

HELICOPTER MAGNETIC SURVEY
MISINCHINKA RANGE AREA, B.C.
OMINECA MINING DIVISION

on behalf of

STOKES EXPLORATION MANAGEMENT LTD.

Claims: FALCON #1, FALCON #2

Location: About 7½ kilometers N.E. of the
confluence of Kitma Creek and
Six Mile Creek
123° 20' W 55° 41' 40" N

930/11W

Dated: October 26, 1978

7400

December 15, 1978
Vancouver, B.C.

AERODAT LIMITED
Ronald F. Sheldrake, B.Sc.,

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LIST OF MAPS

Total Field Magnetic Map

Scale 1:15,000

CERTIFICATION: Follows Appendix II

1. INTRODUCTION

This report describes the results of a helicopter borne magnetometer survey that was flown October 26, 1978 on behalf of Stokes Exploration Management Ltd.

The purpose of the survey was to determine the extent and nature of the magnetite concentrations underlying the survey area.

The survey consisted of 61 traverse lines and one tie line, for a total of 315 linear kilometers. The survey block is 4.8 km. wide x 12 km. long and is located 7.5 kilometers northeast of the confluence of Kitma Creek and Six Mile Creek. The greater dimension of the survey block is oriented parallel to the Misinchinka Range. Some of the survey traverses penetrate the Liard Mining Division whose boundary protrudes into the survey block.

The survey traverses were oriented north-east to south-west at an interline spacing of approximately 220 meters. Aircraft positioning was controlled from photo-mosaics. A mean terrain clearance of 100 meters for the helicopter was maintained and recorded on the analogue chart.

The terrain within the survey area varied from 1156 meters to above 1795 meters with the steepest topographic gradients ranging between 40 - 50%.

A Bell Jet Ranger 206B, supplied by Northern Mountain Helicopters Ltd, Prince George, was used as a platform for the geophysical system.

The magnetometer system was a Barringer AM104. It is a total field proton precession instrument which measures the magnetic field strength with a sensitivity of one gamma.

The measuring technique of the proton magnetometer can be understood by making the proton analogous to a tiny bar magnet spinning about its longitudinal axis, which has the properties of both a magnetized needle and a gyroscope. The spinning magnet tries to align itself along the lines of force but the gyroscope properties oppose this and the spinning magnet gyrates. The essential characteristic of the system is that the rate of gyration is proportional to the ambient magnetic intensity. This rate is measured electronically and multiplied by a suitable factor then it is displayed on the analogue chart.

Appendix I gives the details of the geophysical equipment used for this survey.

Appendix II describes the flight tape and flight path recovery process.

2. DATA PRESENTATION

The Total Field Magnetic Map shows contours of the total magnetic field uncorrected for regional variation.

Diurnal corrections were made on each traverse based on the tie line that was flown along the south western ends of the traverse lines. The diurnal correction for each traverse is noted on the analogue tape.

The maps were computer contoured at an interval of 10 gammas (1 gamma = 10^{-5} oersted) with 20 gamma and 100 gamma contours weighted for clarity. Magnetic depressions are indicated with an upper case "L" located inside the enclosure.

The analogue data, was recorded on an MFE 8 channel recorder. Full scale ranges of 200 gammas per channel (40 mm) and 2000 gammas per channel were recorded and displayed simultaneously with the terrain clearance. The full scale range of the altimeter channel was 0 to 120 meters.

3. INTERPRETATION

The anomalies that have been mapped on this survey are linear in nature and show consistent line to line correlation.

Curvature values of the anomalous responses were calculated along selected analogue profiles and the results compared to the tabular models published by Vacquier et al.* The indicated position and areal extent of the magnetite concentrations were then plotted on the magnetometer contour plan.

The uncertainty of this interpretation lies in the assumption that the magnetic response is due to a homogeneously polarized prismatic body, when in fact a similar response could be caused by several thin layers of magnetic rock. However from the point of view of volume-average susceptibility contrast the interpreted outline of the magnetic rocks ought to be reliable.

* V. Vacquier, Nelson Clarence Steenland, Roland G. Henderson, and Isidore Zietz.
Interpretation of Aeromagnetic Maps
Geol. Soc. of America, Mem. 47.

4. DISCUSSION OF RESULTS

Three separate zones of magnetic rocks have been outlined on the contour map. They have an average width of 70 meters and an aggregate strike length of 5500 meters. Except for zone 3C', all the magnetic zones are indicated as outcropping. The magnetic rocks in zone 3C are apparently covered with about 35 meters of overburden.

In general, the amplitude of the magnetic responses along strike of these zones will indicate the relative magnetite content. However, relative magnetite content may not be equivalent to relative iron content since hematite, which is non magnetic, is a constituent in these rocks.*

<u>Line</u>	<u>Zone</u>	<u>Amplitude (gammas)</u>
16	1A	40
17	1A	120
18	1A	150
19	1A	490
20	1A	2300
21	1A	1000
21	1B	800
22	1A	1500
22	1B	140
23	1A	2200
23	1B	230
24	1A	4600
25	1A	1900

*Personal communication

Robert Kemeny - Stokes Exploration Management Ltd.

<u>Line</u>	<u>Zone</u>	<u>Amplitude (gammas)</u>
29	2	50
30	2	50
39	3A	1300
40	3A	500
40	3B	40
41	3A	400
41	3B	100
42	3A	200
43	3C	170
44	3C	140
45	3C	140
46	3C	60

A small magnetic disturbance of 10 gammas recorded on Lines 5E and 6W is situated on strike to zones 1 and 2. The response is too small to indicate substantial amounts of magnetite, however, it may indicate an extension of the mineralized host rocks, and it offers some control for exploration in that direction.

5. CONCLUSIONS AND RECOMMENDATIONS

The magnetic data has indicated three zones underlain by magnetic rocks. Where geological information has been mapped, the zones are consistent with the known geology.

The anomalous responses indicate a linear structure and there is evidence that the lineament extends off the map sheet to the north-west.

It is recommended that detailed geologic mapping be undertaken on all three zones.

If locating more zones of magnetite-bearing rocks is considered, the airborne magnetic survey should be extended, probably in both directions, along the direction of strike.

7400

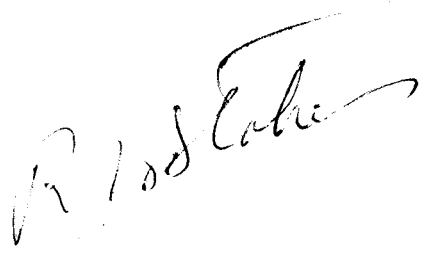
6. SUMMARY

The airborne magnetic survey has delimited three zones of magnetic rocks over an aggregate strike length of 5500 meters, and has established where further exploration for this type of target should be considered.

Respectfully submitted,
AERODAT LIMITED

A handwritten signature in cursive script that reads "Ronald F. Shel Drake". The signature is written in black ink and is positioned above the printed name.

Ronald F. Shel Drake, B.Sc.,
Geophysicist

A second handwritten signature in cursive script, identical to the one above, reading "Ronald F. Shel Drake". It is located in the lower right quadrant of the page.

BIBLIOGRAPHY

1. V. Vacquier, Nelson Clarence Steenland, Roland G. Henderson, and Isidore Zietz (1951): Interpretation of Aeromagnetic Maps. Geol. Soc. of America, Memoir 47.

APPENDIX I

INSTRUMENTATION

Magnetometer:

Type: Proton precession model AM-104 manufactured by
Barringer Research Limited, Toronto, Ontario

Cycling Time: 1.13 seconds

Polarizing Time: 1.587 seconds

Sensing Head: 5 inch diameter Toroid, suspended by cable 15
meters below the helicopter.

Ancillary Equipment:

Barringer eight-channel analogue recorder.


Geocam 35 mm Flight Path Camera and Intervalometer.

Hoffman Radio Altimeter.

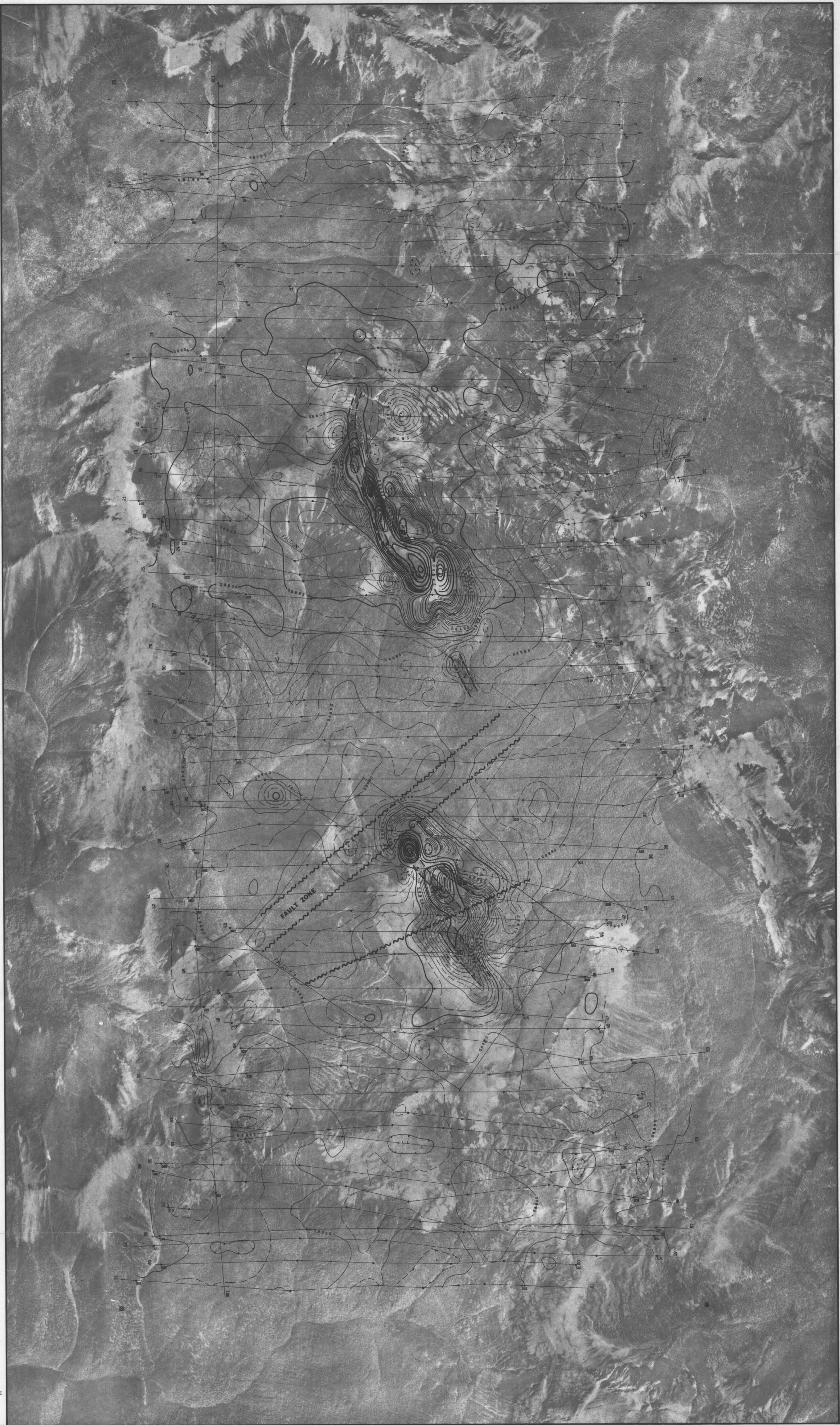
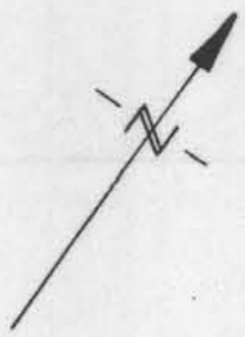
CERTIFICATION

I Ronald F. Sheldrake, of the City of Vancouver,
Province of British Columbia, hereby certify as follows:




1. I am Western Manager-Geophysicist of Aerodat Limited, a company incorporated under the laws of the Province of Ontario.
2. The Vancouver office of Aerodat Limited is located at #420 - 890 West Pender Street, Vancouver, British Columbia.
3. I received my B.Sc. in geophysics from the University of British Columbia in May 1974.
4. I have practiced by profession since that date.
5. I did not examine the claim area, but I am not aware of any claim conflict and believe that the data presented herein is reliable.
6. I have no interest, direct or indirect, in the mineral claims discussed in this report, or Stokes Exploration Management Limited, or its affiliates, nor do I expect to receive any.
7. I consent to the use of this report in or in connection with a prospectus or in a statement of material facts.

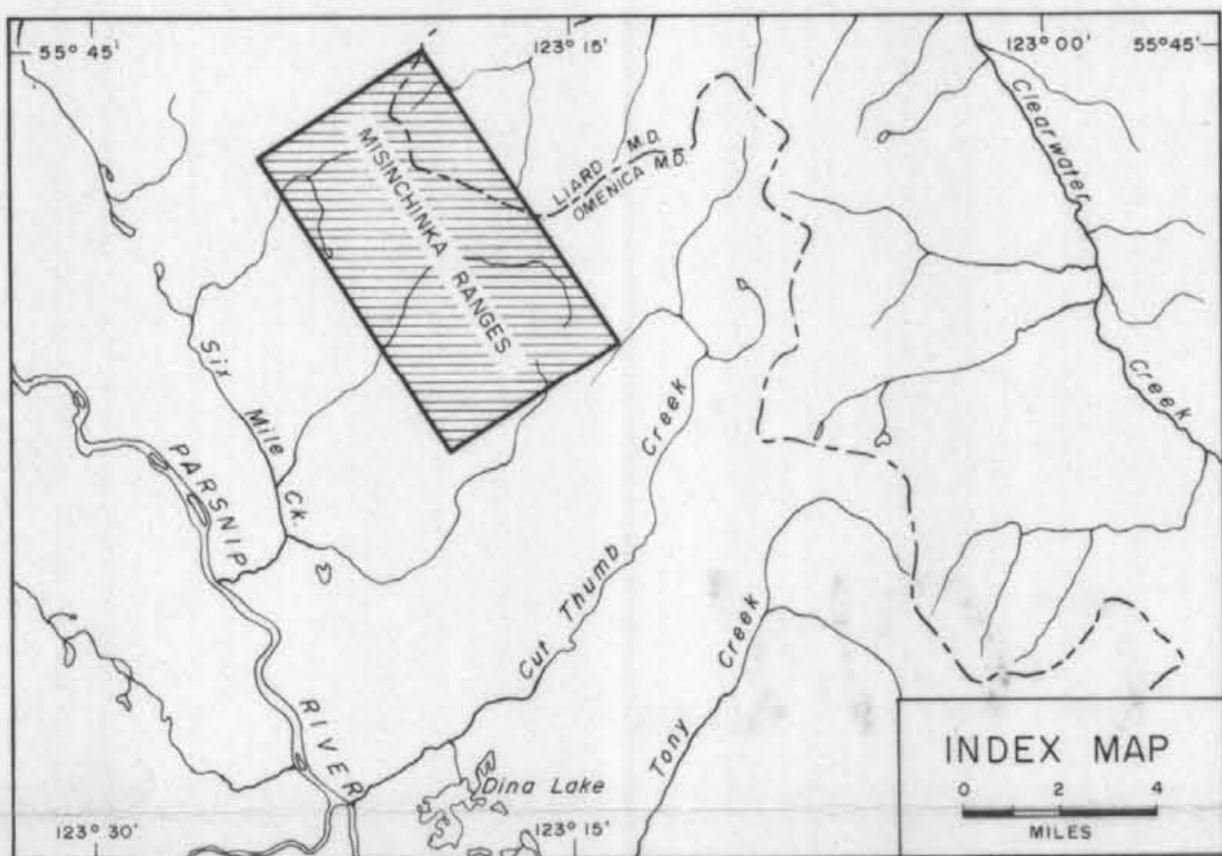

Ronald F. Sheldrake,
Geophysicist

January 1, 1979



LEGEND

- 500 gammas
- 100 gammas
- 20 gammas
- 10 gammas
-  Magnetic depression
-  Interpreted fault
-  Magnetic zone



Map **7400**

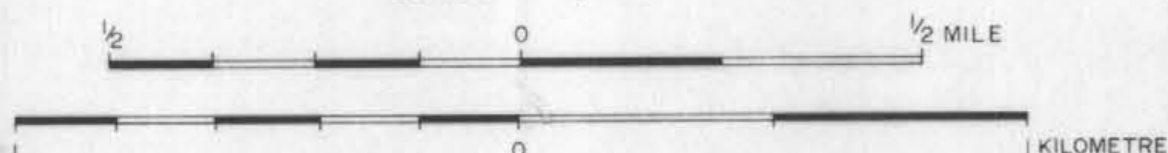
TOTAL FIELD MAGNETIC MAP

MISINCHINKA RANGE AREA

BRITISH COLUMBIA

STOKES EXPLORATION MANAGEMENT LTD.

SCALE 1/15,000



Ronald J. Sheldrake DECEMBER 1978

R. Sheldrake