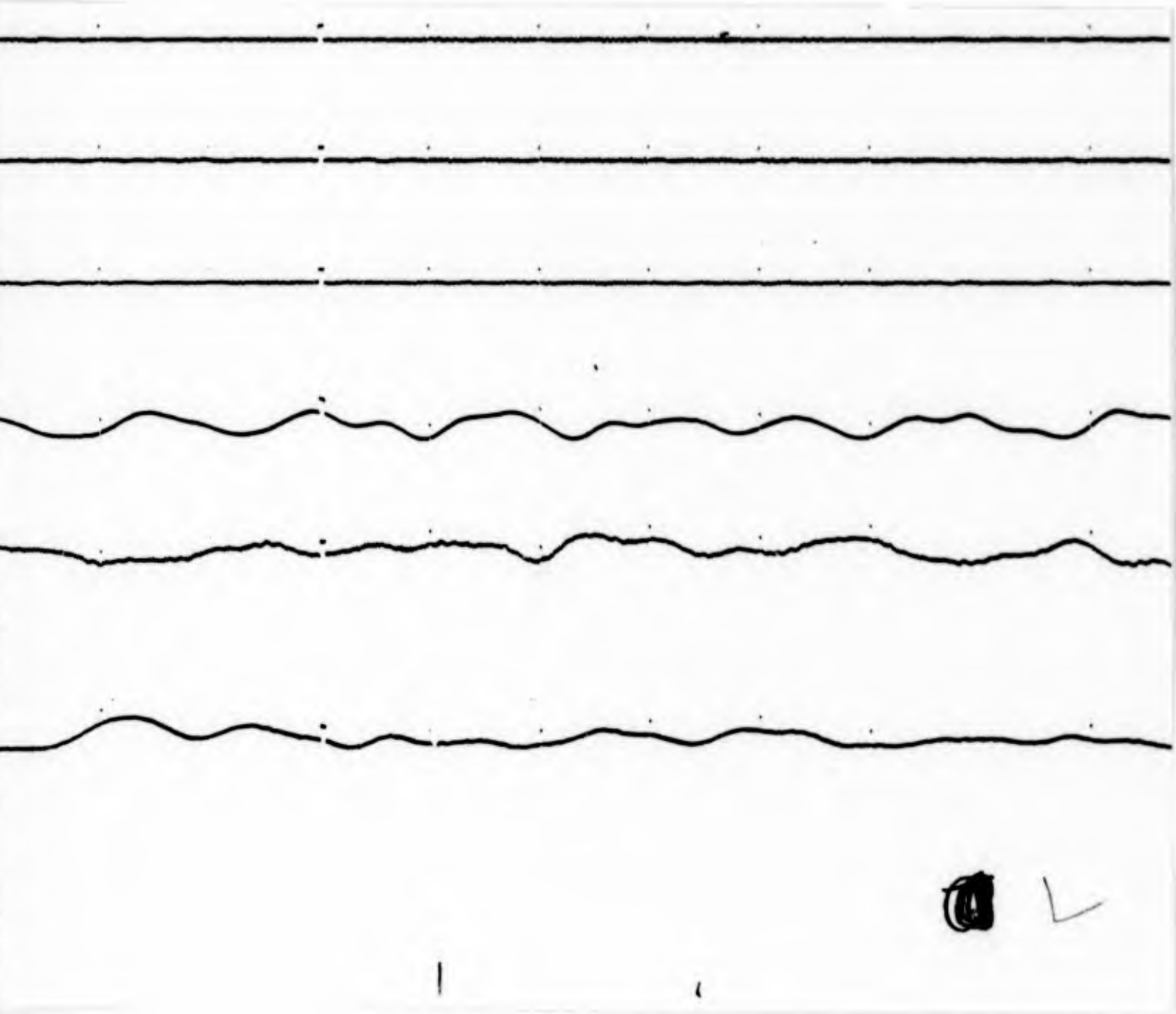












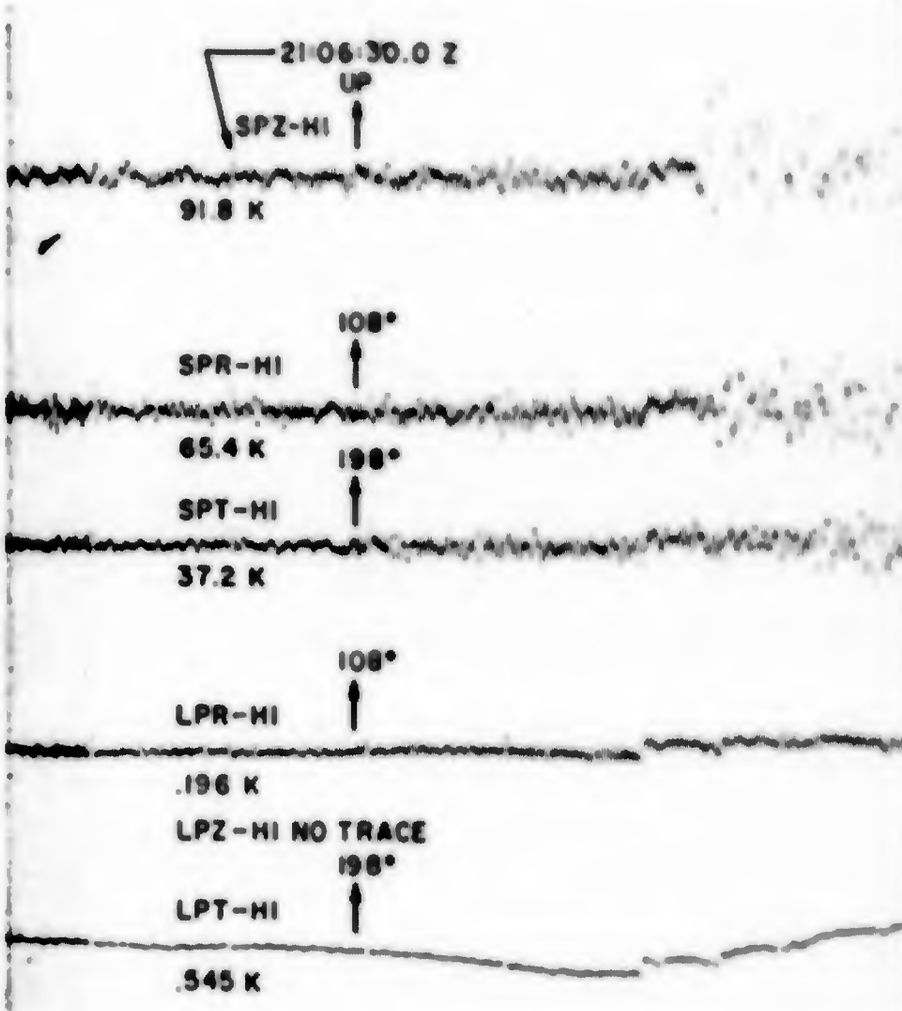
LONGSHOT

KV-AT

KEG RIVER, ALBERTA, CANADA

29 OCTOBER 1965

Δ=4046 Km



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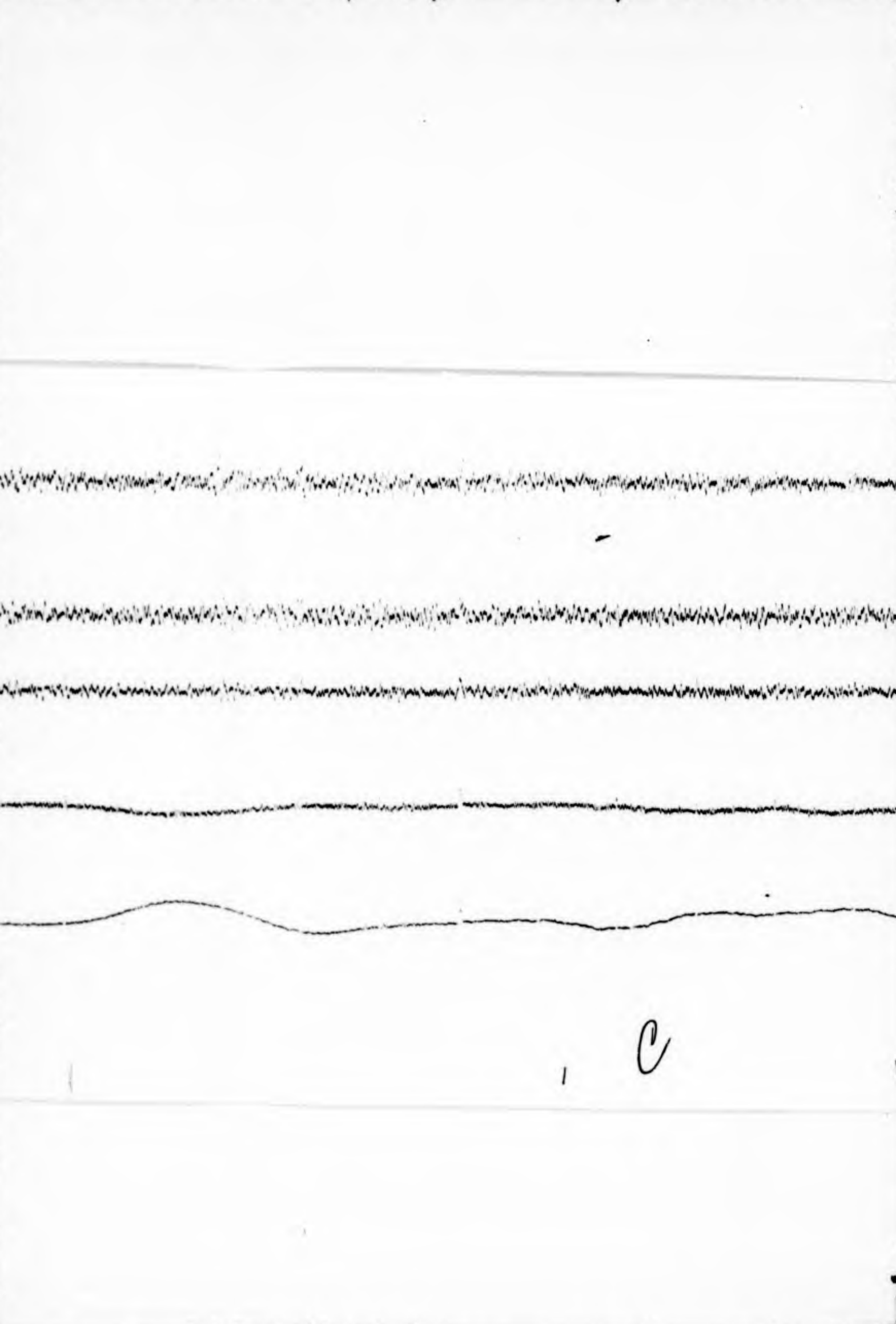

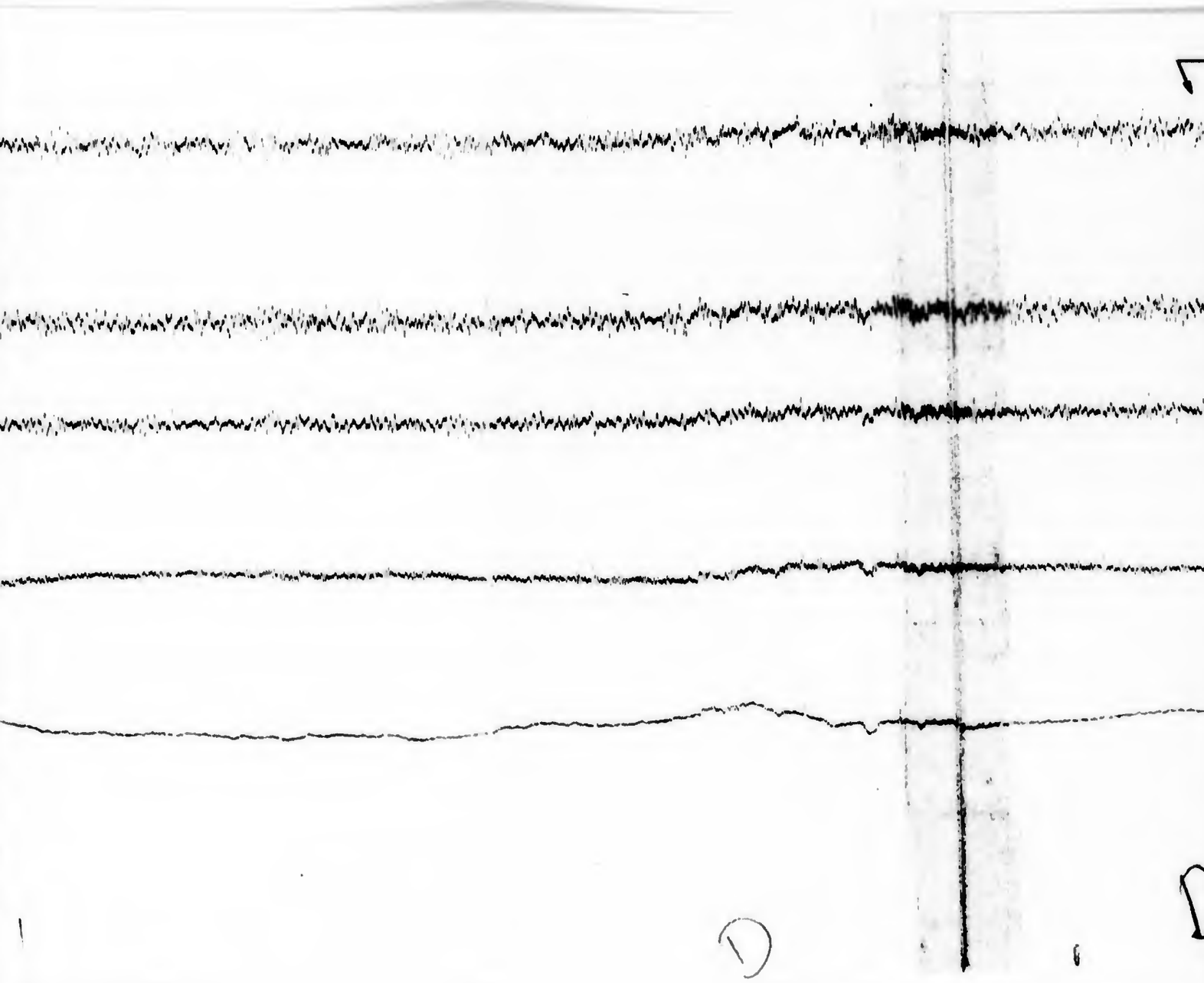

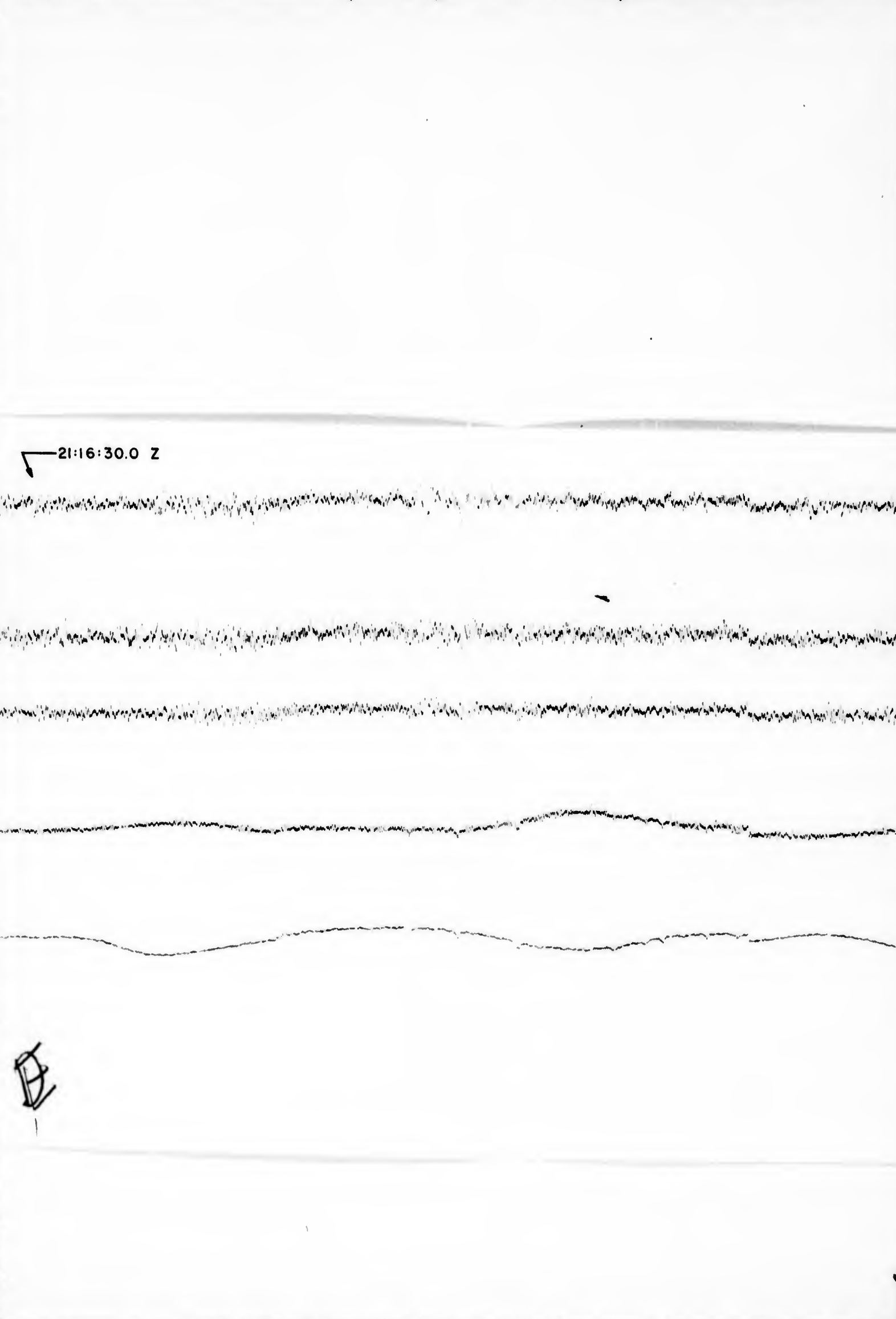
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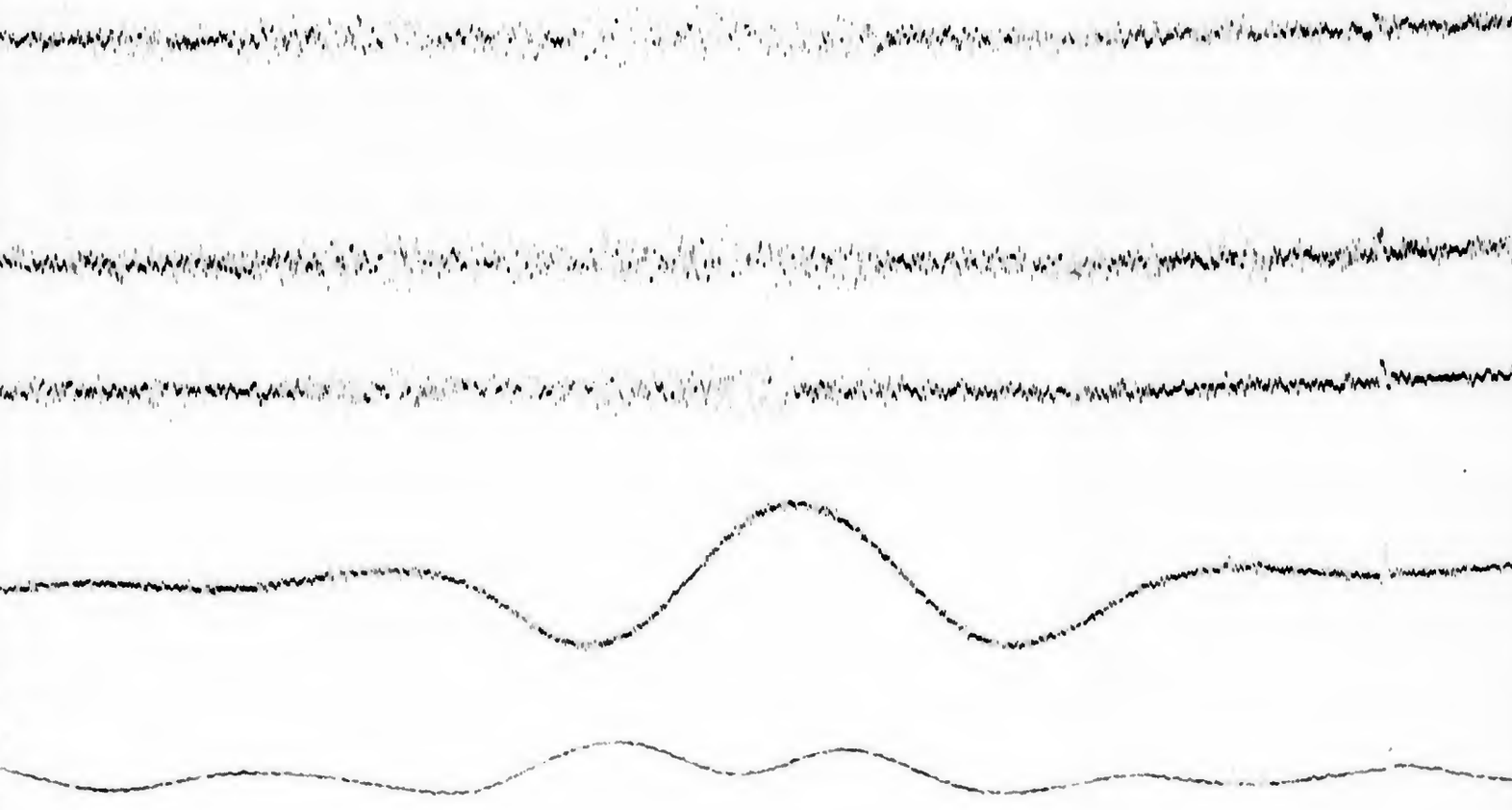
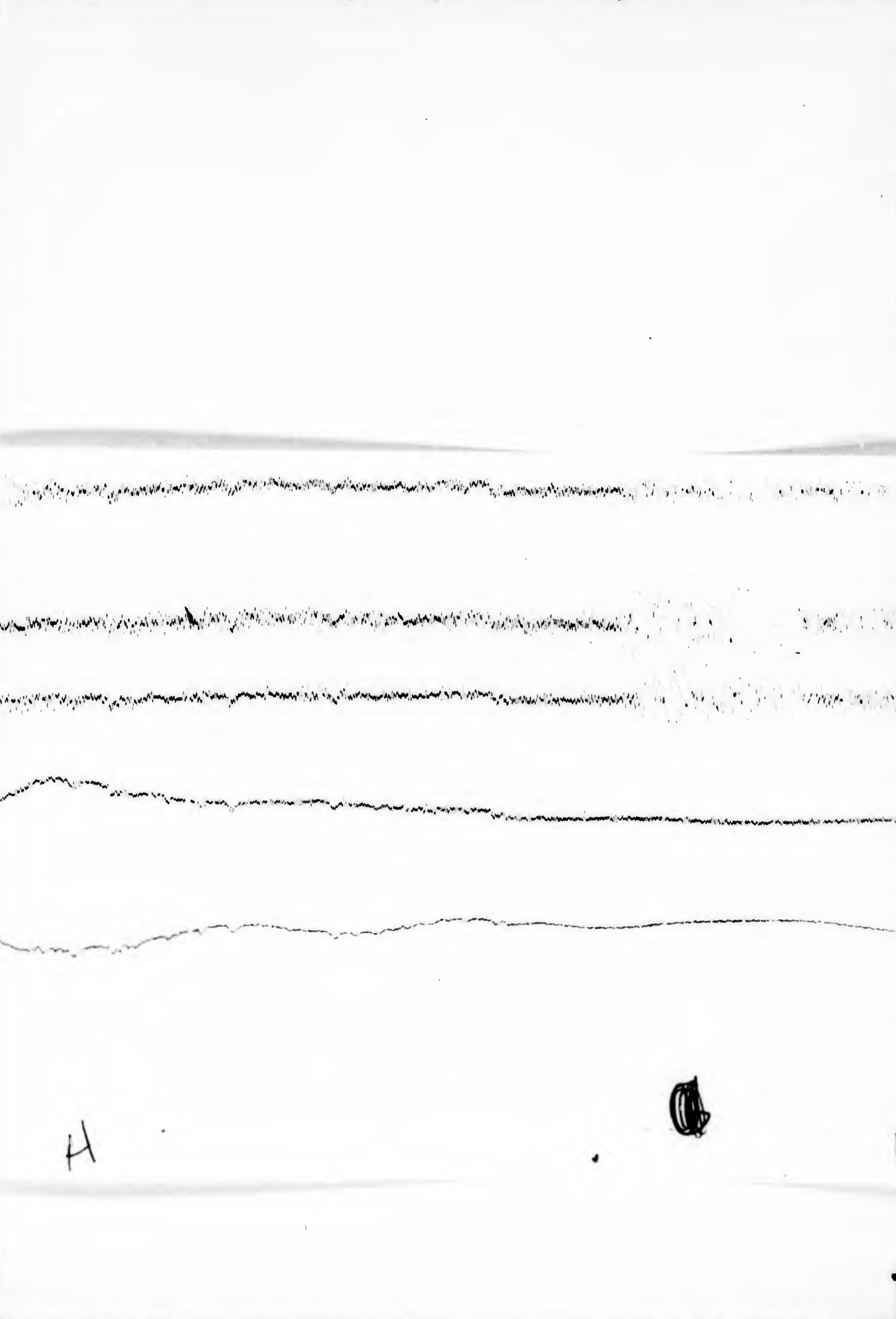
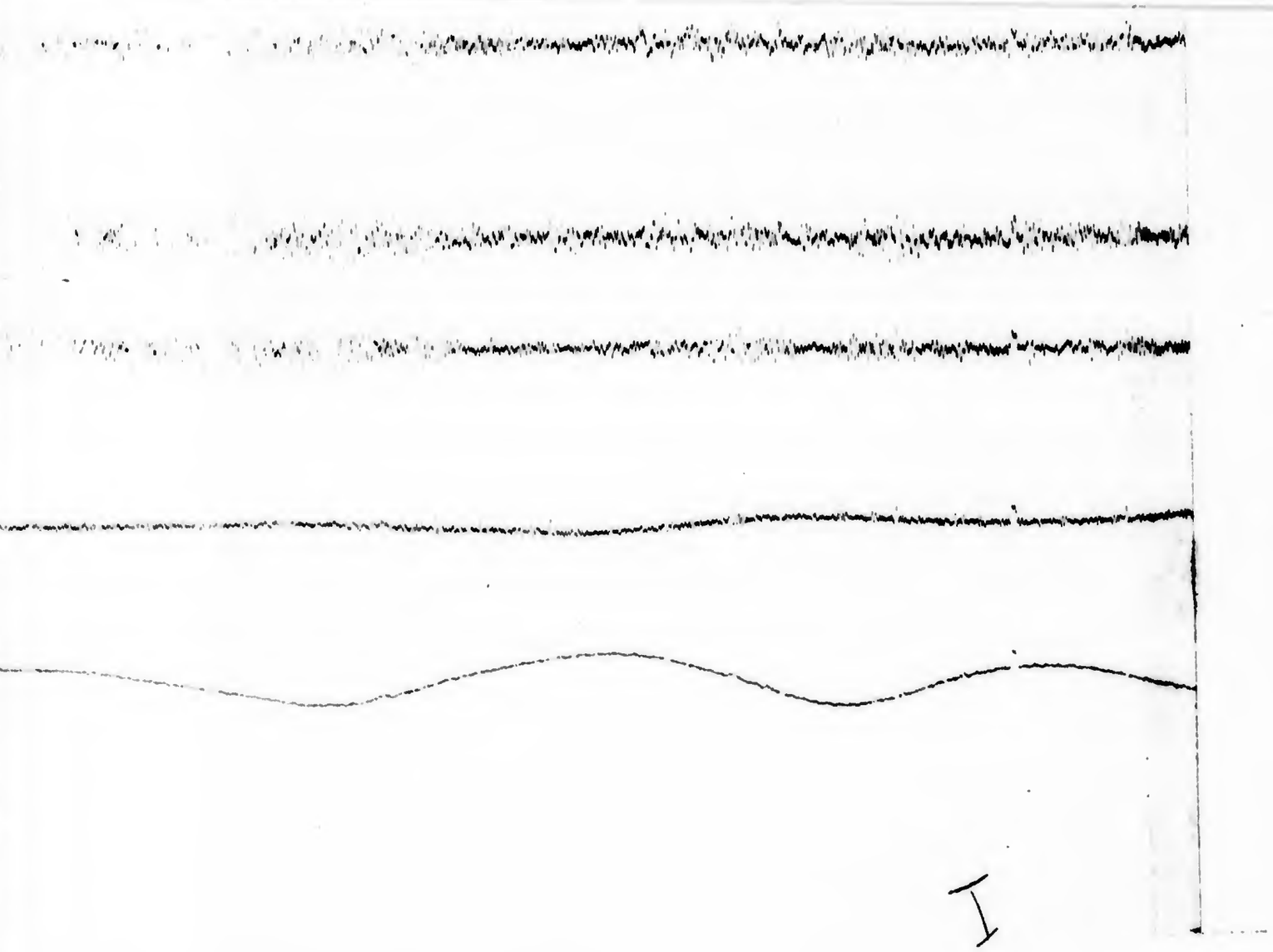
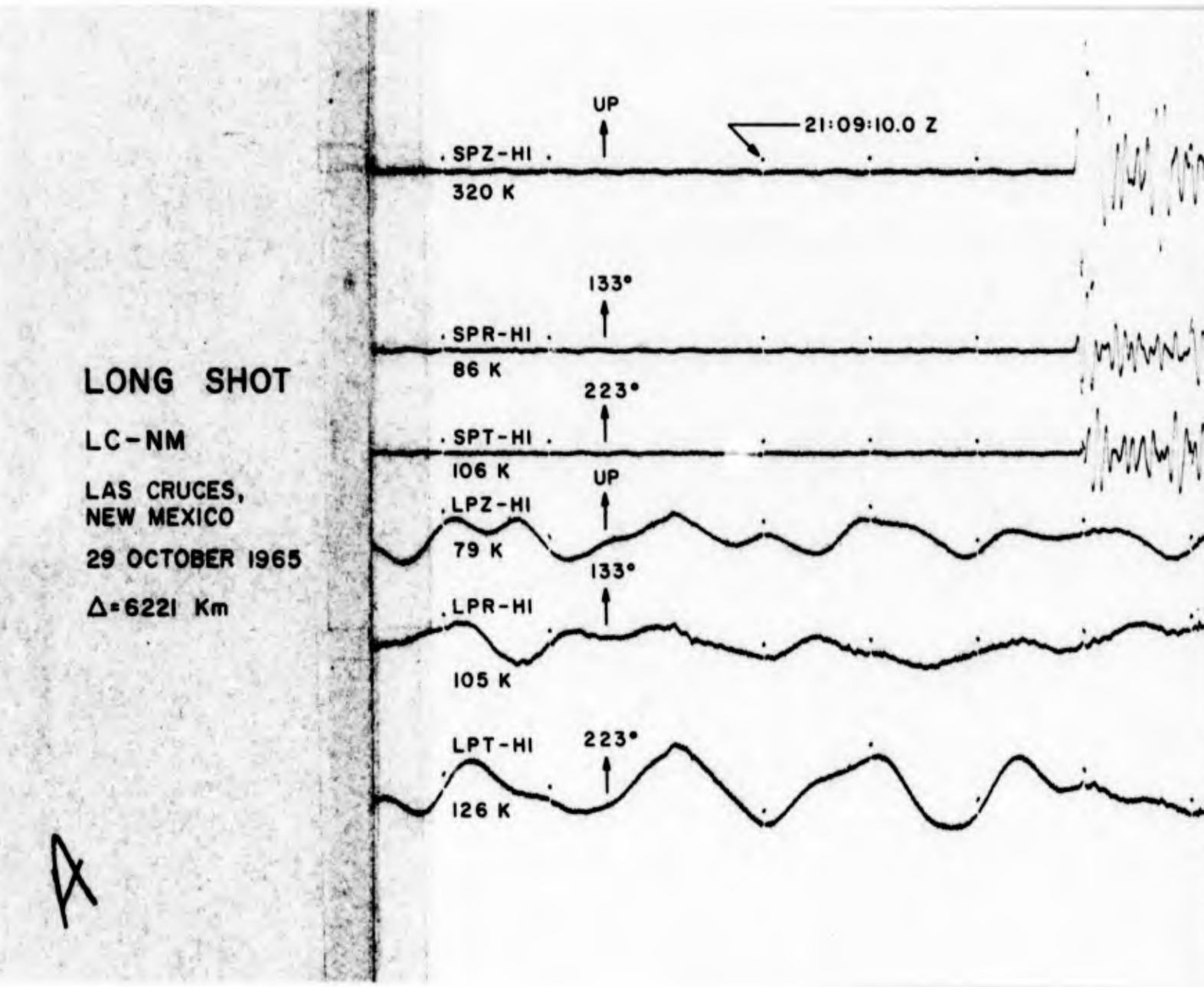
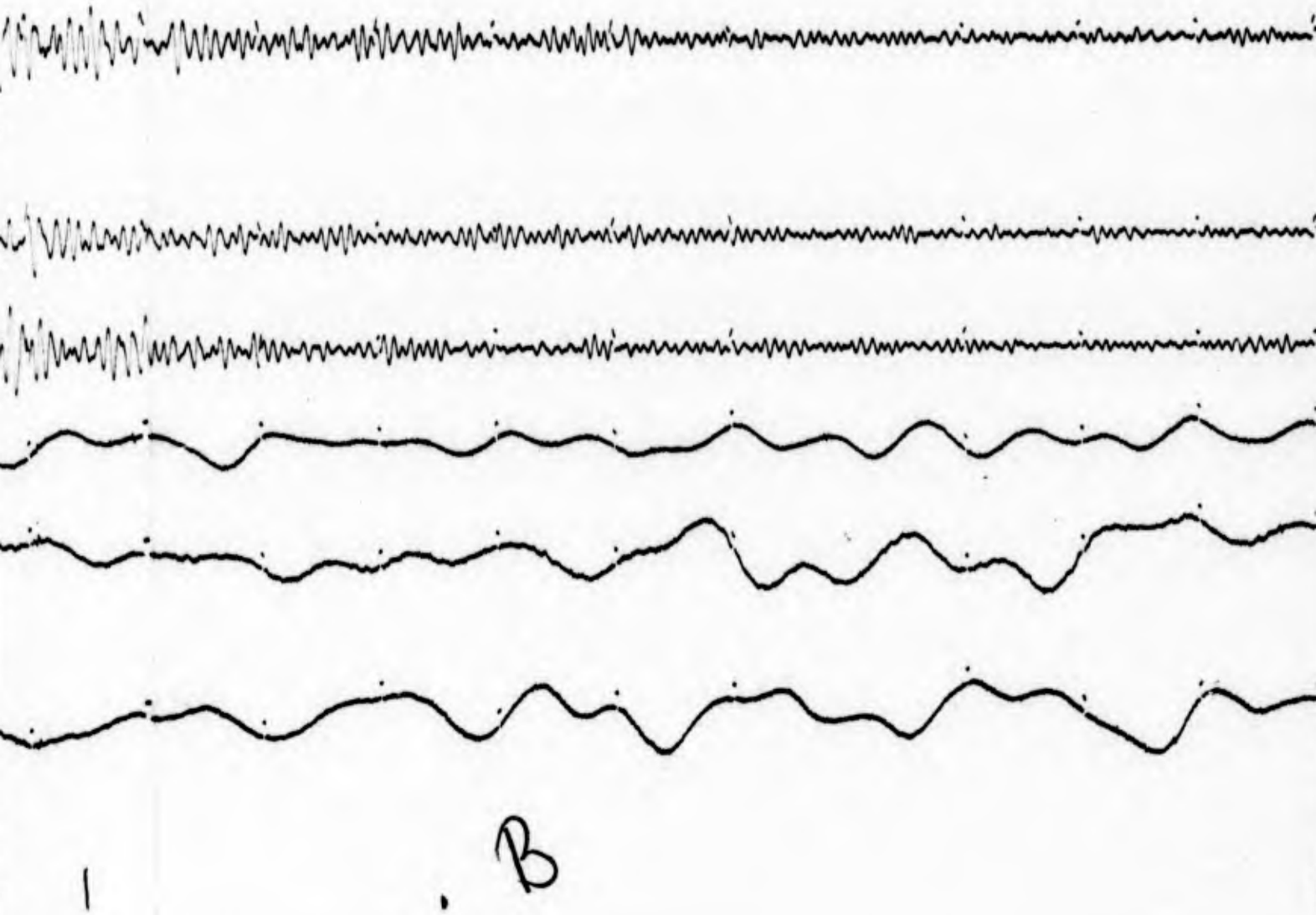


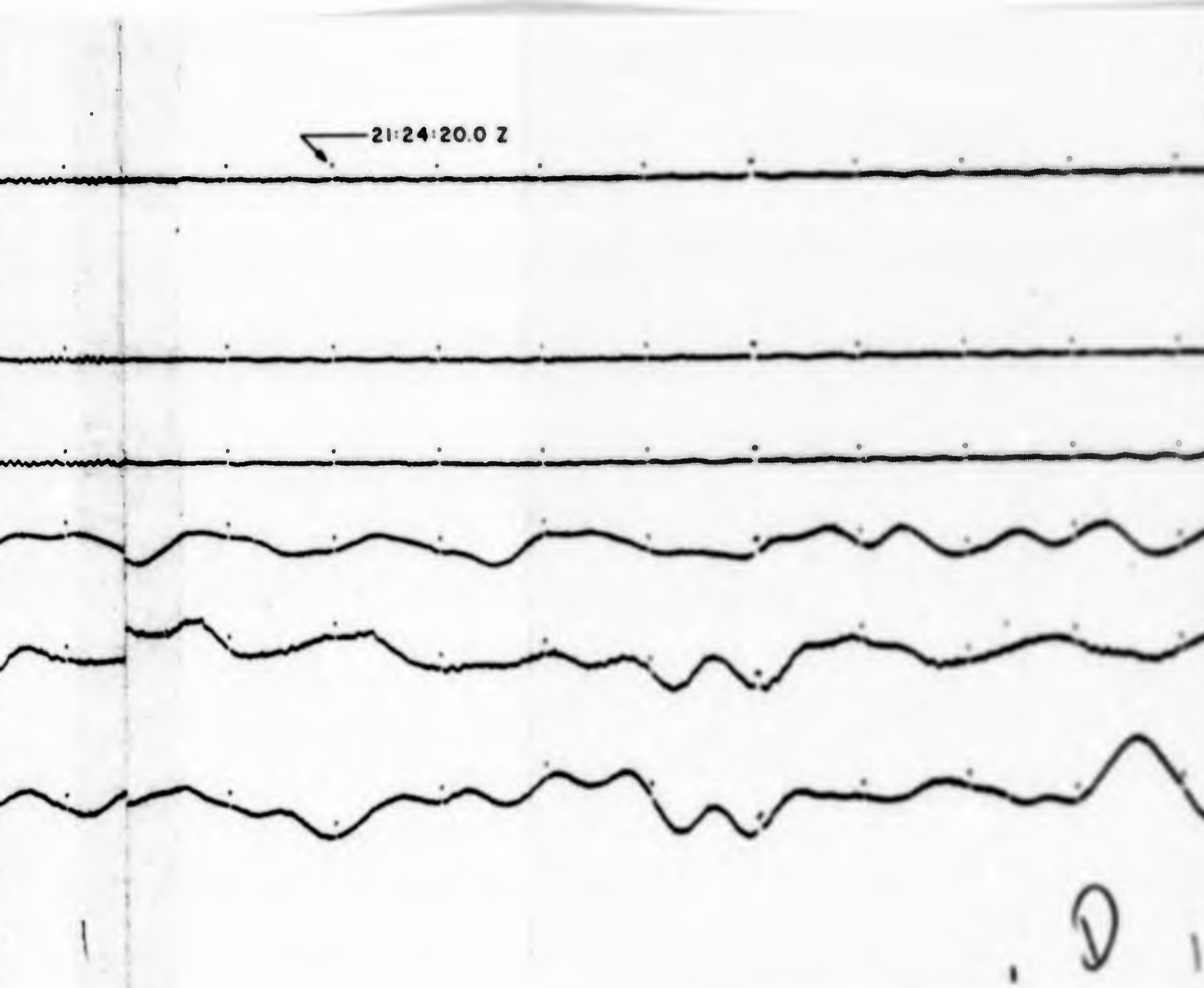


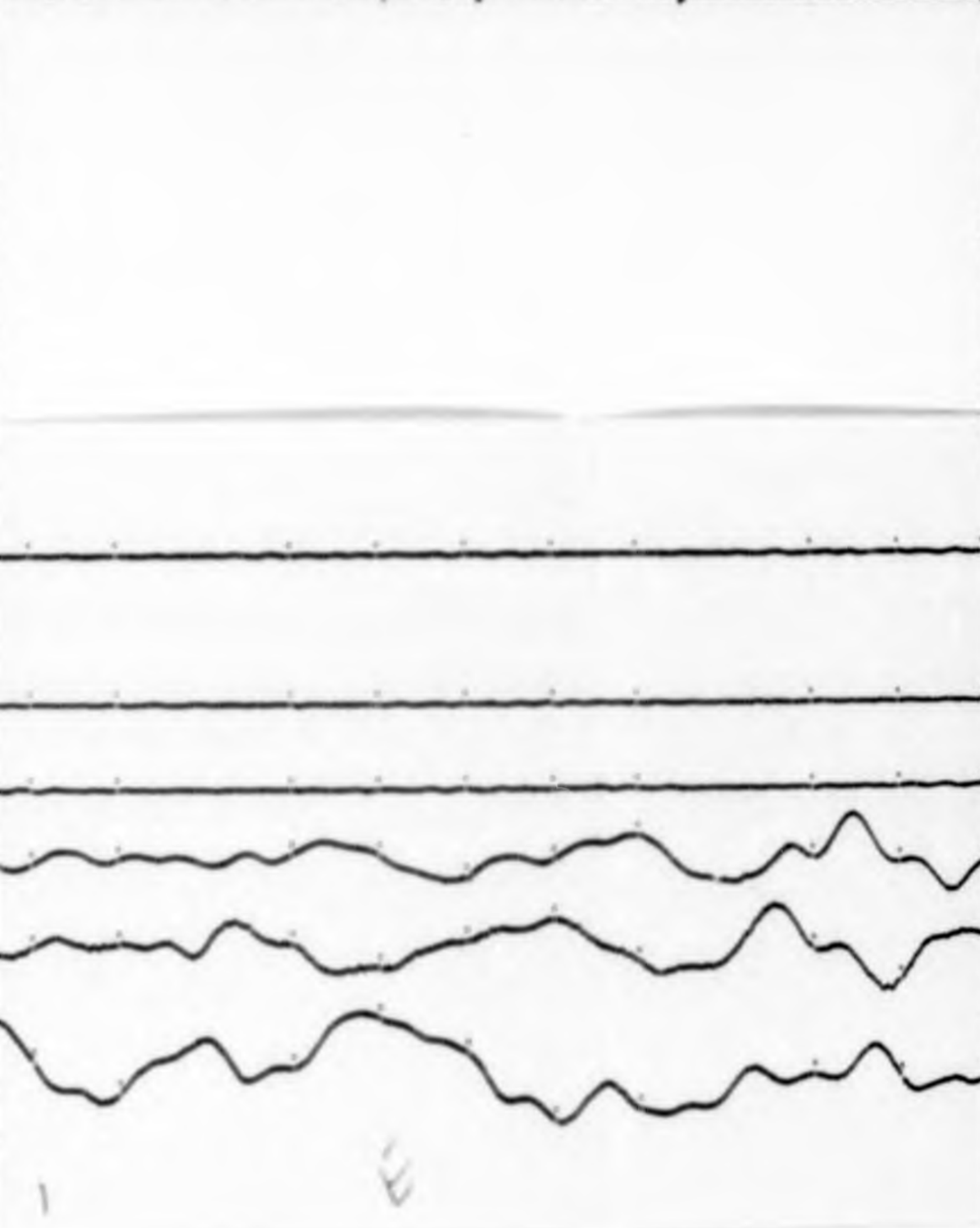


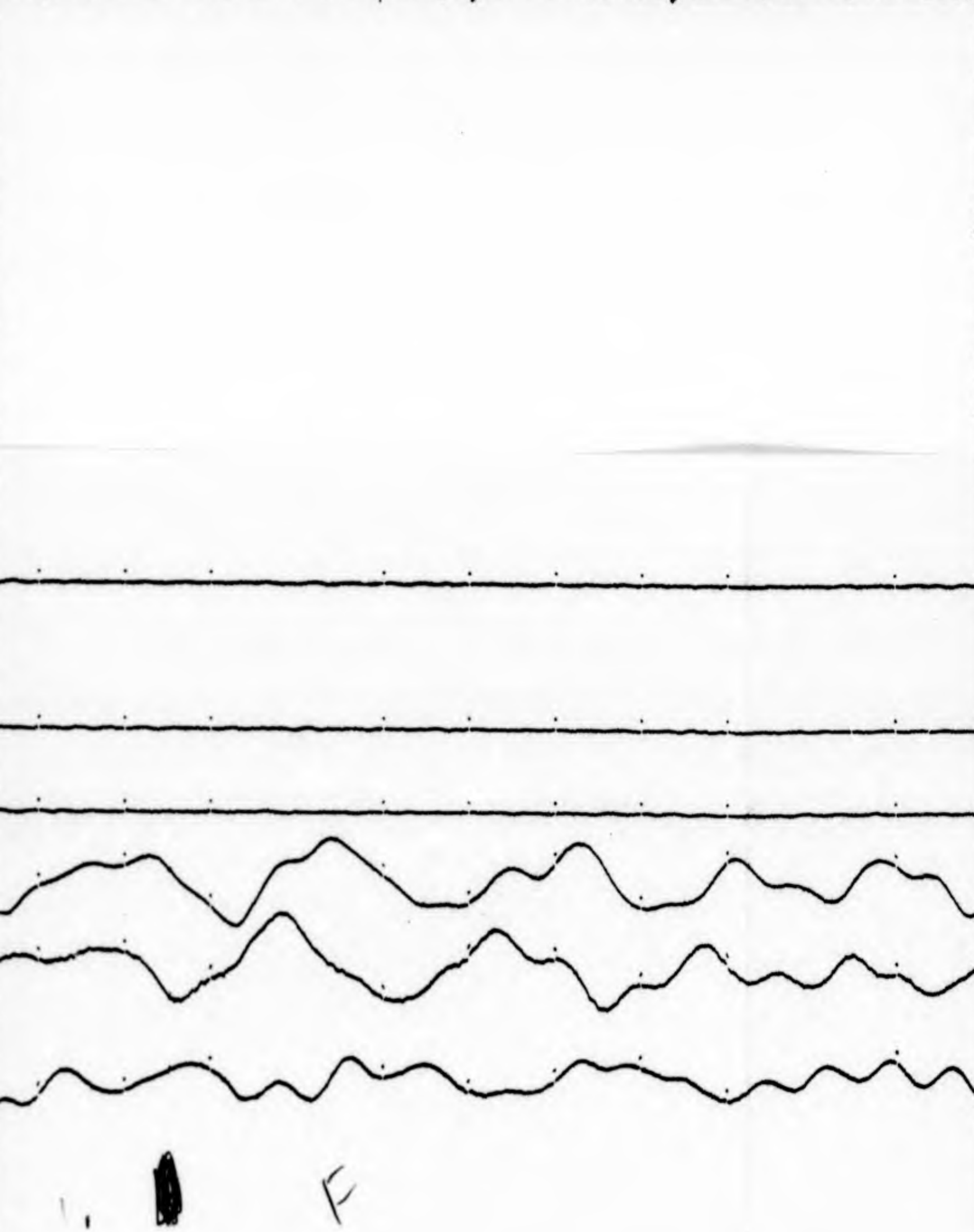

LONG SHOT
LC-NM
LAS CRUCES,
NEW MEXICO
29 OCTOBER 1965
Δ=6221 Km
UP
21:09:10.0 Z
SPZ-HI
320 K
133°
SPR-HI
86 K
223°
SPT-HI
106 K
UP
LPZ-HI
79 K
133°
LPR-HI
105 K
LPT-HI
223°
126 K
A

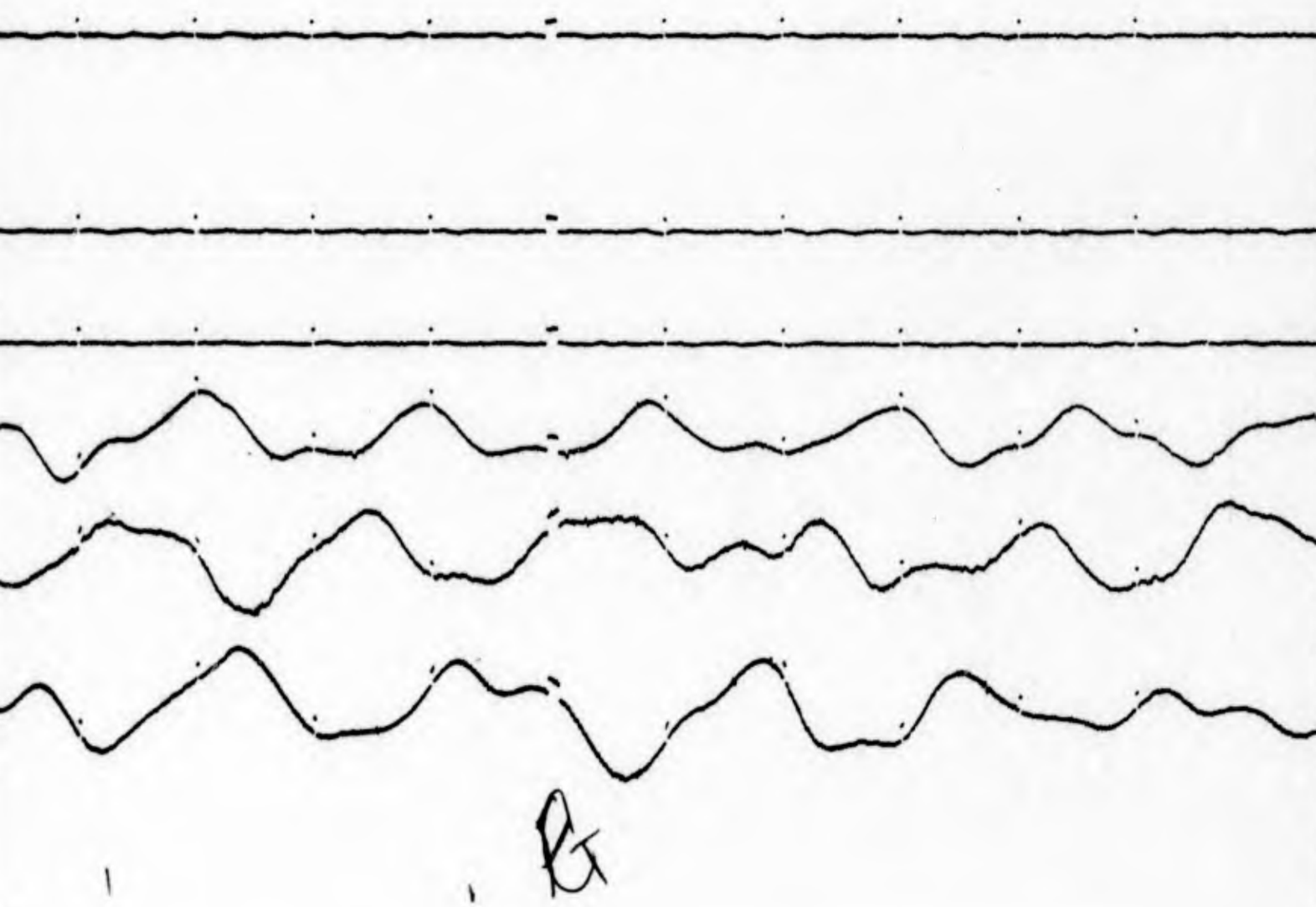


1 B


21:24:20.0 Z



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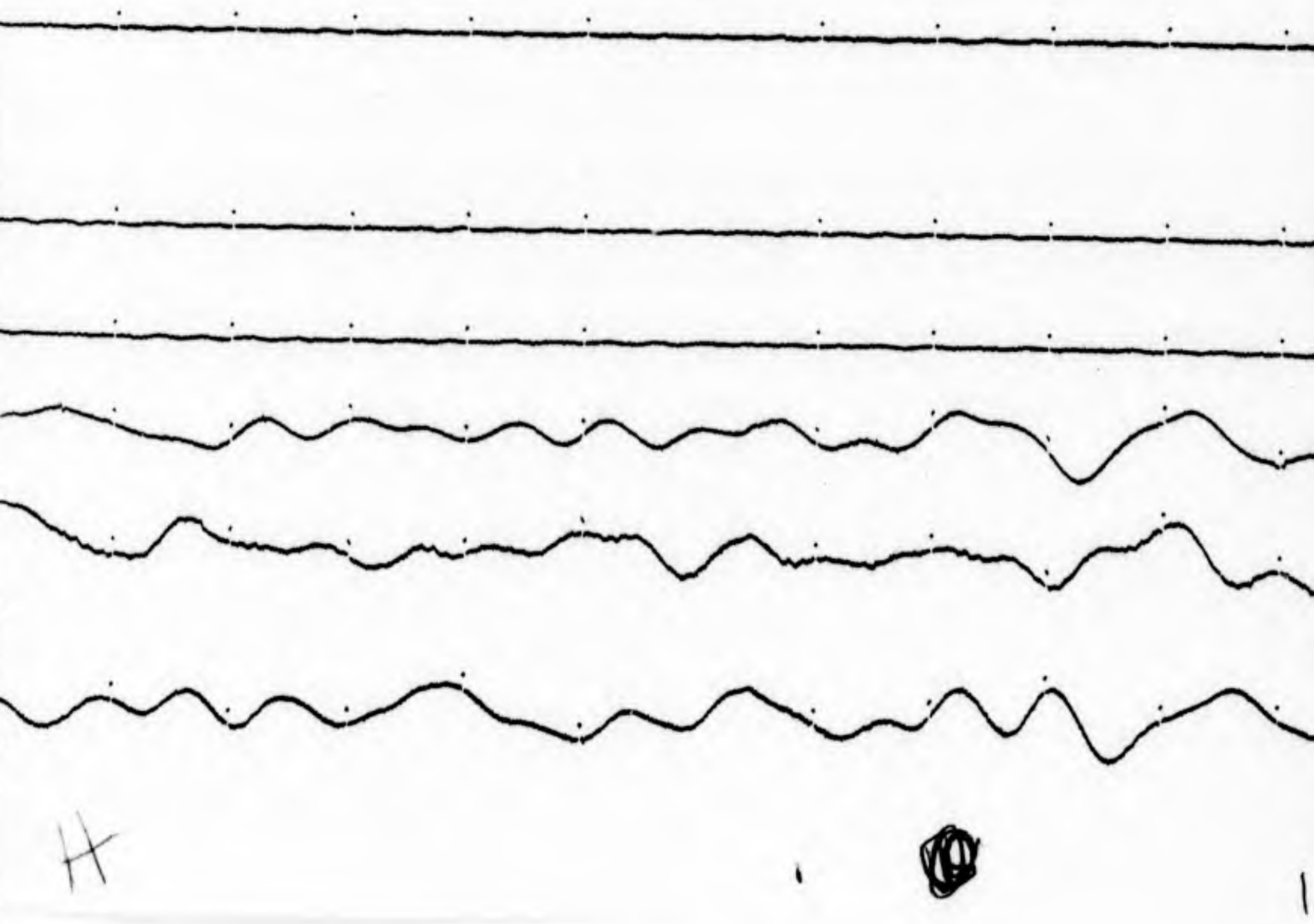
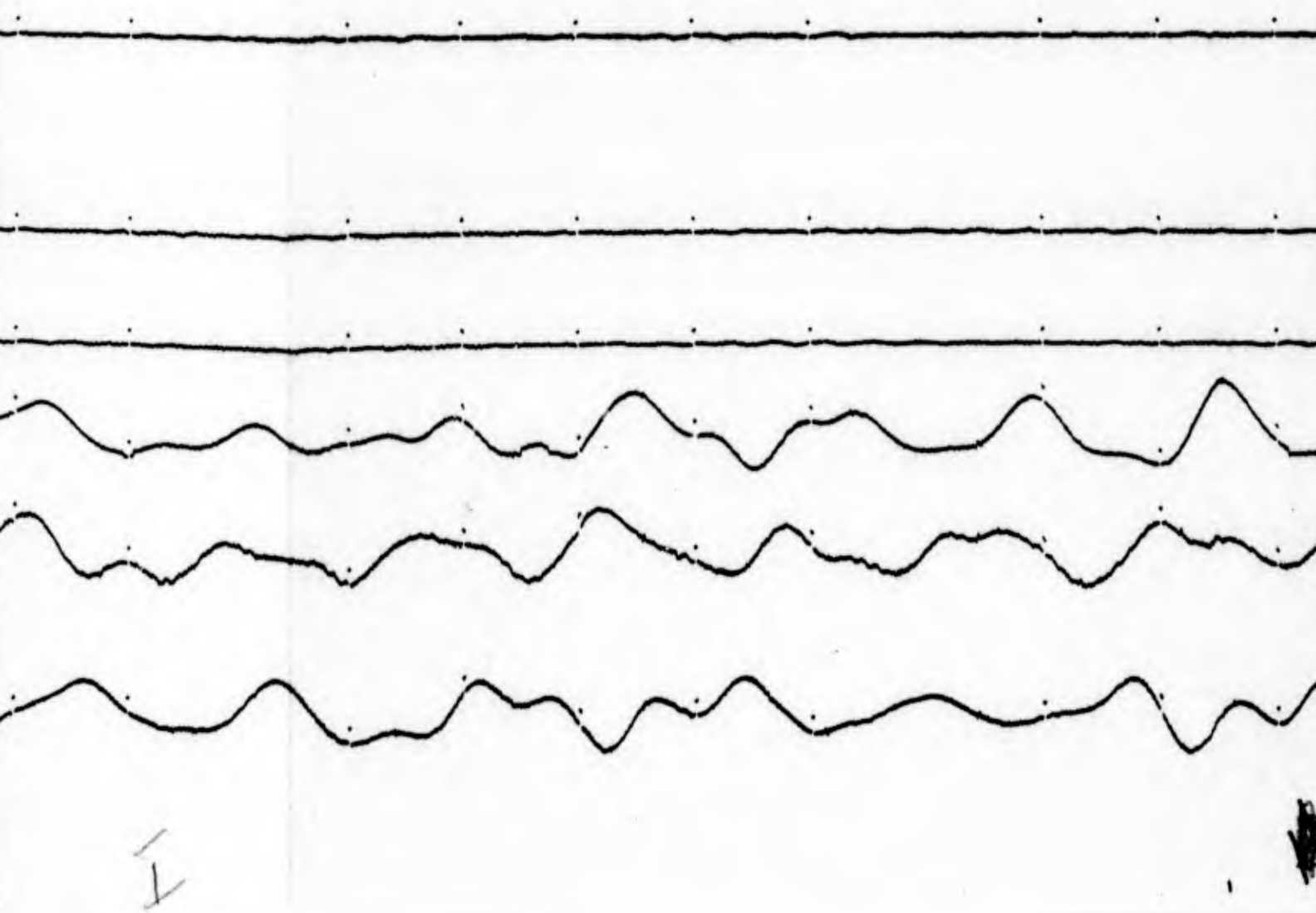
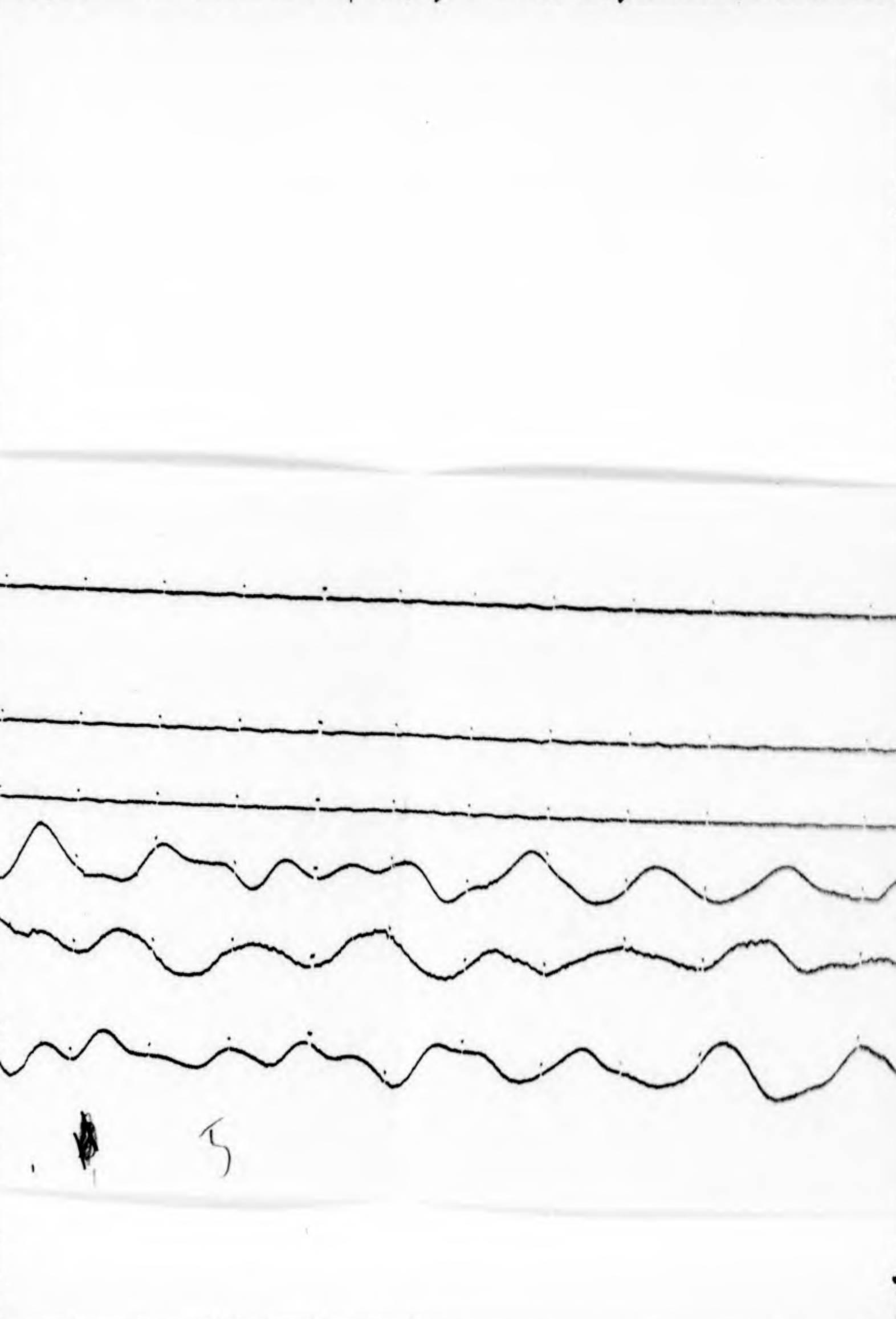
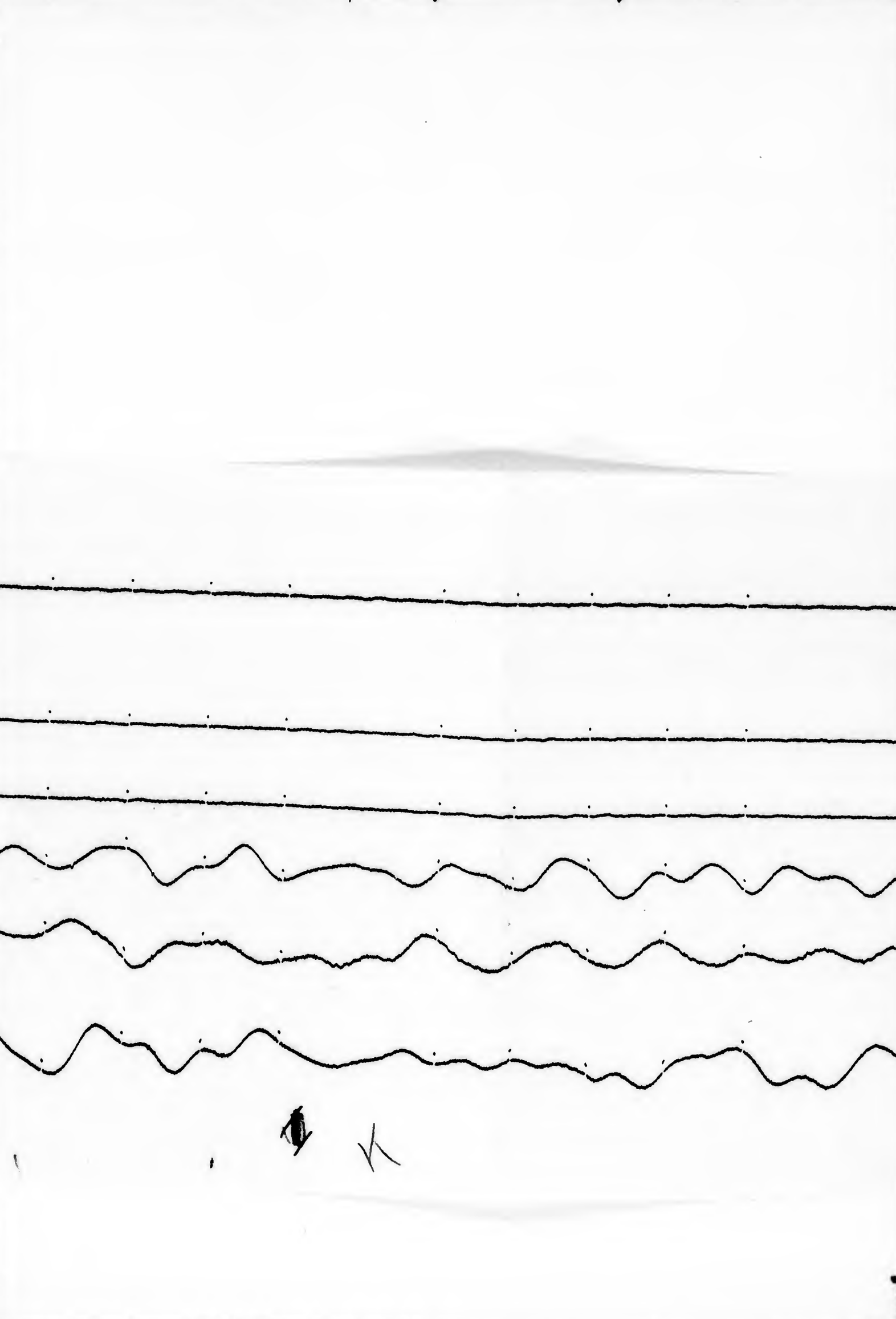
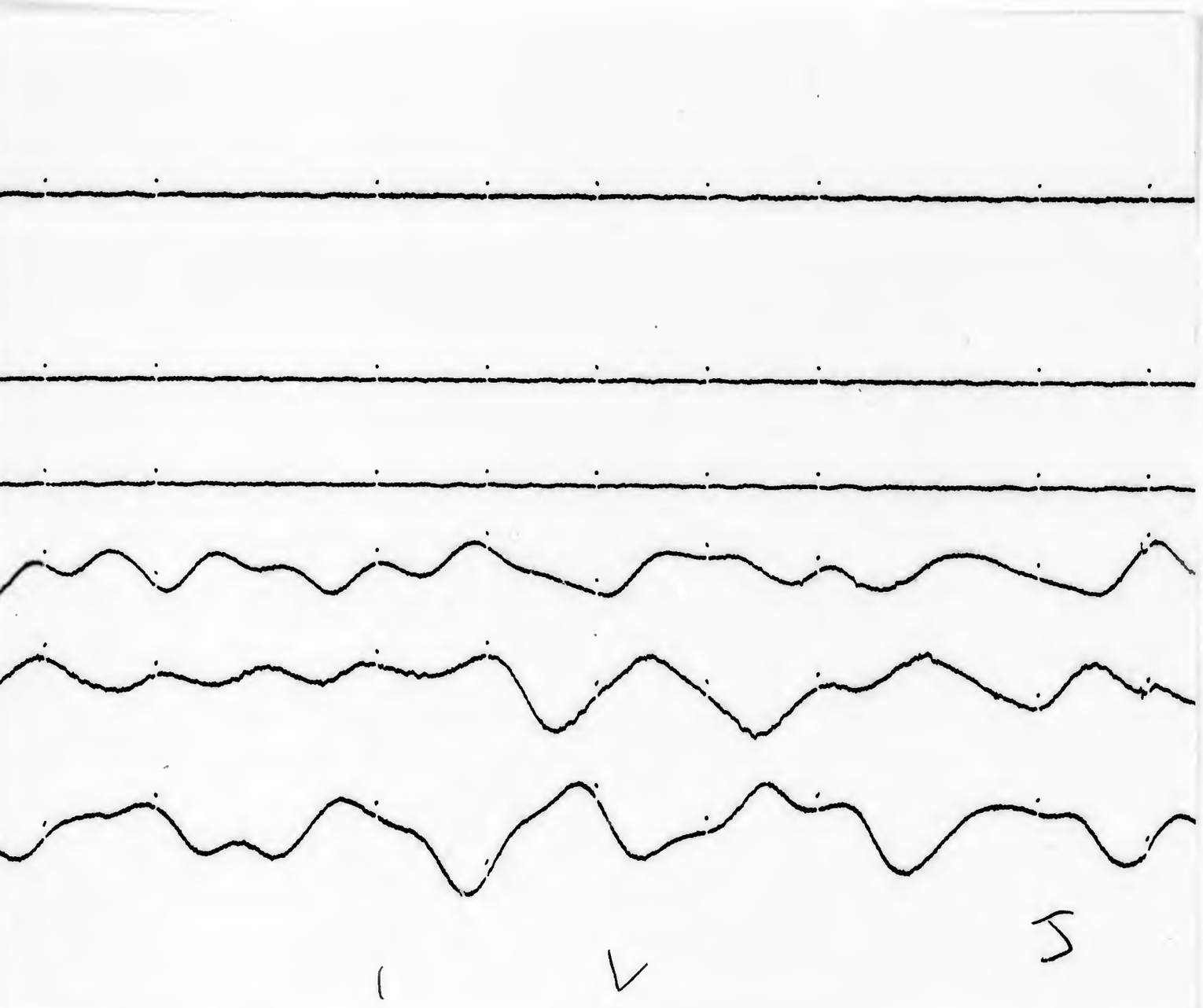









1 V
5

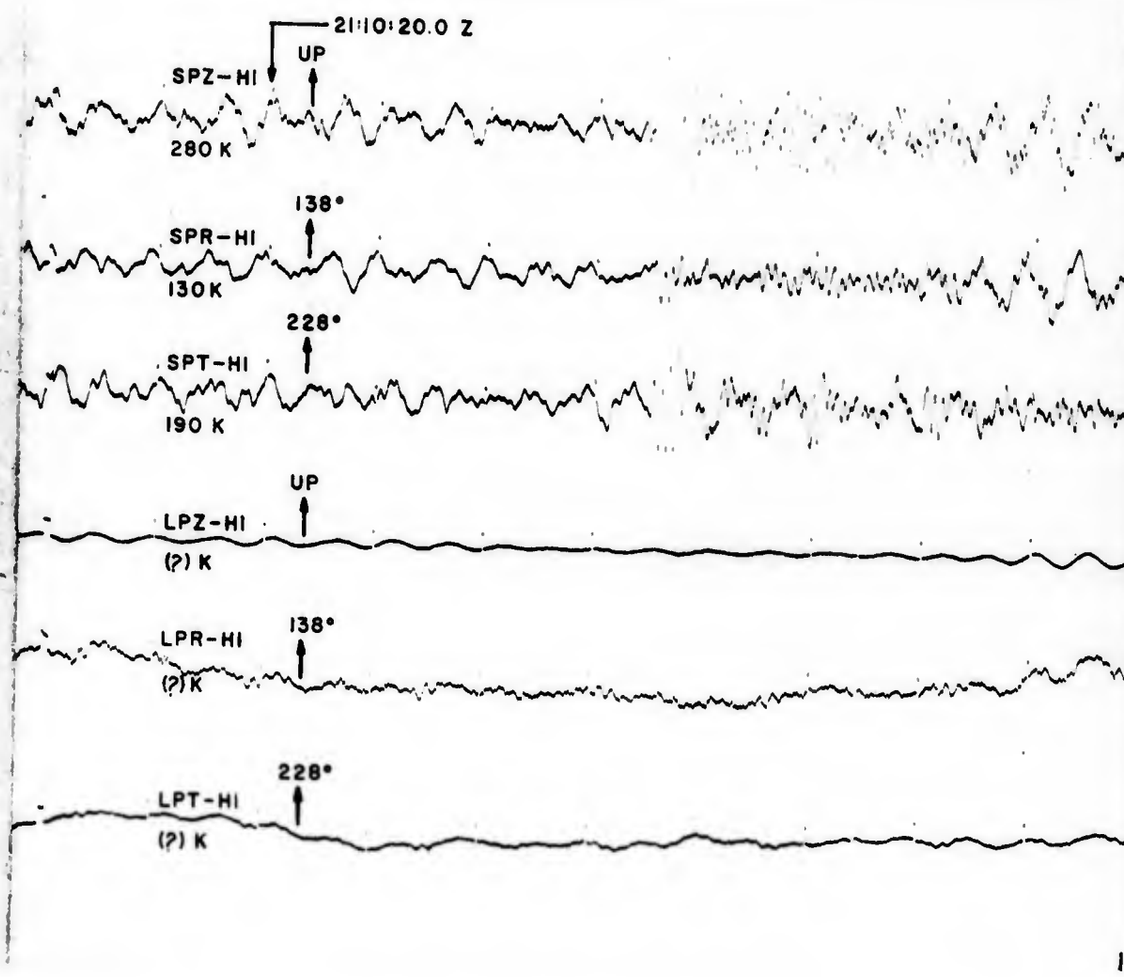
LONG SHOT

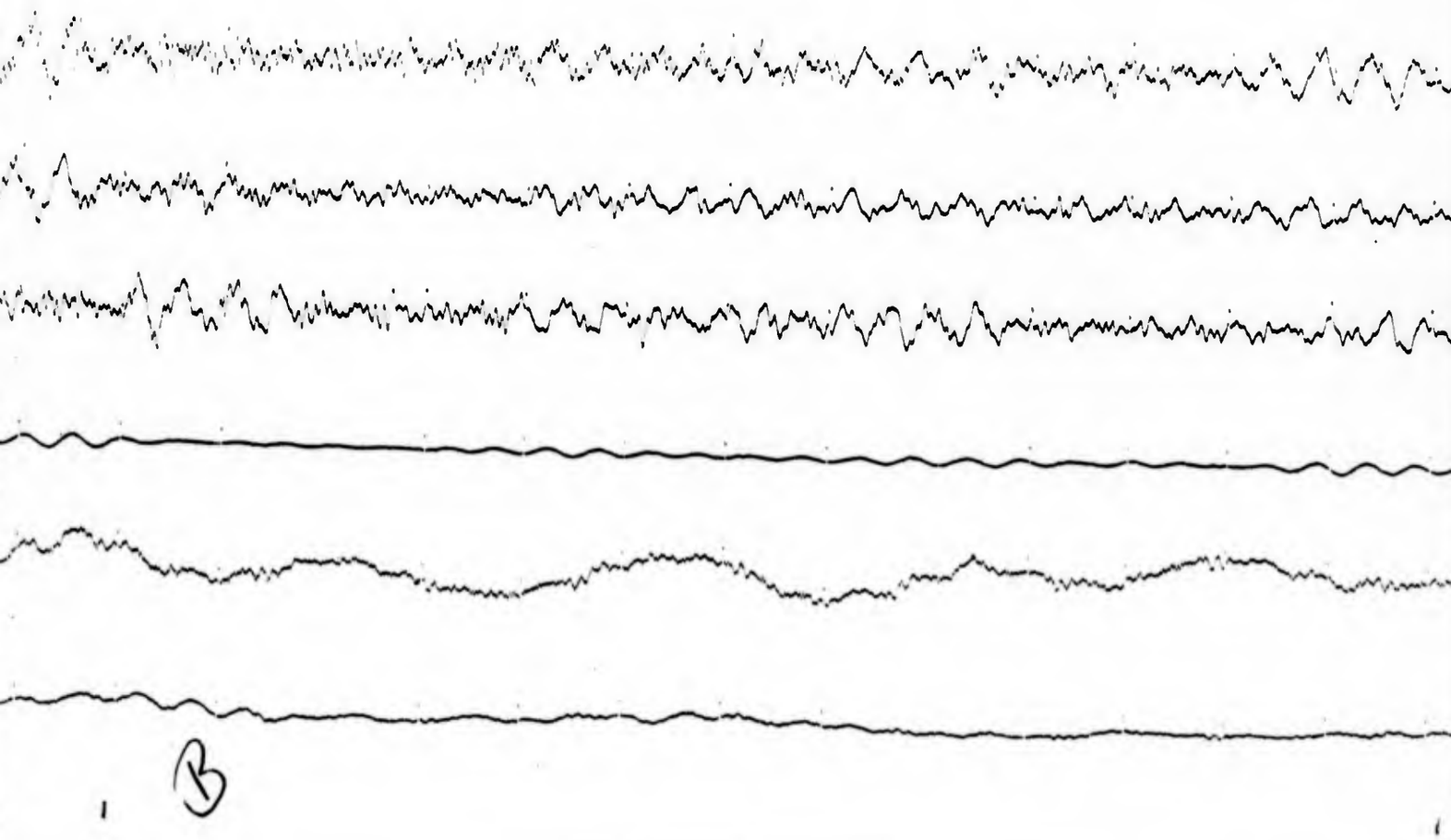
LHN

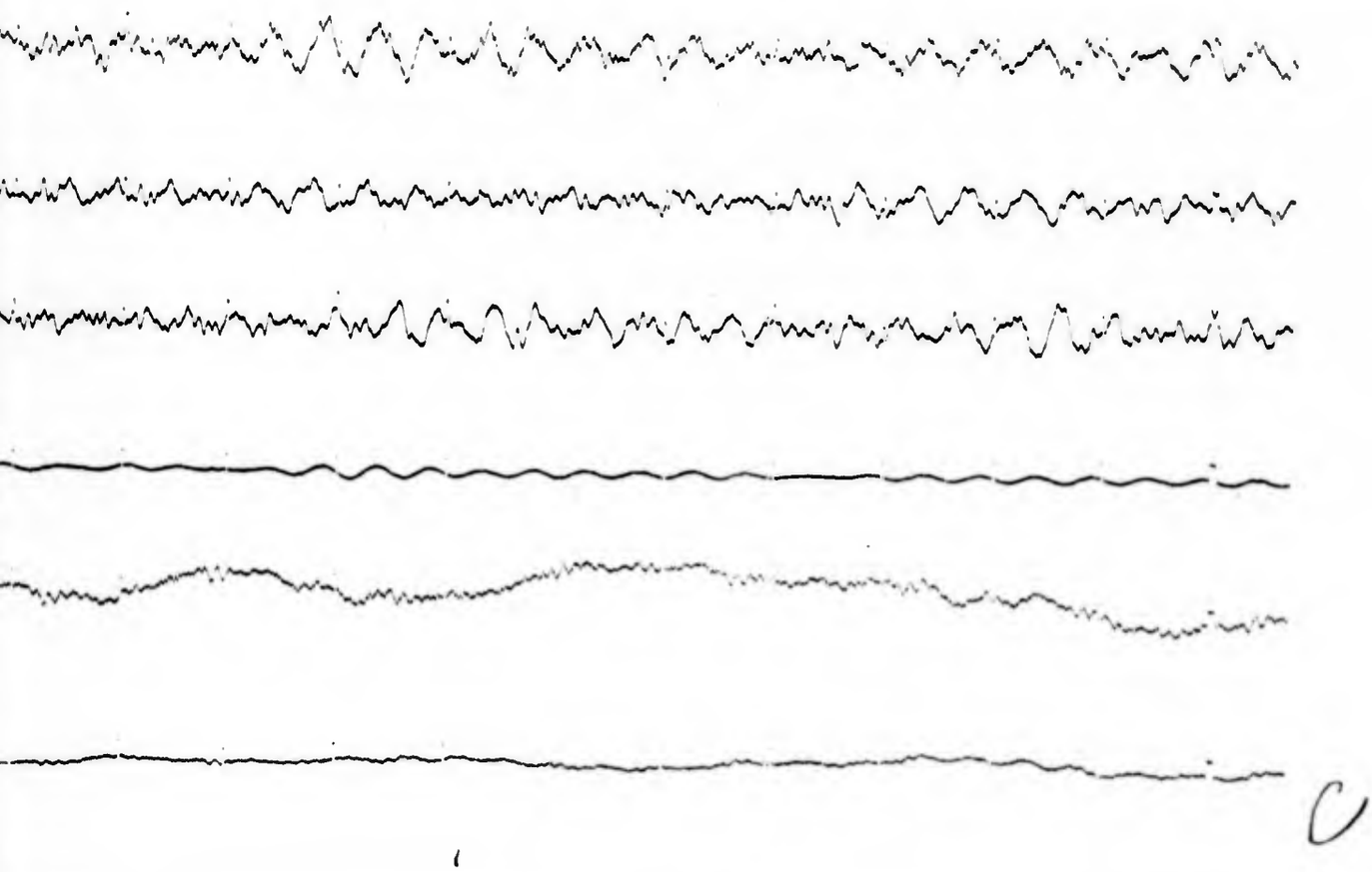
LILLEHAMMER, NORWAY

29 OCTOBER 1965

Δ=7503 Km




B



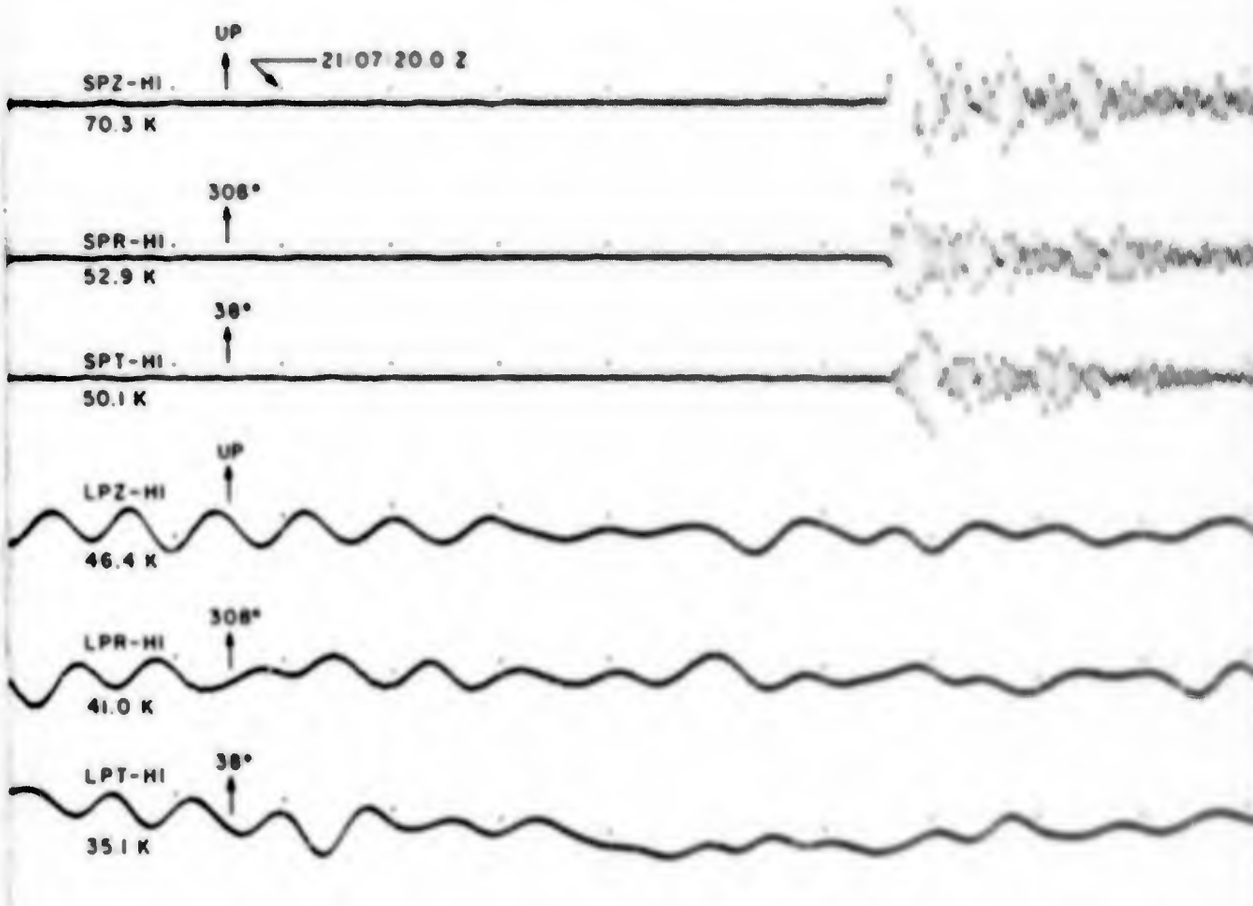
LONG SHOT

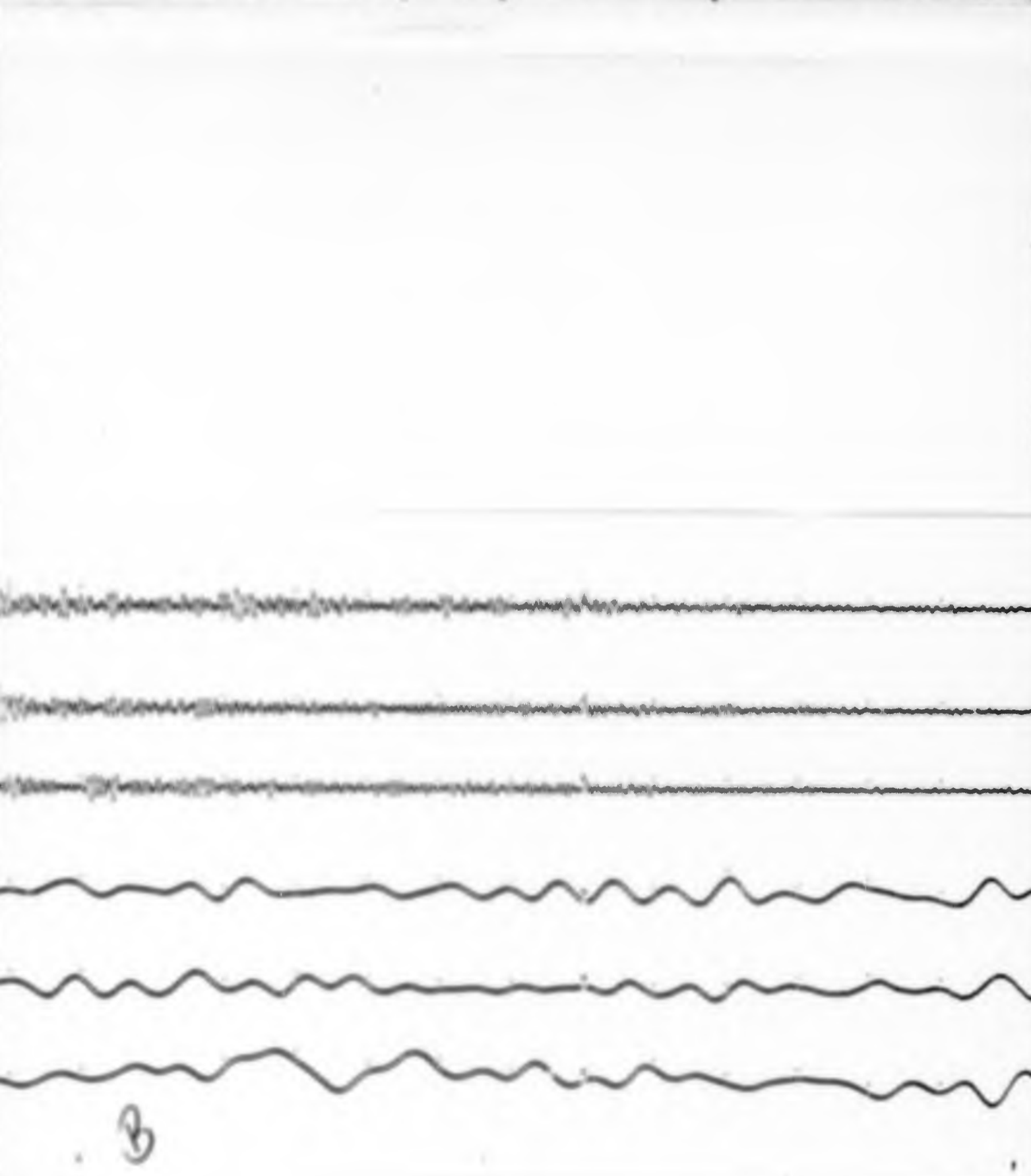
MN–NV

MINA, NEVADA

29 OCTOBER 1965

Δ = 4991 Km

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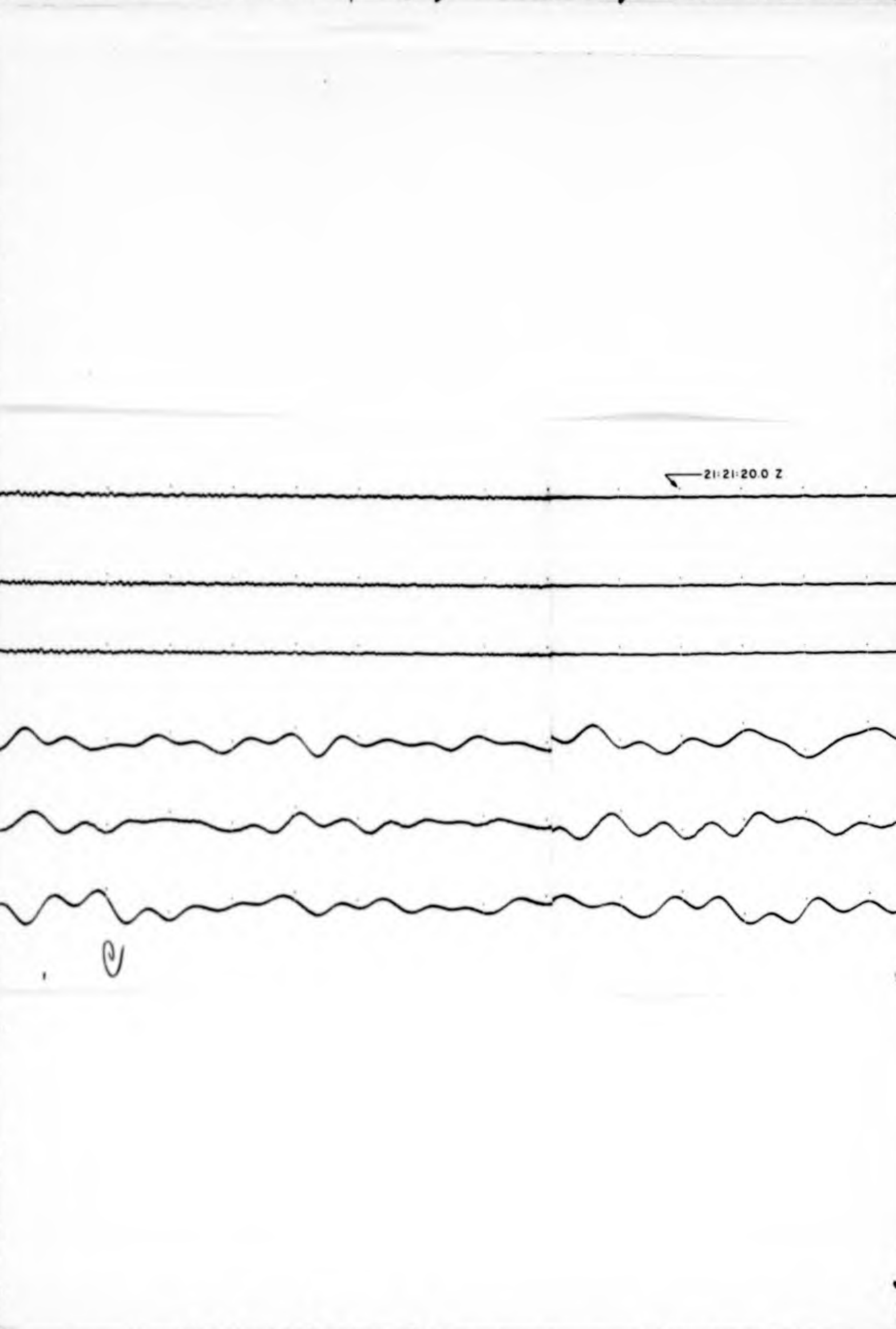
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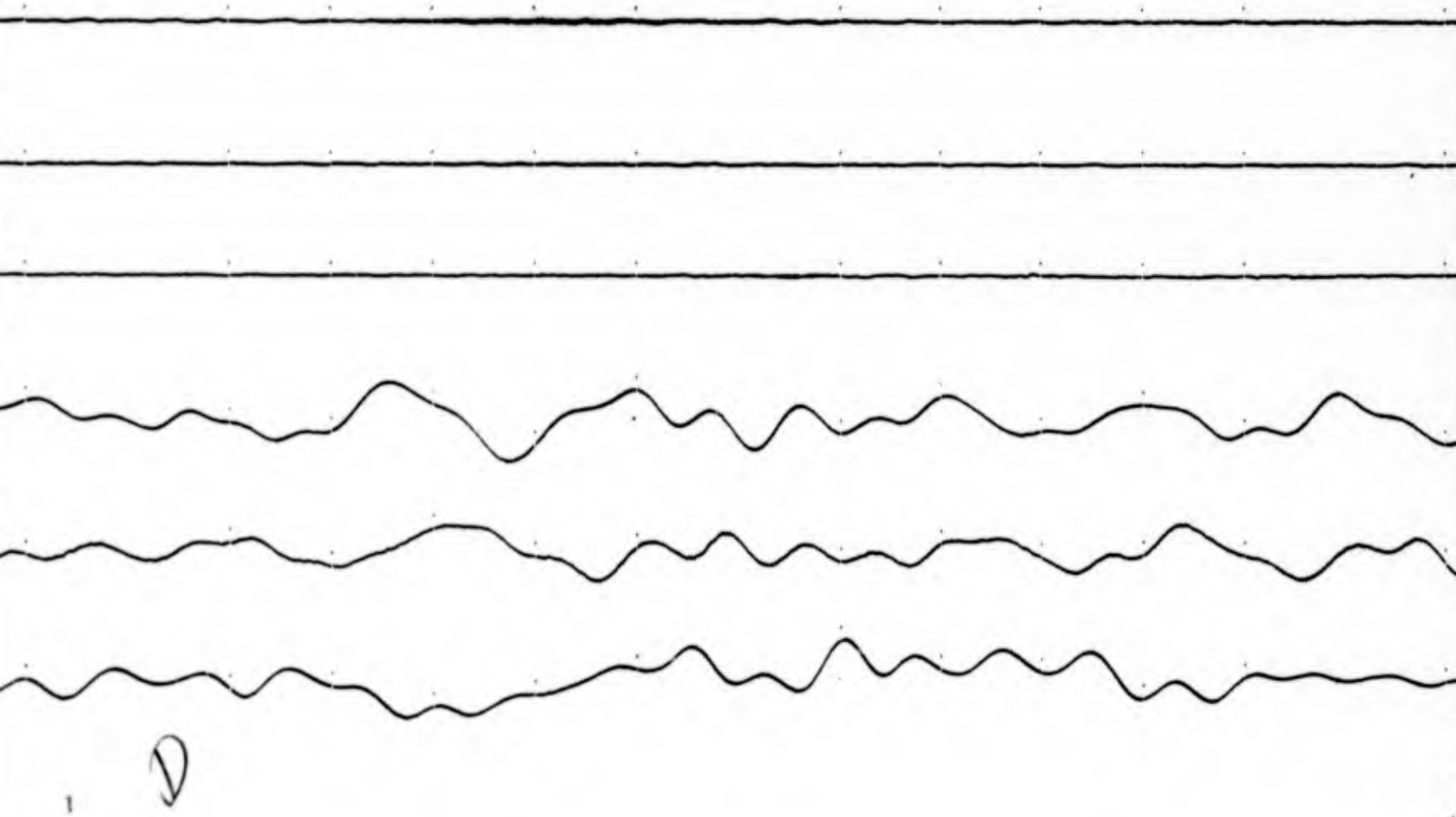
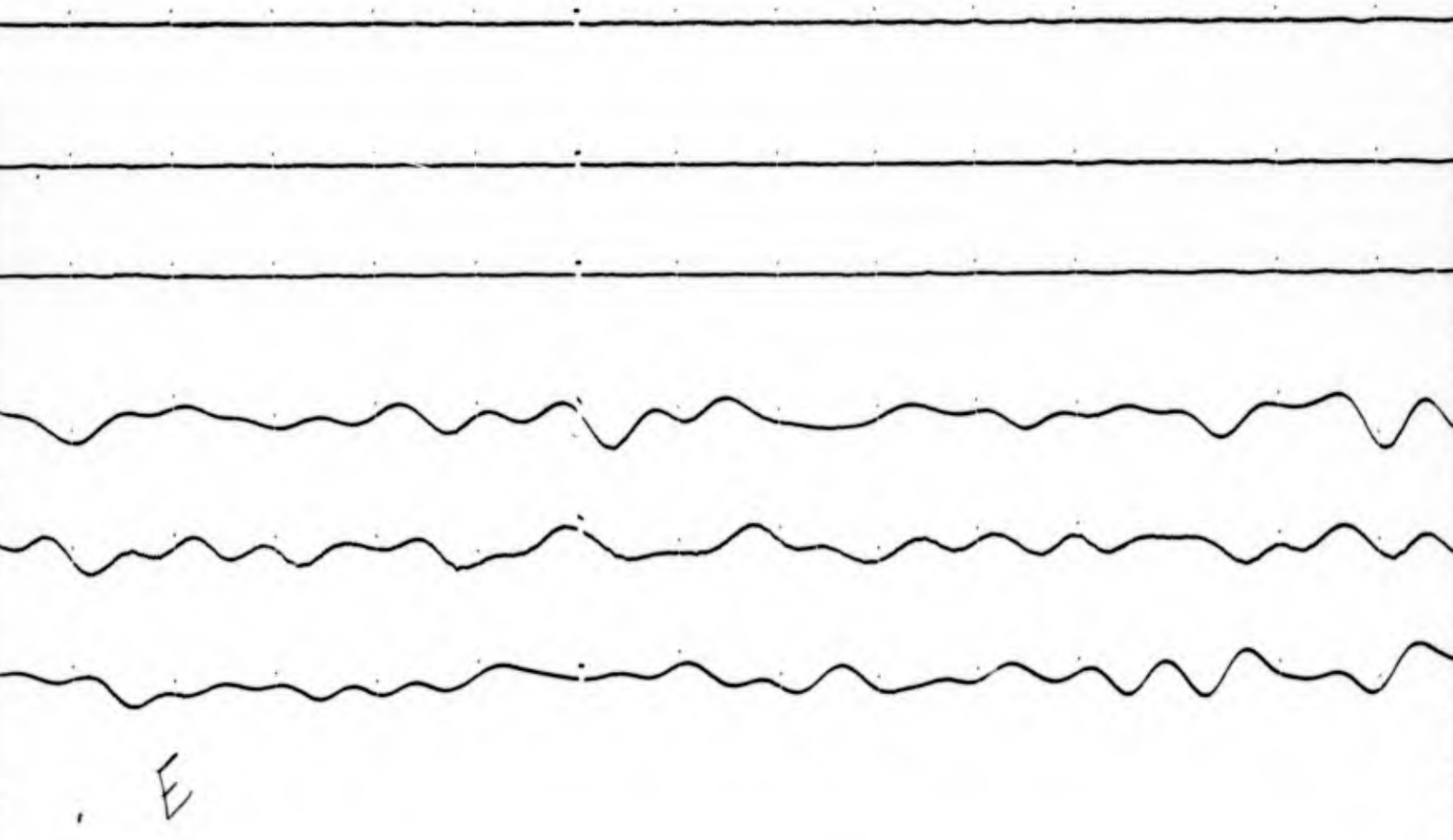

D



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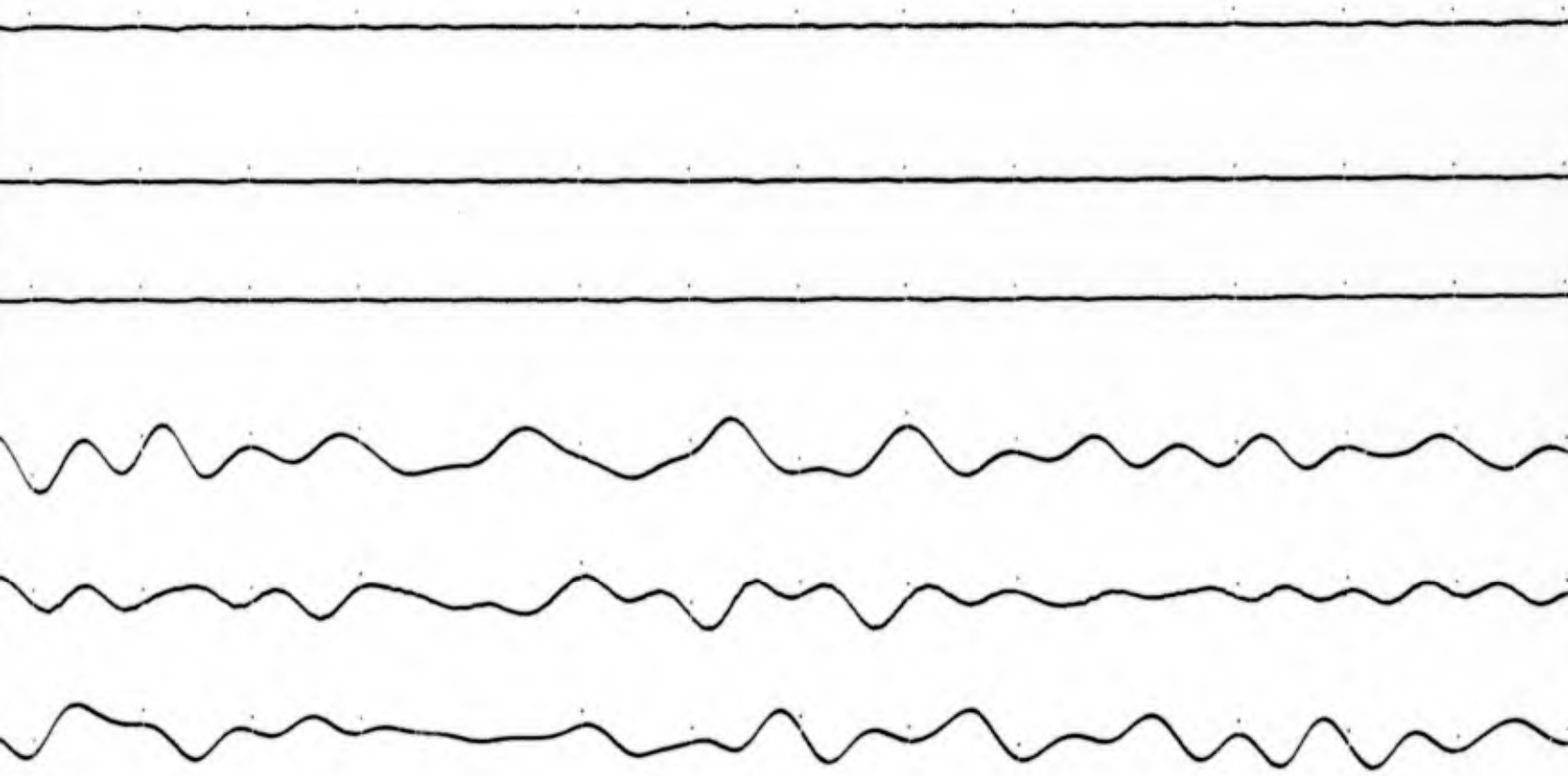

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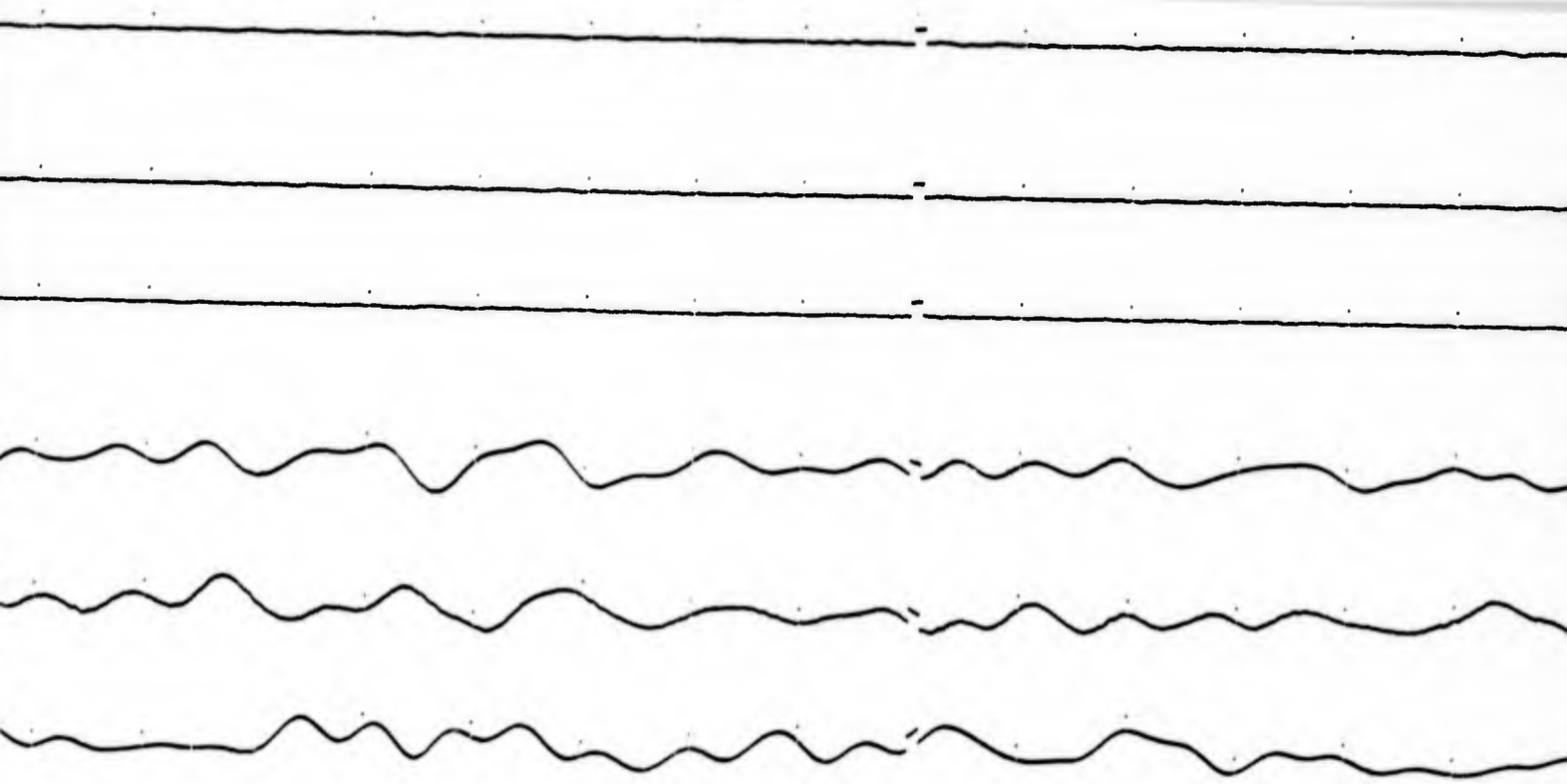
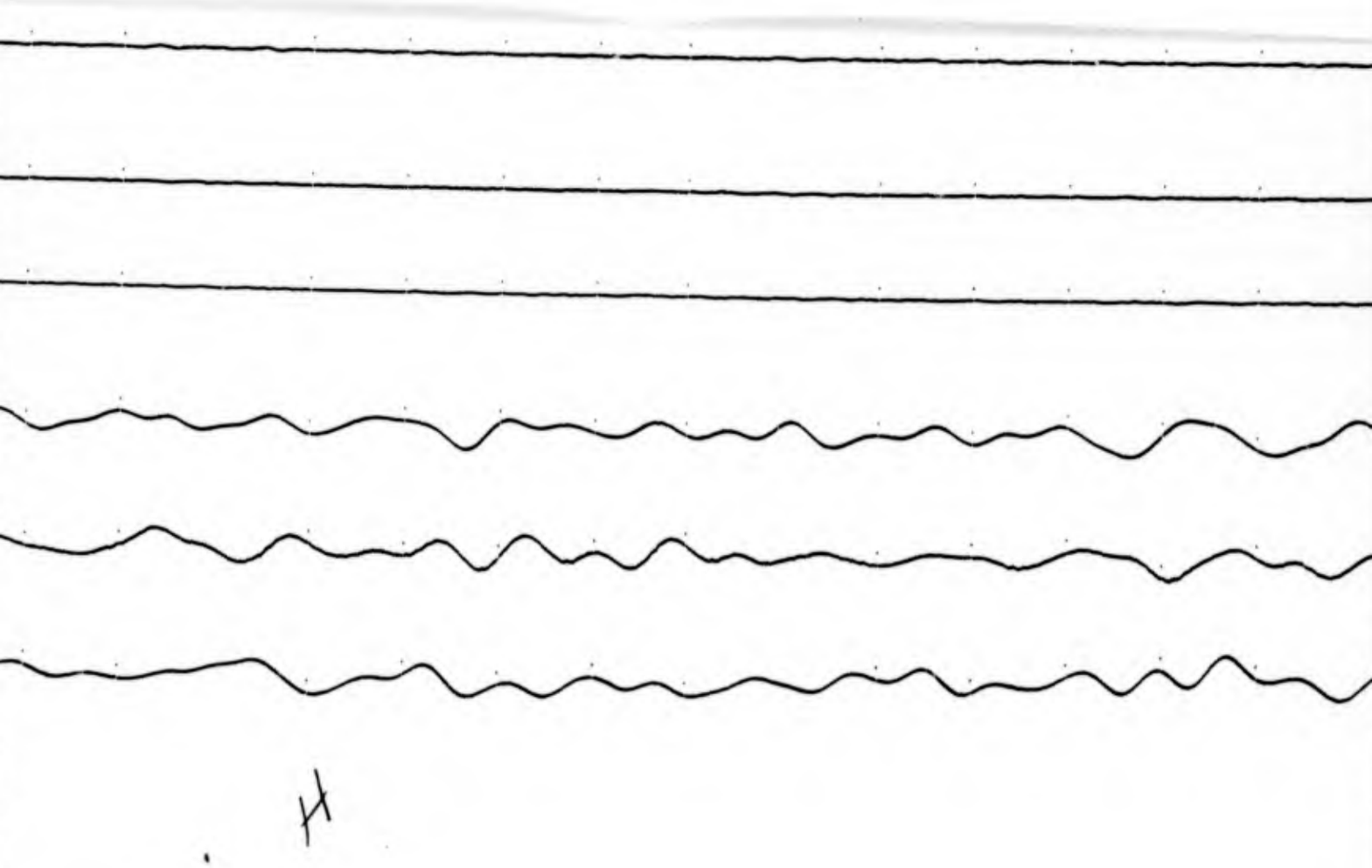
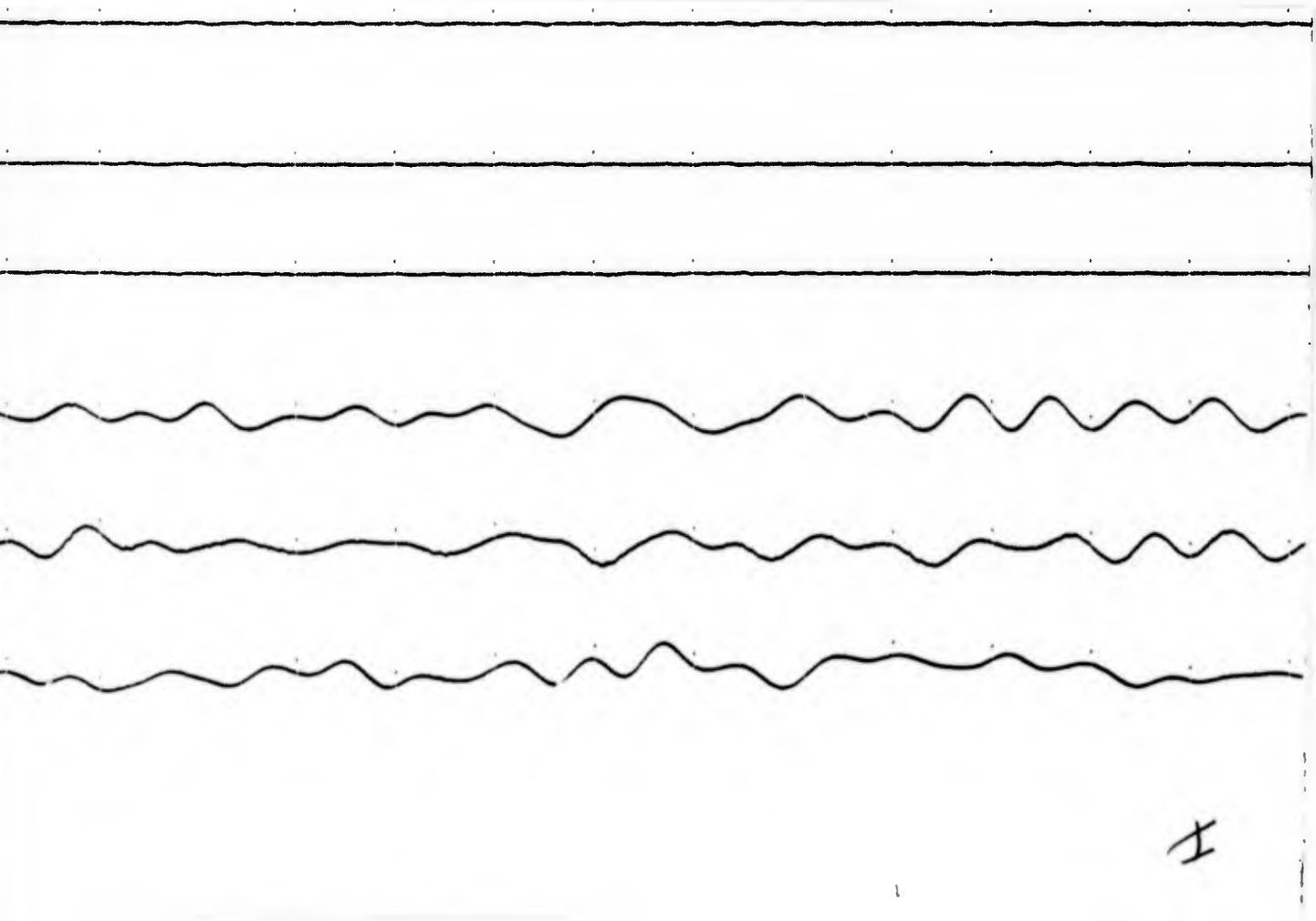






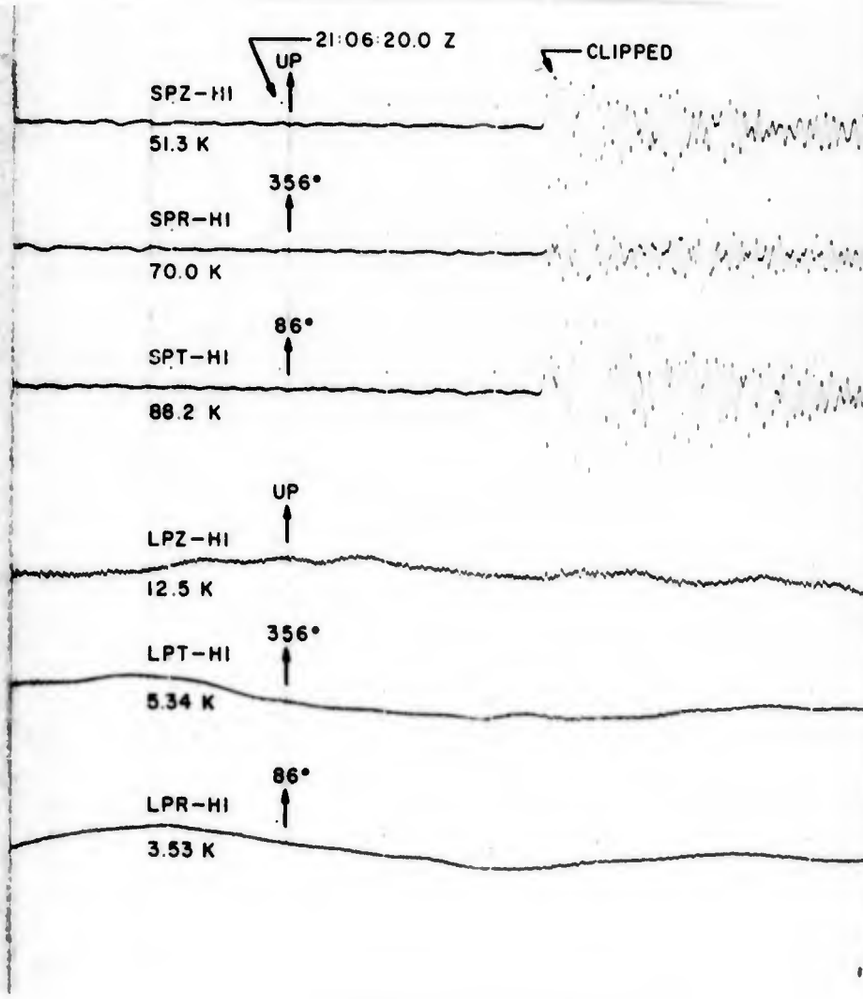
LONG SHOT

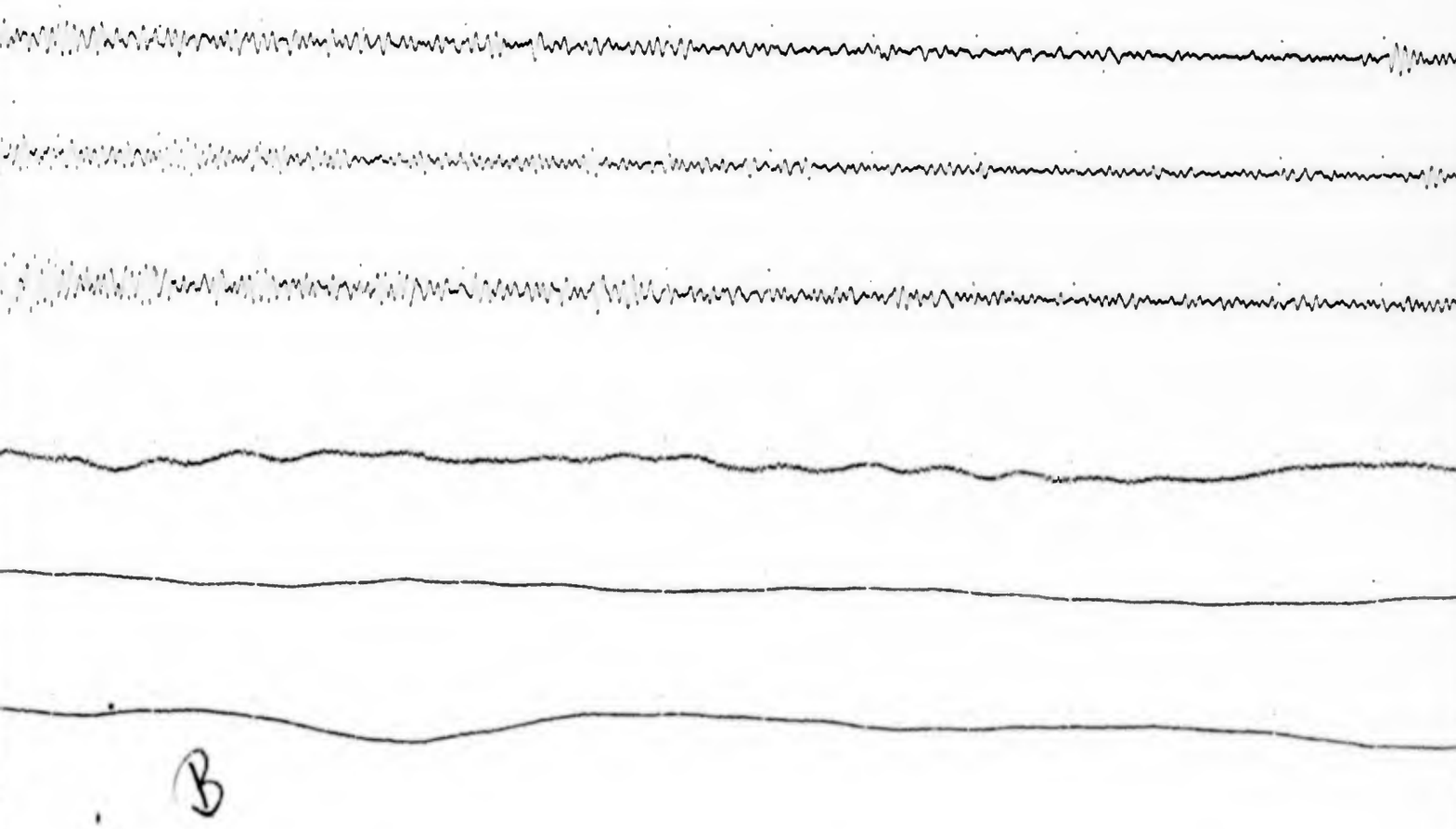
NP-NT

MOULD BAY, NORTHWEST TERRITORIES
CANADA

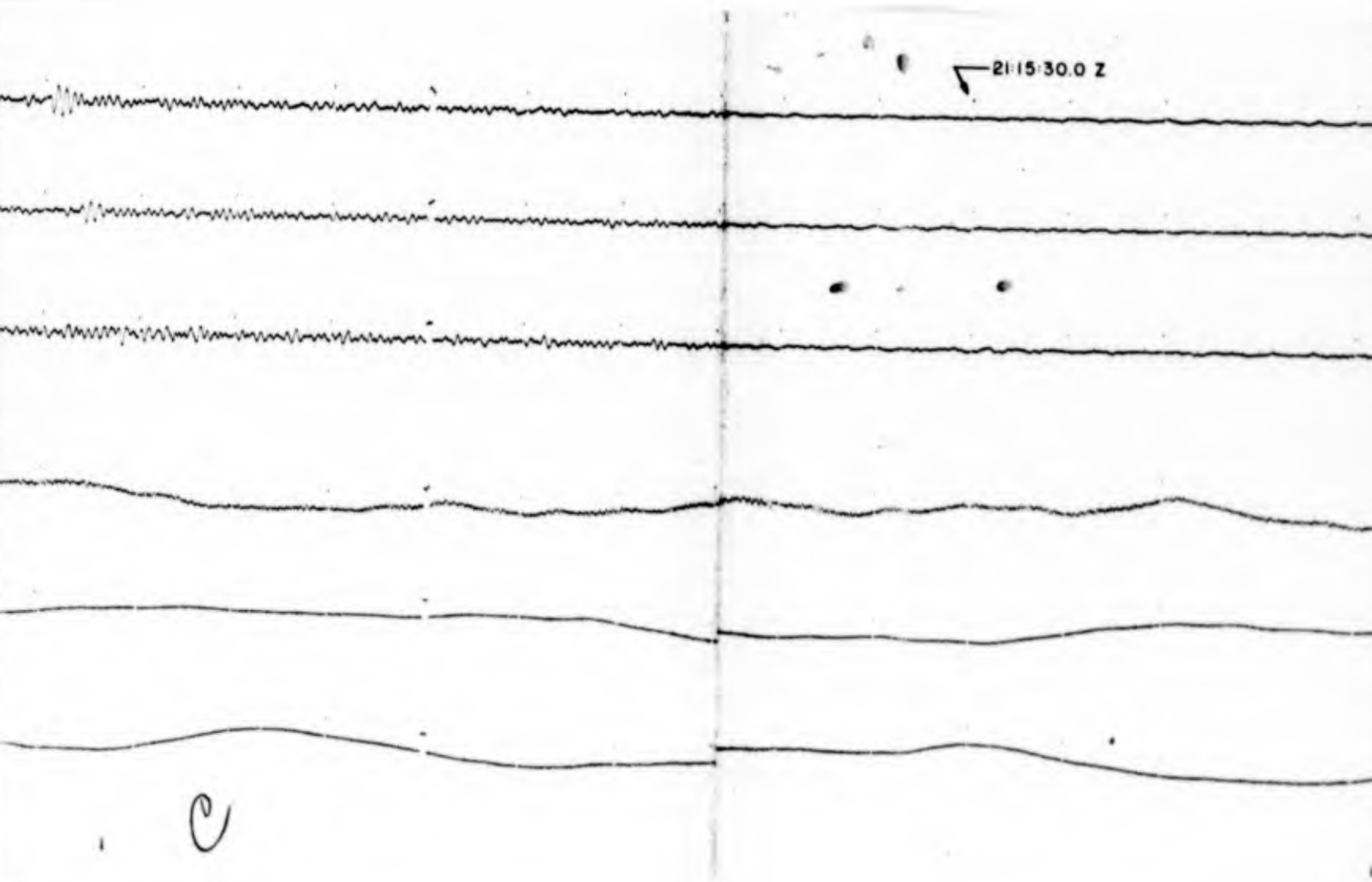
29 OCTOBER 1965

Δ=3783 Km





B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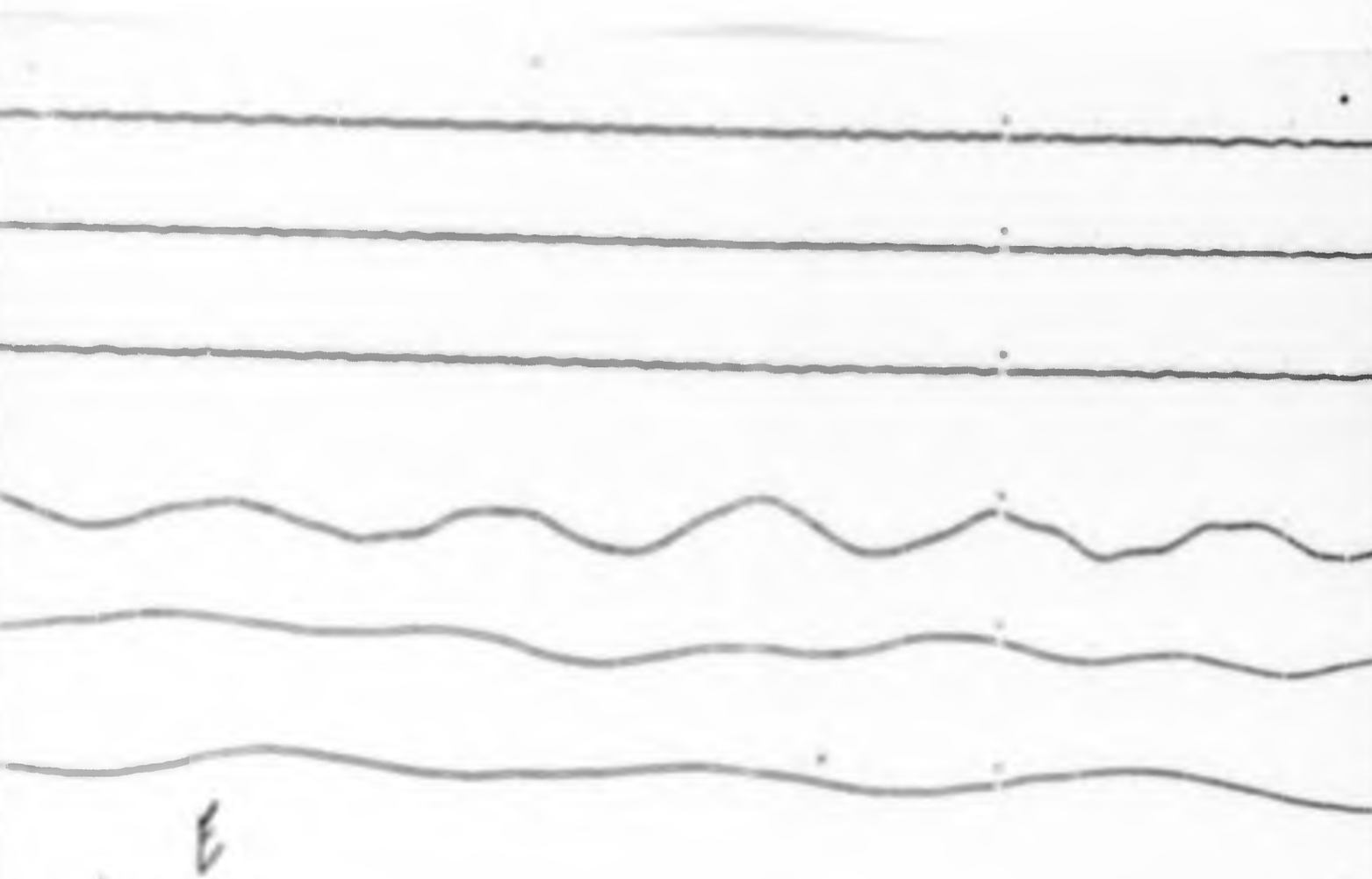
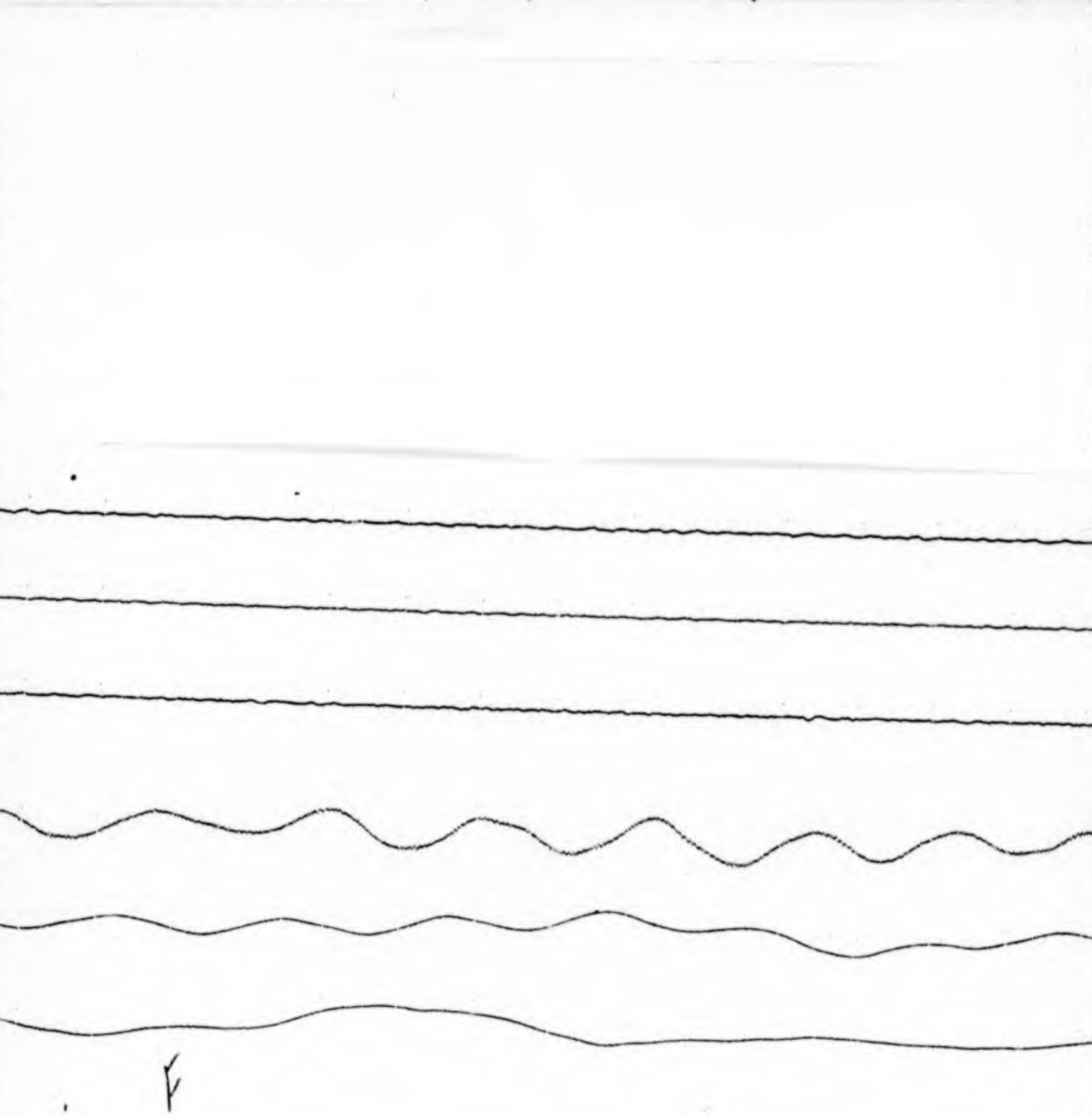
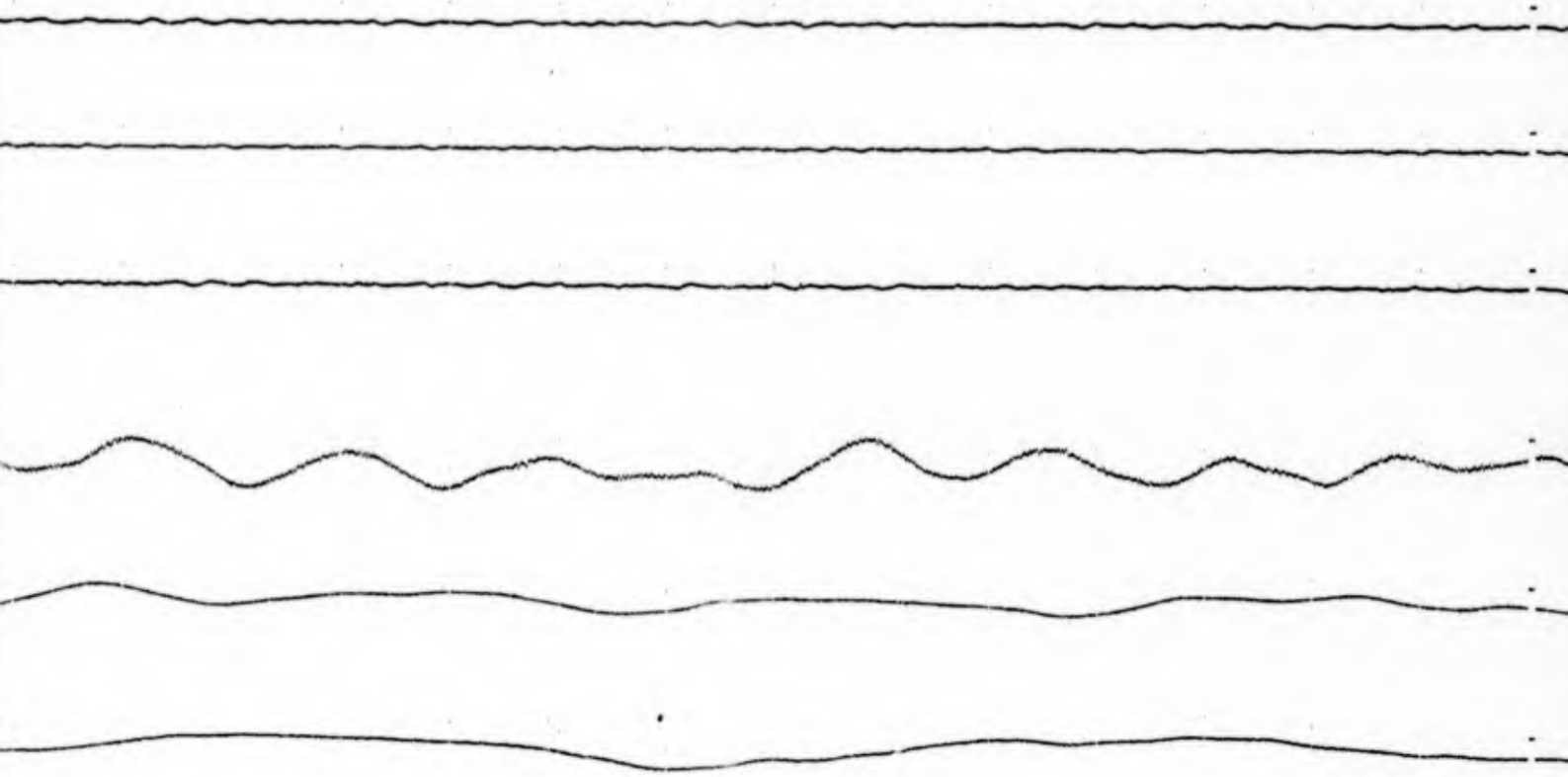
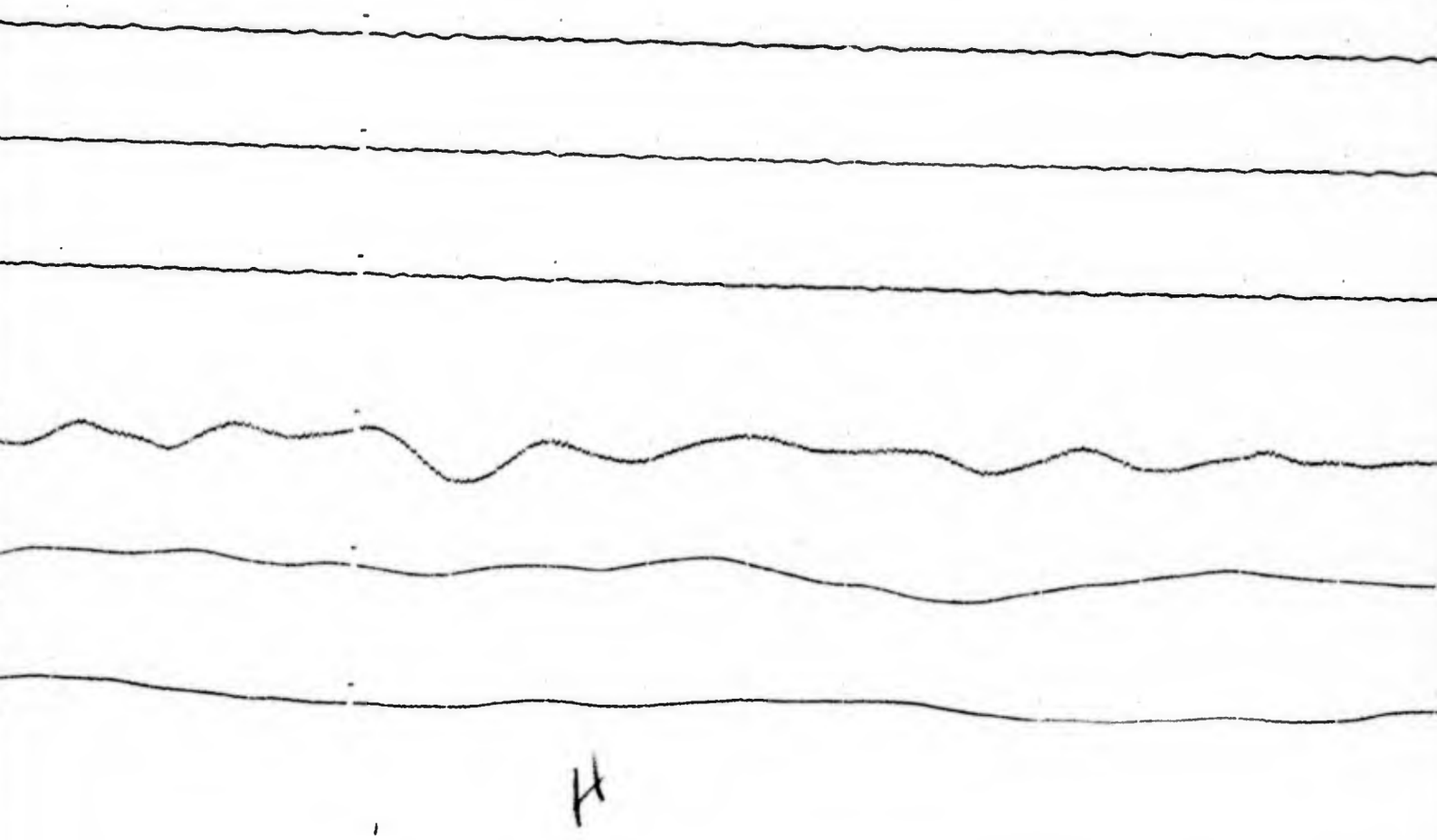
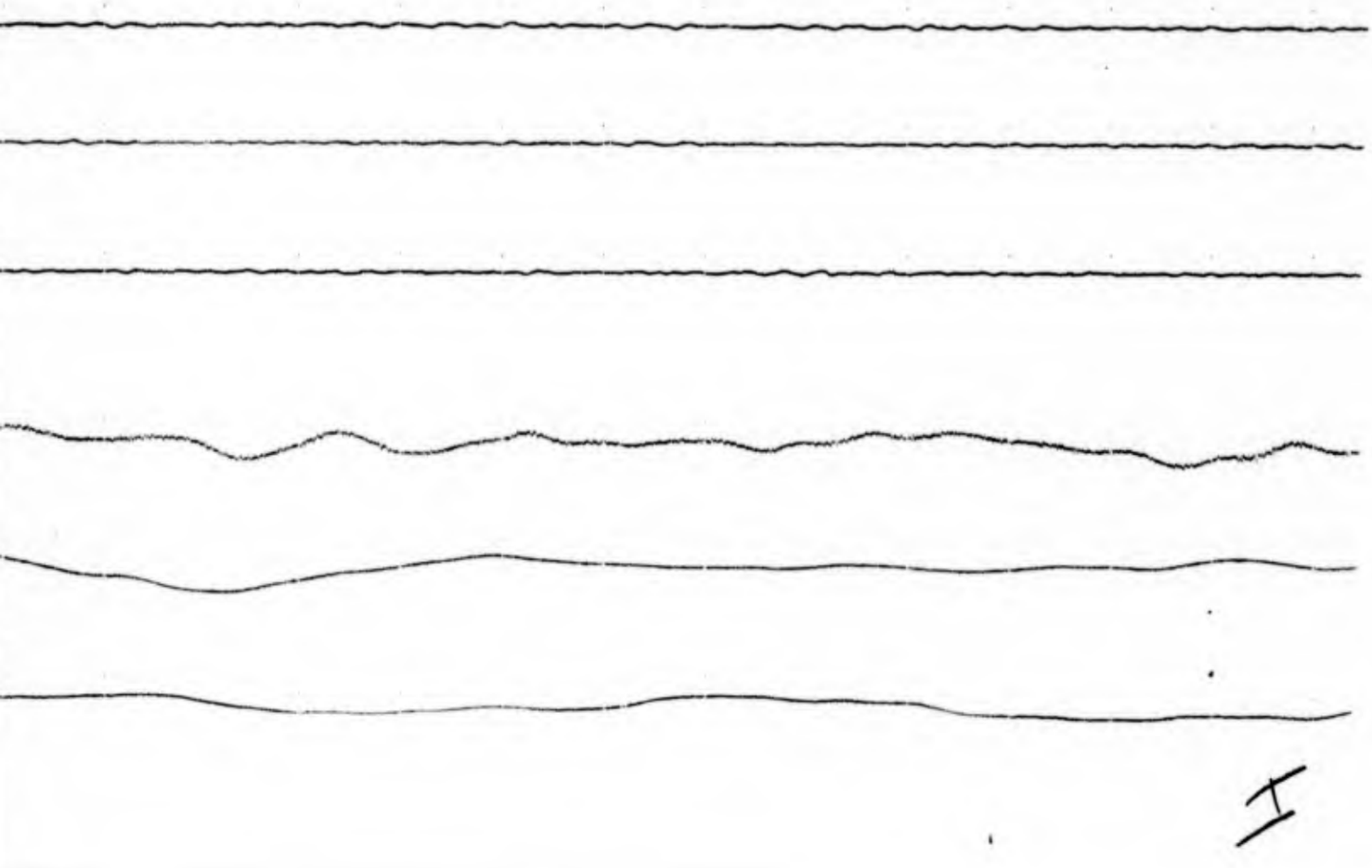






G





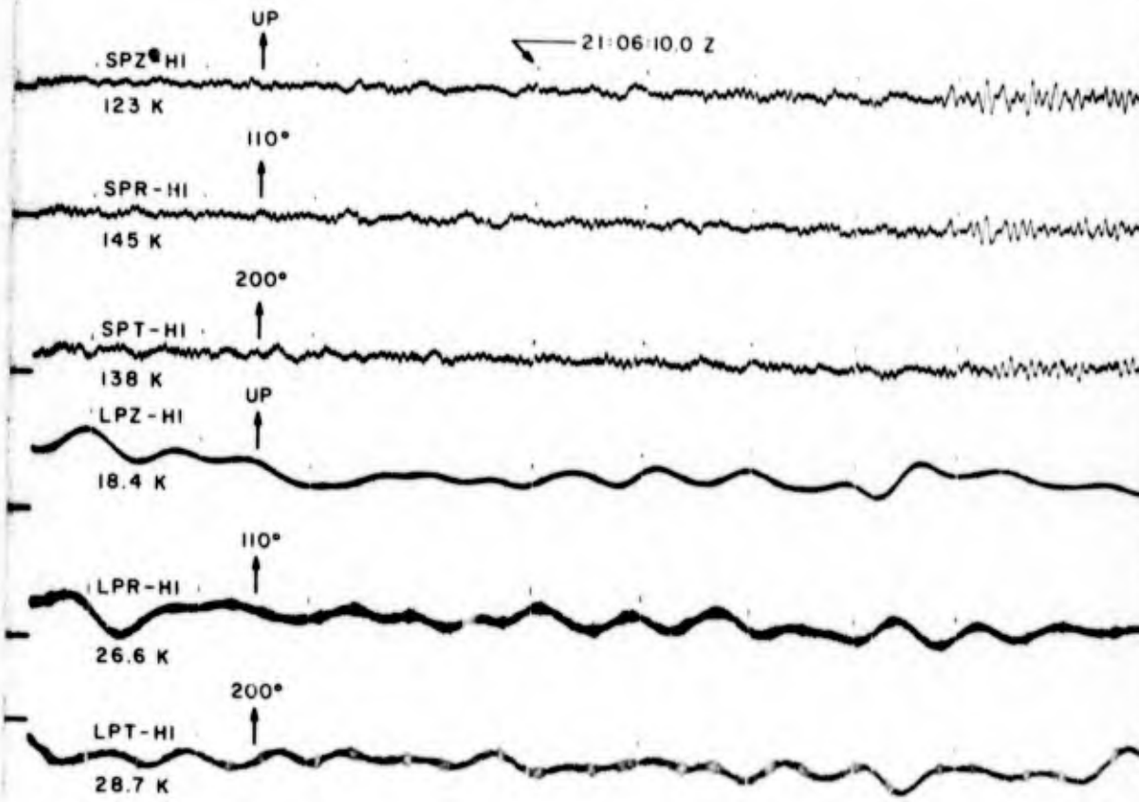
LONG SHOT

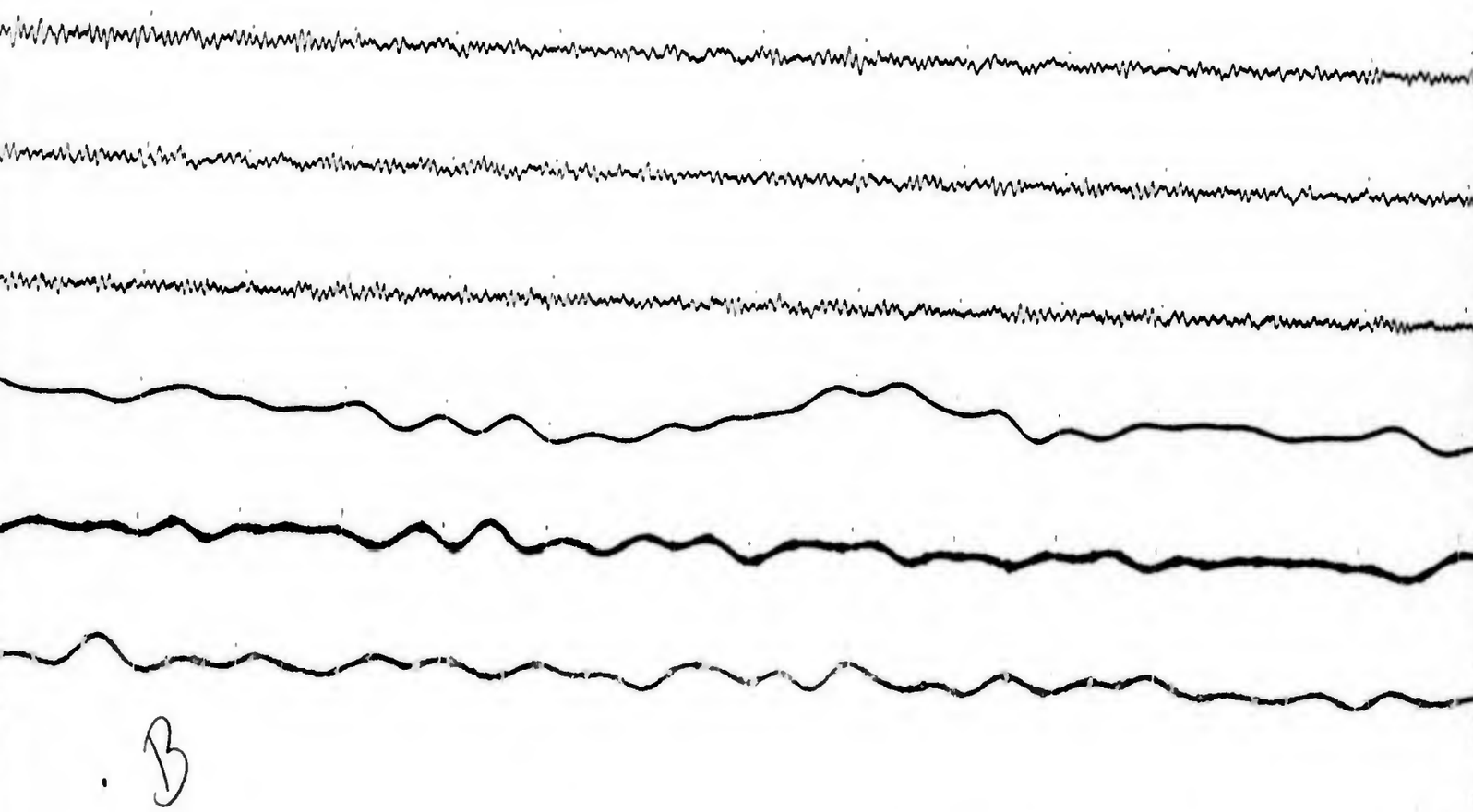
PG-BC

PRINCE GEORGE, BRITISH COLUMBIA, CANADA

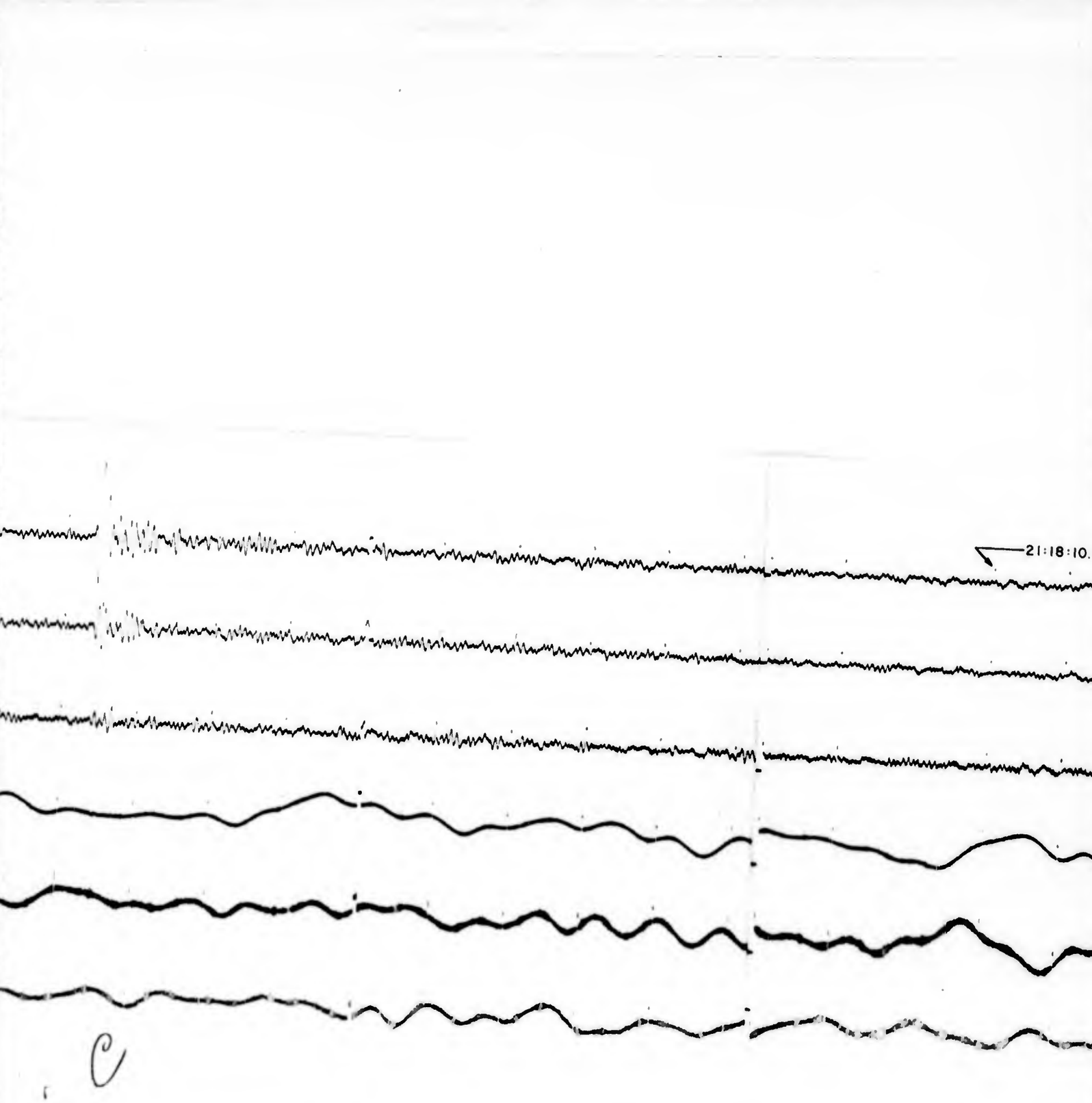
29 OCTOBER 1965

Δ=3842 Km





B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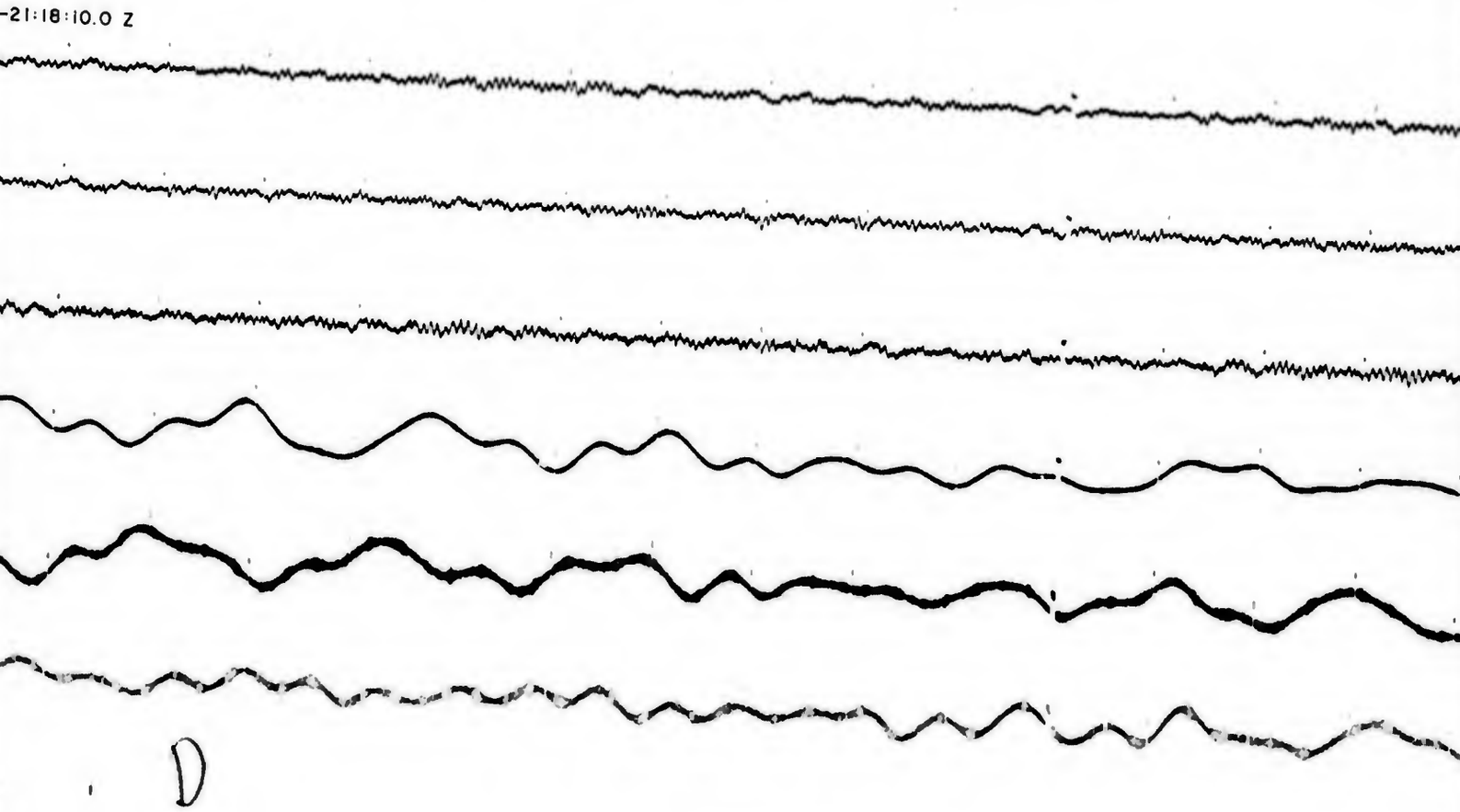
C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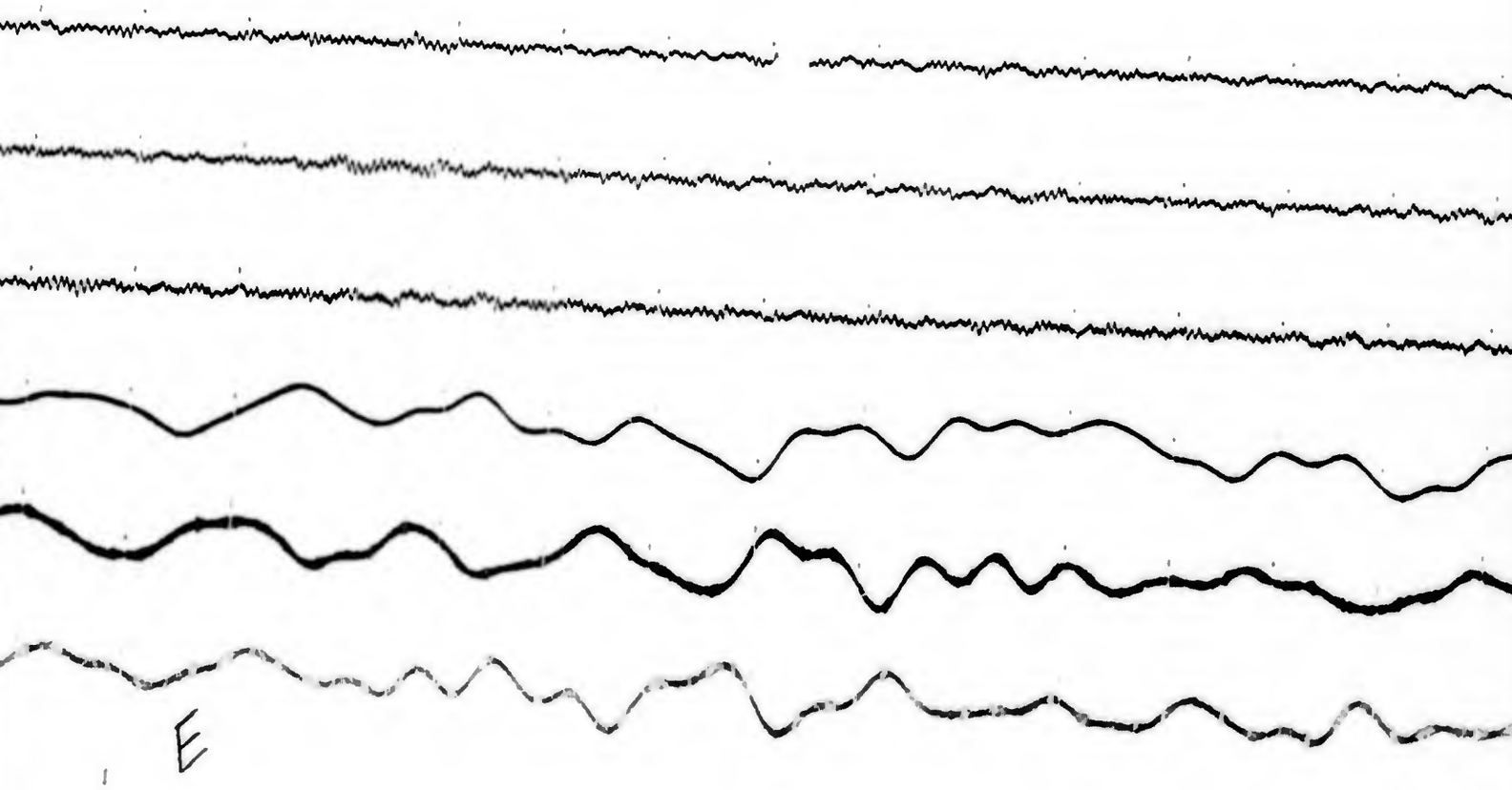
D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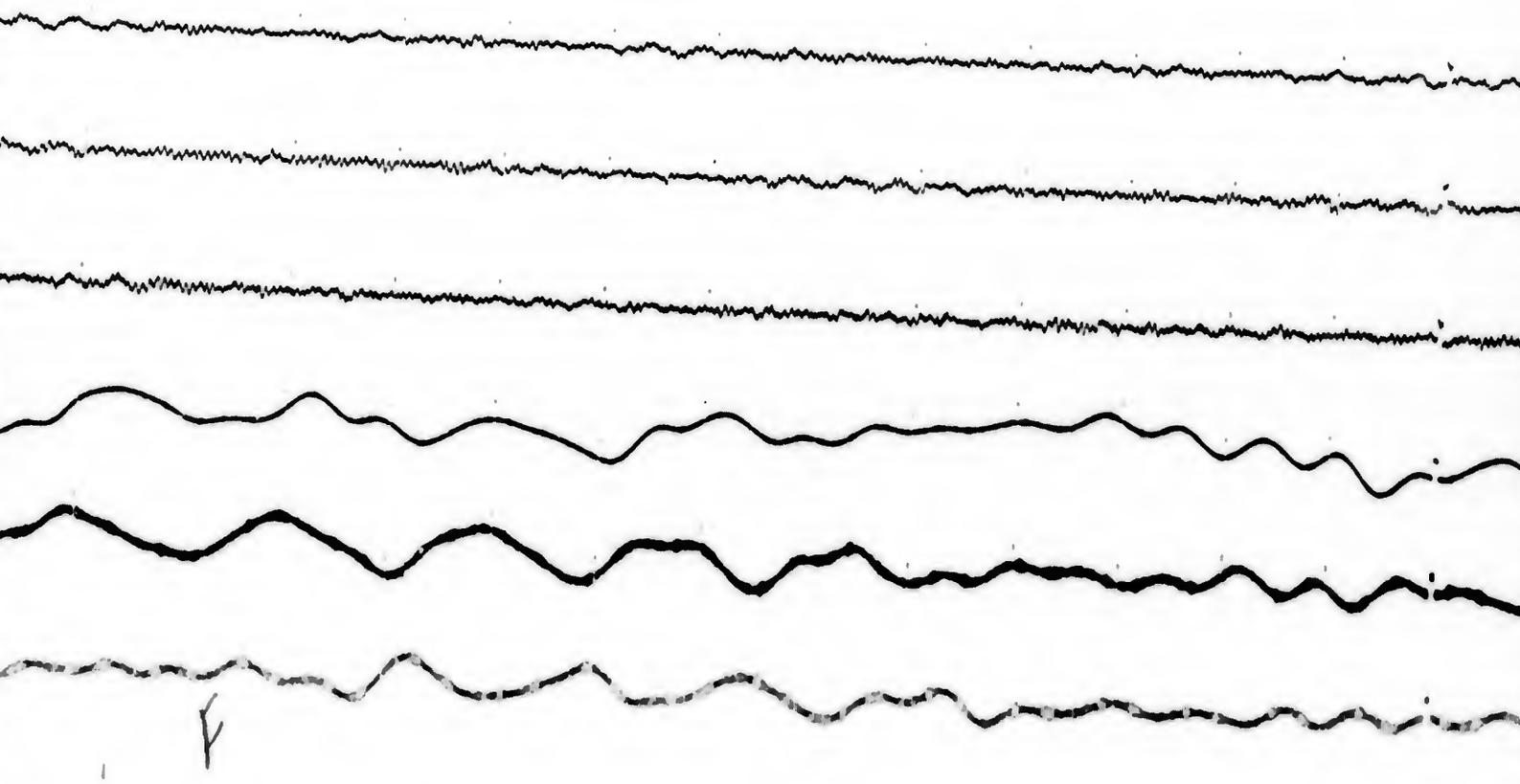
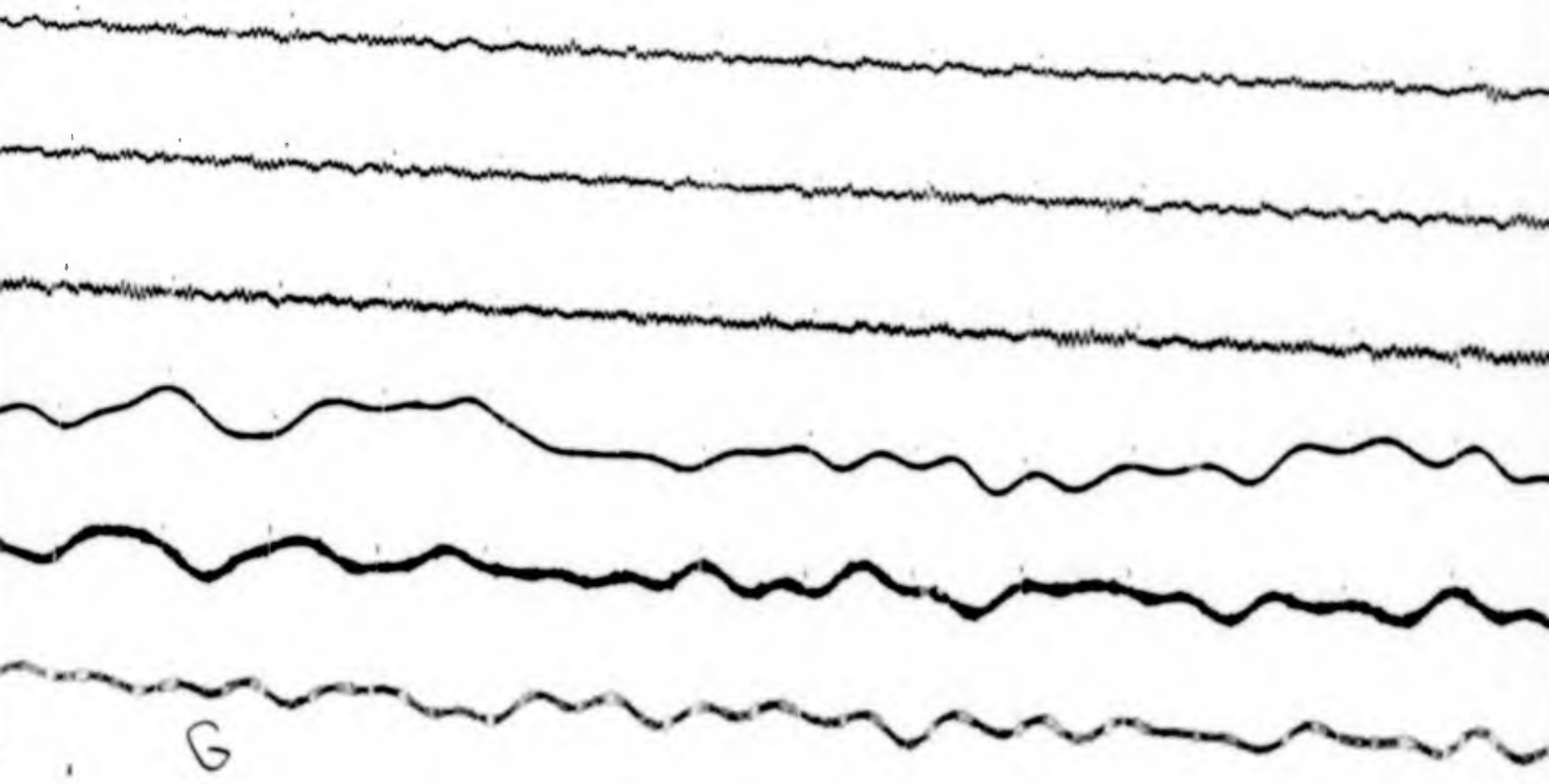

F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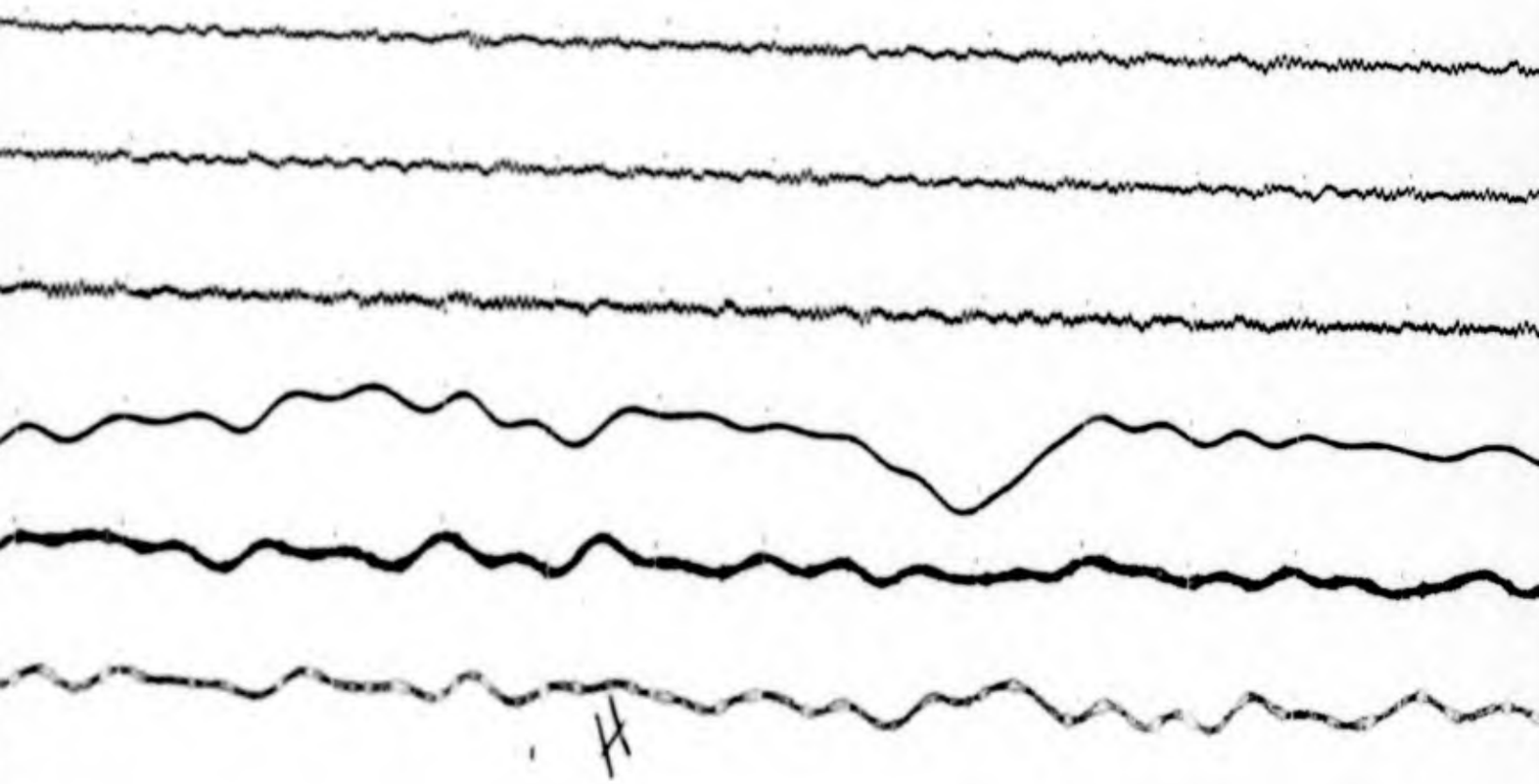
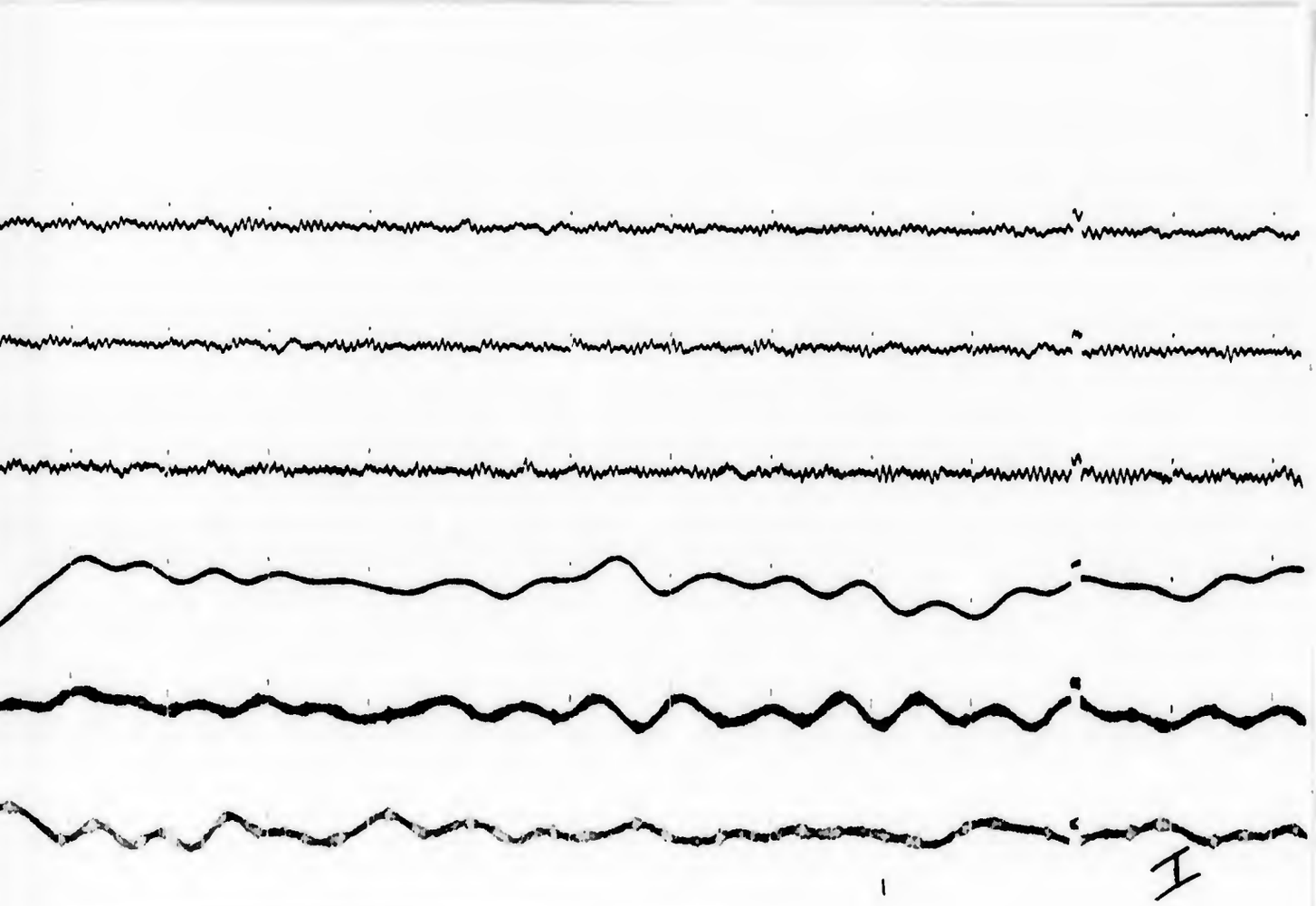



V
I

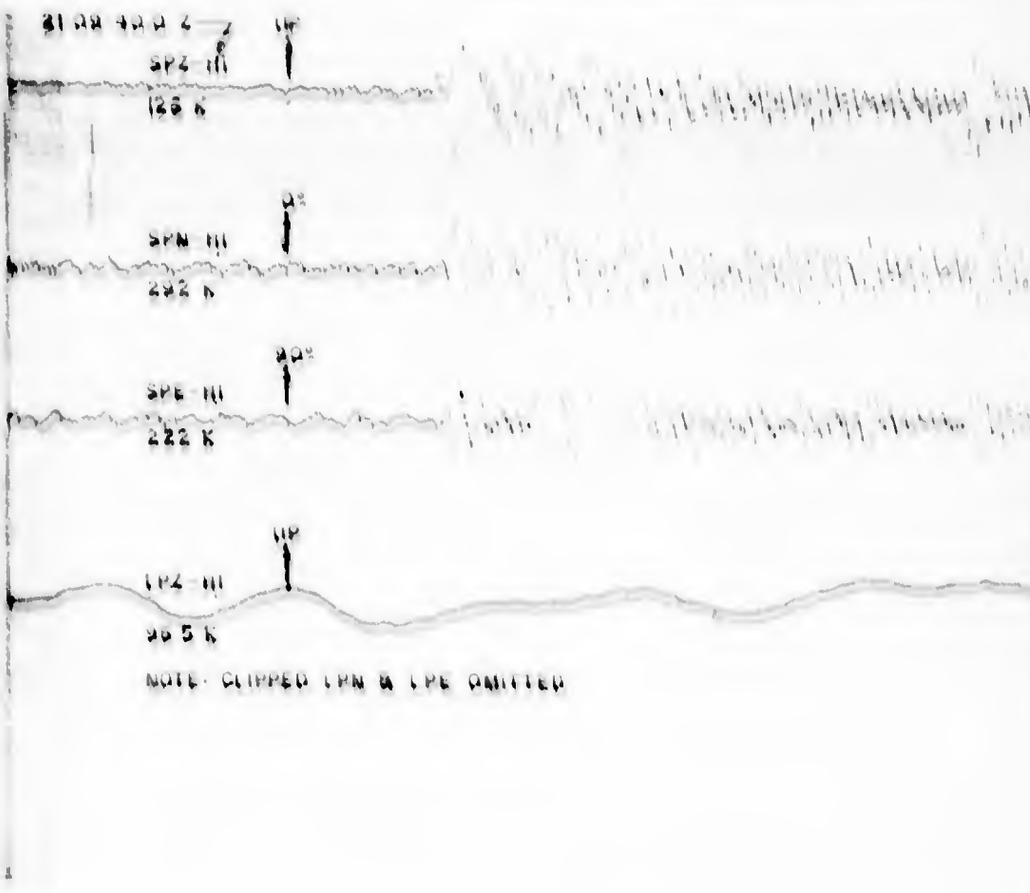
LONG SHOT

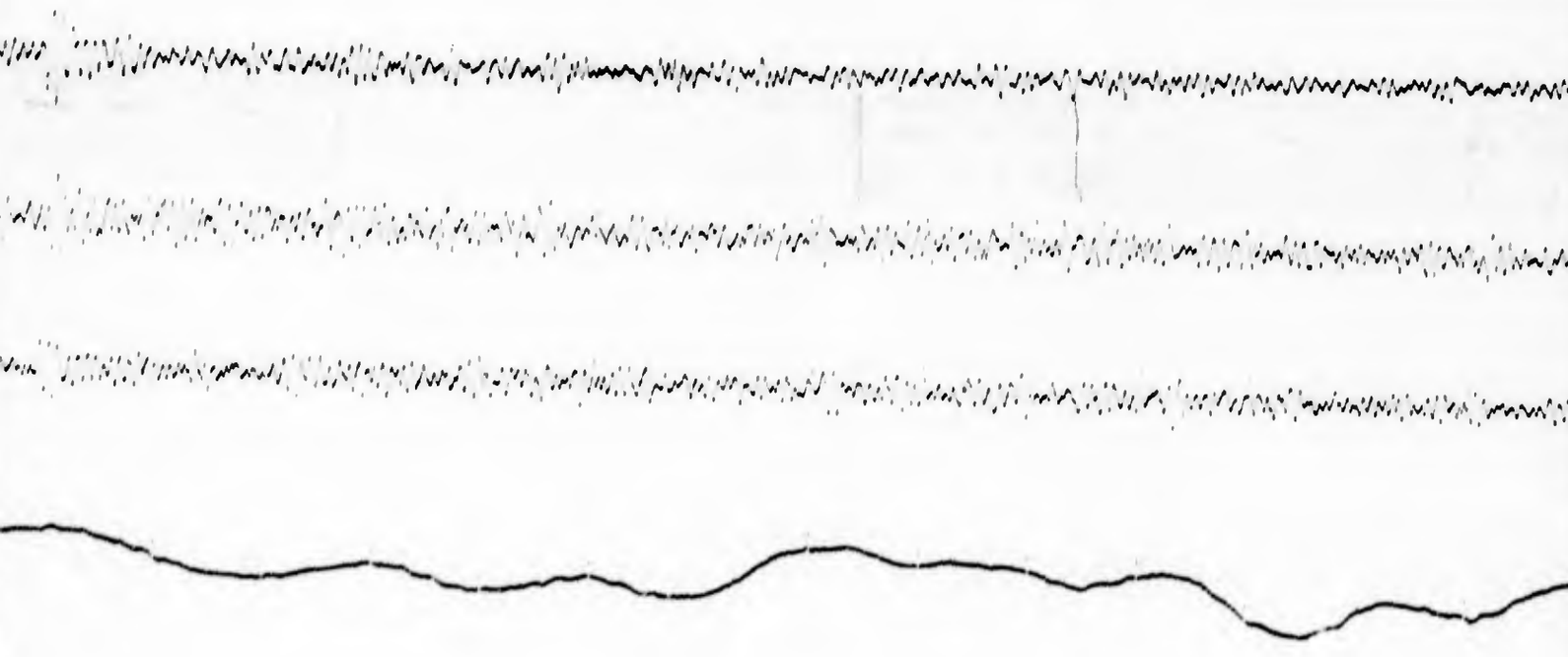
WMSO

WICHITA MOUNTAIN SEISMOLOGICAL OBSERVATORY, OKLAHOMA

29 OCTOBER 1965

Δ-6584 km





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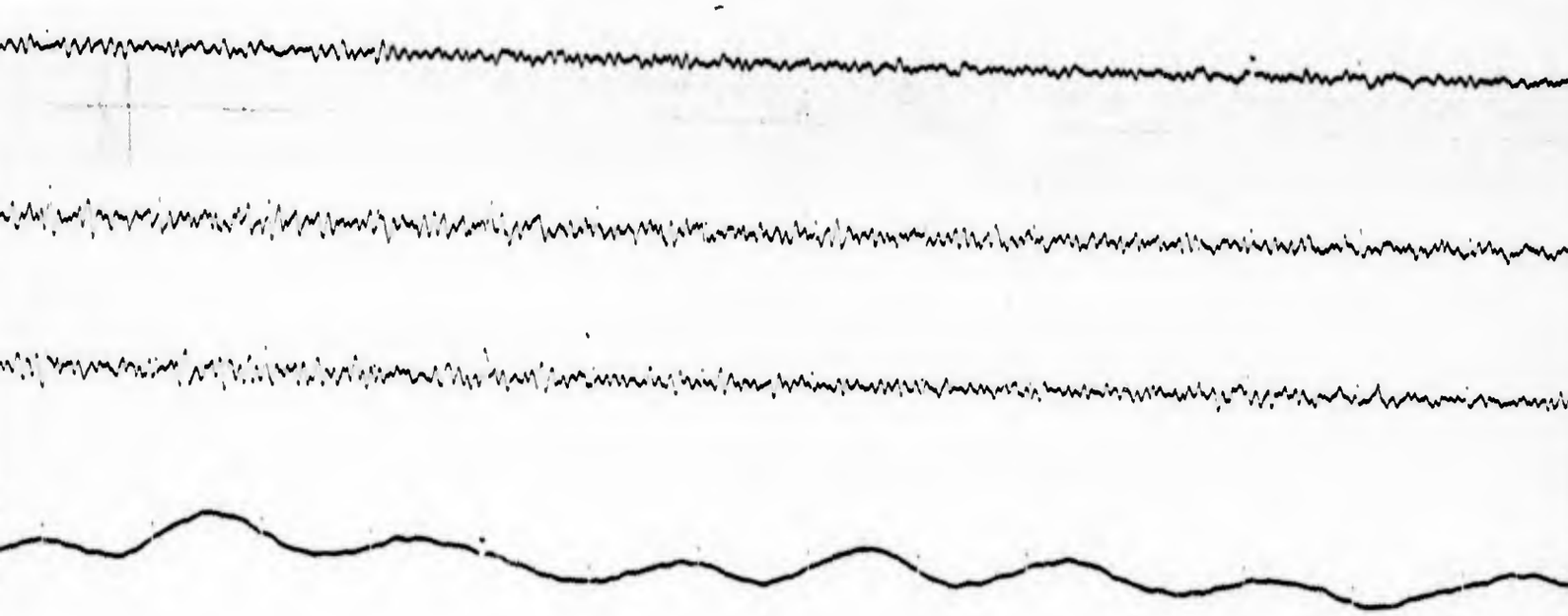

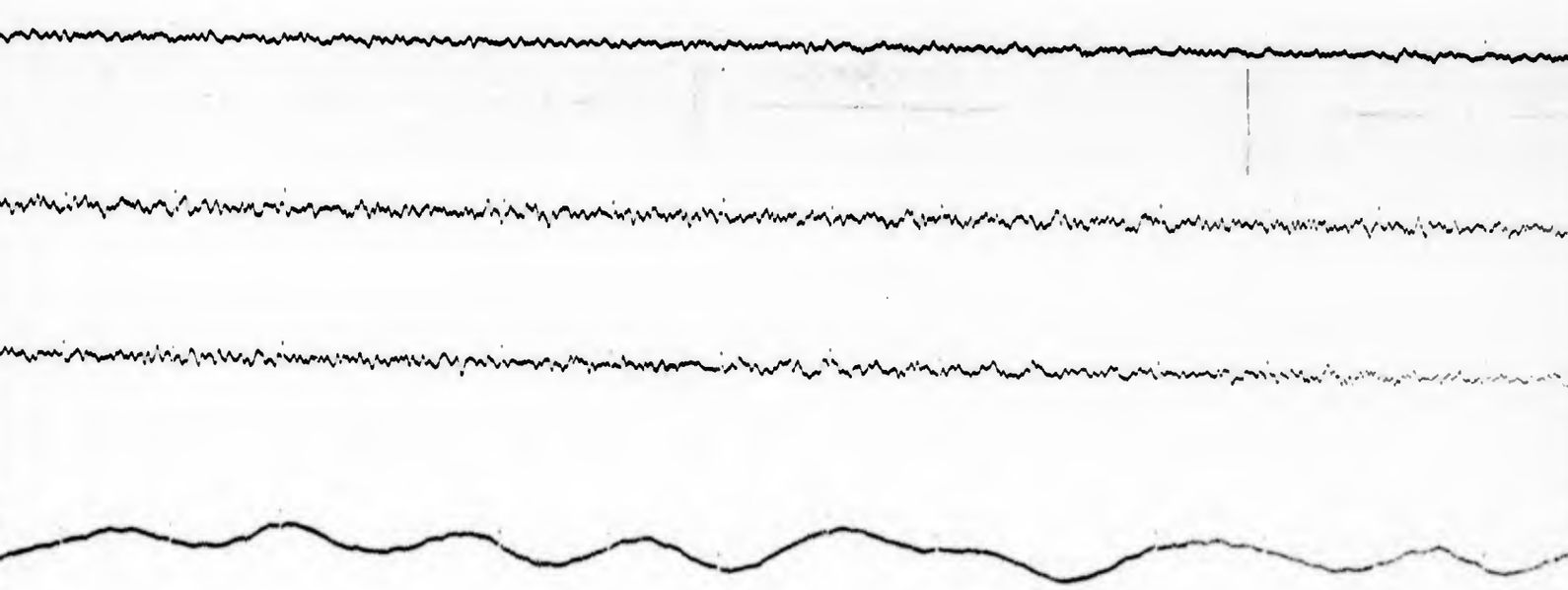

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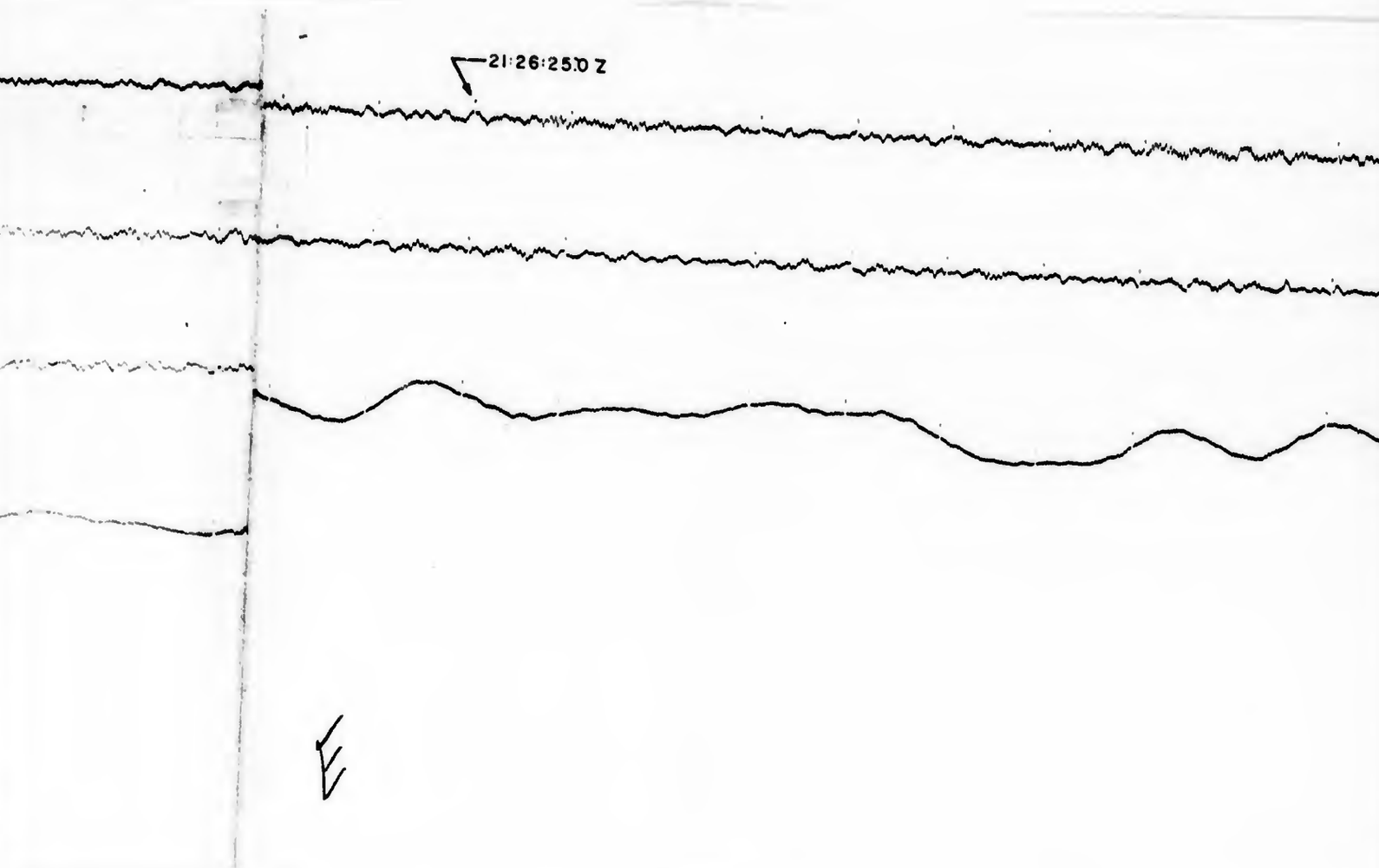
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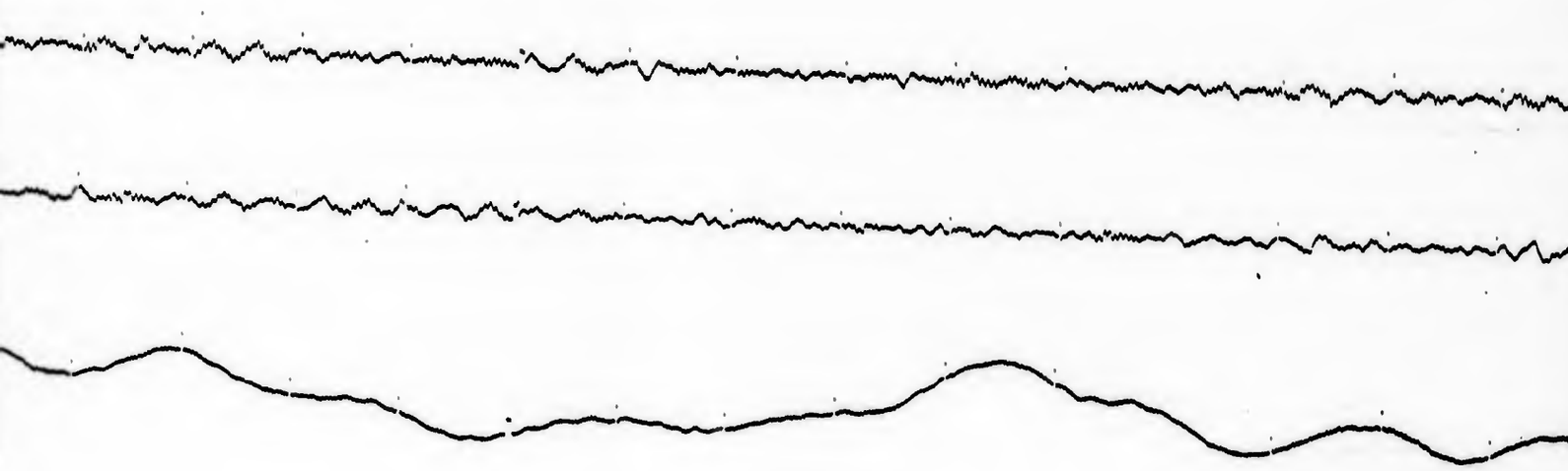

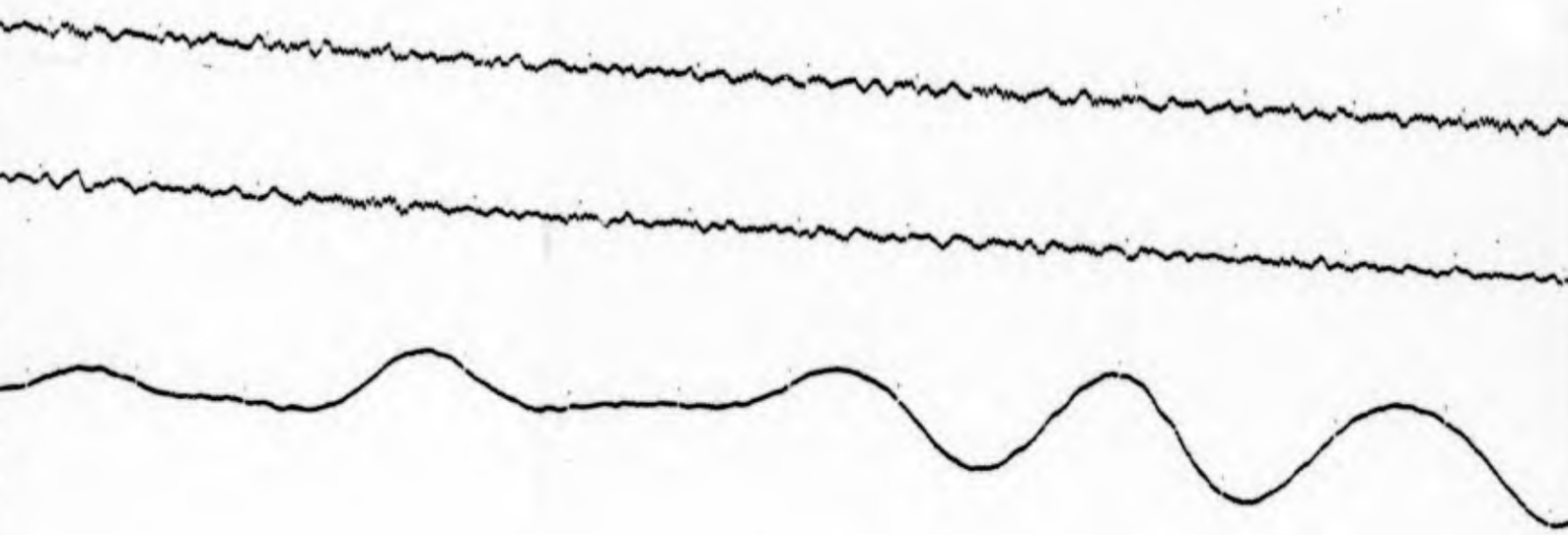

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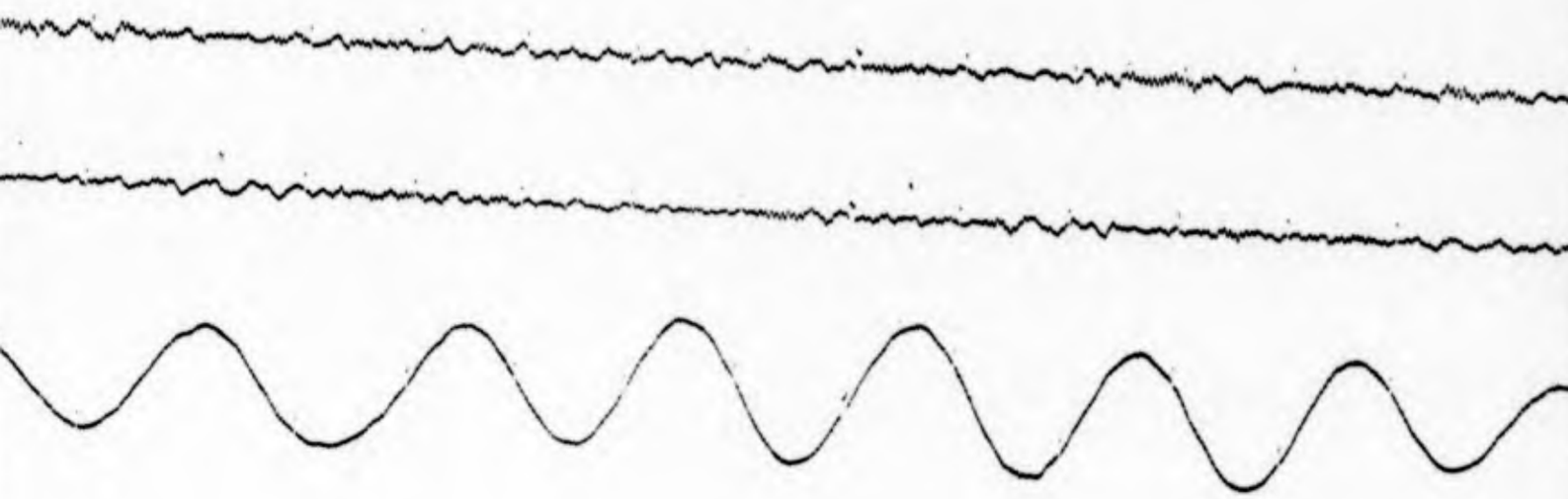

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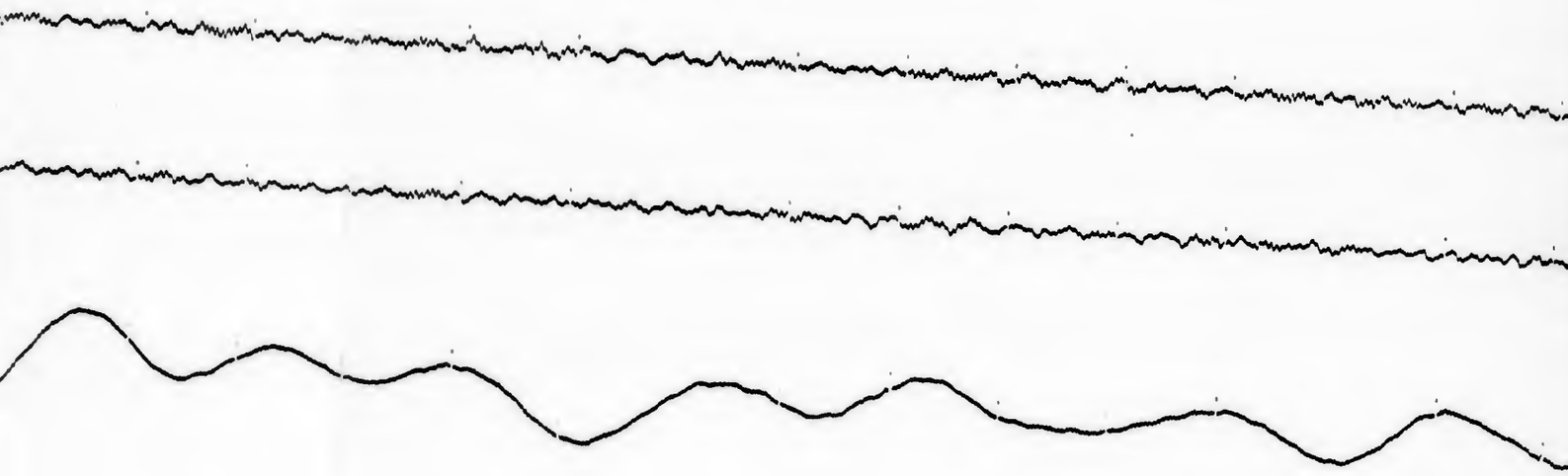

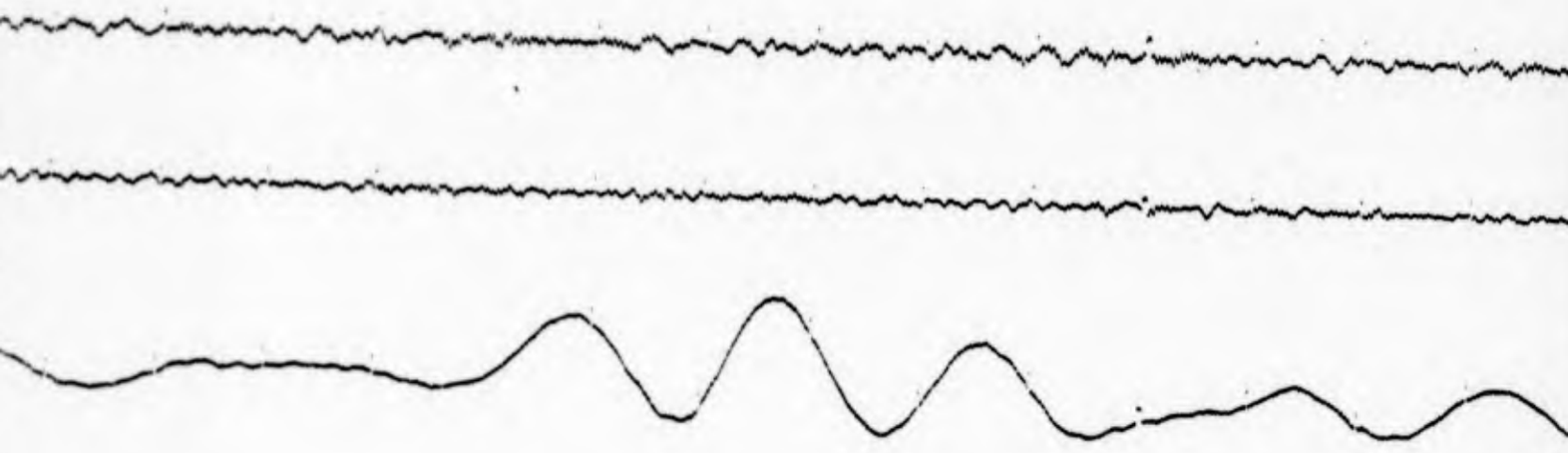

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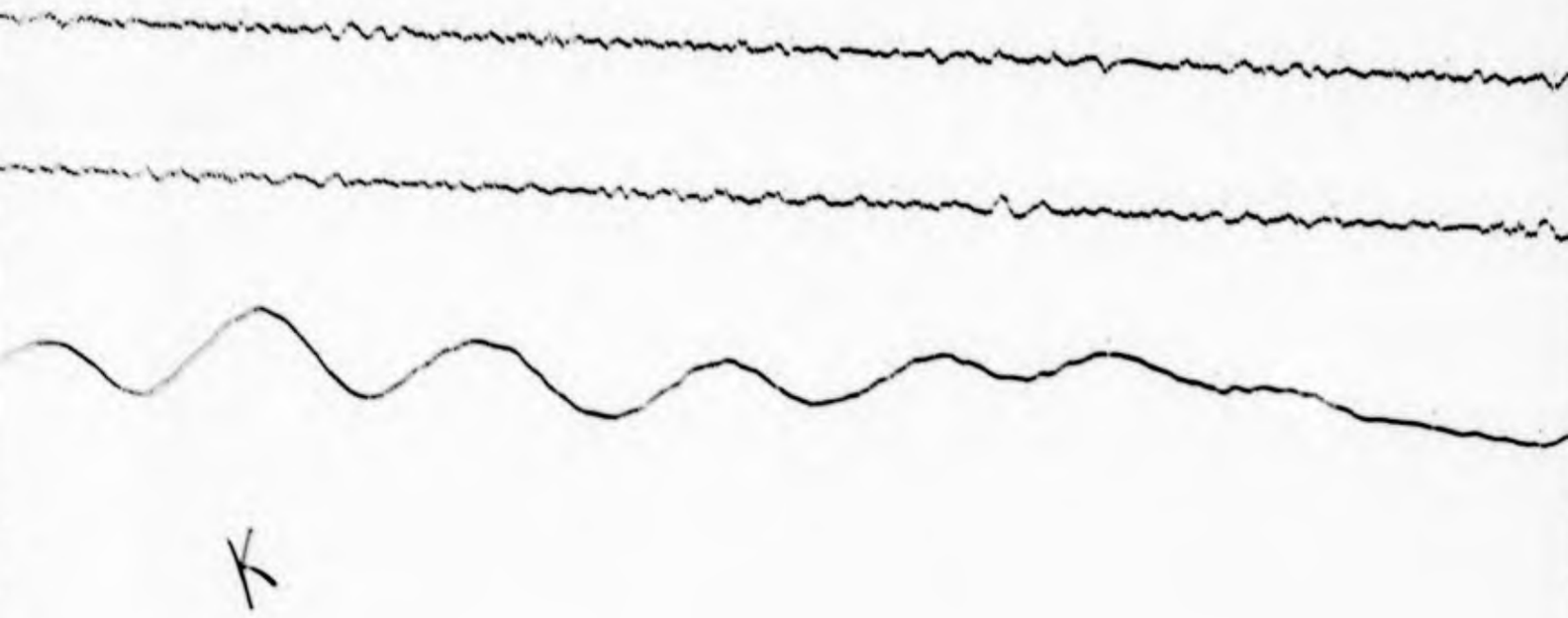
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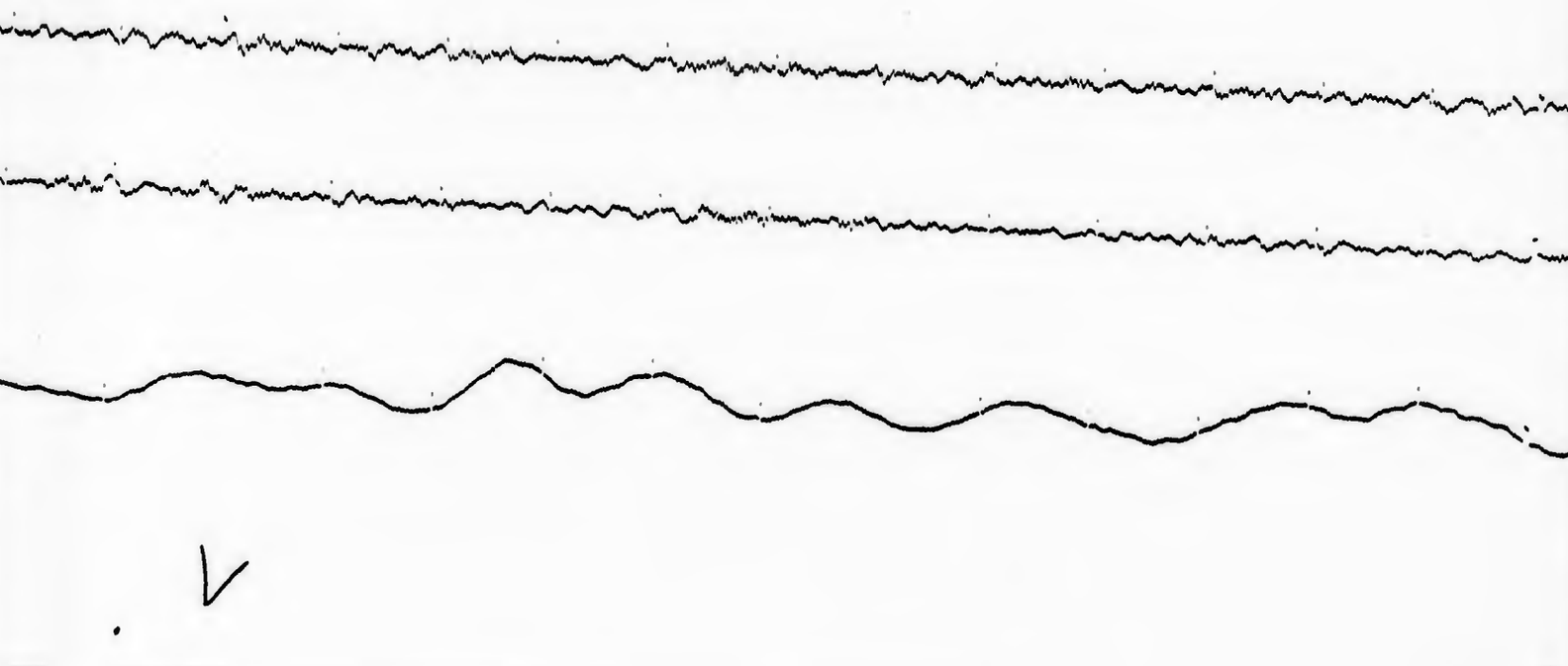

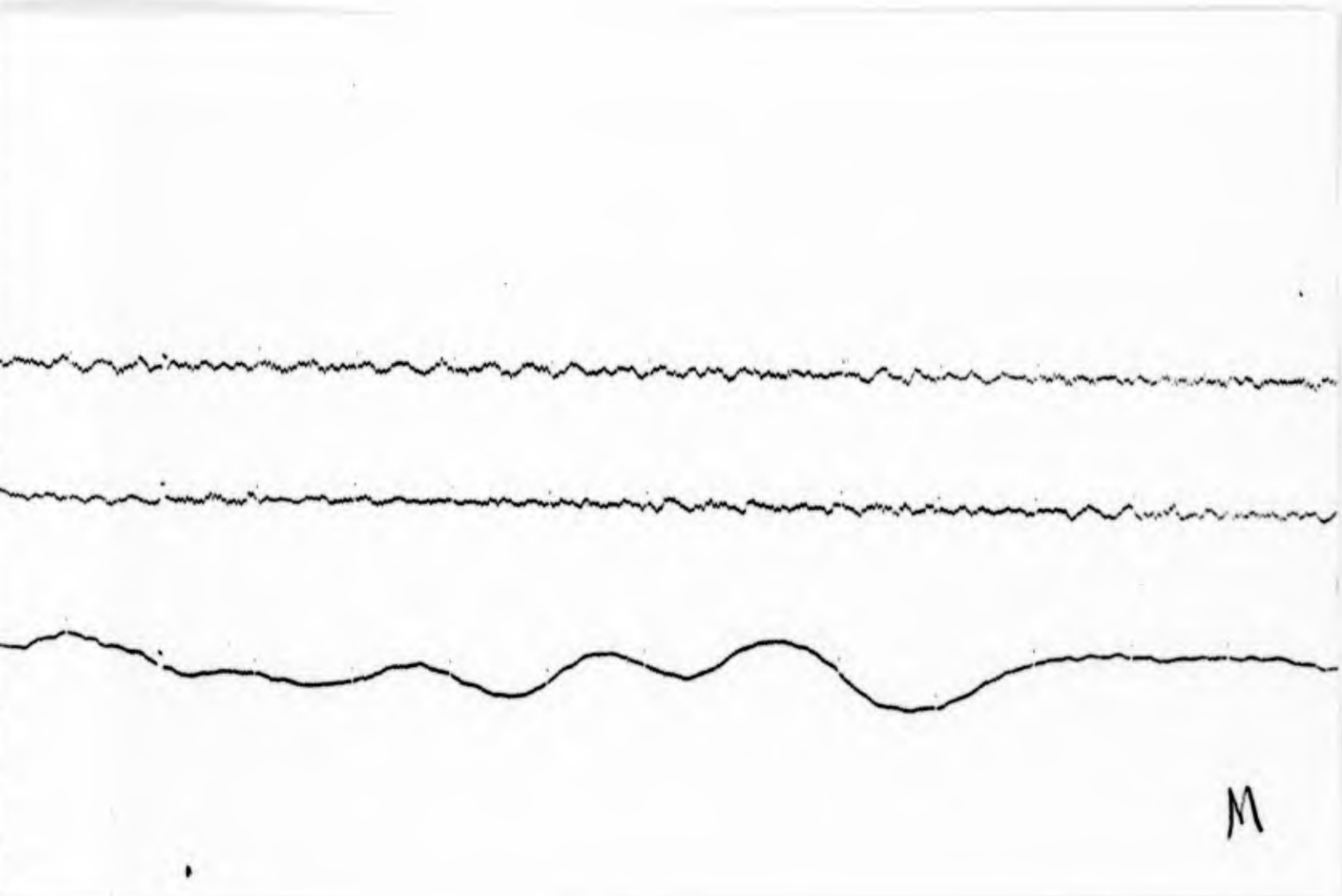
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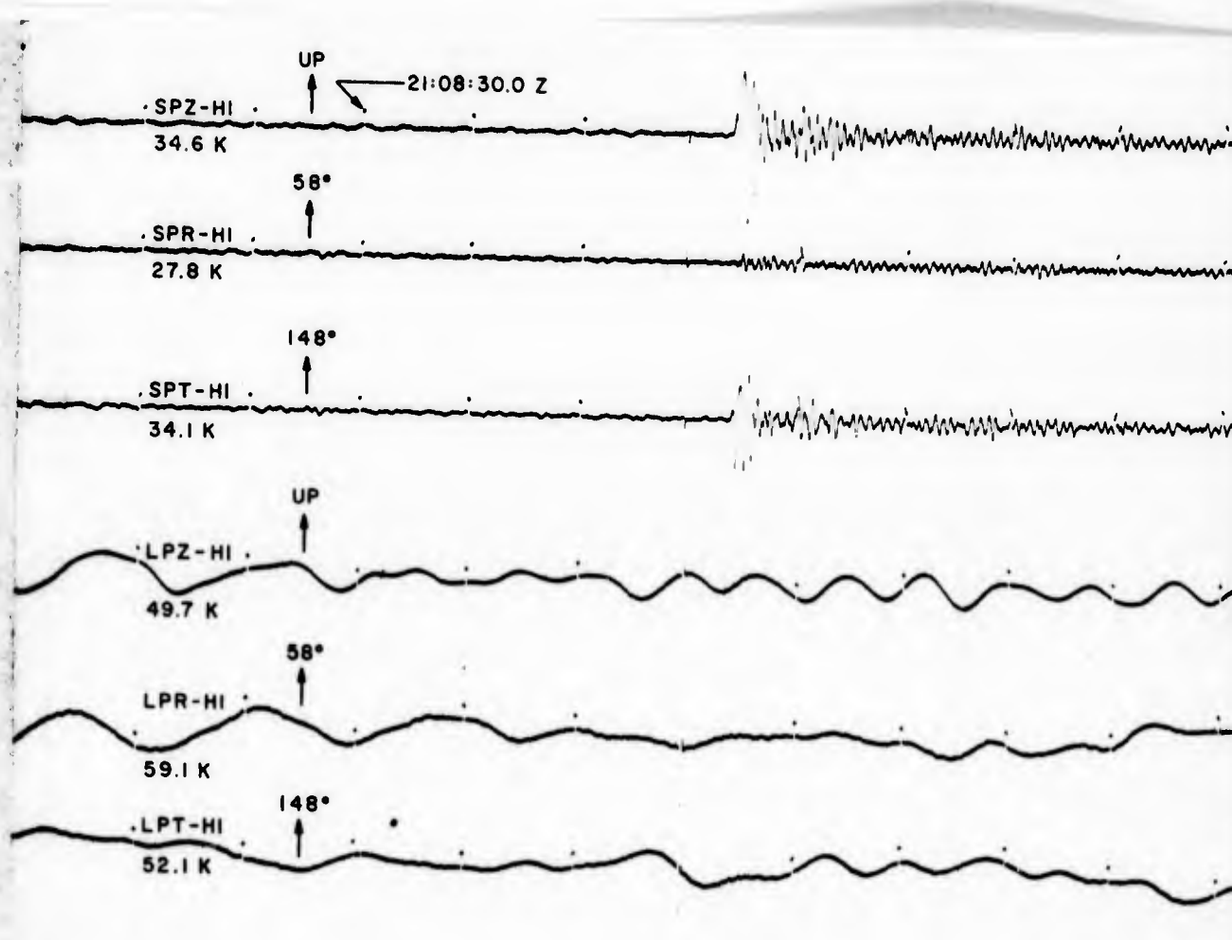


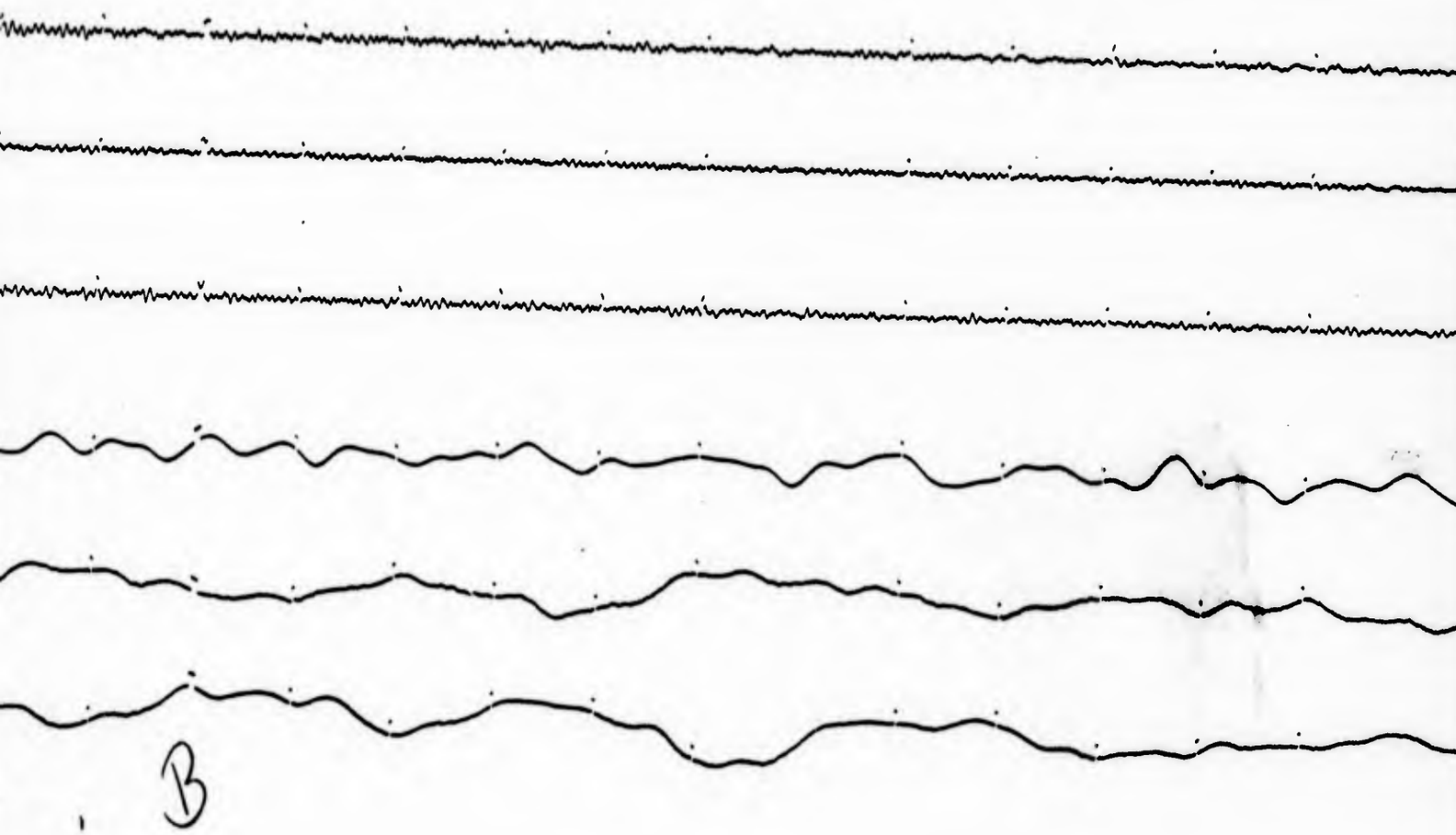
LONG SHOT

RK-ON

RED LAKE, ONTARIO, CANADA

29 OCTOBER 1965

Δ=5724 Km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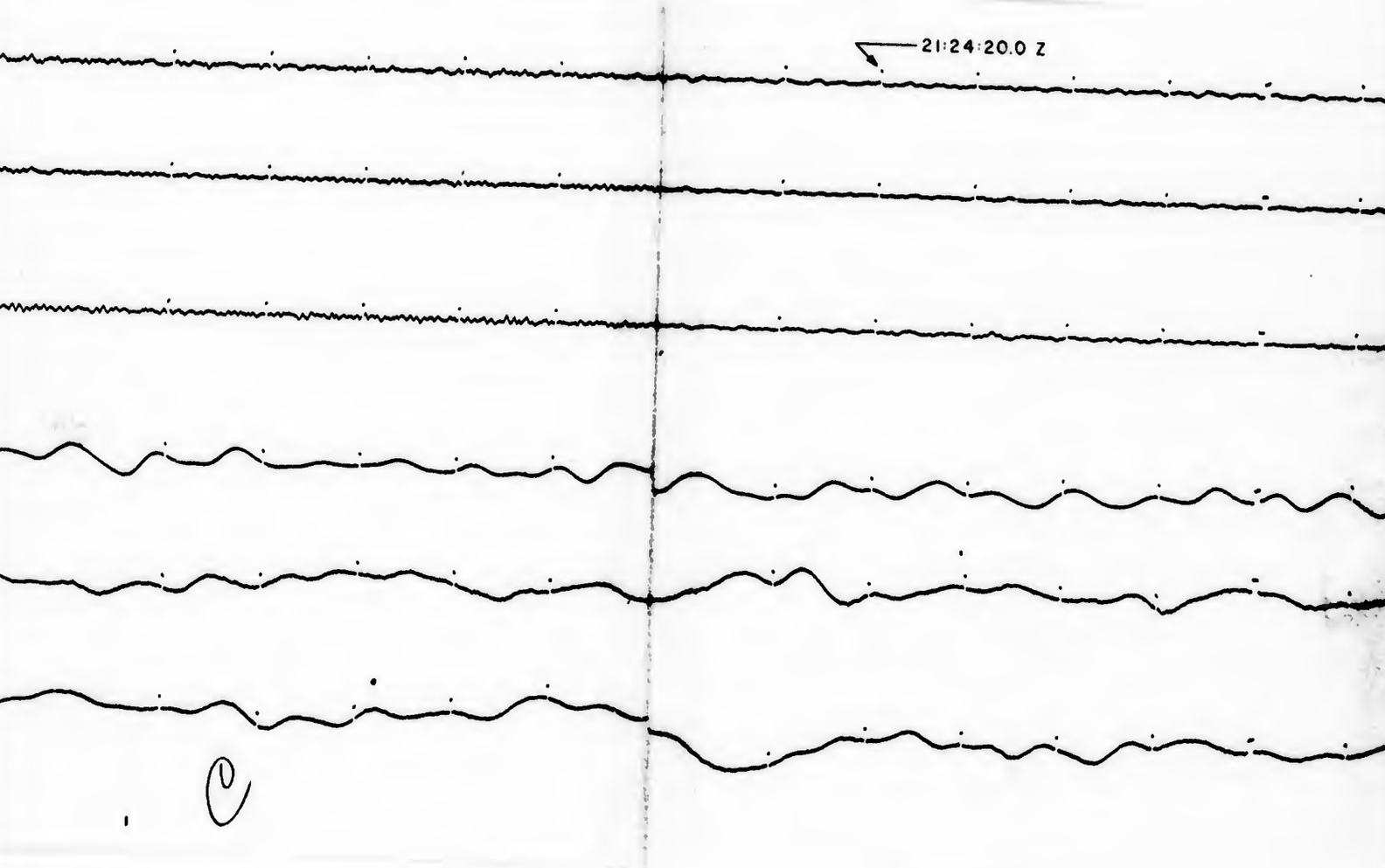
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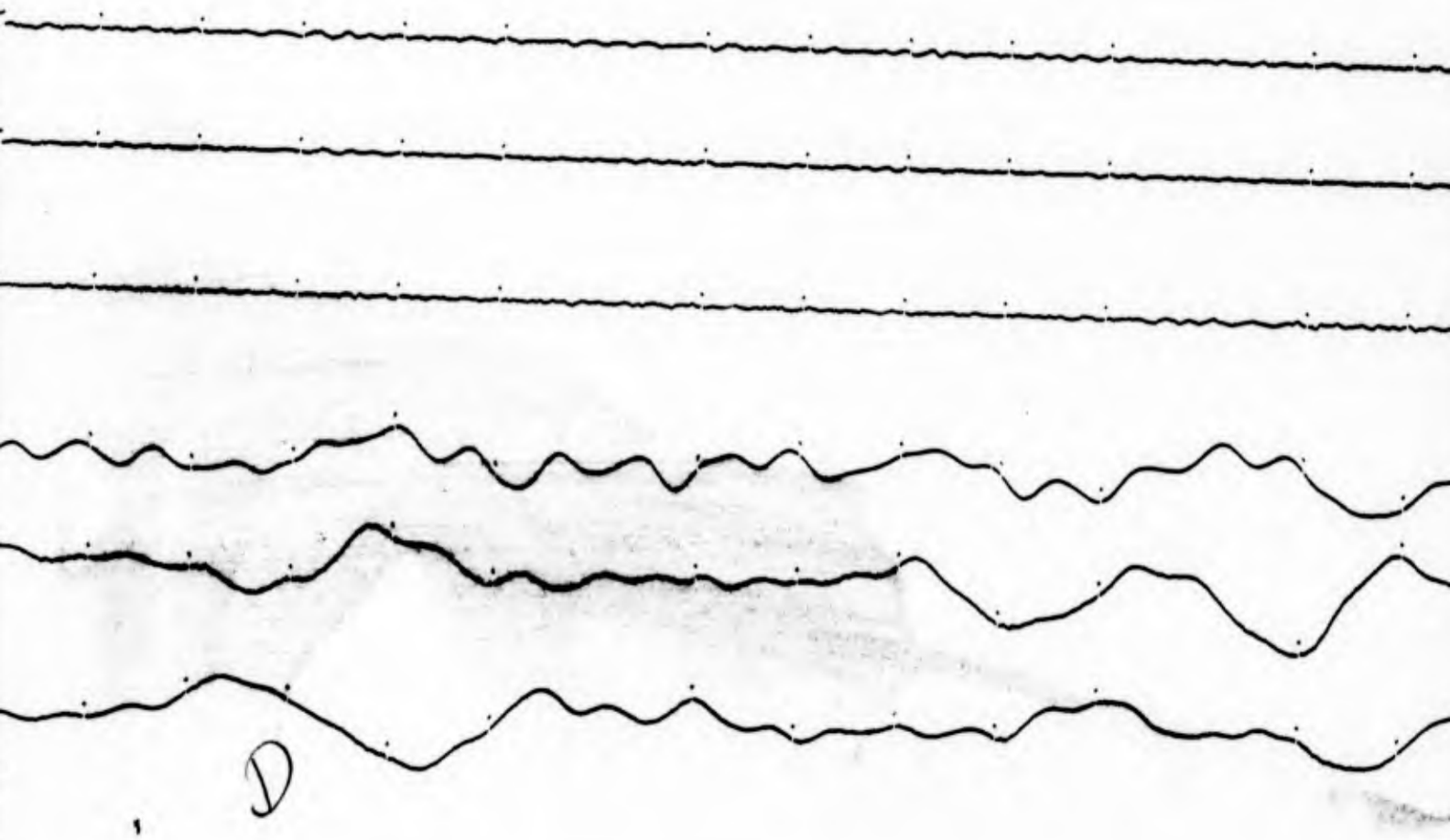
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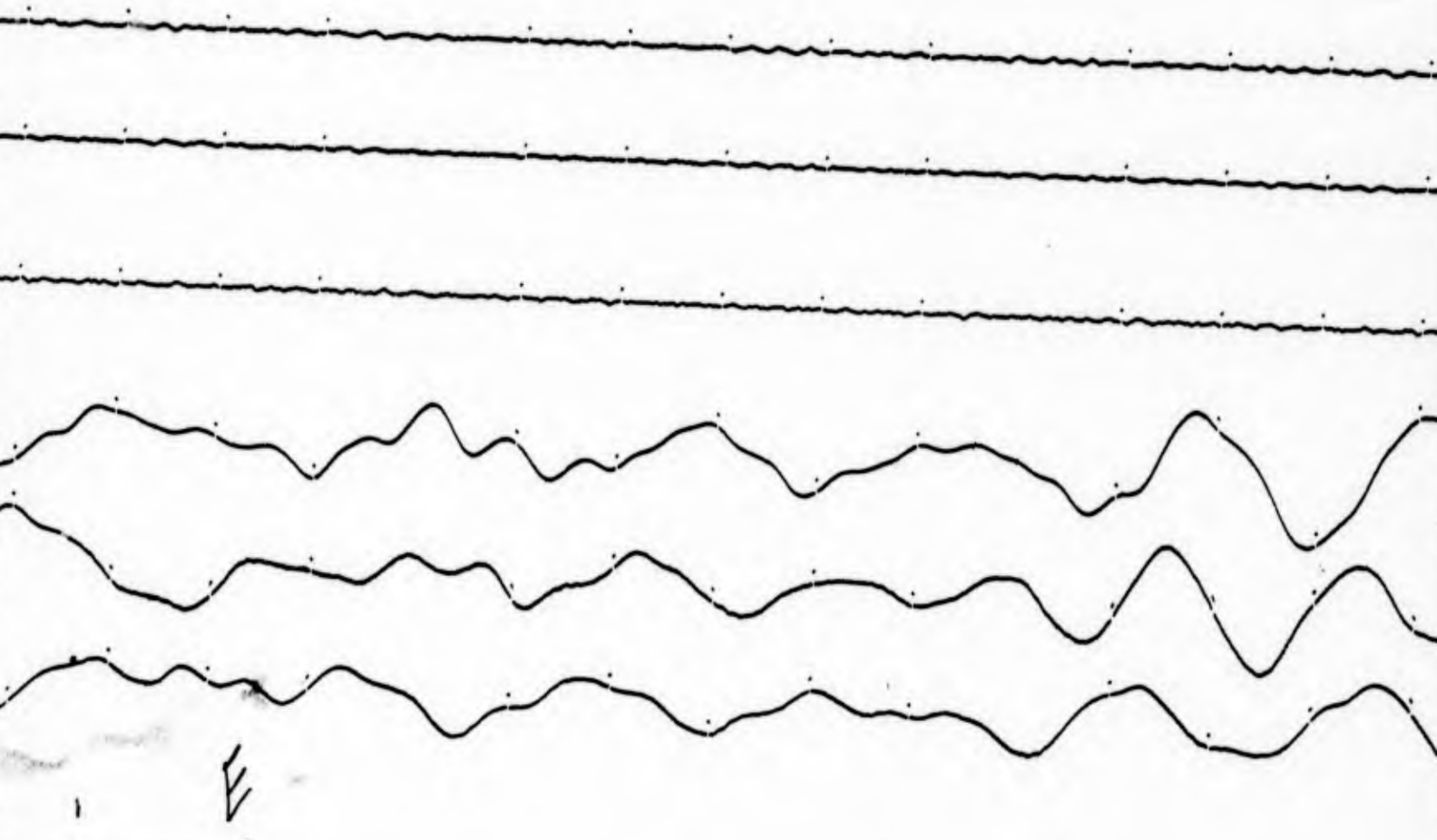

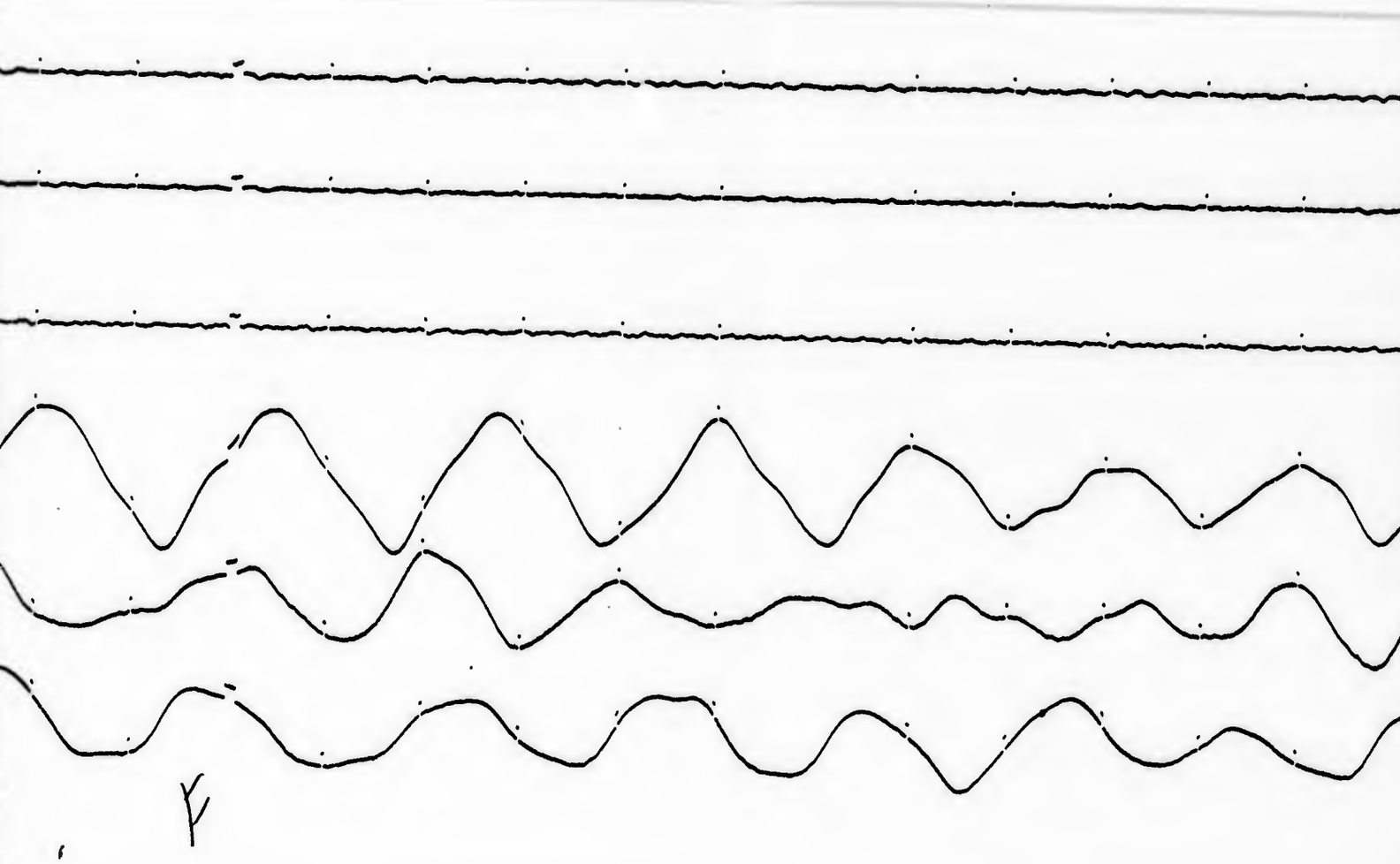

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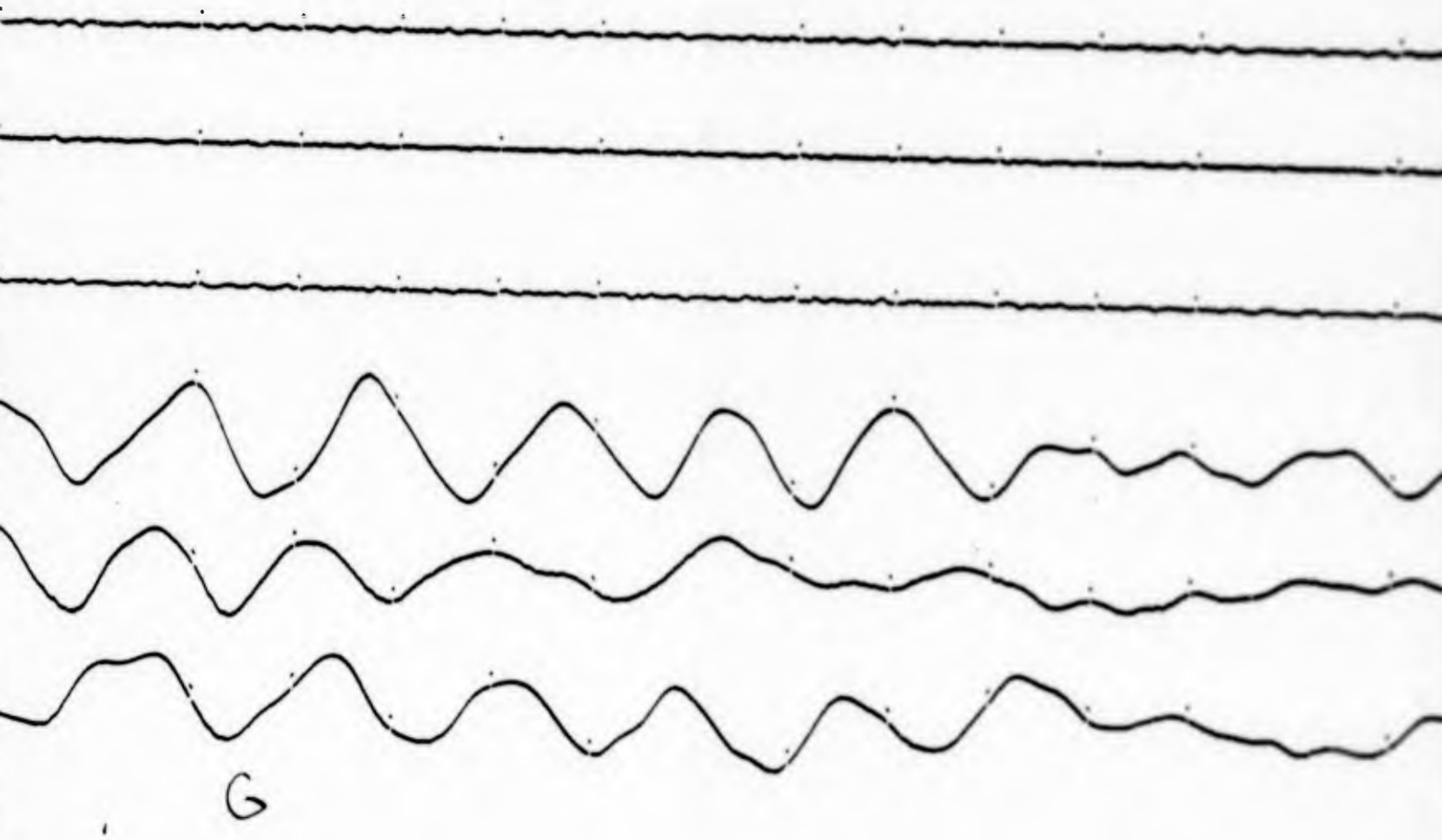
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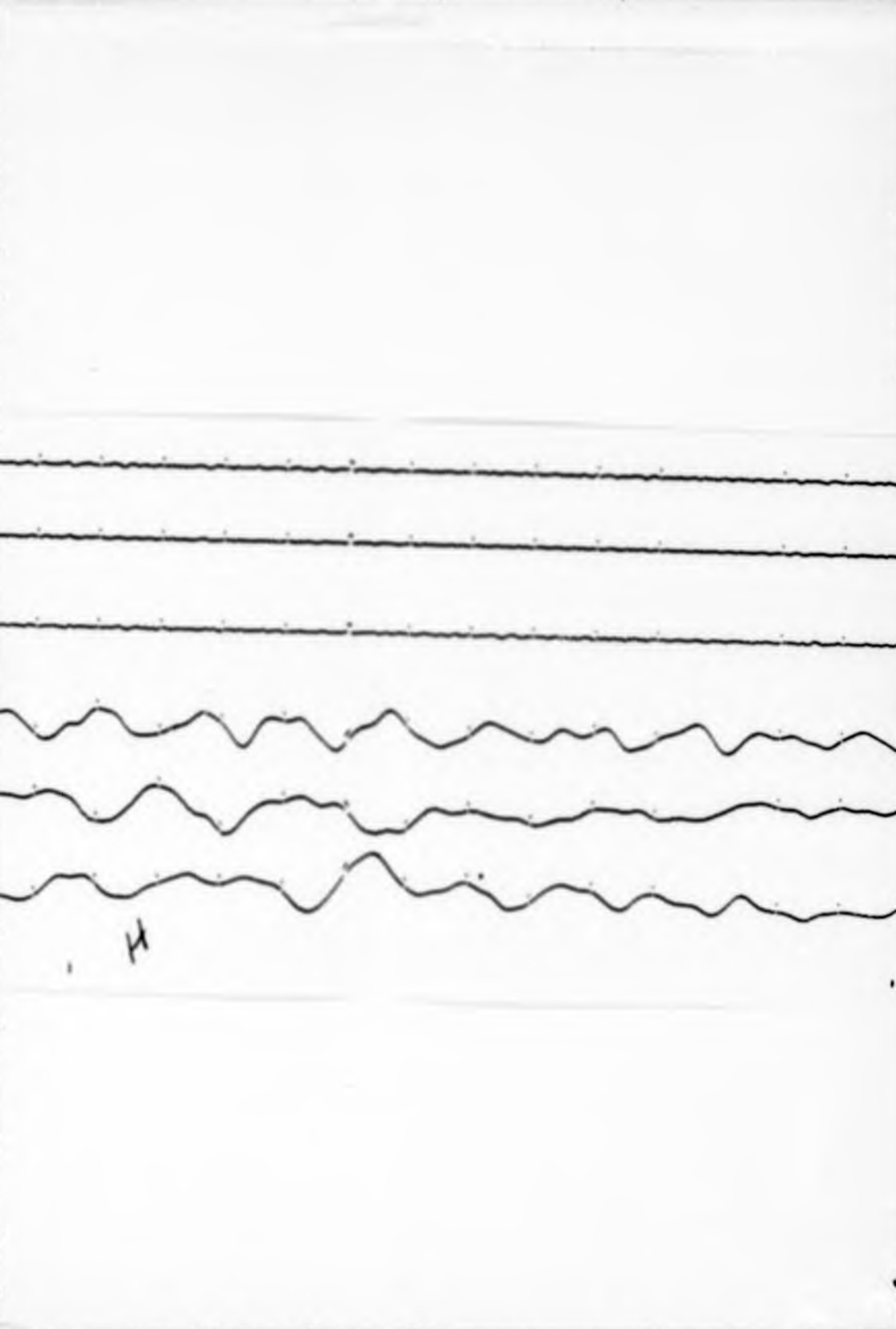
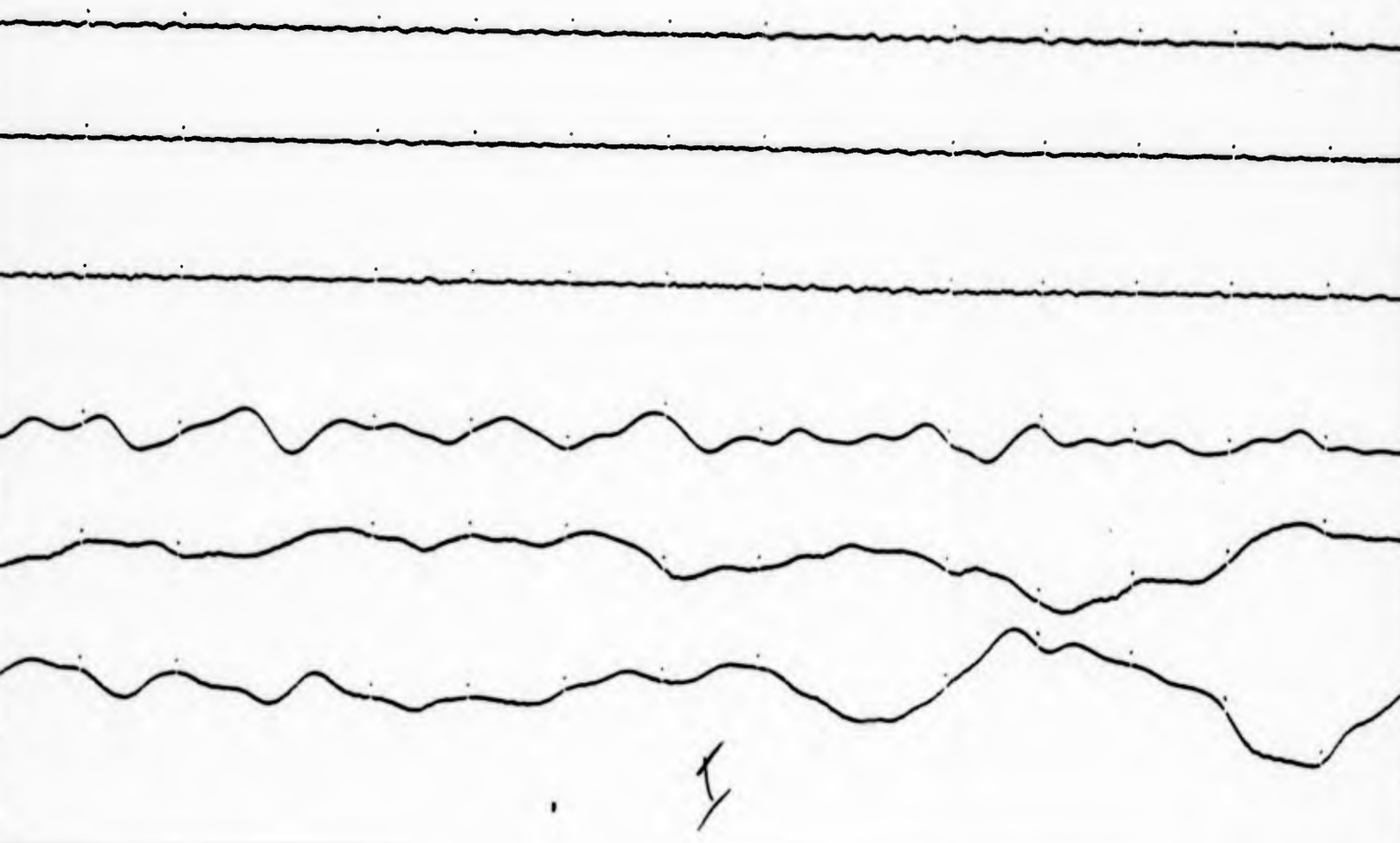
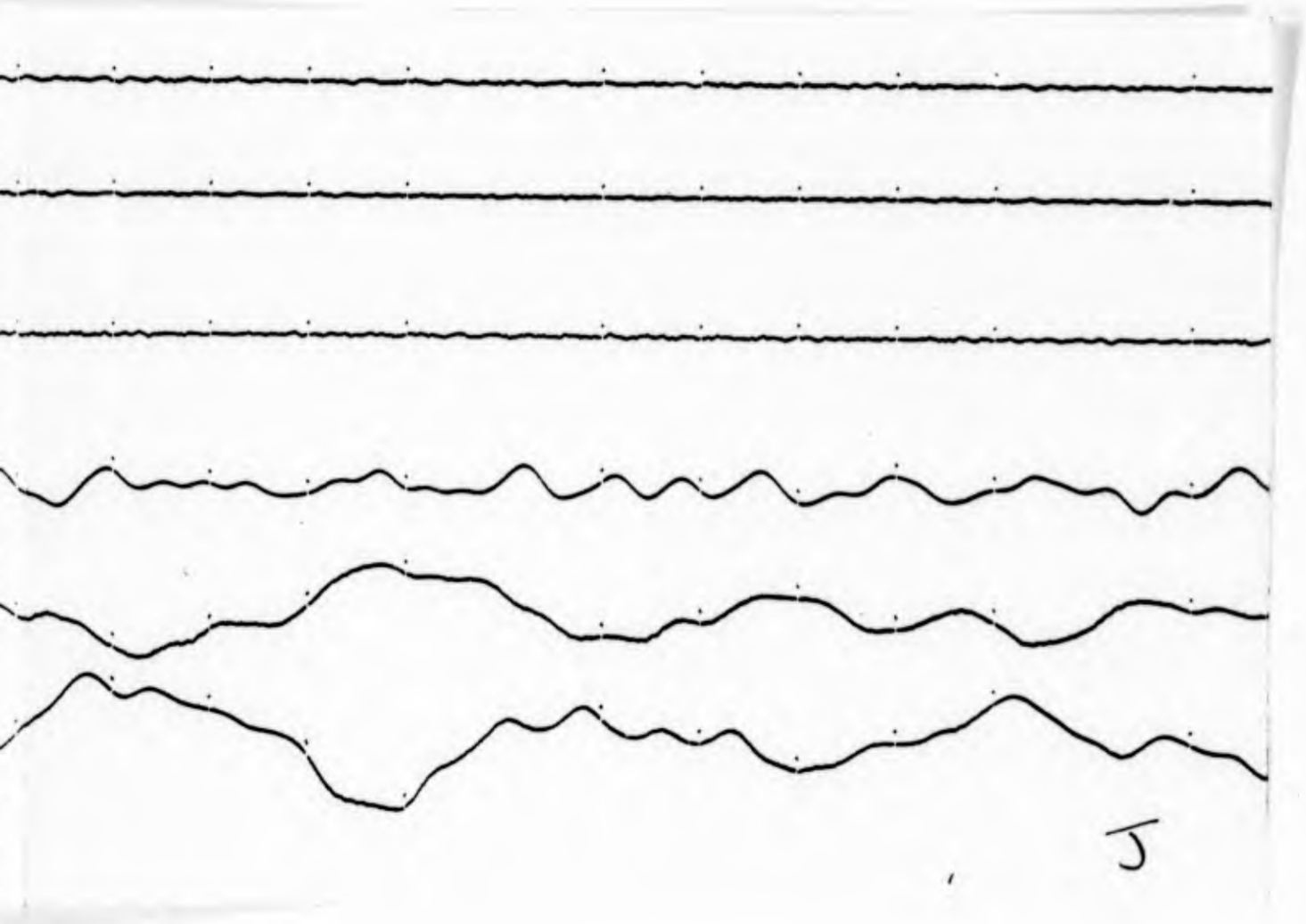





J

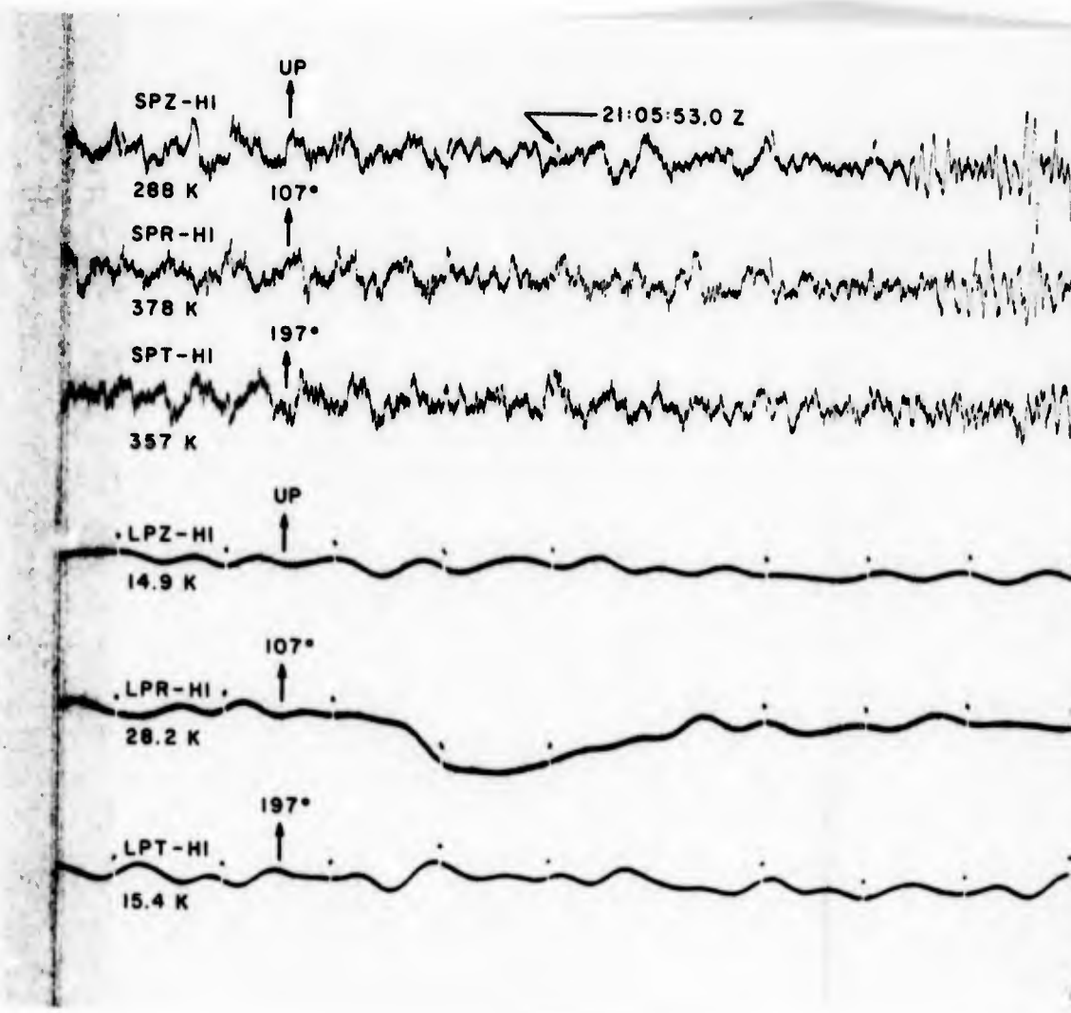
LONG SHOT

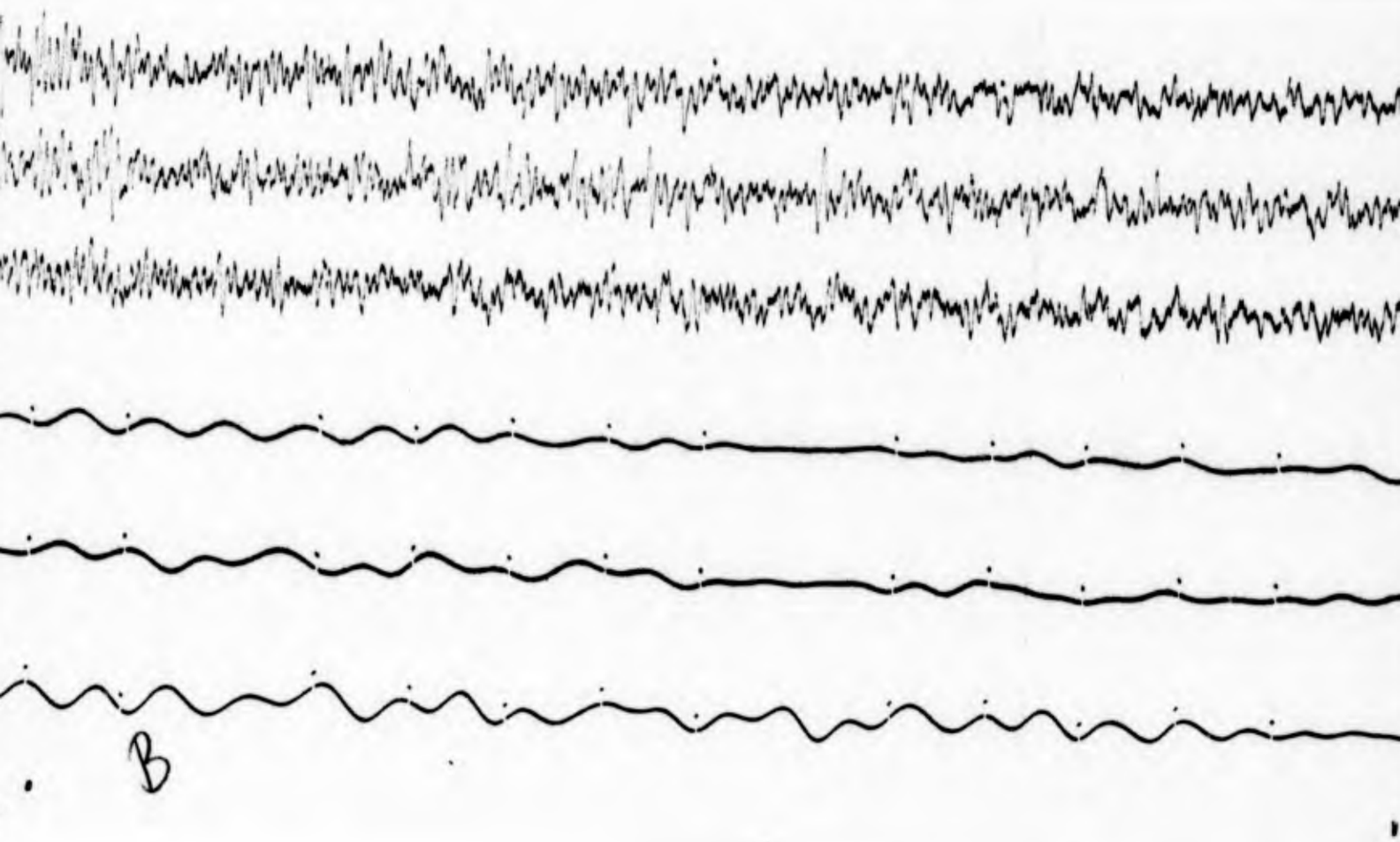
SI-BC

SMITHERS, BRITISH COLUMBIA, CANADA

29 OCTOBER 1965

Δ=3533 Km

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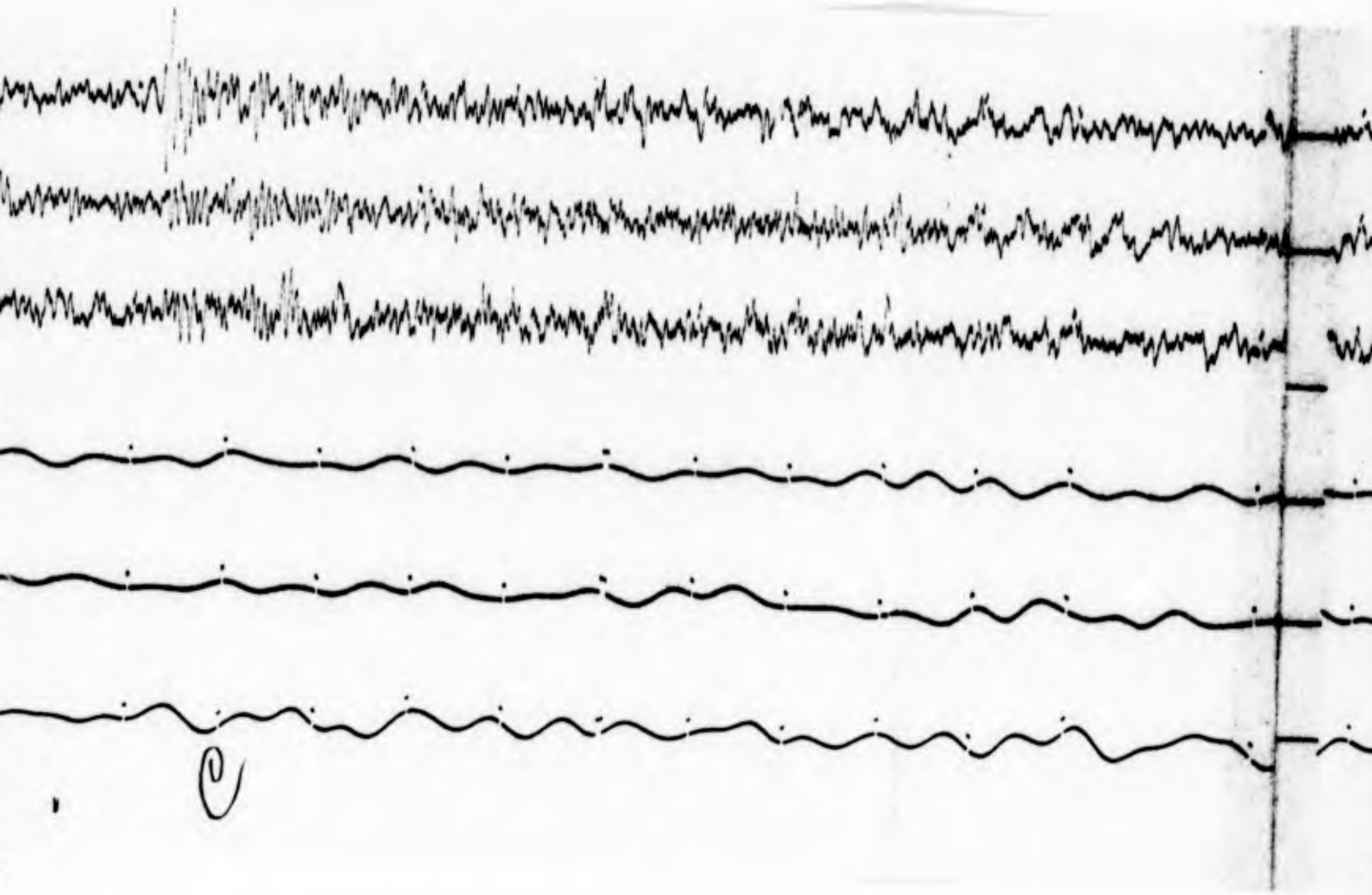

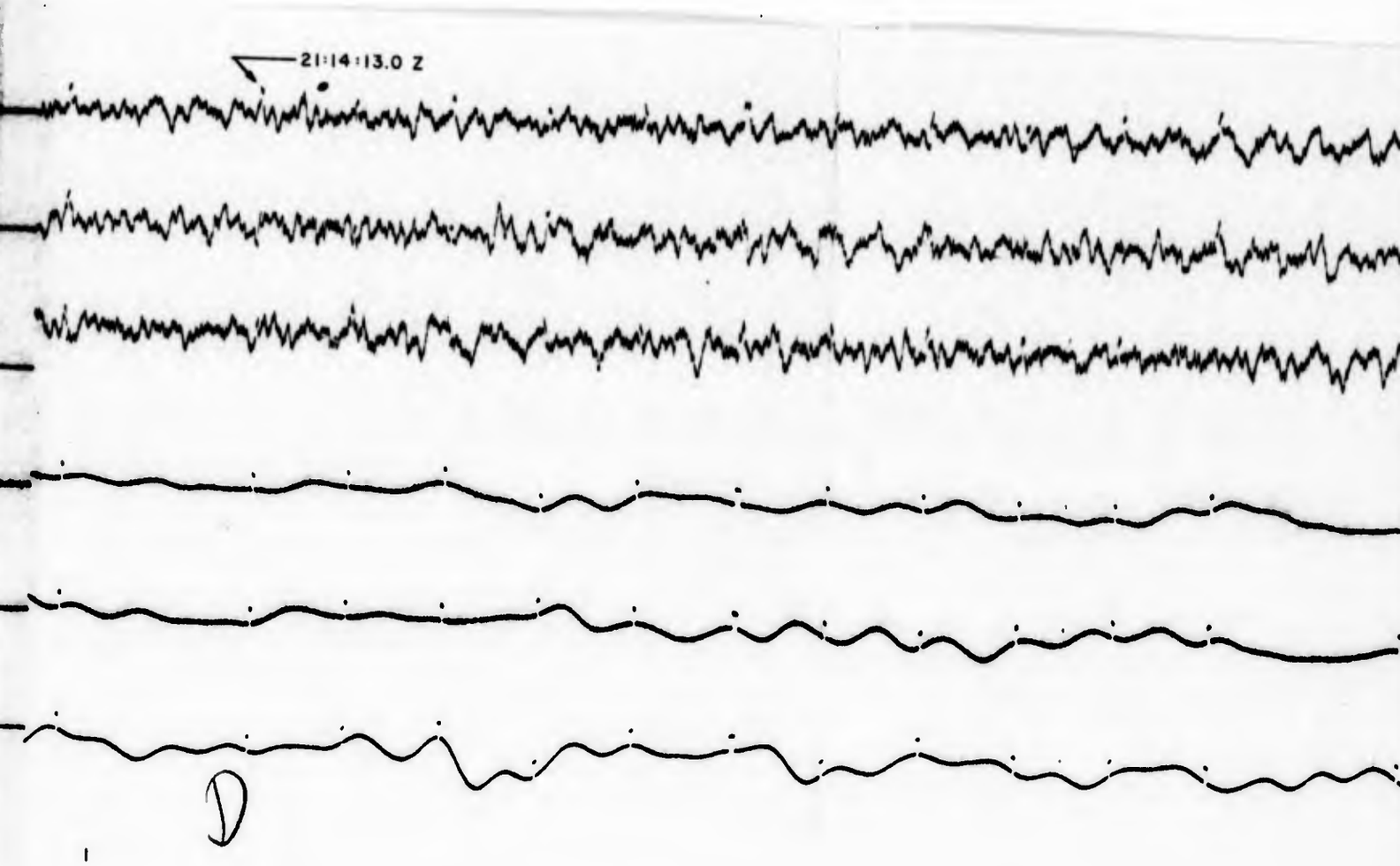
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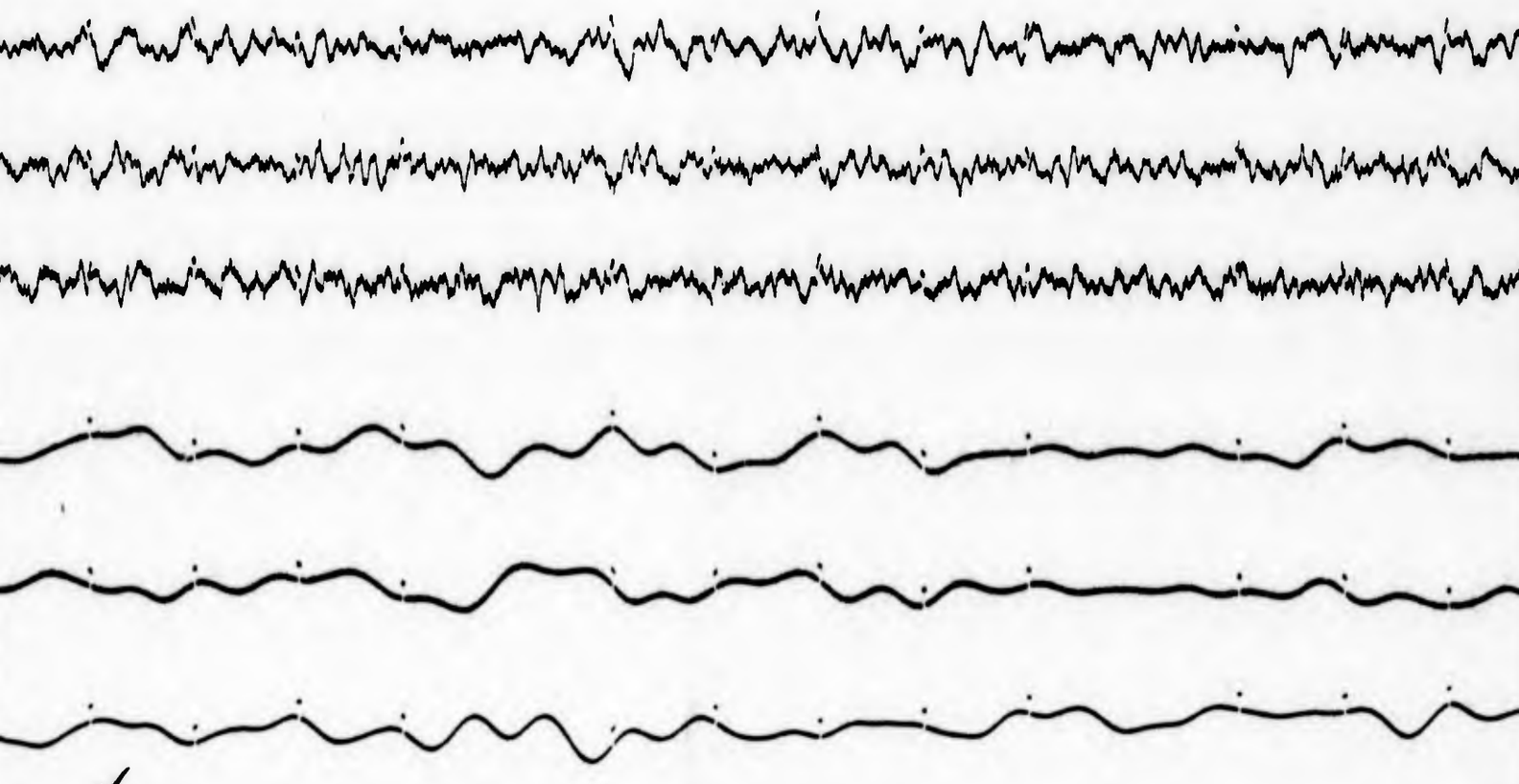


E

F

G

H

LONGSHOT

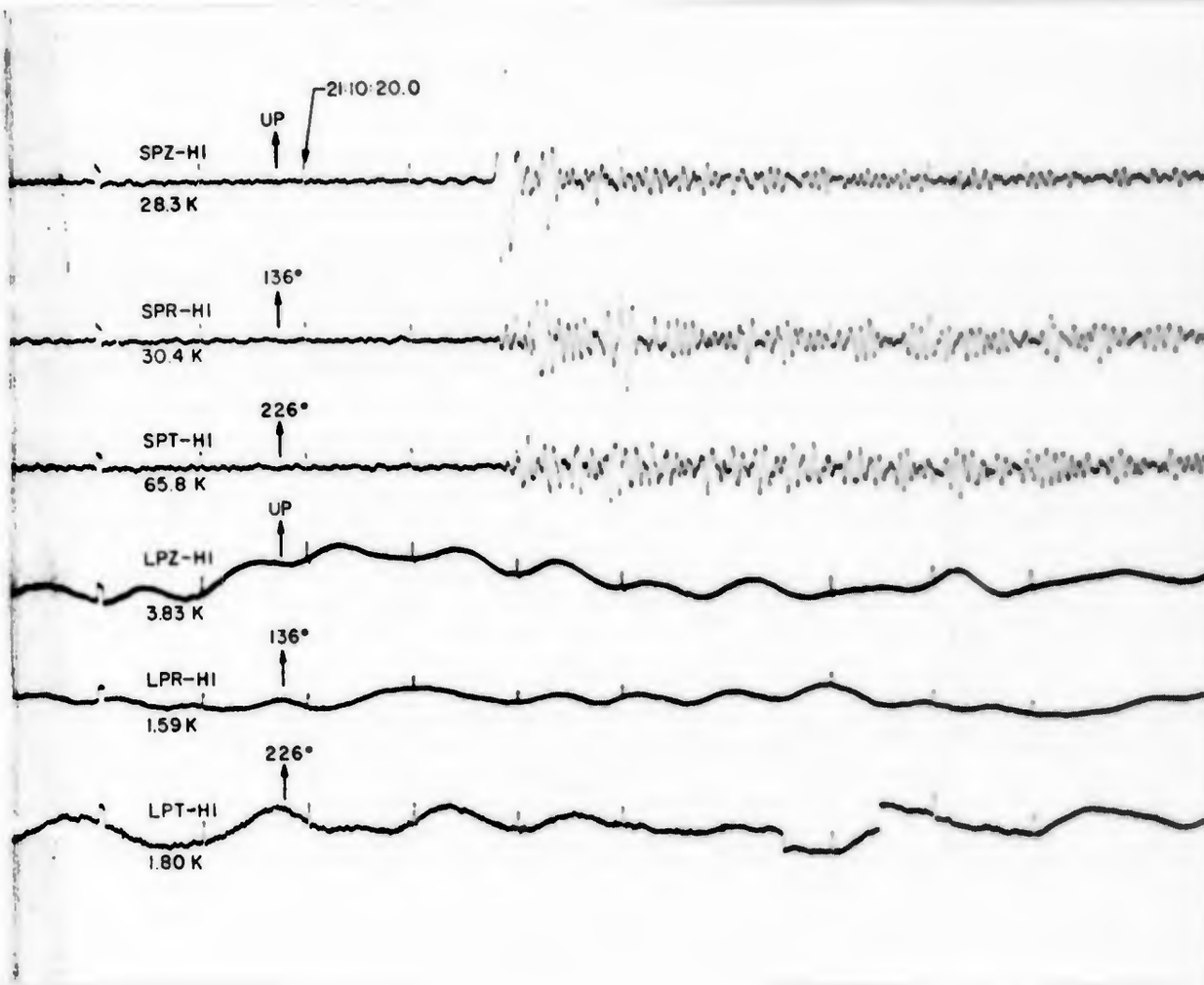
SJ-TX

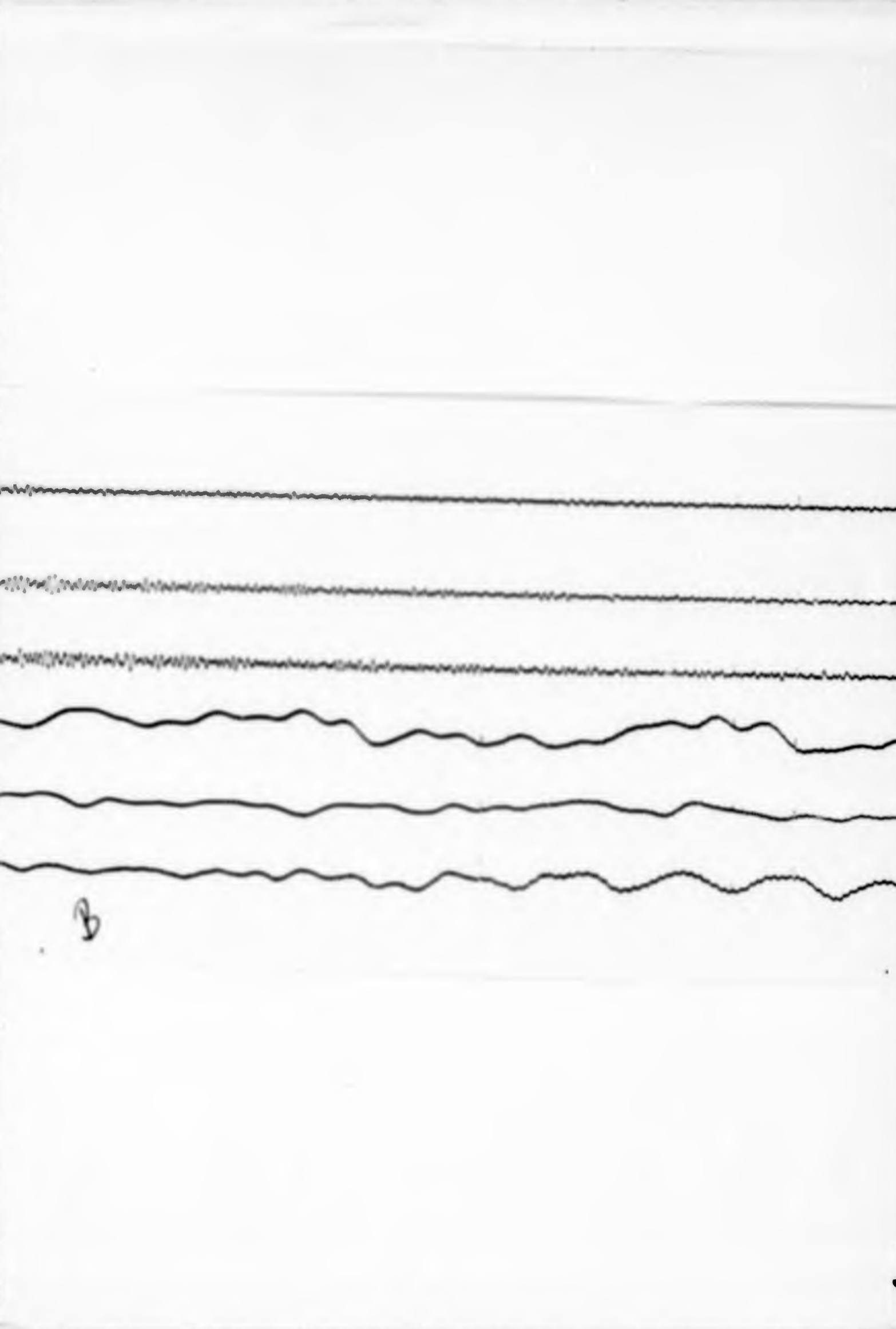
SAN JOSE,

TEXAS

29 OCTOBER 1965

Δ = 7162 Km

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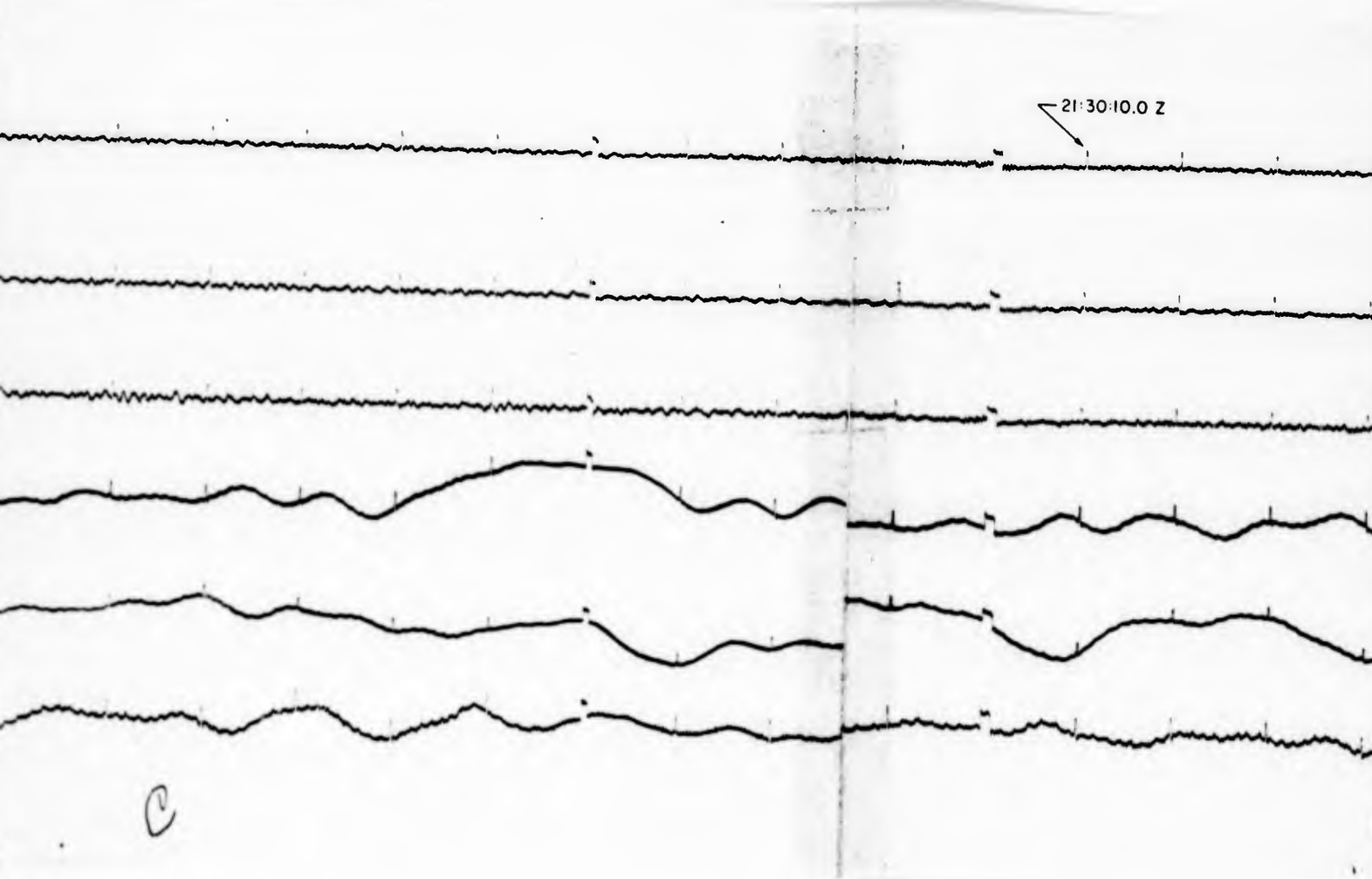

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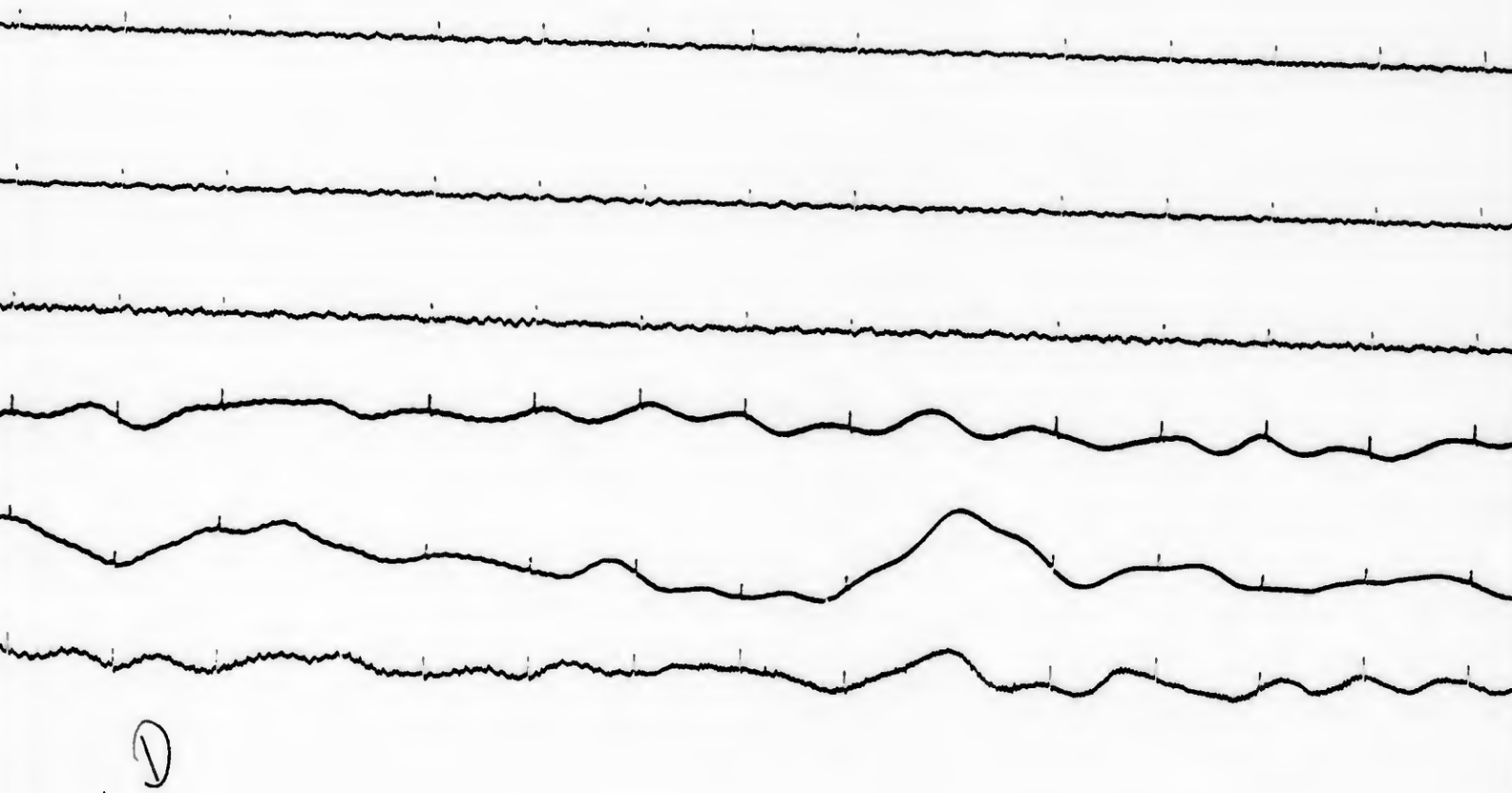
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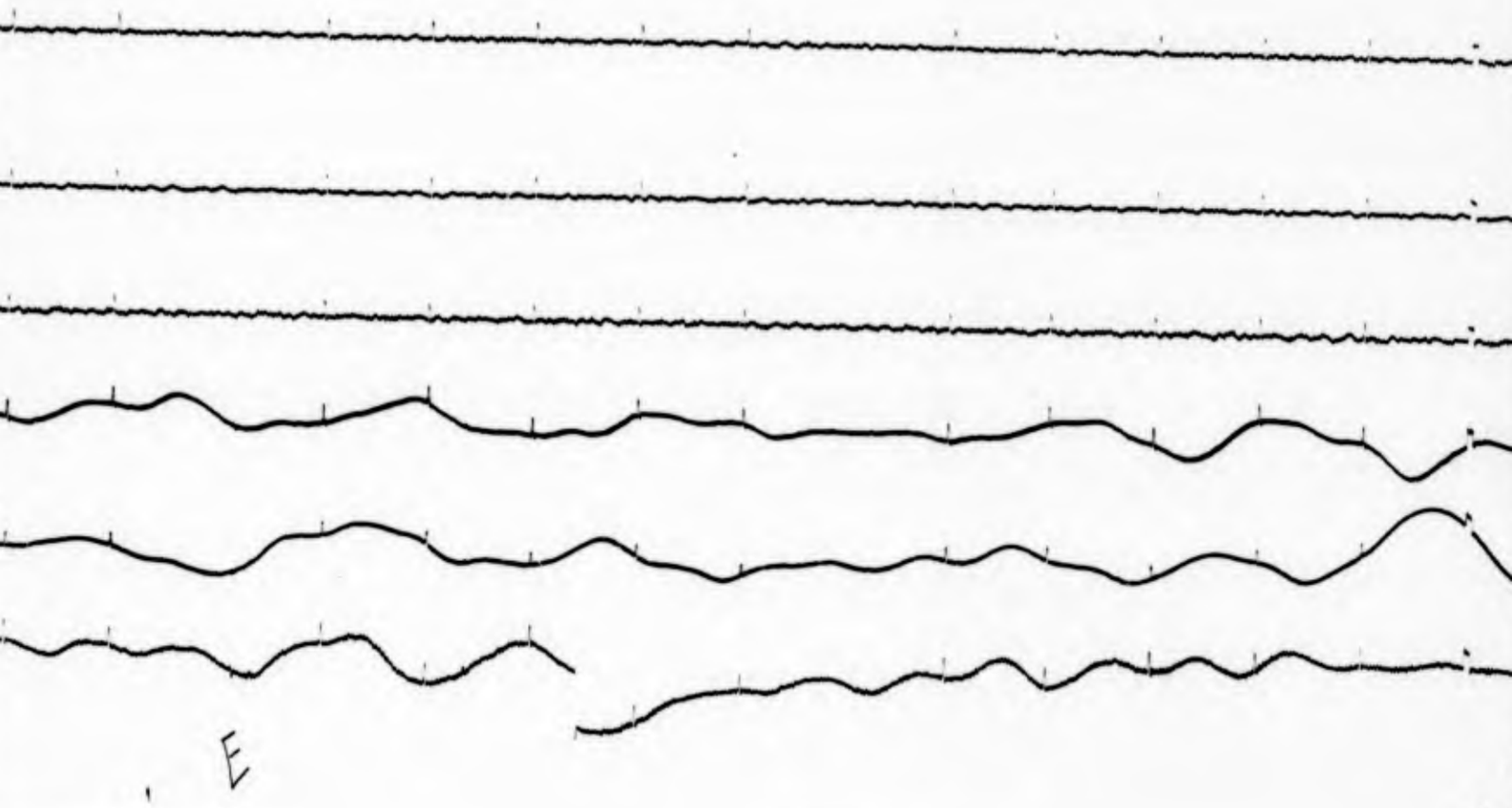
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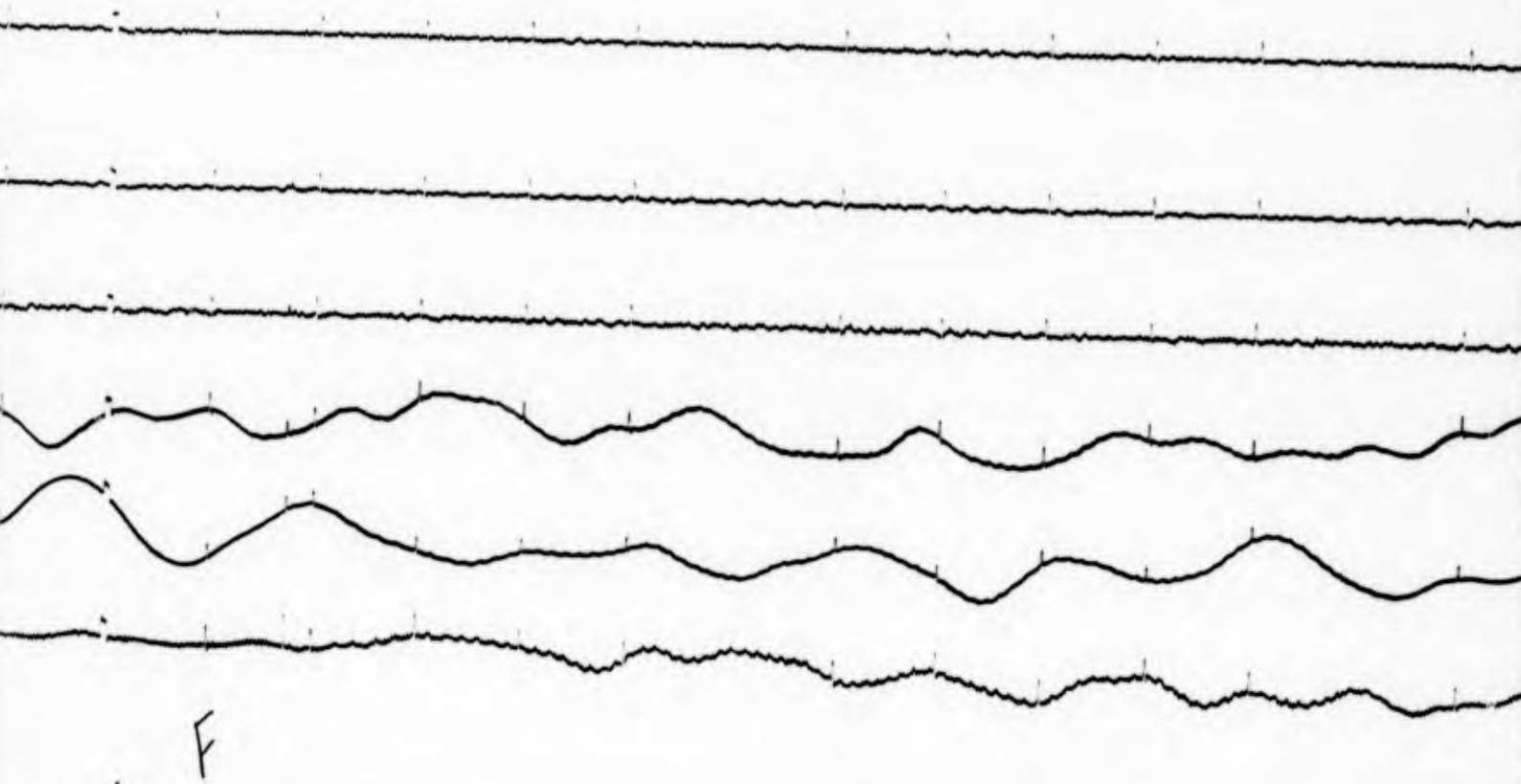
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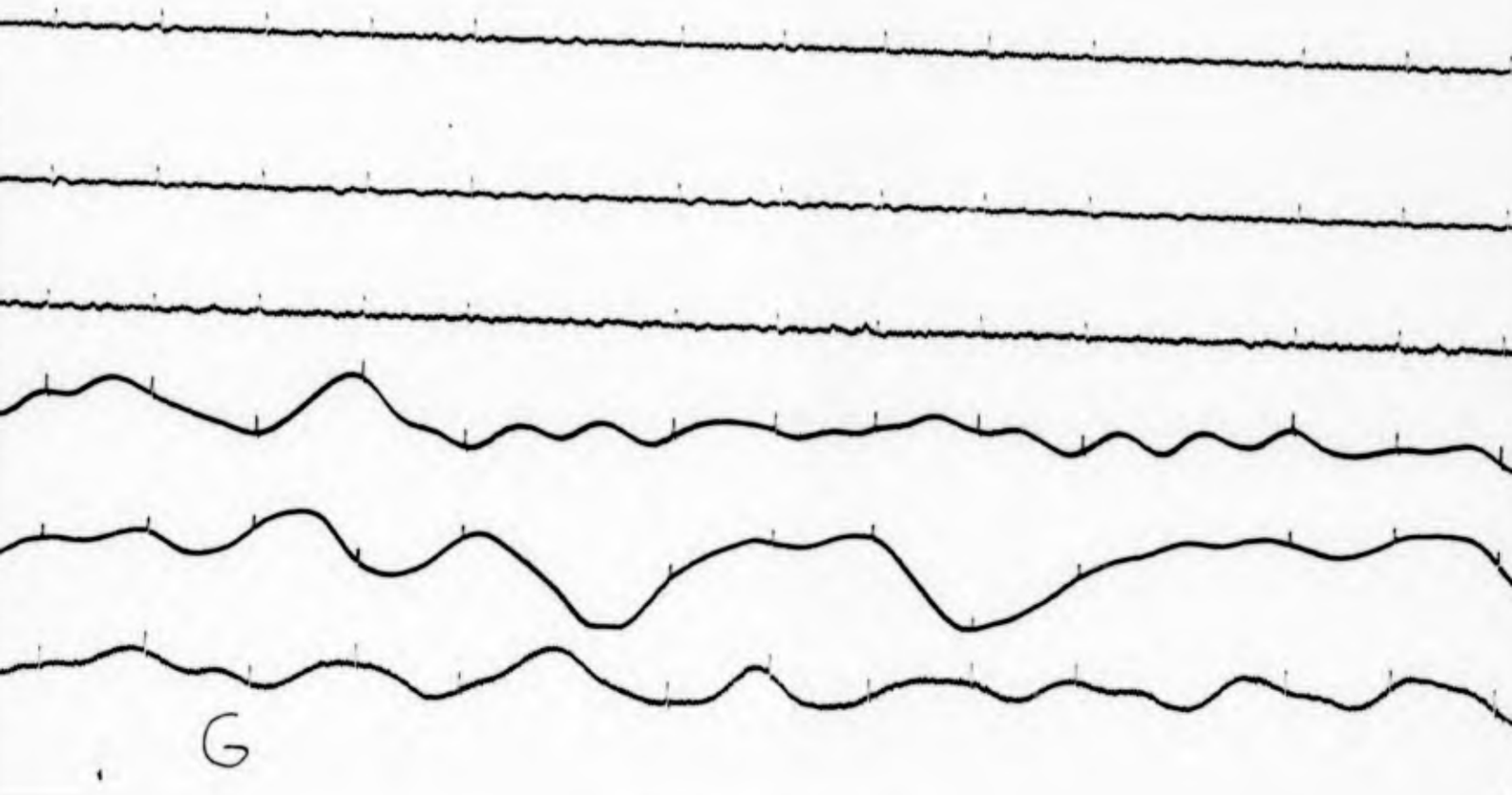
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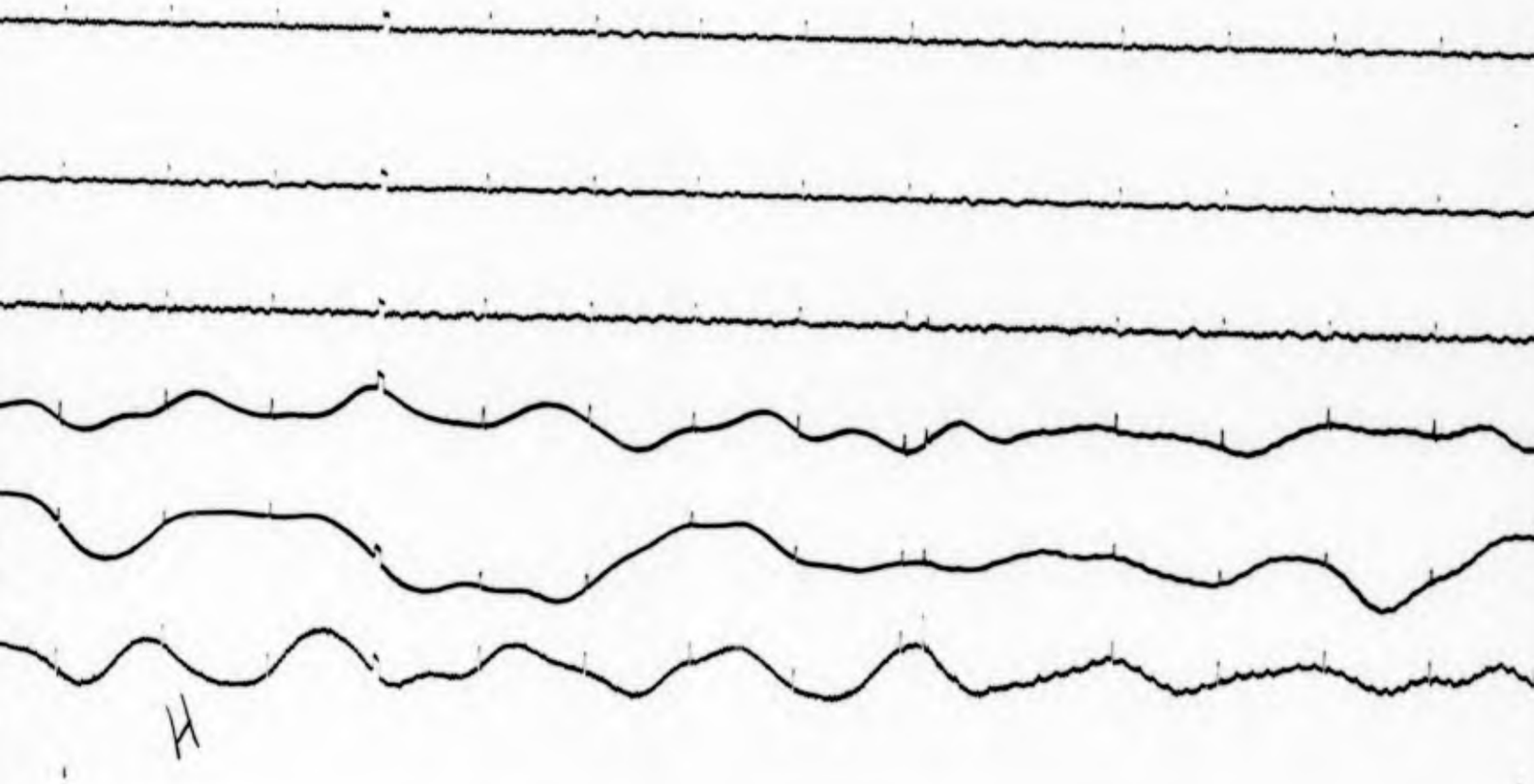
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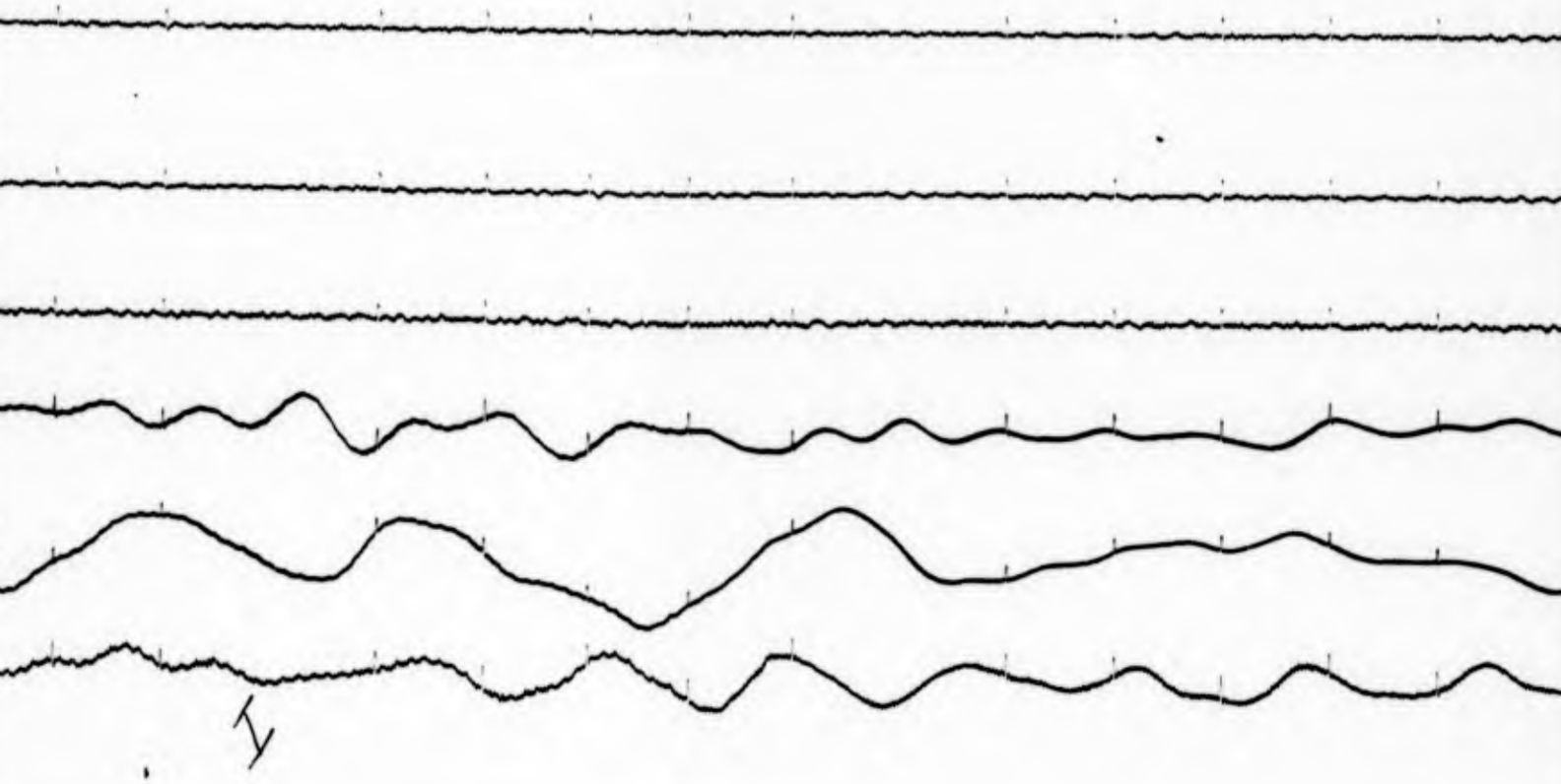
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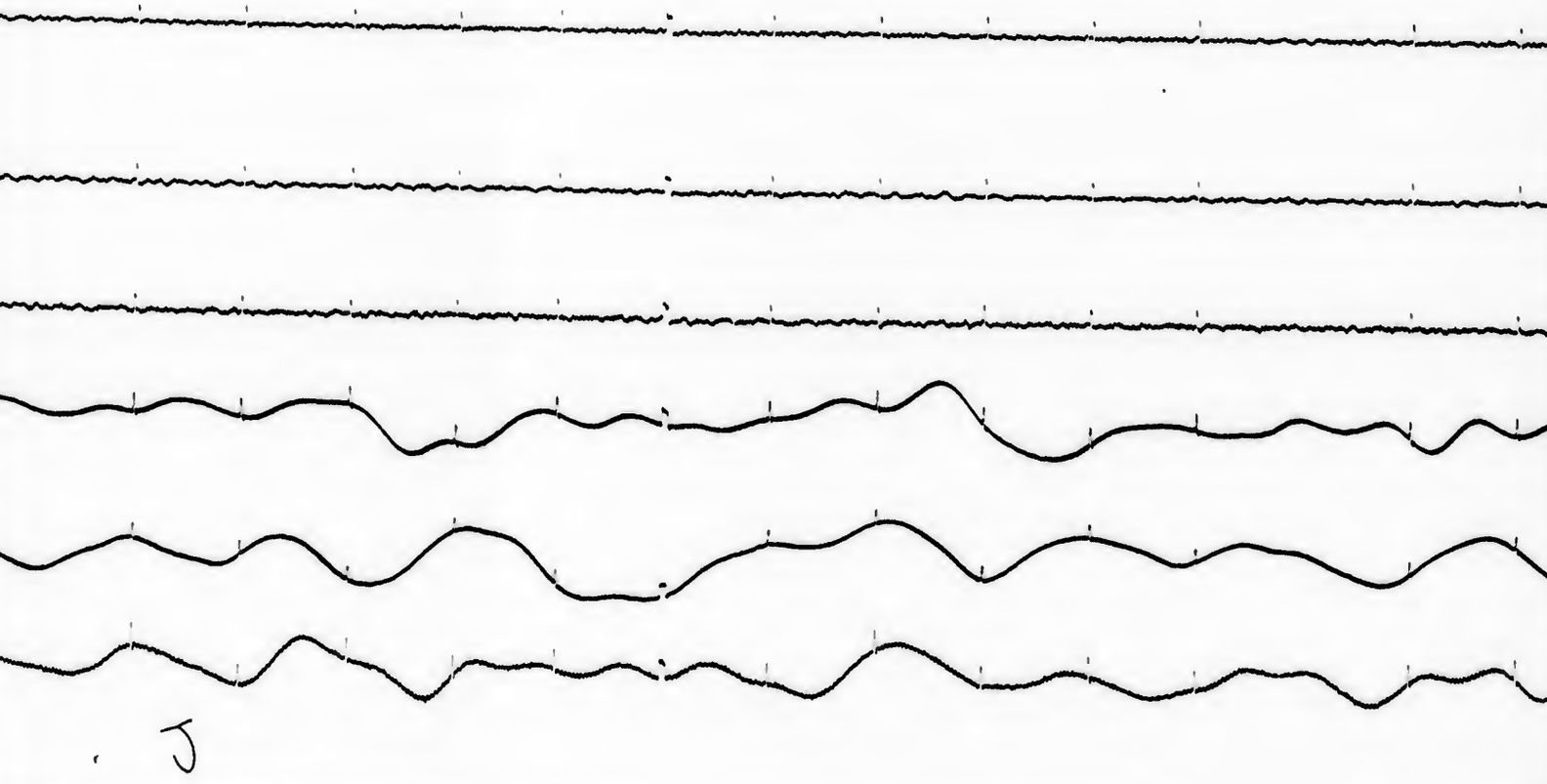
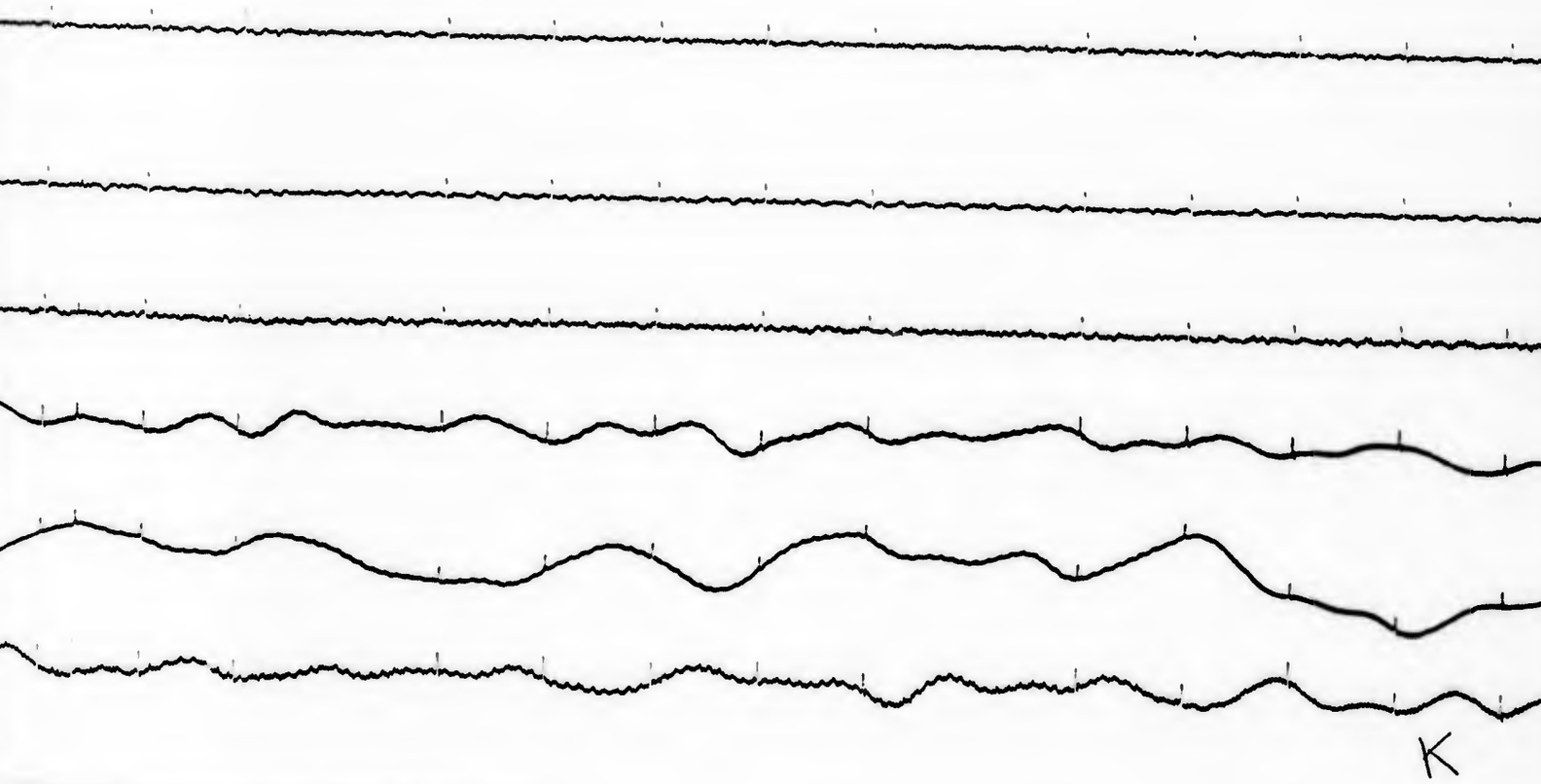



K

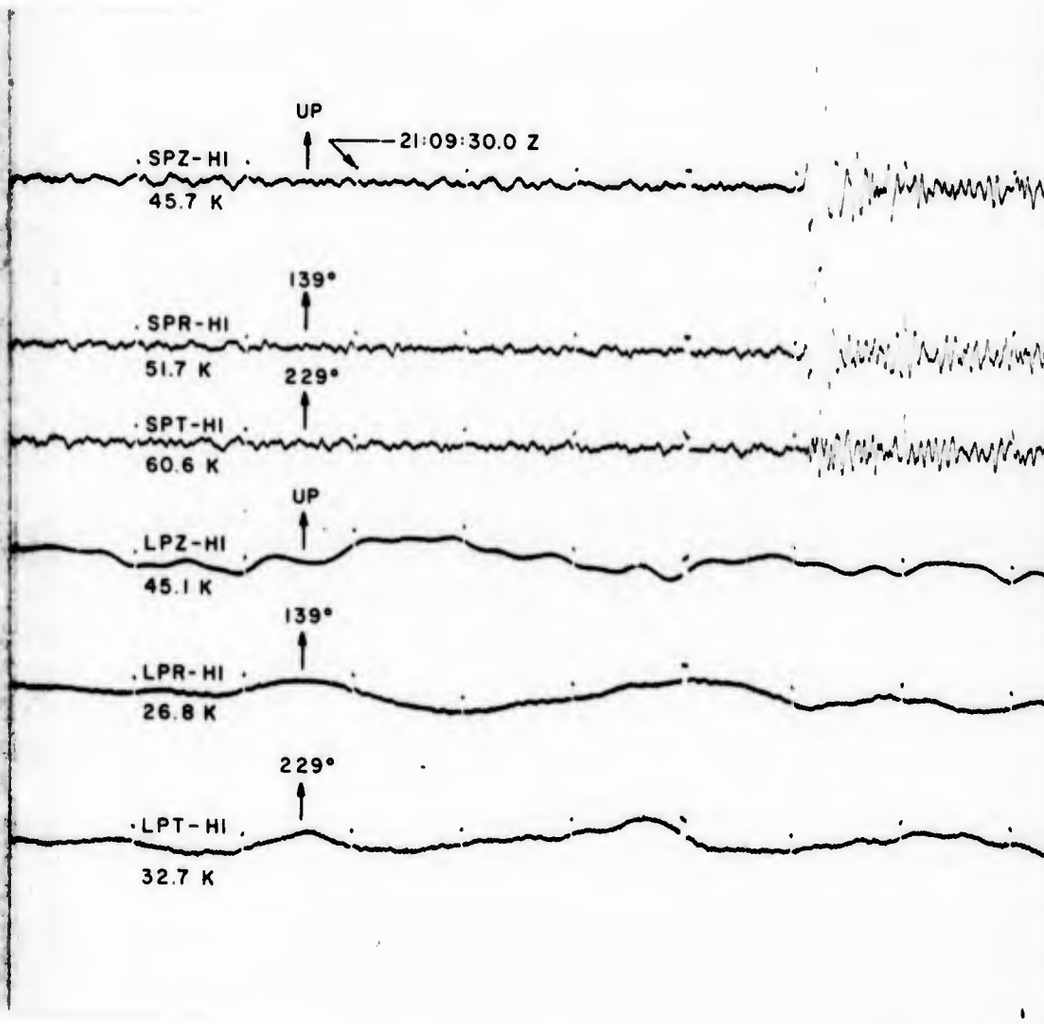
LONG SHOT

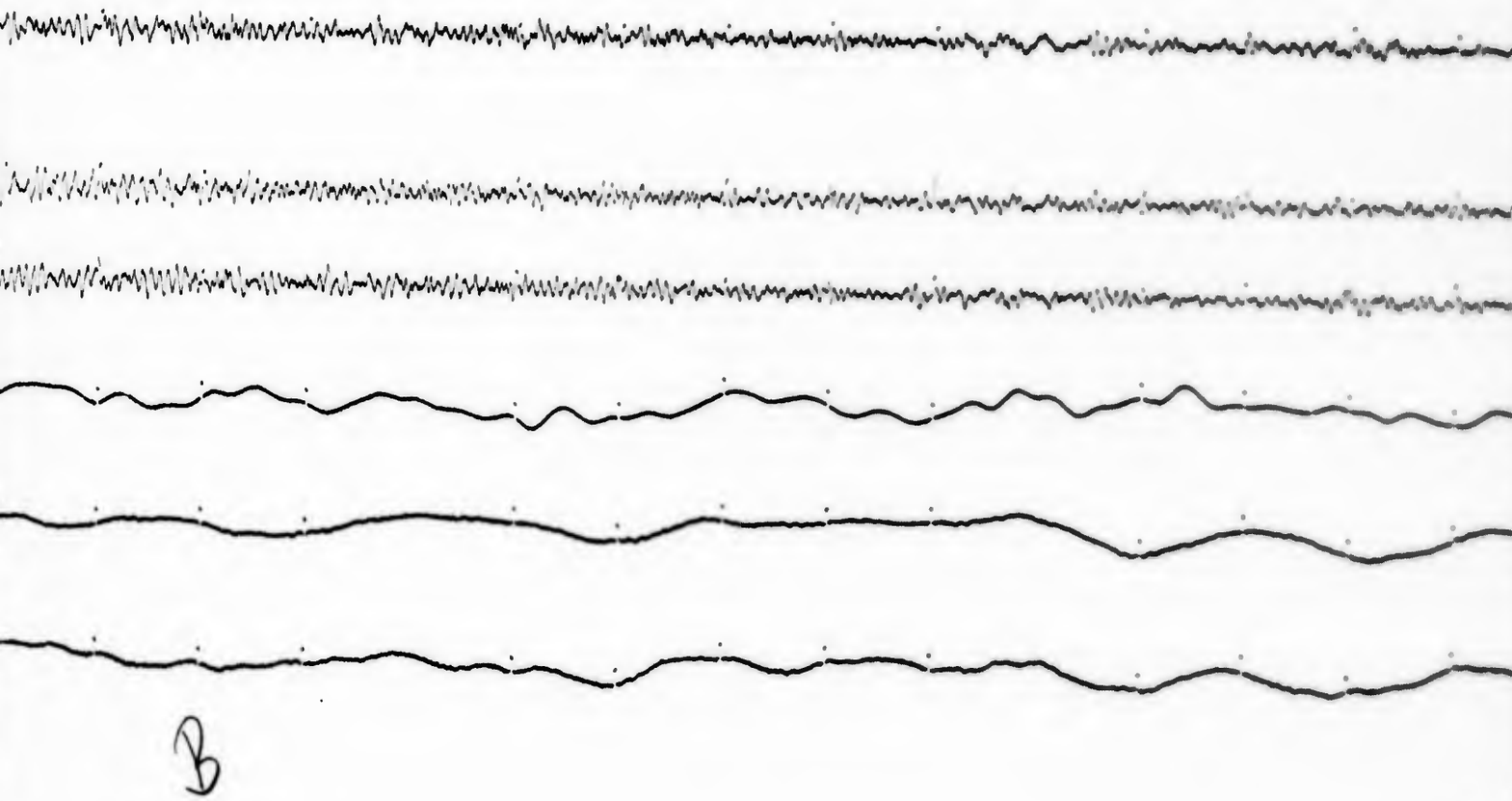
SV 3 QB

SCHEFFERVILLE, QUEBEC
CANADA

29 OCTOBER 1965

Δ = 6758 Km

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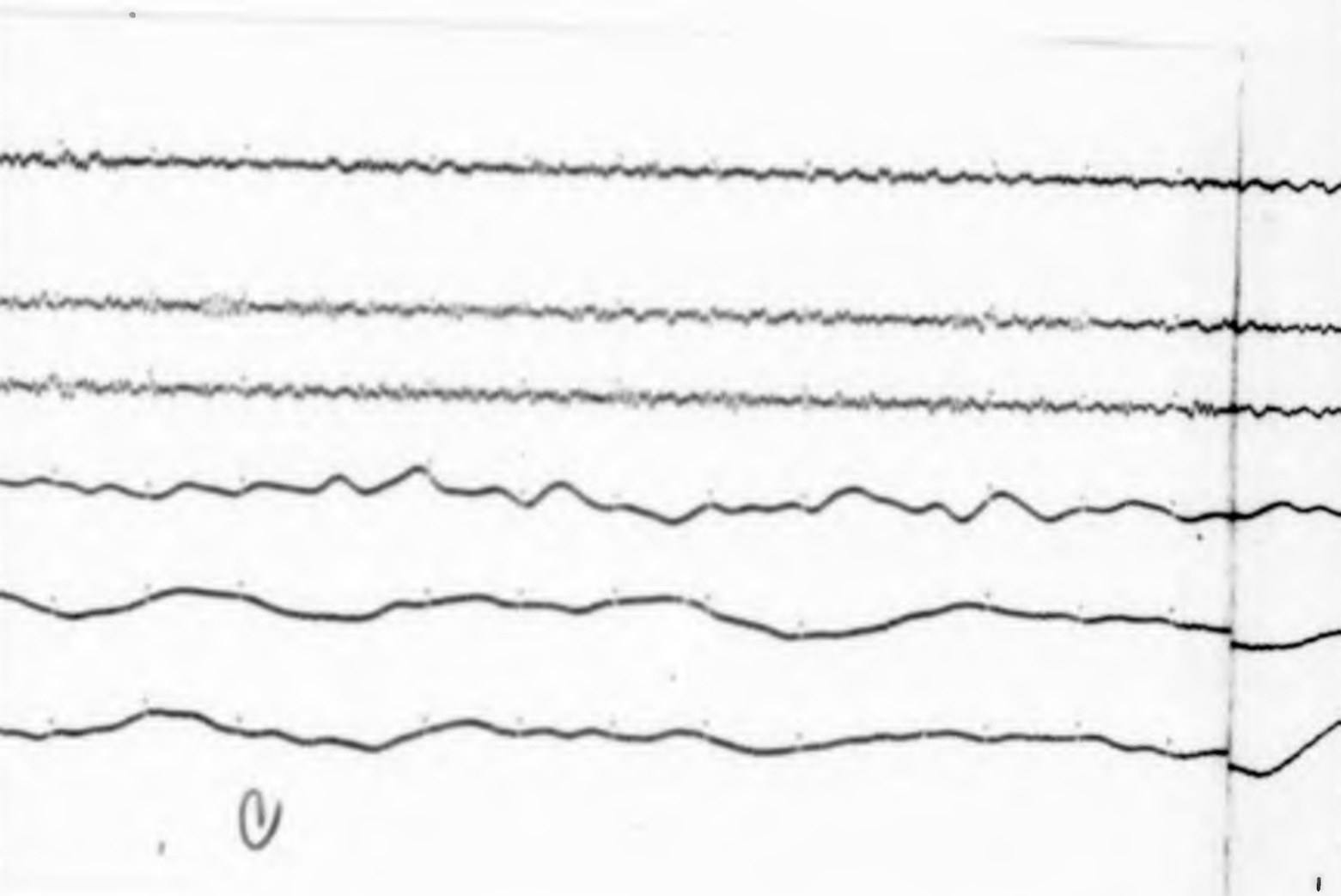
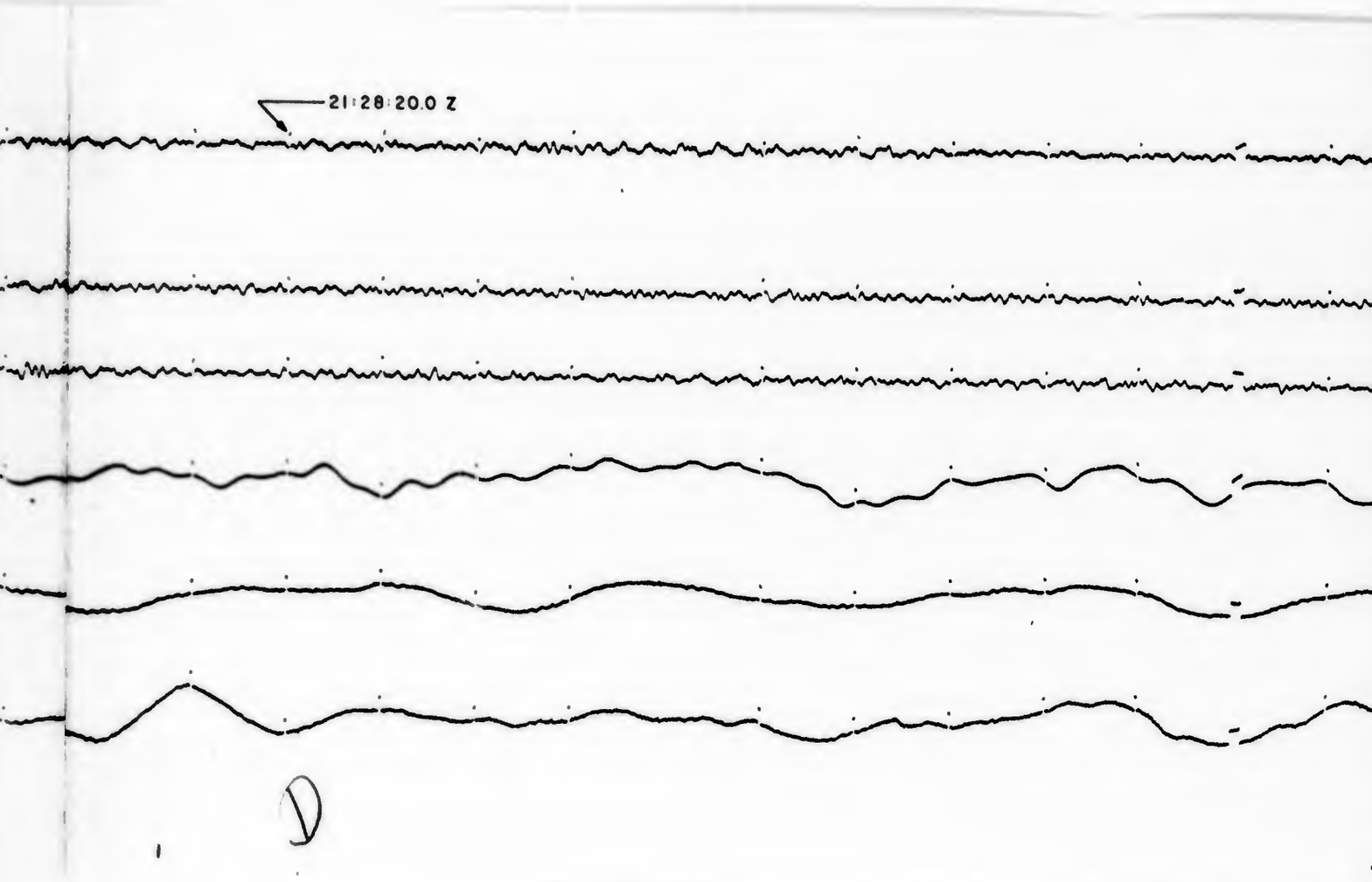
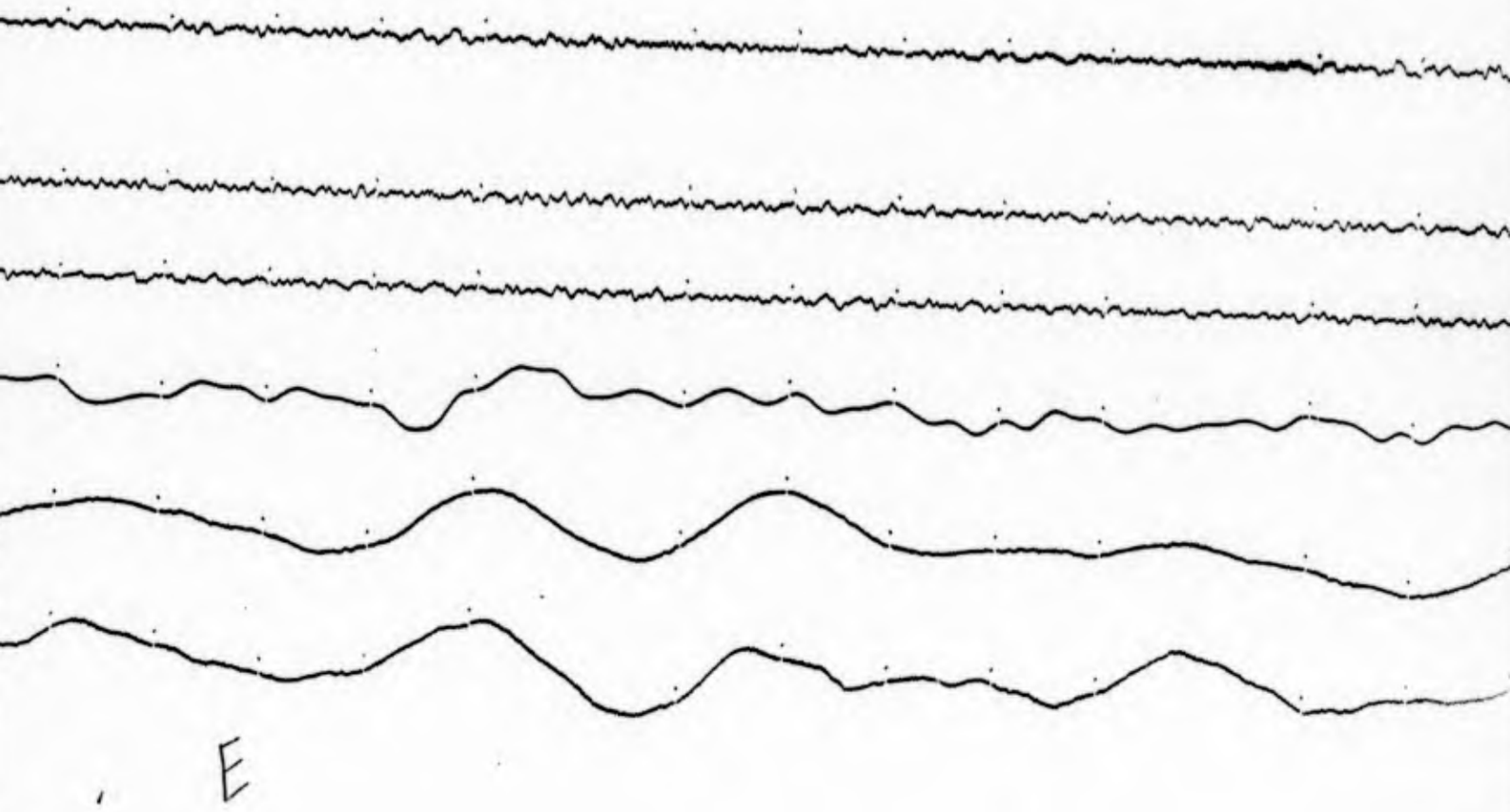



21:28:20.0 Z
D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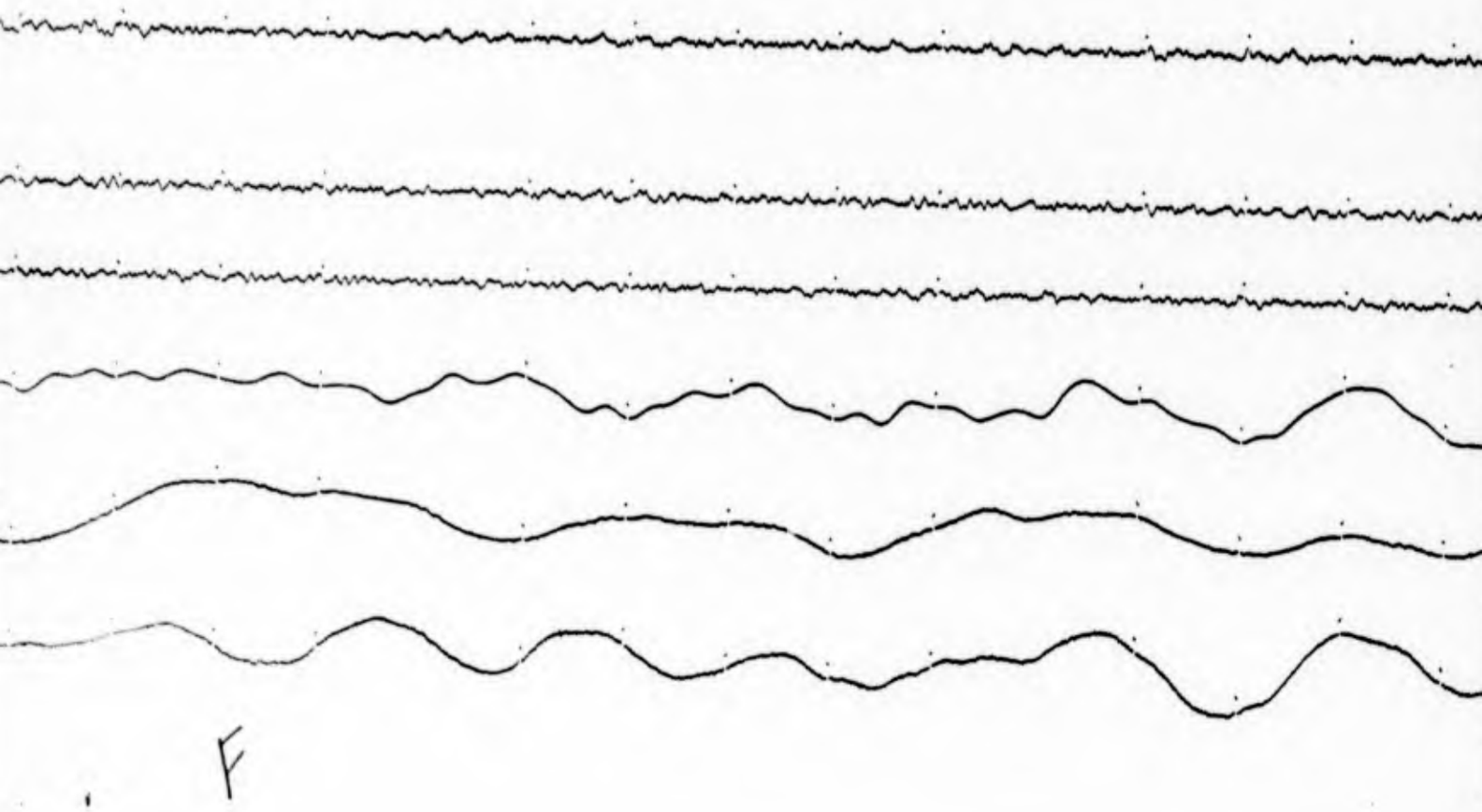
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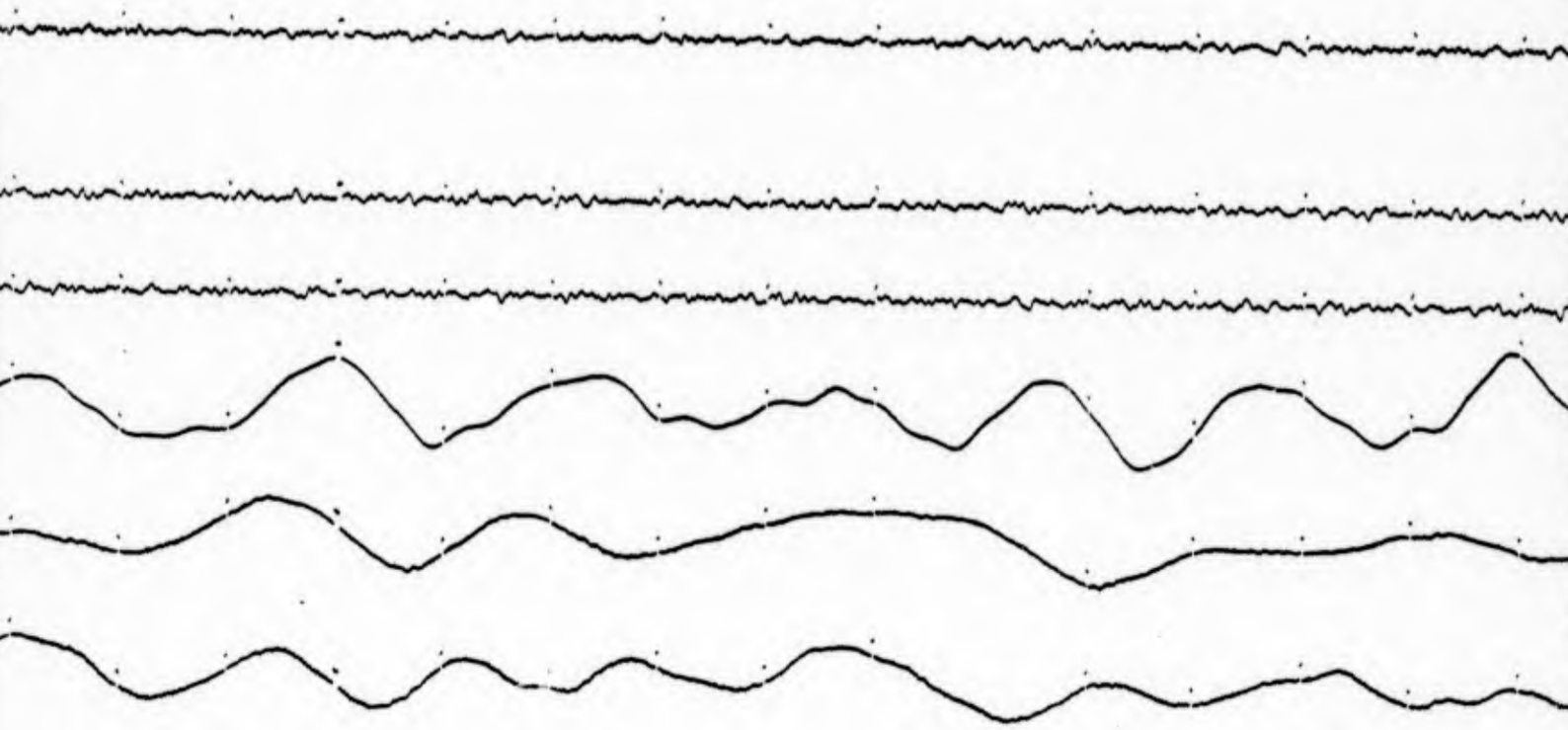

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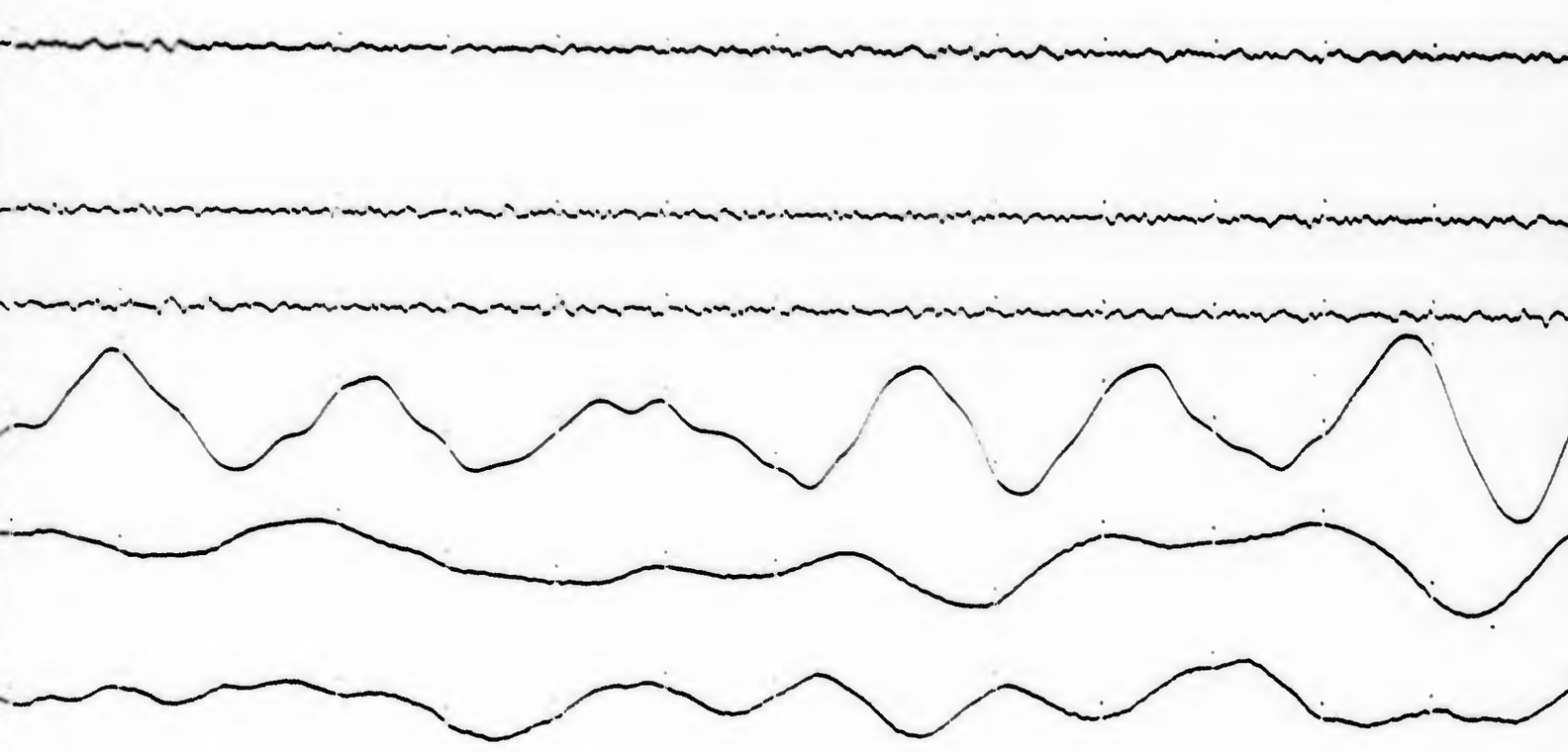

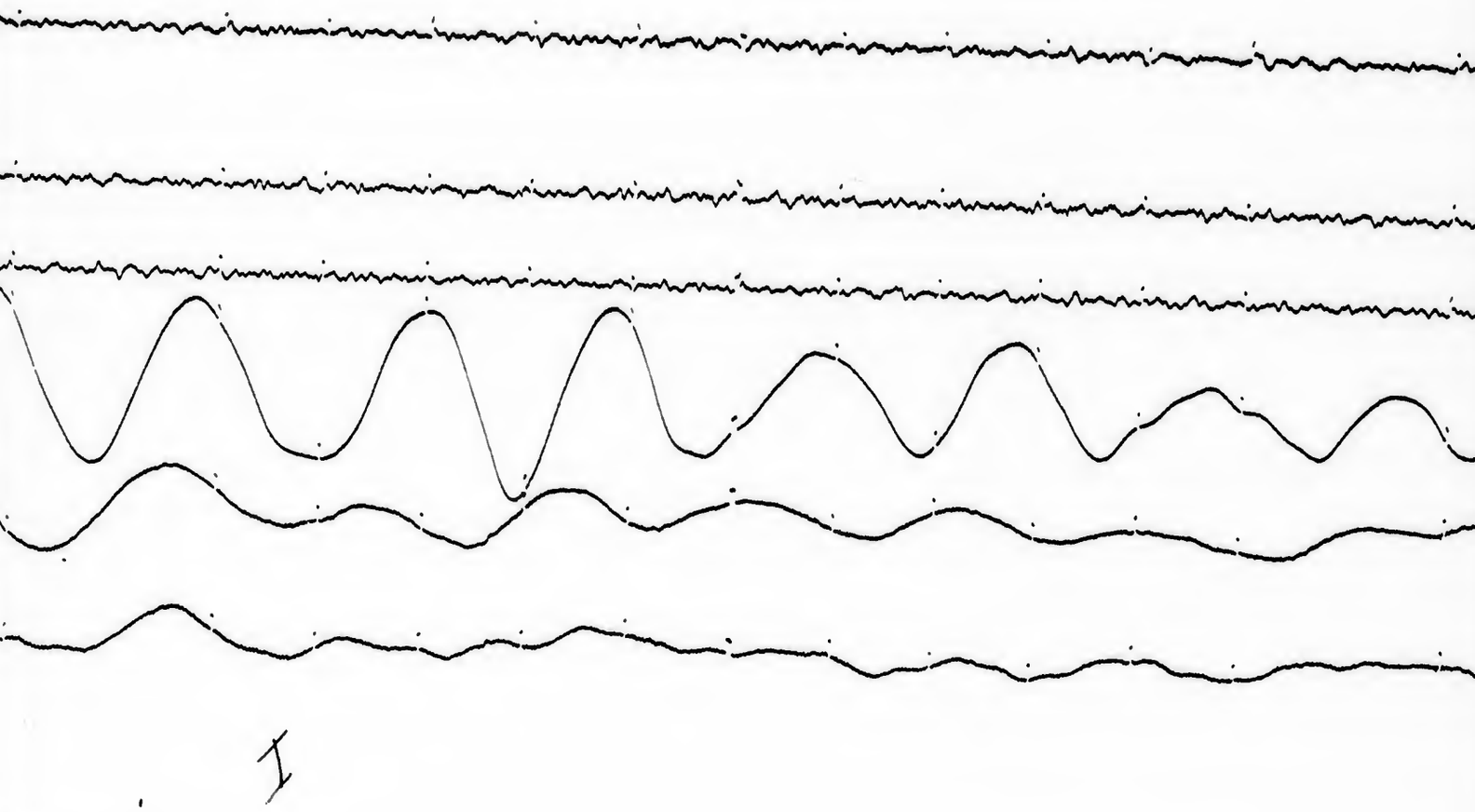
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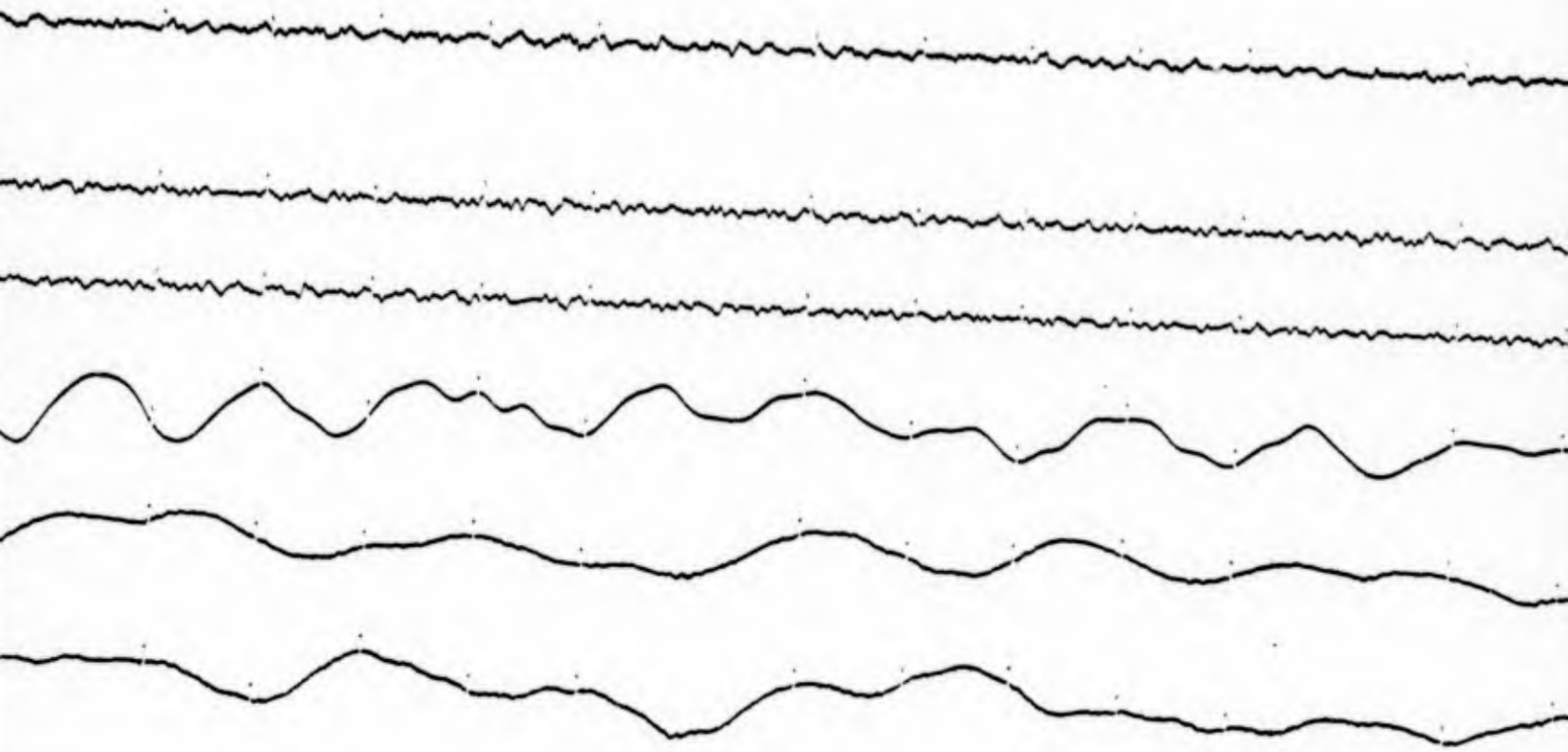

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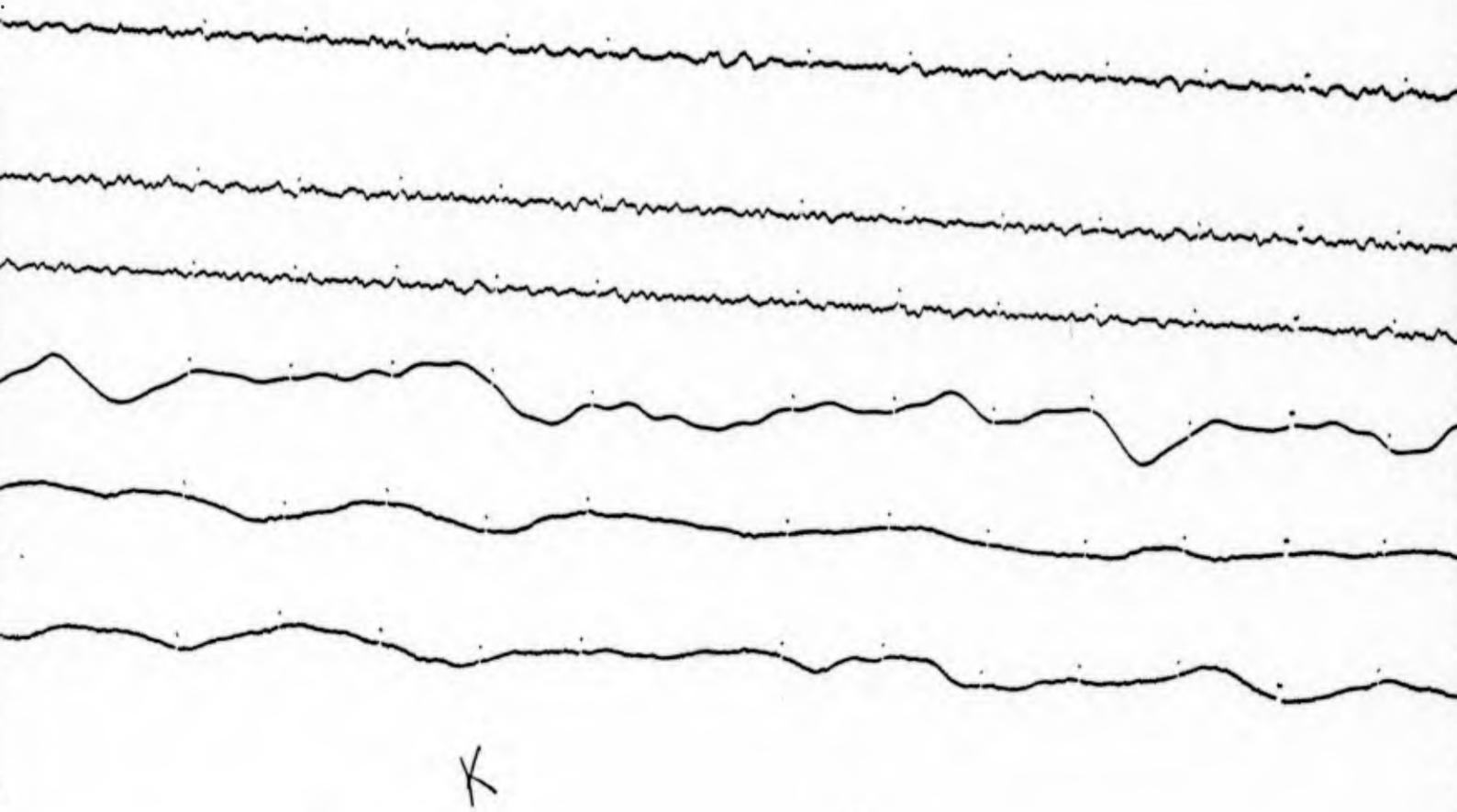
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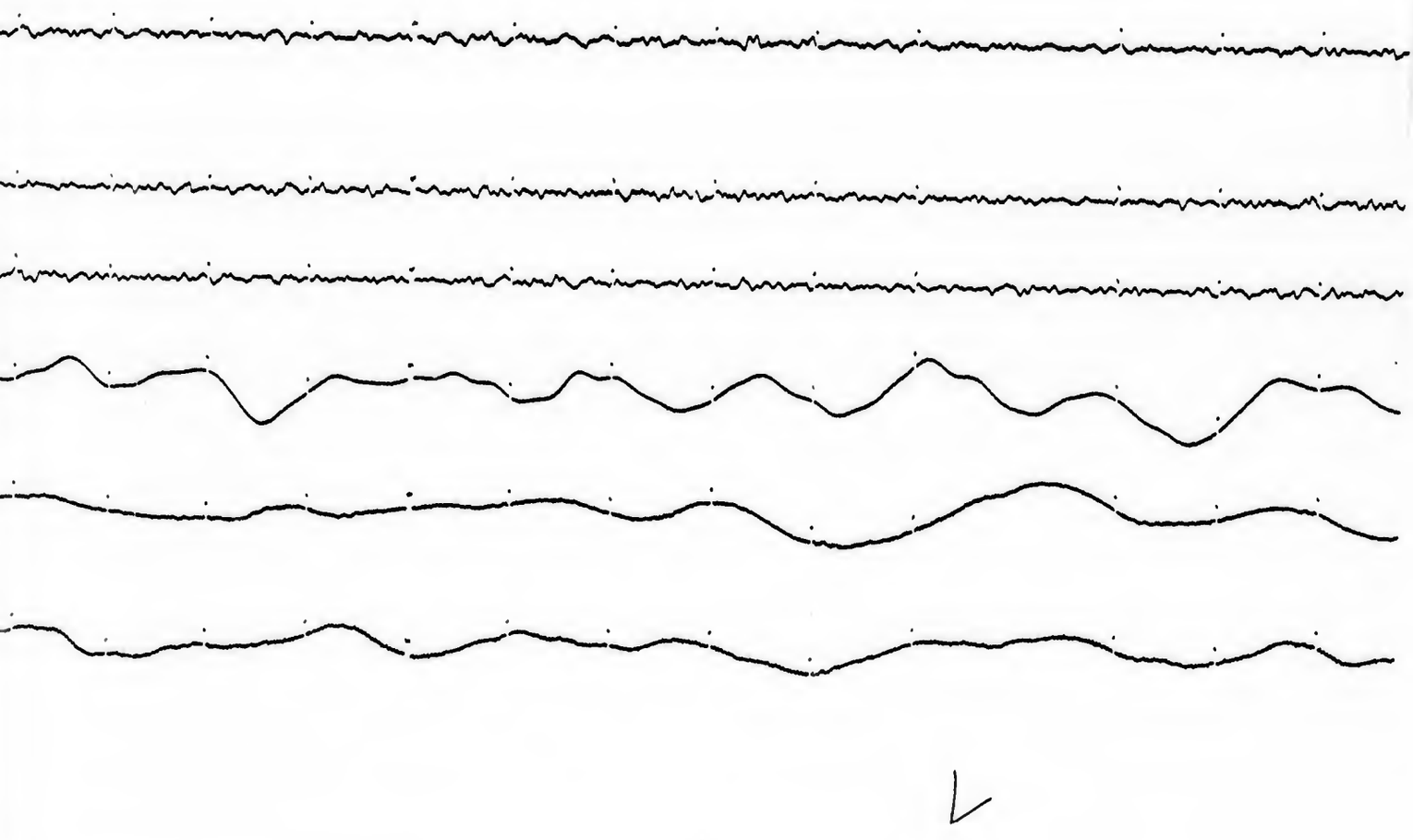
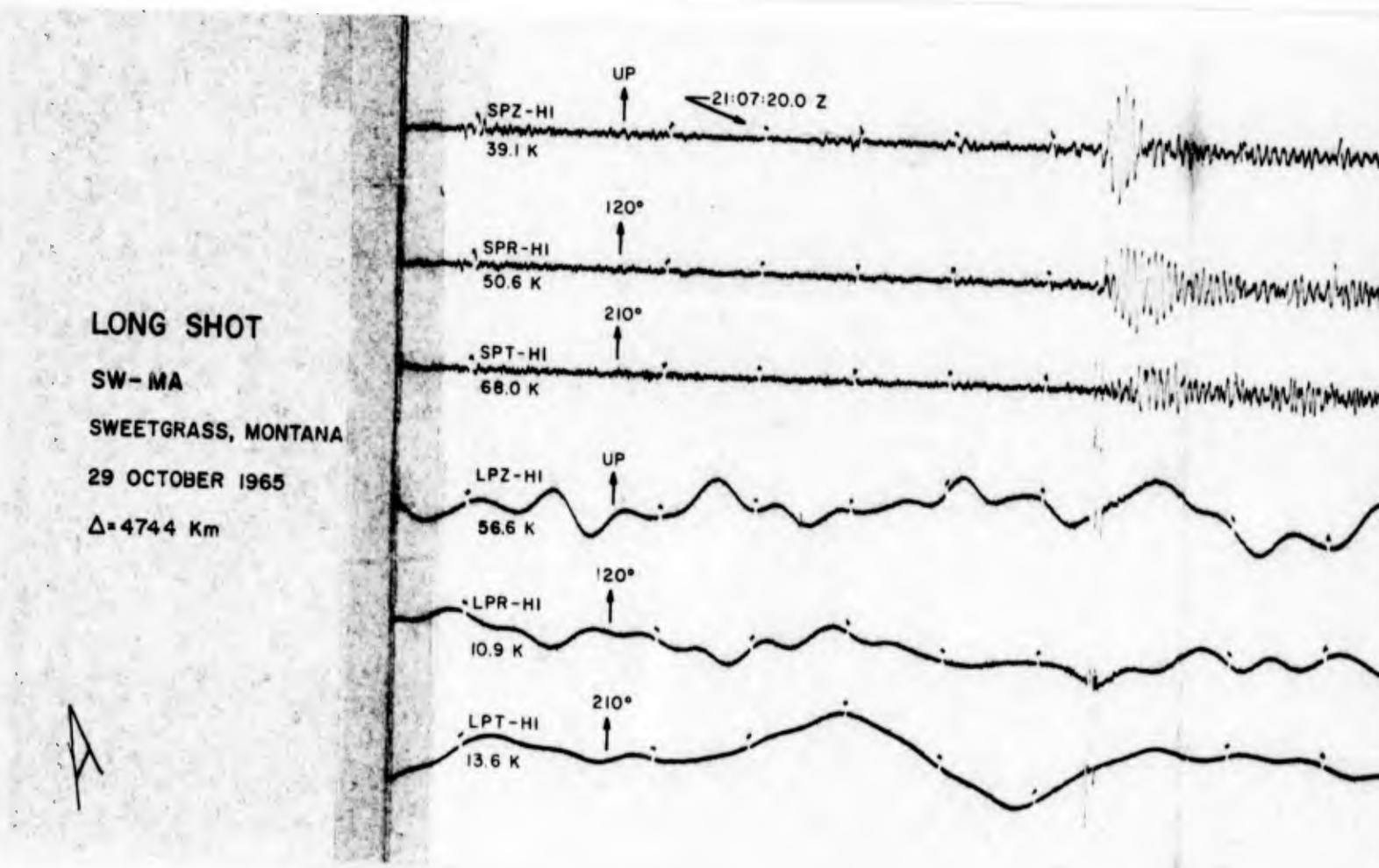
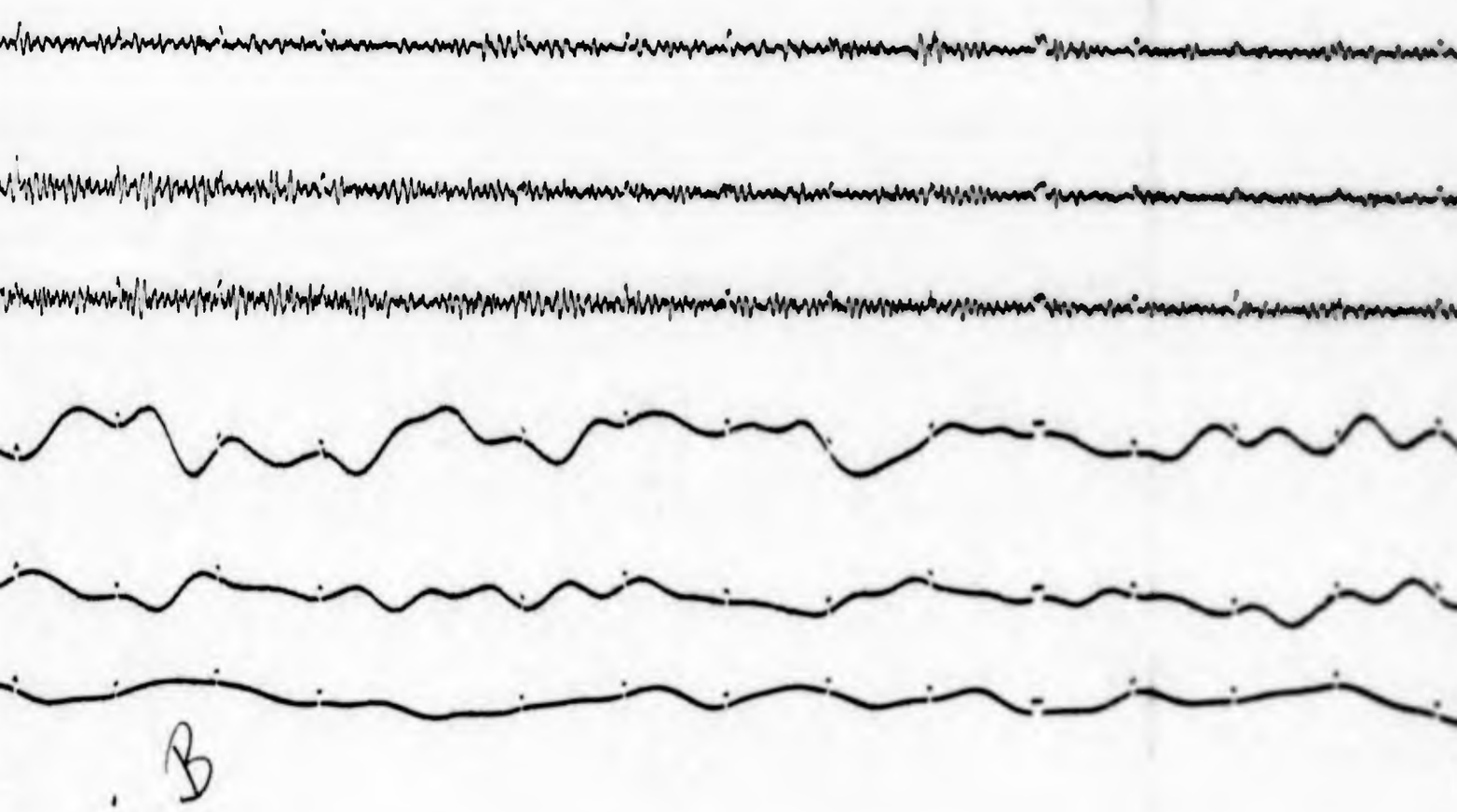
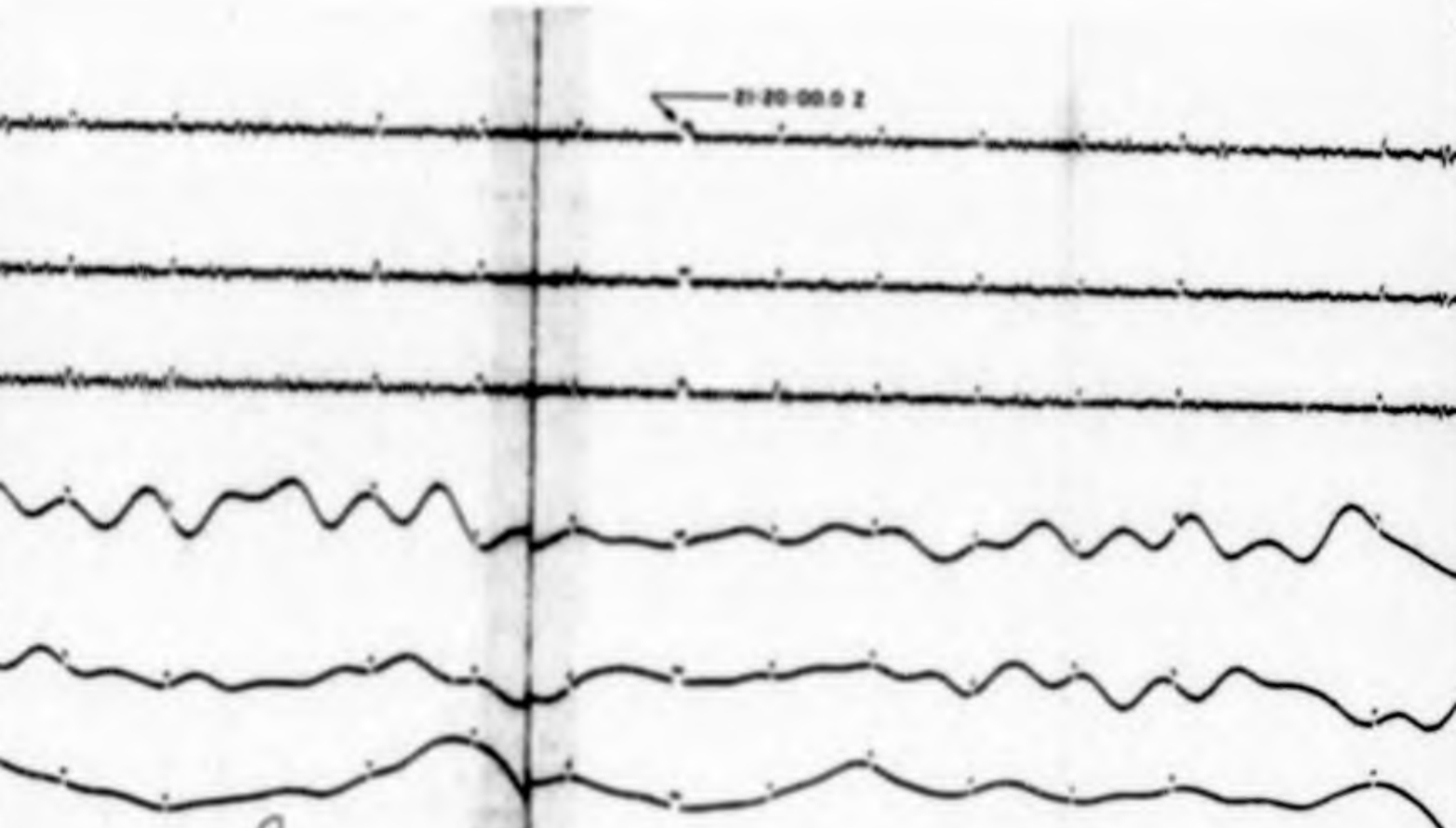



LONG SHOT
SW-MA
SWEETGRASS, MONTANA
29 OCTOBER 1965
Δ=4744 Km
UP
21:07:20.0 Z
SPZ-HI
39.1 K
120°
SPR-HI
50.6 K
210°
SPT-HI
68.0 K
UP
LPZ-HI
56.6 K
120°
LPR-HI
10.9 K
210°
LPT-HI
13.6 K



B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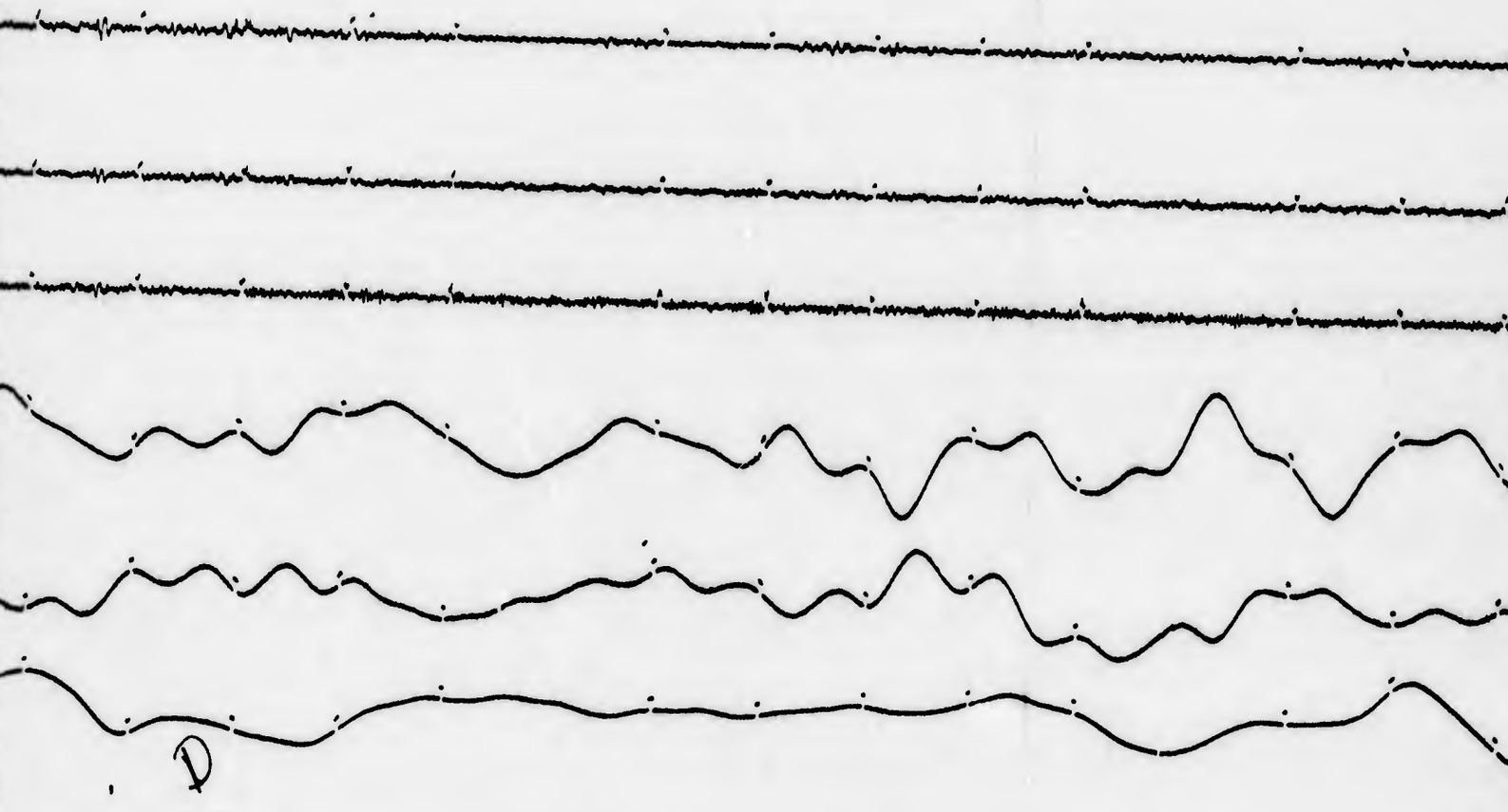
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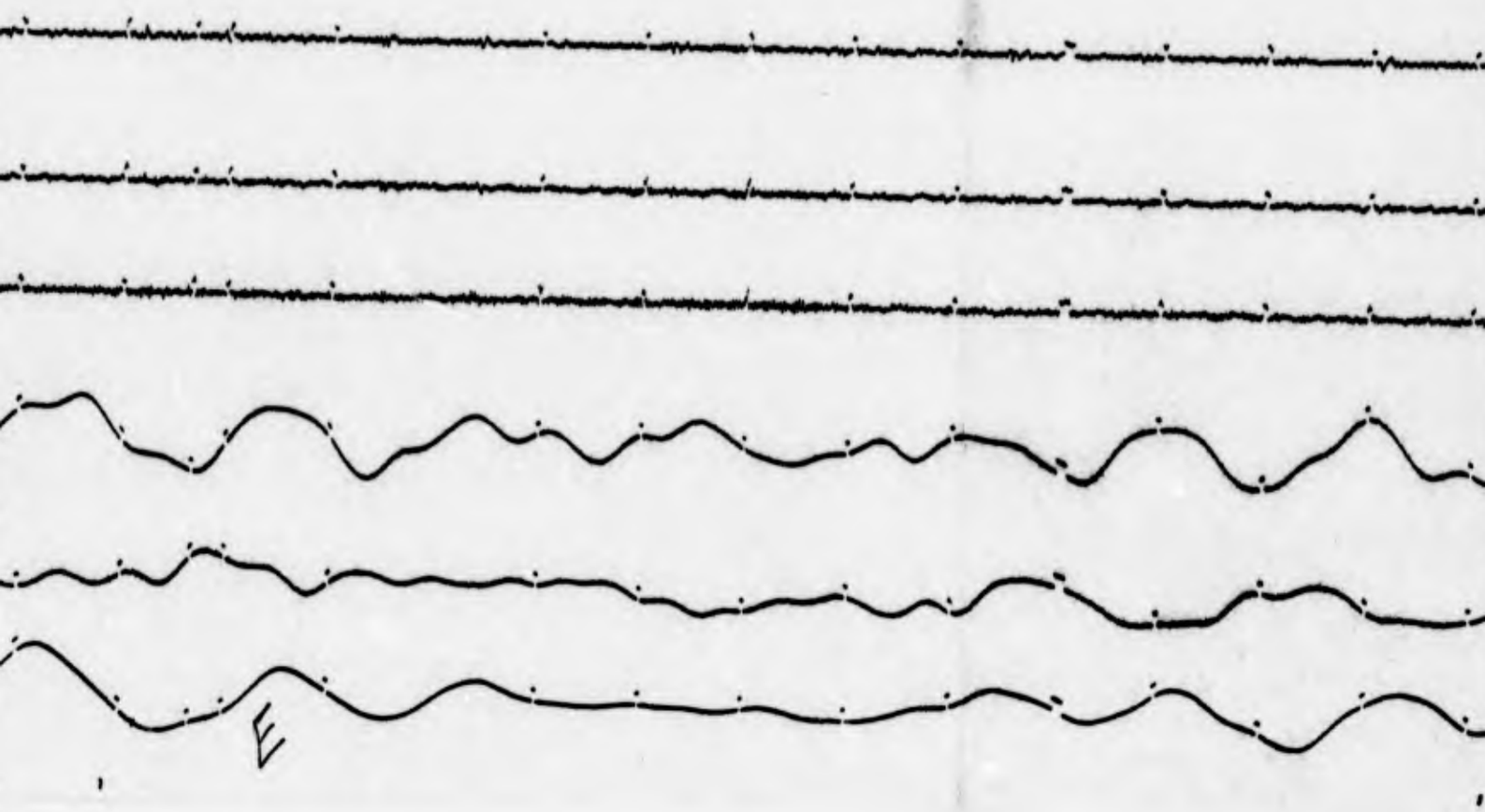
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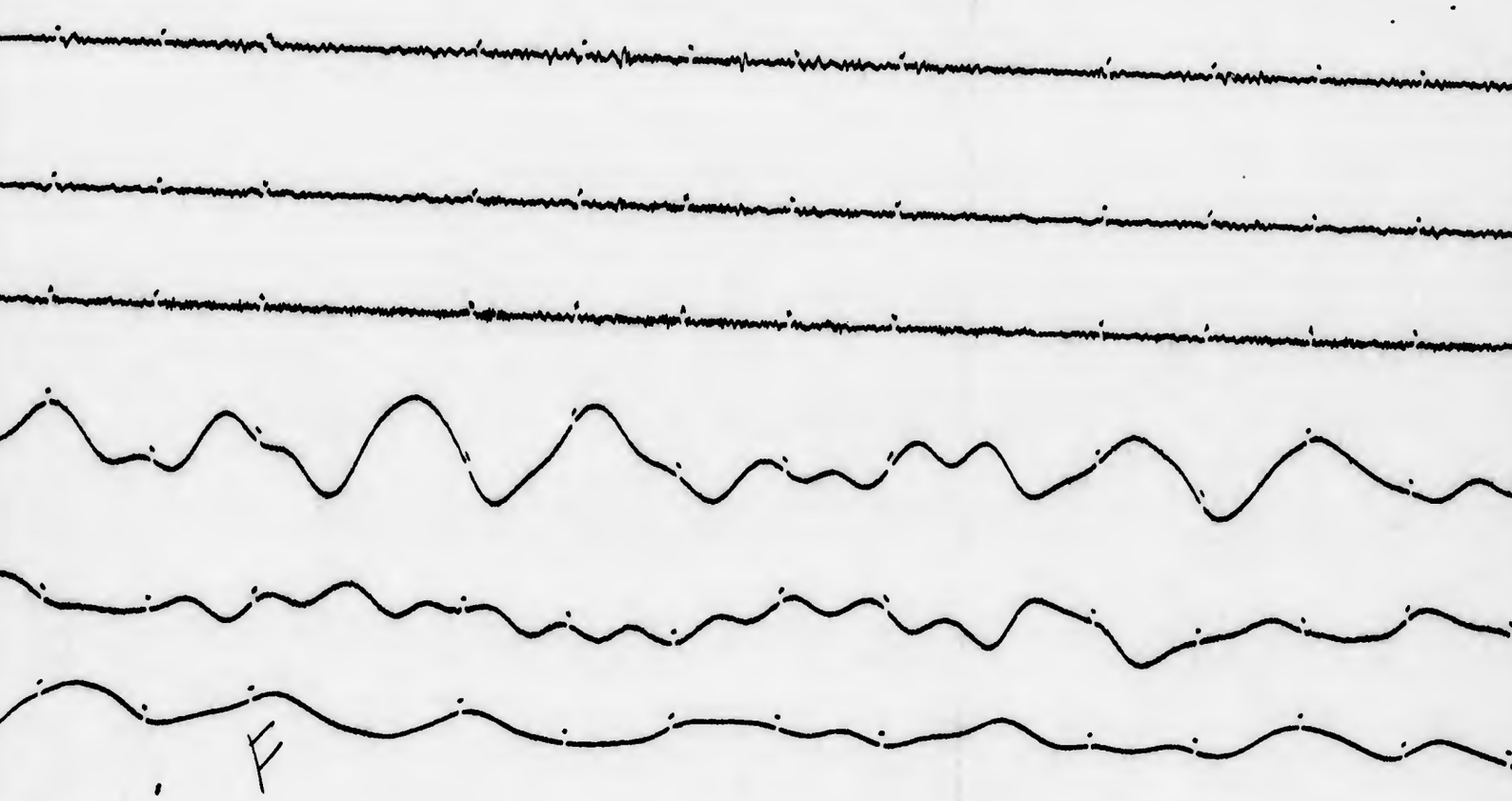
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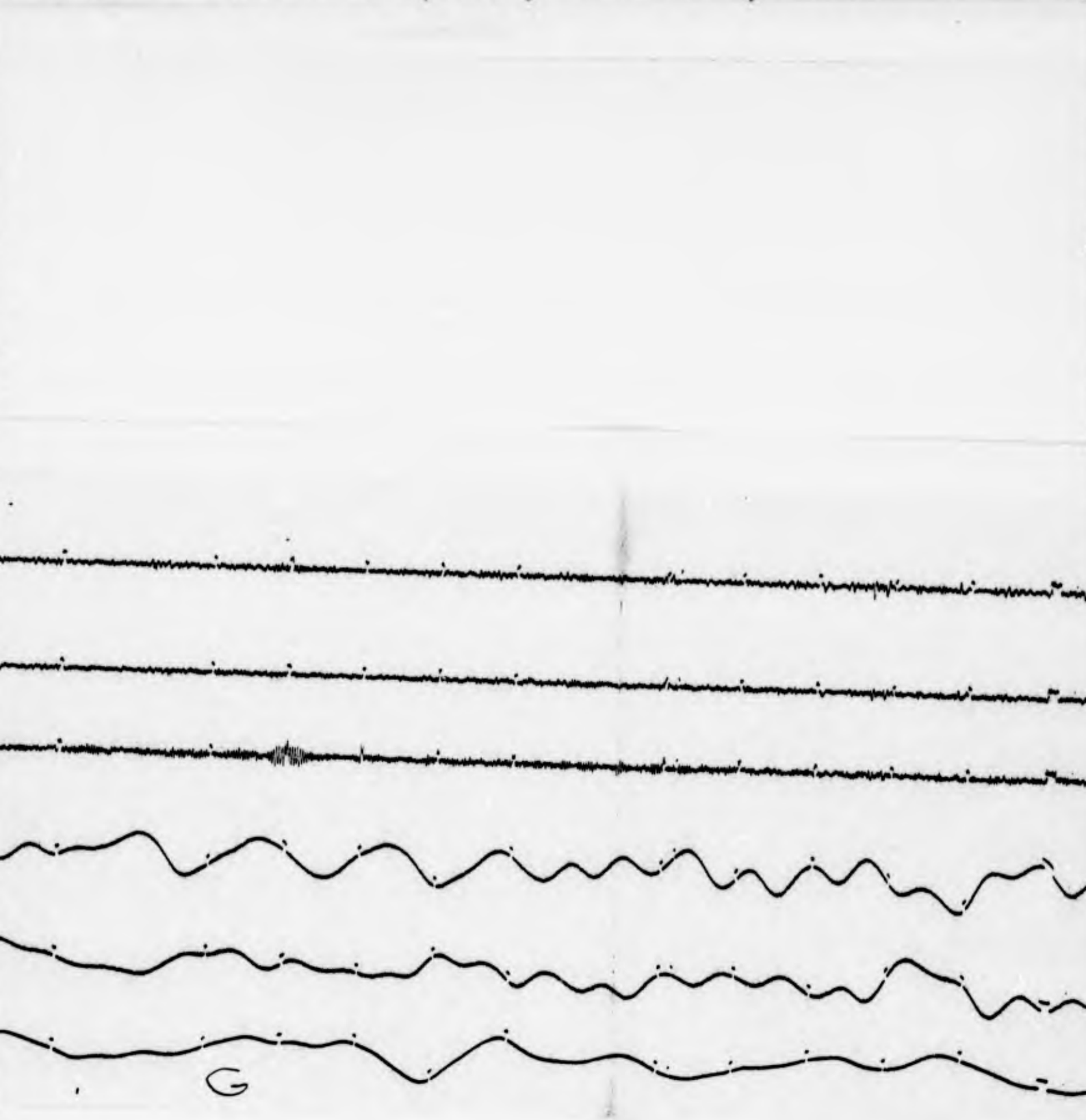

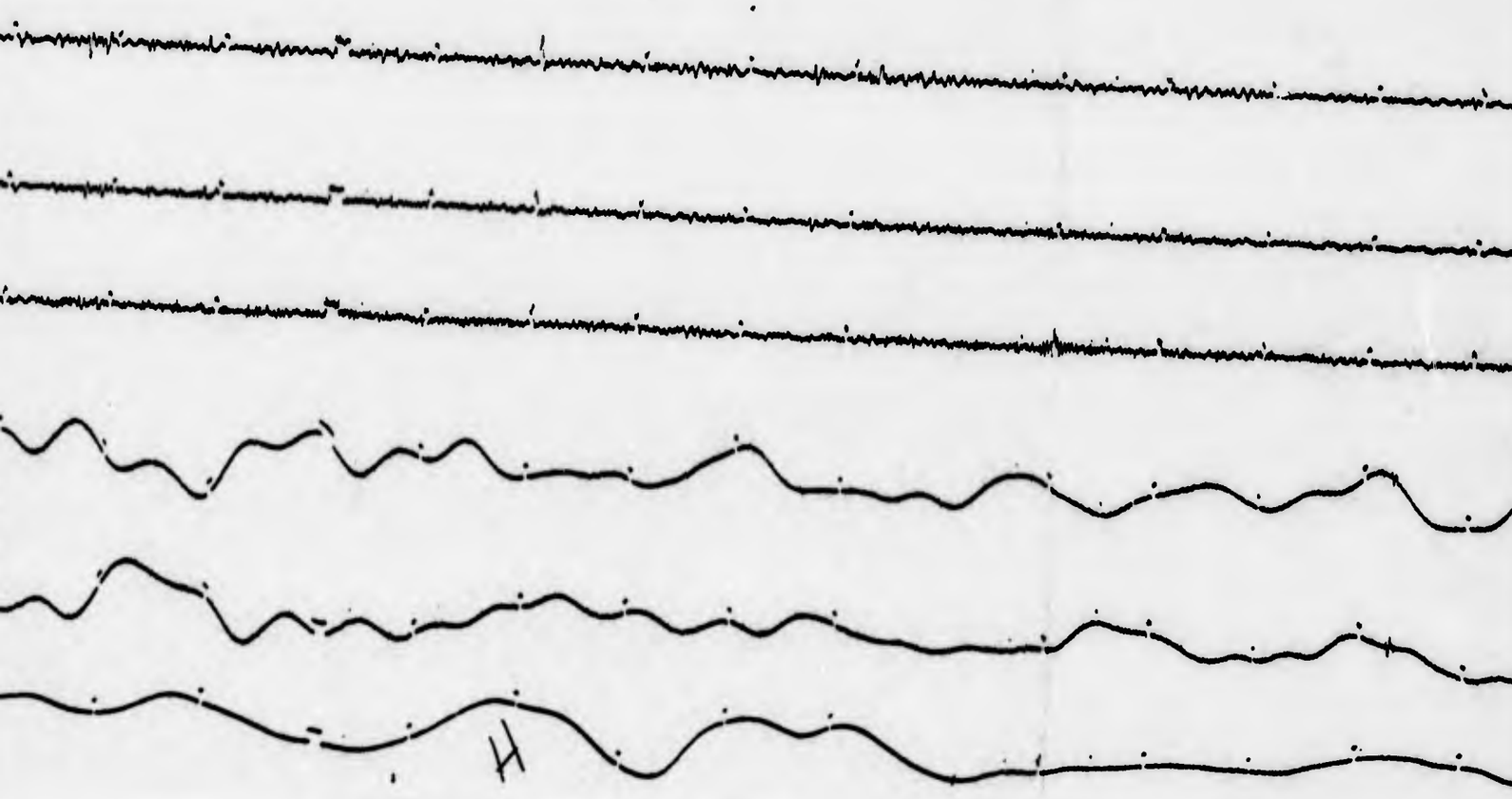
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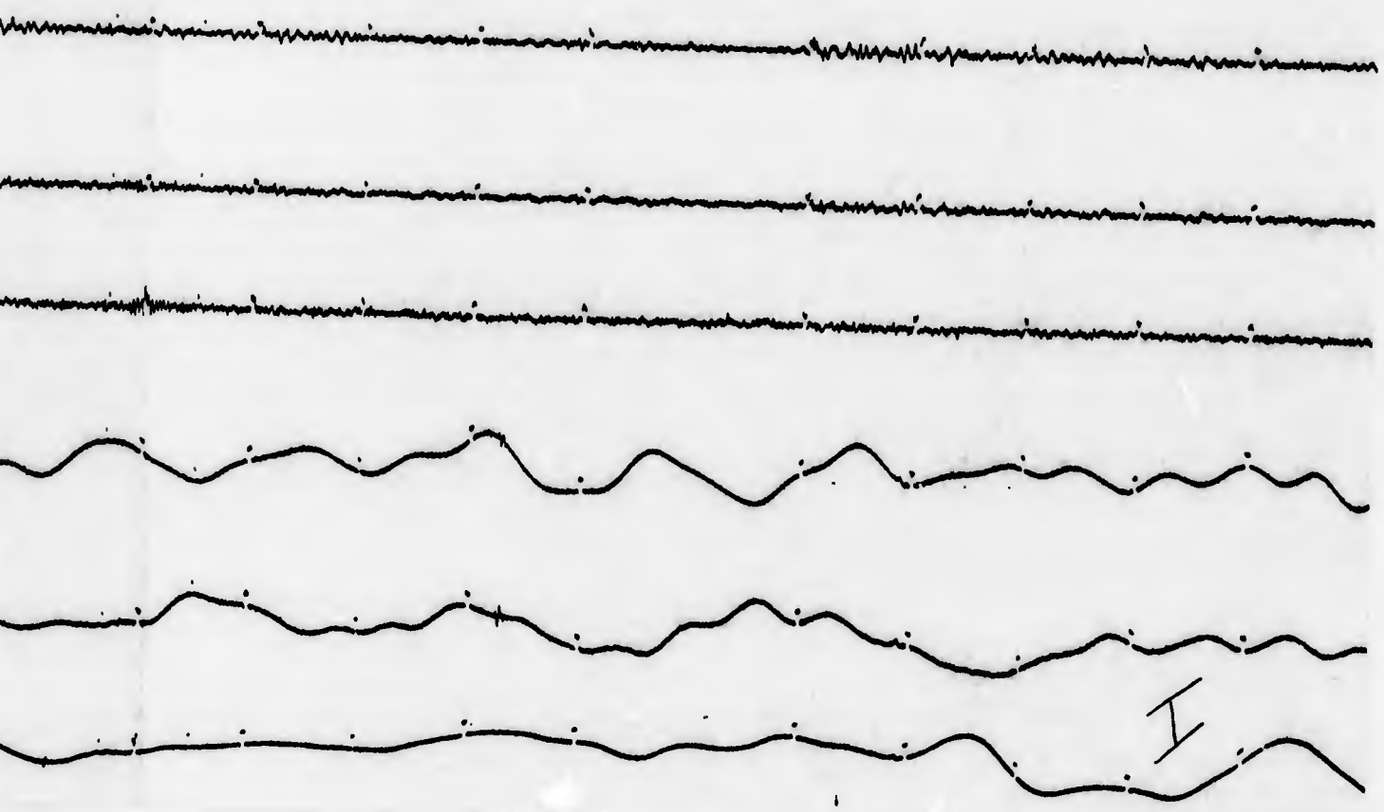

I

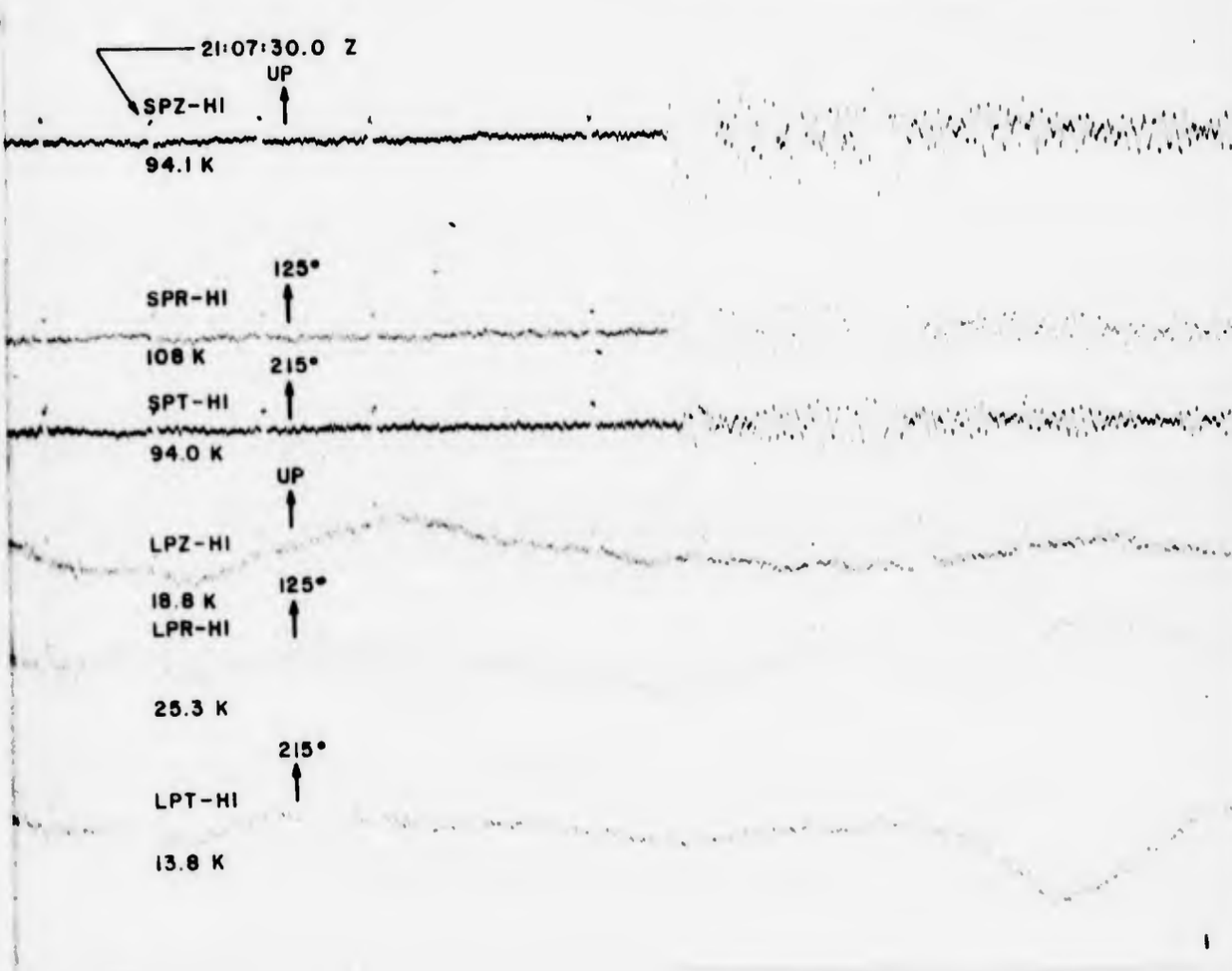
LONGSHOT

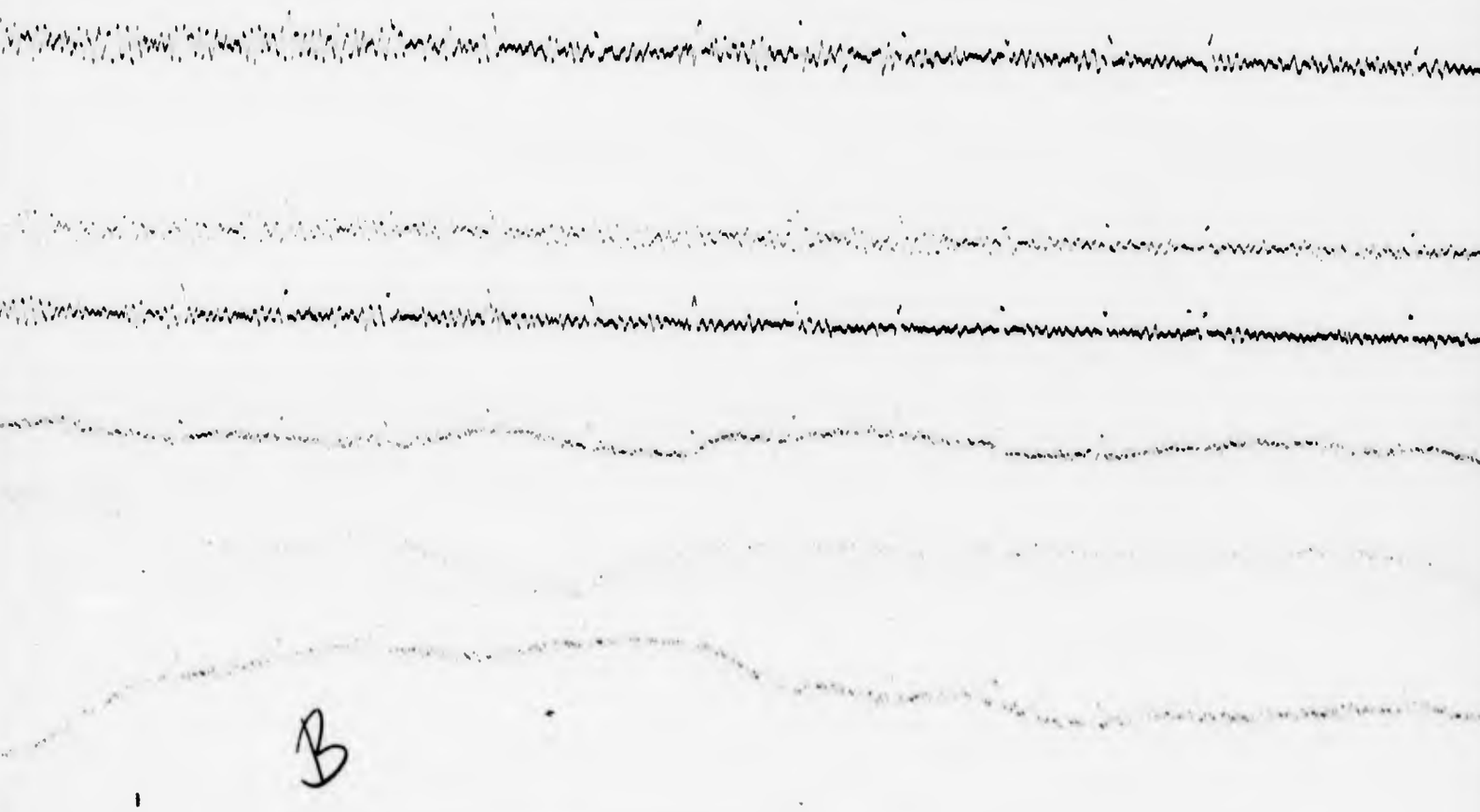
TE–GL

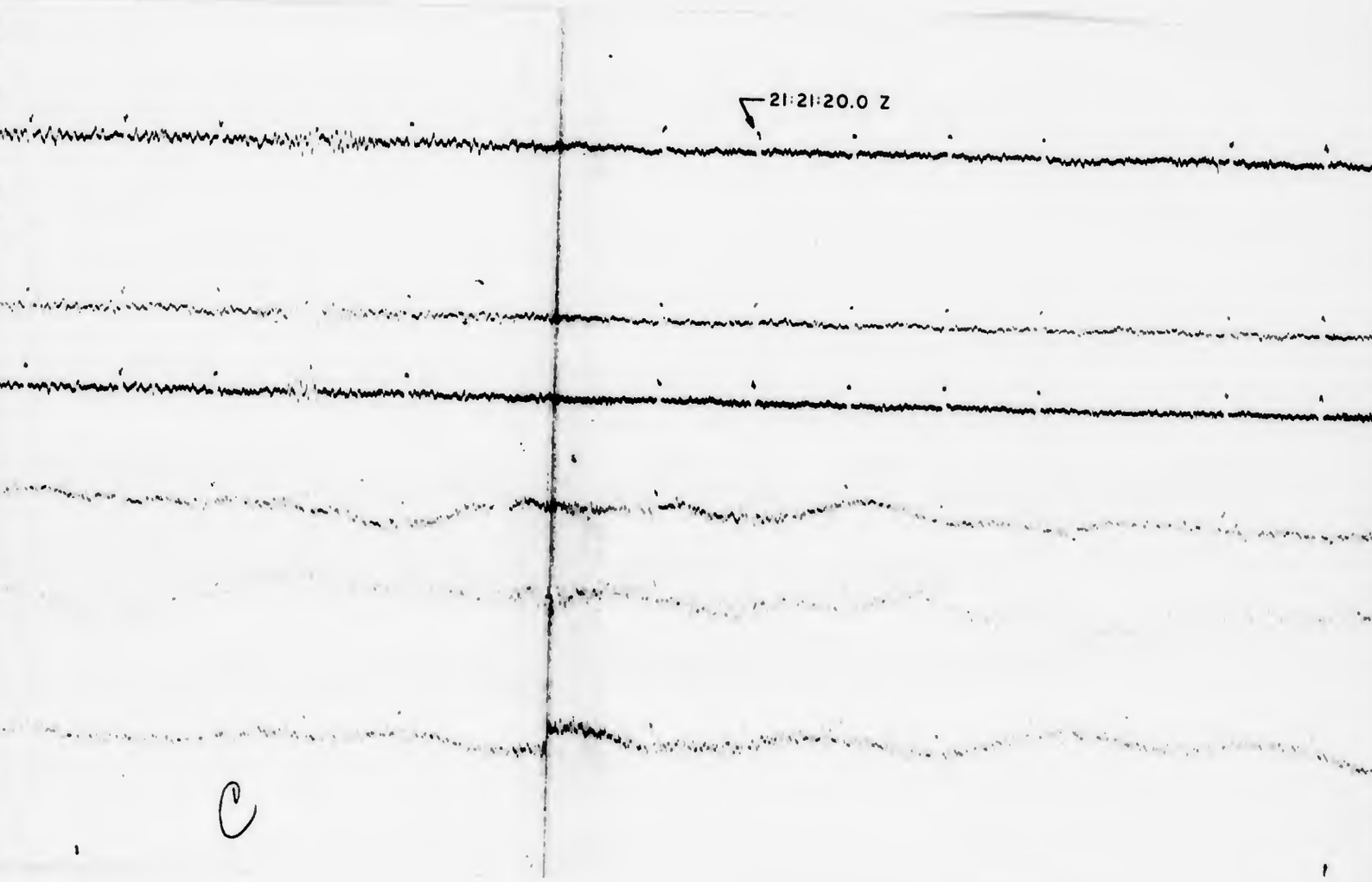
THULE, GREENLAND

29 OCTOBER 1965

Δ= 5042 Km







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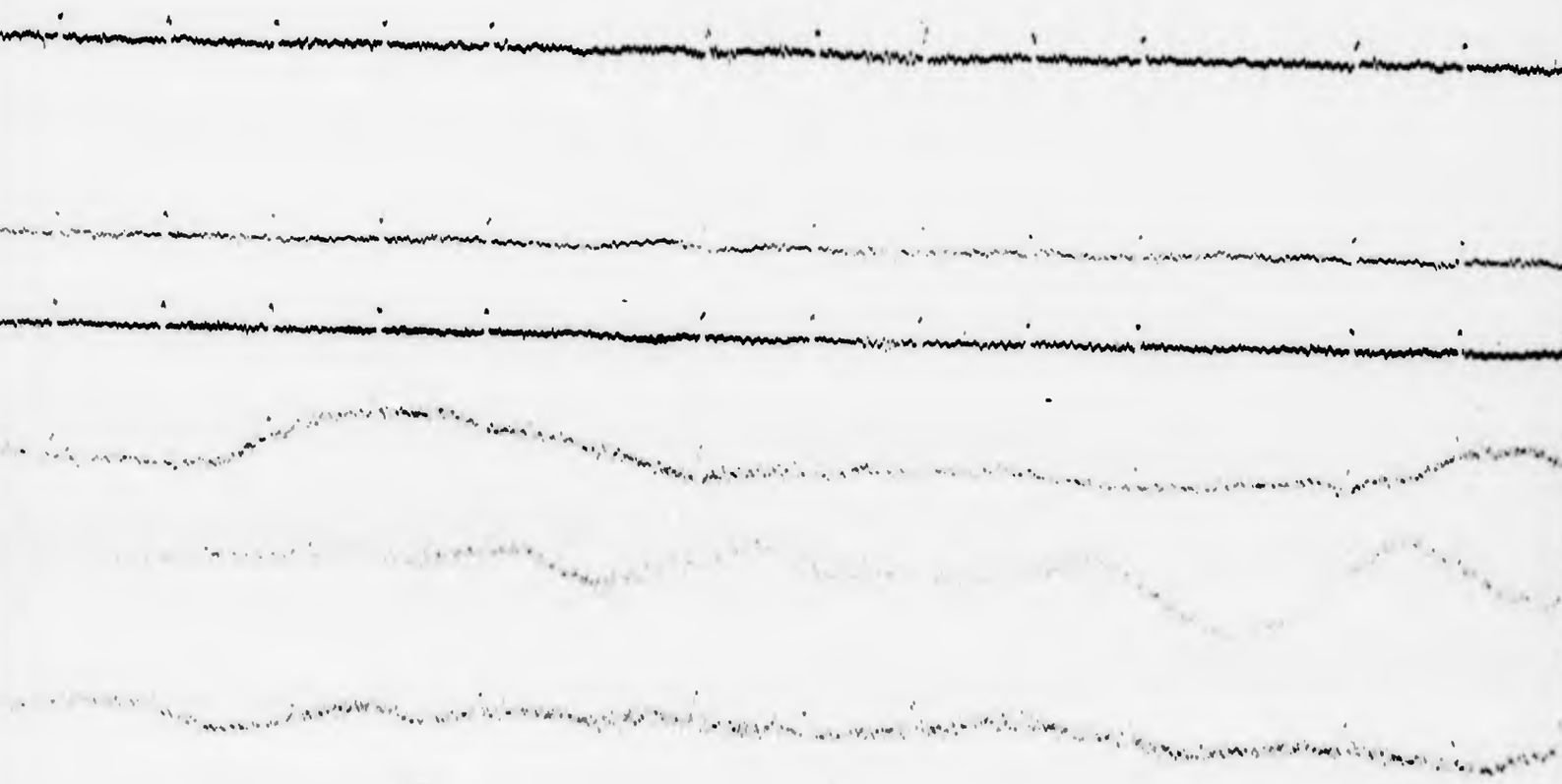

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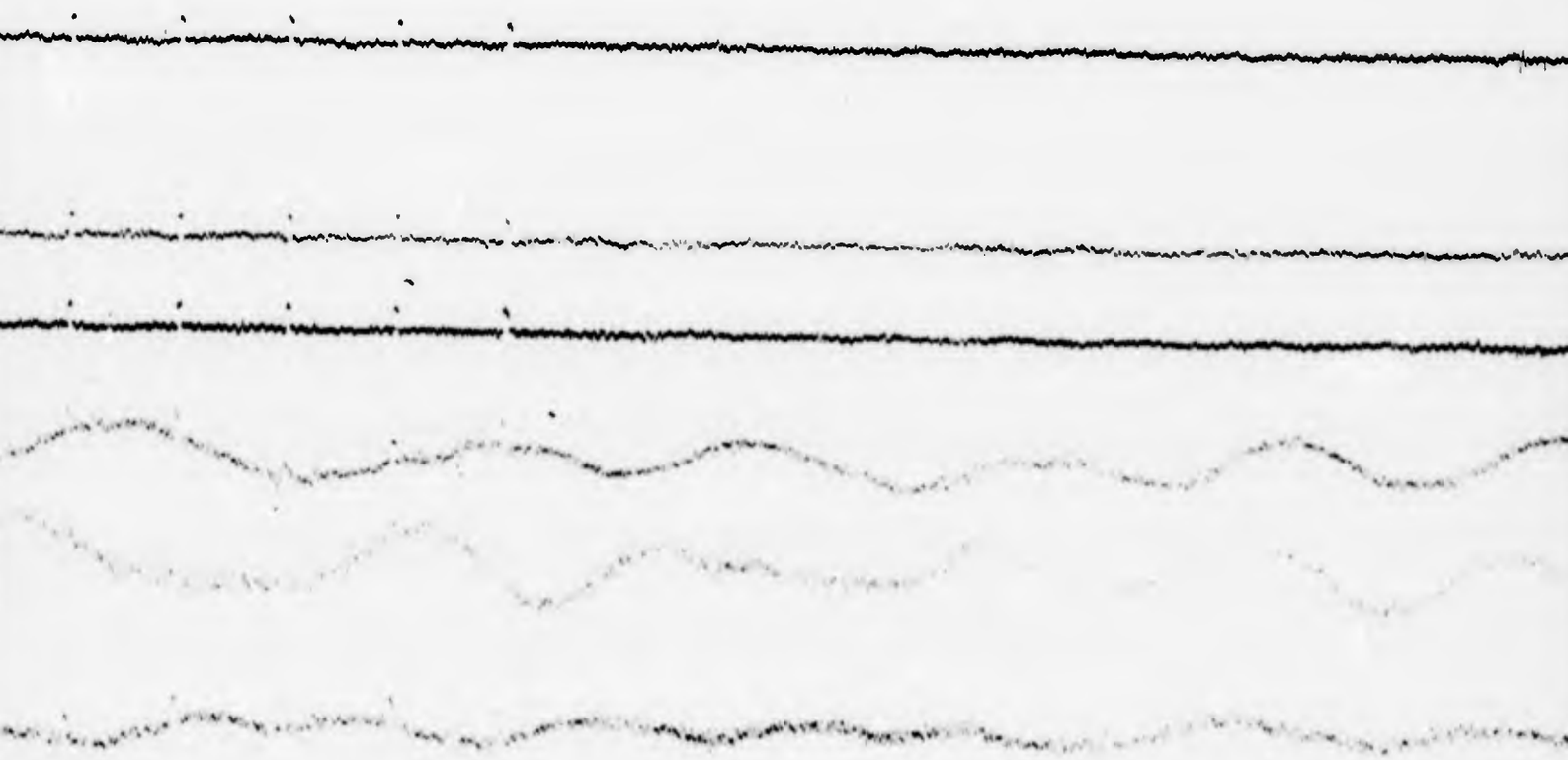
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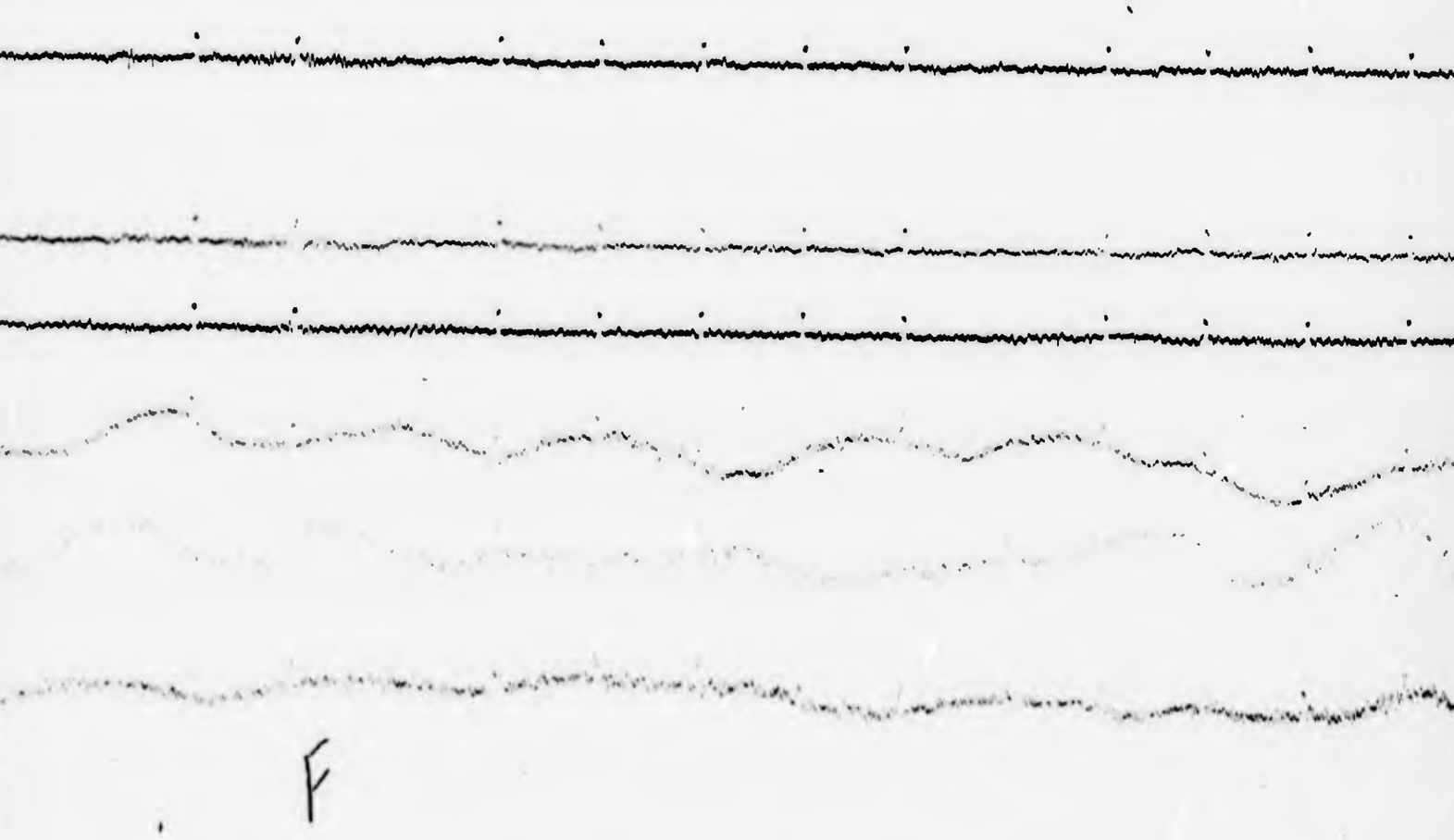

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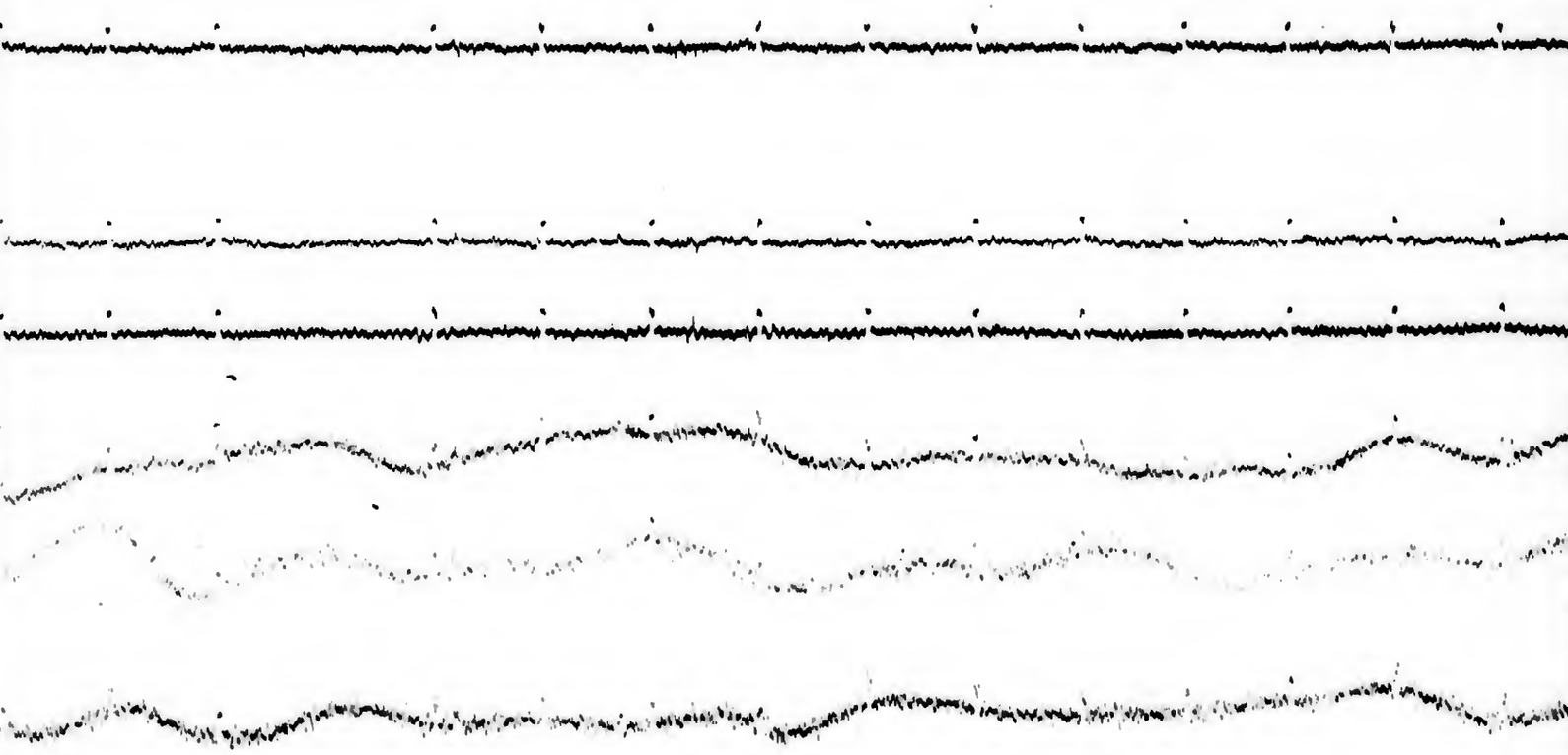

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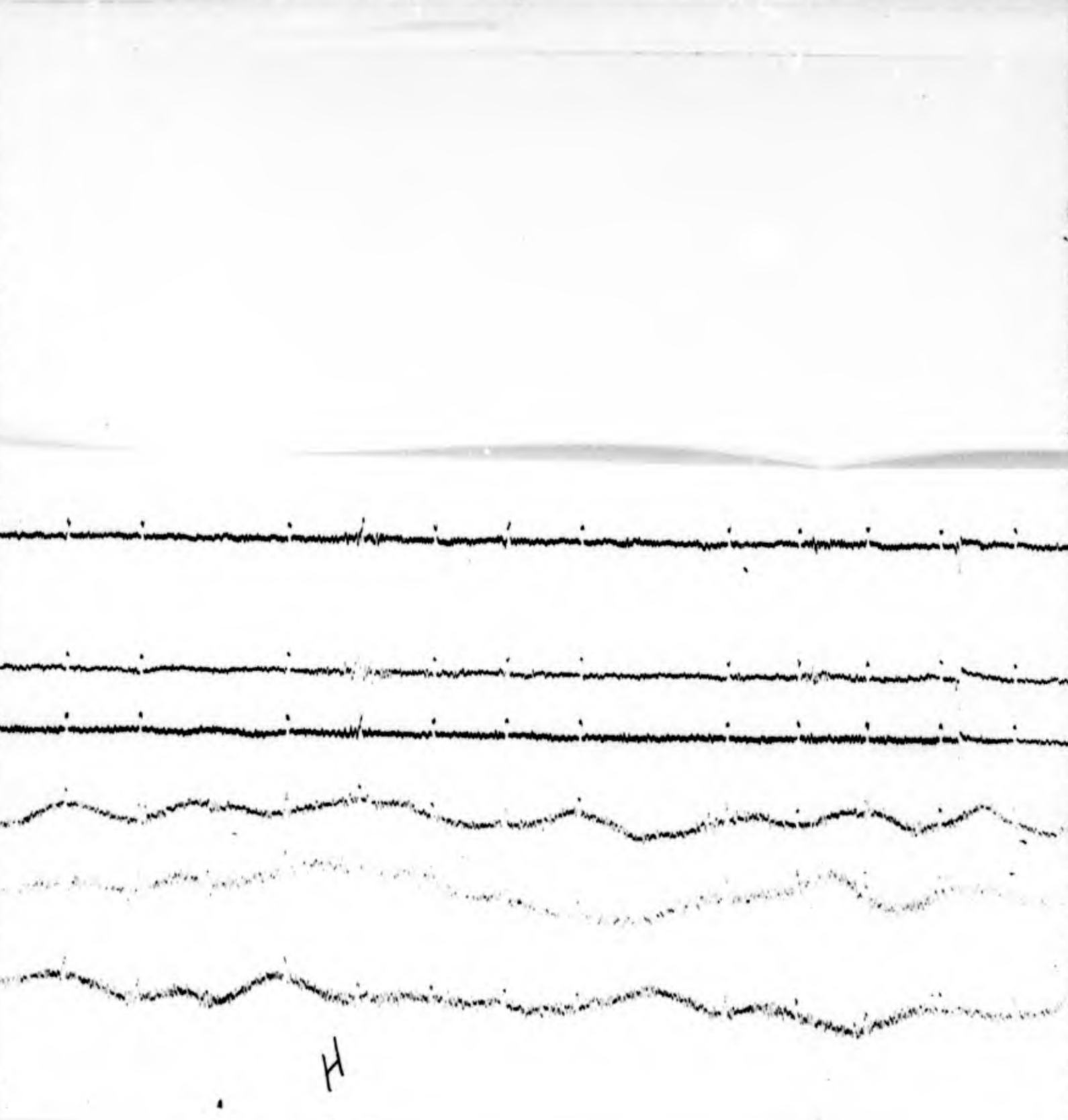

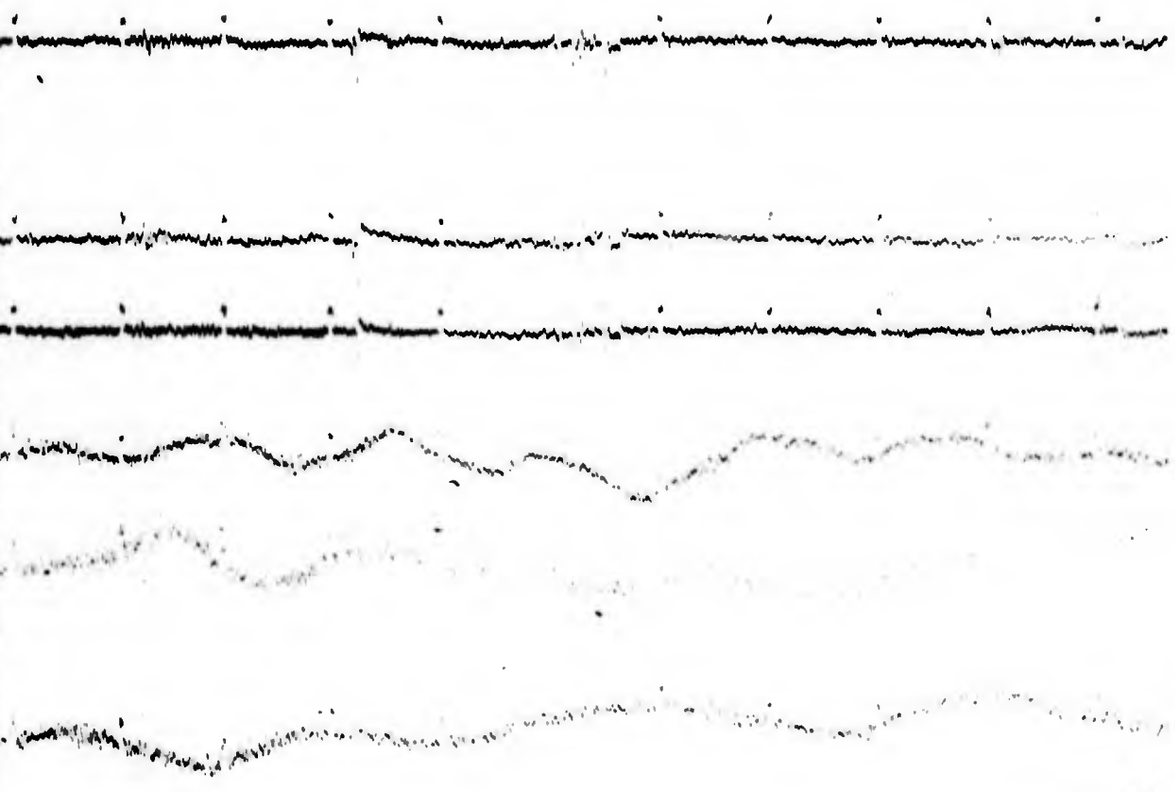

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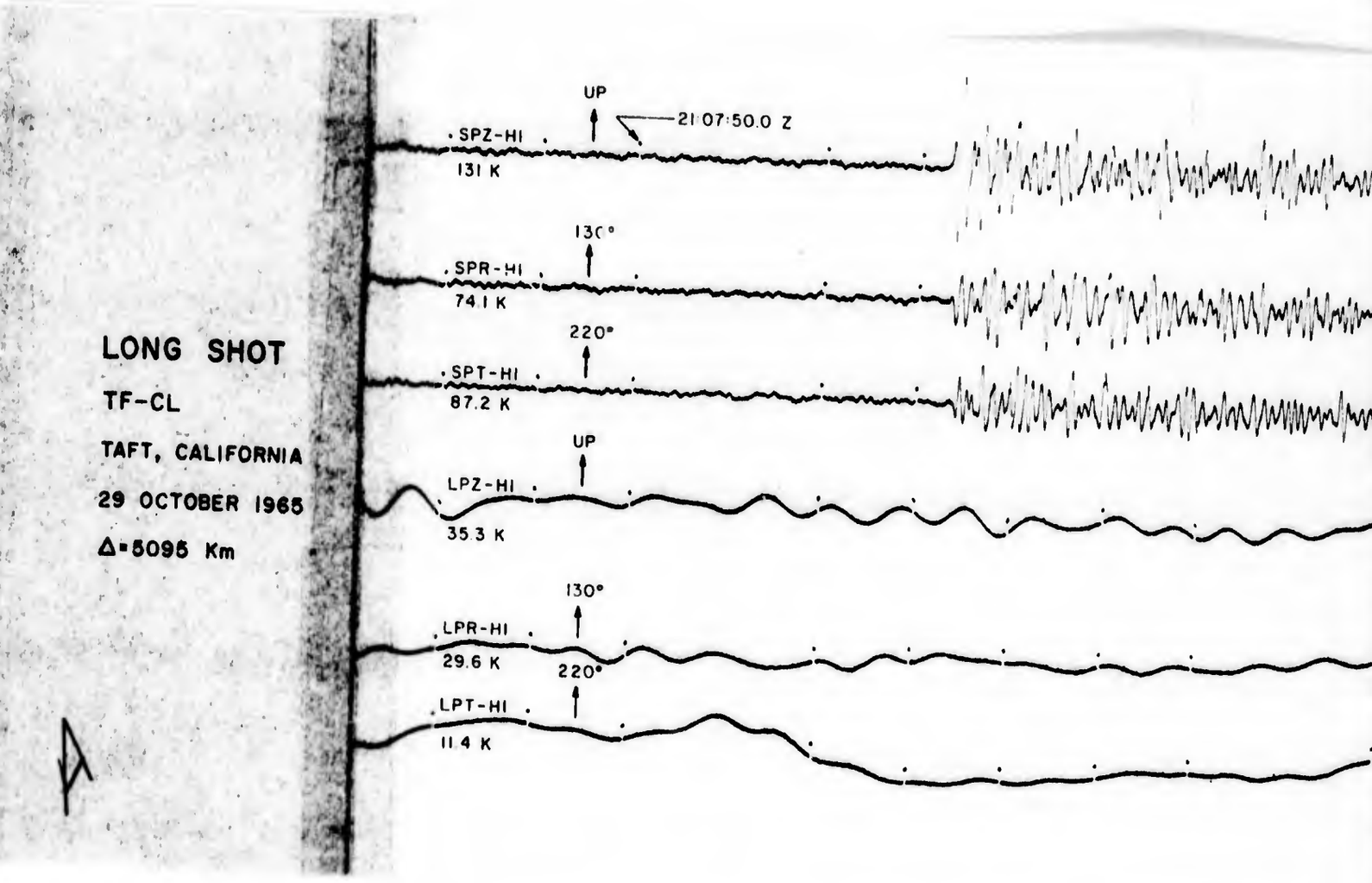
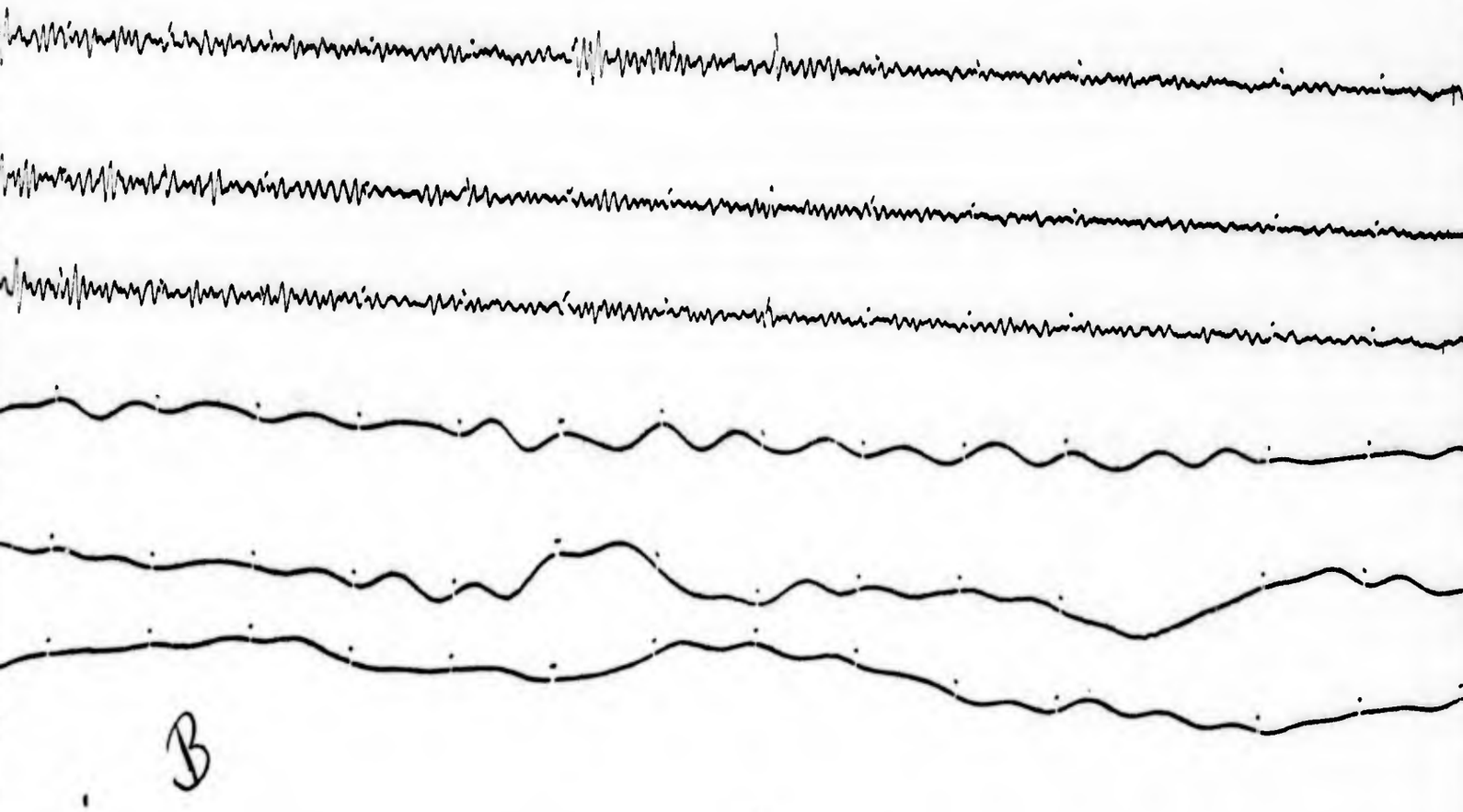

LONG SHOT
TF-CL
TAFT, CALIFORNIA
29 OCTOBER 1965
Δ=5095 Km
UP
21:07:50.0 Z
SPZ-HI
131 K
130°
SPR-HI
74.1 K
220°
SPT-HI
87.2 K
UP
LPZ-HI
35.3 K
130°
LPR-HI
29.6 K
220°
LPT-HI
11.4 K



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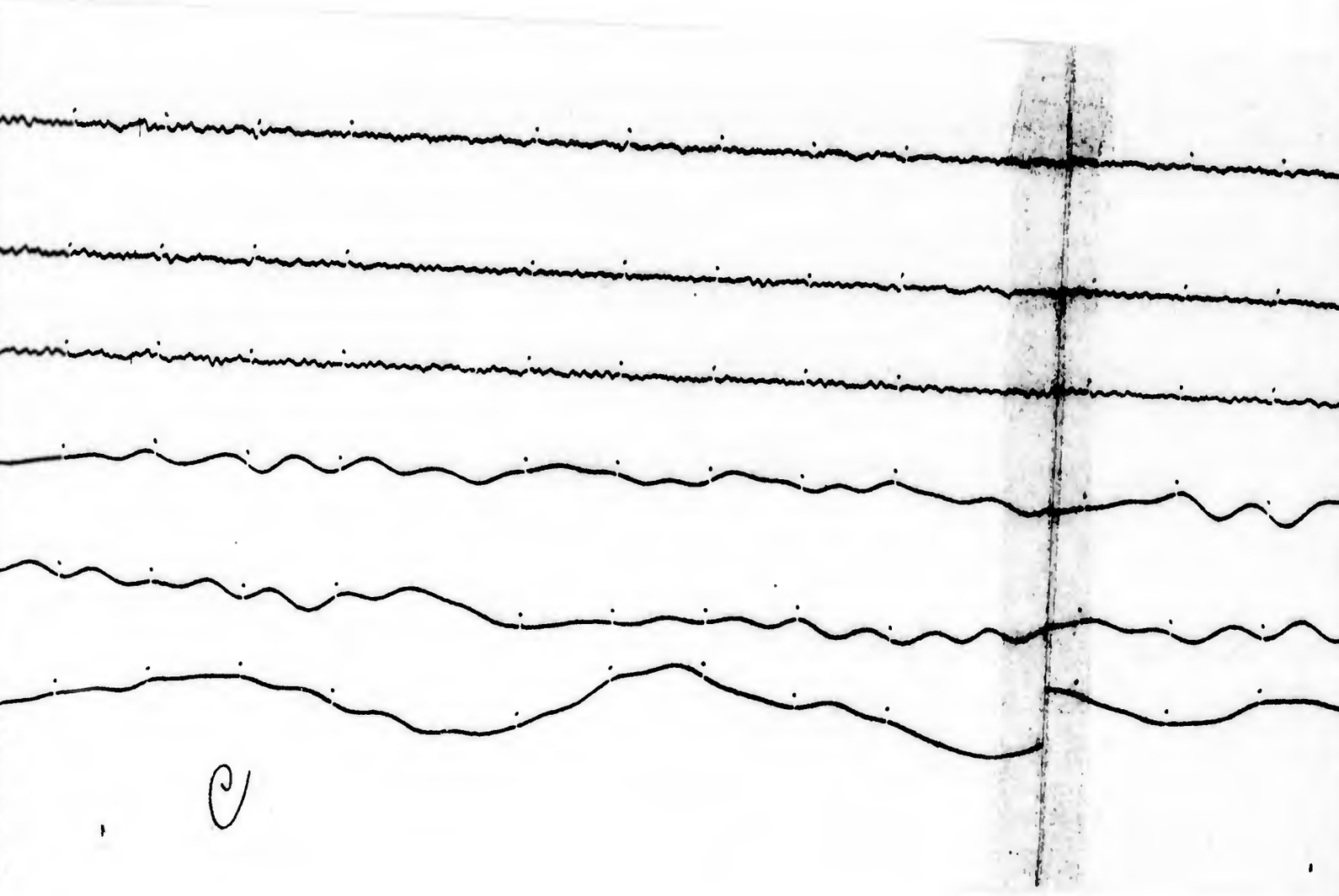
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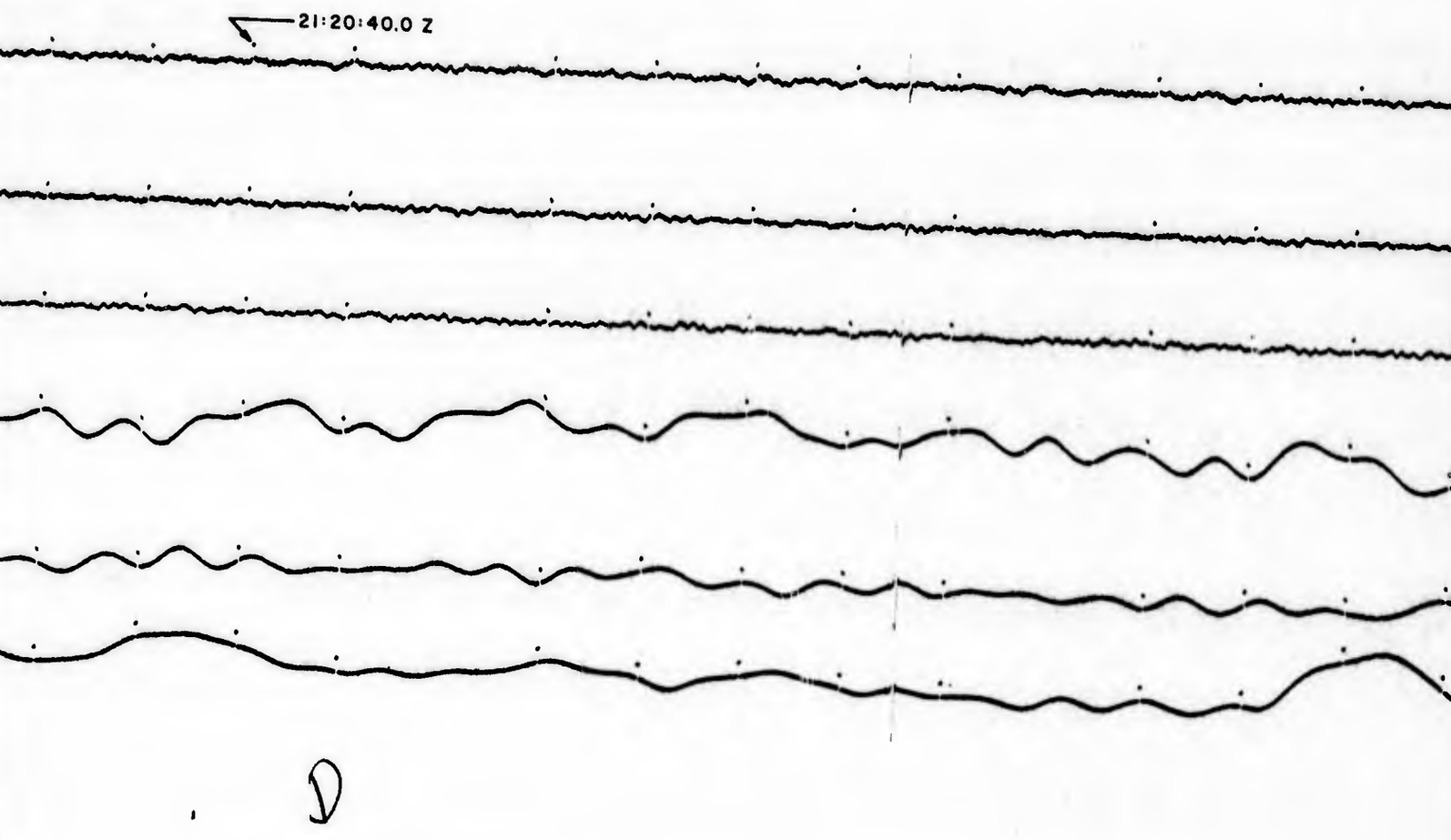

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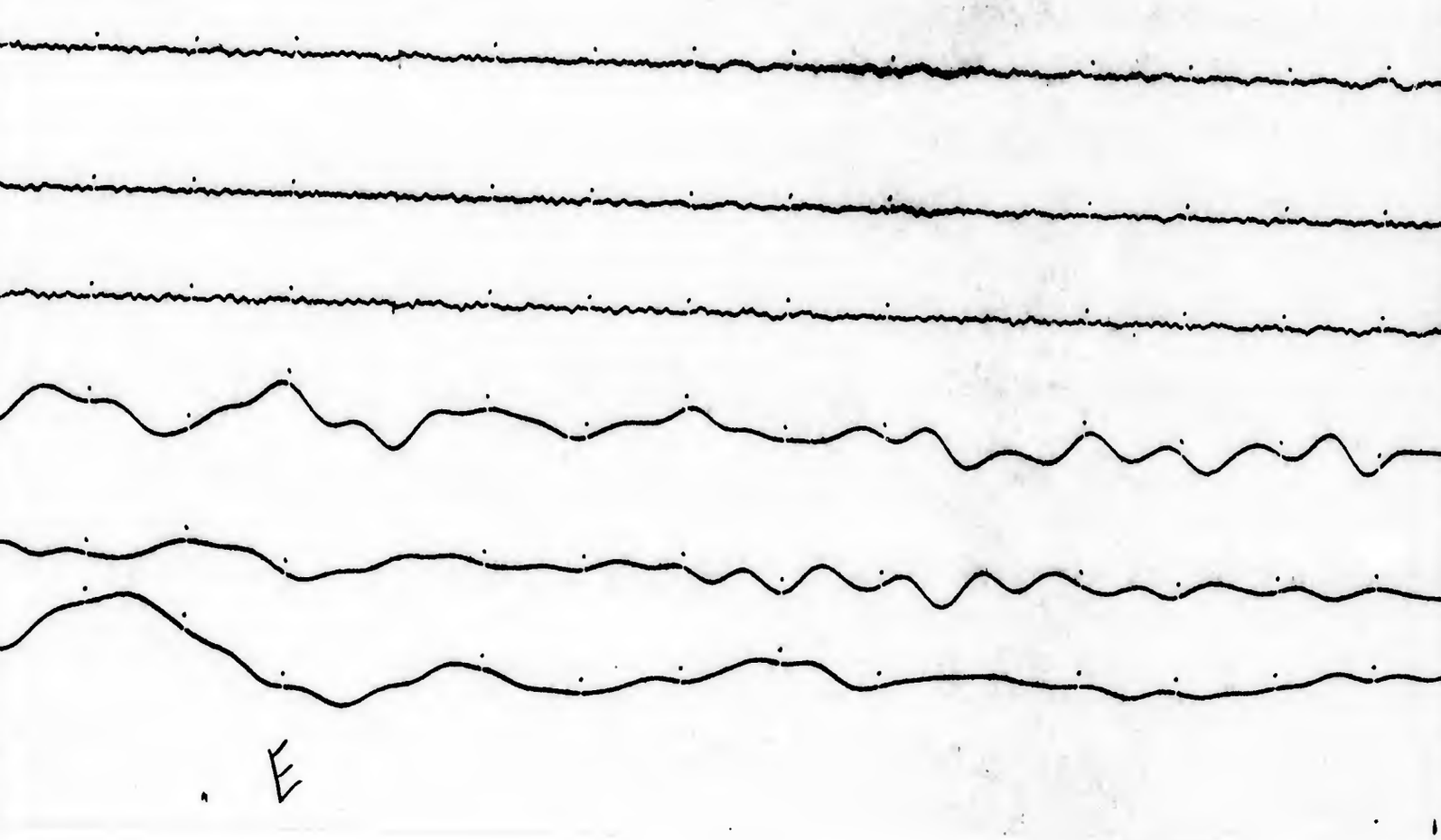
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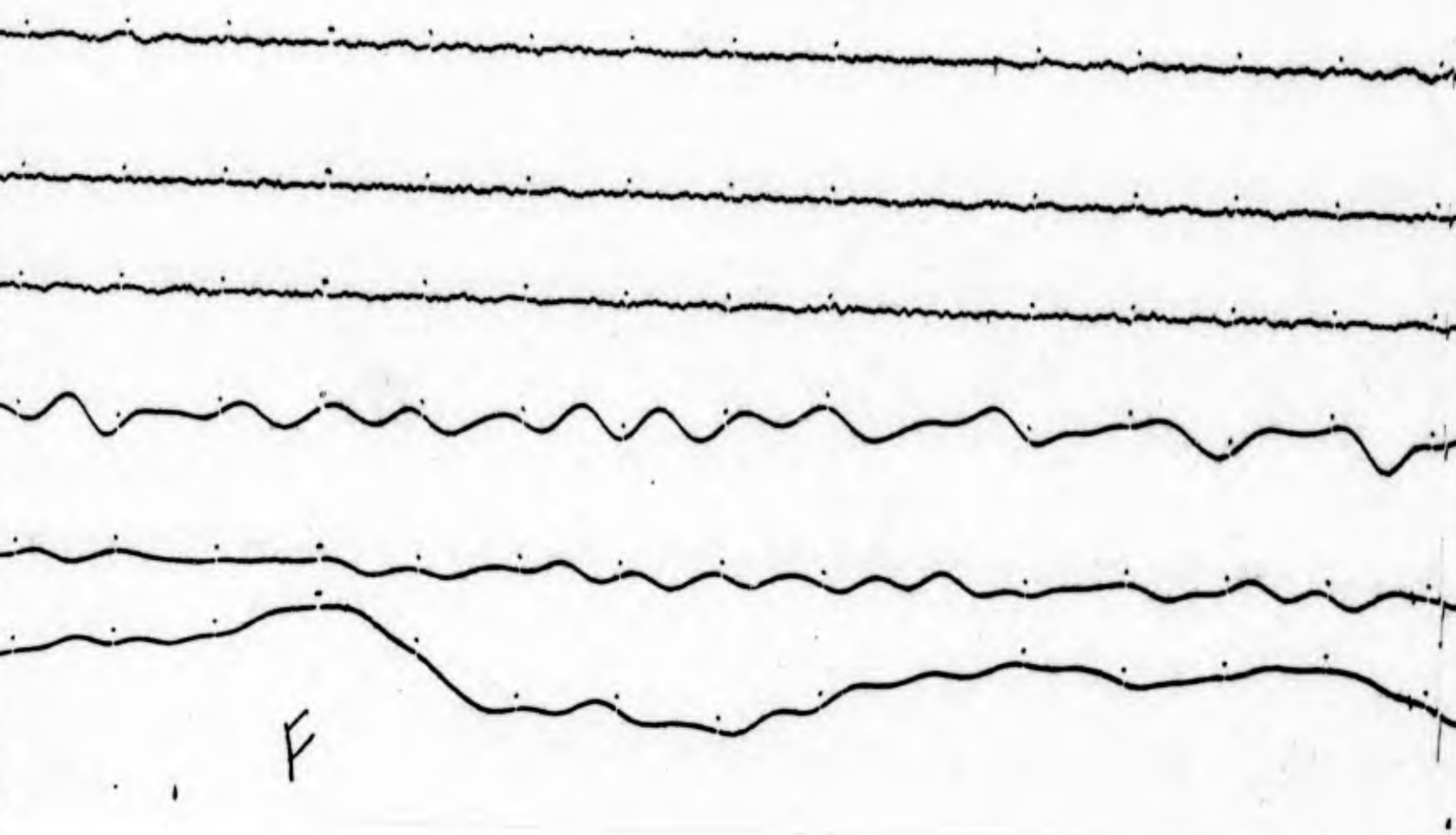
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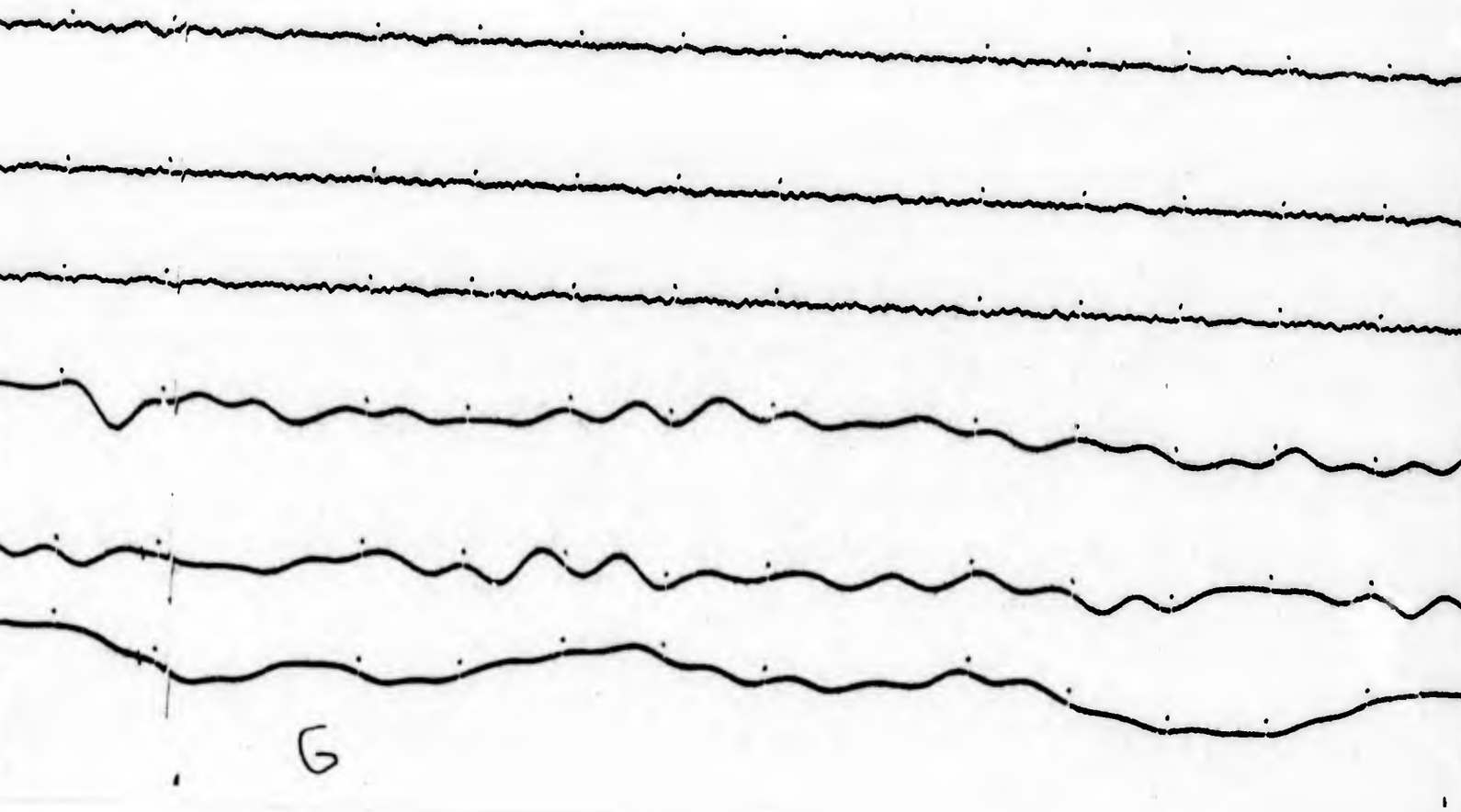
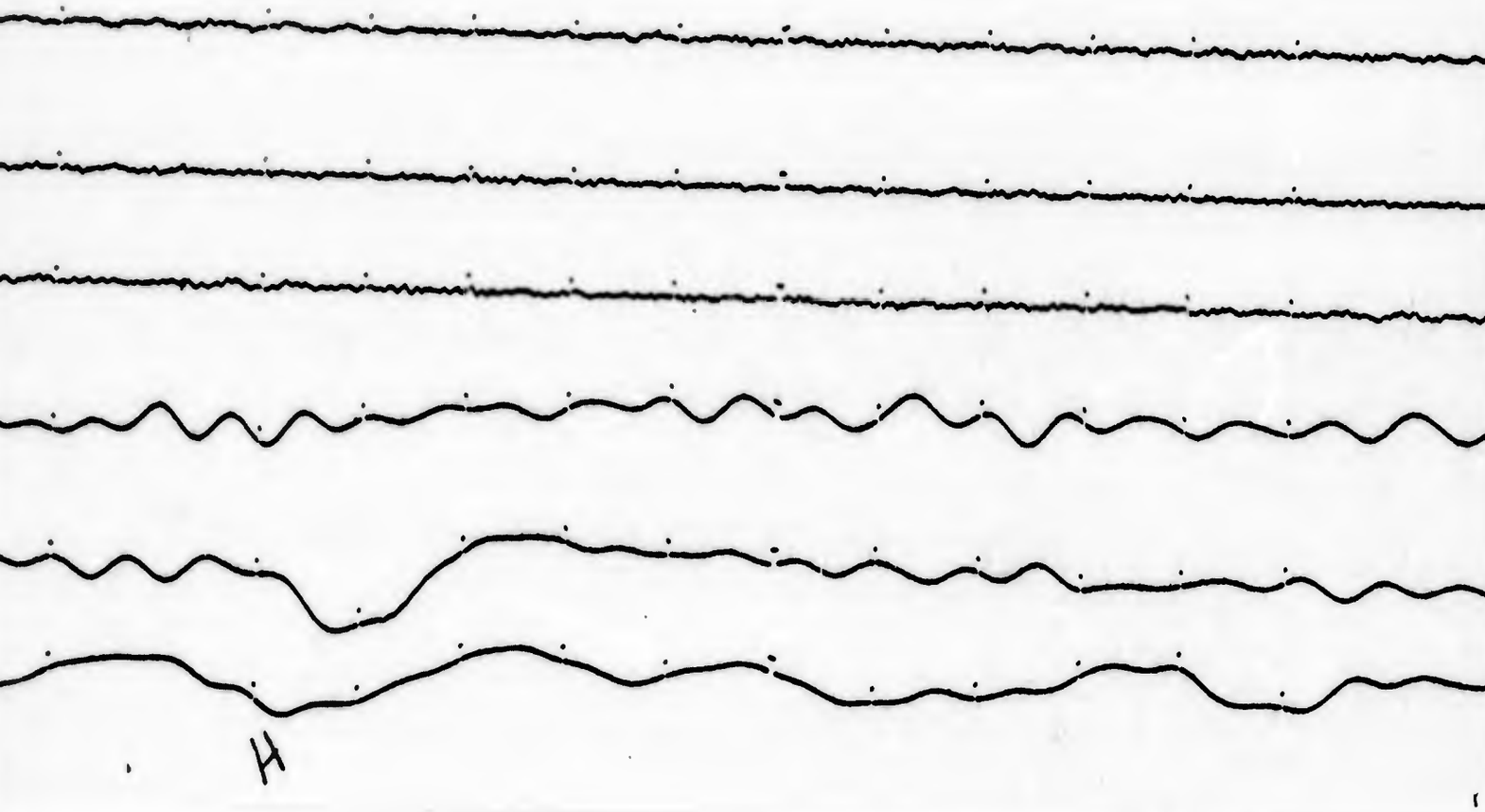

G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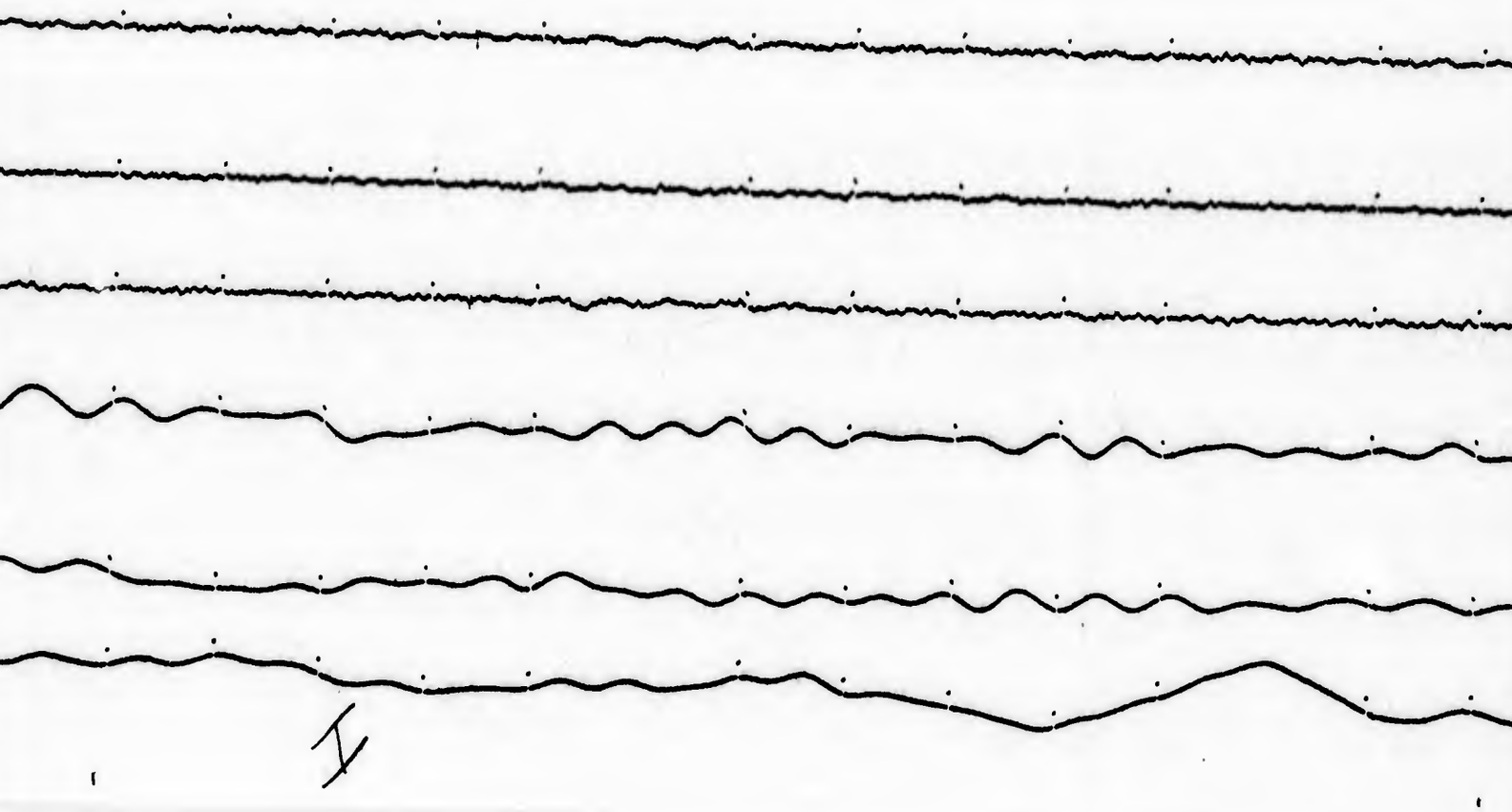
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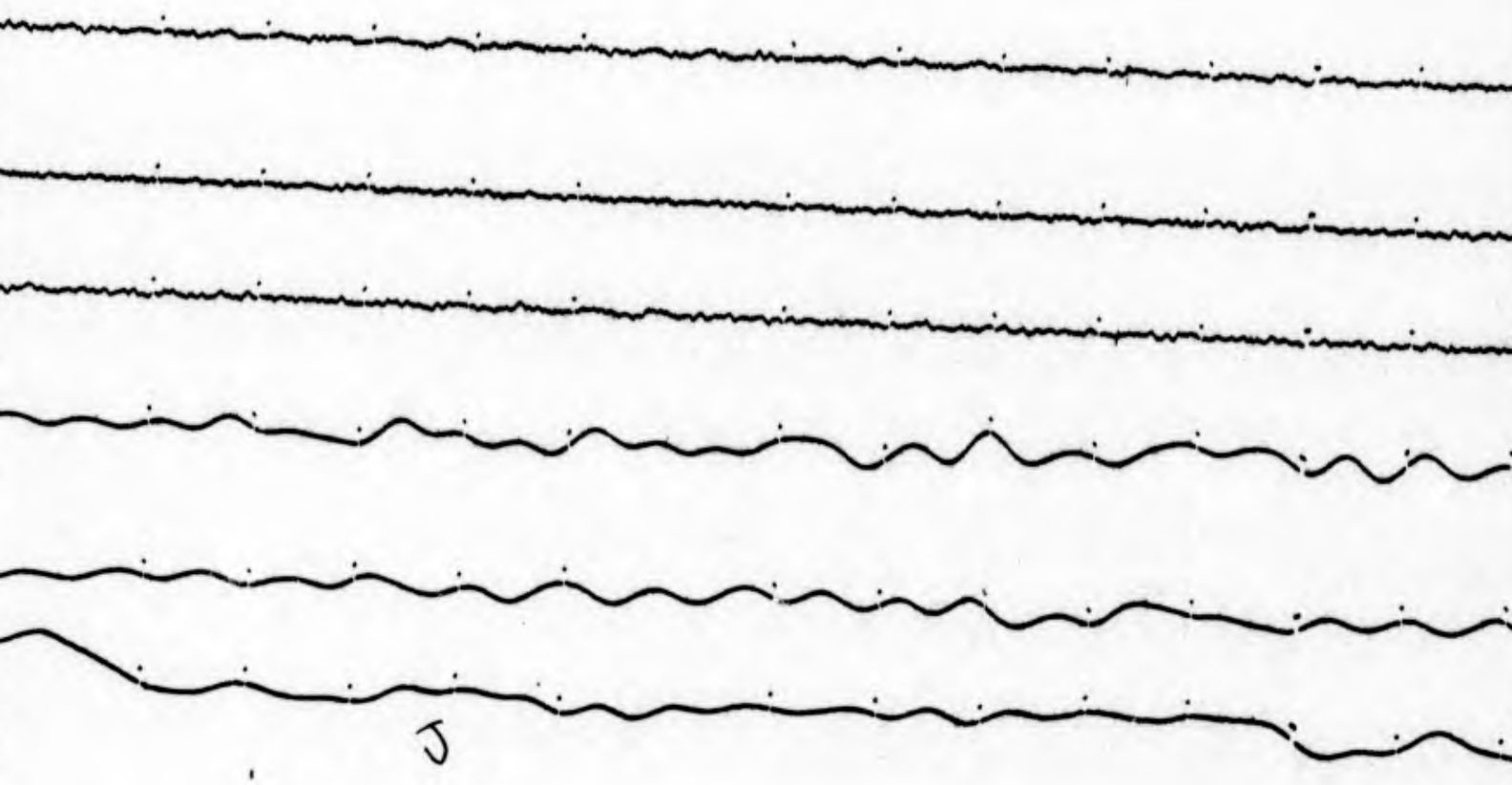
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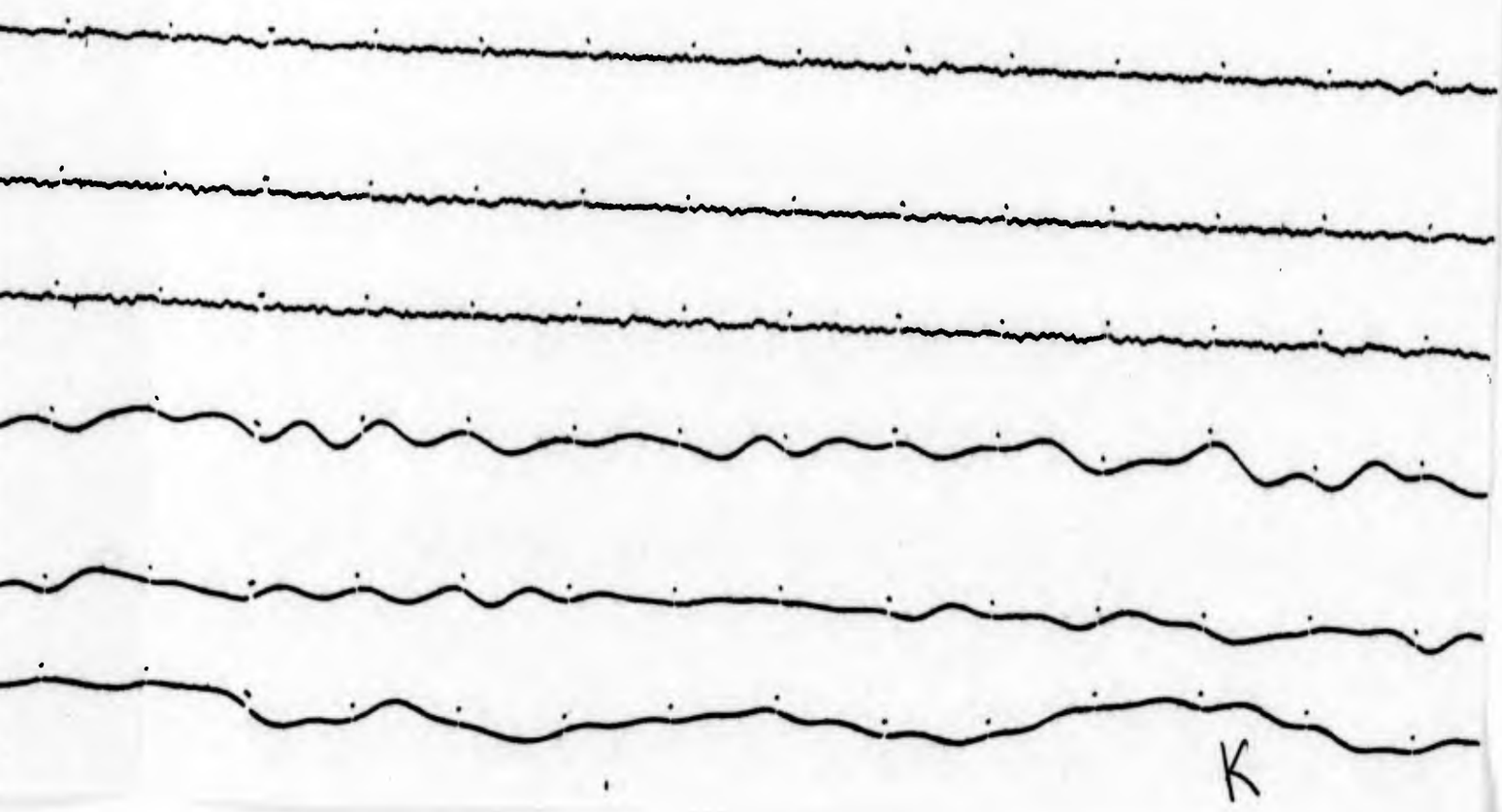

K

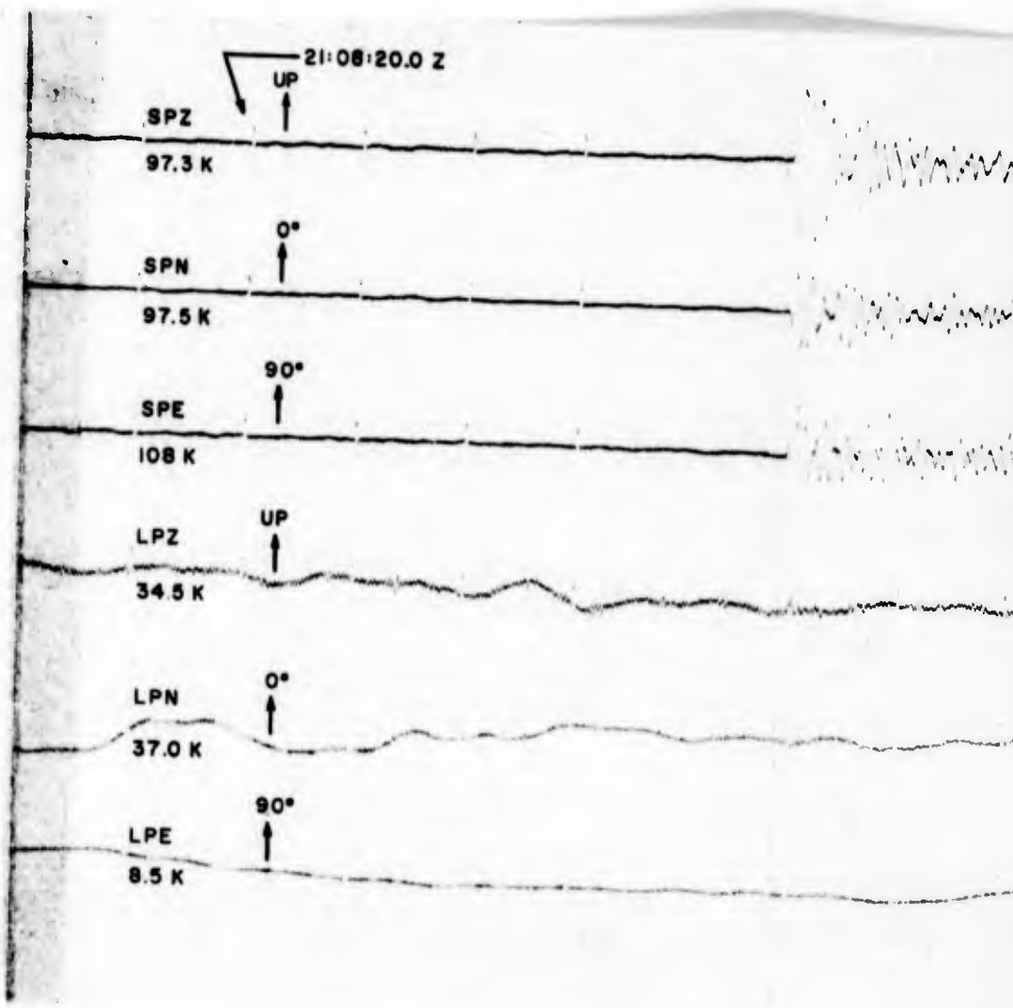
LONG SHOT

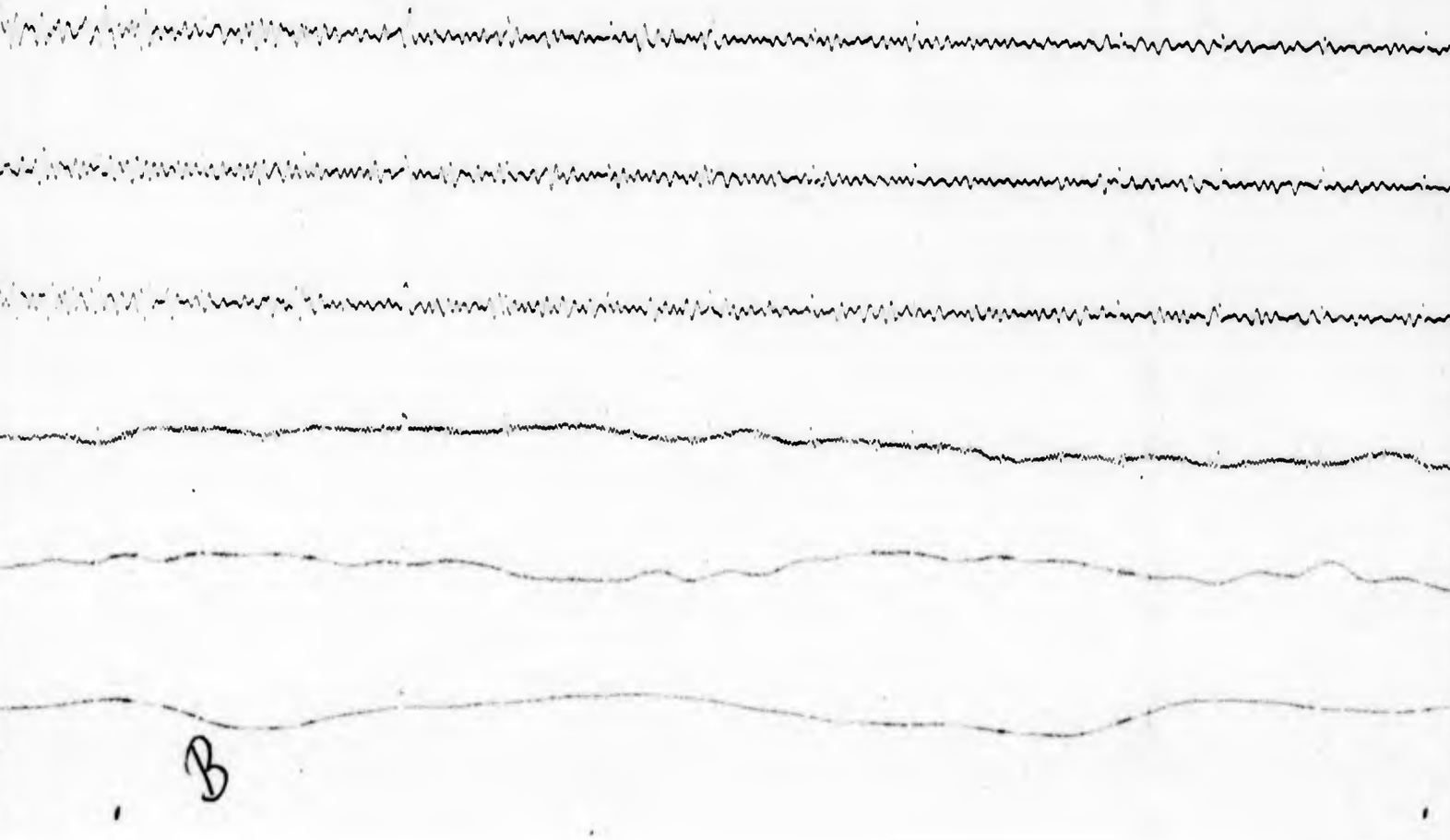
TFSO

TONTO FOREST SEISMOLOGICAL OBSERVATORY, PAYSON, ARIZONA

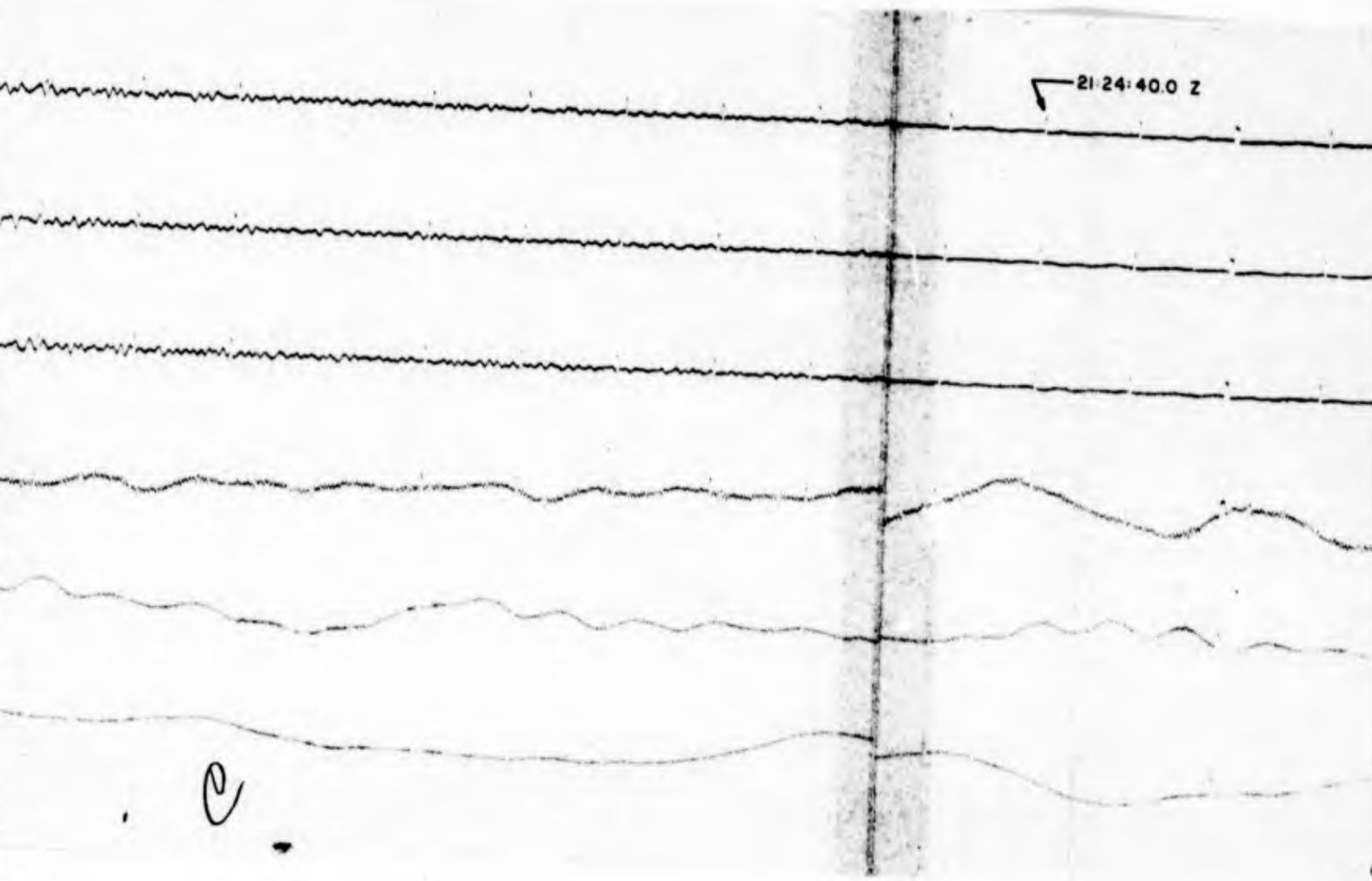
29 OCTOBER 1965

Δ = 5760 Km

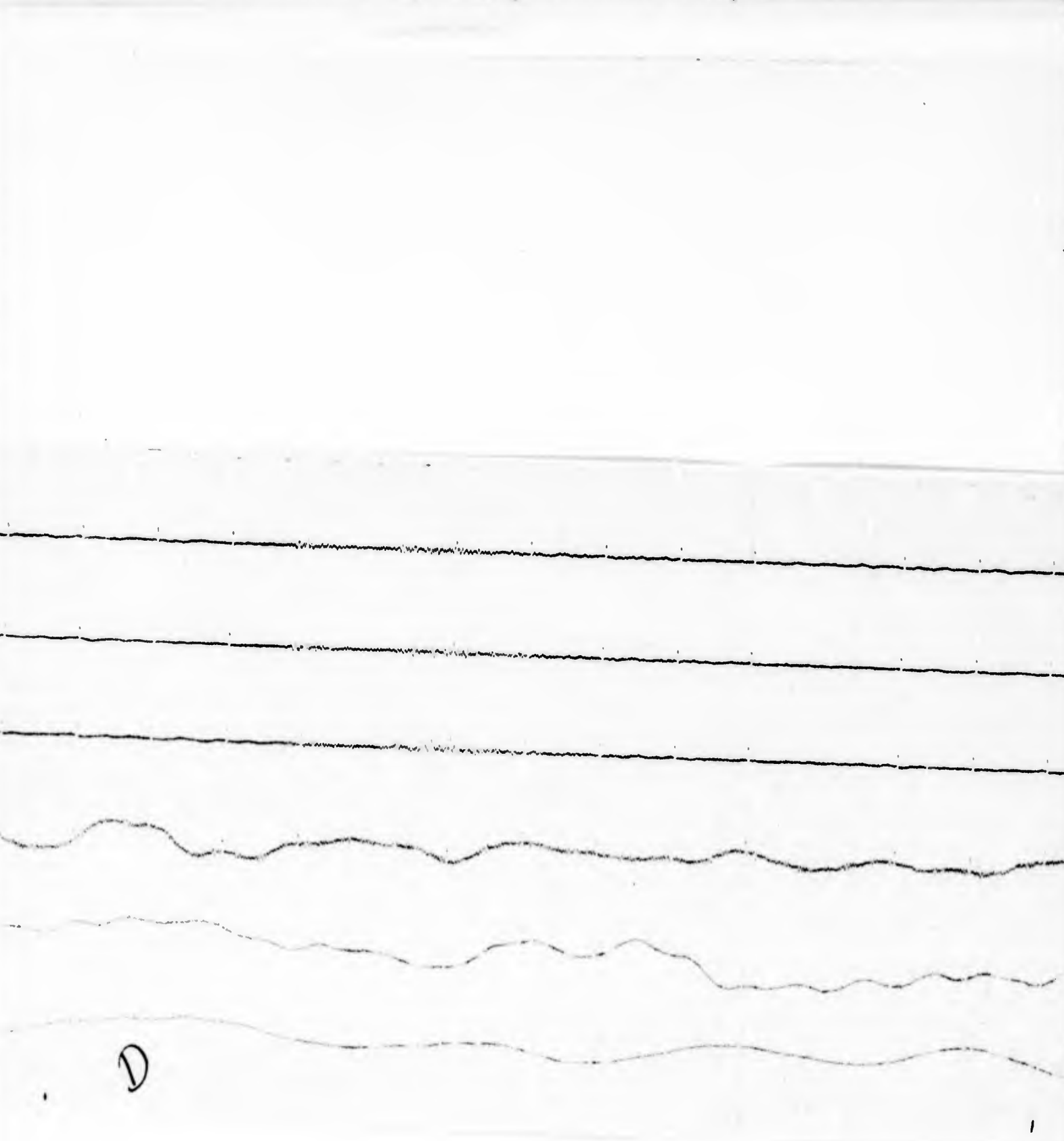


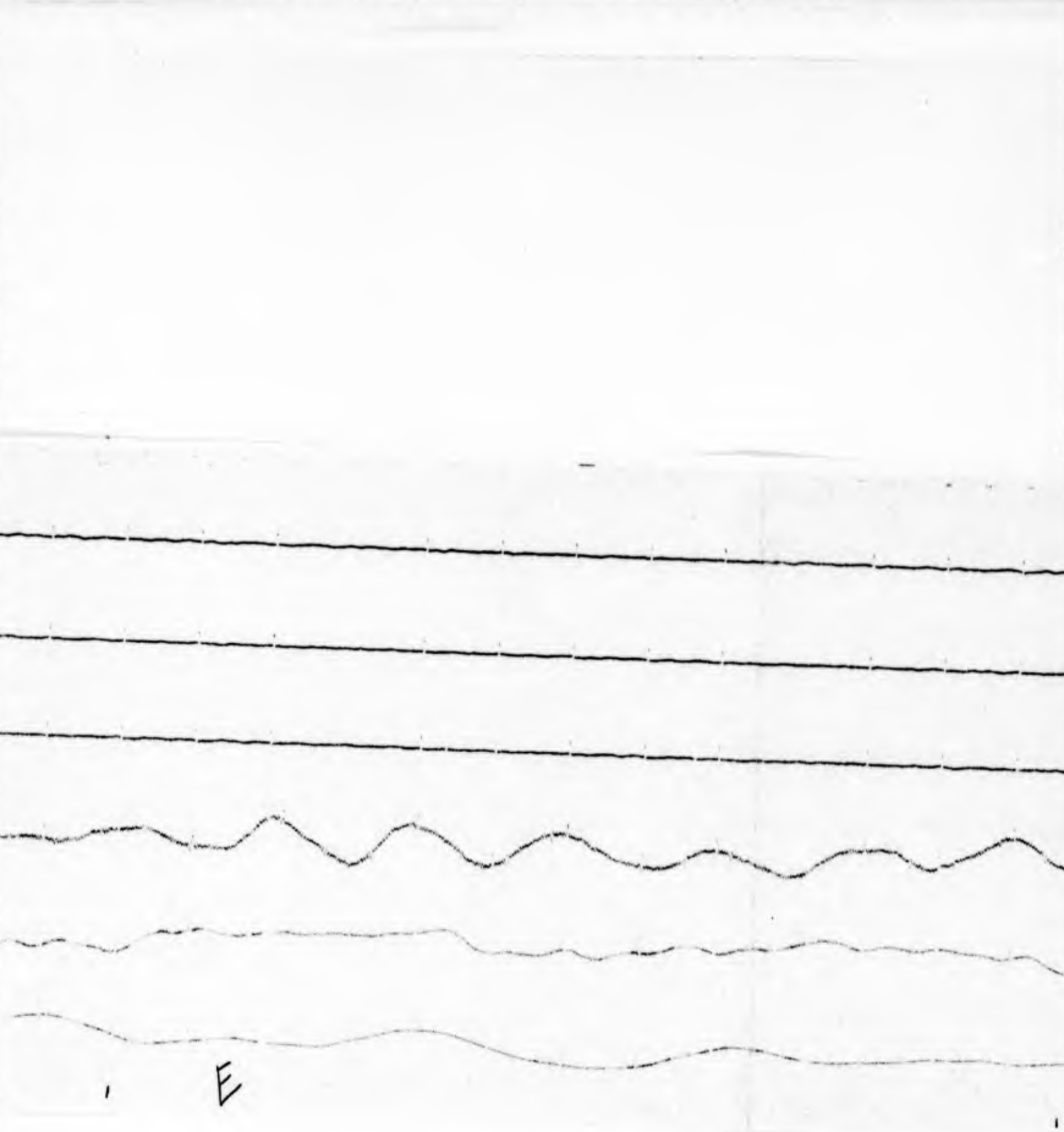


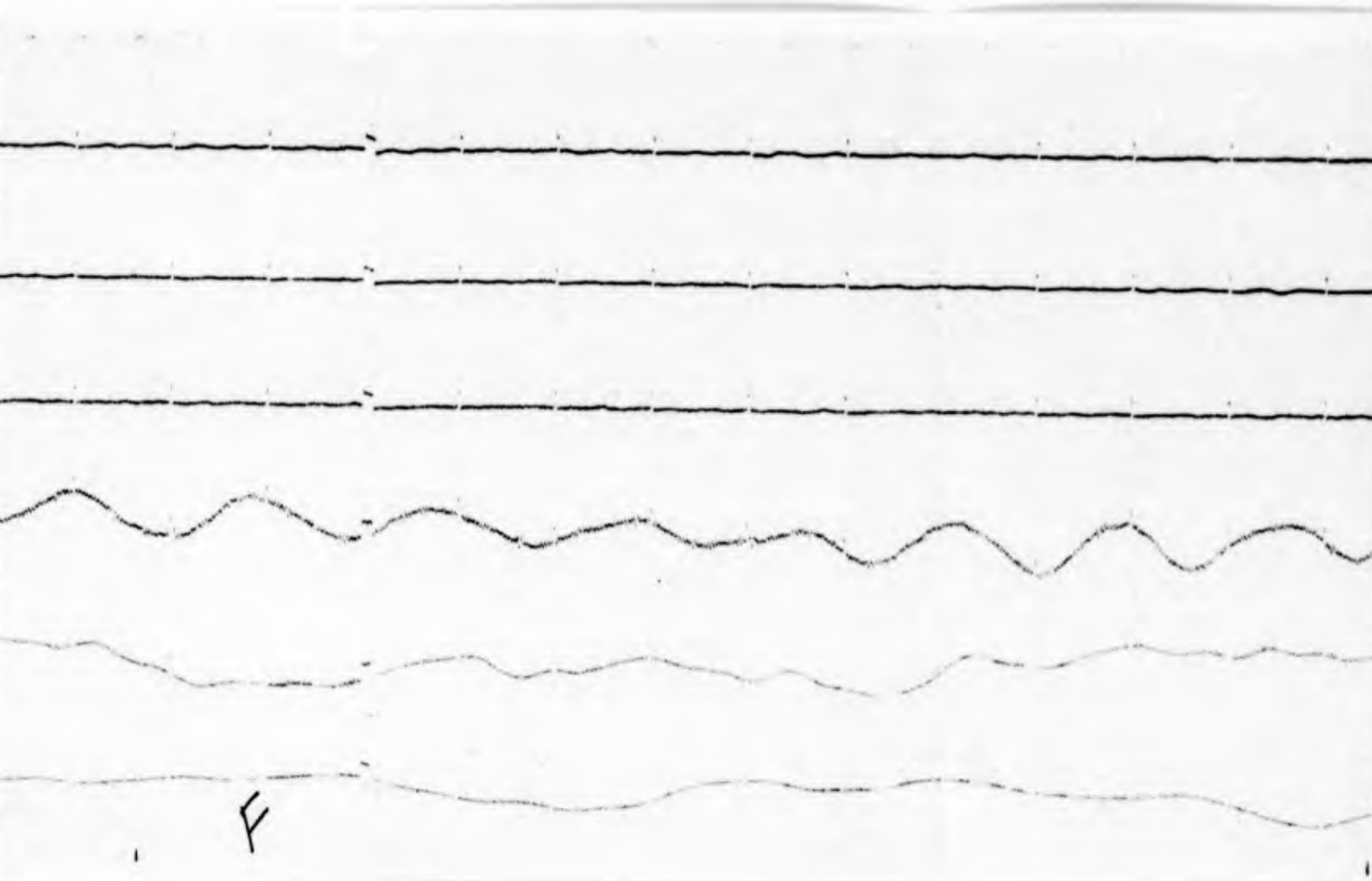
B

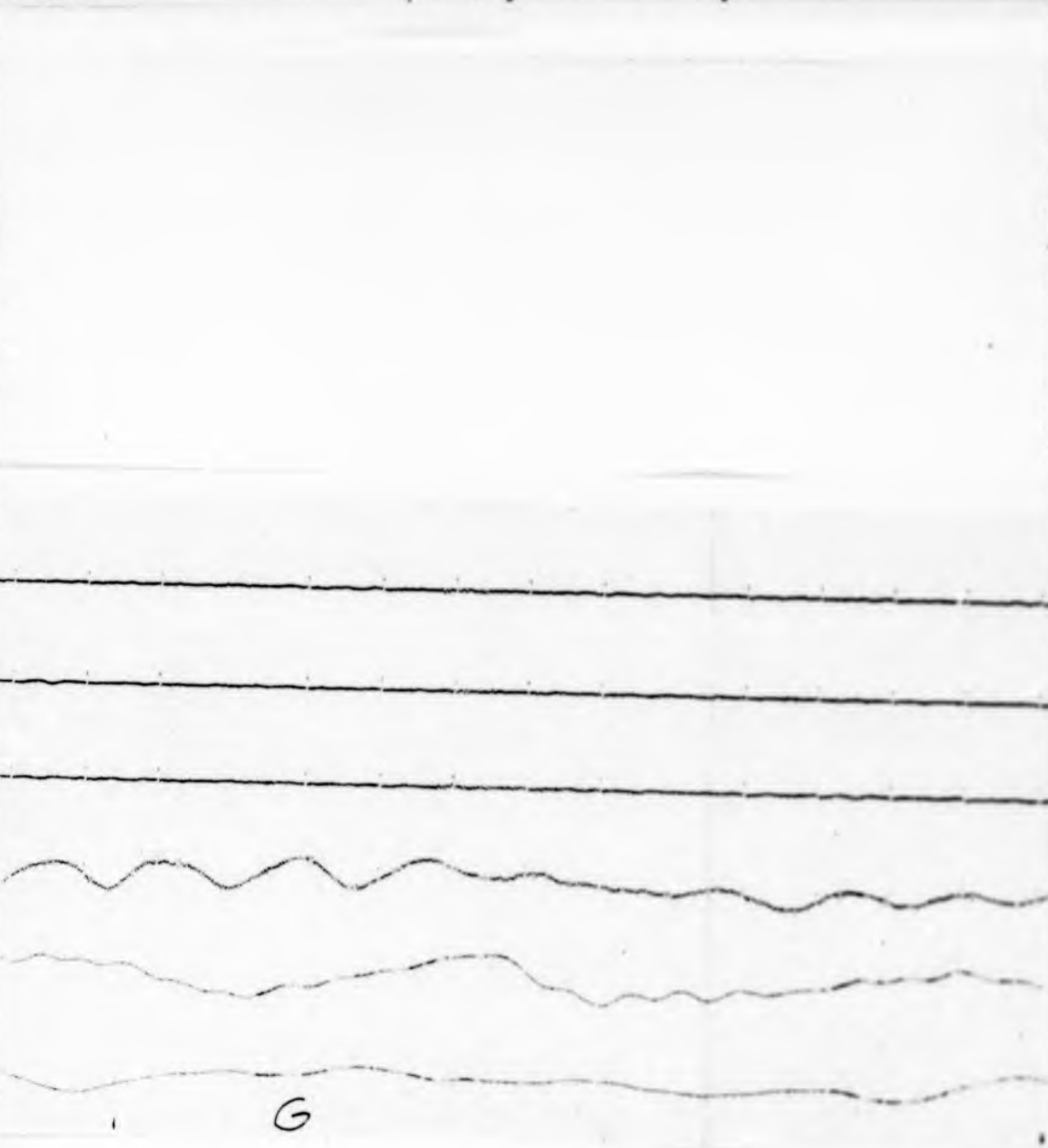


C.


D


E


F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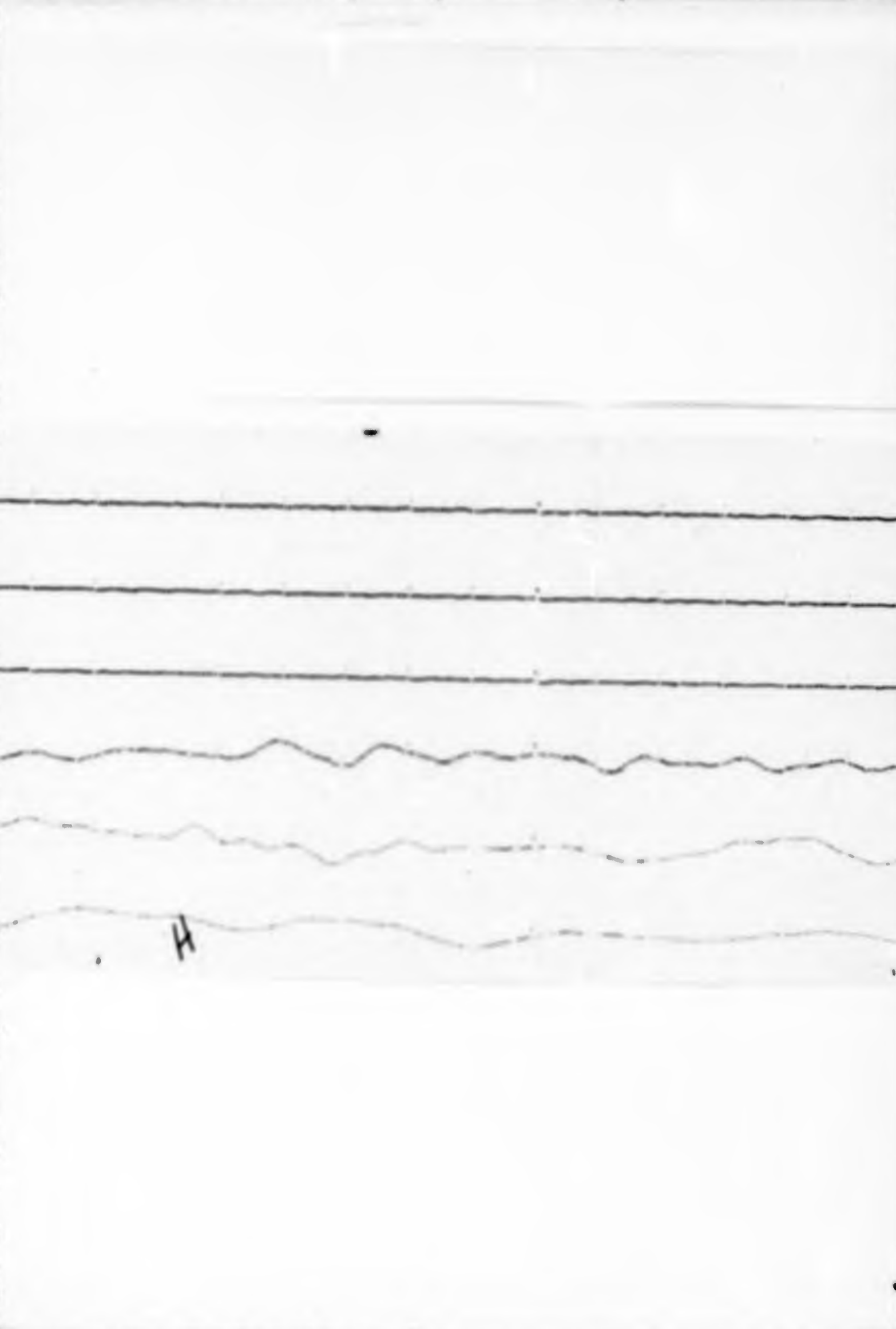
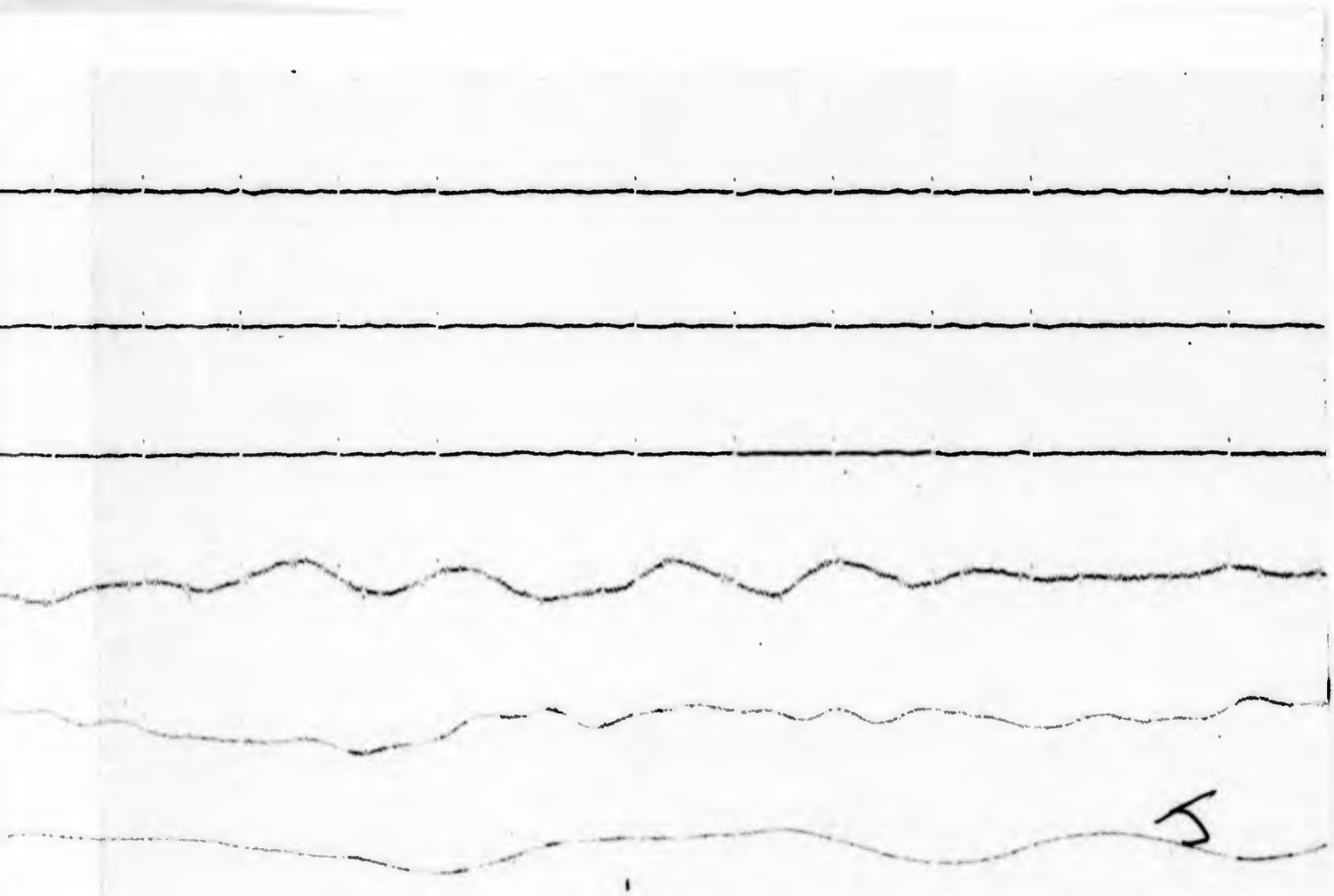



5

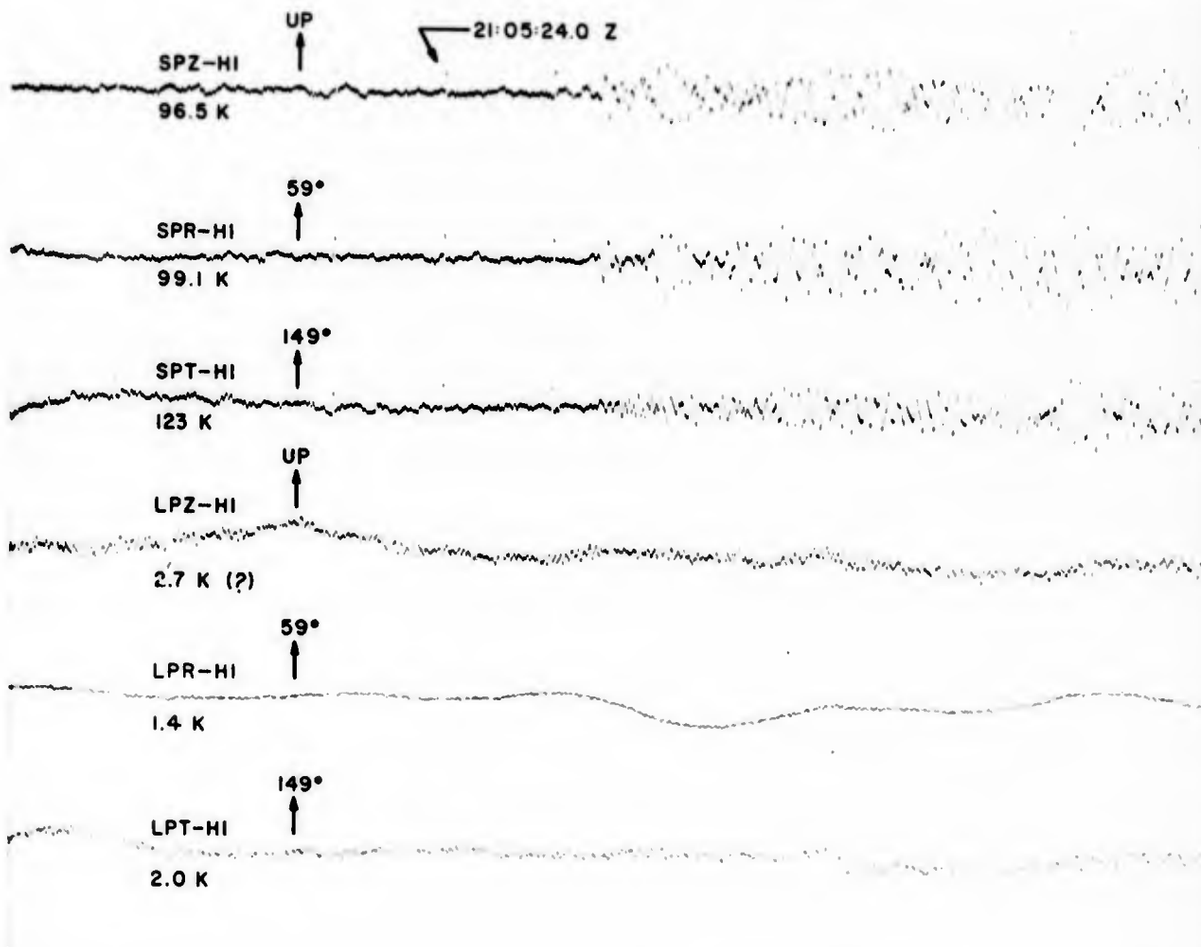
LONG SHOT

WH-YK

WHITEHORSE, YUKON

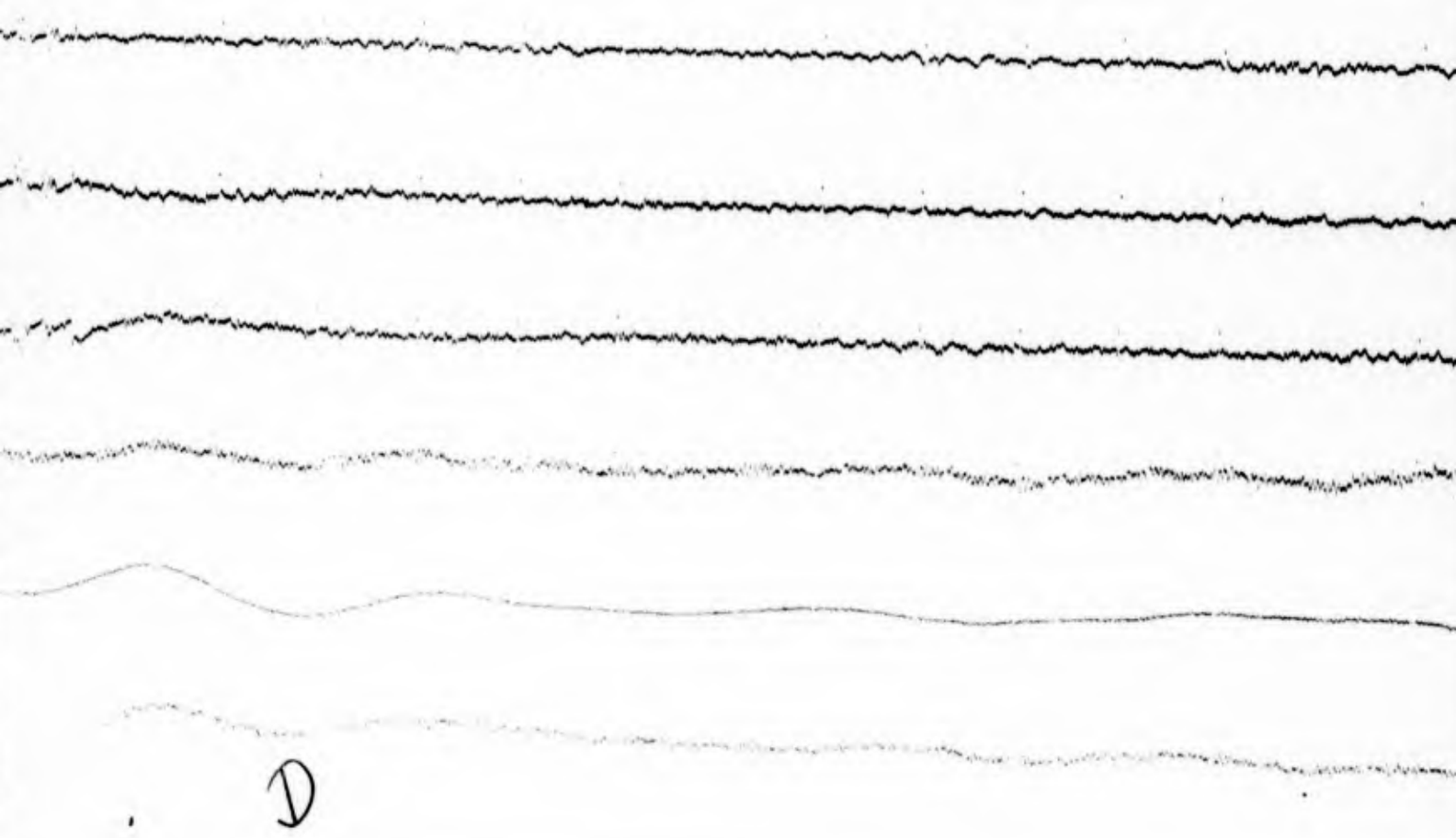
29 OCTOBER 1965

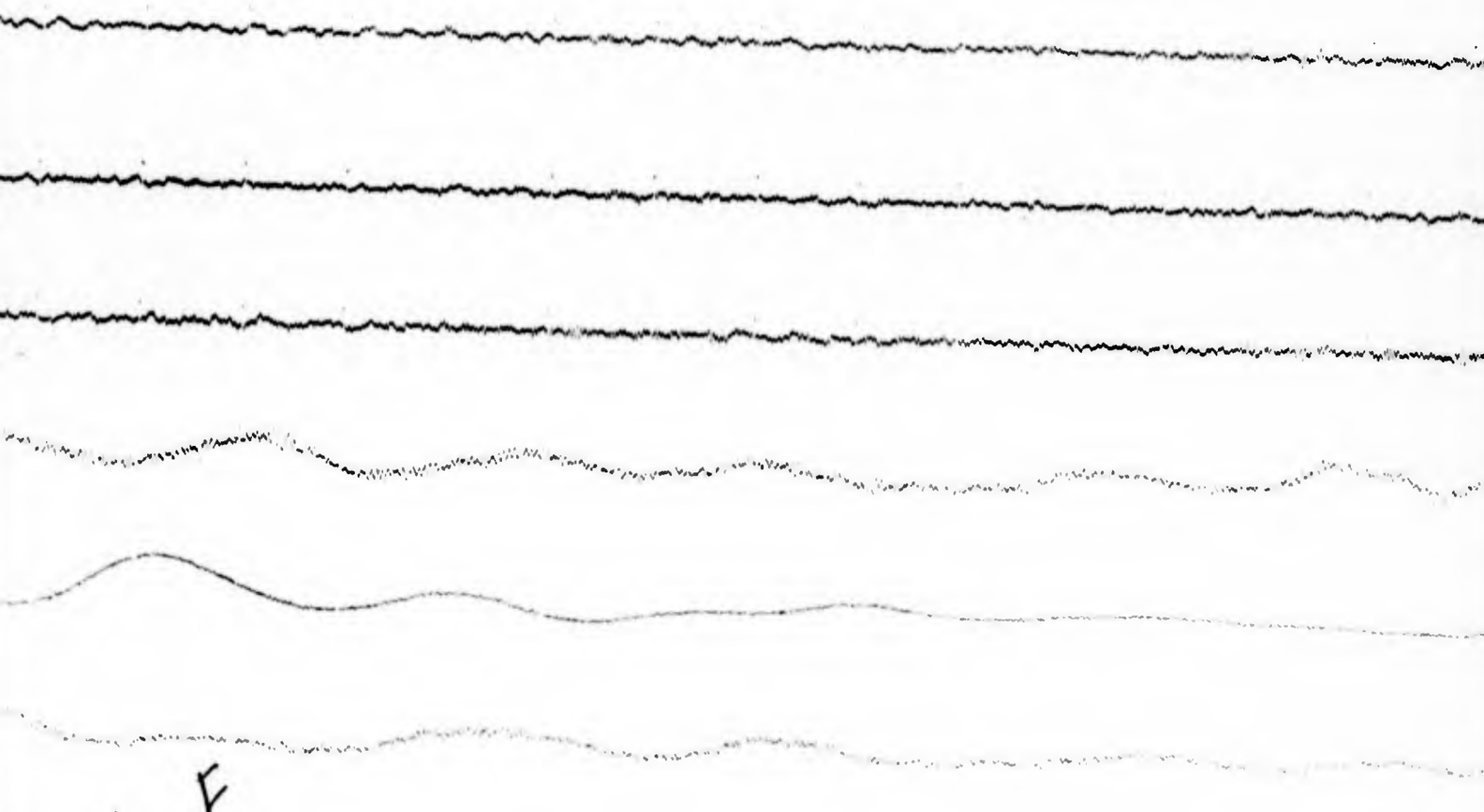
Δ=2958 Km

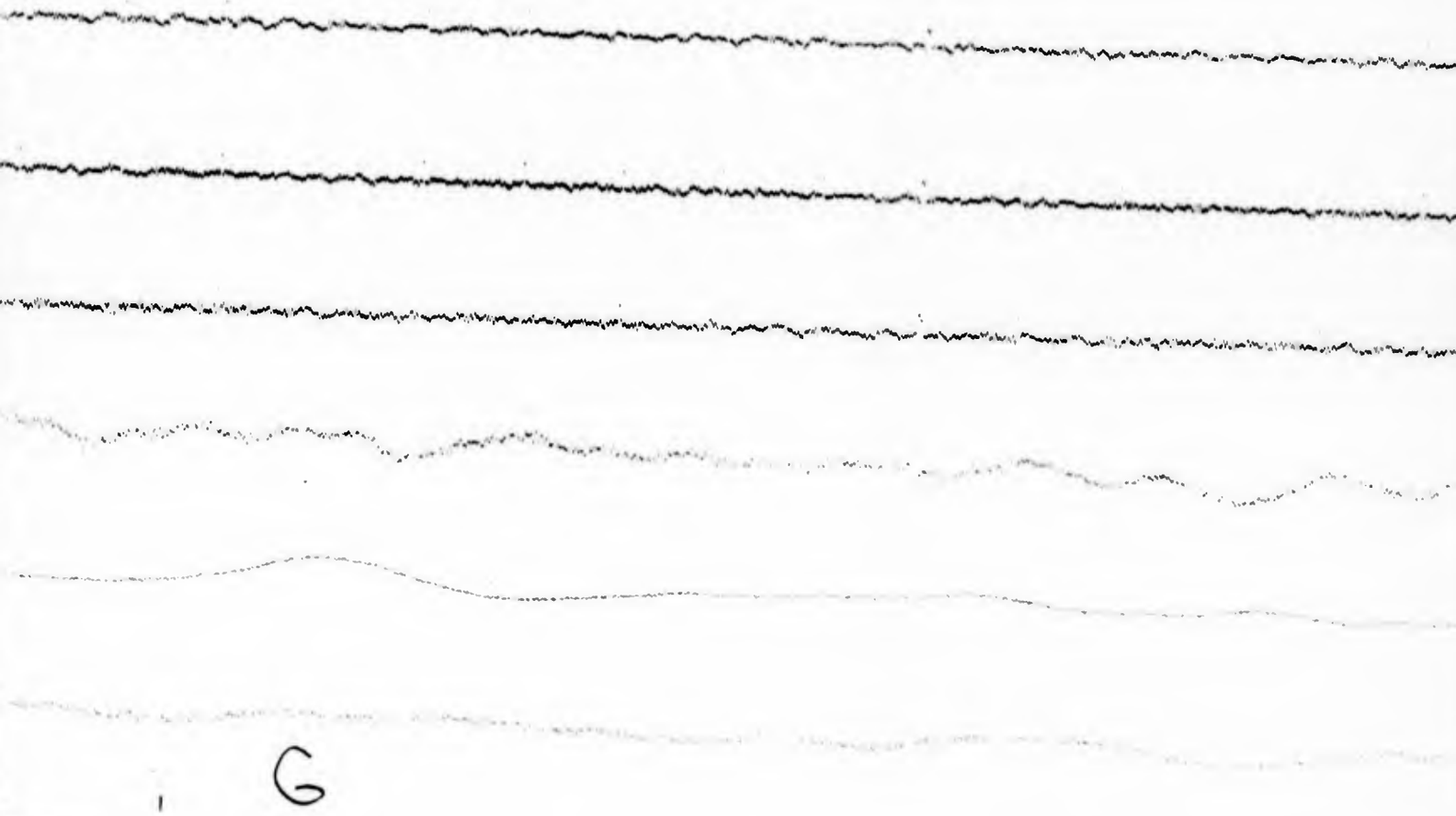


B

C

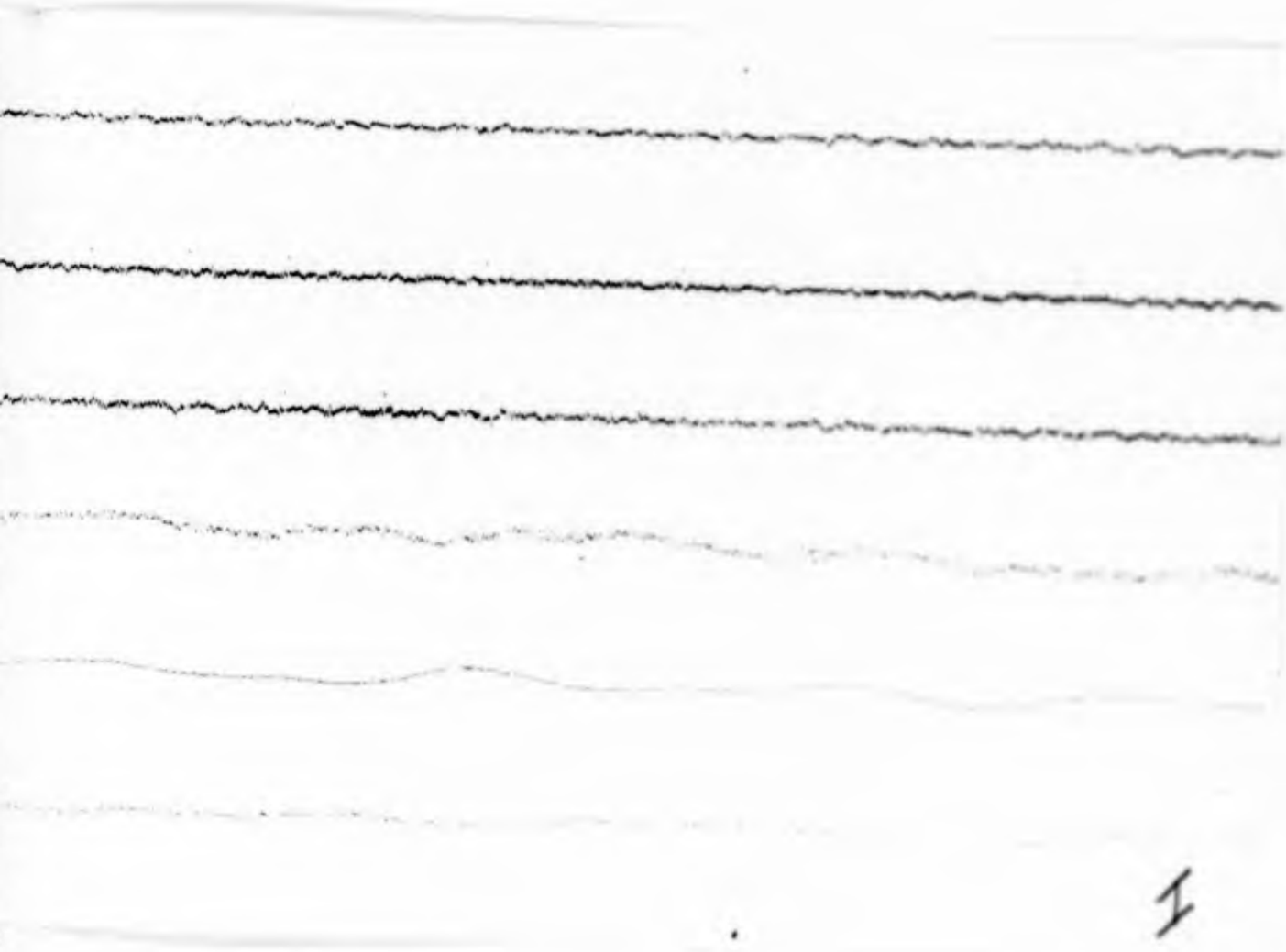

D





G

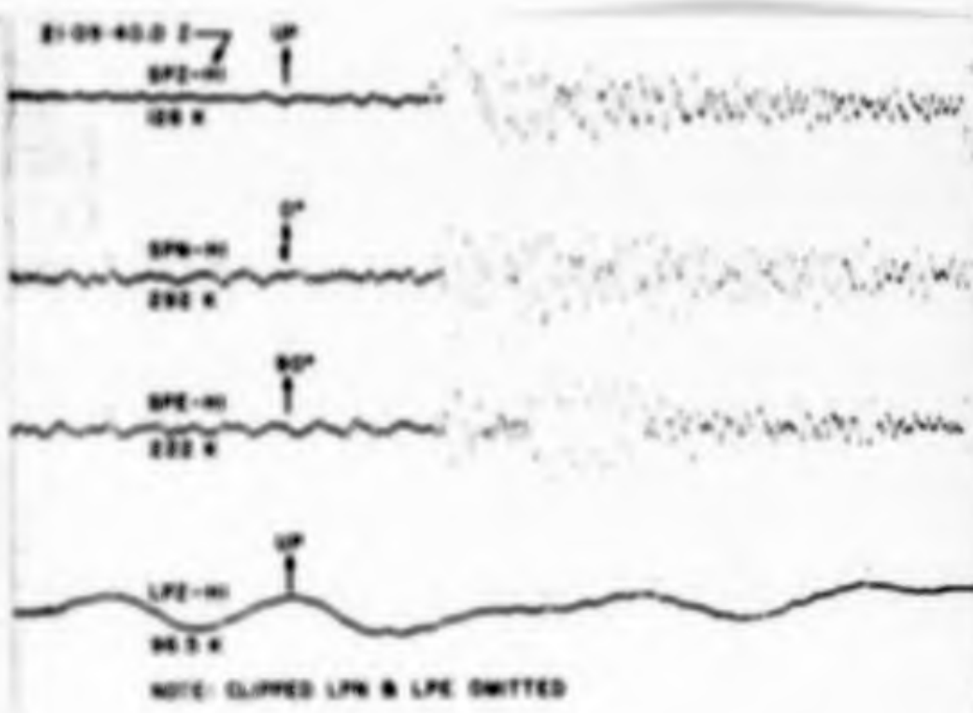
H

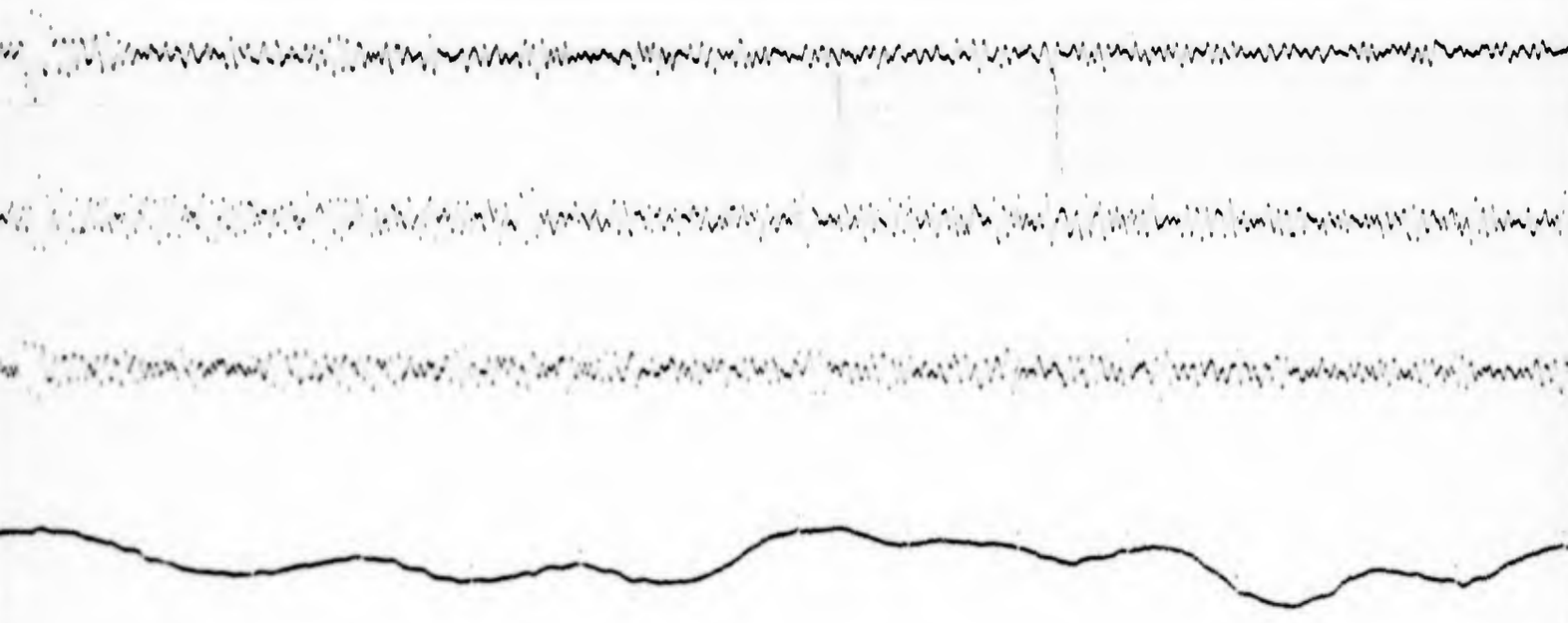


LONG SHOT

WMSO

WICHITA MOUNTAIN SEISMOLOGICAL OBSERVATORY, OKLAHOMA
29 OCTOBER 1965
Δ=6584 Km





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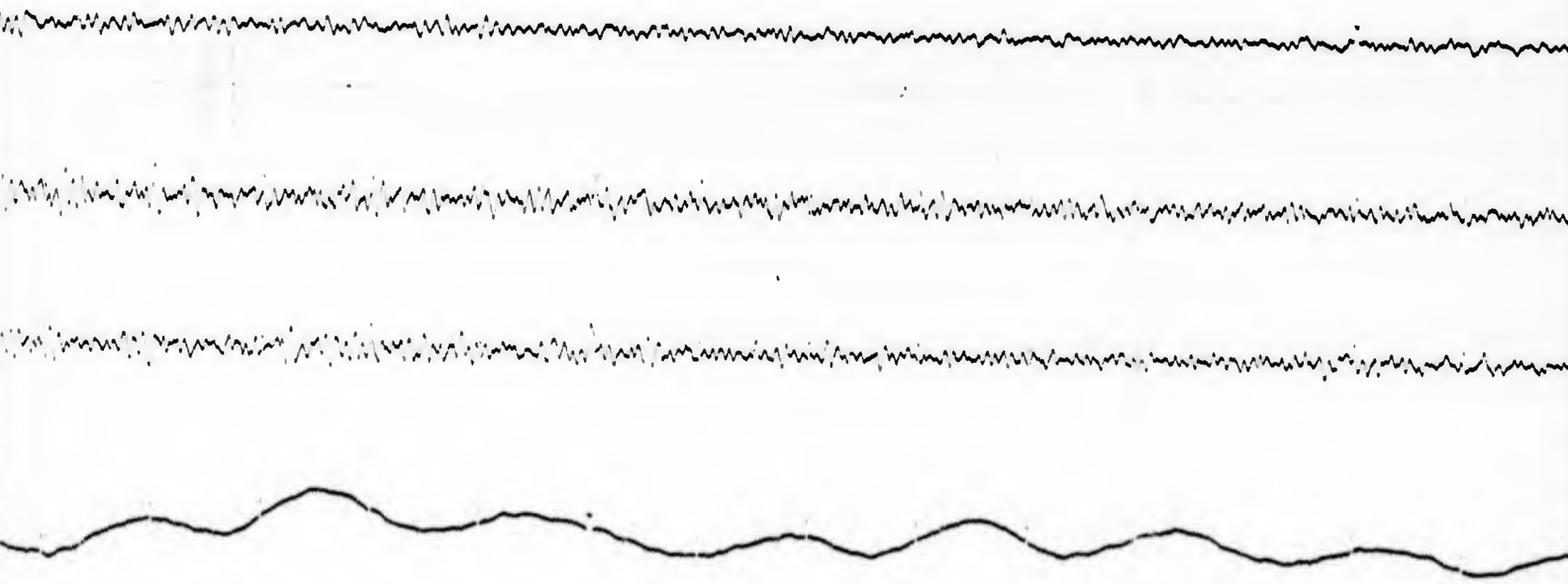

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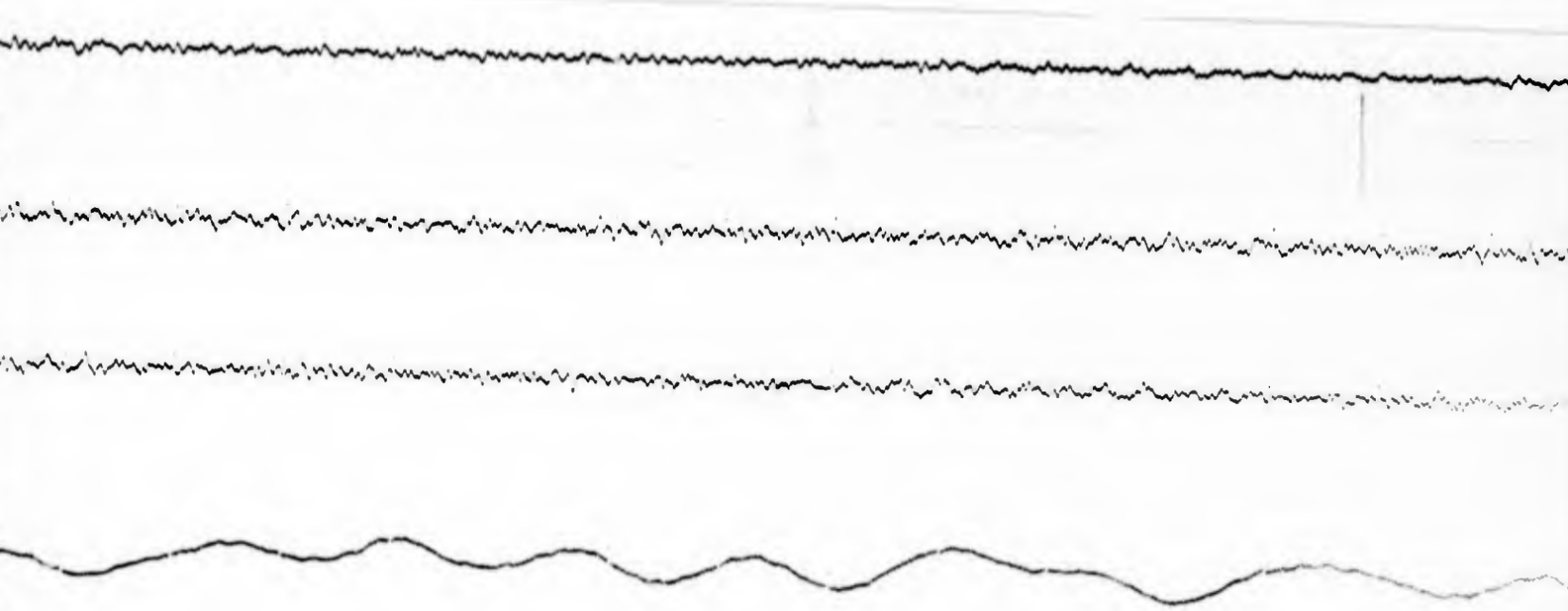

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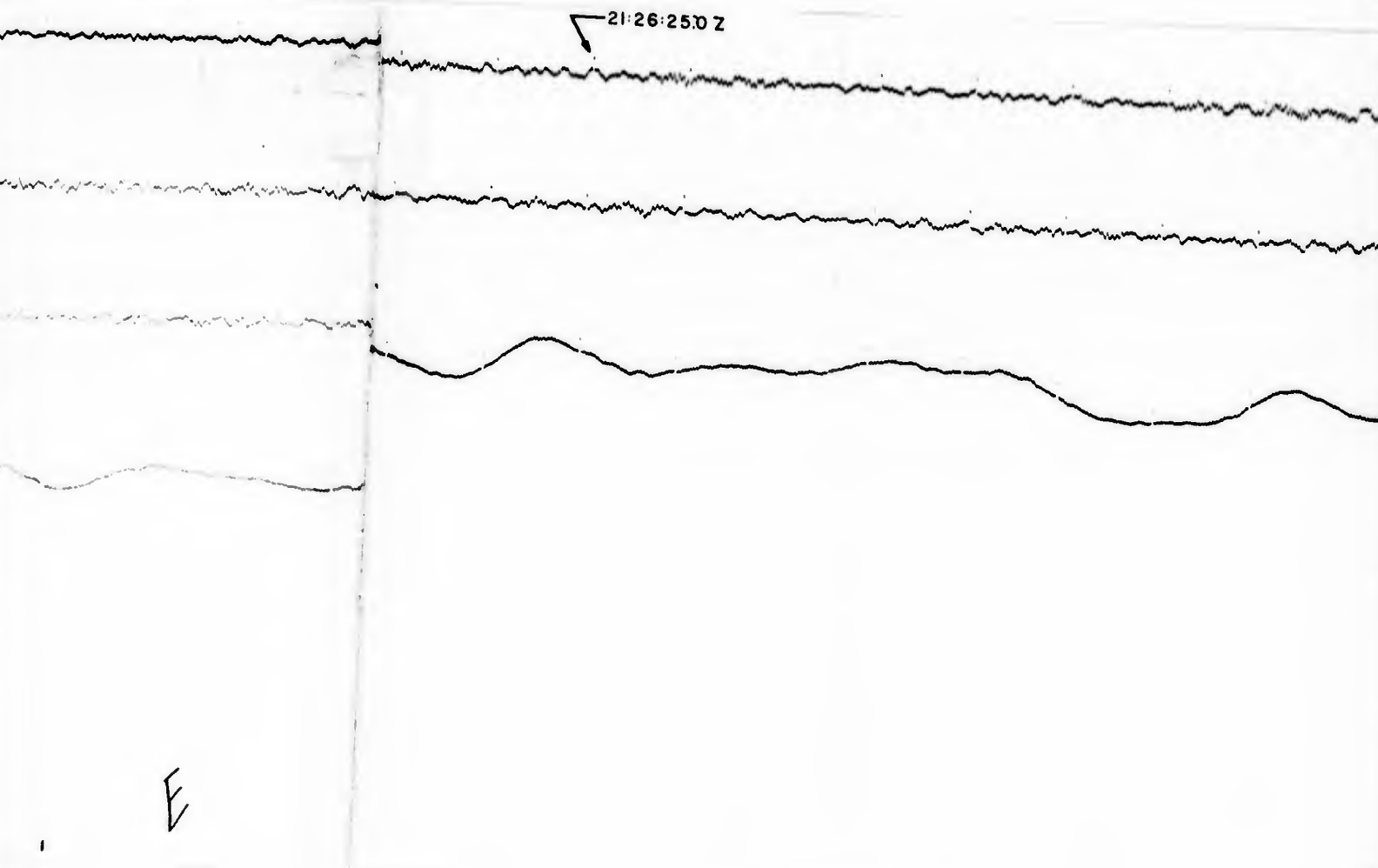

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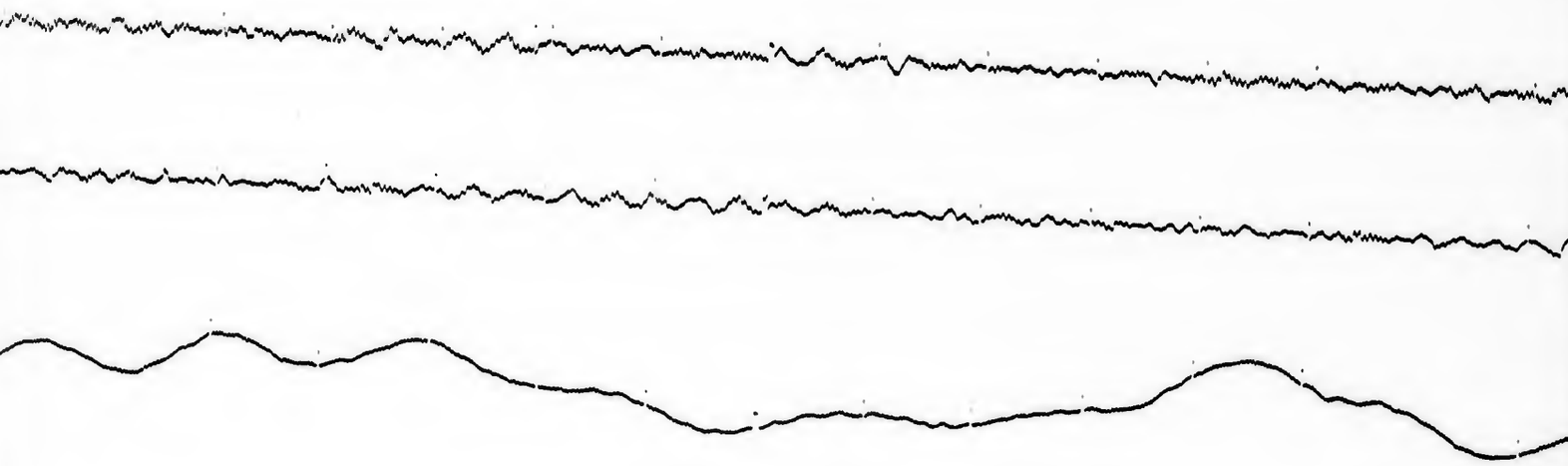

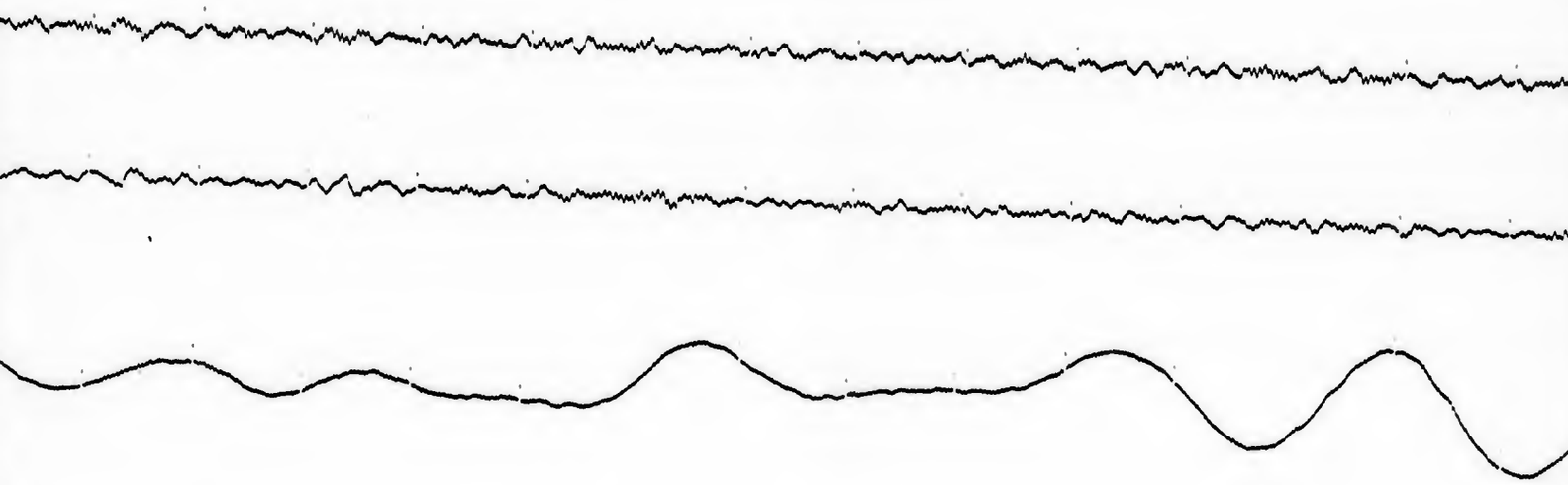

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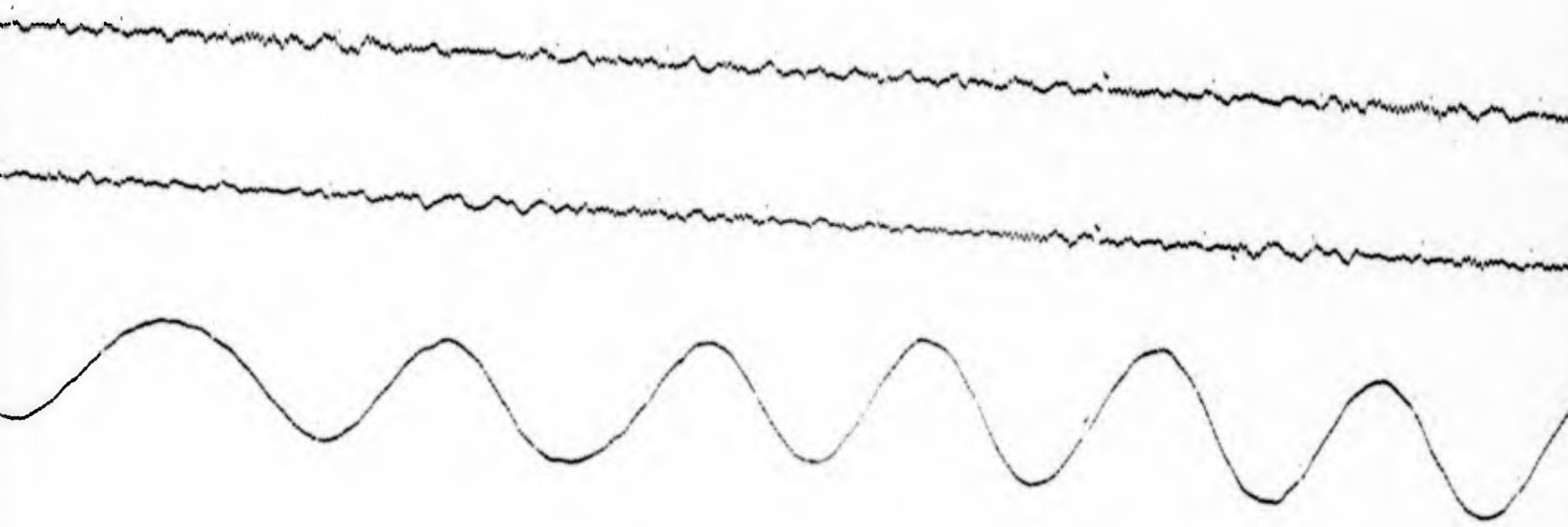
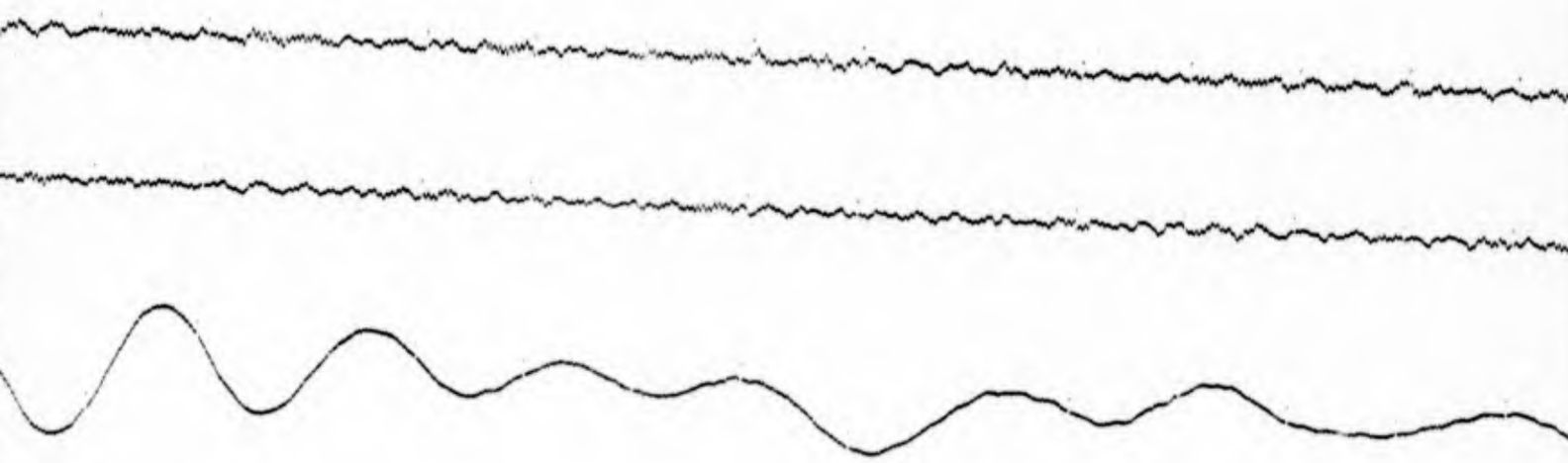
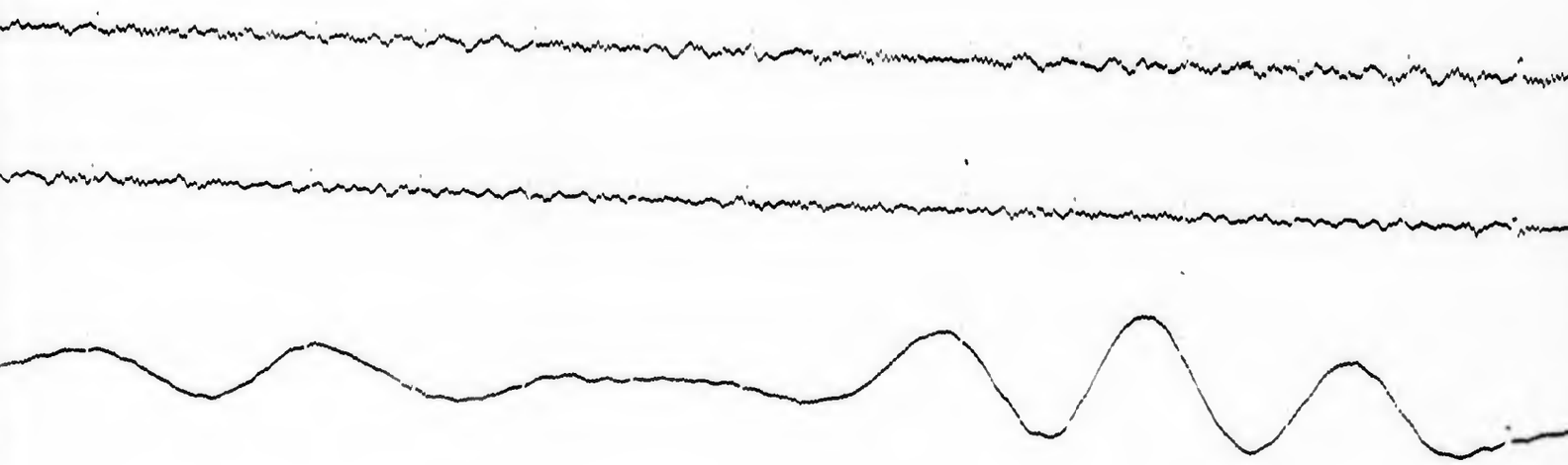
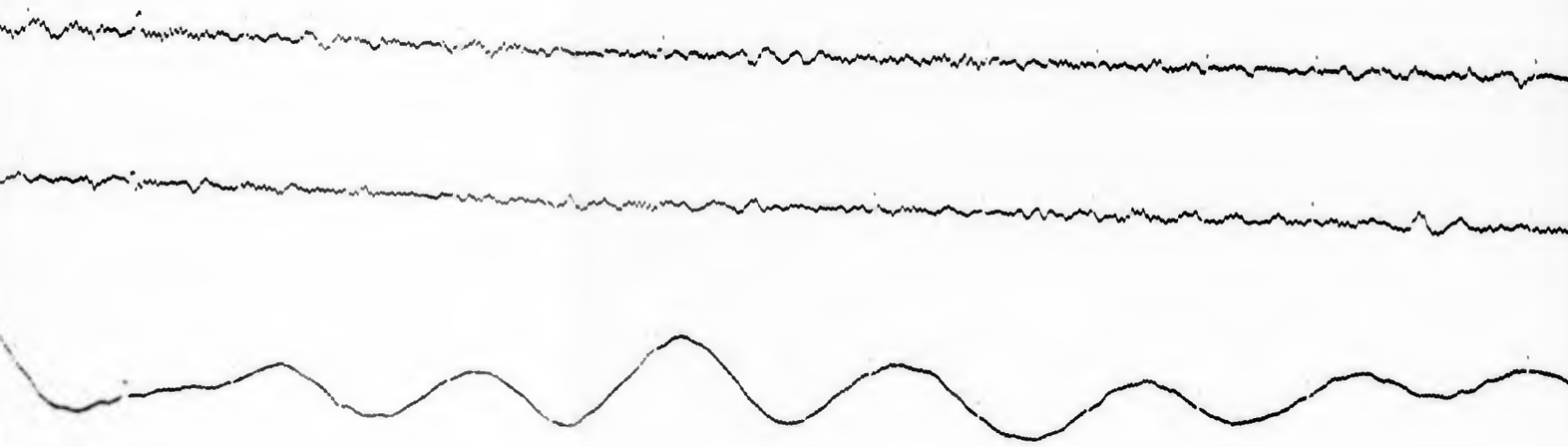


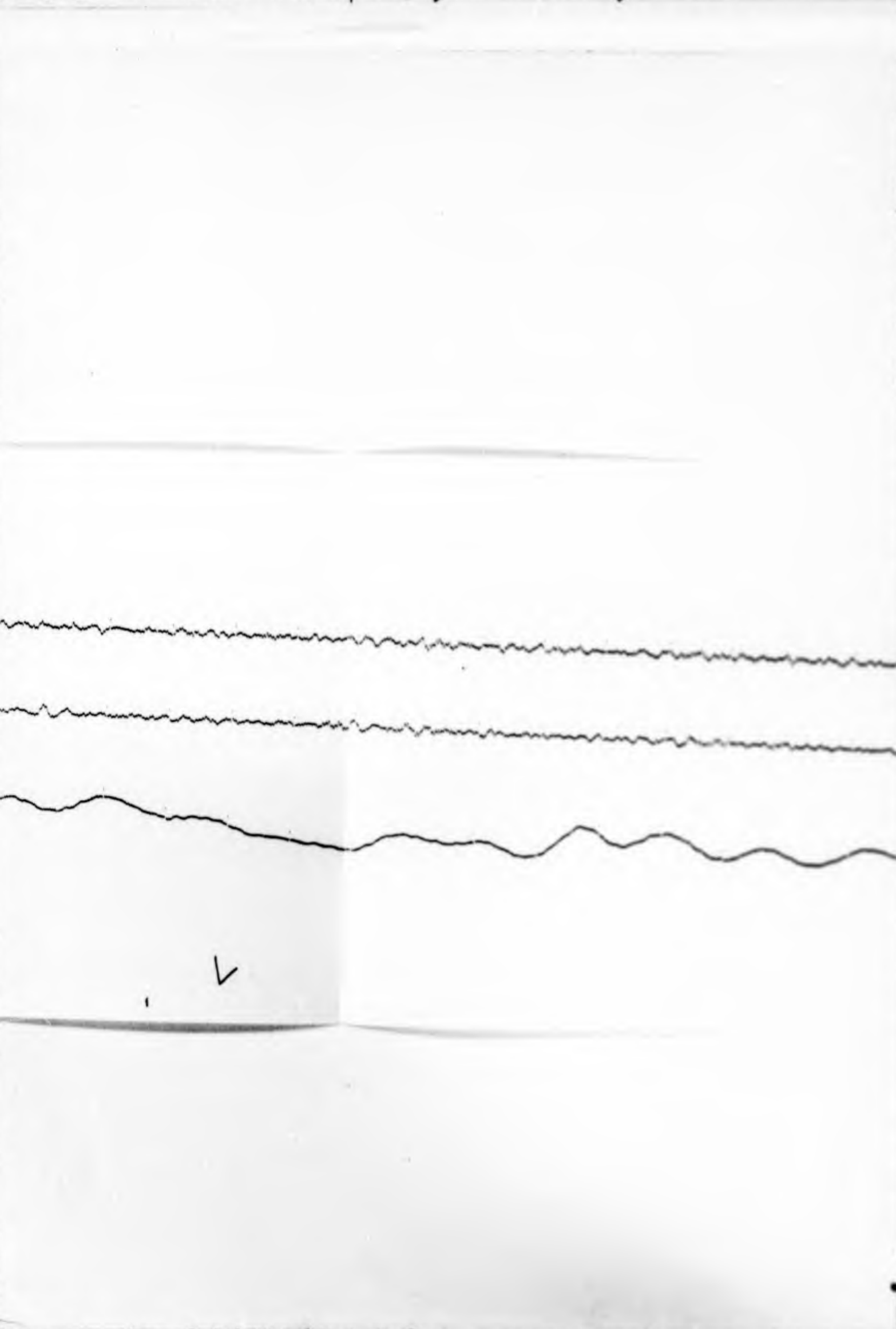
H

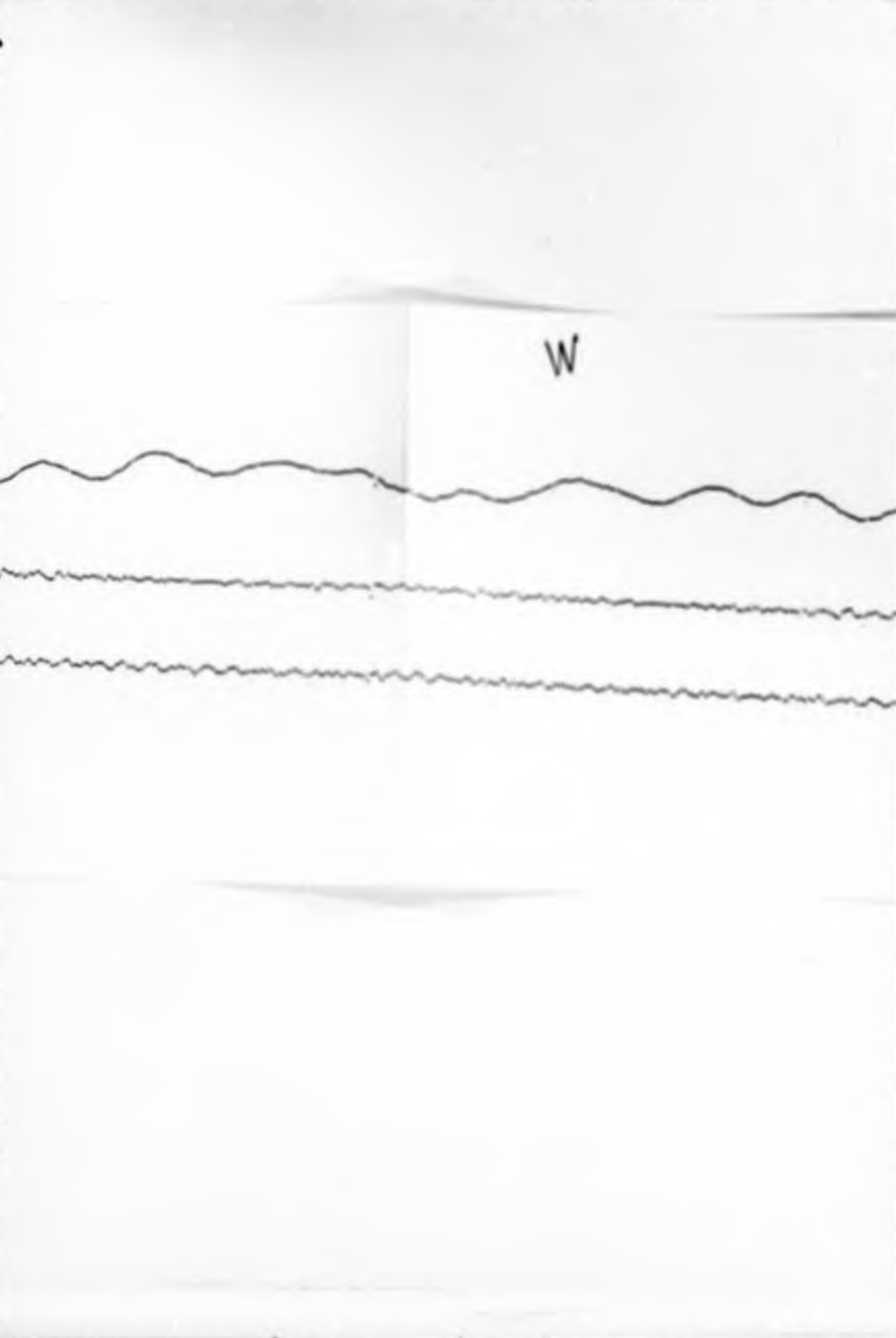




J



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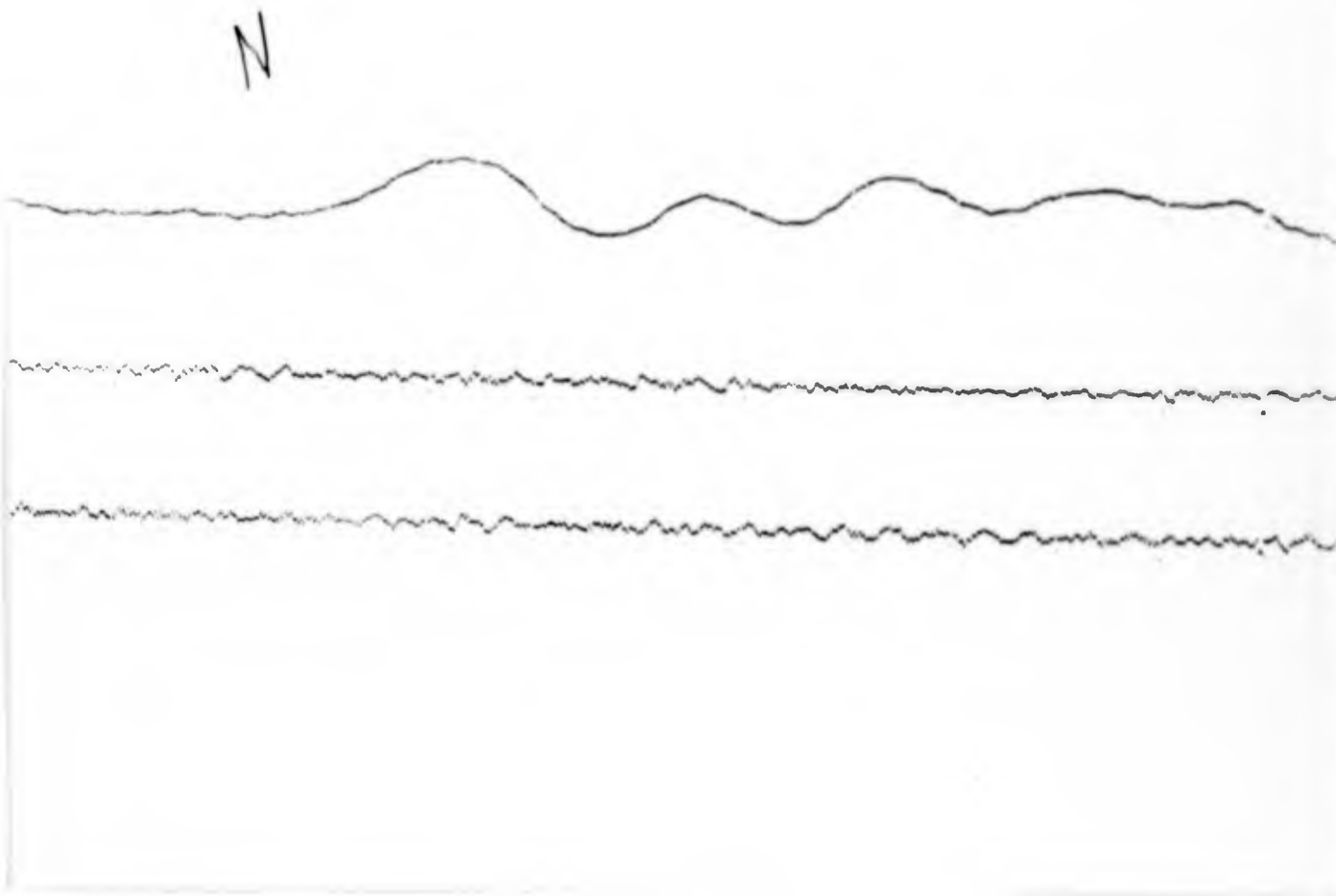

N

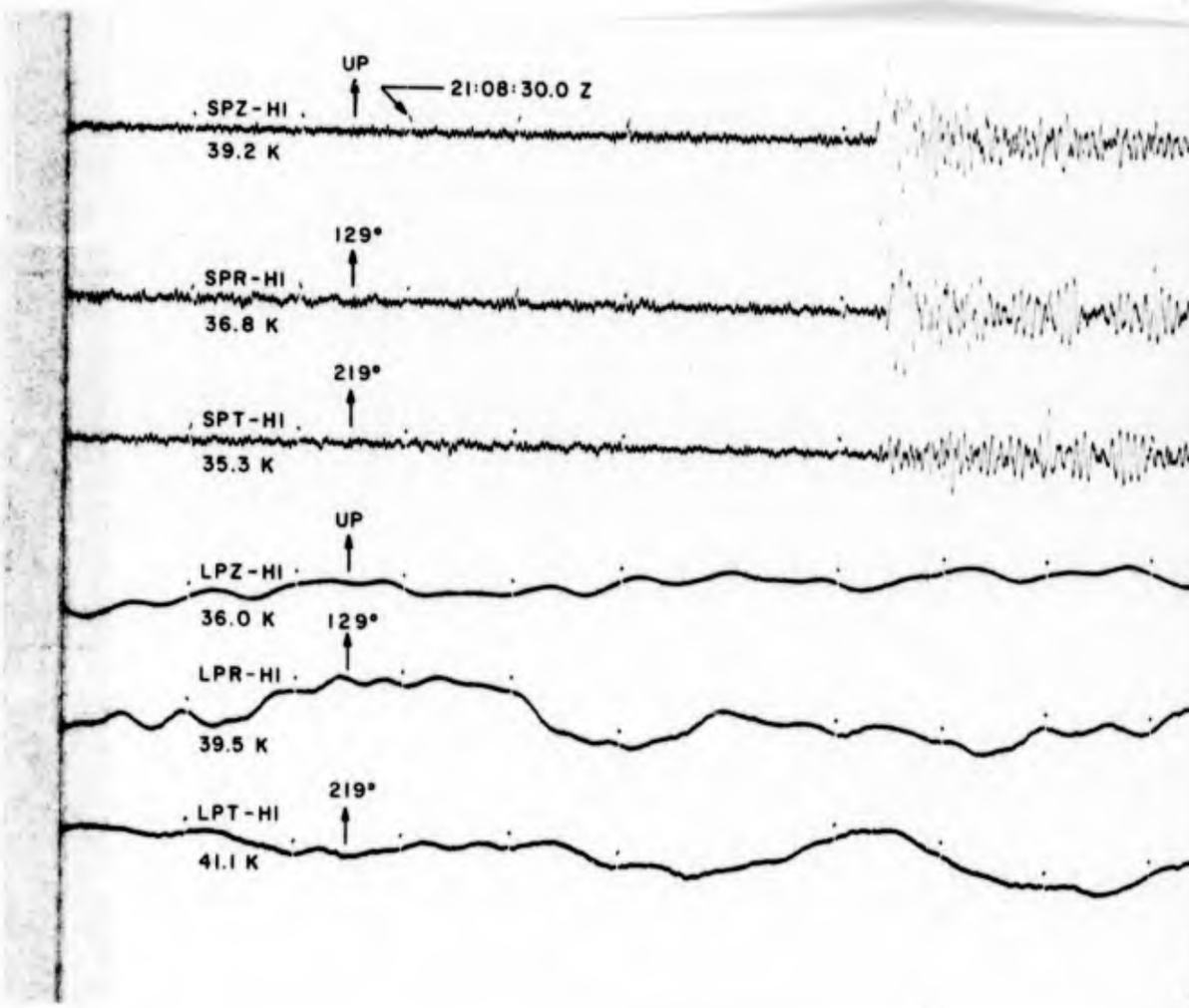
LONG SHOT

WN-SD

WINNER, SOUTH DAKOTA

29 OCTOBER 1965

Δ=5852 Km



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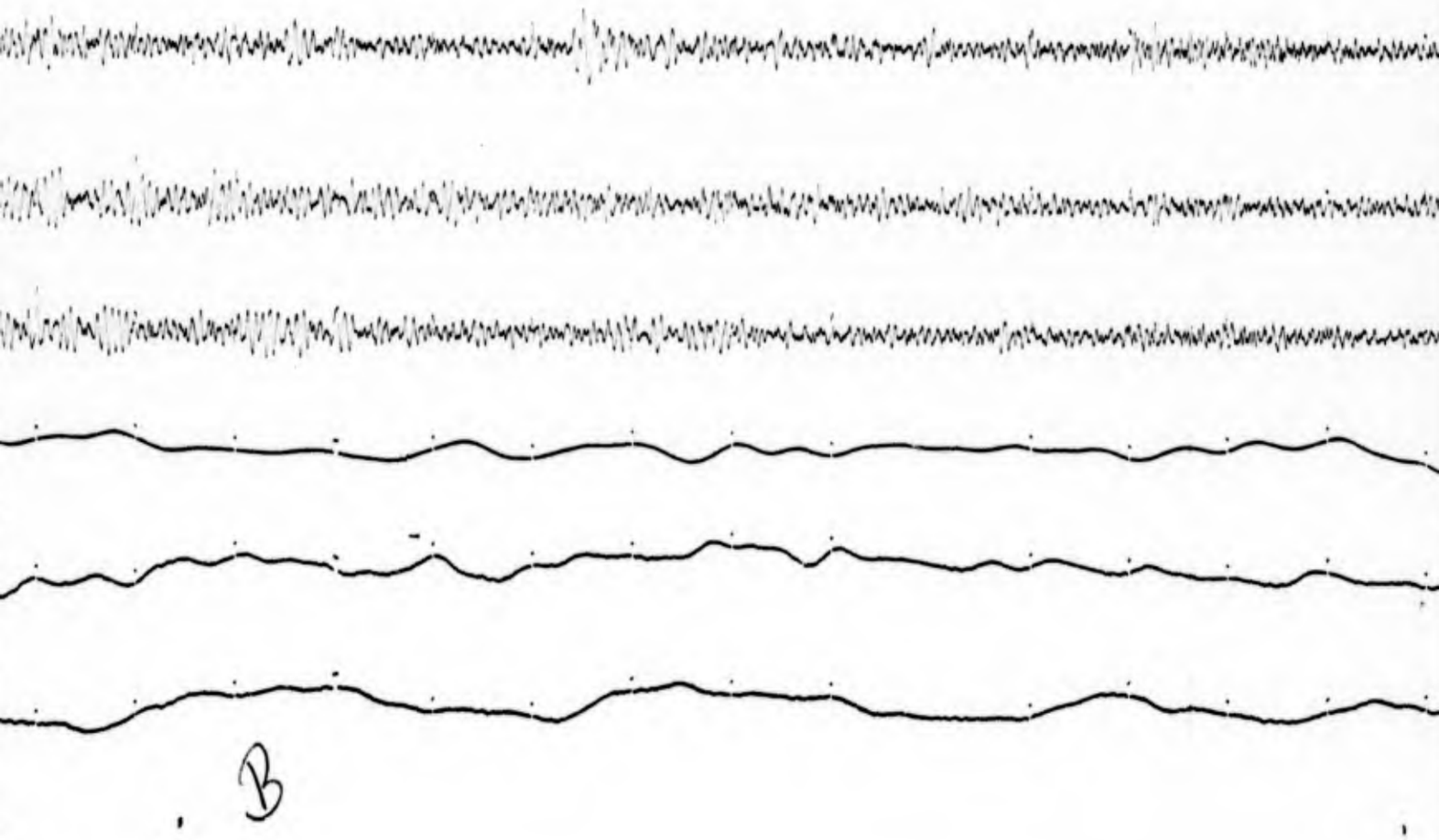

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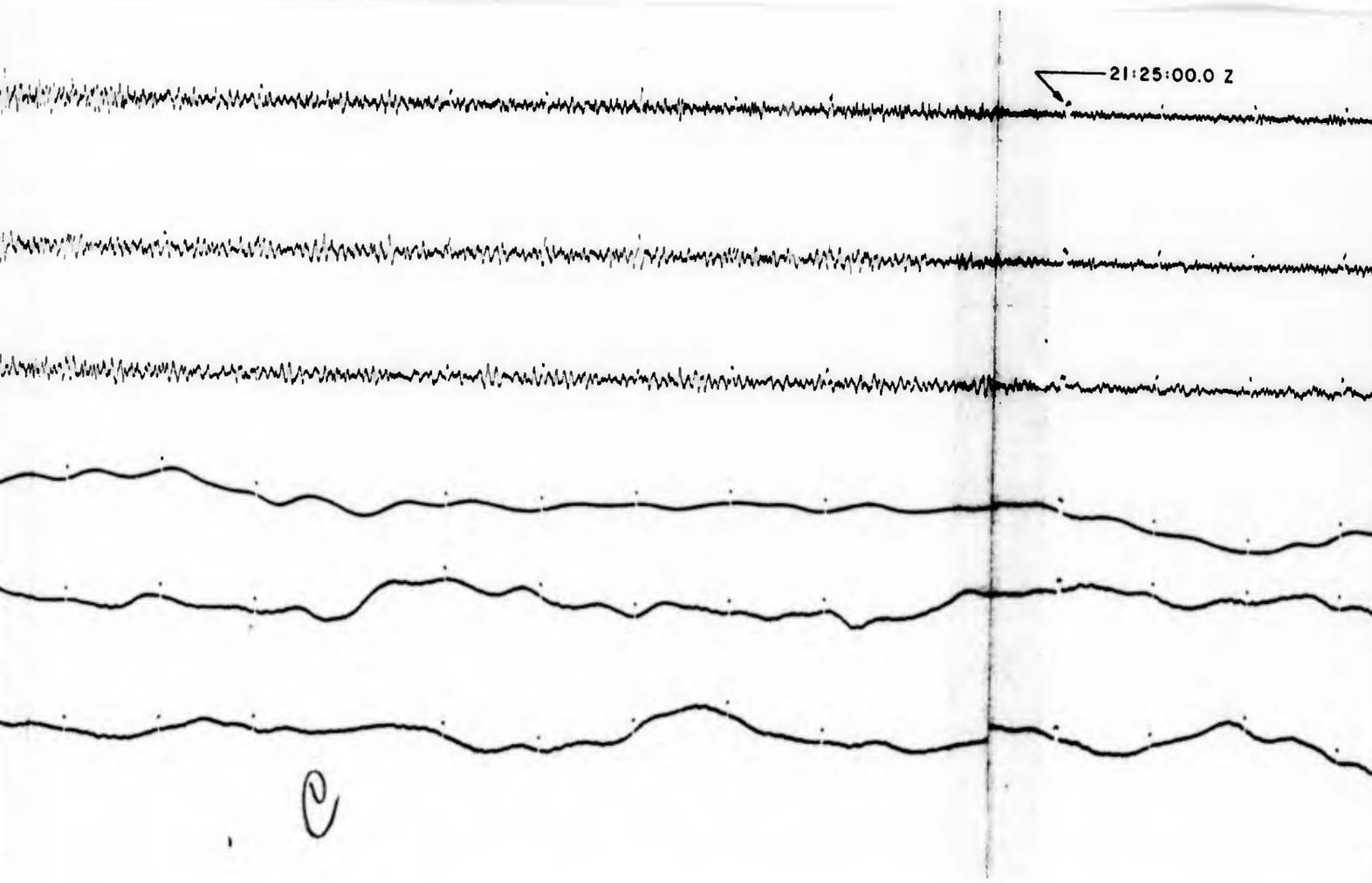
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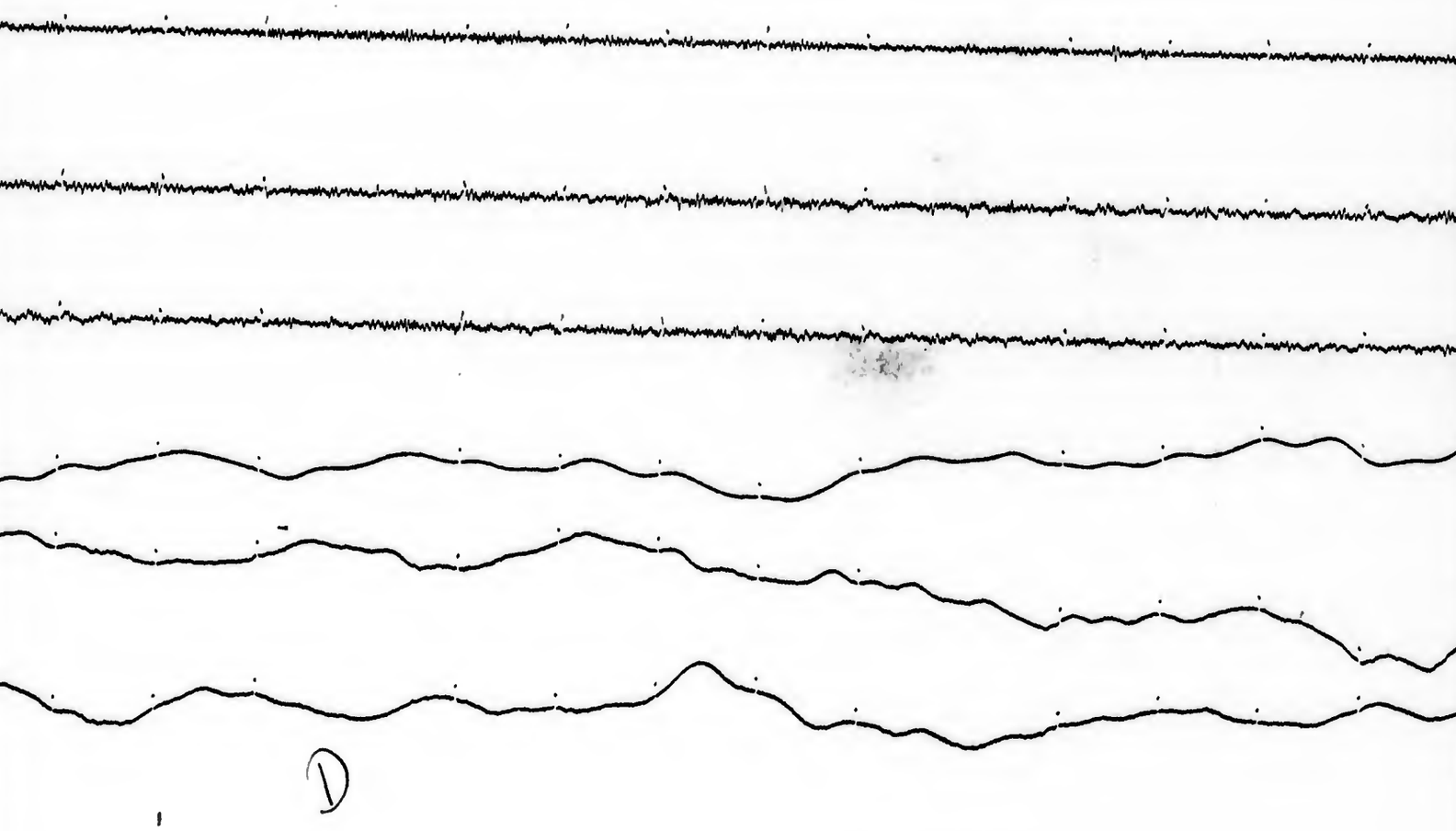
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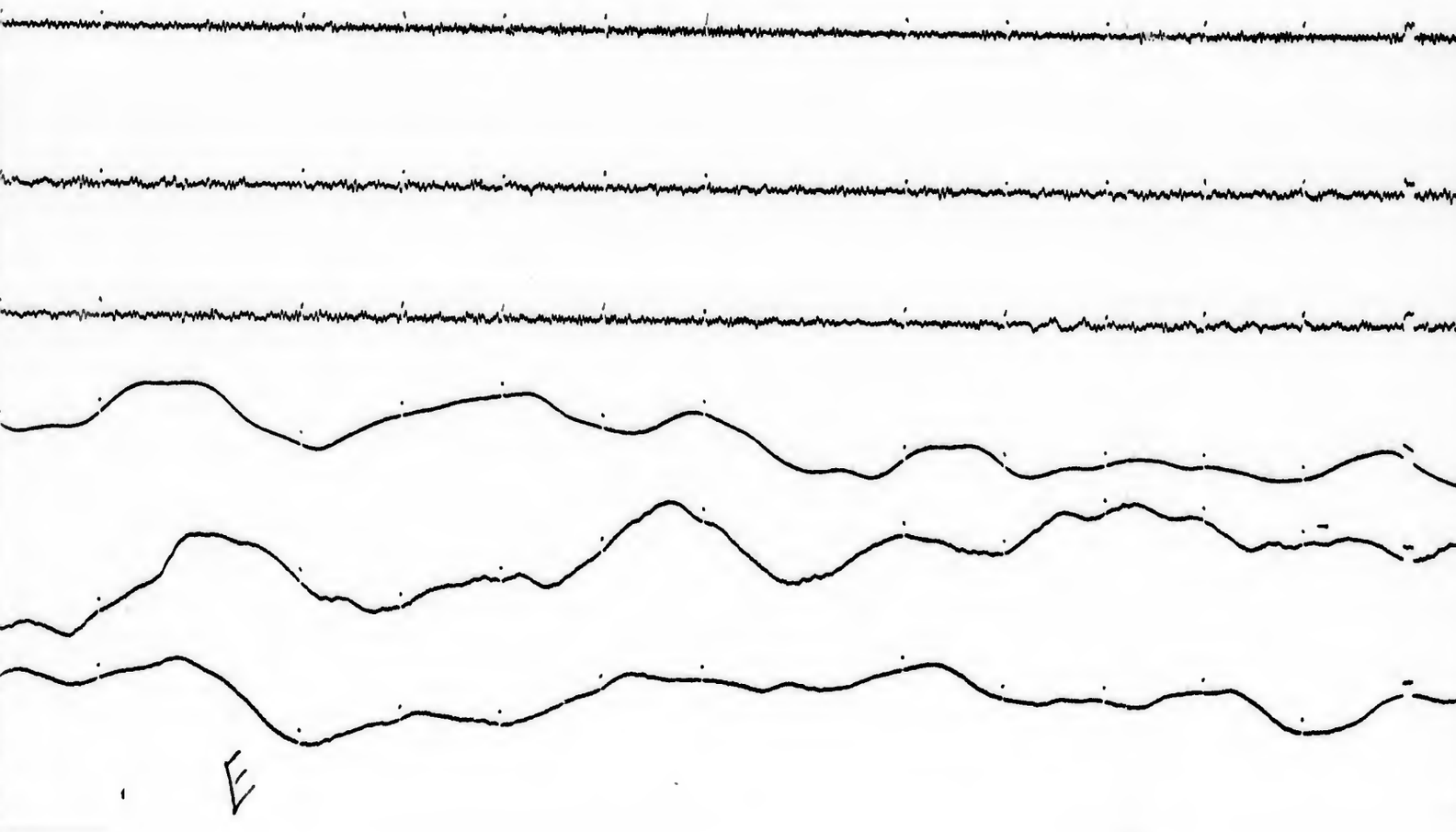
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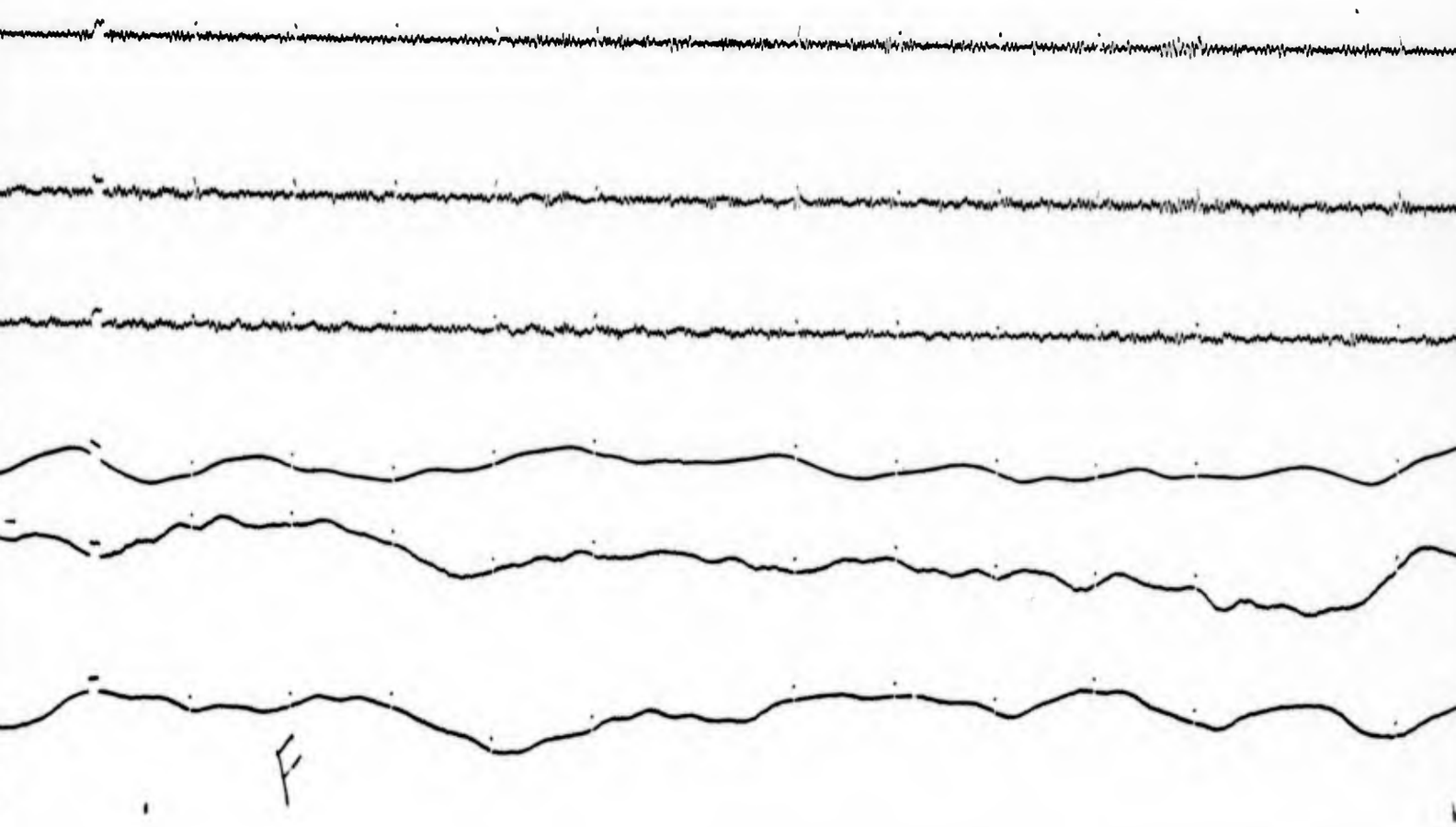
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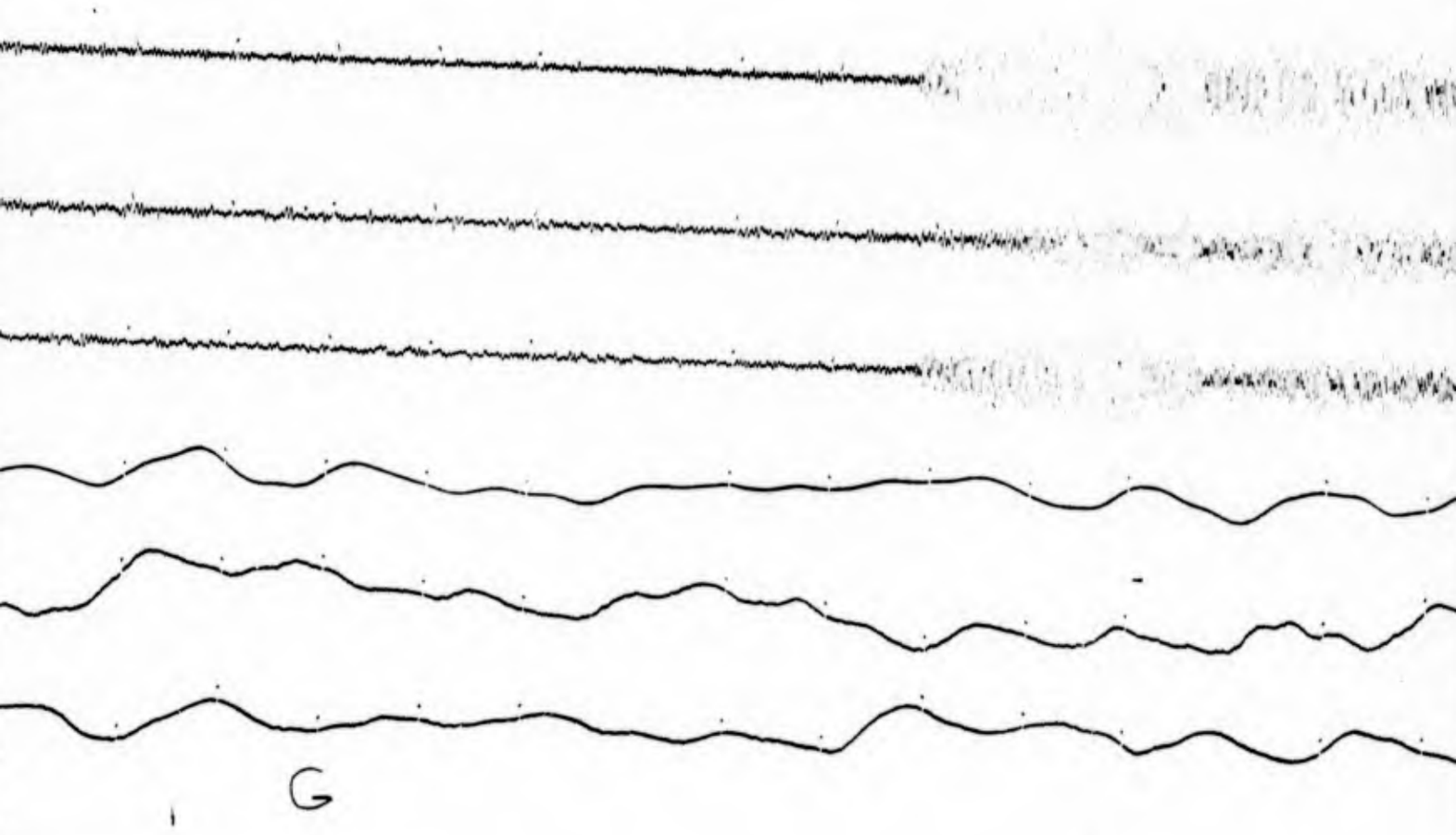
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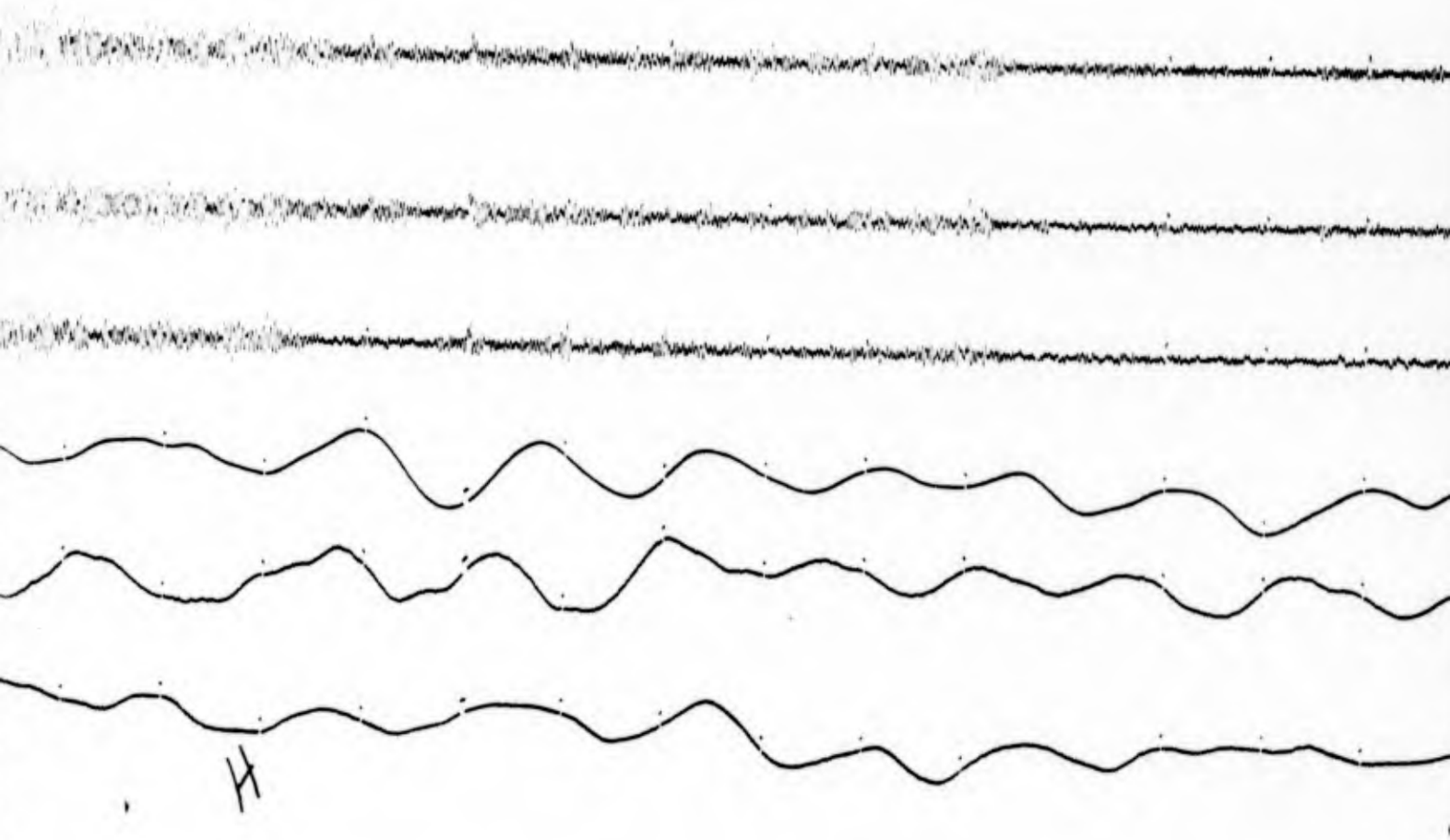

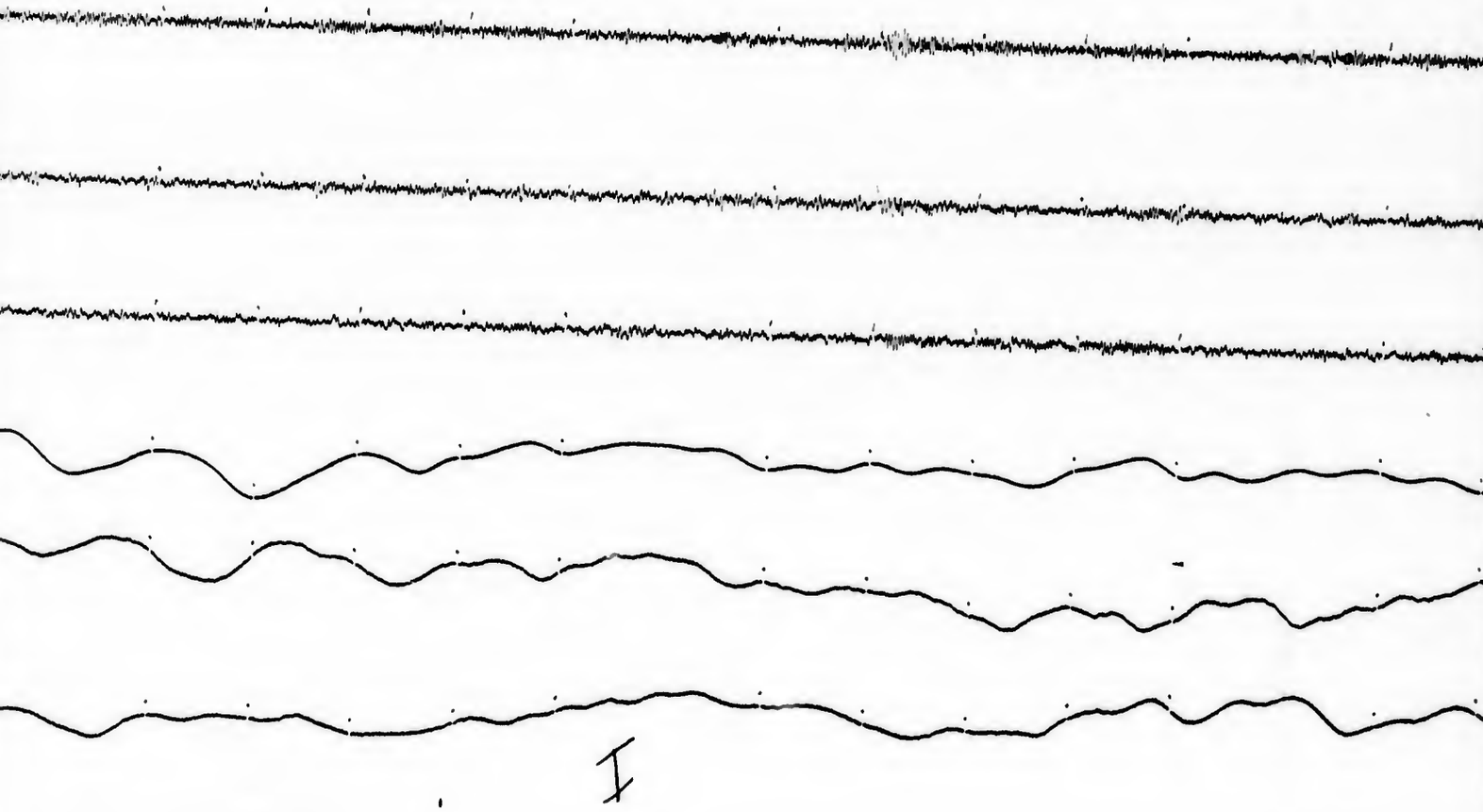
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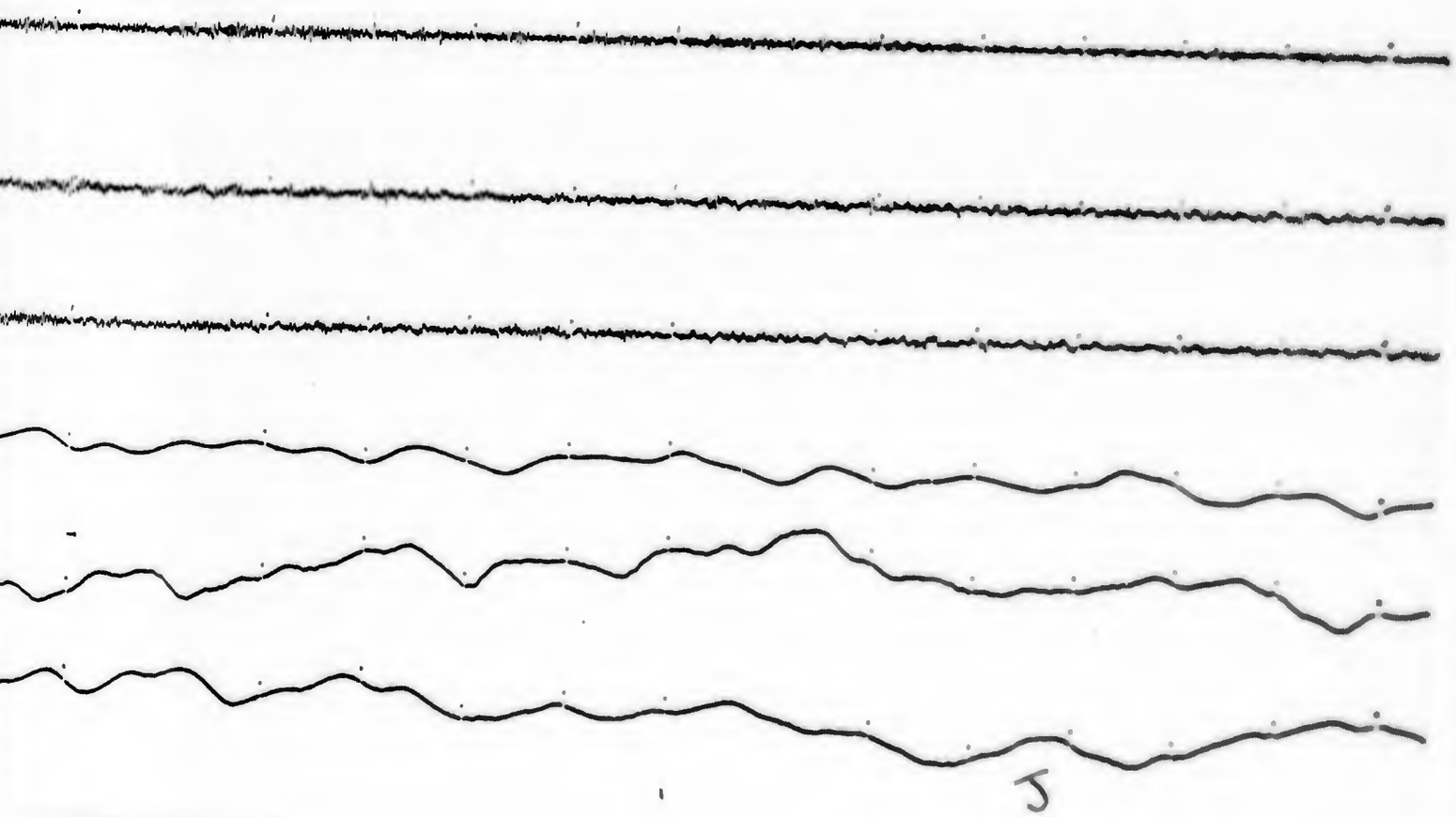

J

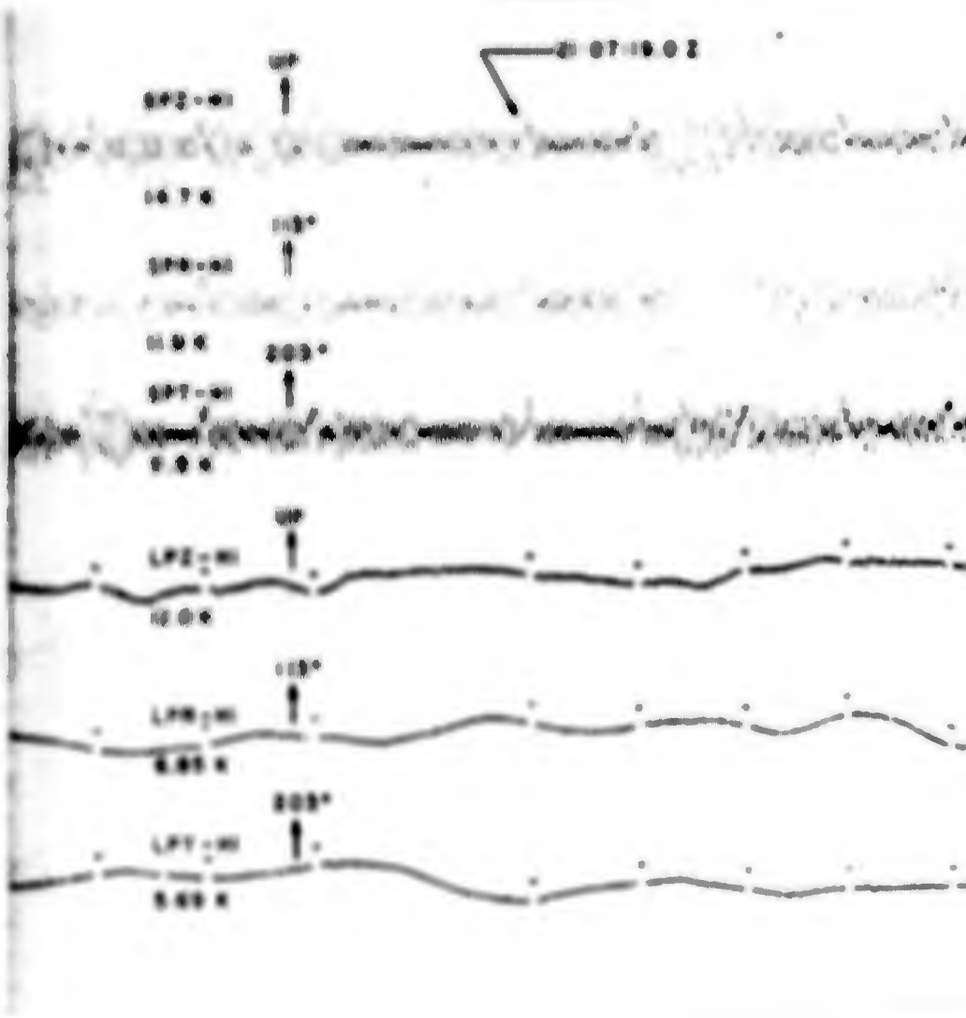
LONG SHOT

WS-AT

WATERWAYS, ALBERTA, CANADA

29 OCTOBER 1965

Δ=4399 km



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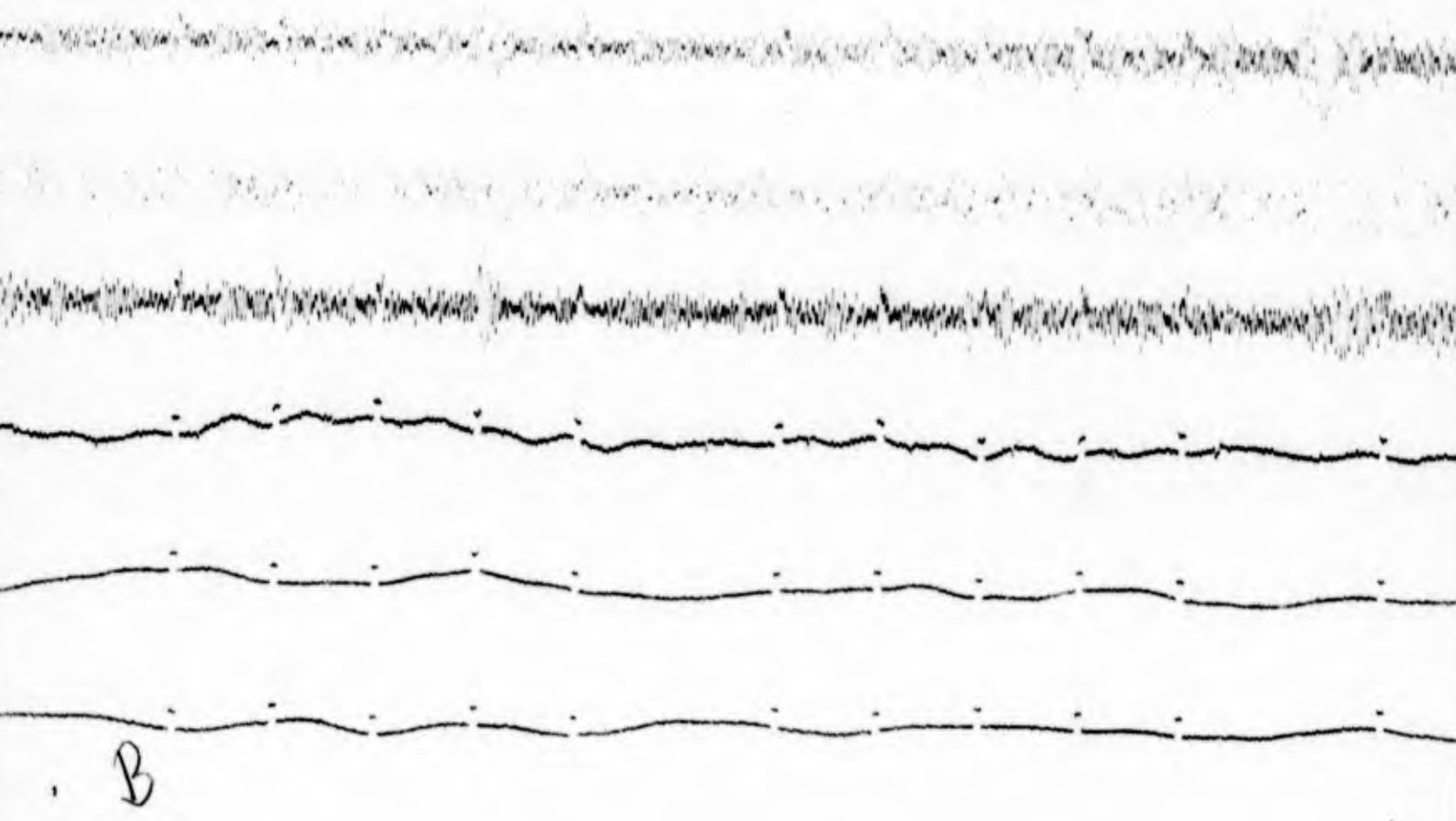

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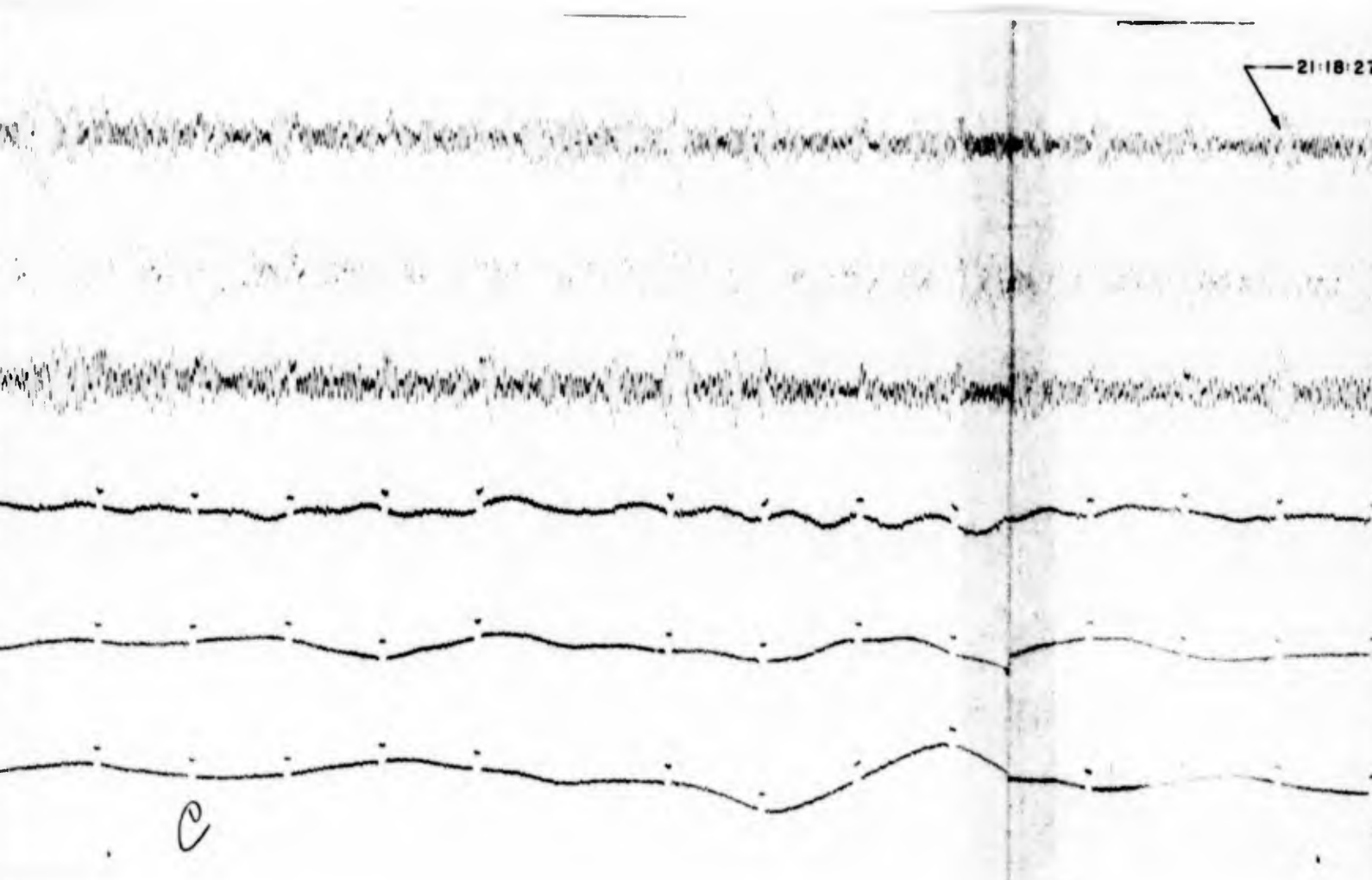
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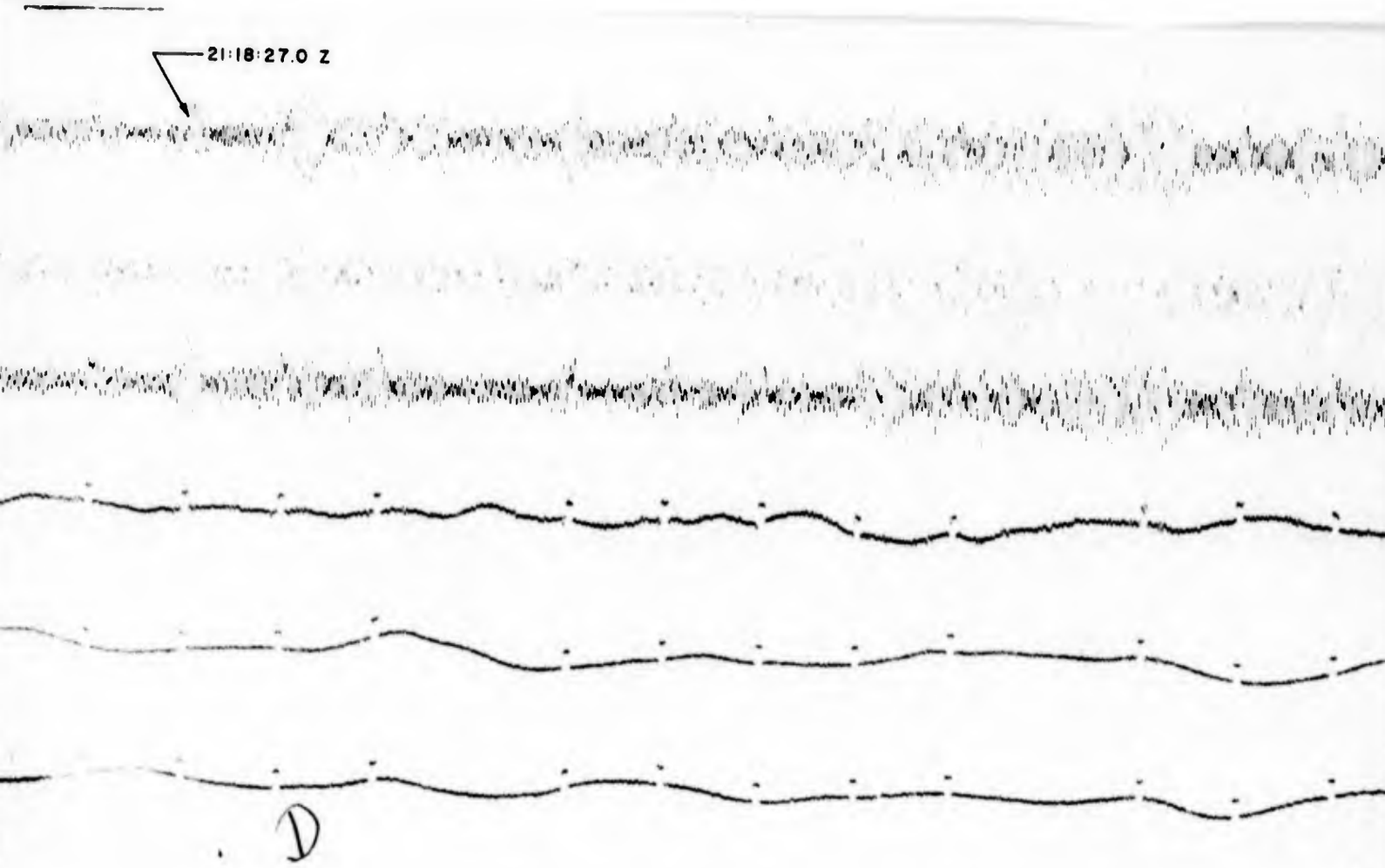
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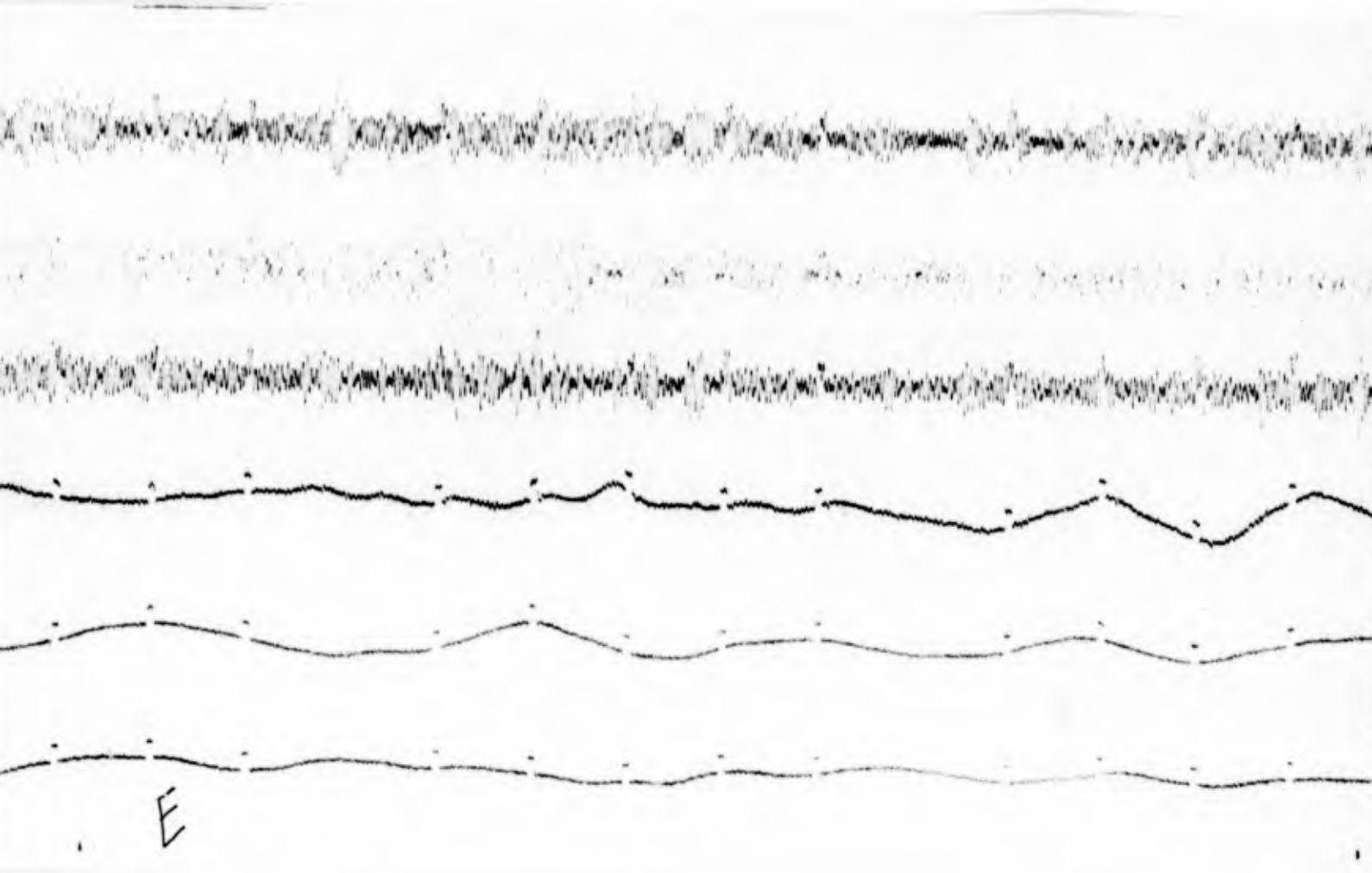
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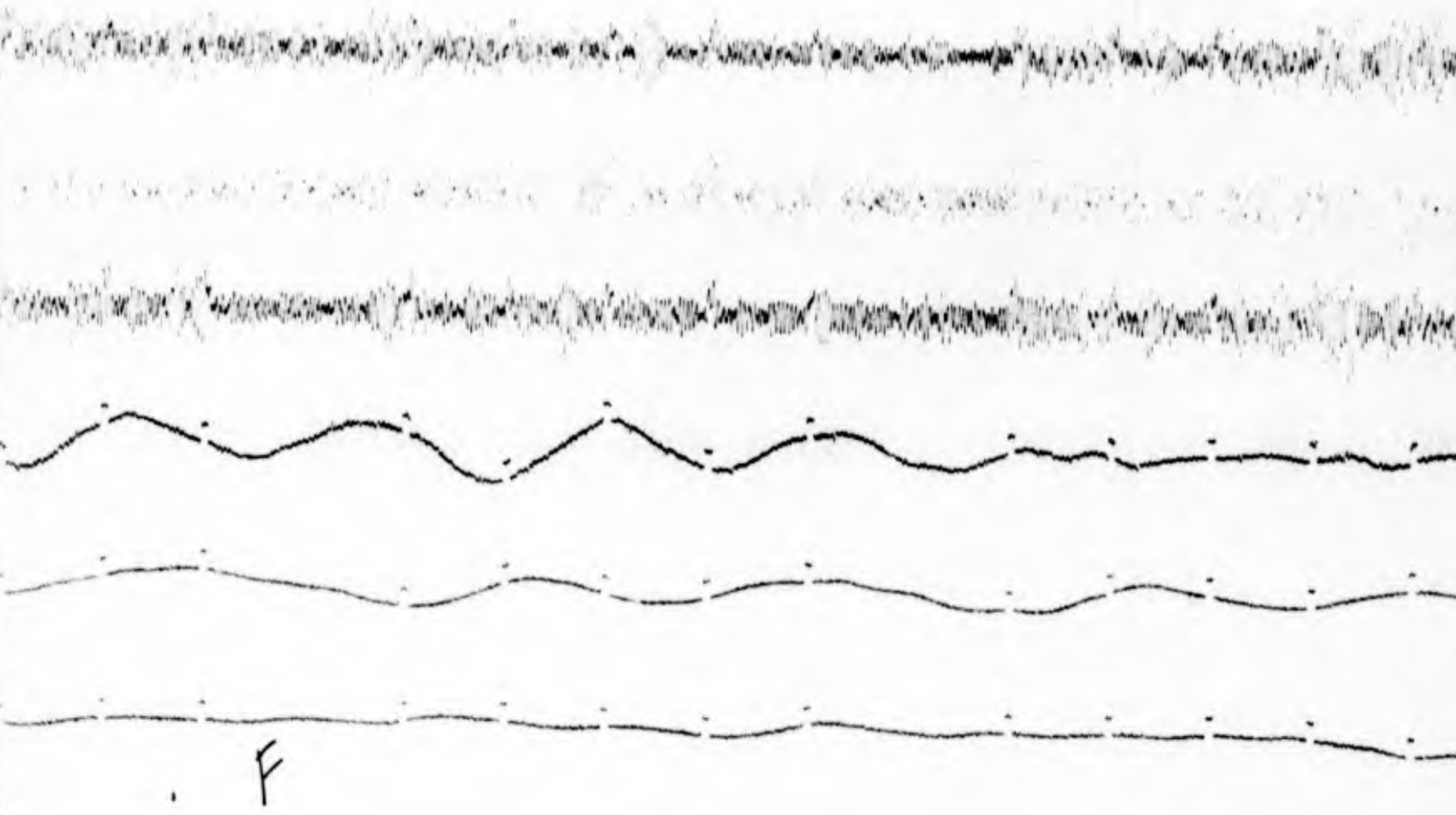
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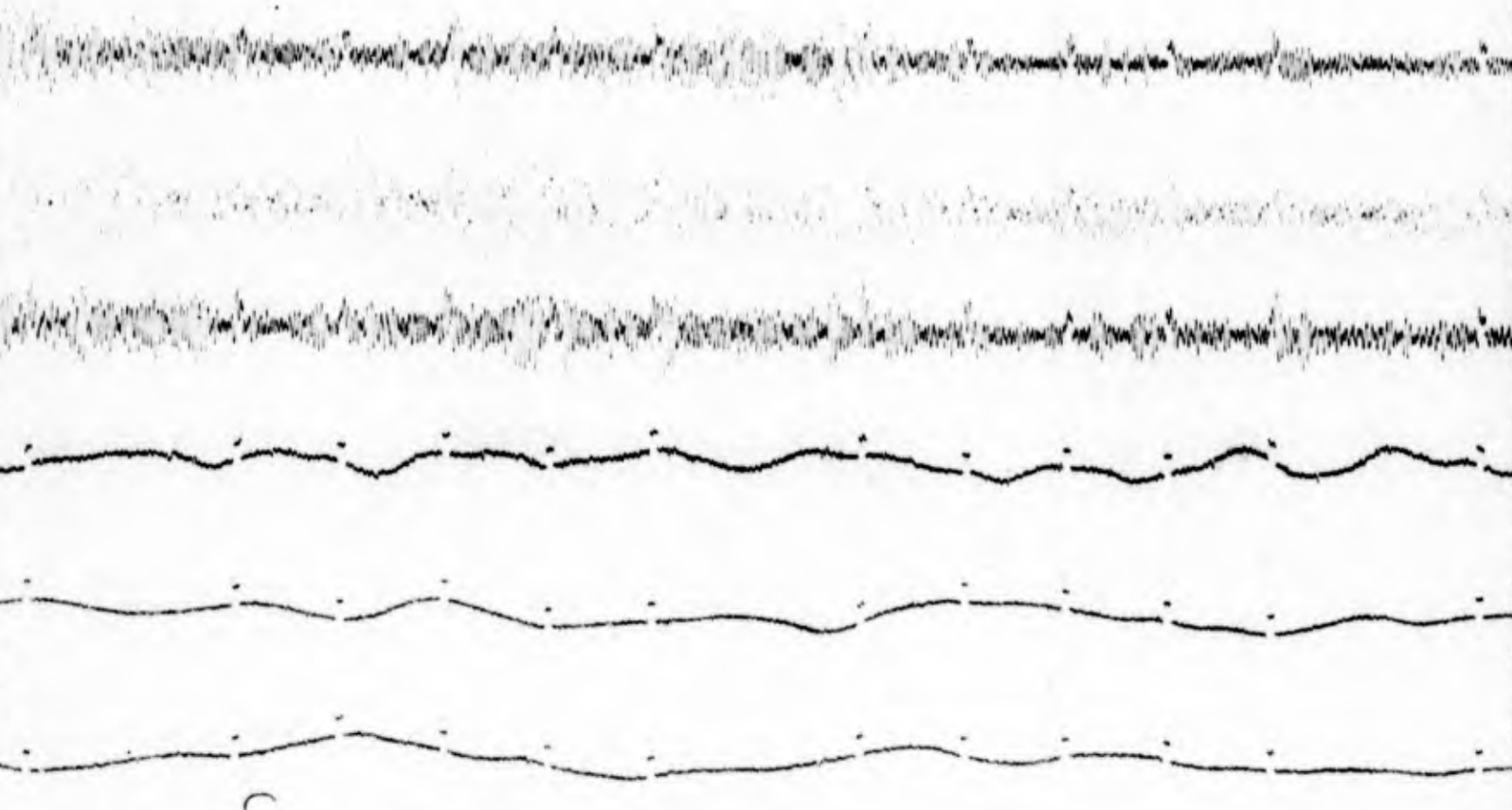
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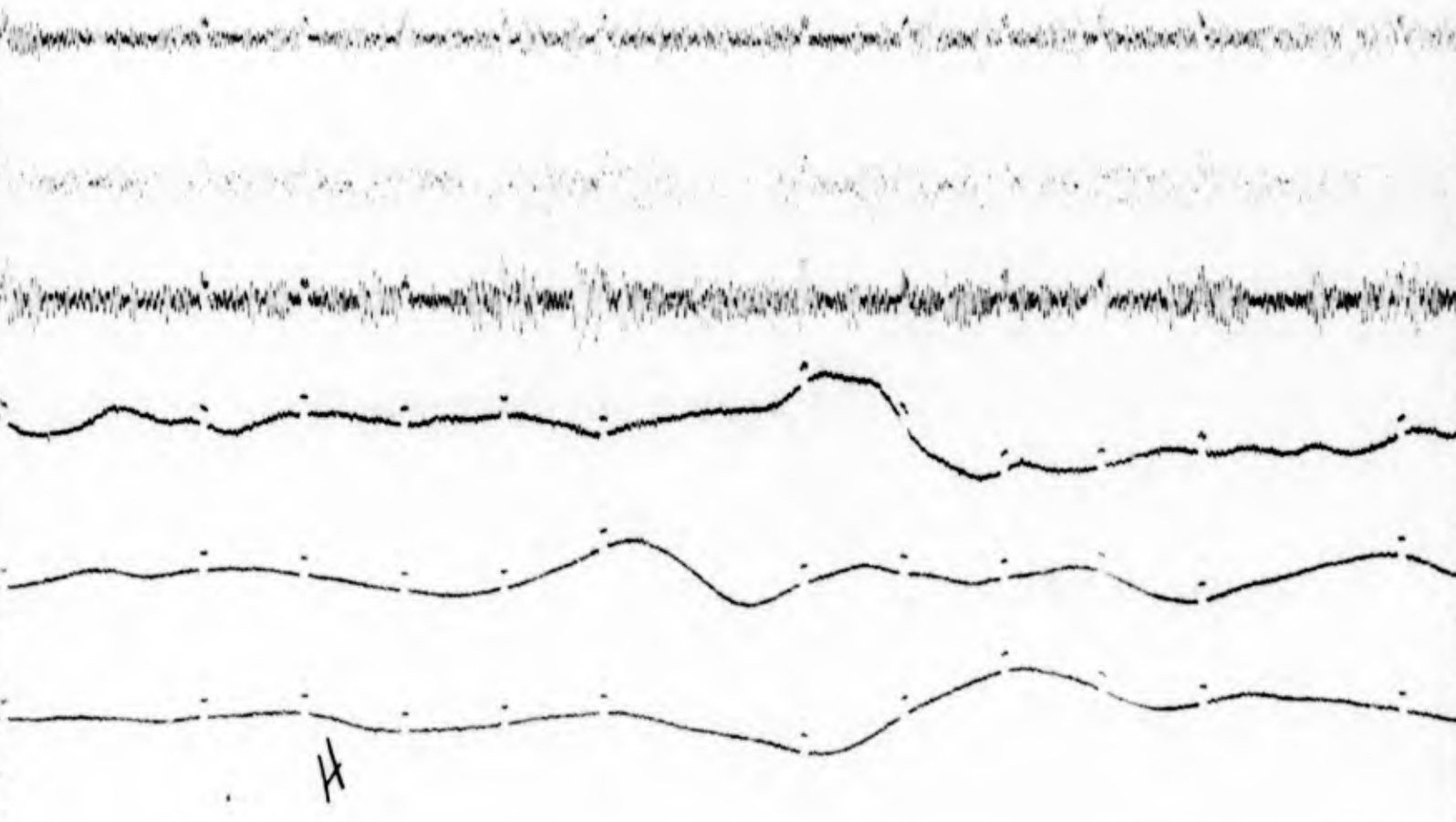

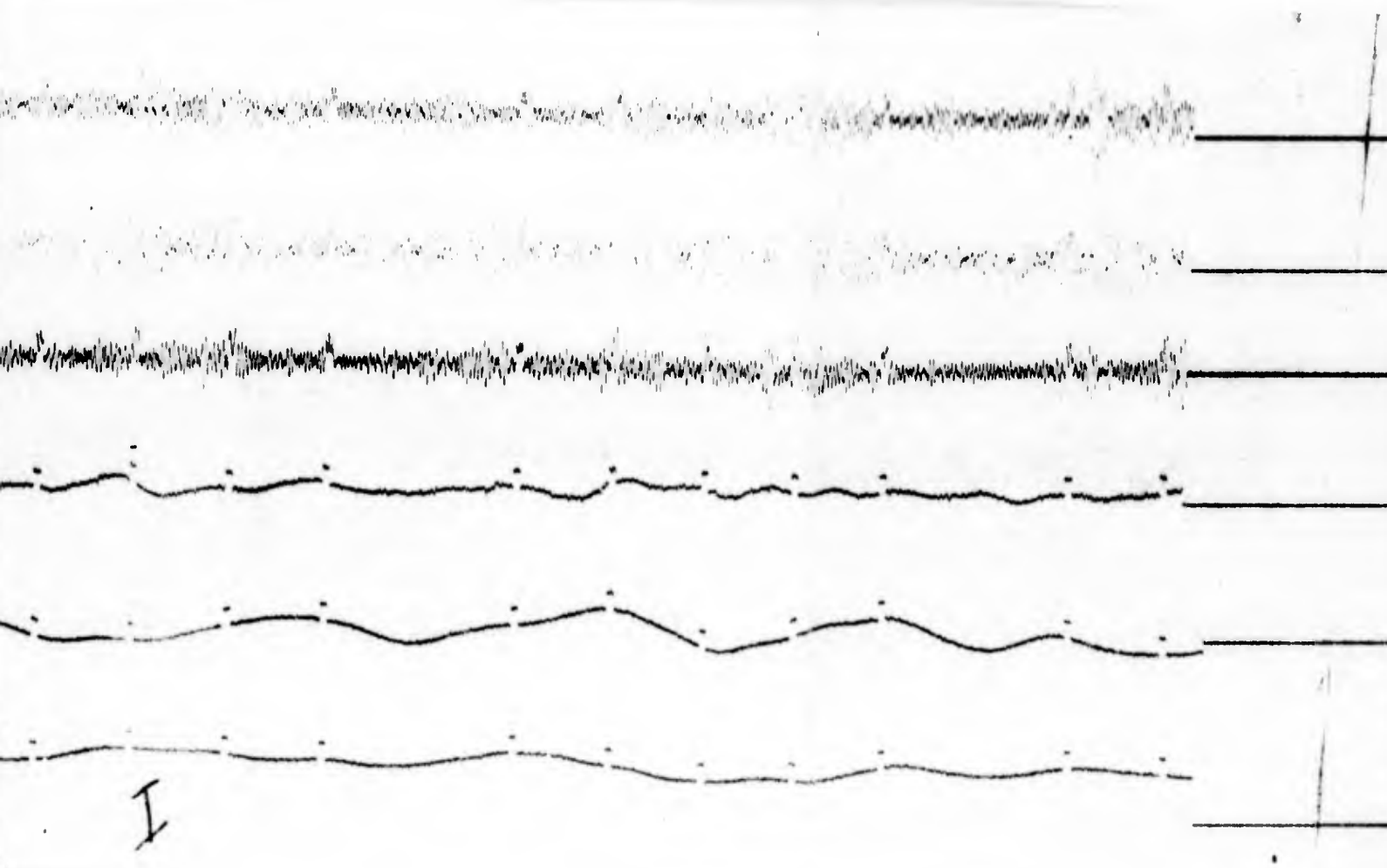
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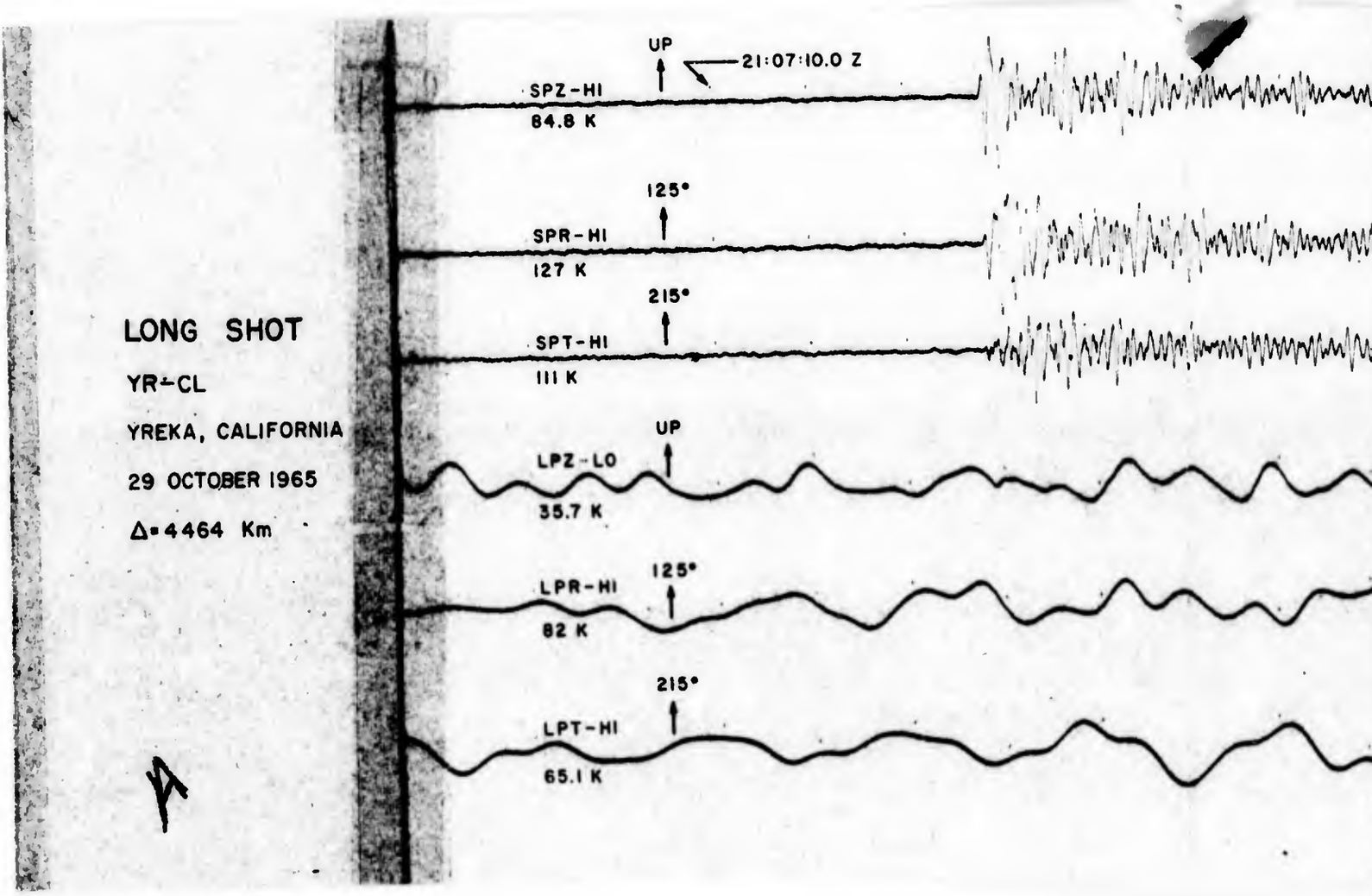
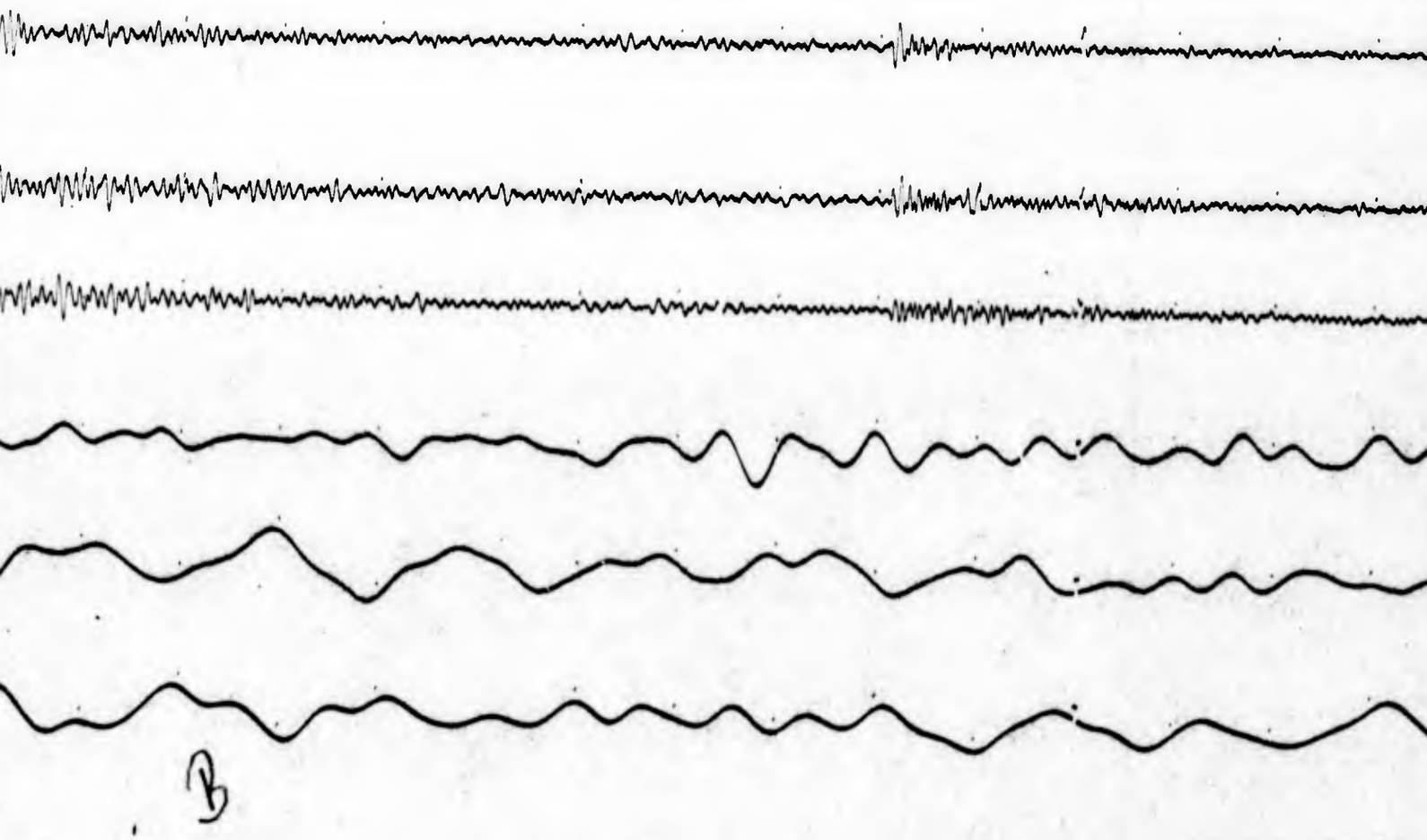

LONG SHOT
YR-CL
YREKA, CALIFORNIA
29 OCTOBER 1965
Δ=4464 Km
UP
21:07:10.0 Z
SPZ-HI
84.8 K
125°
SPR-HI
127 K
215°
SPT-HI
111 K
UP
LPZ-LO
35.7 K
125°
LPR-HI
82 K
215°
LPT-HI
65.1 K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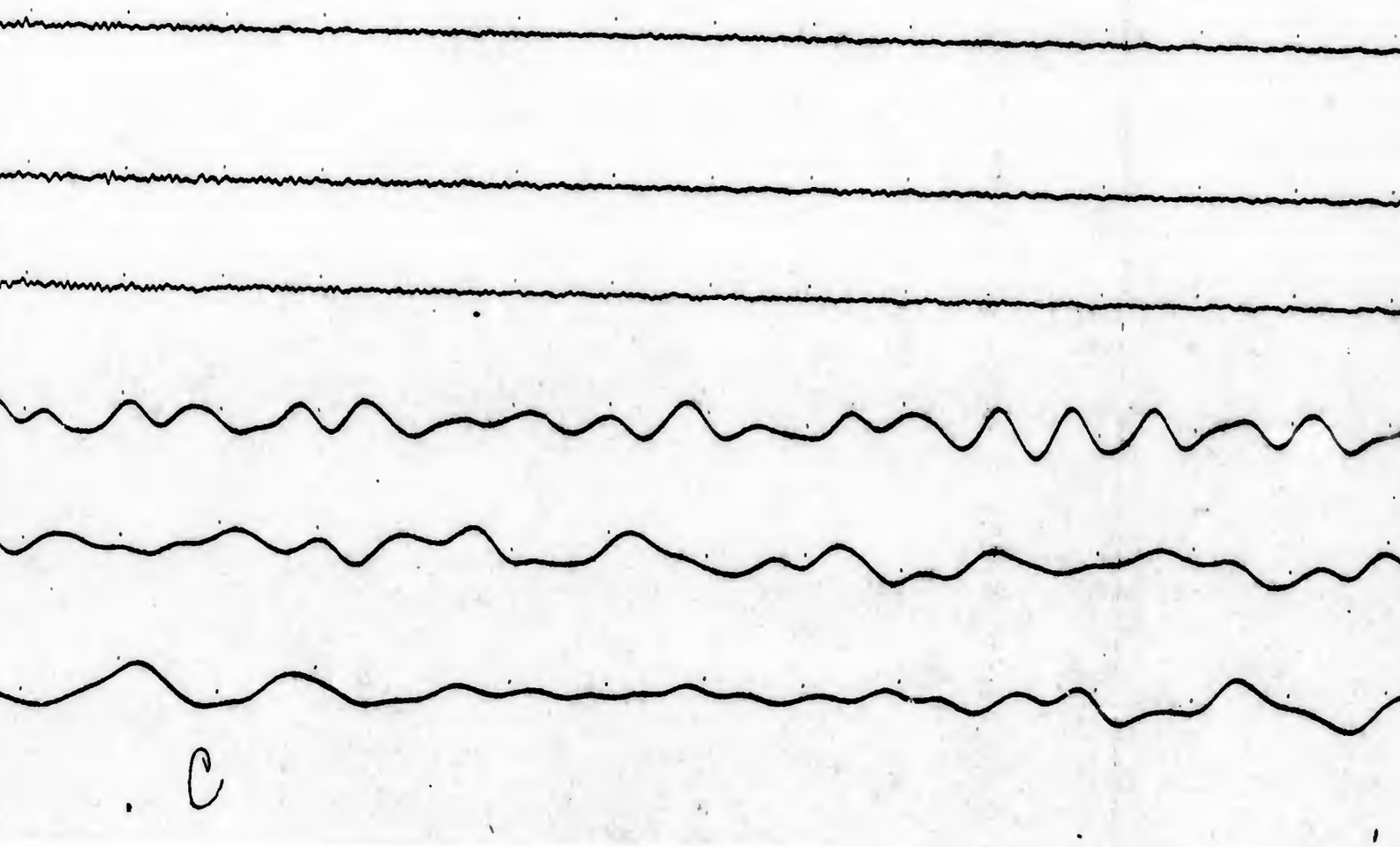
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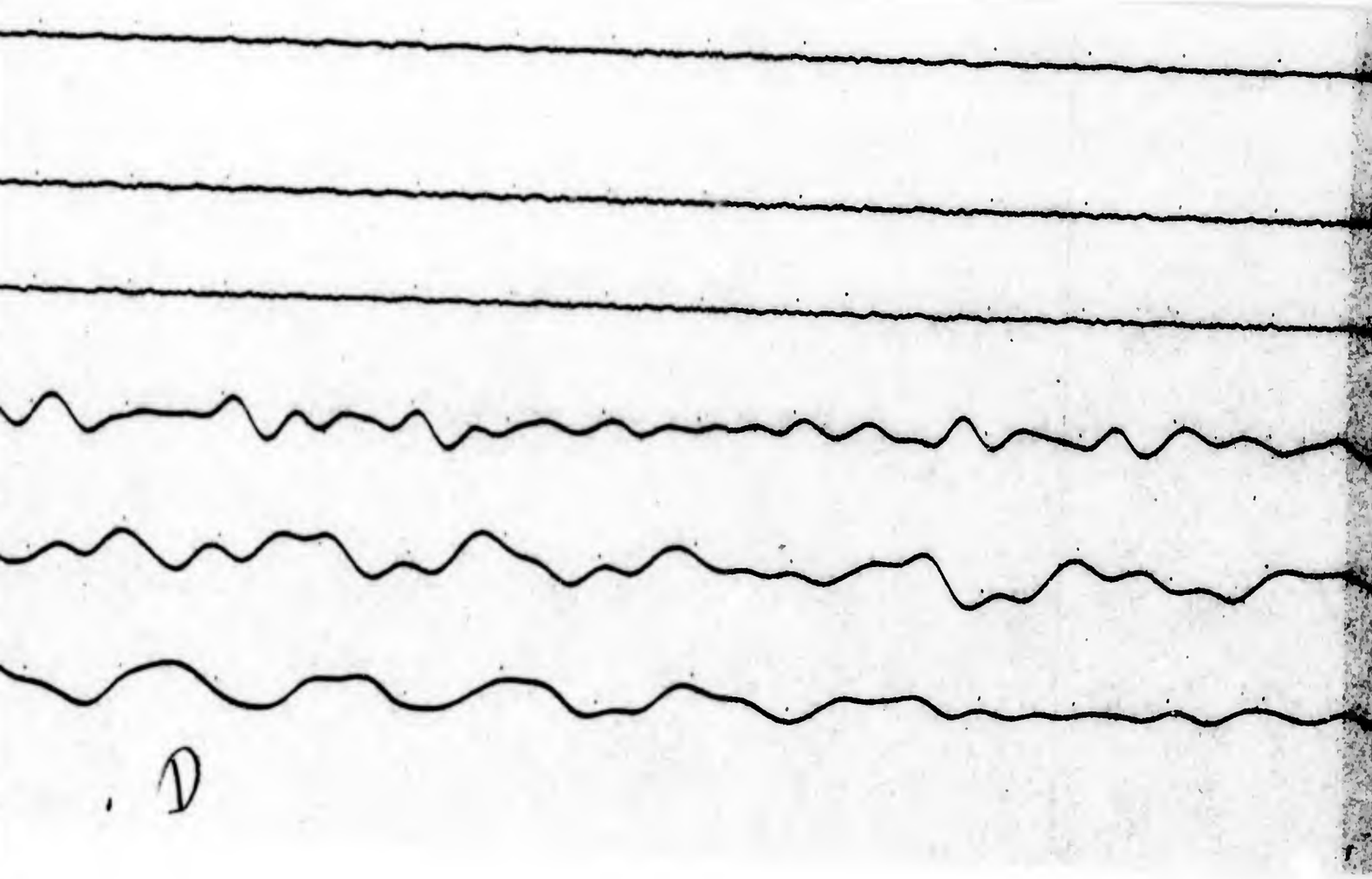
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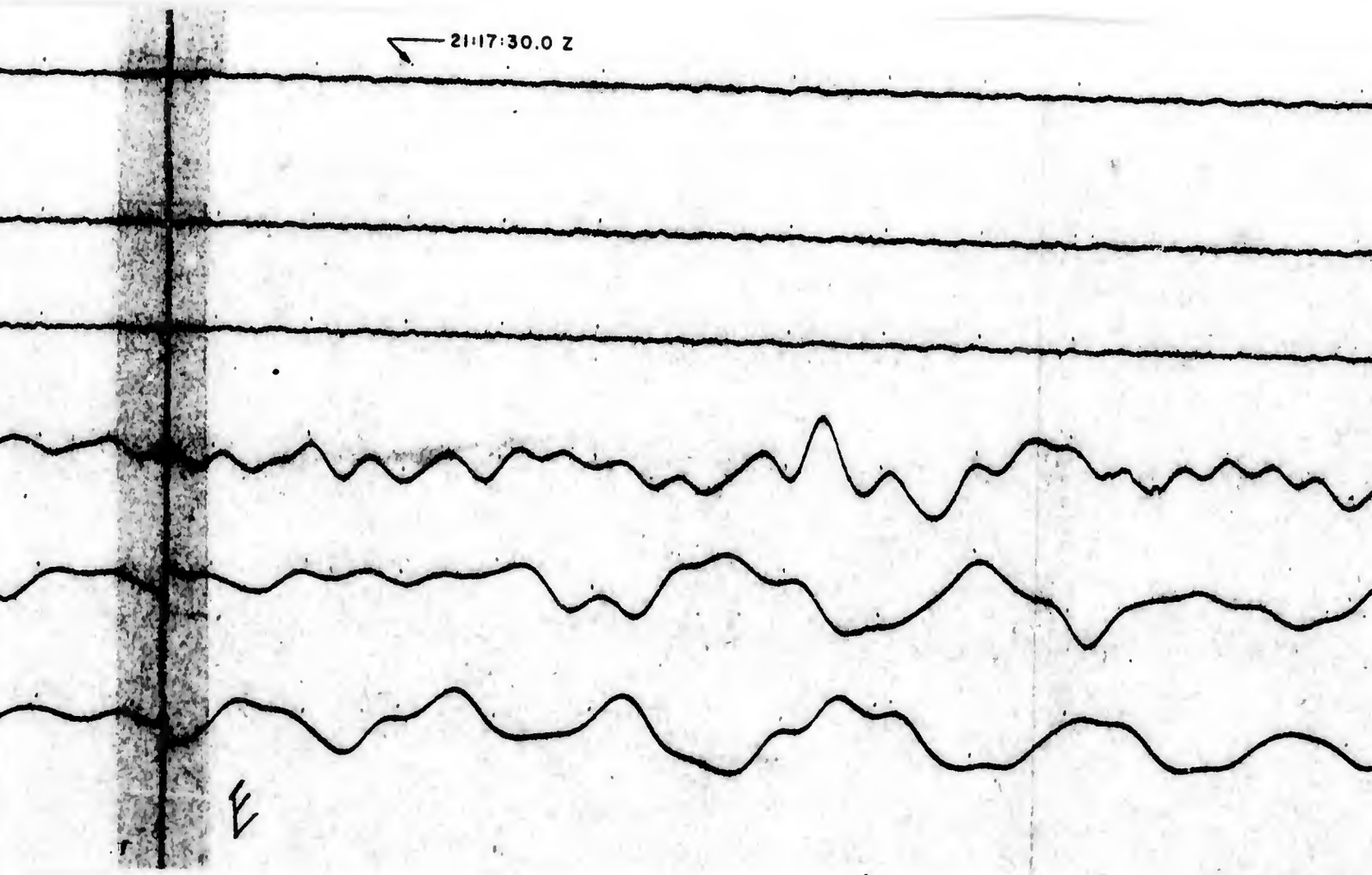
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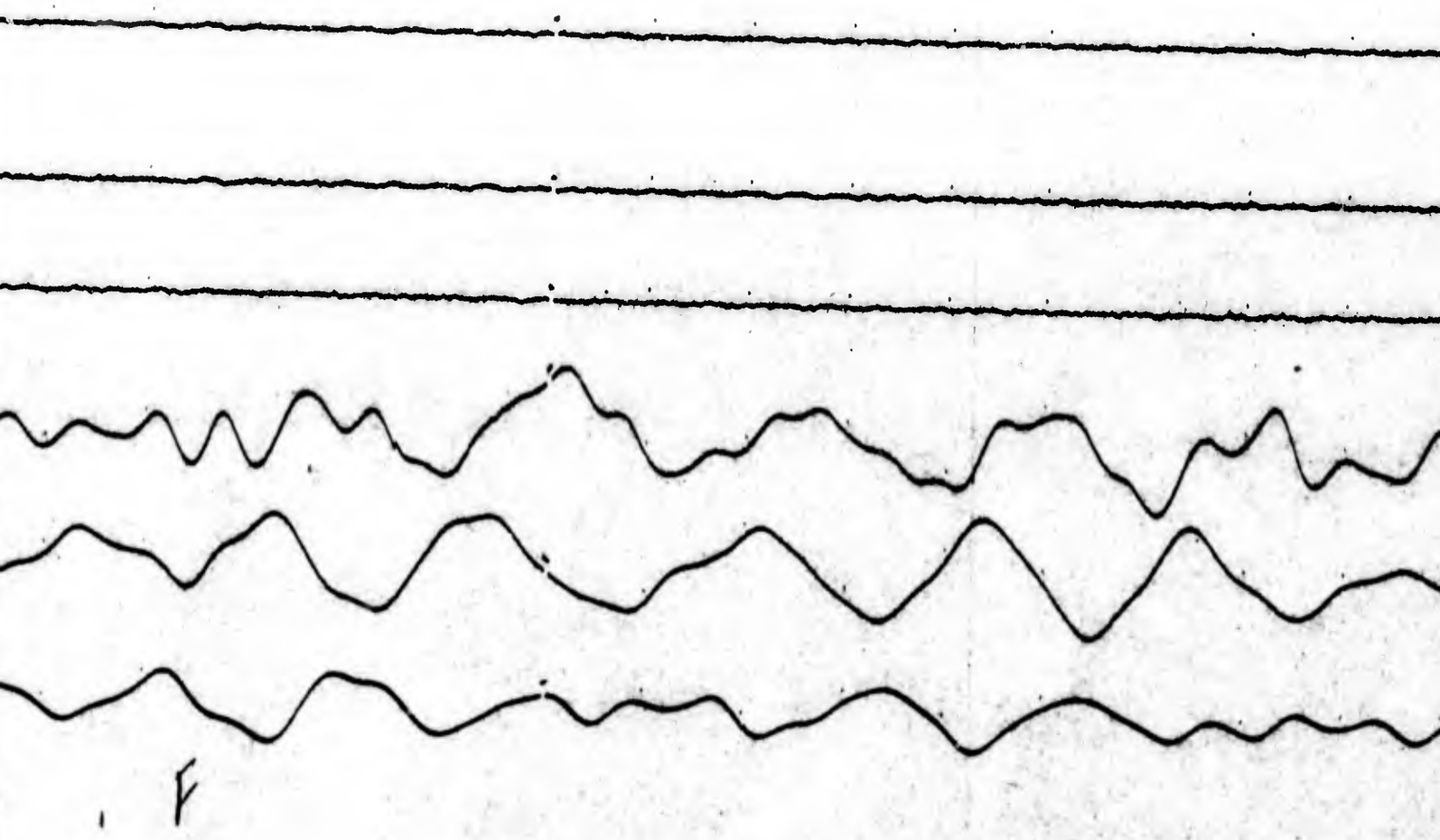
E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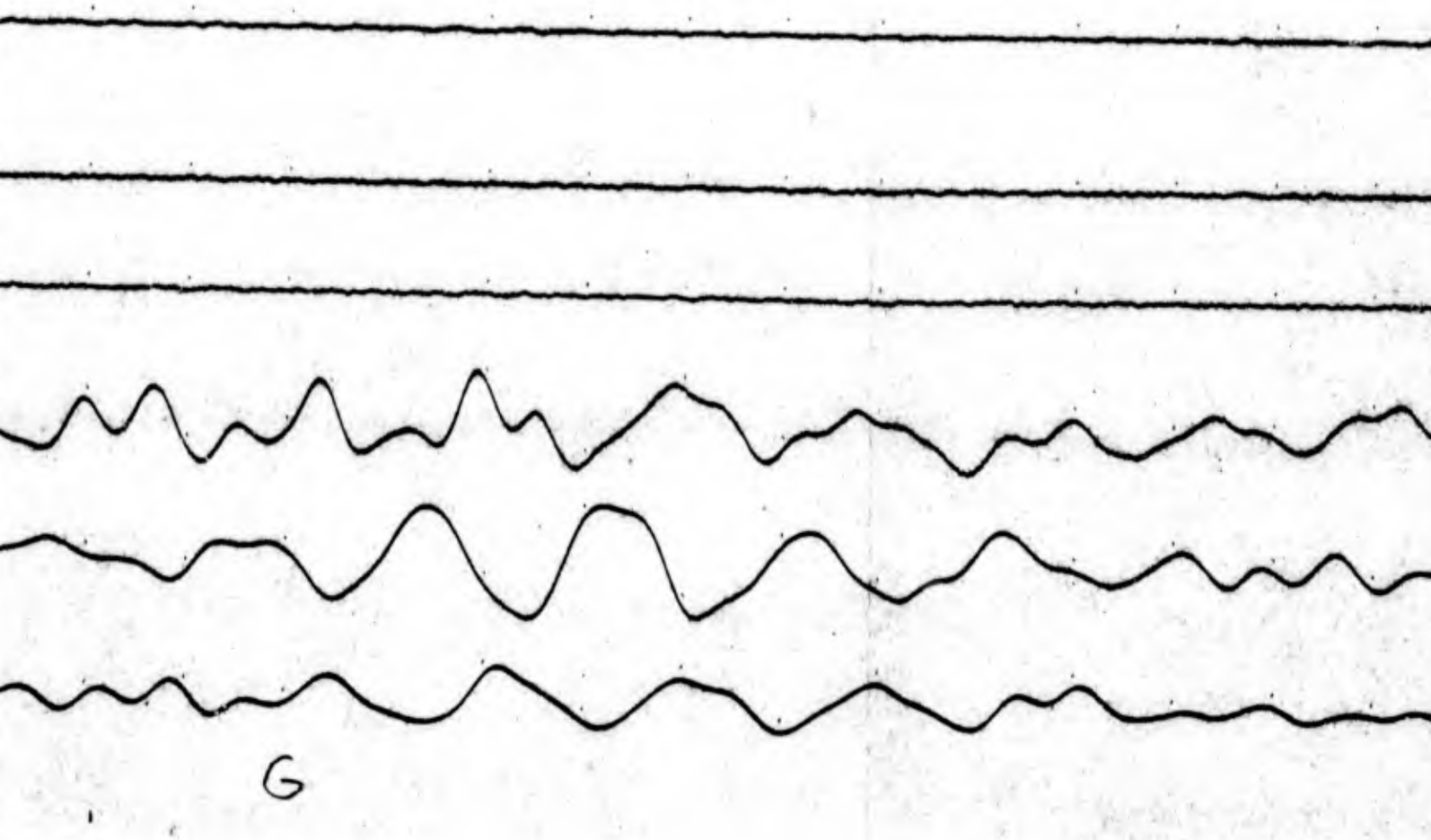
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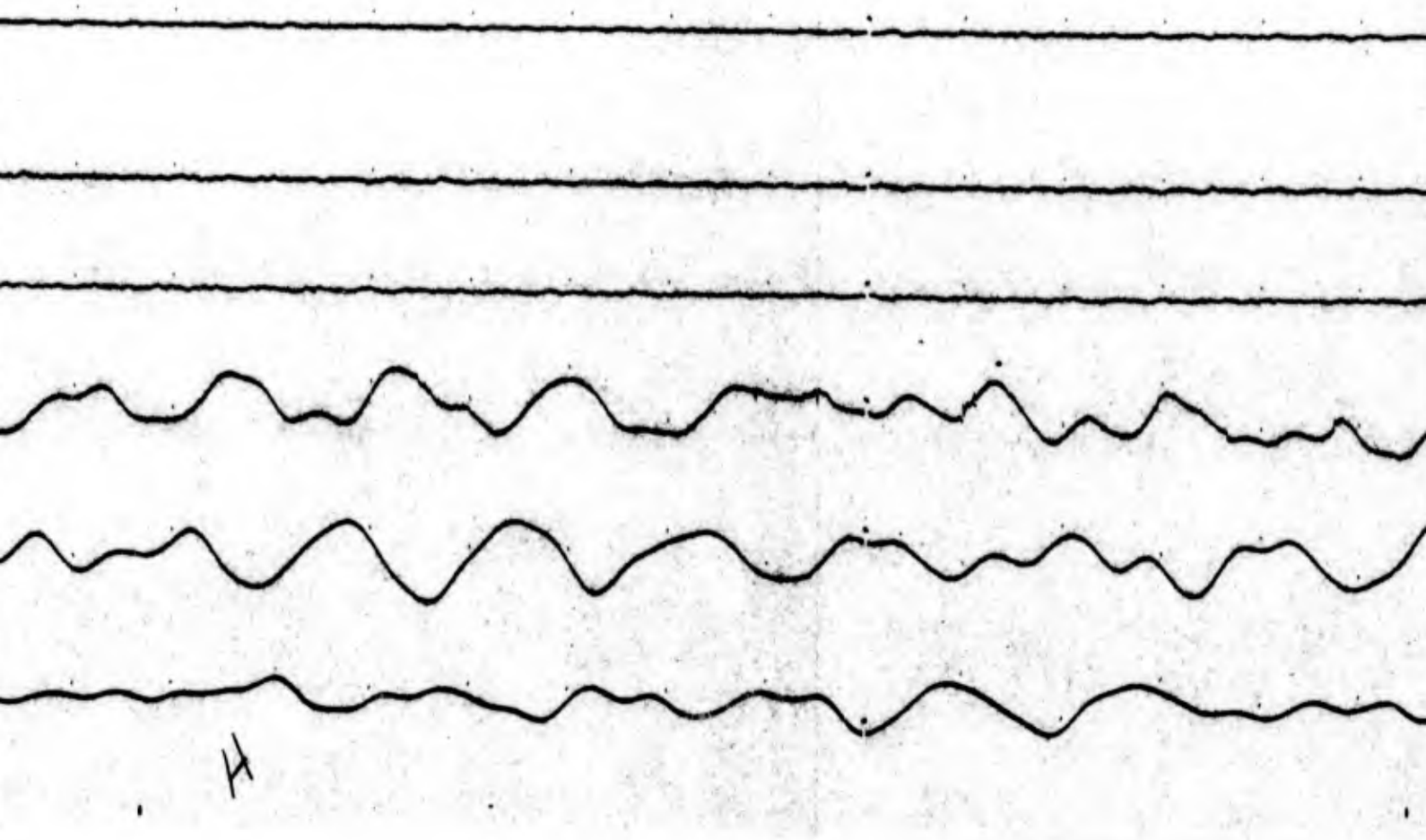
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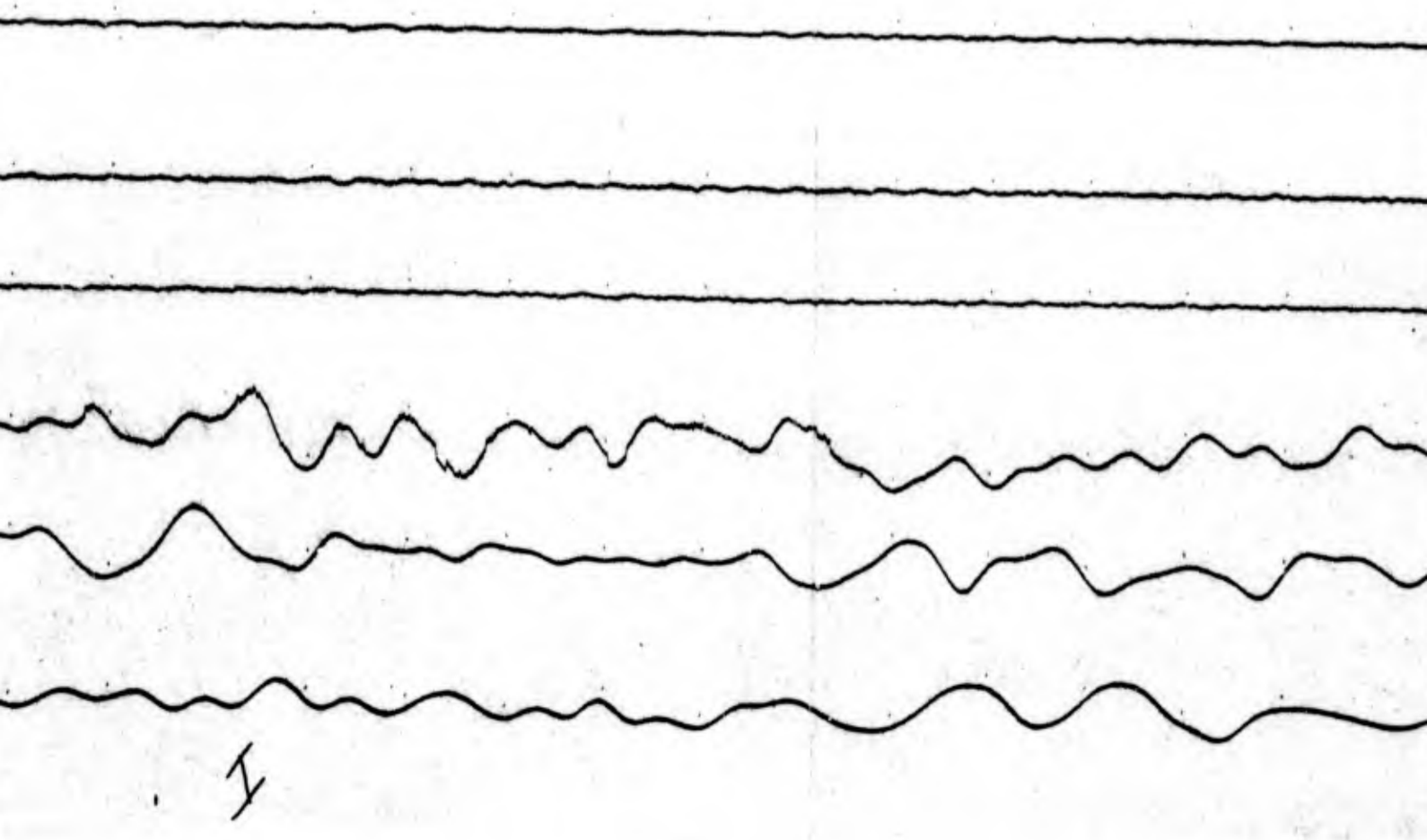
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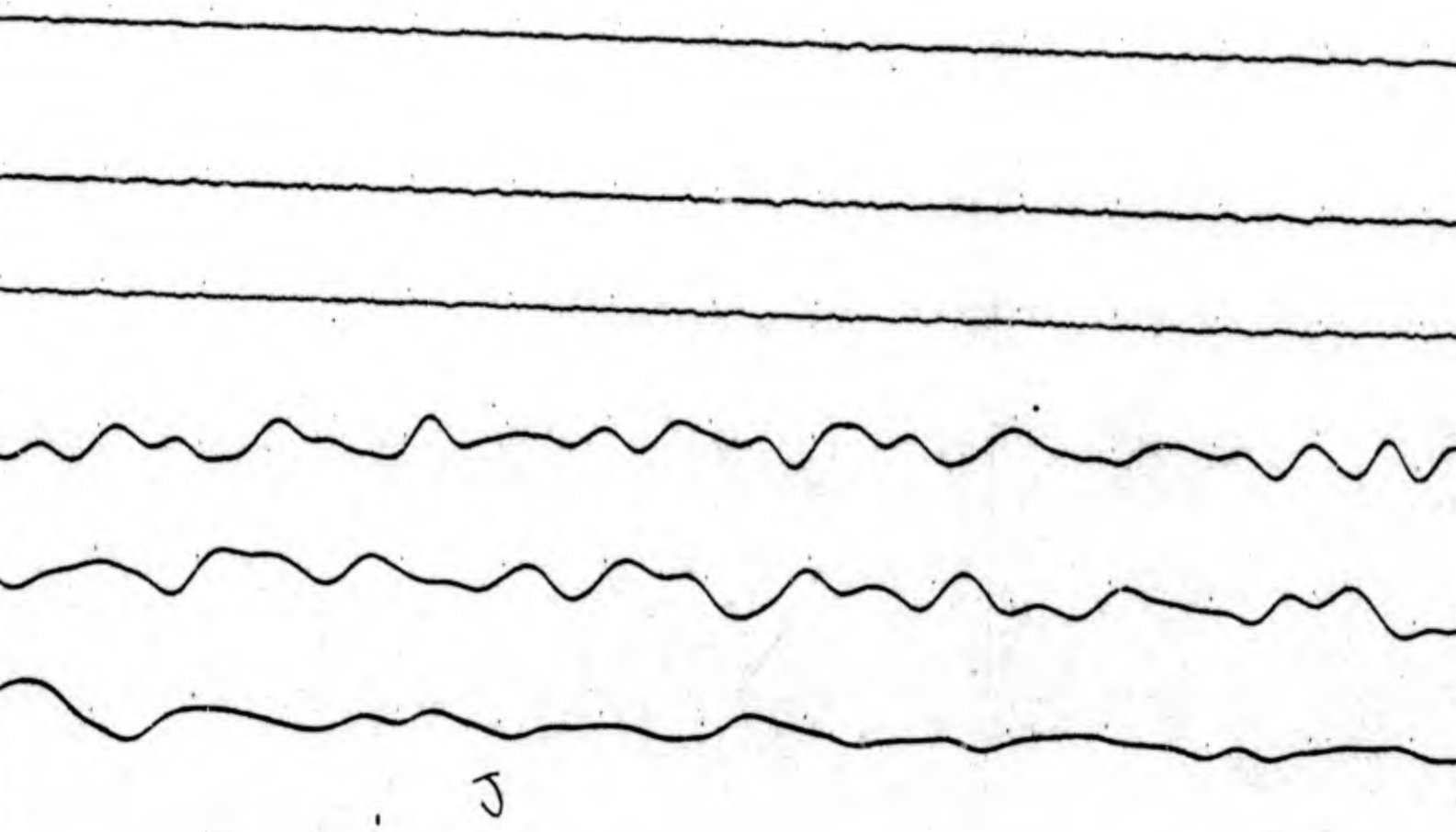
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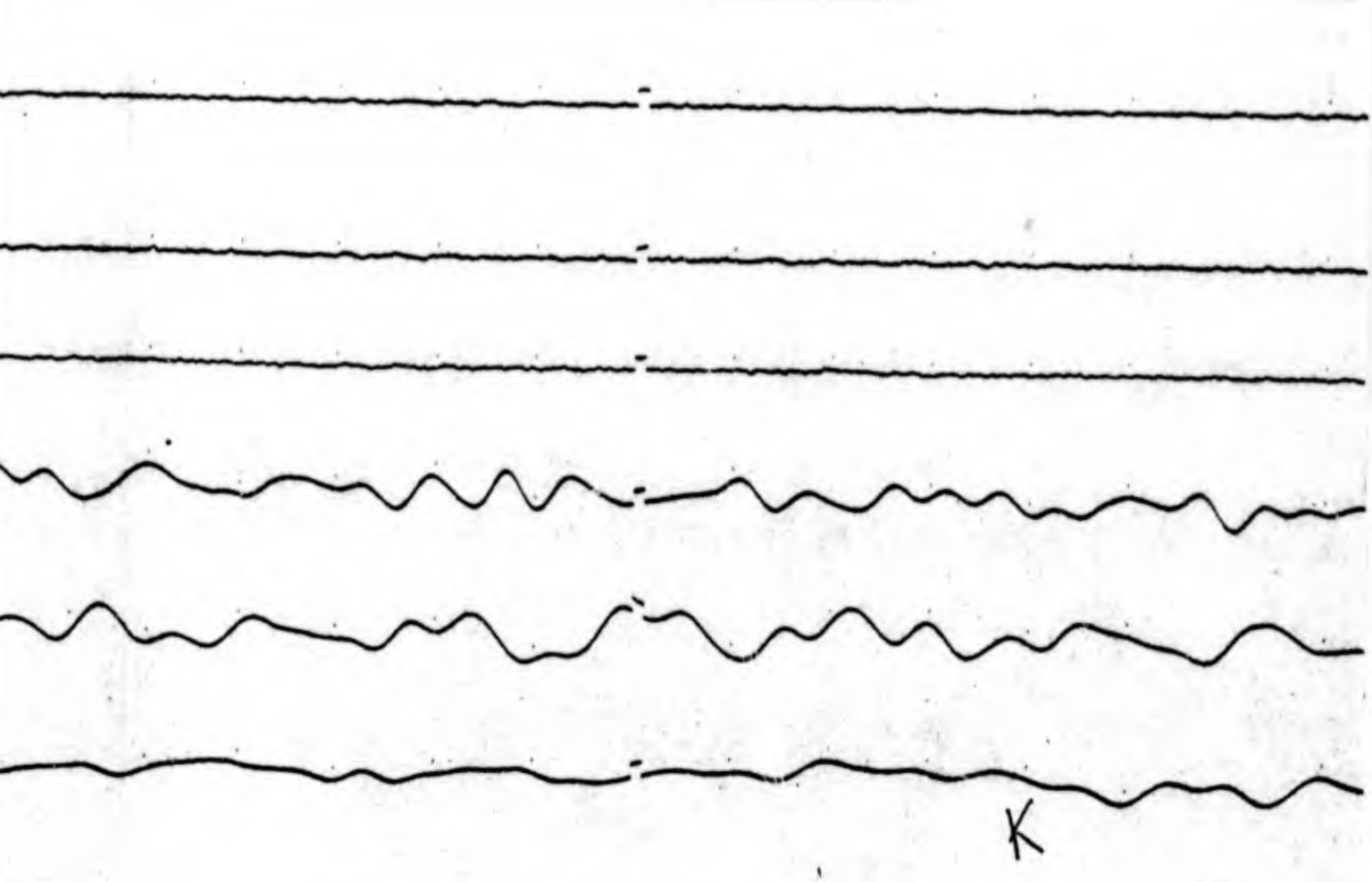
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