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UFO INVESTIGATION

A FIELD INVESTIGATOR'S HANDBOOK

This handbook is designed as an aid to the instruction of field investigators and as a reference work to be carried in the field.

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AIMS OF BUFORA LTD

1. To encourage and promote unbiased scientific investigation into UFO phenomena.

2. To collect and disseminate evidence and data relating to UFO's.

3. To coordinate UFO research on a nationwide scale.

4. To cooperate with people and organisations engaged on similar research in all parts of the world.

REV 2/79

CONTENTS

2.D INVESTIGATION CLASSIFICATION SYSTEM

2.E GENERAL RECOMMENDATIONS AND COMMENTS

2.E(1) Recommendations
(2) More efficiency
(3) Improved communication and awareness
(4) Increased enthusiasm and improved quality of investigation

3. INVESTIGATION TECHNIQUES - WITNESSES

3.A INITIAL APPROACH TO WITNESSES

3.A(1) First contact
(2) Witness reaction
(3) Witness foibles
(4) Avoid leading questions
(5) Careful use of tape recorders

3.B INTERVIEWING WITNESSES

3.B(1) No fixed rules
(2) Main purpose
(3) Importance of speed
(4) Initial approach
(5) Arrange interview time convenient for witness
(6) Witness should first complete questionnaire
(7) Re-living event at location
(8) Interview witnesses separately
(9) Young female witness
(10) Informing witness of explanation
(11) Be courteous and leave visiting card

3.C SECONDARY SOURCES OF INFORMATION

3.C(1) Major sources
(2) Seeking co-operation
(3) Formal letter
(4) Liaison with the Police nationally
(5) Offer to give talks
(6) Address-list in Appendix 6
(7) Words of caution

3.D INTERVIEWER'S INVESTIGATION FIELD KIT A

3.D(1) Check kit and forms before leaving
(2) List of Kit A equipment

4. INVESTIGATION TECHNIQUES - FIELD INVESTIGATION

4.A INVESTIGATION FIELD KIT B

4.B INVESTIGATION OF POSSIBLE LANDING SITES

4.B(1) First photograph site in detail
(2) Individual-close encounter-neutron radiation
(3) Measurement of radioactivity
(4) Geiger-counter for Beta emitting residue
(5) Scintillation Spectrometer for gamma radiation
(6) Construction of Grid
(7) Sampling
(8) Core sampling
(9) Control samples
(10) Plaster casting
(11) Measurement of ground resistance
(12) Testing for high magnetic field exposure
(13) Study vicinity and immediate environment
(14) Safety precautions

4.C CONSTRUCTING A GRID

4.D ELEVATION OF TERRAIN MEASUREMENTS

4.E SUSPECTED UFO LANDINGS - POSSIBLE HAZARDS

4.E(1) Chemical
(2) Physical
(3) Biological

5. PHOTOGRAPHY

5.A GENERALLY

5.A(1) Problem of fakes
(2) The essence of UFO photography
(3) Choice of films
(4) Record all technical information
(5) Practice filming objects at night
(6) Use of filters

5.B SPECTRA

5.B(1) Information yield
(2) Description of diffraction grating
(3) Problems with use
(4) Calibration

5.C SITE PHOTOGRAPHY - INTRODUCTION

5.C(1) Objective
(2) Permanent visual record
(3) Importance of technical data
(4) Recommended reading
(5) Glossary of some photographic terms
(6) Recommended photographic equipment

5.D SITE PHOTOGRAPHY - METHOD

5.D(1) Urgency but caution
(2) General shots of site
(3) Indentations or objects present
(4) Record data of each photograph
(5) Use of tripod and cable release
(6) Record site investigation
(7) Keep site tidy
(8) Metric ruler in each shot
(9) Record residual traces in situ
(10) Exploit photographic techniques e.g. telephoto and filters.

5.E CLOSE-UP PHOTOGRAPHY

5.E(1) Definition
(2) Compensating exposure increase
(3) Extension tubes and bellows
(4) Filters
(5) Supplementary lenses
(6) Useful formulae

5.F FILTERS

5.F(1) Purpose and scope
(2) General rule
(3) The '"Filter Factor"
(4) Yellow
(5) Green
(6) Blue
(7) Orange
(8) Red
(9) Haze or UV
(10) Polarising
(11) Infra-red
(12) U.V. absorbing
(13) Practical tips
(14) Reference book

6. OBTAINING ACCURATE NUMERICAL DATA FROM WITNESSES

6.A GENERAL PROCEDURE

6.B THE KEY DATA

6.B(1) Date
(2) Time
(3) Duration
(4) Size
(5) Velocity
(6) Height and distance
(7) Bearings
(8) True course

6.C COMMENTS

6.D TABLES

6.D(1) Table A - Useful values
(2) Table B - Some angular measurements
(3) Table C - Cloud heights

7. MISIDENTIFICATION AND EVALUATION

7.A INTRODUCTION - THE CONSIDERATIONS

7.A(1) Characteristics of the participants
(2) Human Error
(3) (a) UFO Event
(b) UFO Sighting
(c) UFO Account
(d) UFO Report
(4) Golden Rule

7.B PERCEPTION, COGNITION AND REPORTING

7.B(1) Definition
(2) Eye-adaption to light
(3) Eye-adaption to colour
(4) Frames of reference re size and speed etc.
(5) Shape
(6) Physiological effects within observer
(7) Illusionary effects
(8) Effects of weather
(9) Neural stimulus
(10) Interviewer's attitude

7.C STATISTICS

7.D DATA

7.E MISIDENTIFIED PHENOMENA

7.F ASTRONOMICAL PHENOMENA

- 7.F(1) The Night Sky
- (2) Meteoric phenomena
- (3) Planets
- (4) The Moon
- (5) The Sun
- (6) The Stars
- (7) Other Astronomical Phenomena

7.G METEOROLOGICAL PHENOMENA

- 7.G(1) The Earth's Atmosphere
- (2) Fog, mist and rain
- (3) Mirages
- (4) Clouds
- (5) Lenticular or lens shaped clouds
- (6) Opalescent clouds
- (7) Noctilucent clouds
- (8) Aurora Borealis
- (9) Ignis fatuus or Will-o-the-Wisp
- (10) Lightning and other natural electrical phenomena

7.H MAN-MADE OBJECTS

- 7.H(1) Balloons for amusement and research
- (2) Aircraft
- (3) Artificial satellites

7.I OTHER MISIDENTIFIED OBJECTS AND PHENOMENA

See appendix 11 also

8. WRITING CASE REPORTS

8.A SEARCH FOR EXPLANATIONS

- 8.A(1) Hypothesis
- (2) Self-criticism

8.B CASE REPORT

- 8.B(1) Format and presentation
- (2) Referencing
- (3) Source of report and information

8.B(4) Details of witnesses
(5) Description of witness
(6) Describe steps in the investigation
(7) Recount secondary source of information
(8) Complete "Investigation Report Summary" form
(9) Conclusions
(10) Recommendation to BUFORA's evaluator
(11) Acknowledgements
(12) Identify yourself and date Report
(13) Number and whereabouts of copies of your Report

APPENDICES

FOREWORD

This BUFORA INVESTIGATORS HANDBOOK is a welcome response to the need expressed by members of BUFORA during recent years for a comprehensive handbook, covering all salient aspects of the activities which investigation of UFO phenomena may require.

The two original handbooks, which BUFORA produced, although excellent in their way were perhaps to be regarded more as aids to those studying UFO phenomena for the first time. This publication is an attempt to present a book which will contain sufficient guidance to ensure that the "investigator" will cover every relevant aspect of the case and that these methods are standardised throughout BUFORA.

The loose leaf format will allow further suggestions and modus operandi to be added as necessary and it is to be hoped that this BUFORA INVESTIGATORS HANDBOOK will come to be regarded as the definitive work on the investigation of UFO phenomena by all research organisations of repute. It has been prepared by BUFORA members of great experience in dealing with these phenomena and is the outcome of many years of research. They are to be thanked and congratulated on an excellent publication.

Geoffrey G. Doel,
MRCS, LRCP, DMRE.

President of BUFORA
until 1976

INTRODUCTION AND ACKNOWLEDGEMENTS

It is now almost ten years since BUFORA first published two UFO Handbooks, written by Mr Malcolm Bull, as an aid to investigation. The present publication is a more ambitious attempt to assist the most important and valued participator in the study of the UFO phenomenon - the field investigator. In order to be successful, the UFO investigator requires a wide variety of knowledge and skills. Although many of these can be taught, some can only be gained by experience and therefore, this Handbook concentrates largely on the former.

As BUFORA recognises the need to ensure that all its approved UFO investigators have reached a uniformly high standard of expertise, the Association is introducing a training programme for prospective investigators, covering both theoretical and practical aspects. This programme will consist of both correspondance and week-end residential courses and will be based on this Handbook and scientific UFO publications recommended by BUFORA.

The Handbook has been produced in loose-leaf form in order to facilitate the task of regular revision by amendment and addition. BUFORA's Director of Research welcomes suggestions from any reader who wishes either to make factual corrections to the text or to submit additional material for possible future publication.

The first edition is the product of the combined efforts of a number of experienced UFO investigators who have been dedicated to the work and objectives of BUFORA for many years. The task of editing has been greatly eased by the considerable help received from the following persons

Messrs Peter Bottomley, Stuart Campbell, Leonard Cramp, Philip Hamilton, Charles Lockwood, Richard Nash, Tim O'Brien, Anthony Pace, Kenneth Phillips, John Shaw, Stephen Smith, Jack Webber, Trevor Whitaker and Trina Bond and Janet Lester.

Special thanks are also due to members of the BUFORA Council for their assistance in the proof-reading of the manuscripts.

BUFORA also wishes to express its appreciation to the Aerial Phenomena Research Association Inc. (APRO) of 3910 East Kleindale Road, Tucson, Arizona 85712 USA for permission to reprint from its own handbook for investigators the sections dealing with "The Investigation of Landing Sites" and "Photography Generally and Spectra" and to the Mutual UFO Network (MUFON) for the checklist of site photographs included as an appendix.

Readers may consider the following recommended procedures and notes of guidance to be counsels of perfection which are difficult to attain. This may be true; but we know that many leading researchers believe that progress in the study of UFO phenomenon will continue to

be slow unless every effort is made to improve techniques of investigation. BUFORA hopes that this Handbook will play a constructive part in this important objective.

Roger H. Stanway (Chairman, The British UFO Research Association)

Editor

(1971 - 1976)

Jenny Randles (Research Co-Ordinator, The British UFO Research Association) (1975 - 1977)

Assistant Editor

Steve Gamble First Revision 2/79

1. GENERAL APPROACH TO INVESTIGATION

1.A PUBLIC RELATIONS

1.A(1) If you are fortunate enough to live in an area where most people accept that there is a need for the investigation of UFO's, you will not find it difficult to secure the co-operation of witnesses. However, in many places there is still ignorance of the widespread nature of the UFO problem and many witnesses are undetected because of poor local publicity. If you, as a Field Investigator for BUFORA, can become known locally, then when a sighting occurs the witness will know where to report it. Reports are only sent to the local and national press by those witnesses who are initially not afraid of public discussion.

1.A(2) You should aim to be an efficient, systematic and sympathetic investigator, thereby helping to create the best image for UFO research and encouraging the reporting of more sightings, which would otherwise not be made known. You should show that you are a sincere, honest and unbiased person, genuinely concerned to find out the truth about each sighting. Always carry with you your authorisation card and some general literature which will prove that you represent a large, responsible, national organisation.

1.A(3) If you can establish contact with local newspaper reporters, police and personnel in broadcasting, airports, observatories and science departments in colleges nearby, you will be able to ask for their assistance when necessary and they will be more willing to refer to you sightings reported to them. Owing to lack of time or information they may be unable to deal with some sightings. The authorities may, in fact, be pleased to pass on to you some of the pressure which can occur when a number of sightings are reported in one area. They will be more inclined to do this if you do not too readily issue the verdict "Flying Saucer" and if you remind people that only a small percentage of each year's sightings involve objects not easily identified as satellites, aircraft or planets. Personal approaches, wherever possible, are often more productive if you adopt this scientific attitude.

1.B SOURCES OF INFORMATION ON SIGHTINGS

1.B(1) The stimulus for a UFO investigation originates principally from one of the following sources:-

(a) The news media i.e. local and national press, T.V. and radio.

(b) Personal correspondence with various persons who are members of or who are known to members of UFO organisations.

(c) Telephone calls direct to UFO organisations by interested parties.

1.B(2) Many press cuttings are supplied to the National Investigations Co-ordinator (NIC), who sends out to each Regional Investigations Co-ordinator (RIC), requests for fuller reports to be made on all sightings which may involve UFO's. However, neither the press cuttings agency nor local contributors can be relied upon to note all reports. Therefore, every investigator should keep in contact with the local press and other bodies to which sightings are reported, so that he will be able to act quickly, even before the request from the NIC or RIC arrives. The RIC and NIC should always be notified of such an investigation, if it has not been requested by them. A list of the names, addresses and telephone numbers of the current RIC's appears in Appendix 1.

2. BUFORA'S INVESTIGATION NETWORK

2.A PROCEDURE (Please study system diagram in Appendix 2)

2.A(1) The NIC acts as a clearing-house for all UFO reports whatever the source. It is imperative that he should be informed as soon as possible about every sighting so that he can allocate to it a unique BUFORA case reference number which should be quoted at all future times. The NIC always allocates a number to a report and records the salient details in his log-book before posting particulars to the appropriate Group or RIC for investigation.

2.A(2) An individual investigator or Group may allocate another reference number to the report in addition to BUFORA'S number in the space provided on the standard forms of questionnaire. This should only be done if their own system requires it.

2.A(3) An individual or Group discovering a UFO report should inform the appropriate RIC and the NIC as soon as possible without delaying any necessary investigation. A postcard in the format of the "Sighting notification card" (see Appendix 2B) is suitable for this purpose.

2.A(4) With advice from NIC or the RIC, the investigator should decide if the report warrants simply the posting of the short UFO Sighting Account Form (R.1 - Appendix 3 (A)) or, being a more significant report, it requires a personal visit (after telephoning first if witness does not live locally) so that the more detailed "UFO Sighting Report Form" (R.2 - see Appendix 3 (B)) can be completed in quadruplicate.

2.A(5) If the report proves to be more significant than at first thought (i.e. it is not just a light in the sky case - "LITS" - or perhaps, the witness happens to be particularly observant and articulate and can therefore provide considerable detail) then make every effort to visit the witness with the longer questionnaire as soon as possible.

2.A(6) Special supplementary questionnaires appear in the Appendix 3 to cover particular types of UFO case:-

Appendix 3(C) - Physical effects and landings
Form R.3

2.A(6) Cont

Appendix 3(D)	-	Vehicle interference cases Form R.4
Appendix 3(E)	-	Occupants - humanoids Form R.5
Appendix 3(F)	-	Medical aspects Form R.6 (not yet issued)
Appendix 3(G)	-	Photographic cases Form R.7

N.B. Appendix 3(F) will be developed for a future edition and is NOT included in the first edition.

2.A(7) Apart from the simple R.1 form, all the questionnaires are either produced in quadruplicate or should be xeroxed 3 times after completion for ease of distribution as follows:-

Original	-	NIC (for archives)
1st copy	-	NIC (working/evaluation copy)
2nd copy	-	RIC (for monitoring and summarising)
3rd copy	-	Retained by investigator

2.A(8) Therefore, when the simple R.1 form has been completed by the witness and returned, the investigator should make 3 xerox copies and distribute as above.

2.B REPORTS OF HIGH-STRANGENESS AND HIGH-CREDIBILITY (SEE DR. HYNEK'S "UFO EXPERIENCE")

2.B(1) Having completed the investigation and secured all the necessary documents and corroborating evidence, the investigator retains the bottom copy of the questionnaire for himself, forwards one copy to the RIC and the remaining copy plus the original to the NIC. Furthermore, all tapes of interviews, samples, drawings, maps and supplementary data must also be sent with the original questionnaire.

2.B(2) The investigator must also complete, copy and distribute as above the Investigator's "Report Summary" Form in such cases (Appendix 4). This form is not normally required in the "LITS" cases where only the simple R.1 form is usually sufficient.

2.B(3) The NIC will forward the copy of the report plus additional items to one of BUFORA'S evaluators, who in turn, may call upon the assistance of members of

2.B(3) Cont the Advisory Panels or one of BUFORA'S consultants. (See outline of system in Appendix 5 (B)).

2.B(4) If, as the result of the evaluation, further action is warranted, the evaluator will notify the NIC, who in his turn, will notify the relevant investigator in order that he can clarify the situation.

2.B(5) If no further action is required by the evaluator, then he will forward his opinions (Evaluation Form - Appendix 5) to the NIC who will attach this to the original report and forward to the Research H.Q. at Newchapel Observatory for filing, after having ensured that the evaluators report will be forwarded to the journal editor for publication with the summary of the sighting.

2.C REPORTS OF LOW-STRANGENESS AND LOW CREDIBILITY

2.C(1) All that is required is the simple R.1 form which could, if the circumstances warrant it, be posted to the witness together with a S.A.E.

2.C(2) If, and when the form is returned, it can be copied (3 xeroxes) and sent to the RIC and NIC in the usual way. The NIC will record details of the report and forward the original to the Research H.Q.

2.D INVESTIGATION CLASSIFICATION SYSTEM

When a report is first received it should be classified under this system (see Appendix 9). This will help to determine procedure as per sections 2.A, 2.B and 2.C.

2.E GENERAL RECOMMENDATIONS AND COMMENTS

2.E(1) There should be good liaison between groups - RIC's and investigators at all times so that the system outlined above can work efficiently. The following recommendations are listed below:-

(a) Make regular "phone-ins" to the respective group/RIC in your area (see list in Appendix 1(A). This will be continually updated in BUFORA JOURNAL).

(b) MAKE YOUR RIC/GROUP AWARE OF YOUR WILLINGNESS TO INVESTIGATE!

2.E(1) Cont

(c) Notify your RIC/group of any change of circumstances (i.e. address, phone nos, absences and holidays etc.)

(d) Make a note of the Regional map and establish where your RIC is based.

2.E(2) Providing that the Investigations procedure system is adhered to by everyone in the investigations team, the efficiency of the following up of a report will be increased, leading to less duplication of effort and loss of precious time in initiating enquiries into reports.

2.E(3) Furthermore, the investigator will know whom to contact in the event of a local report and be ready should he be alerted at the national level. With the introduction of the unique BUFORA numbering system, easy reference will be facilitated at all levels as copies of the report will be retained by all departments concerned.

2.E(4) Finally, a greater awareness on the part of the GROUP/INVESTIGATOR/RIC of what is happening on a national scale should promote enthusiasm and ensure personal satisfaction that the investigator is not alienated by a meaningless system.

It is hoped that the system outlined above will be conducive to obtaining a better class of report worthy of good scientific and statistical analysis.

3. INVESTIGATION TECHNIQUES

3.A INITIAL APPROACH TO WITNESSES

3.A(1) Once names and addresses of witnesses have been obtained it is necessary either to visit them or to write to check the report. Witnesses should be approached carefully, with respect and politeness. Any refusal to co-operate should be accepted. It may be that the witnesses have been subject to harassment (see Section 3.B(4)) and once you have established your serious attitude they will offer assistance. In some cases a refusal may be taken as a sign either that the report is a hoax or the witness is mentally unstable. In such cases, investigation may only continue if sufficient other information is available. It is important to reach a conclusion in such cases as in any others.

3.A(2) Standard report forms can put some witnesses off and others say they have no time to fill in forms. Information should be noted as and when it is given to you, regardless of whether or not the witness completes a form. If a witness first wrote to you or BUFORA giving many details in a letter, it may not be necessary to ask them for the information a second time; simply fill in gaps.

3.A(3) Allowance should be made for the inability of some witnesses to record or communicate the details of their sighting. Some cannot draw a picture, and some will arrange the information in strange and inexplicable ways that have no bearing upon the reliability of their report. Time and distance may be inaccurately estimated and some confuse seconds with minutes. These are facts of human nature, which must be tolerated.

3.A(4) Beware of putting words into your witnesses mouths and of making sketches on their behalf; if you must resort to such devices make sure that all available alternatives are presented to the witness so that he/she only has to choose. Do not make it too easy for the witness to agree to your first suggestion.

3.A(5) The use of mechanical or electronic aids for interviews should be strictly limited. Many witnesses are daunted by tape recorders and some will refuse to talk if one is on. Naturally you cannot record without their consent. The best technique is to gain their confidence by having a friendly chat, sympathising with the effects the sighting may have had on the witness and the lack of understanding by others.

3.A(5) Cont

Once you have obtained the salient details, you can then safely attempt to record the narrative on tape. If witnesses are agreeable it is a useful means of recording full details of a report without having to slow down a witness who is relating them.

3.B INTERVIEWING WITNESSES

3.B(1) There are no hard and fast rules which have to be applied when carrying out an interview of a UFO witness, for every witness and sighting has different characteristics from every other. There are, however, several general principles which should be remembered whenever a sighting investigation is commenced.

3.B(2) The main purpose of an interview is to discover the truth. We have to ascertain whether the event occurred at all, and, if so, what in fact the witness saw, not what they thought they saw.

3.B(3) In most cases speed is important. Witnesses easily forget or the memory becomes distorted. If you can speak to the witness, even if only over the telephone, to obtain outline information, do so; and, if you cannot interview the witness fully within twenty-four hours, ask him to write down all the details which he can remember of the sighting.

3.B(4) The initial approach to the witness is important. If he first reported the sighting to the police he may, as is often the case, have been treated with indifference or ridicule. If the sighting has been published in a newspaper, he may have suffered leg-pulling by friends and acquaintances and, if there has been some delay in your hearing of the sighting via a newspaper, he may have received letters and literature from the "lunatic fringe". Thus you need to establish that you are prepared to listen to what he has to say and to make scientifically based enquiries into the event. It is also important to make it clear that you will make every effort to find a normal explanation for it.

3.B(5) Try to arrange a mutually convenient time with the witness when he will have time to spend with you to discuss the sighting.

3.B(6) Allow the witness to complete the sighting report form, as far as possible, on his own, then go through it with him.

3.B(6) Cont

Discuss difficult or conflicting points of the report-form with him. In particular, ensure that what he writes is not ambiguous and describes what happened. It is important that the witness be allowed to relate his story in the first instance without interruption. This gives a good base for the investigator to build upon.

3.B(7) Visit the location with the witness and get him or her to re-live the event. (It is also useful to visit the location later without the witness.)

3.B(8) If there is more than one witness it is essential that they are initially interviewed separately. It can then be very informative to get them to discuss with each other the points of variation between the individual accounts. This often reveals further detail.

3.B(9) It is preferable that when a young female witness is being interviewed a male investigator should be accompanied by his wife, girl-friend or female investigator. A similar situation might also apply in the case of a young male witness and a female investigator. This helps boost a witness's confidence.

3.B(10) Make no snap evaluation. Wait until you have all the information before committing yourself to a possible explanation or stating that it appears to be unidentifiable. Even then, as a general rule, do not agree to inform the witness of the explanation, except in the LITS type of sighting. However, there is no objection to your agreeing to inform the witness if no explanation can be found. Some witnesses may be unnerved by their experiences; if so, always reassure them and never be tempted to alarm them further by expounding your personal theories on the subject.

3.B(11) Always be courteous to witnesses; make a special point of thanking them for their time and co-operation and remember to leave your visiting card so that they can contact you immediately anything further arises.

3.C SECONDARY SOURCES OF INFORMATION

3.C(1) Each investigator should compile a comprehensive list of the local representatives of the following establishments or organisations who can be immediately contacted for specialist advice or information should the need arise :-

3.C(1) Cont

(a) The Police
(b) Weather Centre or Meteorological Station
(c) Royal Observer Corps
(d) The Army
(e) The Royal Airforce
(f) The Royal Navy (if in coastal region)
(g) Universities - Meteorological, Astronomical and Physics Departments
(h) Astronomical Society and Observatories (Amateur and Professional)
(i) Newspaper and news agency
(j) Local radio and T.V.
(k) Airports and Air Traffic Control Centres

Appendix 18 will be found useful for this purpose as an easy reference.

3.C(2) Apart from military personnel, who will have signed the Official Secrets Act, it should be possible to gain the help and co-operation of the above organisations providing that you approach them in the appropriate manner and that you obtain any necessary permissions before conducting interviews.

3.C(3) When making an initial request for information, it is advisable to write a formal letter because this should produce a fairly rapid response in writing. You can then follow up the reply with a request for an interview to clarify matters should you wish.

3.C(4) BUFORA hopes that in the near future it will be possible to arrange a liaison programme with the Police on a national scale so that all local police H.Qs will have the names and telephone numbers of all RICs and approved investigators in their respective areas.

3.C(5) You may find it helpful in making local contacts if you offer to give a short illustrated talk to the above organisations on the work of a UFO investigator.

3.C(6) A list of useful names, addresses and telephone numbers of appropriate national organisations appears in Appendix 17.

3.C(7) Always make sure that the persons you speak to in authoritative organisations are competent to make statements on behalf of that organisation. As evidence of their views a letter is better than conversation. But beware of a

3.C(7) Cont

tendency of authorities to disbelieve explanations that do not fall within their province. Observatories tend to think that all UFOs are celestial bodies or satellites, and airports that they are aircraft. Such authorities have been known to propose explanations for UFOs that are more unlikely than the idea that they are spacecraft. The opinion of authorities can only be used in reference to the aspect in which they are expert.

3.D INTERVIEWER'S INVESTIGATION FIELD KIT A

3.D(1) If you are able to make the initial contact by personal visit, check carefully before you speak to the witness that you have all the interview equipment ready. The items required will depend upon local conditions, but an adequate supply of forms is essential. Several spare forms of each type should be carried, as other witnesses may be on hand immediately after the first interview and the nature of the investigation may change as it proceeds. A nearby disc may prove to be a landing, when the witness makes a full report. Other items needed are given in the Field Investigation Kit A listed below. Few investigators will be able to provide every item in the Kit, but the more you obtain the more thorough will your investigation be, especially in a really interesting close encounter case.

3.D(2) Investigation Field Kit A

This is the basic field kit and applies to the majority of cases which are reported to BUFORA i.e. where an unidentified aerial event is observed. It is highly recommended as an essential aid to objective investigation. Apart from the tape recorder all other equipment could be carried in a convenient case kept ready for immediate action.

1. Investigator's card and authorisation (from BUFORA)

   This carries the member's photograph and would be restricted to "approved investigators".

2. Tape recorder, spare tape and batteries

   Not absolutely essential if the investigator is good at rapid long hand or short hand, but better for recording witnesses' statements in full. Could also be used with pre-recorded tape of various sounds reported e.g. "humming like a generator".

3.D(2) Cont

3. Tape measure - 2 or 3 metre engineers steel tape and, if necessary, longer measure i.e. 50 metre linen tape Useful for "fixing" the witness's position.

4. Questionnaires, investigation forms, stamped addressed envelopes, board with clip and plastic cover to protect from rain when recording details and measurements.

5. Colouring materials - crayons, sketch pad and pencil.

*6. UFO shapes chart, and chart of common misidentifications (To be included as an appendix in future editions.)

Note - these should not be used too early in the investigation as they could "lead" the witness. Use preferably after full statement has been obtained.

* 7a. Colour Chart. Munsell Rock Colour Chart by Geological Society of America gives an unambiguous scientific description of colour. Used in conjunction with 5, but perhaps again after full statement obtained.

7b. Ishihara Colour Blindness Cards - in order that descriptions of colour may be more significant. The test is quick and simple, and would be performed before the use of 5 and 7a.

8. Field Investigators handbook - to contain quidance on procedures, use of equipment, and descriptions of commonly mistaken phenomena including item 6.

9. Maps of area under investigation.

10. Small hand torch - useful in the field.

11. Philips planisphere - useful when UFO seen against star background. (See also Appendix 16.)

12. Comparison discs or coins (size of pin head, pea, half penny, penny etc.,) for determining angular size at arm's length.

13. Clinometer, or a simple device for measuring angular elevation of UFO e.g. protractor fixed with plumb-bob fixed to sighting ruler.

14. Compass - a Brunton compass/clinometer with spirit level as used by field geologists would cover both this and item 13., but it is expensive. A Silva compass with plastic base and arrow is good for taking bearings and much cheaper.

*NB The Editor of this Hand Book would be pleased to hear from anyone who is prepared to assist with the preparation of an Identikit of UFO shapes and colours or a pre-recorded tape of specimen sounds.

4. INVESTIGATION TECHNIQUES - FIELD INVESTIGATION

4.A INVESTIGATION FIELD KIT B

This kit applies to those cases where a UFO is reported to have left residual traces at ground level. Ideally it should be available whenever a close encounter is noted, even if the witness does not describe ground effects, since some measurable traces may not have been detected by the senses. Some of the final items can only be properly used by someone who has experience of handling the equipment.

1. Large magnifying glass.

2. Scissors.

3. Penknife with accessories.

4. Brush for sampling.

5. Hammer, for small rock sampling, mentioned as part of a geologist's kit and included in the Condon Report Kit.

6. Sealed containers, bottles and plastic bags for samples, with labels, including some airtight containers for air and other gas samples. The correct marker will be needed, one not affected by rain.

7. Grid materials, e.g. tent pegs, twine, plastic garden name stakes, mallet.

8. Plaster casting material, e.g. Plaster of Paris, containers, flexible frame for border, mixing jug, water.

9. Large diameter thermos flask for volatile residues etc.

10. Spirit Level with tilt indicator - for determining ground slope.

11. Tweezers or forceps for handling samples.

12. Large Plastic sheet to protect the site.

13. Geiger counter and scintillation spectrometer; unless one is available radiation may be present but undetected and indeed some of the samples taken may be highly radio-active, a situation which may occur more often in future if we can get investigators to sites more rapidly.

14. Pocket spectroscope, or a number of diffraction gratings.

15. Magnetometer.

16. Thermometer - perhaps two for comparing selected area temperatures.

17. 50 metre linen tape.

18. Still camera, tripod and attachments (including filters, polarising, U.V., diffraction grating).

19. Cine camera - even if only to record methods of field work.

20. Wooden blocks of varying cross-sections for testing resistance of ground.

21. Core samplers.

4.B INVESTIGATION OF POSSIBLE LANDING SITES

4.B(1) A possible landing site requires special attention. Additional photographs need to be taken which show all ground markings such as damage to plants and holes or marks in the ground, before any other on-site investigation destroys vital evidence. Close up views should include some object; for example, a ruler or other familiar object for size comparision. A cm square ruler marked in black and white squares will show up most clearly on photographs. A broomstick painted in black and white bands 25 cm long is useful for medium range photographs.

4.B(2) If an individual has a close encounter with a source of neutron radiation, the gold in his watch or jewellery (or even his teeth) may capture neutrons. Tests to determine this should be made within hours, preferably, for any positive results; therefore, the importance of locating an available scintillation spectrometer in advance is emphasized. The Physics or Chemistry Department of a nearby college is the most likely prospect.

4.B(3) Measurements of radioactivity are more valuable if they are made with some theory in mind. A mysterious object may produce radioactivity at a landing site in only two ways. First, it may leave

4.B(3) Cont. some residue behind that emits radiation, or, second the object itself may be a source of sufficiently intense gamma or neutron radiation that will cause substances on the ground to become radioactive. The measurement technique is different for these two cases.

4.B(4) The simple Geiger survey meter will be most effective in discovering a Beta emitting residue left behind by the object. The meter should be moved over the ground at a height of about a foot. The reading must be compared to that for similar ground at a distance away from the assumed landing. If there does appear to be a significant increase in radioactivity, then careful samples need to be taken as explained later. These samples can be analyzed in a laboratory to determine the nature of the radioactive material.

4.B(5) It is more likely that an alleged landing will involve gamma radiation that has been stimulated by a gamma or neutron source (as may be found in a spaceship). This means that the radioactivity left behind is short lived. The degree of radiation drops off sharply after only a few hours and may not be measurable in a matter of days. The Geiger counter is nearly useless as it has little sensitivity for the gamma radiation which is likely to result from the neutron radioactivity. If a soil sample is taken without much delay after a landing and is quickly analyzed with a scintillation spectrometer, this analysis could determine the nature of the source of the radiation.

4.B(6) Figure 1 (See Section 4.C(1)) and its accompanying instructions outline the matter in which a grid can be set up.

After construction of the actual grid on location, duplicate it in form of a scale drawing. Draw in and label and items of interest on the landing site.

Each square in the grid should be identified by number in rows, left to right (west to east), top to bottom (north to south).

4.B(7) Samples taken for any purpose should be identified by grid square and location within that square. Samples should be taken with a teflon spoon or

4.B(7) Cont. plastic ice cream scoop and placed in plastic bags (sandwich bags are okay). If there is a particular sample configuration that should be preserved, place the sample (in a sealed bag) in a rigid plastic container with lid and fill surplus space with cotton wool. Make careful note of the orientation of any sample taken. This may prove useful later if, for example, a sample proves to be magnetised.

4.B(8) If soil alteration appears to extend below the surface layer, an attempt should be made to take core samples. Appropriate lengths of plastic pipe or thin-wall conduit of (say) 5 cm diameter can be worked vertically into the soil and carefully removed with core sample inside.

Surplus space inside the pipe must then be filled with packing and the ends plugged so that the sample cannot shift and thus disturb the original stratification.

If deep soil alteration exists but soil consistency is not conducive to taking a core sample, several samples should be taken at progressive depths and labelled accordingly. For example:

Sample 7.1	Grid square depth of 2 cm	7 S.W. Corner
Sample 7.2	Grid square depth of 2 cm to 5 cm	7 S.W. Corner
Sample 7.3	Grid square depth of 5 cm to 10 cm	7 S.W. Corner

etc.

4.B(9) In all cases it is important to make meaningful tests. Therefore, it is necessary to provide <u>control samples</u> of apparently <u>unaltered soil</u> from similar terrain nearby. The control sample should be a core sample or equivalent taken as described above.

4.B(10) Depressions or imprints of a regular nature such as possible footprints and landing gear marks should be preserved with plaster of paris (available at most chemists) before any samples are taken at the site. Field investigators should practice with plaster of paris in preparation for such eventualities.

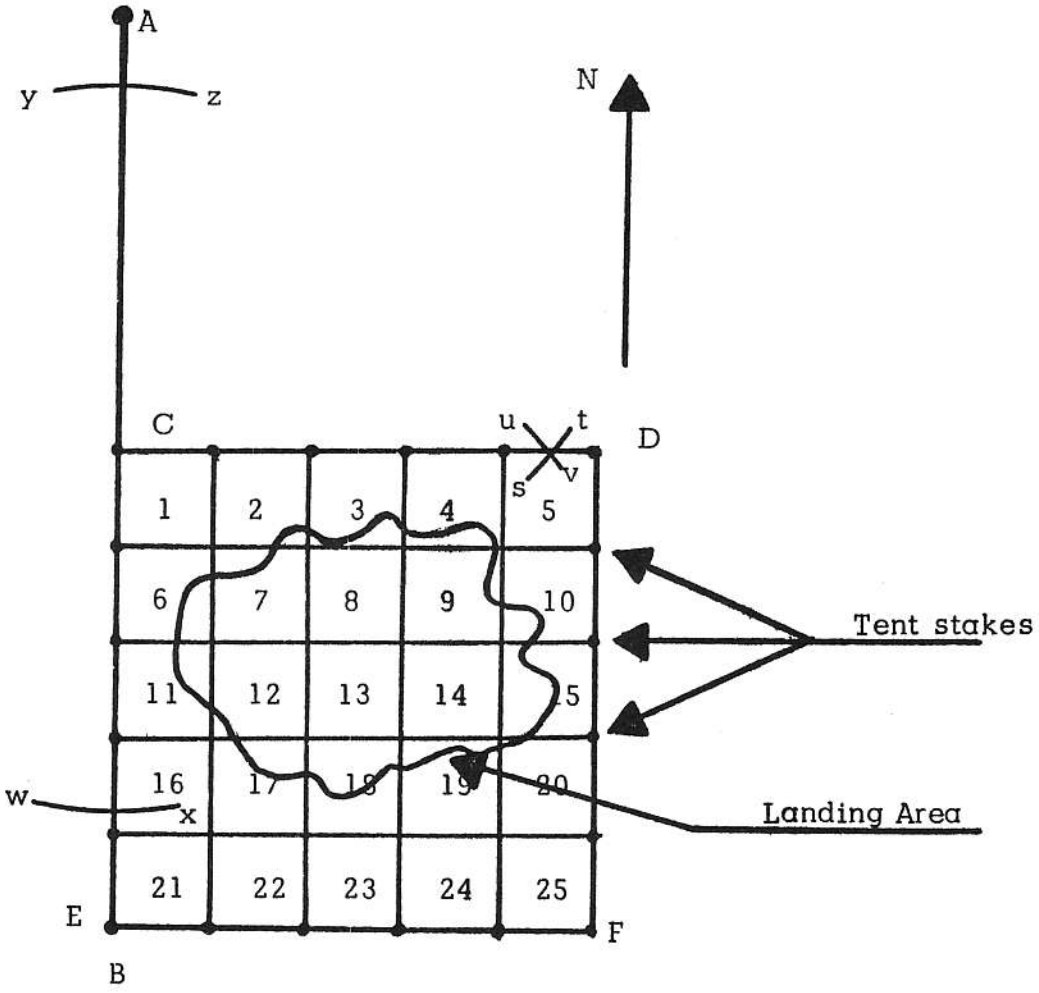
4.B(11) An attempt should be made to determine the resistance offered by the ground to applied forces. This may be done approximately by pushing a rod of known cross section into the ground with a known force. Alternatively, the field investigator can use blocks of various sizes and choose one which, when he places his weight upon it, produces a depression equivalent in depth to that of the mystery depression. He should place his weight upon it gradually to produce the most accurate indication. His weight and a plaster cast of this depression should be included with his report. In general it will not be necessary to take soil samples of an imprint.

4.B(12) Metallic objects found naturally within the neighbourhood (such as cars, vending machines, etc) can be checked for high magnetic field exposure with the Hooven technique which is most easily accomplished by observing the orientation of a compass needle at a number of points on the surface of the object. An identical object must be located somewhere else for comparison measurement. For details of this technique consult pages 100-108 of the Condon Report (Condon, E.U. and Gilmor, D.S., Eds., Scientific Study of Unidentified Flying Objects, N.Y.; A Bantam Book, YZ 4747, 1969) or contact BUFORA Research Headquarters. Always record the orientation of any objects tested.

4.B(13) Keep a sharp eye out for high-tension wires in the vicinity, swamps, unusual industrial installations, or such foreign looking substances as wisps of spider webs (angel hair) and hunks of strange plastics or metals. If the witness secured any ejected material make every effort to obtain it for laboratory analysis. Burned plants should be collected for analysis as well.

4.B(14) It is best to handle unknown material with tweezers, forceps or rubber gloves. All materials of this sort should be sealed in sterile containers such as "fruit jars" and stored under refrigeration pending further instructions.

4.C CONSTRUCTING A GRID



Material: Tent stakes, string and compass. Figure 1

1. Secure line A B adjacent to site between stakes in north-south orientation. (Magnetic, or geographic if O.S. map makes alignment possible)

2. Select point C, drive stake. Using stake as fulcrum for appropriate length of string, mark arcs yz and wx in earth.

3. Using the points where these arcs intersect line A B as fulcrums and approximately 50% longer string, inscribe arcs st and uv.

4. C and the intersection of arcs st and uv establish line C D in an east-west orientation.

5. Beginning at Point C drive stakes at 50 cm intervals along lines C E and C D sufficient to encompass "landing marks".

6. Point F can be located by making E F = C D and D F = C E using the string arc method.

7. Stakes can then be driven at point F and 50 cm intervals along E F and D F. Applying strings as shown in the diagram completes the grid.

4.D ELEVATION OF TERRAIN MEASUREMENTS

If a landing occurs on a slope or on irregular ground it is desirable to note and record the relative elevations of the different marks and features with respect to a level plane.

A split image transit can furnish this information but if one is not available a string, stake, chalk line, spirit level, compass and ruler can give you the same information.
See Figure 2.

This method can be used as an alternative to the grid method if more applicable to the particular circumstances.

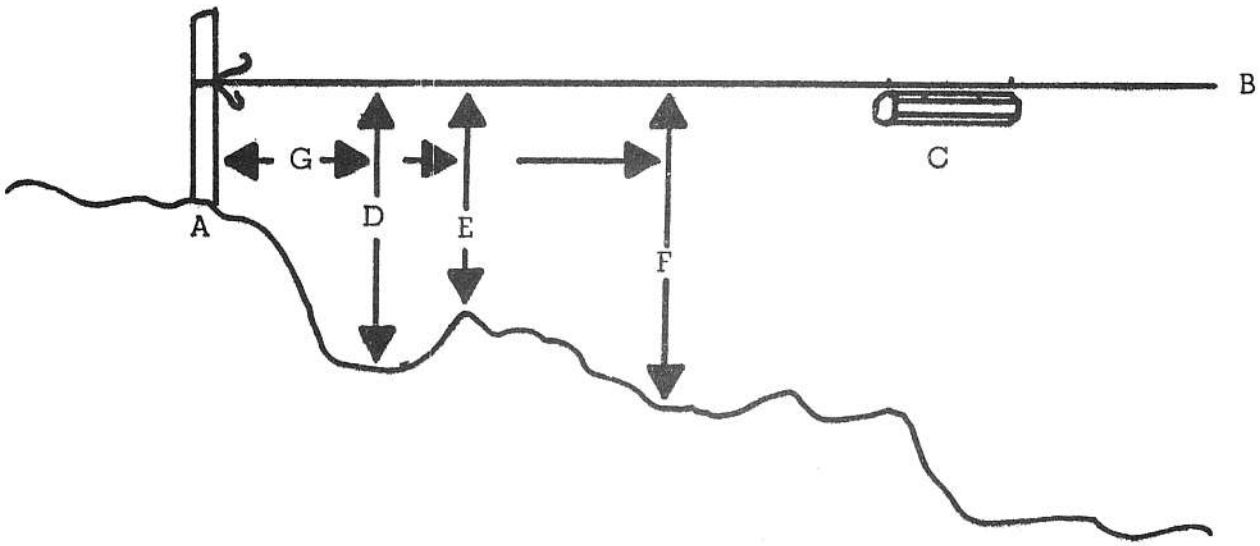


Figure 2.

1. String is tied to stake driven at A, a point higher than any of the features to be measured.

2. String is held taut by person at B and level by observing spirit level at C.

3. As string is held in this manner over each feature in turn, measurements (e.g. D,E,F) can be made. The azimuth of the string in each case as well as dimension G are also valuable data.

4.E SUSPECTED UFO LANDINGS - POSSIBLE HAZARDS

Hazards that investigators might be expected to encounter in the event of a physical appearance of a UFO on the ground fall into three categories: chemical, physical and biological.

4.E(1) CHEMICAL

Possible dangers here are from substances that either:-
(a) cause burns or blisters on contact: e.g. acids, alkalis, bromine,
(b) very fine particles which are absorbed through the skin or inhaled and which cause delayed effects: e.g. gases, very finely divided metals, silica or asbestos.

However, substances in group (a) will probably have been neutralised by the earth by the time an investigator arrives; similarly, gases or vapours will probably have dispersed to insignificant levels. Therefore, the only likely danger in such a situation is the handling of any very fine powders that might be present.

PRECAUTIONS: In the event (probably very unlikely) of any fine powder being present the main precautions are:-

1. Wear gloves (rubber).

2. Use some kind of face mask, e.g. surgeon's mask, to prevent inhalation of any dust thrown into the air on being disturbed.

3. Wear some form of goggles to ensure protection of the eyes.

4.E(2) PHYSICAL

This refers to what is known as ionizing radiation (commonly radioactivity) and one can only deal with those forms of radiation known to present technology. The chances of any "craft" which can perform the aerobatics often described in sightings being powered by any form of conventional atomic pile are extremely unlikely. Therefore, the origin of any radioactive substance may not be "extra-terrestrial", but caused by ionization of the ground. Thus it will probably be of very low intensity if at all.

PRECAUTIONS:

1. Use of Geiger Counter. These instruments are the traditional ones used by prospectors and will pick up most forms of ionizing radiation likely to be encountered except very weak Beta-emissions: e.g. Tritium & Carbon 14. In all probability, there will only be background noise, but if any unusual substances are present it is a useful safety measure. Note: A count over a five minute period is necessary; it may also be required to compare this with a count from a similar geological area since background noise varies with locality.

2. Use of Dosimeter. These devices can be purchased fairly cheaply and provide a measure of exposure to ionizing

radiation. They are not detection devices as such, they merely give the wearer some measure of the total exposure to any easily measurable radiation.

3. If anything is to be handled or approached closely, then the investigator ought to wear rubber gloves, face mask, goggles and wellington boots; the boots being washed before leaving the site.

4.E(3) BIOLOGICAL

If there is any suspicion that the reported "craft" had its atmosphere open to ours, then precautions ought to be taken against possible bacterial or virus infection.

Ideally the protection should be complete but the aforementioned gloves, mask, goggles and boots should be sufficient. If any samples are taken, then the outside of the container, gloves and boots should be washed with some form of sterilising agent; formalin solution is probably sufficient and is easily obtained quite cheaply from most local chemists.

One last point: when removing protective garments, make sure that they have been de-contaminated first and be careful not to touch other parts of the body or objects: e.g. paper, pens, cars, etc., with contaminated gloves. If possible it would be useful to wear something like a laboratory coat or a storeman's coat which could be removed, folded inside-out and placed in a polythene bag until it was washed. Also, if any hazard is anticipated, an assistant would be useful, especially in any de-contamination process.

5. PHOTOGRAPHY

5.A GENERALLY

5.A(1) Photographs have always posed a problem in the UFO field as nearly anything can be faked; but if a reliable field Investigator turns up with a set of technically good photos of a UFO, the value derived could be phenomenal in both information content and possibly publicity.

5.A(2) The essence of UFO photography is speed and efficiency in use of the camera. A 35 mm single lens reflex would probably be the best choice. Wide angle lenses of 28 or 35 mm focal length allow the inclusion of much local scenery thus placing the mysterious object spacially, while the telephoto lens (about 200 mm) may provide sufficient magnification to bring out details of structure and texture. For low light levels the regular lens size of 50 mm is available in extremely fast light gathering capabilities such as f. 1.2, although today's fast films make this feature dispensable.

5.A(3) The choice in films is narrowed down by the usually poor amount of light available at night or during the twilight hours. Black and white film offers greater sensitivity and detail capability than does colour film. Ilford HP5 or Kodak tri-X are both high speed with a reasonable exposure latitude; they can be pushed in developing to over twice their respective speeds, Kodak 2475 Recording film is an ultra fast (ASA 1000) material which emphasizes contrast and is not at all forgiving about exposure error.

5.A(4) As much technical information as possible should be recorded to aid in analysis of all exposed films.

5.A(5) Practice taking pictures at nights of low flying aeroplanes, distant neon signs, cars, etc., to sharpen a sixth sense of experience in such matters as what lens opening and shutter speed to use under various conditions.

5.A(6) Valuable information may come out of using polarizing filters (available for most cameras). Photographs should be taken with and without the filter. When using the filter it must be rotated until the maximum observed effect is achieved.

N.B. See the Condon Report for detailed information on hoaxes. (See Appendix 16)

5.B SPECTRA

5.B(1) A single good spectrograph of the light from an UFO can yield information about composition, temperature, density and the presence of magnetic fields. The spectrum of an UFO is probably the single most valuable measurement that could be made. An ordinary camera can be used to obtain spectra through the use of a transmission diffraction grating.

5.B(2) The grating looks like a thin, flexible, sheet of clear plastic which breaks light up into rainbows of colour. If the sheet is placed directly in front of a camera lens, any bright light is photographed along with a spectrum of the light.

5.B(3) A few problems occur: telephoto lenses cut out the spectra (unless an exceedingly low dispersion grating is used); large blobs of light will yield a confusing spectrum; ideally the light source should be in the form of a thin slit. Anyone who contemplates taking the spectrum of an UFO should practice on mercury vapour street lights at various distances to discover the limitations of his system.

5.B(4) If a spectrum is obtained, the particular camera, lens and grating used must be calibrated in a laboratory so that the UFO spectrogram can be properly analyzed.

5.C SITE PHOTOGRAPHY - INTRODUCTION

5.C(1) This section provides guidance on the use of equipment and techniques in the photography of sites. More specifically, it is to be used to precede and supplement a thorough site investigation. By doing this, it is hoped that a great deal more information will be retrievable that will be of a visual and lasting nature.

5.C(2) By recording details of sites photographically, provision is made for a permanent visual record of the site in question, the geography of the site and the surrounding area and detailed records of any residual traces that may be present, some of which may be highly transient.

5.C Cont 5.C(3) It must be stressed that all technical data concerning the photographs must be supplied when the films are sent to BUFORA for processing. If photographic record cards are not available, the same information must be supplied on a separate sheet of paper.

5.C(4) So as to reduce the amount of material that would otherwise be necessary to be included in this Handbook, a certain amount of background reading is recommended for the investigator who is not conversant with general photographic principles.

Recommended Reading:

Basic Photography - M.J. Langford. (Focal Press)
Chs: 3, 7, 8.

Photography with the eye-level Reflex
H.S. Newcombe (Focal Press)

Photographic Principles and Practices
Harry Asher (Fountain Press)

5.C(5) Please also note the Glossary of some photographic terms in Appendix 13.

5.C(6) Recommended Photographic Equipment:

Camera with interchangeable lens
Close-up lenses, bellows or tubes
Small folding flashgun and bulbs
Tape measure
Small tripod and cable release
Small spirit level
50 cm Scale, marked in cm's and mm's
3 M Flash extension lead
Exposure Meter
Range of filters for B/W film
HP5 or tri-X film
Photographic Record Cards.

5.D SITE PHOTOGRAPHY - METHOD

5.D(1) Photography of the site should commence upon arrival. At all times extreme caution should be exercised to ensure that anything that is present is not disturbed until it has been photographed and its position noted.

5.D(2) The shots should also include photographs of the general site from various directions. If somebody

5.D(2) Cont witnessed the event, a photograph should also be taken from their position at the time of the event. If necessary use a suitable filter to enhance the detail in the photograph (see the section on filters for more information). General shots of the site should, where possible, be made from as maximum height as practicable.

5.D(3) If indentations or objects are present on the site, then these should be indicated with ranging poles. (These are similar to surveyors poles and can be made-up using broom handles providing that they are painted in alternate white and black sections, each section being 15 cm in length.)

5.D(4) Each direction and other technical data of the photograph must be indicated on a photographic record card.

5.D(5) On all general shots of the site, the camera should be tripod-mounted and levelled in two planes using a spirit level. Also try to use a tripod for all photographs and release the shutter with a cable release as this will ensure a steady support for the camera. This also assists greater focusing ability, which could be important in close-up work.

5.D(6) As the site is being investigated, general photographs of operations can be made as this will help to provide for refining of techniques and also the camera may record something that has been overlooked. If a grid is used for site investigation, a photograph of the grid will be of help for reference purposes. A wide-angle lens will probably be of help here.

5.D(7) The site must be tidy so that no details are obscured by grass, leaves etc. Be careful, however, NOT to disturb any of the evidence.

5.D(8) A scale must be included in every photograph, a clearly marked metric ruler with black on white lettering will do. A standardised scale will be recommended or supplied at a later date.

5.D(9) It is most important that any residual traces are photographed in situ before being removed for further investigation.

5.D(10) Try at all times to bear in mind photographic techniques as this will help to bring out the most detail in the photograph. For example, rather than include unnecessary details on a photograph,

5.D(10) Cont use a telephoto lens to exclude them. Use filters to increase or reduce contrast between colours as necessary. If you are not sure which one to use, take two photographs, one with and one without the filter. Bear in mind that the more details and information there is on a photograph, the better it is for research purposes. It is far better to take too many photographs of a site than too few and thereby miss an important detail. A few thoughts before pressing the shutter release will greatly improve the quality of the photographs. For information on exposure corrections when taking close up photographs of objects on site please see the section on close-up photography.

5.D(11) Appendix 14 contains a check list of site photographs prepared by Mr Ted Phillips of the Mutual UFO Network Inc. (MUFON) of 103 Oldtowne Road, Seguin, Texas, 78155 U.S.A. Mr Phillips specialises in site investigations and the check-list is taken from MUFON's own Field Investigator's Manual.

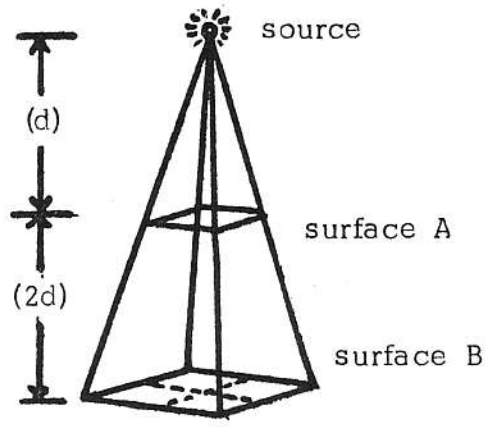
5.E CLOSE-UP PHOTOGRAPHY

5.E(1) "Close-up photography" normally photography of an object that is closer to the camera than the nearest focusing position that the lens will allow. To overcome this, the lens is separated from the camera body at set distances by the use of extension tubes or by variable distances by the use of a bellows unit. It must be remembered when using these that with increasing distances the depth of field is markedly reduced.

5.E(2) In both cases an exposure increase has to be made which varies with the amount of separation between lens and body. This is due to the Inverse Square Law which states that the amount of light from a source falling on a plane surface is inversely proportional to the square of the distance between the source and surface.

When a surface is illuminated by a light source at a given distance (d); if the source is removed to twice this distance 2 (d), then the intensity of the light falling on the surface is not a $\frac{1}{2}$ but a $\frac{1}{4}$. Equally if the light source is brought to $\frac{1}{2}$ the distance ($\frac{1}{2}$d) then the intensity would be 4x. If the source is removed to 3x the distance (3d) then the illumination would be 1/9th the original.

5.E(2) Cont See diagram below:-



5.E(3) Extension tubes are normally sold in sets of three. If used altogether the object is usually shown as the same size on the negative. With a 50mm lens, the extension would be 100mm, the exposure correction 4x and the exposure would need to be increased by 2 stops as that shown by the exposure meter. When using the tubes singly or in combination the exposure must be modified to suit. For instance, the thinnest tube usually has a correction of $\frac{1}{3}$ of a stop, the middle tube a correction of $\frac{2}{3}$ of a stop and the thickest tube a correction of 1 stop. If the tubes are used in any combination, then the factors for each are added together. The same Law obviously applies when a bellows unit is used and as the distances are variable a scale is usually provided on the unit itself for exposure correction for a standard lens.

5.E(4) It should also be noted that if any filters are used then their own exposure factor will need to be added to the exposure correction.

5.E(5) An alternate method to using either tubes or bellows for close-up photography is to use Supplementary Lenses. They have the advantage of enabling close-ups without the necessity of having to correct the exposure because no light is lost through them.

Supplementary lenses are thin meniscus lenses similar to spectacle lenses and are either positive or negative in shape. They are positioned immediately in front of the lens, usually in the filter mounting and reduce or increase the focal length of the primary lens. It is usually the positive lenses that are called close-up lenses.

5.E(5) Cont The focal length of these supplementary lenses are expressed in DIOPTRES, the reciprocal of the focal length in metres. A "plus 1" dioptre lens has a focal length of 1 metre.

The combined focal length of two or more of these lenses can be found by adding the positive values and subtracting the negative values. Thus two "plus 2" lenses are equivalent to one "plus 4" lens. Lenses of up to "plus 10" dioptres may be used.

To convert this to practical terms, when the camera lens is set to infinity, an object will appear focused at a distance equal to the focal length of the supplementary lens. For example, a "plus 2" lens permits sharp focus at a distance of $\frac{1}{2}$ metre and a "plus 10" lens, focus at 10cm or 4".

The obvious advantage of not having the effective f-number of the camera lens altered by close focusing, is somewhat offset by the cost of the lenses. A good quality set can be quite expensive and unless a good deal of use is envisaged for them, then extension tubes or a bellows unit is a better proposition.

5.E(6) Below are some formulae and tables to assist calculation:

For exposure correction:

Where V: lens to film distance,
F: focal length of lens,
M: magnification on negative.

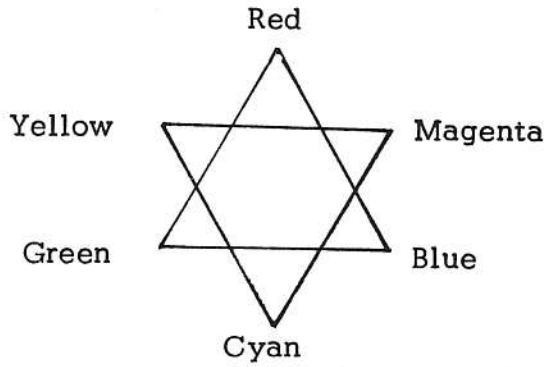
$\frac{V \text{ squared}}{F \text{ squared}}$ $(\frac{V}{F})$ all squared (M+I) all squared

The preceding answers are the amount by which the exposure must be multiplied.

5.F FILTERS

5.F(1) The use of filters in photography can greatly enhance the amount of detail that is recorded by the film and the camera. In some cases, it is possible to record details that are not visible to the eye by using special techniques and certain filters. For example, the use of Infra-red and Ultra-violet illumination of an object can bring out details quite strikingly that would be otherwise indiscernable.

5.F(2) Generally, the rule to remember when using a panchromatic (B/W) film and a filter is that a filter will lighten its own colour and darken its opposite colour <u>on the print.</u>



As can be seen from this diagram, Blue is the complimentary or opposite colour to yellow, Green is complimentary to Magenta (reddish-blue) and Red is complimentary to Cyan (greenish-blue). Red, Green and Blue are known as <u>Primary</u> colours and Yellow, Magenta and Cyan are known as <u>Complimentary</u> or <u>Secondary</u> colours.

As can be seen from the table below, the filter also affects other colours that are not opposite to a lesser amount.

Filter	Blue	Green	Yellow	Red
Deep Red	Very Dark	Dark	Light	V. Light
Deep Green	Dark	V. Light	Light	V. Dark
Deep Blue	V. Light	Dark	Dark	V. Dark
Deep Cyan	Light	Light	Dark	V. Dark
Deep Magenta	Light	V. Dark	Light	Light
Deep Yellow	V. Dark	Light	V. Light	Light

It must be remembered that there are the reproduction (print) tones for the various filters. These filters are known as contrast filters and obviously for filters that are not so deep in colour, the result will be correspondingly less depending on the density of the filter.

5.F(3) The density of a filter is expressed as the "Filter Factor". This is the amount by which the exposure must be multiplied to allow for light-absorbing powers of the filter.

For example: a 2x filter will require a 1 stop increase in exposure
a 3x filter will require a $1\frac{1}{2}$ stop increase in exposure

5.F(3) Cont a 4x filter will require a 2 stop increase in exposure etc.

But this value depends also on the colour of the illumination. See the information sheet packed with the filter.

Below is a list of the generally available filters and their uses.

5.F(4) Yellow Filter

White clouds on a blue sky will photograph virtually the same and will appear as a light area on the print. A yellow filter will darken the blue sky and make the clouds stand out from it.

5.F(5) Green Filter

This reduces the Magenta (pink) light reflected from particular areas of a subject and so darkens them on the print. By passing the green light with some adjacent blue and yellow, it would for example, be of use to lighten patches of vegetation in contrast to the bare ground in a mainly rusty coloured, sandy landscape.

5.F(6) Blue Filter

This absorbs yellows and accentuates blues. It can be of use to accentuate blue subjects in poor lighting that would not normally be in adequate contrast to the background.

5.F(7) Orange Filter

This is used in the field to accentuate (by lightening in tone) orange and yellow coloured areas of strata among dark or dirty browns or greens.

5.F(8) Red Filter

This is used, particularly a fairly strong one, to give increased contrast and shape to landscape or distant photographs. It does this by reducing the atmospheric scatter of blue light which gives rise to the haze in photographs.

5.F(9) Haze or U.V. Filter

This is widely used in colour photography to reduce the overall blueness that is present in distant photographs. This is also caused by scatter of the U.V. and blue light in the atmosphere which is mainly caused by water droplets in suspension. It is of particular use at high altitudes and as it does not affect the exposure many people leave them on the camera to give a measure of protection to the lens against scratches, dirt etc.

5.F(10) Polarising Filter

This is used for reduction of reflections on non-metallic surfaces; glass, water etc., and is most efficient when used at an angle of about 30 degrees to the reflecting surface. It can also be used to reduce haze and to darken a blue sky as this light is also polarised. The filter is normally supplied in a rotatable mount so that it can be used to maximum effect.

5.F(11) Infra-red (I.R.) Filter

This is used in conjunction with infra-red sensitive film which is sensitive to the longer radiations that lie outside the visible spectrum. It only passes radiation in the I.R. waveband. This region is dispersed much less by mist and haze in the atmosphere than the visible wave-lengths and will render a scene visible to the camera that is invisible to the operator. A change of focus is needed when using this filter as the I.R. radiation is brought to a focus, by the lens, at a point further away than that of visible light.

5.F(12) U.V. Absorbing Filter

This has a special use in the photography of subjects that fluoresce when excited by U.V. radiation. It cuts out the radiation that is reflected by the subject that would otherwise swamp the usually feeble light, that is visible, that is being emitted by the subject.

5.F(13) As with all filters, the stronger the colour, the greater the effect will be, but also the greater the exposure correction necessary to compensate for the absorption of the filter.

5.F(13) Cont If filters are used in low-light levels, it must be remembered that either wide lens apertures resulting in lack of depth of field or slow shutter speeds resulting in possible camera shake will degrade the photograph and so lose detail. Where possible, always try to use a tripod and trip the shutter with a cable release.

5.F(14) A useful reference book is "The Kodak Range of Light Filters" which is available from your normal photographic suppliers.

6. OBTAINING ACCURATE NUMERICAL DATA FROM WITNESSES

6.A GENERAL PROCEDURE FOR INVESTIGATORS

If an accurate analysis of any sighting is to be made, it is essential to collect all relevant numerical data.

The most important statistics which are needed from an aerial observation are the time, duration, size, distance, height, velocity, bearings and true course.

Any errors made in measurements or estimates of some of these values may result in much bigger errors in quantities calculated from them. Most calculations involved depend on the properties of similar figures, but really reliable estimates will require at least two observers at separate locations, and both the time of observation and the distance between the observers need to be known precisely.

6.B THE KEY DATA

6.B(1) Date

The date should be recorded in an unambiguous form, e.g. Monday 8 Dec 1975, not 8.12.75, since in the U.S.A. this would be interpreted as 12th August 1975.

6.B(2) Time

The time should be stated as accurately as possible, giving hours, minutes and even seconds, if known. The witness may have been relying on an inaccurate watch, so this should be checked. It is advisable to use the twenty four hour clock system, and always state whether G.M.T. or B.S.T.

6.B(3) Duration

The duration of a sighting is very often incorrectly estimated by an untrained observer. The simulation method, in which the witness repeats his observation pointing at the imagined UFO as he is watched and timed by the investigator, will give greater accuracy.

You should obtain a minimum and maximum value.

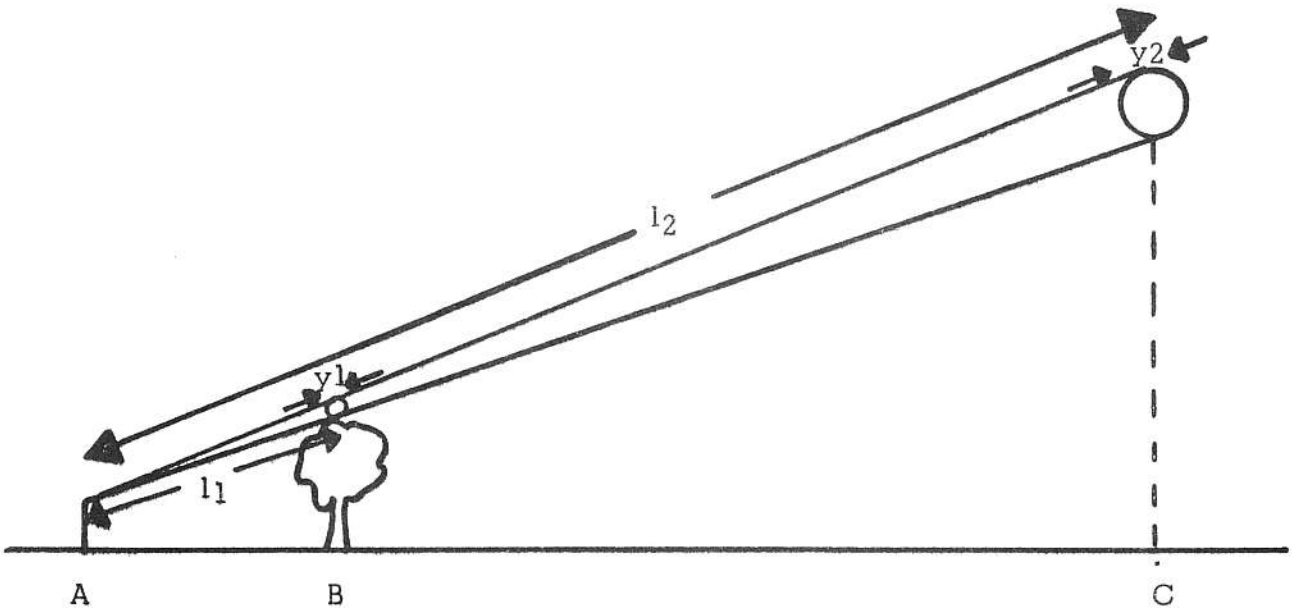
6.B(4) Size

This is a quantity which is easier to establish for familiar objects, but since UFOs are reported from a few centimetres across to thousands of metres in length, we cannot set definite limits to the possible values on the grounds of credibility. However, we can relate the apparent size of the object to the apparent size of a known object at a stated distance.

As an example, let us suppose that an observer A reports a UFO as just above a tree which is 50 metres (approx 55 yds) to the north of his position, and as apparently the size of a half-penny held at arm's length. If the object is directly above the tree, its size will be approximately 1.5 metres (approx 5 ft).

However, if the object's true position is 500 metres (approx 547 yds) from the observer, its size is 15.1 metres (approx 50 ft).

This is shown in the accompanying diagram.



The calculation depends upon the ratio -

$$\frac{\text{size of half-penny}}{\text{arm's length}} = \frac{y_1}{l_1} = \frac{y_2}{l_2}$$

6.B(4) Cont

Therefore, if a second observer can be at B or C the object size can be calculated more precisely.

The object size y is given as

$$y = \frac{1 \times \text{size of half-penny}}{\text{arm's length}} = \frac{1 \times 17}{560}$$

0.031

Diameter of half-penny 17 mm. Average arm's length = 560 mm

Note here the possible errors:- The size of object used for comparison (if not standard, such as a half-penny), the arm of the witness, his visual memory (which in turn depends upon his sight, including colour vision) and the conditions for seeing, which include the visibility, atmospheric conditions, and local lighting.

The arm's length error can be eliminated if a standard length of string is used. Otherwise the variation in this value can be $\pm$ 20% depending upon whether the arm is held vertical or horizontal and whether it is held parallel to the shoulder line or at 90^{o} to it. We recommend that a string 60 mm long (2 ft) should be used as standard.

In view of all these errors no calculation lies in estimating the total possible error, which can be in excess of $\pm$ 100% for the least experienced witnesses.

Note: the size of an object can be calculated by three dimensional trigonometry, if 2 or more observers can state the apparent size (as given above) and also the bearing and angular elevation at a precise time. The actual calculation need not be done by the investigator, but can only be completed accurately by someone else if all the above measurements are noted down in the sighting report.

Be wary of accepting an estimate of angular size from an untrained observer. Remember that the moon only subtends $\frac{1}{2}^{o}$ at the eye.

See Table B for some examples.

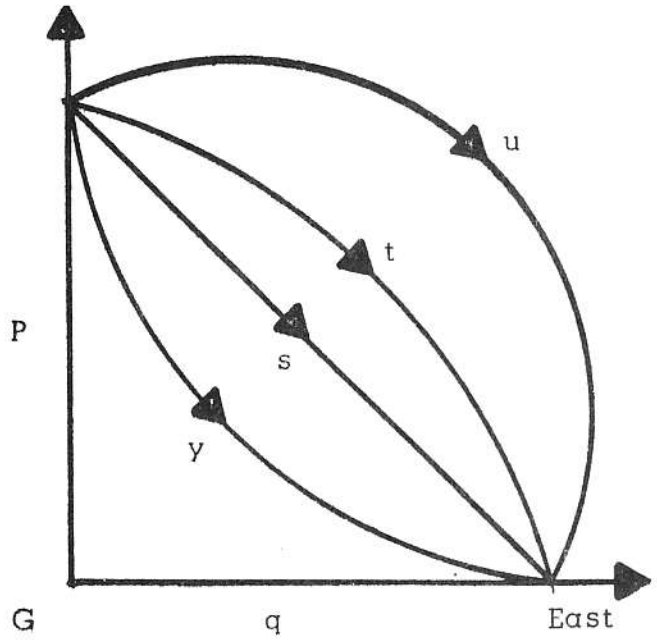
6.B(5) Velocity

The velocity of an object is equal to the total distance

travelled divided by the time taken. Therefore, an estimate of velocity based upon one witness's report will only have a reliable minimum value. The maximum (or even true) speed could be many times greater than this.

As an example if observer G sees an object move from a position North of him to East in 8 seconds the diagram below indicates the difficulty of obtaining an accurate value for speed.

North (Strictly speaking, velocity is speed in a stated direction).



The minimum speed would occur along route s, all the others involving a longer journey in the same time. The smaller the distance p and q the slower the speed, whichever route is followed. Therefore, a second observation is again required.

In the above example, if p and q can be found, then by Pythagoras theorem

$s = p^2 + q^2$., and average velocity $v = \frac{s}{8}$ m (yds) per sec.

However, a simpler procedure is usually to state the angular velocity in degrees per unit of time.

In the above example the angular velocity

$$a = \frac{\text{degrees traversed from North to East}}{\text{time taken}}$$

$$= \frac{90^\circ}{8 \text{ secs}} = 11.25^\circ \text{ per sec}$$

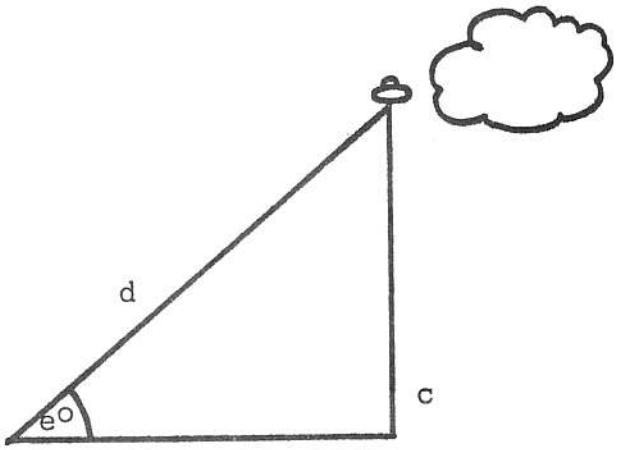
6.B(6) Height and Distance

The problems here again depend on whether two observations are available, unless certain reference points are noted.

For example, if the object is seen to pass through cloud whose height is known, then the distance d is given by

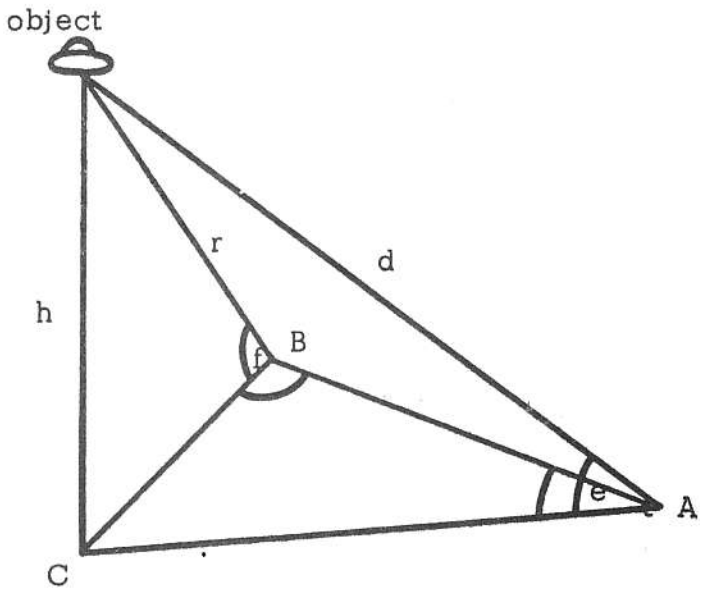
$$d = c \text{ cosec } e$$

where c = cloud height
e = angle of elevation of object
as shown below



The heights of some clouds are given in Table C. Note that many witnesses will need help in estimating the angle of elevation of an object.

If two observers provide simultaneous measurements, the calculation of height h, or distance d from observer A or distance r from observer B can be done most simply if a diagram like the following is drawn.



6.B(6) Cont

Observers are at A and B.

h = height of object above ground.

e = angle of elevation of object seen by A.

f = angle of elevation of object seen by B.

AB must be calculated or measured on a map.

Angles ABC and BAC must be obtained from bearings measured by the observers.

First. Angle ACB = 180^{o} - (ABC + BAC)

Then using the sine rule

$$\frac{BC}{\sin BAC} = \frac{AC}{\sin ABC} = \frac{AB}{\sin ACB}$$

BC and AC can be calculated.

then $\frac{h}{BC} = \tan f$ and $\frac{h}{AC} = \tan e$

or $h = BC \tan f = AC \tan e$

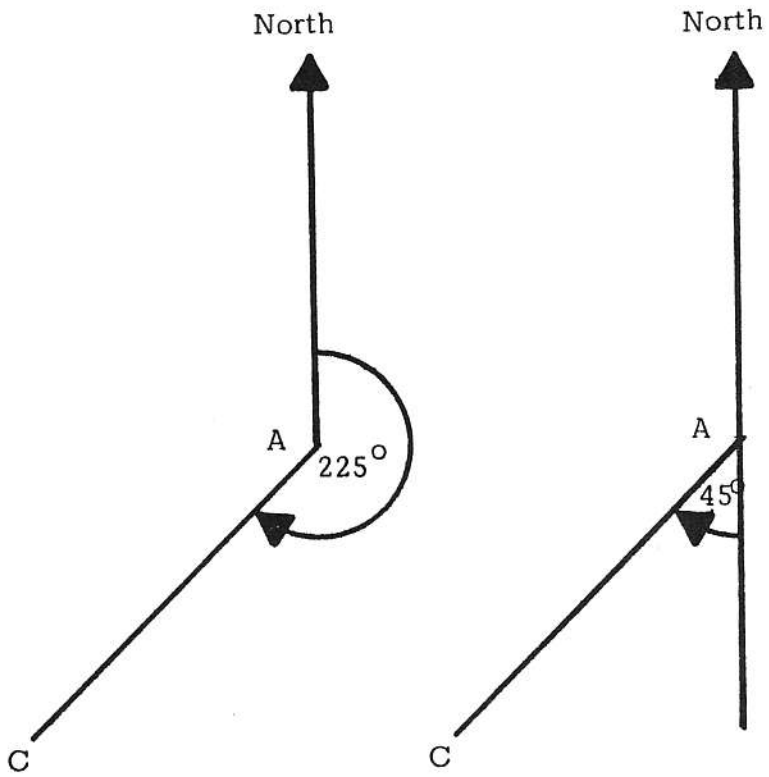
then $d = AC \sec c$ and $r = BC \sec f$

The above procedure does not explain how to find angles ABC and BAC, but these can be found easily if we know the bearings of C from A and of C from B, as explained in the next section.

This manual is not the place for detailed trigonometrical analysis and no allowance has been made for earth curvature. This could result in significant errors where angles of elevation of the object are small and distances are large.

6.B(7) Bearings

The bearing of C and A is that direction in which A looks when observing the object at C, measured either as a protractor bearing or as a quadrant bearing. The two forms are shown as follows.



Protractor Bearings:- Always measured in degrees from North in a clockwise rotation. Thus East is 090°, South East 135°, North West is 315°. The bearing is always given as a 3 figure number.

Quadrant Bearings:- Measured in degrees East or West of the North or South line. Thus North East is 45° East of North or N45°E, and South West is 45° West of South or S45°W.

Errors can easily be made using quadrant bearings and, therefore, the use of protractor bearings only is strongly recommended.

When checking a bearing the investigator must make an allowance for the deviation of magnetic north from true north. This is quoted on Ordnance Survey Maps.

6.B(8) <u>True Courses</u>

It is very difficult for most people to estimate the true course of a moving object, since the eye is so easily misled by cloud and vehicle movements. Even stars appear to move rapidly on a windy night, when clouds are travelling fast across the sky. From this kind of observation we must accept that an observer can see relative motion and may make wrong inferences about the true course of an object. Another simple example is the tendency for a person to assume that a ship is steaming in the opposite direction to that in which its smoke is moving. This maybe wrong.

True course is best calculated by someone who is familiar with relative velocity calculations, and has all the data necessary.

6.C GENERAL PROCEDURE COMMENTS

The investigator should :-

1. Obtain as many measurements as possible using objective comparisons, e.g. use measuring tapes, compare with coins or other known standard objects, when seen at a stated distance (essential).

2. Do not assume that one object comparison will suffice. Use two or more if possible, e.g. compare with a coin and the moon. This may show up inconsistencies.

Note: Do not openly contradict the witness if he gives conflicting estimates.

Simply try to obtain further data to help evaluation since pushing the witness may increase his error of observation.

6.D TABLES

6.D(1) Table A - Useful Values

	Approx		Approx
1 inch =	2.54 cm	1 cm =	0.4 inch
1 foot =	30.48 cm	1 m =	3 ft 3 ins
1 mile =	1.61 Km	1 Km =	$\frac{5}{8}$ mile

1 mile p.h. = 0.45 m.p.sec. 1 m.p.sec = $2\frac{1}{4}$ mls.p.h.

88 ft per sec = 60 mls. p.h.= 26.8 m.p.sec.

Speed of sound in air = 738 mls.p.h. = 330 m.p.sec.

6.D(2) Table B - Some Angular Measurements

Object	Subtends at the eye angle	$\frac{y}{d}$
Moon or Sun	$\frac{1}{2}^{o}$	0.009
Halfpenny held at 60 cm (2ft)	$1\frac{1}{2}^{o}$	0.027
Penny held at 60 cm	2^{o}	0.035
Twopence held at 60 cm	$2\frac{1}{2}^{o}$	0.044
Tennis ball held at 60 cm	6^{o}	0.105

6.C Cont

6.D(3) Table C - Cloud Heights

(An appendix will be included in due course illustrating various cloud formations)

Type	Height
Low Cloud, Cumulus, large billowy cloud	up to 2 Km (6,500 ft)
Middle clouds, Alto cumulus, small clouds like balls of cotton wool	2 - 6 Km (6,500 - 20,000 ft)
High clouds, Cirrus, fine streaky cloud	6 - 15 Km (20,000 - 50,000 ft)

7. MISIDENTIFICATION AND EVALUATION

7.A INTRODUCTION - THE CONSIDERATIONS

7.A(1) In evaluating an alleged UFO report our analysis of the circumstances surrounding the event and the determination of its true nature are subject to certain considerations. These involve the physical, physiological and psychological characteristics of human beings who are the percipients of the event. They also include the numerous and varied phenomena of our natural enviroment and the multitude of man-made devices from which the sighting may originate.

7.A(2) In simple terms, when examining a UFO Report we must be sufficiently aware of the element of human error involved and the subjective nature of observing things in the air.

Equally essential in our evaluation is a basic knowledge of natural phenomena and man-made objects which by misinterpretation or misidentification give rise to reports of unidentified flying objects.

7.A(3) Thus we must attempt to determine the degree of subjective or objective misinterpretation, or a combination of these, contributing to the UFO report and by way of account and the sighting, get back to the true event.

(a)	UFO EVENT	(b)	UFO SIGHTING
(c)	UFO ACCOUNT	(d)	UFO REPORT

(i) The UFO Event can be generated by the presence of some known natural phenomenon or man-made object or a real unknown. In certain circumstances the event may be entirely subjective.

This Event leads to (b) the UFO Sighting by the witness which is subjective to some degree or other and suffers from the human errors of perception and interpretation. The Account of the sighting (c) may be written or verbal and is affected by such factors as the witness's memory or lack of it, his imagination, any preconceived idea he may include, and the extent of his experience in

7.A(3)(i) Cont

observing such phenomena. Where an investigator interviews the witness, the UFO report (d) is essentially a written version of the Account depending upon the experience of the interviewer and the effectiveness and accuracy of the methods used to "extract" the data. On the other hand, where the UFO Report is, for example, a newspaper story of the witness's Account, the details contained in it may be inaccurate and prove to be exaggerated

It is plainly obvious that the UFO Report (especially in the sense of a newspaper report) has altered considerably from the true facts of the original Event. However, because we are so reliant on the press as a major source of UFO reports, the investigator/evaluator has no choice but to use his knowledge and experience to get back to the Event by way of the guide lines already described.

7.A(4) The golden rule is never to accept the UFO report at face value.

7.B PERCEPTION, COGNITION AND REPORTING

7.B(1) The following is intended to enlighten rather than to instruct and is based on the comments in the Report of the University of Colorado following their Scientific Study of Unidentified Flying Objects.

Before a Sighting Report can be investigated an Event has first to take place which gives rise to this Report. It is this Event, and the interpretation of it by the observer, that is described below.

A Sighting usually begins with a distant, physical Event which transmits energy to the observer in the form of light, heat, sound, etc. This energy is received by the observer's sense organs and is then transmitted to the brain where the jumble is sifted and categorised to form an interpretation of what actually happened. This interpretation will tell the observer that an Event governed by certain characteristics, i.e. size, shape, colour, sound, altitude, distance, speed, etc., has occurred. The interpretation is then subjected to the process of cognition,

7.B(1) Cont

whereby the observer decides what it was he saw. The reporting of a UFO is thus governed by the observer's cognition of an Event i.e. if he cannot identify an object in the sky, then in HIS case that object is a UFO by definition.

7.B(2) When considering what it was that an observer says he saw, it is important to take into account how dark- or light-adapted the observer's eyes were at the time of the observation. For instance, to the light-adapted eye a moderately bright source of light will appear less intense than would the same source viewed by a dark-adapted eye. Conversely, objects which are invisible to the light-adapted eye are easily recognised by the dark-adapted eye. An example would be a person entering a darkly-lit cinema. At first he can see only the screen, then as his eyes adapt to the level of illumination he can make out the people seated around him.

7.B(3) Similarly colours, ignoring colour-blindness, vary according to the background against which they are seen. The interpretation of a colour often depends on the light-adaptation of the eyes. A dark-adapted eye is insensitive to colour, although grass is still seen as green and a banana yellow. However, a small piece of grey paper seen against a green background will have a red tint, while on a blue background it will have a yellow tint; and the same paper looks appreciably brighter against a dark background than a light one.

7.B(4) With regard to the size, speed, altitude, distance, etc., we must first have a frame of reference before accurate estimates can be made. Without any frame of reference all such estimates are dependent upon the size and quality of the retinal image. For example, a small nearby object will cast the same image on the retina as would a large distant object. (See Fig. 1)

7.B(4) Cont

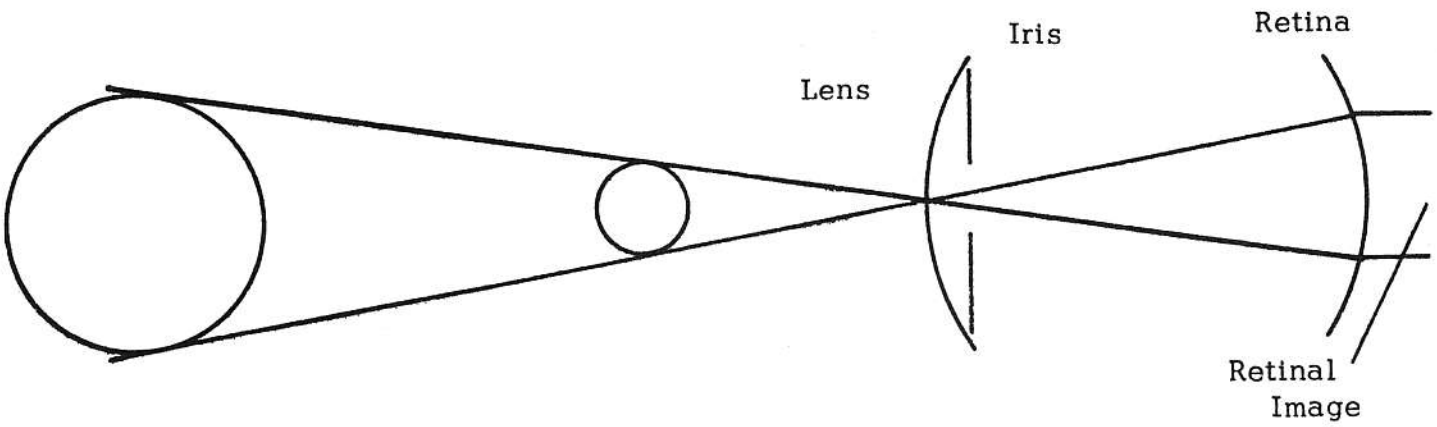


Fig. 1

Objects of different sizes which appear to be the same size because of their distance from the observer. Similarly, a small, slow-moving, nearby object will apparently be moving at the same speed as a large, rapid-moving, distant object.

As can be seen from the foregoing, without a frame of reference, estimates can only be gained by inference. As in Fig.1, if the observer assumes the object to be 20 ft across, he will then infer its distance in terms of that size. But if he assumes that the object is much smaller than this then he will infer that it is much closer to him.

In a similar fashion there is ambiguity in altitude, particularly if the object is moving. An object which is travelling away from the observer will apparently decrease in size. Consequently, the object may appear to be gaining altitude rather than moving away. If the object is travelling toward the observer, particularly if it is on a path which will take it directly over the observer, then it too may appear to be gaining altitude. Likewise, if the object is approaching or receding it will appear to change size, or conversely, if it is changing size then it may appear to approach or recede.

7.B(5) Shape is affected by the orientation of the object to the observer. A disc-shaped object can appear as a disc, sphere, cigar-shape, or various forms of ellipse merely by changing its orientation with respect to the observer.

7.B(6) Then there are physiological effects within the observer which can affect the quality of a sighting. "Autokinesis" may occur which has the effect of making a stationary object appear to move and is caused by staring at, for example, a single bright object against a dim background. The opposite effect is called "Autostasis" whereby a moving object is made by the eye to appear stationary.

7.B(7) Illusionary effects must also be considered as contributing to the eventual quality of a sighting. In Fig.2 the upper line appears to be longer than the lower line, while in reality they are the same length.

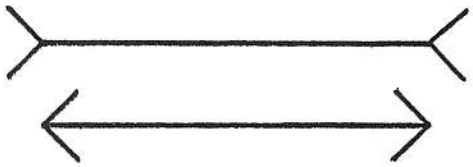


Fig.2

In much the same way, the moon appears much larger when on the horizon than when it is high in the sky.

7.B(8) One must also consider the effects of weather and other impediments which affect the quality of the retinal image. Rain, fog, mist, dust, glass, plastic, heat haze can all affect the quality of transmitted light. Temperature changes can be so severe as to produce mirages and ghost images on radar.

7.B(9) All of these factors are additive, and combine to produce a neural stimulus in the observer. This neural stimulus is then subject to the interpretation which the observer puts on the event. The result of his interpretation will affect his cognition of the event, and will be decisive in the question of making a report.

7.B(10) It is important that the investigator be neither too credulous nor hypercritical. Questions such as, "Do you think the object came from outside the Solar system?", or, "Of course, you realise that what you saw was in all probability a weather balloon?", are out of context, and ask the observer questions which

7.B(10) Cont

he is in no position to answer. Research and analysis are neither the witness's nor the investigator's task at the time of interview. If the witness thought that the object was a weather balloon then he would not have reported a UFO. And the witness's theories on the place of origin of an object are entirely irrelevant to the report. It is best for the investigator to remain open-minded when questioning a witness, despite what his own theories and beliefs are. The object of investigation is to establish what it was that the witness observed while at the same time bearing in mind factors which can affect the observation. What the witness thought he saw, and what the investigator thought the witness saw, are of no consequence in the report form; although it may possibly be of some help to include these impressions in a separate report made after the interview.

7.C STATISTICS

Statistics from both official and unofficial sources (see Appendix 10) show us clearly that the great majority of alleged UFO reports can be explained in normal terms. It would appear that no more than 10% of all UFO sightings made remain unexplained. The true percentage may well be much smaller than this due to the lack of sufficient data in many of the "inexplicable" reports.

The statistics also indicate graphically to what extent the various natural phenomena and man-made objects contribute towards the overall percentage of identified reports.

7.D DATA

It cannot be over emphasised how important is the collection of essential and accurate data such as date, time, location, duration of event, directions and elevation and weather details. Obviously, without these, no true evaluation of the report can be made. Date, time, direction and elevation are absolutely necessary in eliminating possible astronomical phenomena by reference to an almanac. Weather data is invaluable, since, for example, conditions conducive to the observation of a bolide, i.e. clear skies, are quite the opposite of those associated with the generation of lightning balls which usually make their appearance in overcast stormy conditions.

7.E MISIDENTIFIED PHENOMENA

In the following pages are listed many of the natural phenomena and mad-made objects which commonly give rise to UFO reports. In some instances where natural phenomena are considered, both the mechanism responsible for their generation and their visual appearance are described and are illustrated if necessary. The information given should make the investigator aware of the ways in which the various phenomena manifest themselves. He should then be better equipped to eliminate the various items one by one by comparing the following details with those mentioned in the report. It is possible therefore to arrive at a conclusion as to what a UFO may actually have been, or, equally as important, what a UFO was not! (See Appendix 11)

7.F ASTRONOMICAL PHENOMENA

7.F(1) THE NIGHT SKY

Without some elementary knowledge of Astronomy the night sky can present a most mysterious picture to the inexperienced observer. It is for this reason that a great proportion of alleged UFO reports are made during darkness hours. We recommend therefore that the potential investigator equip himself with some elementary booklet on Astronomy together with a star map, which should then enable him to locate and identify the celestial bodies he may encounter. (See Appendix 16)

7.F(2) METEORIC PHENOMENA

Meteoric phenomena include meteors (shooting stars), fireballs, bolides and meteorites. Interplanetary space is populated by countless numbers of small solid bodies called meteoroids. These range in size from microscopic particles smaller than a grain of sand, to large fragments of iron or stony material which are thought to have their origins respectively in nucleus of comets and in the asteroid belt. As the Earth revolves around the Sun, it continually intercepts this interplanetary material sweeping up the debris by its gravitational attraction.

It is estimated that many billions of meteoroids enter the Earth's atmosphere every day though only a very small fraction of these are large enough to be detected by the observer. As they rush into the upper layers of the atmosphere, at speeds between 11 and 72 Km per second, they are rapidly heated by friction to incandescence and are vapourised in a momentary sudden flash of light.

7.F(2) Cont

The duration of the visible meteor is usually less than one second - though the brighter members may leave a luminous train lasting for minutes after the event. Their brightness varies from a barely discernible flash to a display exceeding the magnitude of Venus. Colours also vary from white, through yellow to bluish. They are usually visible between heights of 80 and 130 Km. On any clear night one may observe sporadic meteors though at certain times of the year the numbers are enhanced by meteor showers. (See Appendix 12 for table of meteor showers.)

More spectacular than their small cousins the larger fragments of interplanetary material entering the atmosphere can produce brilliant meteoric fireballs, some brighter than the full Moon and visible over areas of many hundreds of square miles. They can be visible for a number of seconds and often appear to travel in a horizontal path leaving a luminous train behind them. Fireballs are visible in daylight when a smoke-like train is observed. The colours described, even for a single event can vary considerably, but in general are often orange or orange/red or green to green/blue. They are usually globe-shaped and more often than not sport a fiery tail. (Tadpole like.)

Like meteors the solid material creating the visible fireball is usually completely destroyed on its encounter with the atmosphere. In certain rare circumstances where the original body is large enough, some of the remaining material can reach the Earth's surface in the form of meteorites. Fireballs producing meteorites are often termed bolides, being remarkable as they end their flight expoding violently and loudly, throwing fragments down to the ground. An interesting example of a meteoric fireball which gave rise to many UFO reports was the object which crossed Great Britain on 25th April, 1969 and deposited meteorites in N. Ireland. Observations recorded a colourful and wide range of descriptions which varied from a garden rocket with an orange flame, to a comet, a giant firework, an airship and a "shining flying saucer". It was reported as spinning, it had a dome on the top and to more than one witness made a humming noise'.

A more recent example was the blue/green bolide which crossed Britain on the night of June 6th, 1976, and caused thousands of people to report a UFO. An important lesson should be learned from this type of event.

7.F(3) PLANETS

The name "planet" is derived from the Greek word for a wanderer, because, unlike the stars, these brighter points

7.F(3) Cont

of light appear in slightly differing positions among the fixed stars from night to night. To the casual observer they appear as stars.

Planets like Venus, Mars, Jupiter and Saturn are visible for many months of the year, Venus being an "evening star" when it lies East of the Sun and becoming a "morning star" when West of the Sun. The planets are usually brightest at opposition (the date when they are on the meridian at midnight) the date of which can be found from an almanac. Planets do not twinkle like stars except when very near to the horizon. Mars has a reddish appearance, Venus white, while Jupiter and Saturn can look yellowish. Their stellar magnitudes are Mercury -0.2, Venus -4.0, Mars -1.9, Jupiter -2.4 and Saturn -0.8. (Magnitude showing brightness and high negative magnitudes being brightest of all.)

Certain planets especially Venus have often given rise to UFO reports. On many occasions Venus has been described as a fiery cross usually due to prolonged observation by inexperienced witnesses who have suffered from refraction effects in the eyes. Tell-tale indicators that some planet is responsible for a report are, a prolonged observation period, a slow movement of the object from left to right and the observation of the same object over successive nights. Autokinesis can occur in planetary observations with the effect that a virtually stationary object appears to move.

Knowing the true north bearing and elevation of the suspect UFO, quick reference to an almanac may reveal the culprit as a planet or bright star and eliminate this heavenly body from the investigation.

7.F(4) <u>THE MOON</u>

Surprisingly enough there are circumstances where even the Moon can be mistaken by the inexperienced witness as something more unusual.

A full Moon on the horizon, dull and orangy in appearance and partly hidden by the uneven skyline has on more than one occasion prompted the casual observer to report a UFO. Again, the rising Moon gradually entering a low horizontal bank of cloud has been mistaken for a saucer-shaped object slowly receding from the observer.

7.F(4) Cont

Another interesting and misinterpreted phenomenon associated with the Moon is the appearance of Moon-dogs. Produced by the refraction of light by ice crystals in the upper atmosphere, these bright rainbow coloured patches of light are often seen in conjunction with a halo around the Moon some 22° from it. If suspected, the position of the Moon can soon be checked. Remember an eclipse of the Moon will only occur when this is full.

7.F(5) THE SUN

Like the Moon, the Sun under certain circumstances, can be accompanied by bright areas of rainbow coloured light associated with complex halos surrounding the luminary at a distance of 22°. These Sun-dogs may also form one above and one below the Sun, four in all, and when seen in conjunction with a halo, look like four beads threaded on a circular wire.

Sub-suns are intense small patches of light sometimes observed against a background of cloud or the ground itself and reported by pilots of aircraft.

7.F(6) THE STARS

The brighter stars and the groupings of stars forming the well known constellations have in the past perplexed the lay-observer especially when these are viewed through moving scattered cloud. Often the impression is received at the brain that the stars are moving instead of the clouds. As with the observation of planets, the effect of autokinesis can occur causing a stationary point source of light appear to move.

7.F(7) OTHER ASTRONOMICAL PHENOMENA

Apart from the more commonly mistaken celestial bodies already described, other astronomical phenomena which may in rare instances lead to UFO reports are noted below. Descriptions of these can be found in elementary texts on the subject if necessary.

Gegenschein or counterglow - a misty patch of light visible under excellent conditions.

Luminous Sky - a faint glow covering the whole sky.

7.F(7) Cont

Zodiacal Light - a cone of faint light extending upwards from the horizon after sunset.

Comets - there are examples of the brighter naked eye comets being misobserved.

7.G METEOROLOGICAL PHENOMENA

7.G(1) THE EARTH'S ATMOSPHERE

Surrounding the Earth there is a comparatively shallow layer of gas which we call the air, and upon which most life on the planet depends. It is a mixture of 78% nitrogen and 21% oxygen, the balance being made up of argon, carbon dioxide, and traces of hydrogen, neon, krypton, ozone, zenon together with water vapour and particles of dust and smoke.

Though it would not be of great value in this hand-book to detail the various layers from which our atmosphere is composed, we must give careful consideration to the variety of meteorological phenomena which occur in the air around us and the ways in which the changing conditions of the atmosphere affect and lead to the generation of UFO reports.

7.G(2) FOG, MIST AND RAIN

The main effects which these three can have on visual stimuli is to distort or obscure. A light viewed through a mist will appear to be surrounded by a saintly halo, and if the mist thickens to become a fog, or even smog, the colour of the light will be yellowed and dimmed and may eventually become invisible.

A second and less familiar aspect of fog and mist is when they act as a screen upon which shadows can be thrown. The Brocken Spectre in Saxony is the most well-known of this type of apparition, and is produced when the Sun, being low in the sky throws an image onto a mist or cloud bank. Refraction may cause the image to be surrounded by a halo of spectral colours. Since rainfall represents a cloud of individual particles its action is in some way similar to that of mist.

7.G(3) MIRAGES

These are optical illusions caused by refraction of light rays by layers of hotter and less dense air near a heated

7.G(6) OPALESCENT CLOUDS

These clouds, also known as "mother-of-pearl" form at heights of around 16 miles where the very dry atmosphere gives way to a slight increase in moisture. Through freaks of light refraction they are tinged with the colours of the spectrum particularly noticeable around their edges. At the height they occur there is a chance the observation of one of these clouds could lead to a UFO report.

7.G(7) NOCTILUCENT CLOUDS

These clouds occur at a height often exceeding 50 miles and appear to be made up of ice coated dust particles originating from outer space. At this altitude they still reflect the rays of the Sun after this has set which gives them the appearance of being luminous against the black night sky. It is this property which makes them the prey of the would-be UFO observer.

7.G(8) AURORA BOREALIS (NORTHERN LIGHTS)

To the informed observer the possibility of confusion arising between an auroral display and a UFO might seem remote, but since all observers are not as informed as they might be, it would be useful for the investigator to make himself familiar with the ways in which this phenomenon manifests itself.

7.G(9) IGNIS FATUUS OR WILL-O-THE-WISP

In swamps and marshes, methane CH_4 (and also phosphine PH_3) is released by decaying organic matter. When the methane ignites usually by spontaneous combustion luminous globes which float above the swamp can be seen. The colours are reported to be yellow, sometimes red or blue. There is little doubt that Ignis Fatuus is the source of some UFO reports.

7.G(10) LIGHTNING AND OTHER NATURAL ELECTRICAL PHENOMENA

Ground discharge (Thunderbolts) - This occurs between cloud and the ground. It is usually branched down-wards from a distinct main channel.

Cloud discharges (Sheet lightning) - This takes place within the thundercloud and gives diffuse illumination without an apparent definite source. The entire sky appears to light up. It can frequently be seen at some distance from the

storm and therefore the usual accompanying clap of thunder may not be heard.

Ball Lightning - The characteristics of the phenomenon are as follows :-

Form: Usually a sphere.

Time of Occurrence: During a thunderstorm (though not always) usually near the time of a nearby lightning stroke

Size: Usually varies from 10 to 20 cm. in diameter.

Colour: Various, including red, orange, yellow and white.

Sound: Often humming, fluttering, crackling, hissing and sizzling.

Odour: There can be a smell upon extinction.

Extinction: The ball may disappear silently or with a violent explosion.

Movement: Ball lightning can move either with or independently of the wind. Its speed is approximately 2 metres per second and the path usually tortuous and unpredictable. A ball can be attached or entirely free floating or both.

Duration: This may vary from several seconds to several minutes.

It can be said for certain that there are on file a number of UFO reports relating to ball lightning.

St. Elmo's fire - This takes the form of a luminous point discharge from masts, lightning conductors and aeroplane wings. The phenomenon can take the form of streamers 10 cm. long or of a "glow" enveloping the structure. Sometimes it is seen as attached luminous globes.

Investigators should be warned that the above phenomena can be dangerous and they should not be touched under any circumstances.

7.H MAN-MADE OBJECTS

7.H(1) BALLOONS

These can be divided into two subsections :-

(a) Balloons for amusement:

including children's coloured toy balloons, accidentally released, and the mass launchings of hydrogen filled balloons sent up in the well-known "Whose-balloon-can-go- the furthest? " competitions held at fetes and galas. It could perhaps be mentioned that members of this latter group seldom stay closely together over long distances.

(b) Balloons for research:

presenting a more serious problem, in so much as they are more sophisticated devices with complete pieces of apparatus suspended from them, and it is this equipment, often including metallic sheets to facilitate radar detection, which produces the reflection occasionally seen and described in sighting reports.

As the balloon ascends the gas inside will expand, thus inflating it, and because of this they are not fully inflated on launching, otherwise they would burst. This may give the balloon the appearance of being rather loose, the fabric often hanging down in drapes below the main body.

Since they are commonly used to study winds in the Earth's upper atmosphere they may be brightly coloured to permit visual tracking, and this also brings them into contact with our branch of study.

Incidentally, if one of these balloons is found there is often a fee payable on returning it to the appropriate authority.

Visually they are as just described, the major additional points arising when they are stationary, or very slow-moving - apparently hovering - or when reflecting sunlight from the fabric of the balloon itself and all the possibilities should be borne in mind.

The movement of all balloons is governed by the wind, and thus they are unlikely to execute manoeuvres when very high up, rather, do they drift smoothly, possibly appearing motionless, as mentioned above. As has been mentioned elsewhere the wind at ground level is not necessarily the

7.H(1)(b) Cont

same as that at a higher level, and this must be remembered when wind-borne objects are being considered.

Meteorological stations throughout the U.K. continuously launch weather balloons at intervals of 6 hours around the clock. It is therefore advantageous for the investigator to know the location of his local station. Armed with this information and a knowledge of the prevailing winds in the area he can quickly determine whether a UFO report originates from a recent balloon launching. (NB It is worth noting that radio-sonde balloons are released at the present time from the following locations: SCOTLAND (Shanwell near Dundee, Lenwick on Shetland and Stornaway), NORTHERN IRELAND (Long Kesh near Lisburn), ENGLAND (Aughton near Liverpool, Mensby near Great Yarmouth, Crawley and Canborne). Release times are 05.15, 11.15, 17.15 and 23.15 GMP every day.

7.H(2) AIRCRAFT

The information which can be given to enable the observer to recognise conventional aircraft cannot and need not be exhaustive for the following reasons:-

(i) The charts used in aircraft recognition work would be too complex for the amateur to commit them all to memory.

(ii) No simple identification system could cover all the eventualities of lighting, altitude etc., of all aircraft.

(iii) When an object is near enough to be identified as an aeroplane by means of the recognition charts, it will be near enough for the competent observer to differentiate between a UFO and a conventional, and it is this differentiation only which is required in this field of study.

(iv) If any particular type of aircraft is more likely to be seen than others by an observer, then he will probably be sufficiently familiar with this type to eliminate it from any spurious sightings.

Thus we shall not reproduce here the famous silhouettes of aeroplanes often used for aircraft recognition work, but shall rely on some general points.

7.H(2) Cont

Conventional aircraft behave according to the following general principles:

(a) they do not normally fly at speeds in excess of twice the speed of sound;

(b) they do not make rapid changes of speed;

(c) they do not carry out such manoeuvres as rapid change of direction (such as right angle turns or instantaneous reversal, sudden halt, and so on);

(d) they do not undergo any change in shape, other than that caused by change in altitude relative to the observer, or orientation to the sun's rays;

(e) except for those instances mentioned in (o) and (q) below, any light from them is reflected from the sun, moon, etc.;

(f) noise, whether of jet engines or motors, usually accompanies them although it may be lost if the object is very high or high altitude winds blow sound away. There may also be a sonic boom if the object's speed is high when it is near the ground;

(g) except in emergencies and when landing at air-fields, etc., they do not approach the ground. If observed from high ground aircraft may appear to be at, or even below, the horizon;

(h) only in rare instances do they fly in groups of three or more;

(i) planes in the vicinity of airports, R.A.F. air-fields, combat-target areas and such are more likely to perform manoeuvres than are those remote from these places, and even so their movements are in accordance with the above notes;

(j) except for hovercraft, whose altitude is unlikely to exceed a few feet, all aircraft are of the familiar design, thus a circular object is more likely to be a UFO, and so on. (See (s) below).

Aircraft lighting. The following basic system is in use:

(k) a single unbroken red light is carried on the port (Left) wing ;

(l) a single unbroken green light is carried on the starboard (Right) wing, and like the red light, it must be visible at a distance of five nautical miles ;

7.H(2) Cont

(m) a tail light consisting of an unbroken white light must be carried, and this must be visible at a distance of three nautical miles;

(n) a central red-anti-collision light is often rotated, and to an observer this would appear to be flashing.

In addition to the above, most aircraft carry a pair of landing lights usually on the leading edge of the wings.

The following are circumstances which may lead to an incorrect identification of an ordinary aircraft:

(o) when flying through broken cloud, by day or night, the plane may appear unusual, and may lead the observer to conclude that its shape or direction is changing, or that lights are flashing;

(p) flying low over large cities at night the under-side may reflect a coloured glow from the city lights; (See (e) above)

(q) when the windows of the plane are illuminated at night it may suggest an incorrect identity to the unwary;

(r) any view of an aircraft along the plane through the wings and body, that is, looking along the wings, could suggest a cigar-shaped object.

Often at a distance the aircraft's wing "breaking" the fuselage can produce the appearance of two cylinders moving one after the other especially when reflecting the sunlight. Landing lights creating two intense narrow beams of white light can be very misleading to the inexperienced.

All the above comments refer only to those aircraft displaying normal proclivities, but should the plane be a specialised one it may not conform to the above. Examples of such deviations are:

(s) research aircraft such as those studying the earth's magnetism. These have a bomb-like appendage hanging from the fuselage, following and below the aeroplane itself. Radar interceptors tend to have a dome like bulge on the top or bottom of the aircraft;

(t) searchlight-carrying aircraft which may be seen sending a bright beam down to the ground have been mistaken for UFO's on more than one occasion;

7.H(2) Cont

(u) prototype aircraft also represent some element of confusion particularly if they are of revolutionary design. The only types which deserve a mention here are the "delta-wing" and "flying wing" designs, the latter looking rather like a boomerang or a pair of wings without a body.

Finally, we come to a map of the air corridors and routes over the British Isles. This shows the main air routes over the Islands along which aircraft could be seen, and the direction of the corridor gives an indication of the direction of flight which an aeroplane would follow.

The investigator can use the map to determine whether a certain object is likely to be a plane if he checks whether the observer was in the vicinity of one of the corridors at the time of the sighting.

Explanation of the map of air routes over the British Isles

Place names have been omitted for the sake of clarity.

The nine hatched areas represent control zones covering the major airfields in those districts. In these zones aircraft are flown at heights and in directions as laid down by Air Traffic Control Instructions.

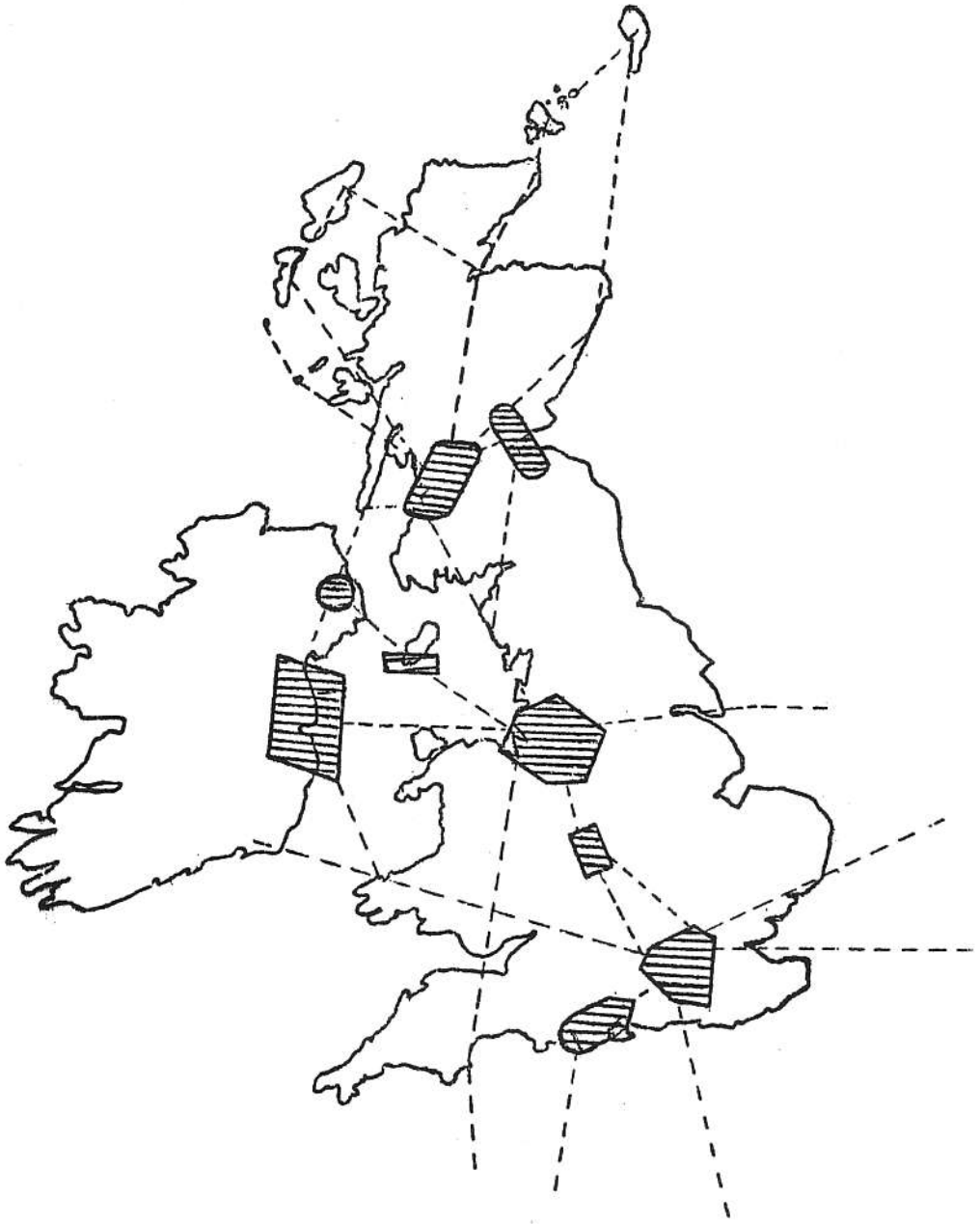
The broken lines represent the major air lanes along which aircraft may be flown, the actual path extending for about six miles either side of the broken line.

The heights at which aircraft may travel along these lanes varies between ground level and approximately 30,000 feet at some points.

The map is meant to be no more than a guide to the main areas within which aircraft can reasonably be expected, but it should be useful to enable the investigator to assess where aircraft can and cannot be sighted. A knowledge of local flights and times would help considerably in this connection.

Map Overleaf /

AIR ROUTES OVER THE BRITISH ISLES



7.H(3) ARTIFICIAL SATELLITES

Under favourable conditions during a long Winter's night the careful and experienced observer can record upwards of two dozen satellites and similar objects criss-crossing the sky at varying intervals. This helps to illustrate the great number of satellites, spent rocket stages and other launch debris currently in orbit around the Earth. Rocket stages and various other debris associated with probes to the Moon and planets and with manned

spaceflight have also contributed to this situation. Consequently, it is most difficult for the amateur to keep any check on the details of all the objects in orbit at any particular moment. Whitaker's Almanack is useful in this respect giving orbital statistics for all satellites launched. Current figures are less easily obtained, although the Department of Scientific and Space Research at Slough can help there. Daily newspapers, e.g. the Daily Mail, often carry predictions for the outstandingly bright satellites.

Contained in the UFO sighting reports of groups and societies throughout the world are many sightings of satellites, and to help the investigator to recognise such misobservations, the basic characteristics of appearance and behaviour of artificial earth satellites and associated objects are listed below.

Characteristics of appearance and behaviour of artificial earth satellites:

(a) they cannot be seen with the naked eye in day time;

(b) there are only a few satellites which are bright enough to be noticed by the casual observer and it is usually these which lead to UFO reports. Currently the best known of these are the American Skylab and Russian Salyut space stations. The brightness of these can compare to some planets;

(c) they are seen as moving star-like objects;

(d) the general appearance of a satellite is star-like with no detail whatsoever, although through optical instruments much more detail would be discernible, such as the reflected image of the Sun;

(e) the fainter objects may appear to be steadily twinkling, appearing very dim or brighter in certain parts of the orbit;

(f) if observed through cloud satellites may appear to have a halo;

(g) the transit time, that is the time between the rising and setting of a satellite, may be anything up to three quarters of an hour;

(h) all orbiting objects rise in a curve to their highest point in the path across the sky (apex) then fall away towards the horizon. Non-orbiting objects have straight line flight paths;

7.H(3) Cont

(i) they may be seen to disappear or appear during their motion, this is due to their entry into, or exit from, the Earth's shadow - known as eclipse;

(j) with the introduction of launching satellites into a retrograde orbit it is not unusual to see them in any part of the sky, travelling in any direction;

(k) some satellites may be equipped with a bright flashing light for tracking purposes. Flashing may also be the result of irregular sunlight reflection as the satellite tumbles or rotates;

(l) many of the spent rocket stages, (which incidentally are usually much larger than the satellites they launched) unlike some stabilised satellites, twist and tumble in their orbits around the Earth and may produce a spectacular intermittent display of bright flashes.

The factors which would lead one to suspect that a certain object might reasonably be classed as a UFO are whether it displays any extreme deviations from the above characteristics, such as showing a definite colour, change in speed during transit, change in direction, manoeuvres - any or all of these suggest an unidentified flying object. It must be remembered, however, that it is possible to imagine that a bright stationary light is actually moving about. This phenomenon is known as auto-kinesis.

Many satellites and associated debris especially those objects in low orbits soon re-enter the atmosphere. These re-entries can be predicted with some accuracy and provide the fortunate observer with a spectacular firework display. The visual appearance of a satellite re-entry is virtually identical to that of the passage of a fragment of interplanetary material which produces a highly luminous fireball.

7.I OTHER MISIDENTIFIED OBJECTS AND PHENOMENA

Many other types of airborne objects and aerial phenomenon can, to various degrees, contribute towards the total statistics concerned with identified UFO reports. They include: Experimental rocket launches i.e. Barium cloud experiment; flares often used in air-force, army and naval exercises; kites; wind blown debris including radar chaff; fireworks; reflections and searchlights; and birds. The investigator will also come across radar anomalies; photographic flaws and of course the inevitable hoax and he would be wise to refer to the Scientific Study of Unidentified Flying Objects (Condon

Report) for more detailed analysis of these topics and indeed any of the other natural phenomena and man-made objects which give rise to UFO reports.

However, the following specific phenomena deserve further brief consideration :-

BIRDS

Although everyone is familiar with the appearance of these creatures there is a small percentage of UFO reports which could be attributed to them. Most misleading cases arise when the birds are seen under unusual conditions of lighting particularly at night.

The spectacle of a bird flying across the face of the moon at night can be both unusual and unnerving. These two factors combined can then give rise to a UFO report by the inexperienced observer. When flying in formation geese can look beautiful but when very high in the sky, the V-formation can be deceiving.

KITES, LEAVES AND OTHER WIND BLOWN DEBRIS

Like the balloons dealt with separately these objects depend upon the wind for their movements, the main danger lying in he fact that they may be wrongly identified when seen under unusual conditions of lighting. We should also remember that kites can often produce an unusual "humming" sound.

It would be very difficult to give rules to identify them under all conditions, and it is better that the investigator and observer should use their own experience of these wind blown objects.

Since they are carried by the wind it would be essential to have details of the meteorological conditions at the time of the sighting, but it must be borne in mind that the winds in the region where kites, etc. are moving do not necessarily blow in the same direction as those at ground level.

COMETS

One would not expect the bright comets and those which are predictable, like Halley's Comet, to be confused by even the most inexperienced observer. This does occur however and there are examples of a number of unpredicted comets being misobserved and recorded as UFOs. The general appearance of naked eye comets is that of a misty patch of light which may or may not develop into a bright nucleus with a tail of faint light directed away from the Sun. Comets are usually their brightest close to the Sun but then they are more difficult to observe. Consequently, they can often be seen shortly before sun rise and after sun set.

Also Appendix 11 contains a useful list of possible explanations for UFOs prepared by Professor Donald Menzel for use by investigators. This list is by no means comprehensive and the Editor welcomes

additional material from investigators for inclusion in a revised list in due course.

8. WRITING CASE REPORTS

8.A SEARCH FOR EXPLANATIONS

8.A(1) When reviewing the evidence with a view to drawing conclusions, always start with the most conventional hypothesis that seems to explain the incident. Only if this leads to a dead end should you move on to the next likely explanation. Resist the temptation to conclude that the happening is inexplicable, wierd or unearthly. Keep your feet on the ground as long as possible. Strongly suspect any reports of a space craft with occupants, either airborne or landed, but be prepared to accept the report if investigation shows no other explanation. In such cases the witnesses themselves should be investigated as much as the report. They may have had hallucinations or be lying, although it is a fact that most sighting reports have an objective cause. Investigators cannot afford to be gullible and should always be a little sceptical of all reports, accepting evidence only when there are no reasons for not doing so. By attempting to prove the witnesses wrong, you will investigate more thoroughly than you might otherwise do.

8.A(2) In undertaking the investigation you should be self-critical, continually asking yourself the questions that critics could ask. If there is an outstanding aspect of the investigation or an aspect that has not been completely exhausted, always complete it. Follow up all blind leads until they end, recording this fact in your report. Never abandon a lead on the grounds that you do not think it profitable; others may disagree. For your report to be convincing it must explore all possibilities.

8.B THE CASE REPORT

8.B(1) The case report will vary in length depending upon the complexity of the problem and investigation. Reports should be on A4 paper. They should be copied in triplicate, two copies for the NIC, one for your RIC and the original for your file. Continuation sheets should bear a brief "short title" and page numbers, e.g. " 4 of 12". Prints of photographs should be inserted into the report where appropriate, and annotated. Other material, such as maps, sketches, etc., should

8.B(1) Cont

be collected to the end of the report in an appendix and referenced. They should be referred to as appropriate throughout the report. Make sure that the report is enclosed in an adequate cover. This report is additional to the various forms R.1, R.2, etc. as explained in Section 2.

8.B(2) The report should carry on its first page the reference number allocated to the sighting by the NIC and should also carry a 'short title', e.g. "Ambridge Case". The initial page should also carry the date of the event and its location.

8.B(3) The report proper should begin with an explanation of how the event came to the notice of you, the NIC or BUFORA. State the sources of the story and review them without prejudice. Give full details of every source, so that these could be checked by others. State the source of all material in your report which you did not produce yourself.

8.B(4) Give details of all the witnesses, their names, ages, occupations, addresses, background if relevant. Judge for yourself how much is relevant to the investigation. Note if the witnesses will allow names and other personal details to be made public.

8.B(5) Describe the circumstances in which the witness(es) saw the object, why they were where they were, the weather conditions at the time, the date, the exact time, and any other relevant circumstances. Include any accounts of the event by the witness(es), abstracting if necessary and make no observations of your own at this point in the report. Simply state what the witness(es) claim they saw and what they did. Leave nothing out.

8.B(6) Now you can report on your part in the process, the investigation itself. State what steps you took, preferably in chronological order, but don't be too long winded about it. Record only the results of your various enquiries, not how many letters you wrote. Don't tell a story of your own, just report the salient facts of the investigation and the evidence you produced. Do fully explain any actions you took to check site information, giving times, dates, weather conditions, film types and shutter speeds, etc. Include any

8.B(6) Cont

accounts of discrepancies in the witnesses' report and what you did to resolve them. Comment upon the witnesses' account, detail by detail, explaining what investigation you carried out to check the account.

8.B(7) Include statements received from authorities, Police, observatories, etc., reserving full details of the authority involved to an appendix. Copies of letters sent to or received from authorities should not be included in the case report, but keep them on your files for future reference. (NB Copies should be included with the report if they are of major importance to the evaluation of the case.)

8.B(8) Complete the "Investigator's Report Summary" form and include it in your Case Report.

8.B(9) Your Case Report should close with conclusions. Review the investigation and the likely explanations. If there is an obvious explanation, and you have proved it positive, leave the matter there. The case will be closed. If there are several alternative explanations, review them in detail giving their pros and cons and conclude with one or another if possible. Give the justification for your choice of explanation. If no particular explanation has been found, do not be afraid to leave the matter open, i.e. unknown. The explanation that it was a "UFO" will not be accepted; the term is meaningless as an analytical description and only if you have incontrovertible evidence that an alien craft visited earth will the Extra terrestrial hypothesis (ETH) be accepted as an explanation in the Case Report. Controversial explanations obviously cannot be accepted without sufficient evidence.

8.B(10) Finally make a recommendation to BUFORA's evaluator as to whether or not the case should be closed, or if not, on what conditions it could be kept open.

8.B(11) In a footnote acknowledge any substantial assistance you have received from persons or authorities and acknowledge the receipt of material enclosed in the Report.

APPENDICES

APPENDIX 1

ADDRESSES OF REGIONAL INVESTIGATION CO-ORDINATOR

In line with the BUFORA INVESTIGATOR TRAINING PROGRAMME, the Investigation network is being reviewed.

It has not been possible to issue a full list of Regional Investigation Co-ordinators (R I C's) with this printing of the Handbook. A list will be available when the necessary modifications have been completed.

Investigators should contact the National Investigation Co-ordinator for details of their nearest R I C.

Details of cases should also be referred to the N I C.

NATIONAL INVESTIGATION CO-ORDINATOR

LARRY DALE
11, Wimborne Avenue
St. Pauls Cray,
ORPINGTON
Kent, BR5 2NS

Telephone: 01 - 663 9587

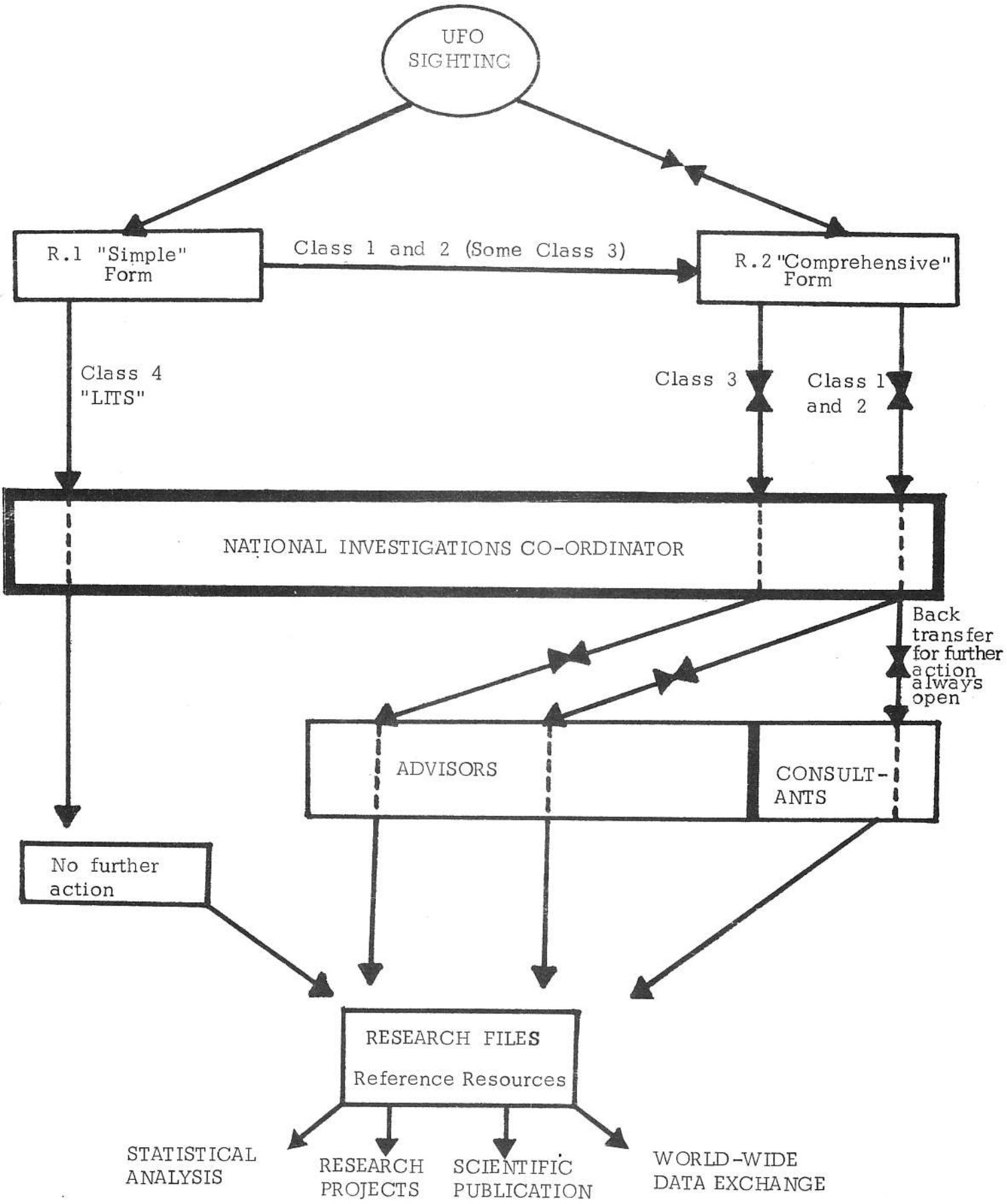
For urgent cases, during the day, Mr. Norman Oliver will be available on 01 - 852 7653

REV. 2/79

APPENDIX 2(a)

INVESTIGATIONS PROCEDURE SYSTEMS

NB: For explanation of various classes see Appendix 9.



APPENDIX 2(b)

SIGHTING NOTIFICATION CARDS

BRITISH UFO RESEARCH ASSOCIATION: SIGHTING NOTIFICATION CARD

INVESTIGIATOR: MEMBERSHIP No:

ADDRESS:

A sighting has come to my attention with the followi ng details:

DATE: TIME: LOCATION:

Unusual features: CONTACT/LANDING/PHYSICAL EVIDENCE/PHOTOGRAPHS

(Delete as appropriate) QUALIFIED WITNESS(Specify) .....

Other effects noted:

SOURCE OF THE REPORT:

I have notified my local R.I.C./Group (YES / NO)
Investigation is proceding (YES / NO)

Specify any assistance required:

CLASSIFICATION:

Signed.....

BUFORA REF:

Recvd by NIC

The above format is an attempt to suggest to investigators a method of notifying BUFORA rapidly of any sighting report which comes to his notice.

As soon as a sighting is discovered the information above should be set out on a postcard or in a simple form letter. Unless it is absolutely necessary to add further information it is best to keep to this simple lay-out. This will help to speed administration. The letter or card should be sent direct to the BUFORA National Investigations Co-ordinator and a photocopy to your local Regional Investigations Co-ordinator or associated group.

Add the Classification under the system outlined in Appendix 9, but leave the bottom right hand corner for the N.I.C. to enter a BUFORA case reference number.

You may also utilise the form to make specific requests to the N.I.C. for field equipment or an Advisor knowledgable in certain aspects. The N.I.C. MAY then be able to assist in your investigation of the report to a thorough level.

GROUP /INVEST REF:		BUFORA REF.	YEAR	NUMBER	INVESTIGATOR	CASE SUMMARY	
						DATE	
					EVALUATOR	TIME	
						LOCATION	
						EVAL'N	
						UFO CLASS	
						CLOSED	

RETURN FORM TO:–

UFO SIGHTING ACCOUNT FORM

SECTION A

Please write an account of your sighting, make a drawing of what you saw and then answer the questions in section B overleaf as fully as possible. Write in **BLOCK CAPITALS** using a ball point pen.

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Please continue on a separate sheet if necessary.

DRAWING*

*If preferred, use a separate sheet of paper.

Your full name (Mr/Mrs/Miss/Ms)

..... Age .....

Address.....

.....

Telephone No.....(STD.....)

Occupation during last two years.....

.....

Any professional, technical or academic qualifications or special interests

.....

.....

Do you object to the publication of your name?
*Yes/No. *Delete as applicable.

Today's Date.....

Signature.....

Published by the British UFO Research Association (BUFORA LTD.) for the use of investigators throughout Great Britain. Further copies may be obtained from BUFORA Research Headquarters., Newchapel Observatory, Newchapel, Stoke-on-Trent, Staffs., England

GROUP /INVEST REF.		BUFORA REF.	YEAR	NUMBER

SECTION B

1. Where were you when you saw the object(s)? Exact location.....

   Nearest town/village.....County/District.....

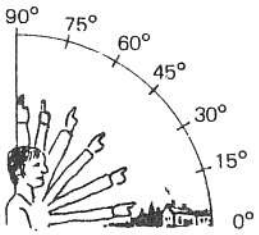
2. What was the date of your sighting?..... day.....of .....19.....

3. At what time did you see the object(s)? .....*am/pm/midday/midnight. *Delete which ever does not apply. How did you know the time? .....

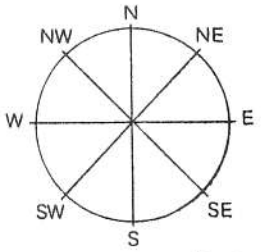
4. For how long did you observe the object(s)?..... If not certain please state – for not less than ..... and for not more than .....

5. If each of the following objects were held at arm's length which one would just cover the object(s) you saw, i.e., have the same apparent size? (underline) Pinhead/pea/halfpenny/penny/ twopence/golf ball/tennis ball/other

6. (i)



(ii)



Place an 'A' on the curved line in diagram (i) to show the altitude of the object(s) above the horizon when you **first** noticed it/them and a 'B' when you **last** noticed it/them. Also place an 'A' on the outside edge of the compass in diagram (ii) to indicate the direction in which you **first** observed the object(s) and a 'B' when you **last** saw it/them.

7. Did you see the object(s) at or near ground level? .....

8. How did the object(s) disappear from view? .....

9. If you took a photograph or made any measurements, give details.....

   .....

10. If you noticed any unusual effects on people, animals, plants, objects or equipment nearby: Describe these

    .....

    .....

11. What was the main feature of the sighting which made you feel that the object(s) was/were not natural or man-made?

    .....

12. How many other people at the same time saw the object(s)? ..... Give the names, addresses, age and relationship to you of other witnesses .....

    .....

    .....

13. Give a brief description of the object(s) under the following headings:–

    (a) Number of objects..... (b) Colour ..... (c) Sound.....

    (d) Shape..... was this sharply defined or hazy?.....

    (e) Brightness.....(compared to star, venus, moon, sun etc.)

14. What were the local conditions? Please tick in box where applicable.

Clouds		*Temperature*		*Wind*		*Precipitation*		*Astronomical*	
Clear Sky	☐	Cold	☐	None	☐	Dry	☐	Stars	☐
Scattered cloud	☐	Cool	☐	Breeze	☐	Fog or mist	☐	Moon	☐
Much cloud	☐	Warm	☐	Moderate	☐	Rain	☐	Planet	☐
Overcast	☐	Hot	☐	Strong	☐	Snow	☐	Sun	☐

Other conditions if any .....

GROUP /INVEST REF.		BUFORA REF.	YEAR	NUMBER	INVESTIGATOR	CASE SUMMARY	
						DATE	
					EVALUATOR	TIME	
						LOCATION	
RETURN FORM TO:						EVALUATION	
						UFO CLASS	
						CLOSED	

UFO SIGHTING REPORT FORM

COPIES
WHITE–BUFORA FILE
BLUE–BUFORA ANAL.
GREEN–R.I.C.
PINK–INVESTIGATOR

FOR USE BY AN OFFICIAL INVESTIGATOR **ONLY**. BEFORE COMPLETING THIS FORM PLEASE FAMILIARISE YOURSELF WITH CURRENT INSTRUCTIONS.

SECTION A

SIGHTING REPORT BY INVESTIGATOR TO BE WRITTEN AFTER ANY RECORDING AND SIMULATION.
Write in **BLOCK CAPITALS** using a ball point pen (or type report).

.....

.....

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Please continue on a separate sheet if necessary.

DRAWING*

*If preferred, use a separate sheet of paper.

Full name (Mr/Mrs/Miss/Ms)

..... Age.....

Address.....

.....

Telephone No. ..... (STD .....)

Occupation during last two years.....

.....

Any professional, technical or academic qualifications or special interests

.....

.....

Does witness object to the publication of his/her name?
*Yes/No. *Delete as applicable.

Today's Date.....

Signature of witness.....

Published by the British UFO Research Association (BUFORA LTD.) for the use of investigators throughout Great Britain. Further copies may be obtained from BUFORA Research Headquarters, Newchapel Observatory, Newchapel, Stoke-on-Trent, Staffs., England.

Form R2.

Form R2

GROUP /INVEST REF		BUFORA REF.	YEAR	NUMBER

SECTION B .SIGHTING DETAILS

1. Location:..... Grid Ref: .....
   Nearest town/village..... County/district.....
2. Date.....day.....of .....19..... 3. Time: from..... a.m./p.m./midday/midnight
   until ..... a.m./p.m./midday/midnight—exact/approx. Timing method.....
4. Duration: exact..... or minimum..... maximum .....
   Any break in sighting.....
5. Dimension'..... at..... (distance) or angle subtended.....
6. Angular elevation: initial..... final.....exact/approx.
   Bearing: initial.....final.....exact/approx.
7. Object at ground level?..... 8. Manner of disappearance.....
9. Photograph ☐ Radar ☐ Measurements made during sighting ☐ Occupants ☐ Artifact ☐
10. Effects—Psychological/physiological ☐ Animal ☐ Plants ☐ Electrical/magnetic ☐ Physical ☐ Radioactive ☐
    Other..... (If questions 9 or 10 are ticked, also complete appropriate supplementary questionnaire)
11. Most unusual feature of sighting.....
12. Other witnesses: Number....., Names, addresses and relationships.....
    .....
    .....
13. Object(s): Number..... Colour..... Shape.....
    Sound..... Smell.....Sharp/Hazy Outline
    Brightness..... (compared to star, venus, moon, sun etc.)
    Describe any changes in above aspects.....
    If object(s) moved behind or in front of a known object, describe.....
    .....
14. Sky and weather conditions:

Clouds	*Temperature*	*Wind*	*Precipitation*	*Astronomical*
8	.....°C	Vel.....m/kp.h	☐ Dry	☐ Stars
☐ Clear sky	☐ Cold	☐ None	☐ Light mist	☐ Moon
☐ Scattered cloud	☐ Cool	☐ Breeze	☐ Fog	☐ Planet
☐ Much cloud	☐ Warm	☐ Moderate	☐ Rain light/heavy	☐ Sun
☐ Overcast	☐ Hot	☐ Strong	☐ Snow	☐ .....
Type.....		Coming from.....	Visibility.....m/yds	
Base height.....				

    Humidity: Dry/Average/Very Humid.
    Sky: Bright/Fairly Bright/Dull/Twilight/Dark
    Other local conditions.....
15. Artificial lights.....
16. Sighting through glass..... Spectacles.....
    other device..... or from inside vehicle..... or building.....
17. Witness movements.....
    .....
18. Attention of witness drawn to object because.....
19. Witness reaction.....
20. What did the object resemble?.....
    And how was it different?.....
21. Unusual events during hour before sighting.....
    During sighting.....
    After.....
22. Any time lapse or error.....
23. Previous knowledge or experience of UFOs. .....
    .....
24. Witness qualifications or experience in observing.....
25. Vision or hearing defects.....
26. Any psychic experiences .....
27. Any recent medical treatment.....
28. Report made to any official or the press/radio/TV.....
    .....

APPENDIX 3C

BUFORA SUPPLEMENTARY QUESTIONNAIRE CHECKLIST

PHYSICAL OR PHYSIOLOGICAL EFFECTS

SECTION A. - EFFECTS ON PEOPLE

1. Describe effects on witness(es), indicating how long they lasted:-

   a. before b. during c. after the sighting

2. Note particularly any

   a. feelings of change in
      (i) temperature
      (ii) pressure
      (iii) weight
      (iv) position or
      (v) stance

   b. loss of consciousness

   c. paralysis

   d. disorientation of
      (i) sight
      (ii) balance or
      (iii) hearing

3. Describe any unusual

   a. smells b. sounds c. sensations in skin or muscles

4. Note any marks or rashes on the body.

5. Describe any loss of memory or concentration.

6. Give details of any unusual emotions or involuntary actions which occurred.

7. State whether the witness felt any change in the sense of

   a. time b. reality

8. Give details of any thoughts or communication, which appeared to be passing through the mind of the witness(es).

SECTION B. - EFFECTS ON ANIMALS, PLANTS, GROUND OR OBJECTS EITHER TEMPORARY OR PERMANENT

9. Describe these effects, indicating how long they lasted:-

   a. before b. during c. after the sighting

10. If marks or residues were left, describe these and state any dimensions. Include a grid diagram, if appropriate and detailed sketches.

11. Give details of sampling procedure, including affected and non-affected samples, where possible.

12. Compare magnetic field readings in affected and non-affected areas.

13. Compare temperatures in affected and non-affected areas.

14. Compare radioactivity readings in affected and non-affected areas.

15. Give details of site photographs taken.

16. Check that all procedures recommended in the BUFORA Field Investigation Handbook have been completed, as early as possible.

SECTION C. - EFFECTS ON EQUIPMENT NEARBY

17. State specification of equipment

18. Describe any measurements made with this or other equipment.

19. Describe normal operating mode and the nature and duration of any variation from normal. Include any changes in voltage or current supplied to the equipment, whether mains or battery operated.

APPENDIX 3D

BUFORA SUPPLEMENTARY QUESTIONNAIRE CHECKLIST

EFFECTS ON VEHICLES

1. State the name of the driver of the vehicle.

2. State the name of the owner, if different.

3. Give full details of vehicle:

   make, year, model, colour of body

4. List all dashboard instruments carried (including warning lights)

5. State whether a dynamo or alternator is fitted

6. State any instrument readings noted

   a. immediately before b. during c. after the sighting

   If a night time sighting check whether instrument panel was lit and whether the headlamp warning light was on.

   Include here any readings on mileometer and speedometer.

7. State any gear changes made

   a. immediately before b. during c. after the sighting

8. If the speedometer was not checked, give witness(es) estimate of vehicle speed at each stage of the sighting.

9. Describe briefly driving conditions and handling state of vehicle for ten minutes before and up to any malfunction or sighting.

10. Describe any malfunction of

    a. engine
    b. lights
    c. instruments
    d. other mechanisms of the vehicle, at each stage of the sighting

11. If engine stopped, describe in detail the matter of restarting.

12. Check on the state of the heater and boost fan, if fitted and whether either was operating during the sighting.

13. State the type of engine

a. petrol
b. diesel
c. electric
d. other

State also whether water or air cooled, where appropriate.

14. If petrol engined state grade of petrol used (star rating) and whether it has been changed recently.

15. State whether the petrol pump is

a. electrical b. mechanical

16. Describe ignition

a. standard coil with contacts
b. electronic (state type - capacitor with or without contacts)
c. other

17. Describe the type of speedometer

a. electrical b. mechanical

18. Describe the tachometer, if fitted

a. electrical b. mechanical

19. Describe any maintenance done on vehicle during previous few days and by whom.

20. State condition of the battery

a. before b. during (if known)
c. after the sighting

21. State the number of miles driven by witness (or driver) since driving test was first passed. If uncertain state

a. under 1,000 miles
b. 1,000 - 10,000 miles
c. over 10,000 miles

22. Describe any effects on metal objects in the vehicle, or on the person. Use Supplementary Form R.3 if necessary.

23. State whether body of vehicle is

    a. metal
    b. fibreglass
    c. other

24. Describe any changes in air temperature or pressure felt by witness.

25. Note any damage done to wiring of vehicle.

26. Describe any previous electrical or mechanical modifications to vehicle.

27. Check on any malfunction of the voltage-current regulator.

28. If vehicle was checked by anyone after the sighting, state the name and address of the person concerned and indicate the result of the examination.

APPENDIX 3E

BUFORA SUPPLEMENTARY QUESTIONNAIRE CHECKLIST

OCCUPANTS OR ENTITIES REPORTED

1. State the number of beings seen.

2. Describe their movements.

3. Ask witness to attempt several drawings. Indicate all dimensions given.

4. Describe any factors which distinguished the entities from

   a. human beings, b. robots or machines, c. animals

5. Describe any differences between the beings, if more than one.

6. State whether entities were aware of the witness and indicate why he/she believed this to be so.

7. Describe any communications which occurred. State

   a. the form - whether by language, sign or other mode.
   b. whether the communication was one way or in both directions between entities and witness or between entities themselves.
   c. whether any lip, head or body movement occurred.

8. Note any apparent influencing of the witness(es) thoughts or language.

9. Describe any written or marked document involved. Ask witness to draw a sketch of such documents.

10. If the witness had had previous contact with these or other entities, give details.

11. Describe any psychic or extrasensory abilities possessed by witness.

12. List any instructions given to the witness.

13. Describe the witness(es) mental and emotional state

    a. before, b. during c. after the incident

14. Describe the witness(es) physical state

    a. before, b. during c. after the incident

15. State what the witness believed to be the purpose of the entities.

APPENDIX 3G

BRITISH UFO RESEARCH ASSOCIATION

PHOTOGRAPHIC INVESTIGATIONS QUESTIONNAIRE

Camera Data	Film Data
Make: Model: Age/Condition: Lens Diameter: Focal Length: Shutter Speeds, From: To: f-Stop Range, From: To: Focusing, Fixed ( ) Variable ( ) If Variable, From: To: Zoom ( ) If Cine, Frames per sec: Electric Drive ( ) Clockwork ( ) Viewing Mode: SLR( ) Rangefinder ( ) Comments:	Type: Name: Manufacturer: Col. Tran( ) Col. Neg ( ) B/W ( ) ASA Rating: Longevity Date: Process: Processor: Film Size: Comments:
Still Details	**Cine Details**
Frame No: 1 2 3 4 5 6 7 f-Stop: Shutter: F. Length: Filters?: Distance: Direction: Elevat: Comments:	Scene No: 1 2 3 4 5 6 7 f-Stop: FPS: F. Length: Filters?: Distance: Direction: Elevat: Comments:

APPENDIX 3G / Cont

PHOTOGRAPHIC INVESTIGATIONS QUESTIONNAIRE

Camera Accessories/Methods Used:

Tripod( ) Hand-Held ( ) Panning ( ) Zooming ( )

Other:

Filter ( ) Colour: Density: Make:

Type:

Comments:

Basic Data	Basic Data
No.of Photos/Footage: Stills ( ) Cine ( ) Negs ( ) No. of UFOs Photographed? Available to BUFORA: Originals ( ) Copies ( ) Copyright ( ) Comments:	Location: From: Vehicle? ( ) Moving ( ) Car ( ) Plane ( ) Ship ( ) Other: Daylight ( ) Night ( ) Evening ( ) Comments:

May Use ( )
May not Use ( )

Signature of Witness.....Date.....

----------cut here----------cut here----------

Certificate of Photographic Materials

This is to certify that the undersigned, being a duly authorised investigator for BUFORA, has received the following photographic materials:

for analysis/ evaluation / Copying by BUFORA.

Received by.....Date.....

While every effort will be made for their safety, responsibility cannot be accepted for any loss or damage howsoever incurred. Materials will be returned to the witness as soon as is practicable.

APPENDIX 3 (h)

AERIAL SIGHTING REPORT

CONFIDENTIAL INFORMATION

ALL NAMES AND PERSONAL INFORMATION YOU PROVIDE WILL BE KEPT CONFIDENTIAL UNLESS YOU GIVE SPECIFIC WRITTEN PERMISSION TO DISCLOSE IT. THIS INFORMATION IS ONLY FOR RESEARCH PURPOSES.

LEAVE BLANK

____ - ____ - ____

Time: _____

No. Obs.: _____

Altitude: _____

Comm. Prvt. Military

USA Foreign

When completed please return this form to:

Dr. Richard F. Haines 325 Langton Avenue
Los Altos, Calif. 94022

Part I. DETAILS OF THE ANOMALOUS PHENOMENON:

1. Please describe what you witnessed. Be as complete as possible (use opposite side of page if necessary).

2. Now draw a sketch of what you saw. If you were able to see it from two or more different angles simply draw what you saw and label each sketch (A), (B), etc. to indicate the order in which you saw it. Also, draw an arrow pointing gravitationally upward and aircraft windshield struts (frames, etc.).

   If the Earth's horizon was visible draw it in also.

   Finally, draw magnetic compass heading tick marks across the bottom of the box and label several-according to your heading-related to your sketch.

SKETCH OF OBJECT OR PHENOMENON

3. Did the object (phenomenon) appear to move relative to your aircraft's window frame(s) during your sighting? (check one)

☐ No ☐ Unsure ☐ Yes

If "yes" please use a dashed line to indicate this apparent motion in the box to the right. Mark an "a" at the location object was first seen, a "b", "c", etc. for subsequent locations. Be sure to include aircraft window frame(s) if present to allow angular estimates to be made. For uneven, jerky motion try to place the "a", "b", etc. at one-second intervals.

SKETCH OF OBJECT'S APPARENT MOTION

4. Did the object (phenomenon) appear to move relative to any stable background detail during your sighting? (check one)

☐ No ☐ Unsure ☐ Yes

(Continue narrative here)

4.1 If the object appeared to move please estimate its apparent angular velocity. _____ Deg/Sec. Motion seen in relation to: _____

4.2 Did the object move behind in front of (circle) anything? ☐ No ☐ Unsure ☐ Yes

4.3 Did the object (phenomenon) appear (check) ☐ Solid ☐ Transparent ☐ Couldn't tell

4.4 Did you observe the object through (check)
- ☐ Binoculars
- ☐ Telescope
- ☐ Camera viewfinder
- ☐ Other: _____

4.5 About how large did the object appear as compared with one of the following items held at arm's length? [Note: The equivalent visual angles are based upon an average arm-reach distance of 26"].

	Equiv. Visual Angle
☐ Head of pin	[0° 4.1'] (Assume .031")
☐ Pea	[0° 8.2'] (Assume .062")
☐ Dime	[1° 31']
☐ Nickle	[1° 47']
☐ Quarter	[2° 3.9']
☐ Half-dollar	[2° 37']
☐ Baseball	[6° 17']
☐ Grapefruit	[10° 53'] (Assume 5" diam)
☐ Basketball	[20° 10']
☐ Other: _____	

(If object changed size during the sighting just place a "1", "2", "3", etc. in the boxes to represent the order in which the size change occurred).

4.6 How certain are you of your answer to question 4.5? (check one)
- ☐ Very sure
- ☐ Fairly certain
- ☐ Not very sure
- ☐ Uncertain (only a guess)

4.7 Did the object (phenomenon)? (check all that are appropriate)

(a)	Change shape	☐ No ☐ Don't know	☐ Yes
(b)	Flicker, throb, pulse	☐ No ☐ Don't know	☐ Yes
(c)	Break up into parts or explode	☐ No ☐ Don't know	☐ Yes
(d)	Suddenly accelerate	☐ No ☐ Don't know	☐ Yes
(e)	Give off smoke, vapor, trial	☐ No ☐ Don't know	☐ Yes
(f)	Appear to stand still whole time	☐ No ☐ Don't know	☐ Yes
(g)	Change color(s)	☐ No ☐ Don't know	☐ Yes
(h)	Appear on your aircraft's radar	☐ No ☐ Don't know	☐ Yes (If "yes" elaborate)
(i)	Appear on any ground radar	☐ No ☐ Don't know	☐ Yes (If "yes" please elaborate here: _____

4.8 Did you experience any buffetting which you think was caused by the encounter? ☐ No ☐ Possibly ☐ Yes (If "yes" elaborate)

5. How did the object first become noticed? (check all appropriate boxes)

- ☐ It was already present and I happened to look at it.
- ☐ Someone else saw it first: [Give name: _____]
- ☐ It suddenly appeared at or near where I was looking.
- ☐ It gradually faded into sight where I was looking.
- ☐ Other (specify): _____

6. How did the object disappear? (check all appropriate boxes)

- ☐ I looked away and when I looked back it was gone.
- ☐ It suddenly disappeared from sight for no reason, i.e., it didn't pass behind a cloud, etc.
- ☐ It gradually faded from sight without changing size.
- ☐ It faded from sight by becoming smaller and smaller.
- ☐ It faded from sight (apparently) by travelling away.
- ☐ Other (specify): _____

7. What distinguishable detail(s) did you see on or nearby the object? (check all appropriate boxes)

- ☐ None
- ☐ Sharply defined edge(s)
- ☐ Fuzzy edge(s)
- ☐ Darker porthole-like areas: [Shape was _____]
- ☐ Lighter intensity portholes: [Shape was _____]
- ☐ Seam(s), rivets, etc.
- ☐ Markings
- ☐ Atmospheric effect(s): [Describe _____

8. Did you notice anything unusual happen in the cockpit just before, during, or just after the sighting? (check one)

☐ No ☐ Unsure ☐ Yes

If "yes" describe as fully as you can. _____

9. What do you think made the object visible? (check all appropriate boxes)

- ☐ It reflected ambient light (sun; moon) (circle)
- ☐ It emitted its own light (If checked elaborate on colors, brightnesses, etc. seen) _____

10. Where was the Sun Moon (circle) during the sighting?

- ☐ At _____ degrees elevation above horizon, and at _____ degrees bearing relative to aircraft heading to Right Left (circle one).

11. If you experienced any physiological sensations during the sighting check all appropriate boxes to the right.

If you experienced any non-normal sensations within 24 hrs after the sighting please place an X at the right of the appropriate line(s) provided.

- ☐ Eye strain due to very high brightness ___
- ☐ Eye strain for any other reasons: [Explain _____] ___
- ☐ Tingling sensation(s): [Body location _____] ___
- ☐ Mild pain: [Body location _____] ___
- ☐ Intense, acute pain: [Body location _____] ___
- ☐ Heat ___
- ☐ Odor(s): [Describe _____] ___
- ☐ Tastes: [Describe _____] ___
- ☐ Sounds: [Describe _____] ___
- ☐ Other [_____] ___

12. What do you think the object (phenomenon) was? Be as precise as possible including whatever supporting facts you desire.

_____

13. Have you ever seen anything while flying or on the ground that you thought was an unidentified flying object prior to this?

☐ No ☐ Unsure ☐ Yes (If "yes" please give details: _____

Part II. AIRCRAFT FLIGHT DETAILS: (Spatial)

14. Where did you take off from? Airport Name (Initials): _____

Lat. ____ ° ____ ' ____ " N S; Long. ____ ° ____ ' ____ " E W (if known)

15. What was your intended final destination? _____

Lat. ____ ° ____ ' ____ " N S; Long. ____ ° ____ ' ____ " E W (if known)

16. Sighting location. Where were you when you first sighted the object? Be as precise as possible.

_____

_____

(If appropriate, specify) From _____ VOR _____ RADIAL _____ DME

Lat. ____ ° ____ ' ____ " N S; Elaborate if necessary: _____

Long. ____ ° ____ ' ____ " E W _____

17. Check box to indicate where you were during the sighting.

- ☐ Taxi to takeoff
- ☐ During takeoff
- ☐ Climb to cruise altitude at [_____ ft/min]
- ☐ At cruise altitude of [_____ ft]
- ☐ Descending for approach to land at [_____ ft/min]
- ☐ Final approach (i.e., within outer marker)
- ☐ Landing or rollout
- ☐ Other: [Specify _____]

18. Check all appropriate boxes to indicate what you did as a direct response of sighting the object (phenomenon).

(Please elaborate on all items on the opposite side if necessary)

- ☐ Nothing that was not already planned
- ☐ Changed heading by turning right left (circle)
- ☐ Changed altitude by climbing descending (circle)
- ☐ Took immediate evasive action [Describe _____ _____ _____]
- ☐ Turned my landing lights on off (circle)
- ☐ Used my radio to contact: [Specify whom _____ _____]
- ☐ Changed my power setting
- ☐ Pointed it out to [Specify name(s) _____ _____]
- ☐ Attempted to follow chase (circle) it for the following reason(s): [_____ _____]
- ☐ Other: _____ _____

19. Please use this space to add any other details/observations/facts that are related to the geographic/spatial location of your sighting.

_____

_____

_____

_____

_____

Part III. AIRCRAFT FLIGHT DETAILS: (Temporal)

20. When did you takeoff? _____ AM PM (local) [GMT _____ Z]

_____ Time zone ☐ Daylight savings ☐ Standard time

21. When did you plan to land (scheduled)? _____ AM PM (local) [GMT _____ Z]

_____ Time zone (if different from above)

22. When did you first see the object (phenomenon)? _____ AM PM (local) [GMT _____ Z]

SIGHTING DATE _____

23. When did you last see the object (phenomenon)? _____ AM / PM (local) [GMT _____ Z]

(Calculated total sighting duration) [_____ sec.] Comments: _____

24. What did you look at (or do) to determine the above times?
- ☐ Looked at my wristwatch: [Est. accuracy to _____]
- ☐ Looked at cockpit clock: [Est. accuracy to _____]
- ☐ Radioed to crewmember for time
- ☐ Radioed to ground for time: [Info. rec'd. from _____]
- ☐ I did not determine initial final (circle) time(s)
- ☐ Other: _____

25. Did you have any indication (real or imaginary) of a loss of time, i.e., a period for which you cannot account?
- ☐ Possibly yes
- ☐ Definitely yes: [Elaborate _____]
- ☐ Unsure but probably no
- ☐ Definitely no

26. Did you land at your pre-planned or scheduled time?
- ☐ Yes (within normal tolerance limits)
- ☐ No: [Please explain why _____]

27. Use this space to add any other details/observations/facts that are related to the timing of your sighting.

_____

_____

_____

Part IV. SIGHTING AIRCRAFT DETAILS:

28. Type of aircraft (check)
- ☐ Single engine
- ☐ Multi engine [no. _____]
- ☐ Propeller
- ☐ Jet
- ☐ Rocket
- ☐ Glider
- ☐ Balloon

29. Model name/number/airframe mfgr. _____

30. Aircraft registration number. _____

31. Airline name (if appropriate). _____

32. Scheduled flight number. _____

33. Object (phenomenon) was seen through the following window(s). _____

_____

34. Describe as precisely as you can the apparent clarity/scratches/etc. of these windows. _____

_____

35. About how familiar were you with this particular aircraft and its "peculiarities" of flight control?
- ☐ Very familiar: [I had about _____ hrs. flt. time]
- ☐ Reasonably familiar: [Comments _____

_____

36. Use this space to add any other pertinent details about the aircraft in which you were located during this sighting. _____

_____

_____

_____

37. What was your indicated airspeed? _____ ☐ mph ☐ knots (check one)

38. What was your ground speed (if known)? _____ ☐ mph ☐ knots (check one)

Part V. WEATHER DETAILS:

39. I obtained the following weather information from: (check all that apply)
- ☐ Flight service station
- ☐ Terminal forecast
- ☐ SIGMET or AIRMET
- ☐ FD (winds-temp. aloft)
- ☐ Other: _____

40. Visibility and clouds: (check)
- ☐ Clear (visibility greater than 15 miles)
- ☐ Clear (visibility from 3 to 15 miles)
- ☐ Broken clouds - sky cover in tenths was ____
  - Cloud type(s): ☐ Cumulus ☐ Stratus ☐ Cirrus ☐ Other: _____
- ☐ Heavy overcast below above (circle) my aircraft
- ☐ Flying in clouds at the time
- ☐ Other: _____

41. Did you file a flight plan? (check one) ☐ No ☐ Yes

42. Were you flying: (check one) ☐ IFR ☐ VFR

43. Sky condition was: (check one)
- ☐ Bright daylight
- ☐ Dull daylight (slight overcast, smog)
- ☐ Twilight
- ☐ Trace of daylight
- ☐ Dark - no Moonlight
- ☐ Dark - Moonlight present from: ☐ Full ☐ 3/4 visible ☐ 1/2 visible ☐ Crescent
- ☐ A few stars visible
- ☐ All stars visible (very clear)
- ☐ Don't remember

44. Outside air temperature was: _____ TAT = _____

45. What was the wind direction and velocity? _____

46. Use this space to add any other details about the weather at the time and location of the sighting. _____

Part VI. EYEWITNESS DETAILS:

[Note: This information will be kept confidential unless you indicate in the space below that it may be disclosed publically.]

47. Your full name: _____ (First / Middle / Last)

48. Your mailing address: _____ (Street) _____ (City/Town) _____ (State/Province) _____ (zip)

49. Your age at time of sighting: _____ yrs

50. Your sex: (check) ☐ Male ☐ Female

51. Occupation: _____

52. Marital status: (check one) ☐ Single ☐ Married ☐ Divorced/widowed

53. Telephone: area code [_____] number [_____]

54. Highest education level: _____

55. Describe military aviation experience (if any): _____

56. During the sighting were you wearing: (check)
- ☐ Prescription eyeglasses (no tint)
- ☐ Prescription eyeglasses with tint
- ☐ Contact lenses
- ☐ Polarizing sunglasses only
- ☐ Non-polarizing sunglasses
- ☐ No eye-glasses of any kind

PLEASE READ CAREFULLY

[Sign one of the two statements that expresses your wishes.]

"I hereby permit my name to be publically associated with the information I have freely given on this 6 page form"

"I do not permit my name to be publically associated with the information I have freely given on this 6 page form"

APPENDIX 3 (j)

UFO APPEARANCE RECOGNITION AND IDENTIFICATION TEST PROCEDURE

By

Richard F. Haines, Ph.D.[1]

Introduction:

There are several reasons to obtain reliable information from a witness concerning the appearance of the unidentified flying object (UFO) perceived. The first is to be able to place its shape and details into defined categories so that correlations can be made with other sighting details from the same and other witnesses. Such categorization and classification may help us understand better the common elements, range of individual differences in perceived shapes, and many smaller details which might be important. Such details will likely go unreported if a less rigorous technique is used. The second reason is to learn more about the true nature of the UFO phenomenon. Should a fixed relationship exist between the shape and/or details of the UFO phenomenon and its function or "true" identity, a systematic method for categorizing such information will help uncover it. The procedure given here will also facilitate the computerization of perceived UFO characteristics which could make possible valuable statistical analyses.

Because we are still confronted by a phenomenon about which we know almost nothing we must not waste any opportunity to collect as much reliable observational information as possible. Laboratory research has shown that, under most situations, *recognition* of such details as an object's outline shape, gravitational orientation, and certain kinds of detail is easier and more accurate than is trying to recall these details entirely from memory. Indeed, others have already suggested the use of a somewhat similar shape recognition procedure (Shepard, 1968; Valley, 1968), however, no one has provided a systematic method for doing so which incorporates the findings of a review of eye witness UFO drawings or which allows for so many combinations of shapes and details.

The following seven steps should be followed which are shown in Figure 1.

Step 1. "Draw the UFO"

Ask the witness to take a few minutes to remember as much as possible about what the UFO looked like. Try not to distract him during this first step. Ask him to draw the UFO on a clean piece of white (21.6 x 27.9 cm) paper oriented on the writing surface as he likes. Do not prompt or lead the witness in any way. As soon as the drawing is completed have the witness include his name (or initials) and the following (record keeping) information in the upper left-hand corner.

Date of sighting
Time of sighting [a.m.; p.m.; time zone]
Location of sighting
Date of drawing
Arrow pointing up with respect to gravity

When this is finished take the drawing and turn it face down and proceed to the second step.

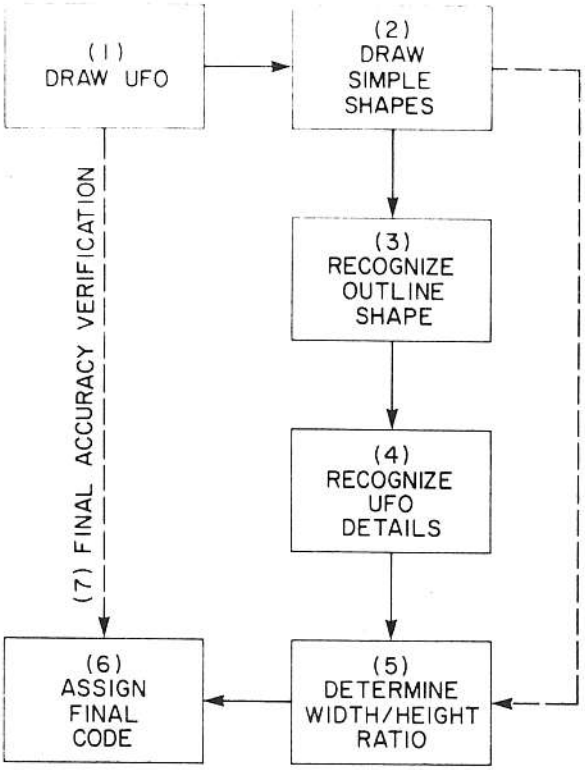
Step 2. "Draw Three Simple Shapes"

Ask the witness to draw a *circle* of about 5 cm diameter anywhere he likes on a second piece of clean white paper. Repeat this for a *square* of about 8 cm on a side and an *equilateral triangle* of about the same

---

[1] I am grateful to Jim McCampbell, Ray Fowler, and Troy Challenger for their helpful comments on this procedure and also to Peri Cline for her patient work in cataloguing many eye witness drawings. This paper is part of a larger manuscript on the subject of perceptual aspects of unidentified flying objects.

Figure 1. Diagram of Seven Steps to be Followed



size on the same piece of paper. Be sure to include the witnesses name or initials and an arrow indicating the orientation of the paper when the drawings were made. The arrow should always point away from the witness. When this step is finished turn the paper over and proceed to the third step.

Step 3. "Recognize and Match UFO Outline Shape"

Once again ask the witness to try to remember what the UFO looked like. Then ask him to look through the various drawings in Figure 2 [note that there are three parts] and select one of the drawings or a combination of them which look most like the object he witnessed. *Any combination of shapes is possible*; the left-hand column labelled "top surface shape" (T) may be associated with one or more shapes from the middle column labelled "Mid-section shape" (M) and/or with one or more shapes from the right-hand column labelled "bottom surface shape" (B).

If the witness seems unclear about what constitutes the top and bottom of the UFO simply point out that the top is considered to be that part of the object which was above (with respect to gravity) an imaginary line lying along the largest dimension of the object. If the UFO remained steeply inclined (to a vertical line) simply orient the appropriate drawing of Figure 2 to the given inclination and let the left-hand column represent the highest (uppermost) portion of the UFO, etc.

Each shape selected from Figure 2 should be designated in the final code as a letter-number combination, for example T12. A perfect circle would be coded as T1B1. A long, thin diamond shape would be coded as T7B7, etc. If a mid-section separated the top from the bottom part of the UFO the letter M (for mid-section) would precede the appropriate number of a shape. Shape M1 should be used to indicate the presence of a thin straight line separating the top from the bottom. The concave (CC) and convex (CV) curvatures shown *do not* have to match each other exactly. For example, a T11M10 would be acceptable and would be interpreted *as if* the two curved surfaces matched; an M16B15 would, on the other hand, be both incorrect and ambiguous, unless the witness was extremely confident that this code designation was the best one possible. The right- and left-hand extremities of the mid-section may have been some shape other than square. Cell M13 provides capital letter codes for other shapes. Brackets should be used around such code letters.

Figure 2 (part a). Symmetric UFO Shapes

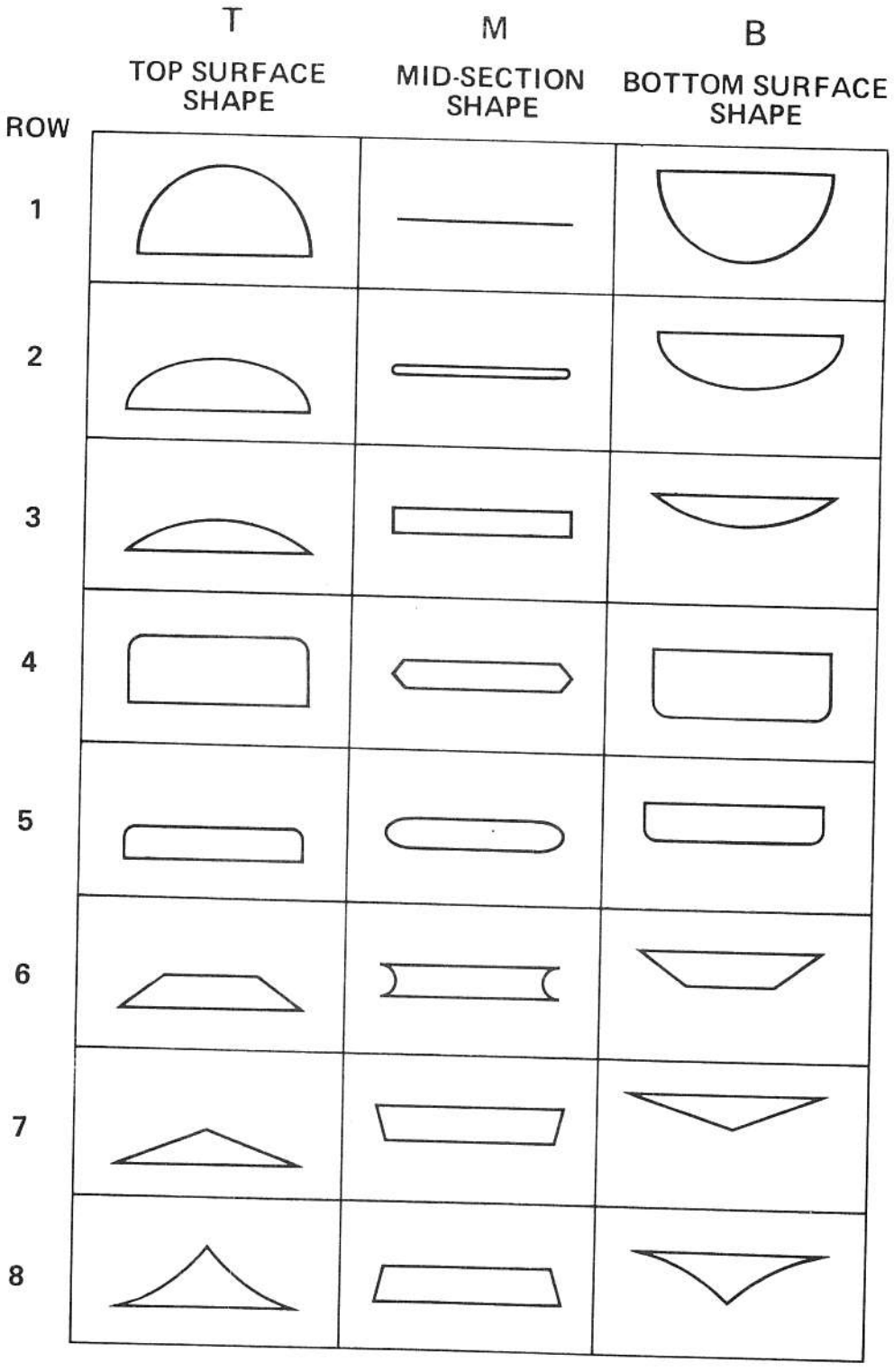
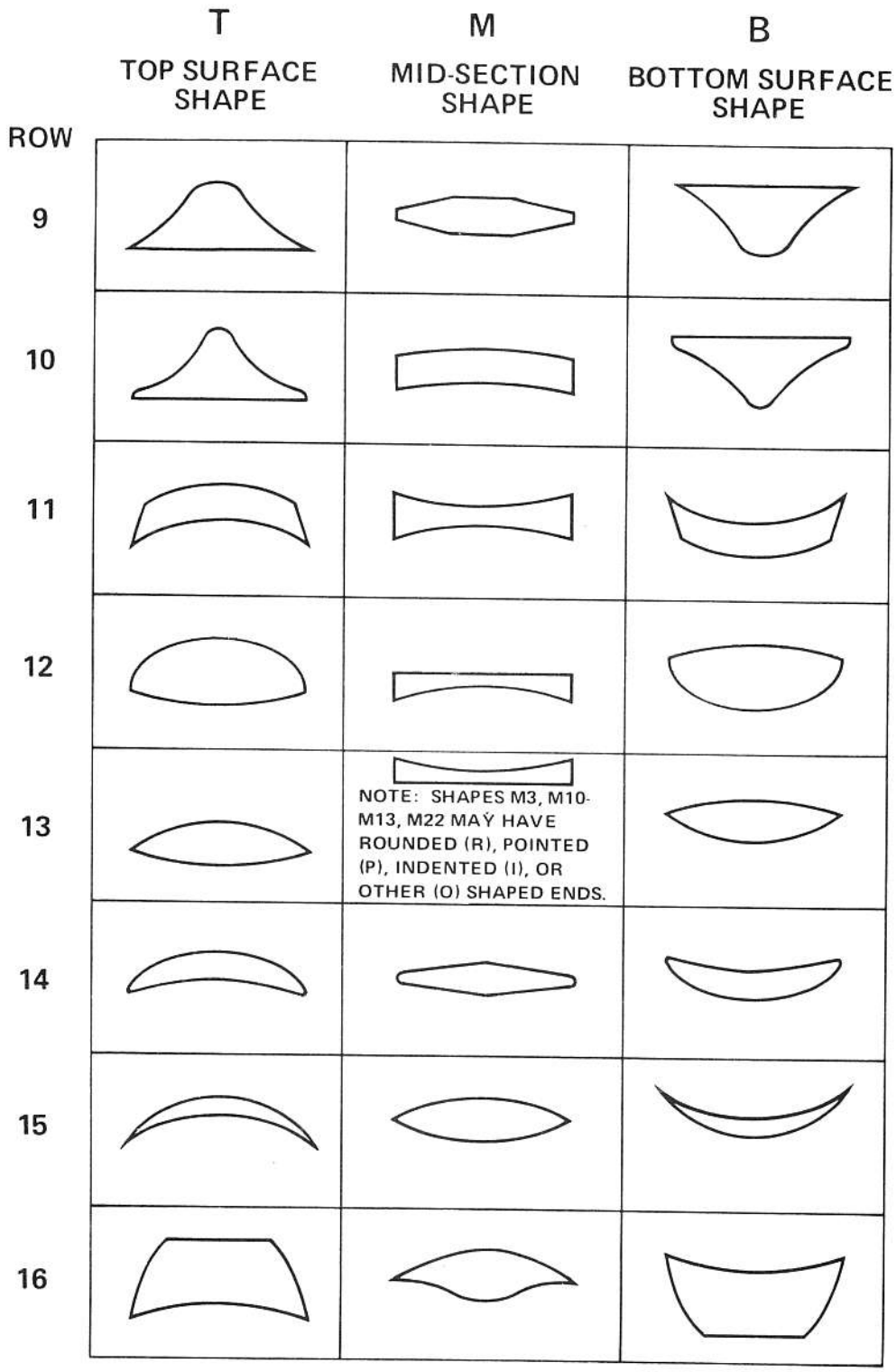
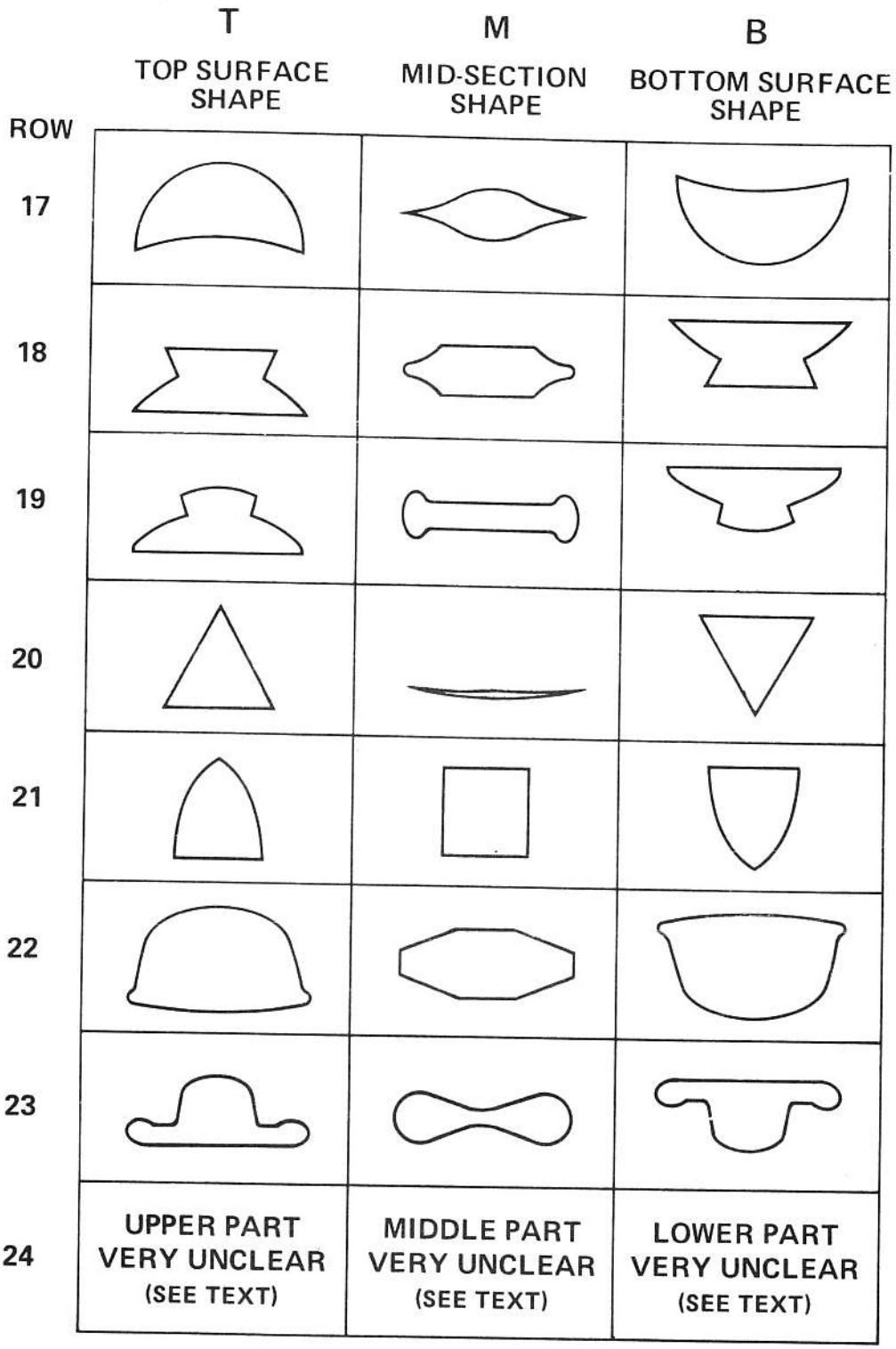


Figure 2 (part b). Symmetric UFO Shapes



If only *one* of the shapes given in Figure 2 is selected by the witness as being representative of the entire UFO outline he perceived, Figure 2 provides for recognition of 24 times 3 or 72 different shapes. If *any two* shapes are chosen in any combination, a total of 5,112 different combinations are available. If *any three* shapes are selected in any combination a total of 2,024 combinations are available.

Figure 2 (part c). Symmetric UFO Shapes



★ *How to deal with a UFO which changes shape continuously:* If the witness claims that the UFO appeared to change its outline shape during the signting the best procedure to follow would be to ask him to select from Figure 2 (as described above) the basic appearance of the object at each of a number of points in time and/or space. In order to record such a response the investigator should (first) draw a straight line on a clean piece of paper inserting small "tick" marks along the line to indicate time intervals. (Second) insert the UFO shape code by each tick mark as per the above procedure. (Third) write the number of seconds, minutes, etc. which occurred between each successive tick mark.

★ *How to deal with indistinct or hazy UFO outlines:* This is a relatively common feature of UFO sightings. In some cases a mist appears to shroud the object. A special "H" code is used to indicate the degree of indistinctness. Table 1 gives a brief description of this H code. Note that *this is the only code symbol which is entirely omitted from the final code if the UFO appears complete sharp.*

Table 1. H Code Description for Indistinct Outlines

H1	Only slightly indistinct; as the Moon appears through a thin, high altitude ice crystal layer. The edge is still relatively sharply defined against the background.
H2	Moderately hazy edge; as an automobile headlight appears through medium fog. Light scatter enlarges the luminous source and makes its edges quite hard to distinguish from the background.
H3	Very indistinct edge; as a small, intense light appears at a distance through dense fog. Only a patch of luminance is seem. No outline or edge of the original source of light can be seen. Neither the size or shape of the UFO can be determined, only its presence. [Note: use of this code would place the other shape code information in some doubt unless the UFO were subsequently seen clearly].

★ *How to deal with asymmetric UFO shapes:* In those cases where the object did not appear to be symmetrical the witness should be shown the shapes provided in Figure 3 and then asked to try to select the one which seems most similar to the shape remembered[3]. Referring to the V1 shape shown in the upper left-hand corner of this figure, the two linear *dimensions* [height (h), and length (*l*)] and the two *side designations* [convex (CV) and concave (CC)] must be included in the shape code when necessary. A dash should precede this code information. An egg-shaped UFO would be coded as a V1-CV(*l*4, h1), for instance, *if* the length was about four angular measurement units and the height one. If no special side designation is included it will be assumed that the UFO appeared very similar to the shape indicated by the basic code of Figure 3.

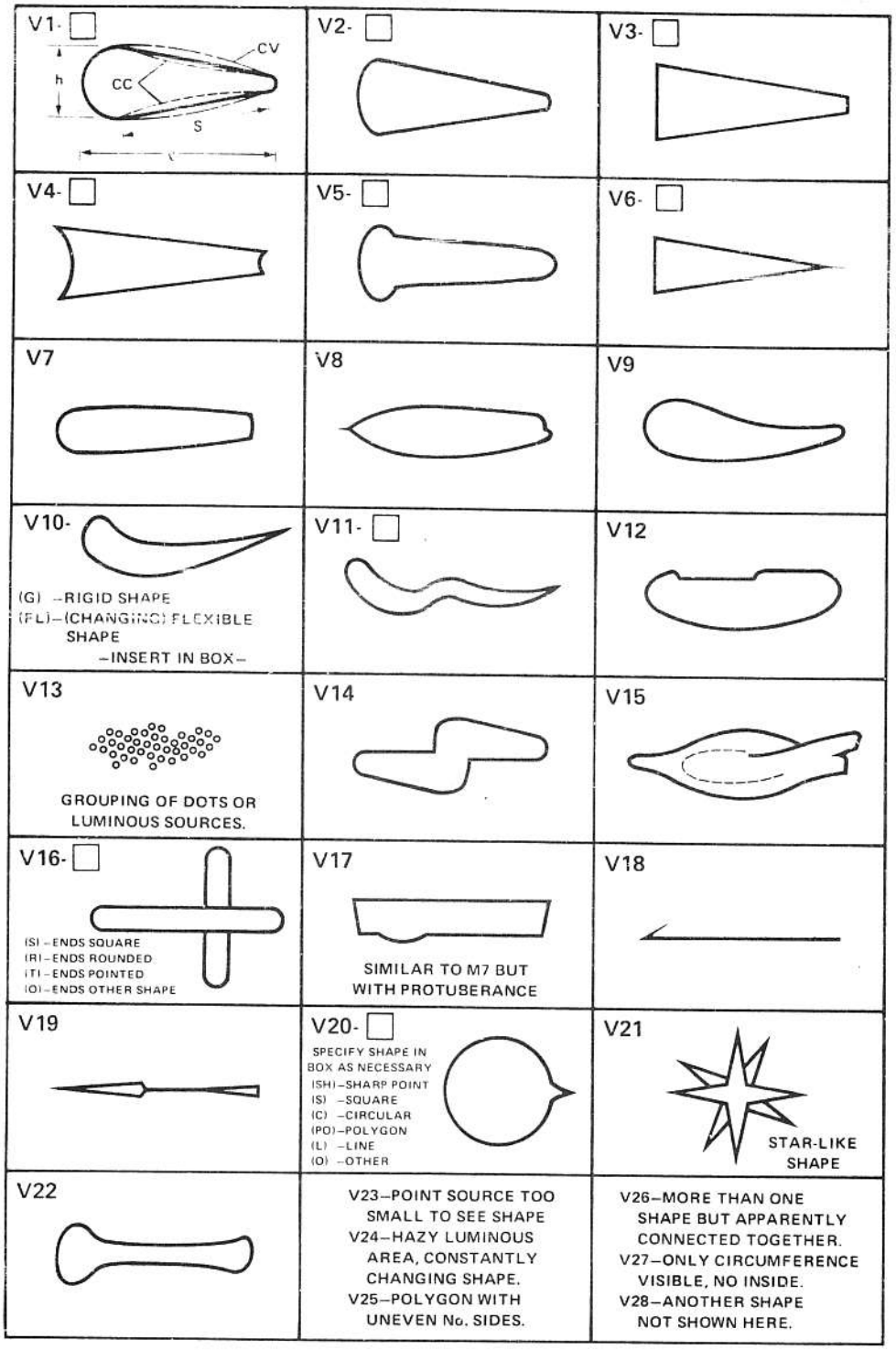
The remaining "V" designations should be used for special cases as necessary. An attempt has been made to provide a relatively consistent set of symbols and alphabetic letters so that any symbol or letter may be used with any shape code as necessary.

It should be emphasized that *it is the silhouette of the object seen which determines the correct choice of the symmetric or asymmetric shape selected from Figures 2 or 3.* This basic operating principle is necessitated by the fact that a three-dimensional object may assume an extremely large number of shapes depending upon the direction from which it is seen. Thus, to help make this shape recognition technique more reliable the field investigator should have the witness select a shape from Figures 2 or 3 based only upon the remembered overall (silhouette) shape of the object and *not* what it would have looked like at another (e.g., side view) vantage. Once this is done the witness should be asked to judge the approximate "viewing angle" (X) at which he viewed the object. For example a UFO seen directly from below would be coded as X90 (for 90^{o} arc). A UFO seen directly from the side would be coded as X0 (omitting the degree symbol), etc.

★ *How to deal with remembered UFO shapes which are not found in Figures 2 or 3:* The single most acceptable method is to urge the witness to try to describe the overall appearance of the UFO in terms of specific similarities and differences compared to one or more of the shapes provided in Figures 2 or 3. Such information should be tape recorded whenever possible and then transcribed on the reporting form as necessary.

[3] The calculated value of "R" (determined in step 5) becomes particularly important if the UFO is asymmetric. Note that the h and *l* dimensions shown in shape V1 of Figure 3 can be used with almost all of the V series.

Figure 3. Asymmetric UFO Shapes



Step 4. "Recognize UFO Details"

Up to this point nothing has been said about any visual details on the object. Now is the appropriate time to do so. Begin by asking the witness to look at the various UFO detail drawings given in Figure 4 and to select any which look similar to what he perceived. If some detail was seen to move with the UFO but was not (apparently) attached to it simply insert the letters (nc), for "not contacting", after the detail code.

It should always be remembered that nothing is known for sure about the function of any UFO detail. Therefore it is misleading to refer to a thin, straight line coming out of the surface of a UFO as an "antenna." And, a broad, transparent bulge on the top of a UFO may or may not be a "dome" in the commonly accepted sense of the word. It is always better to refer to such details in a general or generic way or, better yet, only by their symbolic code number. Such an approach will not only help to improve the investigator's credibility but will help to reduce various psychological associations in the witnesses mind.

Referring to Figure 4, it should be noted that the many code letters in brackets found in several boxes may be used whenever such useage would more fully and/or accurately describe the object. In only a few cases is the same letter used in a different way; the particular type of detail with which these letters can be associated clarify their correct meaning.

To specify the number of similar details seen on a UFO simply insert this number within brackets (cf. detail P4 of Figure 4a). Thus, an A4 designation indicates that *only one* horizontally oriented oval detail was remembered; an A4(3) designation indicates that three separate ovals were remembered. A UFO with a regular, geometric arrangement of circular apertures or luminous sources would be coded by A1; if these apertures or sources were randomly arranged the T4 would be used. Finally, the P13 code should be used when the witness cannot recognize any detail of Figure 4 as being similar to what he perceived. In such cases the investigator should simply record a verbal description of the detail.

Step 5. "Determine the Width to Height Ratio of the UFO's Outline"

There is another potentially useful dimension by which each outline shape should be quantified, namely, the width (w) to height (h) ratio (R). This ratio should be determined as independently as possible from the preceding steps by not allowing the witness to refer (visually) to what he has already drawn. The value "R" indicates that the UFO appeared to be R times as wide as it was high (thick).

The field investigator should find out what the value of R is by having the witness make as many sketches as necessary of the body of the object until he is satisfied with the final w/h ratio. Any top or bottom protuberances (e.g., D type shapes of Figure 4) should *not* be included in making this measurement unless it is certain that the protuberance was a part of the body of the UFO. The investigator may measure and calculate R at this time or later as appropriate. This piece of paper should be kept with the others. The original drawing obtained in Step 1 should also be measured for a second "check" value of R, however, this should be done by the investigator at a later time. The size of the difference between the two values of R is also a potentially valuable piece of information for later analysis. This brings us to the sixth step.

Step 6. "Assign the Final Shape/Detail Code"

The accurate assignment of a symbolic code to the UFO's outline shape and associated details can greatly facilitate later categorization and computerization of the information. When such a coding procedure is used by the majority of UFO field investigators a great deal of potentially useful data will become available for analysis. The present coding procedure has been developed with as much flexibility and provision for future additions as is possible.

Figure 4 (part a)

UFO DETAILS

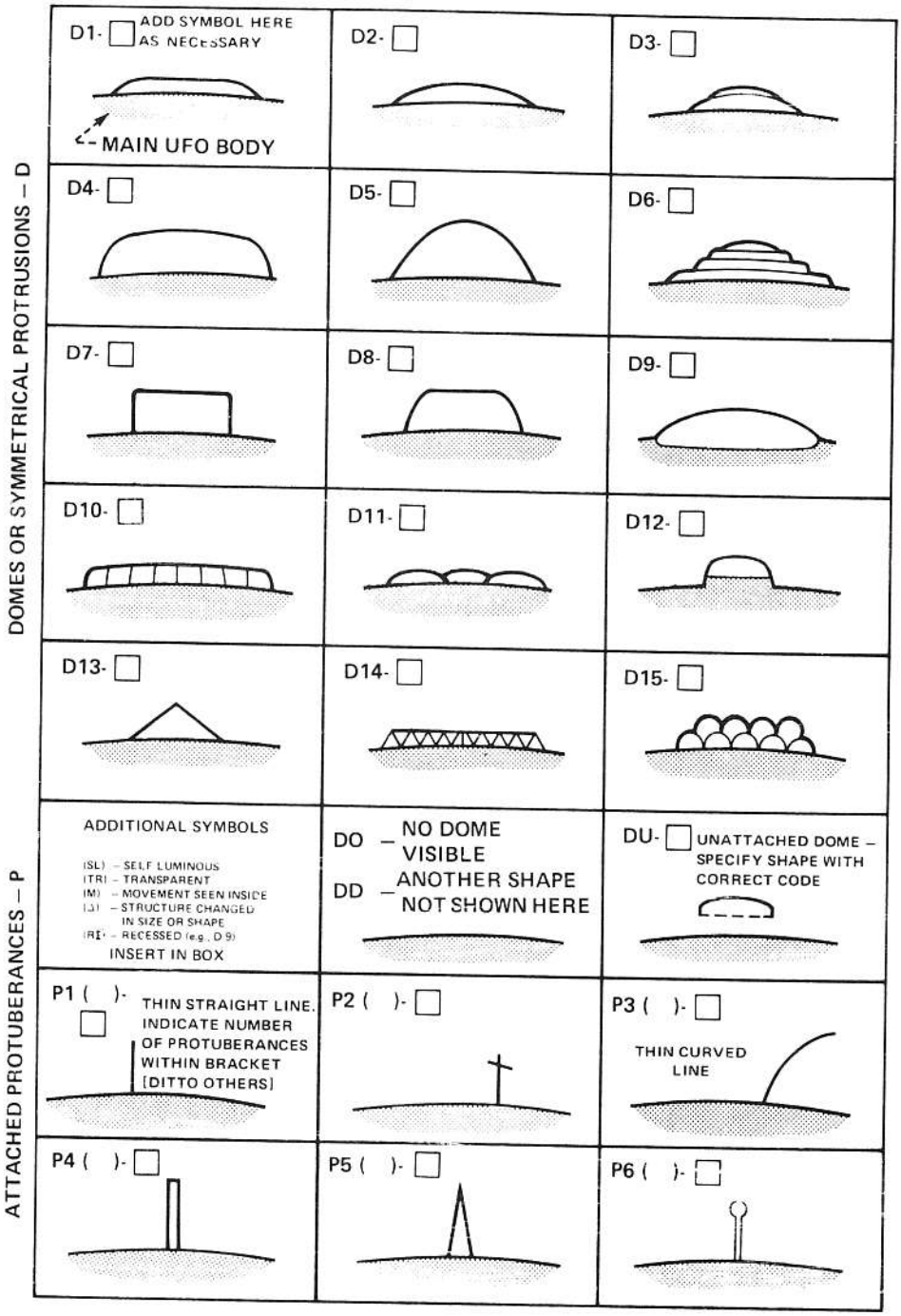
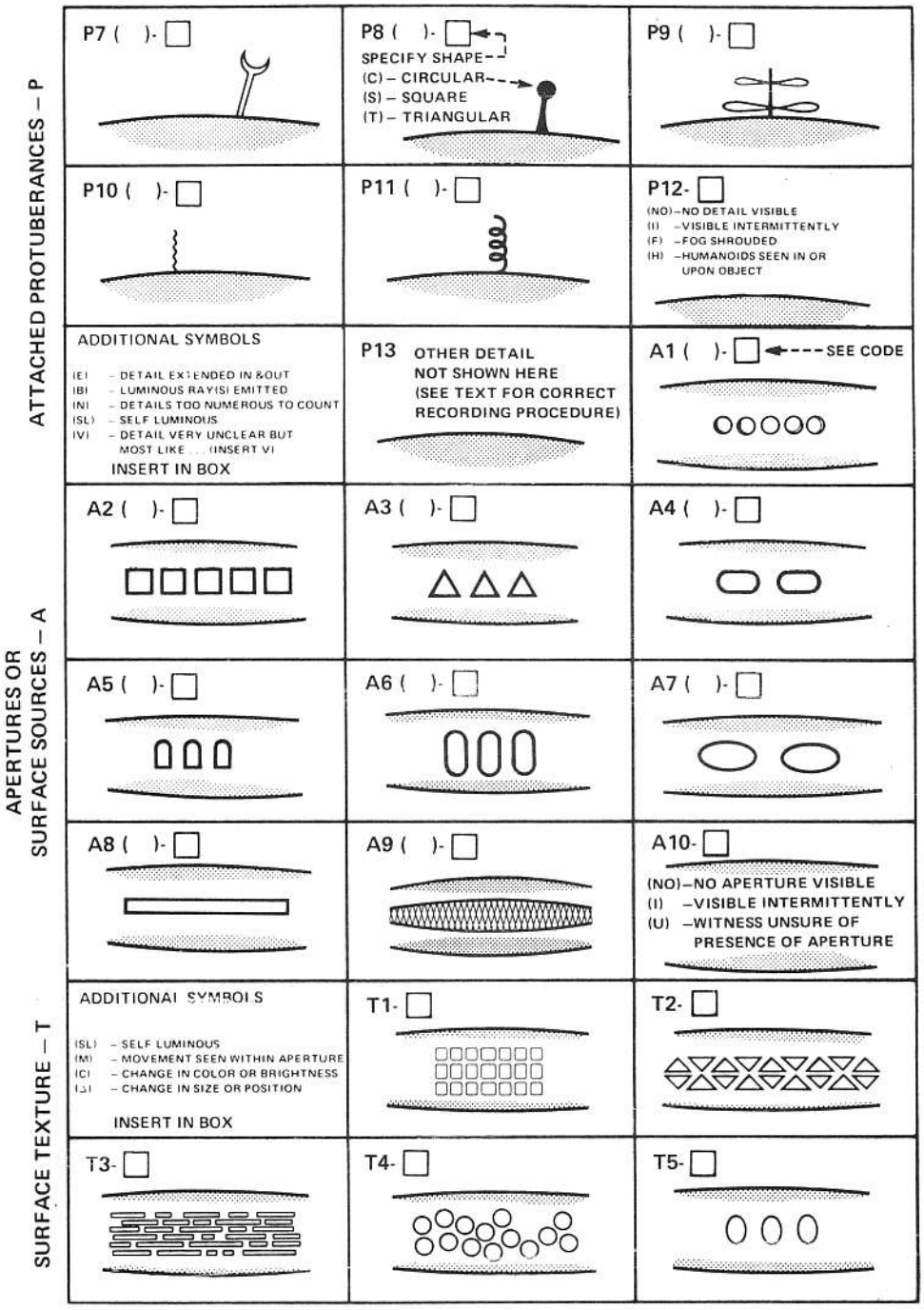


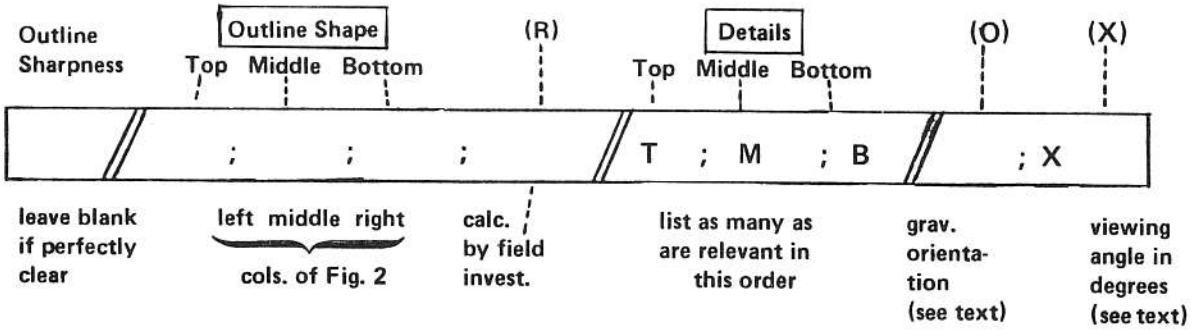
Figure 4 (part b)

UFO DETAILS



The basic layout format for the code is shown below in Figure 5.

Figure 5



Three *double* (diagonal) *slashes* must be used in every complete code to clearly separate basic sections. In addition, *semicolons* are to be used to separate the "Outline Shape" codes for the top, middle, and bottom from each other and also to separate the T; M; B; detail codes. If there are two or more detail codes for the Top (for example) use a *comma* to separate each one. A set of *brackets* should always be used to indicate the number of similar details. Finally a > (larger than), = (same size as), or < (smaller than) may be used in place of a comma to specify the relative size of one detail to another. This code format does not allow one to specify the spatial location of any detail on a UFO.

The gravitational orientation (O) code is to be used to specify the orientation in space of the UFO with respect to the horizontal. The object's longitudinal axis defines one side of this angle. Always try to obtain an estimate of O which is accurate to about five degrees arc. *Never leave the orientation space blank*. If the UFO was seen parallel to the level ground insert 0. If it was banked up 90° arc to the ground, insert 90 (omit symbol for degrees).

The viewing angle (X) has already been discussed. Again, this angle should not be left blank but should be estimated by the witness to as great an accuracy as possible. Note that the letter X should be inserted in the code just before the estimated angle.

Step 7. "Final Verification of Code Accuracy"

This is, perhaps, the most crucial of all the steps for it requires a certain degree of prior experience in the field investigator in order to *correctly* obtain the data in Steps 1 through 6. While the verification of the final code should be done by the field investigator it should also be cross-checked by someone else at a later time (assuming that the shape and detail codes were correctly recorded by the original investigator). Referring to Figure 1 it may be seen that the dashed arrow from step 1 indicates that the *initial accuracy check* is accomplished by comparing each and every feature drawn by the witness (from step 1) with the final code. Only the "H" code for hazy outline shapes may not be apparent in the original sketch. Discrepancies between the sketch and the code *must be clarified at this time*! The *second accuracy check* should be based upon a careful comparison between the UFO outline shape recognized by the witness (from Figure 2 or 3) and its symbolic code. The *third accuracy check* should be between each of the details remembered and their respective symbolic codes found in Figure 4. The *fourth accuracy check* should be for the calculated value of "R" using both the witnesses original sketch and later drawings which were made for this express purpose (see Step 5). Regardless of the possible discrepancy between these two values for R, the value found during step 5 should be recorded in the final code.

The three simple shapes obtained in step 2 are useful in assessing such perceptual characteristics of the witness as: (1) basic drawing ability, (2) eye-hand coordination, tremor, etc., (3) the overall "Gestalt"

awareness of objects in terms of its "closure," "goodness of figure," "straight lines," etc. and, (4) ability to follow directions. In addition, various psychological evaluation techniques may be used to evaluate different cognitive and emotional characteristics of the witness. Of course he should not necessarily be told these reasons for carrying out step 2.

Field Investigator Training in This Technique:

The ultimate reliability of this UFO Appearance Recognition and Identification Test Procedure will depend upon the degree to which each user faithfully follows each step. In order to help the reader learn to apply these seven steps correctly, a simple, self-teaching procedure is given below. The reader should assume that step 1 has been completed by the witness and that his drawing is that provided in Figure 6 on the following page. The reader should follow through steps 2 through 7 and determine the correct code. Then he should compare his code with the code that is found near each of the four examples in Figure 6. The complete codes given in Figure 6 have been assigned by several independent judges who are thoroughly familiar with this procedure.

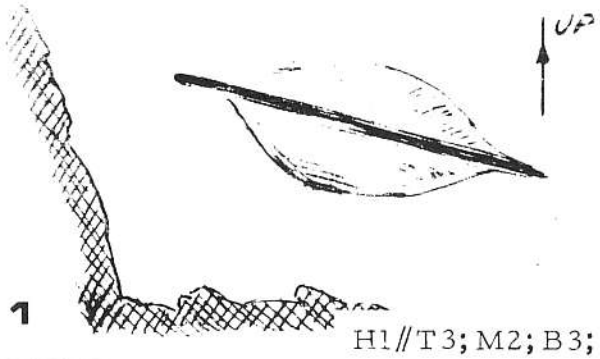
I hope that this technique will further enhance the objectivity of future UFO studies and I invite comments on how this UFO Appearance Recognition and Identification Test Procedure might be improved. Such comments should be sent to the author at the following address: 325 Langton Avenue, Los Altos, California 94022, USA.

References Cited:

Shepard, R.N., Some psychologically oriented techniques for the scientific investigation of unidentified aerial phenomena. In (Anon., *Symposium on Unidentified Flying Objects*, Hearing before the Committee on Science and Astronautics, U.S. House of Representatives. 90th. Congress, 2nd. Session, No. 7, July 29, 1968).

Valley, G.E., Some considerations affecting the interpretation of reports of unidentified flying objects. In (Gillmor, D.S. (Ed.), *Scientific Study of Unidentified Flying Objects*, Bantam Books, New York, 1968).

Figure 6. Four UFO Shapes For Which Codes Have Been Assigned



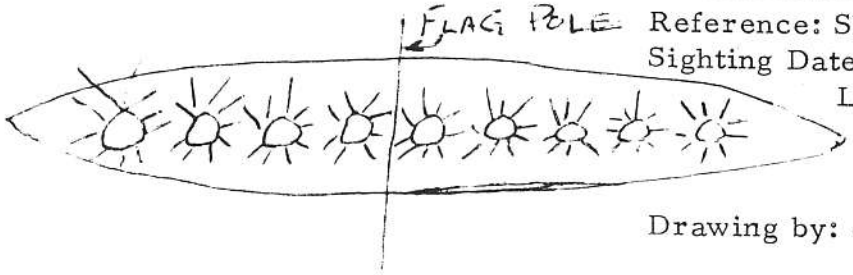
1

Reference: R. Hall, The UFO Evidence, NICAP, Wash. D. C., 1964, page 93.

Sighting Date: 1/16/50
Location: Trinidade Isle, Brazil

Drawing by: artist from photo.

H1//T3; M2; B3; 2. 90//TP12(NO); BP12(NO)//14; X0

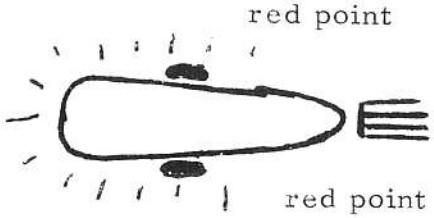


2

Reference: Skylook, March, 75
Sighting Date: 1/12/75
Location: Stonehenge Apartment New York

Drawing by: eye witness

//B13; 6. 26//TP12(NO); MA1(9)-SL; BP12(NO)//0; X0



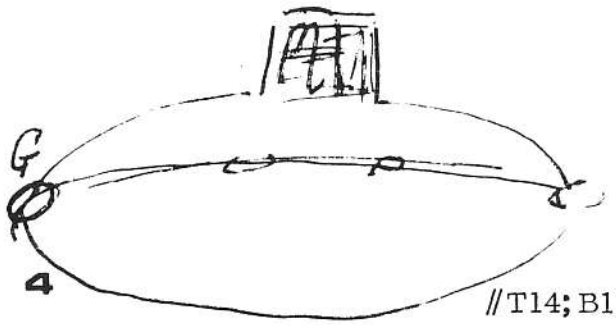
3

Reference: Hobana & Weverbergh, UFOs From Behind the Iron Curtain, Bantam,

Sighting Date: 6/1/69
Location: Bucharest, Rumania

Drawing by: eye witness (engineer)

//V2; 3. 43//TDU-D12(SL); BDU-D12(SL)//0; X0



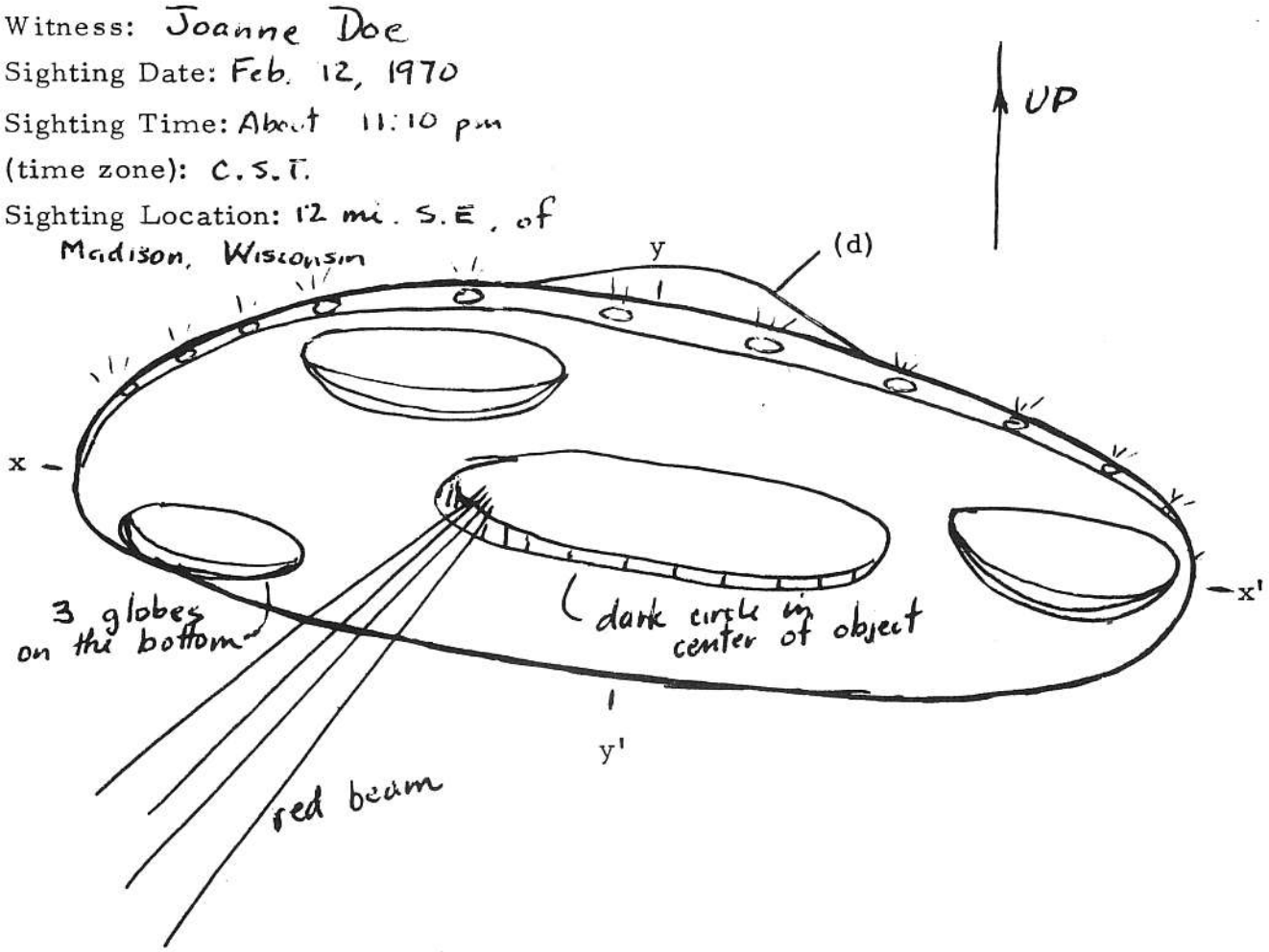
4

Reference: Skylook, Sept., 75
Sighting Date: 7/4/75
Location:

Drawing by: eye witness

//T14; B12; 2. 61//TD7; MA1(4)(SL)//0; X10

Figure 7. Hypothetical UFO Drawing to be Assigned a UFO Code



Notes:

1. This UFO drawing is relatively typical of many eye witness drawings of an aerial object which is viewed from some oblique angle and not directly from the side or above. The field investigator should not assume anything about the geometic shape of the UFO upon which this type of drawing is based, for example it is impossible to tell if the bottom surface is flat, concave, convex, or some other form. Likewise, it is unwarranted and incorrect to assume that the rounded protrusion labelled (d) in Figure 7 is anything more than the size of the area visible in the sketch.

   These considerations lead one to *shape-code only the outline shape as it is drawn on the paper* in Figures 2 through 3. *No mental "rotation" of the drawing should be performed either by the witness or the field investigator!*

2. The correct code for this UFO drawing is given below. Note how the Middle detail refers to the three globes and dark circle and not to the bottom convex line.
   Correct Code: //V1-CV;3.06//TD2(1),A1(11)-(SL);MA7(1)-(NO)>D3(3),P13(1)-(B)//8;X25

APPENDIX 3 (k)

TOPOGRAPHICAL SUPPLEMENT (Checklist)

Location: _____ Date: _____ Time _____

Feature of area beneath/around UFO (tick if present)	Brief details of feature & any recent alterations.	Approx. age of feature or alterations if less then 10 years old
Motorways & intersections		
Railways and Stations		
Canal		
'bus station		
Large bridge/aquaduct		
Air field		
Docks or harbour		
River		
Reservoir		
Power station/substation		
Power lines		
Gas Works		
Fuel storage depot		
Oil pipeline		
Transmitters (TV, Radio, GPO, Radar)		
AA, Police, Gas Board HQ's		
Air traffic beacons		
Lighthours/Coastguard station		
Factory		
Mine		
Quarry		
Warehouse		
University		
Observatory		
Nuclear research station		
Military establishement		
Meteorological station		
Motor vehicle research stn		
Other research centres		

TOPOGRAPHICAL SUPPLEMENT (Checklist)

Location:_____ Date:_____Time_____

Feature of area beneath/around UFO (tick if present)	Brief details of feature & any recent alterations.	Approx. age of feature or alterations if less than 10 years old
Hospital		
School		
Ambulance/Fire station		
Cemetery		
Sports Centre/Ground		
Sewage Plant		
Church/Chapel		
Shopping Precinct		
Housing estate		
High-rise flats		
Farm buildings/house		
Parkland		
Other community feature		
Farmland		
Woodland		
Moorland		
Common land		
Marsh		
Rocks		
Sea shore		
Coastal Waters		
Open sea		
Prehistoric site (standing stones etc.)		
Roman road/Villa, etc.		
Old Hall		
Old Priory, Abbey, etc.		
Castle		
Other historical sites		

APPENDIX 4

REPORT SUMMARY

YEAR	NUMBER	INVESTIGATOR	CASE SUMMARY	
			DATE	
		EVALUATOR	TIME	
			LOCATION	

SECTION A.

Principal Investigators .....

Dates of Interview/s with witness/es .....

Were any interviews taped YES/NO

Is a transcript/copy available YES/NO

A Photographic/Physical/Physiological/Vehicle Interference/Occupants Summary form is included. (Delete where applicable)

Describe any effects not covered on such a form (add supp. sheet if required)

.....

SECTION B. - Witness Details

Number of Witnesses .....

Were they: related/known to yourself/independently located

Please answer the following for the chief witness: (if possible append details of others)

1. Opinion of UFO phenomenon .....
2. Interest in space or science fiction .....
3. Reaction at time of sighting .....
4. Subsequent change in reactions .....

Comment on any simulation tests to check witness observational ability

.....

Any further comment concerning the witness (community standing etc)

.....

.....

SECTION C. - Weather Report

Please append weather report for time of sighting from local met. office or airport. Note any possible explanation they had for the report

SECTION D. - Air Traffic Report

What is the nearest airport (civil and military) .....

Were there:
1. Any other reports for this date .....
2. Any aircraft or balloons in vicinity .....

SECTION E. - Other Details

Have you checked the sighting against bright stars or planets/satellite timings YES/NO

Comment on any other explanation you considered .....

.....

SECTION F. - Concluding Remarks

Add separately your conclusions with reasons as to the value and validity of this report.

SIGNED ..... DATE .....

GROUP /INVEST REF.		BUFORA REF.	YEAR	NUMBER	INVESTIGATOR	CASE SUMMARY	
						DATE	
					EVALUATOR	TIME	
						LOCATION	
						EVALUATION	
						UFO CLASS	
						CLOSED	

RETURN FORM TO:

UFO SIGHTING REPORT FORM

FOR USE BY AN OFFICIAL INVESTIGATOR **ONLY**. BEFORE COMPLETING THIS FORM PLEASE FAMILIARISE YOURSELF WITH CURRENT INSTRUCTIONS.

COPIES
WHITE–BUFORA FILE
BLUE–BUFORA ANAL.
GREEN–R.I.C.
PINK–INVESTIGATOR

REPORT SUMMARY/EVALUATION/SUPPLEMENTARY

Please continue on a separate sheet if necessary.

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APPENDIX 5(b)

BUFORA EVALUATION PROCEDURE

BUFORA utilise two methods of report evaluation, which are united into a coherent system. These are ADVISERS and CONSULTANTS.

ADVISERS

These are BUFORA members with qualifications and experience in scientific fields. A large number of them possess degrees, and are currently employed in the scientific community.

The Advisers are grouped into PANELS, which are co-ordinated by an administrative organiser. The Advisers Panels in current operation are as follows:

(1) TRACES: Co-ordinator, Mr. S.J. Gamble, c/o Newchapel Observatory Newchapel, Stoke-on-Trent, Staffs.

This section employs chemists, physicists, geologists, biologists and botanists and deals specifically with cases which involve environmental disturbance or physical residue.

(2) ATMOSPHERICS: Co-ordinator, Mr. A.R. Pace, c/o Newchapel Observatory, Newchapel, Stoke-on-Trent, Staffs.

This section employs astronomers, meteorologists and atmospheric physicists and deals with cases which involve atmospheric effects, or appear to have possible solutions in these areas.

(3) HUMAN ASPECTS: Co-ordinator, Mr. T. Whitaker, 8 Central Park, Wellhead, Halifax, HX1 2BT West Yorks.

This section employs, psychologists, psychiatrists and other specialists in human aspects. They deal with cases in which the reactions of the witnesses are especially important, and particularly alleged contact experiences.

(4) ELECTRONICS AND MECHANICS: Co-ordinator, Mr. B. Hartley, 23 Hastings Road, Thornton-le-Fylde, Lancs.

This sections employs engineers and electronics experts and is chiefly concerned with cases which involve effects on electrical equipment , e.g. car ignition systems.

(5) PHOTOGRAPHIC: Co-ordinator Mr. R.S. Digby.

This section employs both professional and competent amateur photographers and optical experts.

Due to the considerable amount of overlap between the Traces Panel and the Photographic Panel activities, these two groups function together as the Physical Data Section.

APPENDIX 5 (b) continued

BUFORA also has an Advisers Panel for statistical analysis. The Co-ordinator is: Mr. P. Hill, 1 Cambridge Gardens, Leith, Edinburgh, EH6 5DH

CONSULTANTS

The Consultants are scientifically experienced persons, not necessarily members of BUFORA.

They are co-ordinated by BUFORA's EVALUATIONS Co-ordinator, Mr. C.A.E. O'Brien.

BUFORA's existing list of Consultants is presently being revised and details will be published in due course.

BUFORA is always glad to learn of any eminent scientist who may be willing to act as a Consultant even if only in an unofficial and incognito capacity.

GENERAL PROCEDURE

The whole system is co-ordinated through the National Investigations Co-ordinator.

Investigators must immediately notify him of any cases which require the immediate involvement of an Adviser, and must also inform the R.I.C.

All reports which fall into Classes 1 and 2 under the Sighting Report Classification System (Appendix 9) will automatically be forwarded by the N.I.C. to the Advisers Panel which is most relevant to the particular case. The Co-ordinator of that Panel will ensure that the report is examined by a suitably qualified member of his Panel as soon as it is possible. That member will write a report and triplicate copies will be forwarded by the Co-ordinator of the Panel to the N.I.C. after he has satisfied himself that nothing further can be contributed by his section.

The N.I.C. may now decide that the report and initial evaluation should be sent to a further Advisers Panel for an evaluation report on their particular aspects.

The N.I.C. may now decide that the report has proved of enough significance to warrant submission to the BUFORA Consultants. In the case of a very important sighting the N.I.C. may decide that the initial report contains enough data for immediate transfer to the Consultants.

The N.I.C. will forward copies of all evaluation reports to the R.I.C. involved, and the original report, plus evaluations, to the Research Department. It will be up to the Research Director to have final say as to whether the case should be closed or not.

The N.I.C. should not submit anything to the Research Department until he is satisfied that all possible evaluation reports have been secured.

It will be up to the discretion of the N.I.C. which, if any, of class 3 and 4 reports should be subject to evaluation reports.

APPENDIX 5(b) continued

As a guide line ADVISERS are expected to:

(1) Report on whether, from their experience, there is any possible explanation for the sighting.

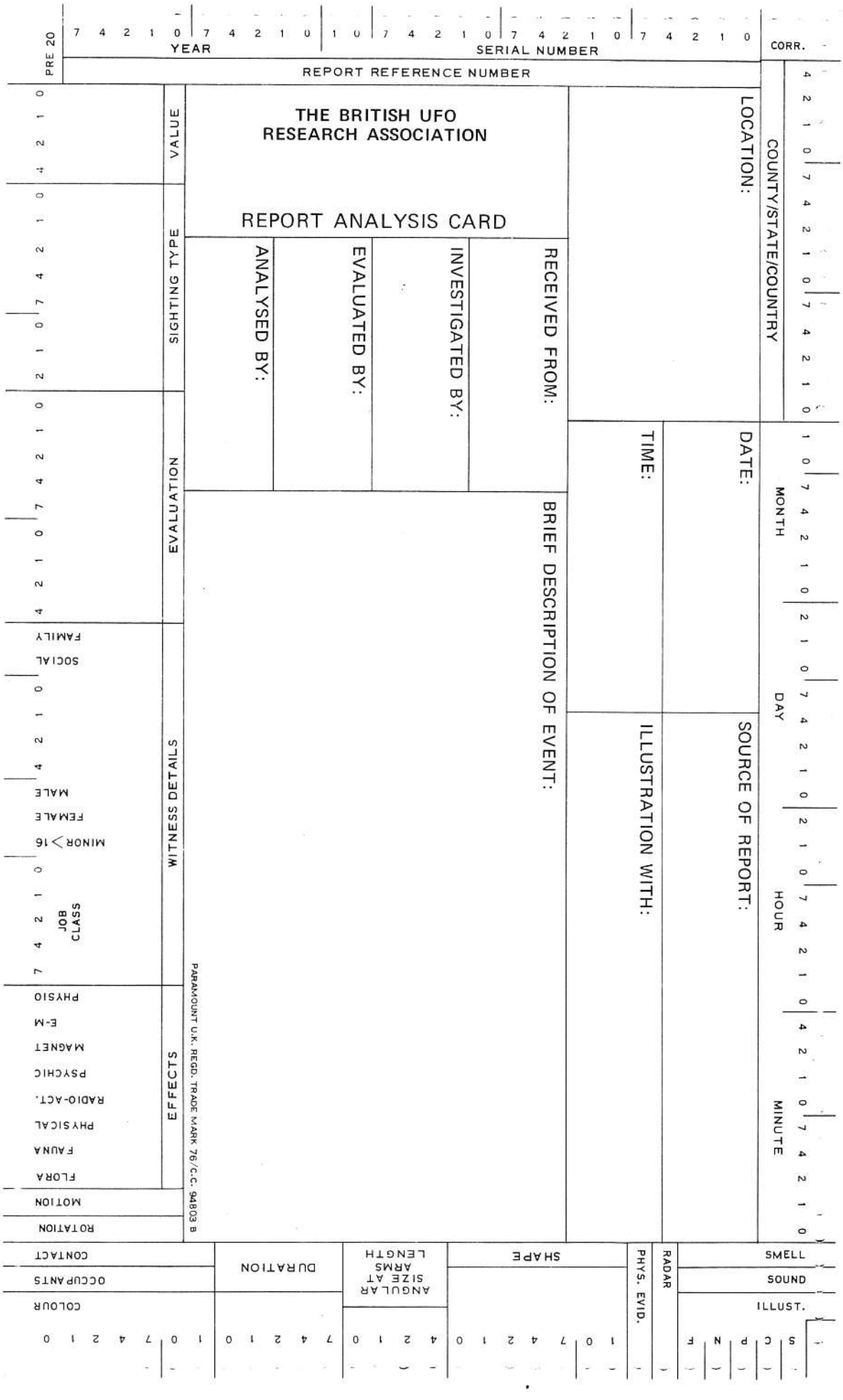
(2) Recommend whether further investigation should be conducted and comment on any deficiency in the investigation.

They may also be requested to assist in specific projects, being conducted by the Research Department.

The CONSULTANTS will be specifically requested to do as above, but also recommend cases which are suitable for scientific publication and suggest a possible manner of doing this.

Any members who feel that they may be able to contribute to the evaluations system are asked to contact the appropriate person with full details. If uncertain as to where they might assist they are asked to contact the Research Director, Newchapel Observatory, Newchapel, Stoke-on-Trent, Staffs.

APPENDIX 5 (c)


THE BRITISH UFO RESEARCH ASSOCIATION
REPORT ANALYSIS CARD
REPORT REFERENCE NUMBER
PRE 20
YEAR
SERIAL NUMBER
CORR.
LOCATION:
COUNTY/STATE/COUNTRY
DATE:
MONTH
DAY
TIME:
HOUR
MINUTE
SOURCE OF REPORT:
ILLUSTRATION WITH:
RECEIVED FROM:
INVESTIGATED BY:
EVALUATED BY:
ANALYSED BY:
BRIEF DESCRIPTION OF EVENT:
VALUE
SIGHTING TYPE
EVALUATION
WITNESS DETAILS
FAMILY
SOCIAL
JOB CLASS
MINOR > 16
FEMALE
MALE
EFFECTS
PHYSIO
E-M
MAGNET
PSYCHIC
RADIO-ACT.
PHYSICAL
FAUNA
FLORA
MOTION
ROTATION
CONTACT
OCCUPANTS
COLOUR
DURATION
ANGULAR SIZE AT ARMS LENGTH
SHAPE
PHYS. EVID.
RADAR
SMELL
SOUND
ILLUST.
PARAMOUNT U.K. REGD. TRADE MARK 767C.C. 94803 B

APPENDIX 6

NOTES ON HOW TO USE THE REPORT FORMS

The facsimile completed R.1 form, which is included at the end of this appendix, refers to a FICTICIOUS report. It shows the typical amount of information you can expect to obtain from a witness who completes it unaided. The answers have been typed for the purpose of this Hand Book.

In the case of an R.2 form you would co-operate with the witness in its completion and consequently a more detailed account should be obtained. The following general comments apply, nevertheless, to both R.1 and R.2 forms.

You should note several points illustrated which often require clarification from the witness before the form is accurate enough for return to BUFORA by yourself.

THE SIGHTING FORM

1. The top portion is principally for BUFORA use. Enter only your reference number (if you have one) and name. Do not complete the BUFORA REF. section unless you have been given a reference number allocated by the N.I.C. If you have to leave the form with the witness include your name and address in the appropriate box. A stamped addressed envelope, if you are not returning to collect the form personally, often ensures a more speedy response.

2. Make sure that the witness reads through his statement in section A, after he has completed it, to check that he has left nothing of importance out.

3. If the completed drawing is ambiguous then ask the witness to clarify it. In the example form appended you would be justified in checking as to whether the witness is drawing the relative sizes of the object and the house to scale. Be sure you understand EXACTLY what is meant.

4. In the questions on the bottom right hand corner of the front page you are especially trying to discover qualifications and interests which might ENHANCE the observational skills of the witness, or his understanding of natural phenomena. For example he might be an amateur astronomer, or have interests in meteorology or aircraft which could assist interpretation of known phenomena. The references on the facsimile form MIGHT indicate that the witness had been trained to observe in detail and with precision. In a case such as this you should satisfy yourself that he has been using these skills

5. Carefully read through all answers in SECTION B.

6. With reference to a map of the local area enter the ordnance survey reference for the sighting location, as close as it is possible to ascertain.

7. Check that in question 2 both DAY and DATE agree. If they do not check with the witness which is correct.

8. Take special care over question 6. Bearings and elevations are very important pieces of data. If the witness is unsure of any of these factors do not let him guess. Visit the location with him, where it will be easier to obtain a reasonably accurate estimate. Indicate any possible degree of error.

9. In question 10 remember that any small point MAY be important - e.g. the furious barking of a neighbourhood dog. Do not, however, get the witness looking for something to include here just for the sake of it. In our facsimile report you should note the reference in section A to Mr. Jones' car lights. You should clarify whether this event was significant enough to be noted in this question, and consequently require a supplementary form.

FURTHER WITNESSES

10. If in question 12 further witnesses are referred to you should now visit them, preferably alone, and obtain an independant form. This should be done even in instances where the witnesses are related - e.g. man and wife.

11. If the sighting appears to merit further investigation then efforts should be made to trace further undiscovered witnesses. You could, for example, make some neighbourhood enquiries at places where people are prone to talk openly - e.g. shops and bars. It would also be advantageous to visit the local police station to inquire if any reports were made to them. Both the local newspaper and airport might also be potential sources of additional reports. (Reference to Appendix 18 should assist here.)

SUPPLEMENTARY FORMS

12. You should now check as to whether any supplementary forms are required. The answers to questions 9 and 10 should enable you to decide this quite rapidly.

13. If supplementary forms do appear necessary and only an R.1 has been completed by the witness, you should first visit him and obtain a completed R.2 form.

14. If form R.3 (Physical or physiological effects) is required you should attempt to obtain statements from anyone who was subsequently involved with these. For example, in the case of physiological effects on the witness he may have been examined by a doctor.

NB: A more detailed Medical Aspects form (form R 6) is to be developed for a future edition.

15. Similarly if an R.4 (effects on vehicles) form is required obtain a statement from any mechanic who subsequently examined the vehicle.

16. If form R.5 (Occupants or entities reported) is required then give as full a statement as possible of the social background of the witness, i.e. size of family, condition of the home, etc. These details will be useful to the BUFORA evaluators.

17. In photographic cases form R.7 will be required by the photographic department of BUFORA, along with prints and (if at all possible) the negatives of any alleged evidence.

18. Please check through all specific procedures outlined in the forms and in various sections of this handbook to ensure that all relevant information, photographs, diagrams, measurements etc. are included.

INVESTIGATORS REPORT SUMMARY FORM

19. This form (Appendix 4) is designed to help you conduct a full check on all possible explanations for a sighting. You should always remember that the chances are nine to one against any sighting being truly unknown.

20. Enter at the top of the form the date, time and location of the sighting along with the standard boxes as required for the forms R.1 and R.2.

21. SECTION A will help you to check that the general layout of the report is complete, with all possible supplementary forms included.

22. SECTION B should be answered with care for EACH witness. In question B (iii) and (iv) you are especially looking for emotional responses and any attempt by the witness to explain what was observed.

23. RECONSTRUCTION EXERCISES are commented upon in Appendix 7. When adding comments about a witness's ability to observe or to relate his story factually do not GUESS. Only comment if you have evidence to support your statements.

24. SECTION C will require a standardised report with wind speeds and directions, cloud cover and heights of cloud layers, temperature, visibility and atmospheric conditions. This report will be given on request by your local meteorological office or airport (refer to Appendix 18) provided you are courteous and do not delay too long after a reported sighting. You should obtain a report for the closest possible time to the sighting, or for a time just before and also just after the alleged occurrance.

25. SECTION D will again require a courteous approach. Details of some weather balloon release times are given in Section 7.H(1) of the Handbook. If your investigation proves this a likely cause for the report, reference to wind speeds and directions in relation to balloon release times ought to enable you to ascertain an estimated position for any balloon at the time of a sighting. Your local airport may well be of assistance here also.

26. SECTION E will appertain to night time sightings only. The British Astronomical Association or your local astronomical society will be able to assist with meteors and satellites. (See Appendices 12, 17 and 18.) Planetary positions can be obtained by reference to an astronomical Handbook (see Appendix 16).

27.- Do not forget to comment upon any other possible explanation which you considered.

28. Always remember to add ON A SEPARATE SHEET your answers to SECTION F.

THE FINAL REPORT

29. You should now refer to Appendix 8 and check that your final report is complete.

GROUP /INVEST REF:	ANO/003	BUFORA REF.	YEAR	NUMBER	INVESTIGATOR	CASE SUMMARY	
					A.N. OTHER	DATE	
					EVALUATOR	TIME	
						LOCATION	
						EVAL'N	
						UFO CLASS	
						CLOSED	

RETURN FORM TO:–

UFO SIGHTING ACCOUNT FORM

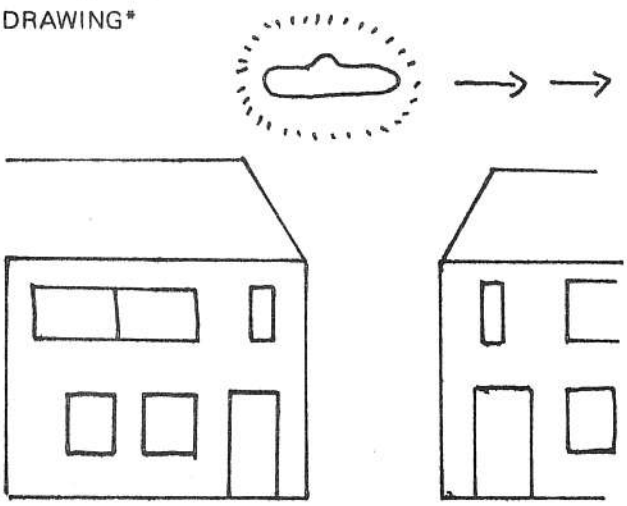
SECTION A

Please write an account of your sighting, make a drawing of what you saw and then answer the questions in section B overleaf as fully as possible. Write in **BLOCK CAPITALS** using a ball point pen.

On Monday night I was coming home from work. As I turned into School Lane I saw a bright light in the sky ahead of me. I thought it was funny because it was so bright and was a vivid blue colour. I stopped to look more closely and it appeared stationary. All of a sudden it started to move away in the direction of the town centre. At first it was quite slow but then it began to accelerate very fast and vanished over the roof tops. There was no sound at all , when it started to move it seemed to go dimmer momentarily. Mr Jones drove past in his car at this time and his headlights seemed to go out for a few seconds. I don't think he would have seen the object. I am not sure if there was any shape to it but I thought when I first saw it that it was a sort of oval with a hump on top. The light was so bright it was hard to be certain. Next day the lady next door told me that she had seen a funny aircraft in the sky and I told her about my sighting. It might have been the same thing.

Please continue on a separate sheet if necessary.

DRAWING*



*If preferred, use a separate sheet of paper.

Your full name (Mr/~~Mrs/Miss/Ms~~)
Arthur Smith Age 35

Address 312 Every Street
Anytown

Telephone No. none (STD –)

Occupation during last two years
Clerk

Any professional, technical or academic qualifications or special interests
Book-keeping, exams

Do you object to the publication of your name?
*Yes/No. *Delete as applicable.

Today's Date 6th October, 1976.

Signature A. Smith

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GROUP /INVEST REF.	ANO/003	BUFORA REF.	YEAR	NUMBER

SECTION B

1. Where were you when you saw the object(s)? Exact location School Lane (OS Sheet 00 Ref 999999

Nearest town/village Anytown County/District Blankshire

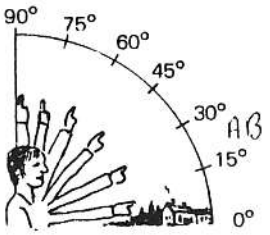
2. What was the date of your sighting? Tues day 5th of October 19 76

3. At what time did you see the object(s)? 6.00 *am/pm/~~midday/midnight~~. *Delete which ever does not apply. How did you know the time? The bus gets in at five minutes to six

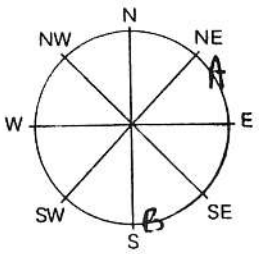
4. For how long did you observe the object(s)? ..... If not certain please state – for not less than one minute and for not more than two minutes

5. If each of the following objects were held at arm's length which one would just cover the object(s) you saw, i.e., have the same apparent size? (underline) Pinhead/pea/halfpenny/penny/ twopence/golf ball/tennis ball/other

6. (i)



(ii)



Place an 'A' on the curved line in diagram (i) to show the altitude of the object(s) above the horizon when you **first** noticed it/them and a 'B' when you **last** noticed it/them. Also place an 'A' on the outside edge of the compass in diagram (ii) to indicate the direction in which you **first** observed the object(s) and a 'B' when you **last** saw it/them.

7. Did you see the object(s) at or near ground level? Above roof tops

8. How did the object(s) disappear from view? Over roof tops

9. If you took a photograph or made any measurements, give details no

10. If you noticed any unusual effects on people, animals, plants, objects or equipment nearby: Describe these no

11. What was the main feature of the sighting which made you feel that the object(s) was/were not natural or man-made? Acceleration, colour and shape

12. How many other people at the same time saw the object(s)? ? Give the names, addresses, age and relationship to you of other witnesses Possibly Mrs Brown next door at 310. She is about 45 years old

13. Give a brief description of the object(s) under the following headings:–

(a) Number of objects 1 (b) Colour Blue (c) Sound no

(d) Shape oval with bump on top was this sharply defined or hazy? sharp

(e) Brightness Brilliant Star (compared to star, venus, moon, sun etc.)

14. What were the local conditions? Please tick in box where applicable.

Clouds		*Temperature*		*Wind*		*Precipitation*		*Astronomical*	
Clear Sky	☑	Cold	☑	None	☑	Dry	☑	Stars	☐
Scattered cloud	☐	Cool	☐	Breeze	☐	Fog or mist	☐	Moon	☐
Much cloud	☐	Warm	☐	Moderate	☐	Rain	☐	Planet	☐
Overcast	☐	Hot	☐	Strong	☐	Snow	☐	Sun	☐

Other conditions if any Dusk

APPENDIX 7

RECONSTRUCTION EXERCISES WITH WITNESSES

1. It is very important to get a witness to re-enact a sighting at the actual place of observation. By his reference to apparent distance, elevation and height you will be able to record these parameters much more accurately. With the use of a compass a more accurate bearing can also be obtained.

2. If a sighting takes place THROUGH a medium; such as window glass, a car windscreen or an optical instrument, CHECK these for any possible abberations. Quite possibly these could distort a bright light source into an impression of shape and movement.

3. If there is reason to place importance on the colour of an object a simple test for colour blindness (differentiating between strong RED and GREEN colours) might be useful. Some people who are colour blind are not aware of it.

4. Actual reconstruction exercises should be used with discretion. They are useful in cases where you have reason to suspect that a witnesses's estimate of size, time or distance is grossly in error and where these factors are of prime important - e.g. because of the presence of corroborative witnesses.

5. SIZE: One of the most common errors is in estimating angular size. It is of no value a witness guessing this since few people can be very accurate in this respect. You must be equipped with several coins, e.g. $\frac{1}{2}$p, 1p, 2p, etc. and have a witness to hold these at arm's length before deciding at what point on the scale an observed object lies. If you are still not satisfied then ask him to look at an object in the room, e.g. a lampshade or the moon (if it is visible outside). Let him tell you which coin should cover this at arm's length, and then check. You can use this simple experiment to demonstrate the interesting psychological point about everyone's tendancy to overestimate sizes, or simply to act as a source of amusement for a younger witness. In the same instance, it will give you valuable data on the probable errors in estimation of size.

6. TIME: Time is also very difficult to estimate. This is one reason why the R.1 form specifies in question 4 "for not less than" and "for not more than". It is generally true that people overestimate the length of time that has passed, especially in short duration sightings. A simple check can be made by asking a witness to tell you when a certain period of time, e.g. one minute - is up. Another method, which simulates

the situation under which the witness observed the phenomenon where he was not keeping check on the time but was distracted by other things, is to ask a witness at some point in the interview how long has passed since a particular memorable part of it - e.g. the completion of a drawing. You, of course, will have accurately noted the length of time, preferably about five minutes, and will therefore be able to gauge his accuracy.

7. DISTRACTION: It is often difficult to estimate the distance at which an object was seen, especially where a UFO was observed without many background reference points. You can obtain some idea of the capability of a witness to do this by asking him to estimate the distance to a specific point along your line of return journey. You can then make an accurate measurement, e.g. using your car milometer, on your way home after the interview. This will give some guidance on distance estimation.

8. A further point to check is quality of a witness's eyesight. If you ask him to read a car number plate at the limit of your own visibility you will have a comparison with your own eyesight.

9. You should not put too much emphasis on the results of these tests. At best they can only act as a very general guide. When deciding upon the ability of a witness to observe and relate factually you will need to take very careful account of his performance during the course of the interview.

APPENDIX 8

CASE REPORT CONTENTS CHECKLIST

1. Details of source of report/Names and dates of newspapers or other publications.

2. Details of witness(es)/include photographs if available.

3. Maps of site and/or locality.

4. Sketches by witness(es) of site or UFO(s).

5. Copy completed questionnaires not already forwarded to the NIC and RIC and detailed report by witness(es), if available (un-edited).

6. Photographs taken by witness(es) (advise whereabouts of negatives) and technical data of camera, setting, exposure and film etc.

7. Independent analysis of photograph(s), if necessary.

8. Your photographs of site, or same view and Photographic Record Card.

9. Your sketches of site, if necessary. (Use metric measurement)

10. Transcripts of interviews with witnesses. (Advise whereabouts of tape).

11. Independent reports on witnesses or event by other authorities.

12. Weather data relevant.

13. Astronomical data relevant.

14. Refer to other relevant cases, or published data relevant to case.

15. Refer to any cinematograph film available, including its whereabouts and analysis.

16. Medical or psychiatric reports on witnesses, if relevant.

17. Investigation Report Summary.

APPENDIX 9

INVESTIGATION CLASSIFICATION SYSTEM

When a UFO report is first made it is essential for all investigators to be aware of the degree of urgency which is likely to be involved. Therefore, the National Investigation Co-ordinator (NIC) will allocate to each report as soon as possible a preliminary classification in accordance with the sections listed below.

Category	Number of Qualified or Trained Observers
A	1 or more official observers: pilot, professional astronomer, who was using his expertise when making the observation.
B	1 or more experienced observers, not necessarily professional but of good standing: police, trained UFO students.
C	No experienced observers. Most reporters of UFO's are in this category.

Class	Class of Observation
1	Permanent record made - such as physical or physiological traces left, photograph taken, measurements made with instruments and recorded.
2.	Temporary physical or physiological effects reported. Occupants or entities. Vehicle interference. EM effects. Time inconsistency.
3	Object seen nearby with features not likely to be observed in a known manmade or natural phenomenon. No effects noted locally.
4	Distant object or point of light. Shape not clearly distinguishable.

Group	Total number of Witnesses
a	2 or more independent witnesses at different locations
b	2 or more witnesses at one location
c	1 witness only

If we classify a few well known reports using this system we find:-

Lakenheath - A1a[1], ATV film case - A1a[2],

Villas Boas kidnapping - C1c[3], Milakovic - C2b[4],

A suitable weighting system is:-

category	A - 2 points,	B - 1 point,	C - 0 points	
class	1 - 6 points,	2 - 5 points,	3 - 3 points,	4 - 1 point
group	a - 2 points,	b - 1 point,	c - 0 points	

On this basis a report rated at between 5 and 10 points is likely to merit a higher priority investigation than one rated at 4 points or less.

It should be recognised that the initial data available on a sighting may not permit the NIC or any investigator or BUFORA member to be sure of all the characteristics to enable a full classification immediately. However, if an RIC telephones the NIC or asks for help because he has to deal with a Class 1 sighting report, then we shall know that speed is important. This does not mean that the C4c reports should be neglected. It should be realised however, that most reports made to local groups are of this latter type and a great deal of time and energy (and BUFORA's financial resources) could be wasted in such investigations. We hope that by using this classification system we shall be able to streamline our procedures. Investigation, obviously, should give top priority in time and energy to Class 1 and 2 reports.

All investigators should be able to say at an early stage whether they are dealing with a class 1, 2, 3 or 4 sighting report. Other data, on the category or group will be added as soon as possible. However, if there is doubt on these factors, the decision will be made by the NIC.

Note that the allocation to a class depends on the "hardness" of the evidence, while the other sections are related to witness credibility.

It is likely that the system of classification to be used after evaluation of a case will be different from the initial system outlined above. As soon as this final system has been agreed, full details of it will be published. It is hoped that an internationally compatible system can be agreed in order to facilitate statistical UFO research throughout the world.

The above classification system is based on an original system devised by Mr Charles Lockwood, BUFORA's Research Projects Officer.

References:

(1) See Flying Saucer Review Vol 16 No 2 March/April 1970

(2) See Bufora publication "A Challenge to Science" for complete review of this case.

(3) See "The Humanoids" by Charles Bowen

(4) See Flying Saucer Review Vol 15 No 1 January/February 1969

APPENDIX 10

Sighting Report Statistics

The figures below show the three known sources of statistical information for reported UFO sightings, with the final percentage of cases considered unidentified by the sources named. The figures relate to the United Kingdom.

Ministry of Defence (MOD)

1959-1972 inc Total reports 2,077 Unknown 211 = 10.1%

BUFORA

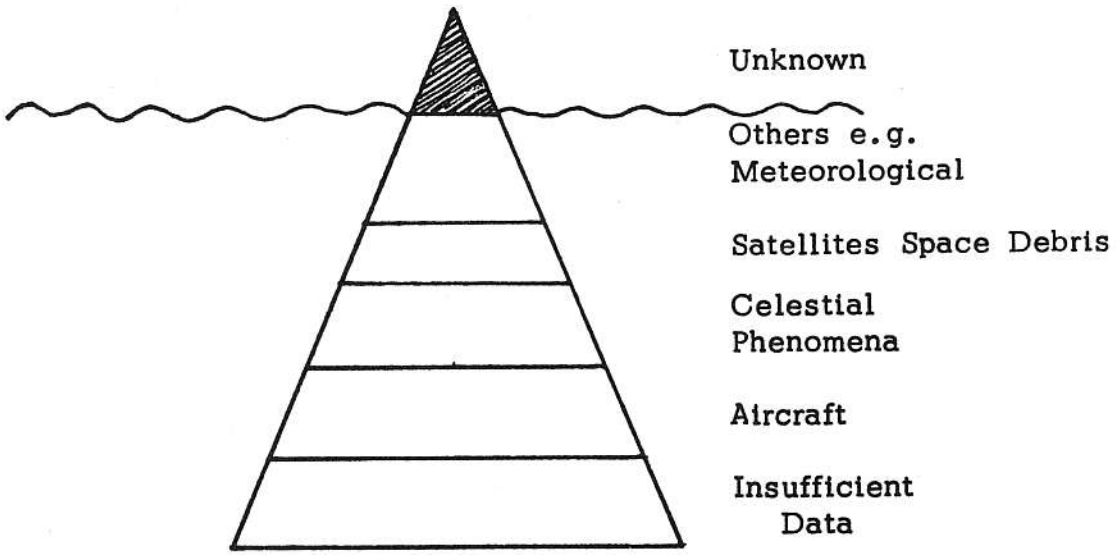
1949-1969 inc Total reports 1,372 Unknown 145 = 10.5%

Northern UFO Network (NUFON)

1972-1975 inc Total reports 350 Unknown 33 = 9.4%

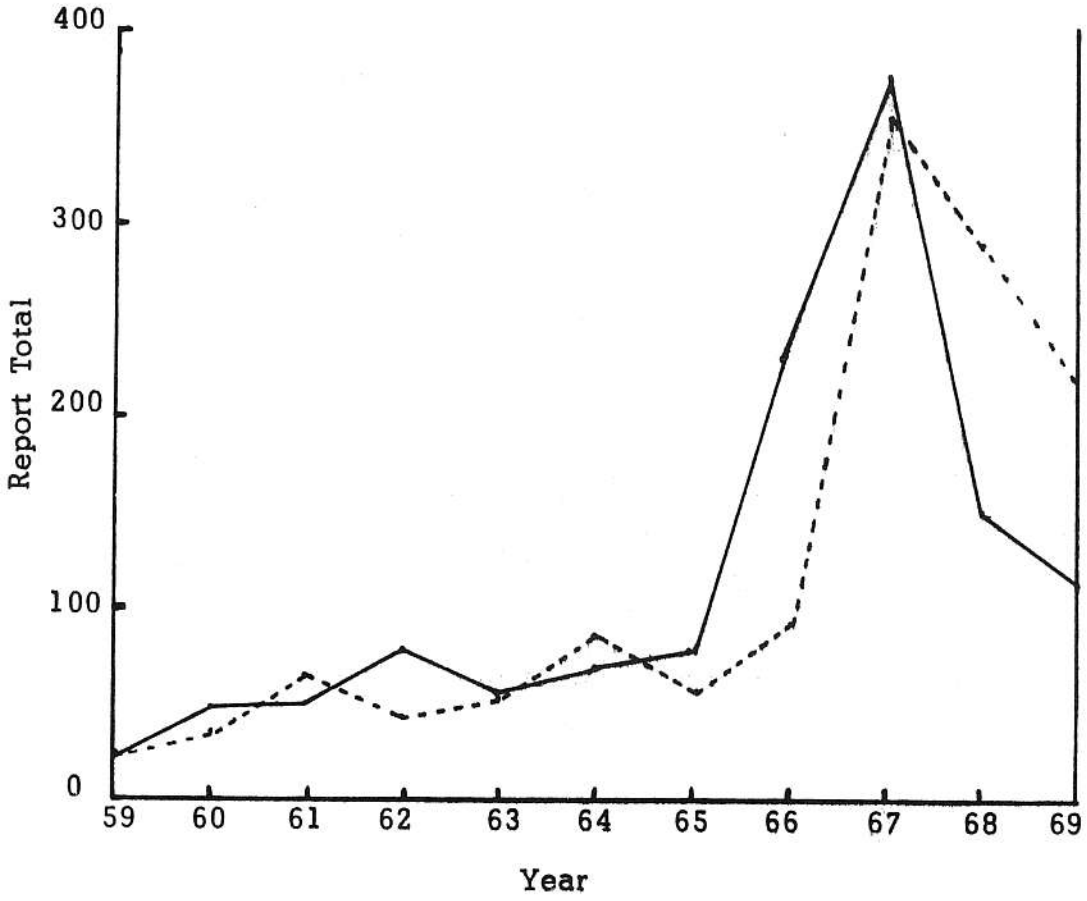
This consistency is very noteworthy.

The "UFO Ice-berg" shown below graphically illustrates how this unknown portion is but a small part of the total of UFO reports. The remainder of the ice-berg (the submerged portion) gives a general impression of some of the more common misidentifications and how they relate to the whole.



The graph overleaf compares the total number of sightings reported to the MOD and BUFORA between 1959 and 1969. It shows again a marked consistency and also the dramatic increase in later

years (partly due to the increase in objects liable to be misidentified in the sky). The definite wave of 1967 is quite clear.



BUFORA ———

MOD - - - - - - -

APPENDIX 10

UFO STATISTICS - January 1st, 1949 to December 31st, 1969

UFO Reports contained on the files of the British UFO Research Association

Year	Satellites and Debris	Balloons	Celestial Objects	Meteorological and Natural Phenomena	Aircraft	Misc.	Insufficient Data	UFOs	Total
1949	-	-	-	-	-	1	2	1	4
1950	-	-	-	-	-	-	2	-	2
1952	-	1	2	-	1	-	2	1	7
1953	-	-	-	1	1	1	1	-	4
1954	-	2	-	2	1	2	8	2	17
1955	-	1	2	2	1	1	3	3	13
1956	-	1	5	1	1	2	3	2	15
1957	-	2	2	3	5	4	4	4	24
1958	-	2	6	2	3	1	2	4	20
1959	1	2	5	2	3	4	2	1	20
1960	3	6	15	5	8	1	8	5	51
1961	5	6	12	4	8	1	11	6	53
1962	7	7	18	4	11	4	14	8	73
1963	2	6	8	3	14	4	14	6	57
1964	8	8	11	3	9	7	13	5	64
1965	8	6	22	5	16	6	18	12	93
1966	24	21	23	19	48	19	61	30	245
1967	35	16	63	17	93	23	92	40	379
1968	23	4	13	9	35	13	13	11	121
1969	17	8	28	6	29	8	10	4	110
Total	133	99	235	88	287	102	283	145	1372

APPENDIX 11

CHECKLIST OF POSSIBLE IDENTIFICATIONS

The following list includes the principal types of natural or man made phenomenon which are commonly the cause of most UFO Reports. The list was prepared by Professor Donald Menzel and appears in the book - "UFO's - A Scientific Debate" - edited by Drs. Carl Sagan and Thornton Page and published by Cornell University Press.

A. Material objects

1. Upper atmosphere

meteors
rocket firings
sky-hook-balloons
satellite re-entry
ionosphere experiments

2. Lower atmosphere

planes
  reflection of sun
  running lights
  landing lights
clouds
blimps
  advertising
  illuminated
birds migrating
  flocks
  individual
  luminous
weather balloons
  luminous
  non-luminous
  clusters
contrails
bubbles
  sewage disposal
  soap bubbles
military test craft
military experiments
  magnesium flares

3. Very low atmosphere

paper and other debris
leaves
insects
  swarms
  moths
feathers
parachutes
kites
spider webs
luminous
  (electrical discharge)
seeds
  milkweed etc.
fireworks

4. On or near ground

dust devils
transformers
insulators
water tanks
power lines
elevated street lights
reflections from windows
lightning rods

TV antennas
automobile headlights
beacon lights
tumbleweeds
domed roofs
radar antennas
fires
cigarettes tossed away
weather vanes
lakes and ponds
lighthouses
icebergs
radio astronomy antennas
insect swarms
oil refineries

B. Immaterial objects

1. Upper atmosphere

auroral phenomena
noctilucent clouds

2. Lower atmosphere

reflections of searchlights
St. Elmo's fire
parhelia
  sundogs
parselene
  moondogs
reflections from fog and mist
  haloes
  pilot's halo
  ghost of the Brocken
lightning
  streak
  chain
  sheet
  plasma phenomena
  ball lightning
mirages
  superior
  inferior

C. Astronomical

planets
artificial satellites
moon
comets
stars
sun
meteors

D. Physiological

after-images
  sun
  moon
autokinesis
eye defects
  astigmatism
  myopia (squinting)
  failure to wear glasses
  reflection from glasses
  entoptic phenomena
    retinal defects
    vitreous humour
reflections from bright sources
  electric lights
  street lights
  flashlights
  matches (smoker lighting pipe)
falling leaf effect
stars unsteady
stars changing places
autostasis
  (irregular movement)

E. Psychological

hallucination

F. Combinations and Special Effects

G. Photographic Records

development defects
internal camera reflections

H. Radar

anomalous refraction
ghost images
birds
multiple reflections
scattering
angels
insects

I. Hoaxes

N.B. Professor Menzel advises all investigators to ask every witness of an event which they could not readily explain or understand the following two important questions:-

1. What natural phenomenon did your sighting most closely resemble?

2. Why do you feel that UFO was not this phenomenon?

APPENDIX 12

MAJOR METEOR SHOWERS

Shower	Date of Maximum	Normal Limits	Hourly rate at Max.	Description
Quadrantids	Jan 4	Jan 1-6	110	Blue meteors - fine trains very rich in faint meteors
April Lyrids	Apr 21	Apr 19-24	12	Bright meteors
Eta Aquarids	May 5	May 1-8	20	----------
June Lyrids	June 16	June 10-21	8	Bluish meteor
Delta Aquarids	July 27 & 28	July 15-August 15	35	Double radiant
Alpha Capricornids	Aug 2	July 15-August 25	8	Yellow Fireballs
Perseids	Aug 12	July 25-August 18	68	Many bright flaring meteors - fine trains
Orionids	Oct 21	Oct 16-26	30	Multiple radiant - fine trains
Taurids	Nov 8	Oct 20-Nov 30	12	Rich in fireballs double radiant
Cepheids	Nov 9	Nov 7-11	8	New stream
Leonids	Nov 17	Nov 15-19	10?	Intermittant activity
Geminids	Dec 14	Dec 7-15	58	Very fine shower rich in fireballs

The table gives the basic information about the major meteor showers observable from the U.K. during the year. Each shower is named after a particular constellation from which the meteors appear to radiate. The date of maximum denotes the date when the number of meteors reaches its peak and may vary slightly from year to year. Normal limits are the dates between which the shower rates are normally greater than one quarter the rate of sporadic (non-shower) meteors for the same period.

Hourly rate, or more strictly Zenithal Hourly Rate (ZHR) is the probable hourly rate for an observer watching under very good conditions with the radiant of the meteor shower directly above (in the zenith).

Normally one would not expect meteor rates as high as those shown.

Meteors of different showers often have their own particular characteristics, some producing a greater number of fainter meteors like the Quadrantids, while others such as the Taurids have a smaller number of brighter fireballs. Others have distinctive colours and leave fine trains in the sky lasting, in some instances, for a number of minutes.

Further information on meteors and meteor showers can be found in most books on Astronomy including the Handbook of the British Astronomical Association.

APPENDIX 13

GLOSSARY OF SOME PHOTOGRAPHIC TERMS

Aperture	In a lens, the opening, the size of which is varied by a diaphragm.
Depth of field	The distance between the nearest and furthest points or objects that are in focus at the same time.
Depth of focus	The distance through which the lens may be moved without the image becoming objectionably unsharp. This is often confused with depth of field.
Dioptre	A measure of the power of a lens. The reciprocal of the lens' focal length, in metres. Focal length (f) of 500 mm. (0.5m.), its power is $\frac{1}{0.5}$ or 2 dioptres.
Emulsion	A gelatin solution or coating containing the light sensitive material.
Emulsion (film) Speed	The sensitivity of a film, usually expressed as a light-meter setting, based on the maufacturer's recommendations for use under typical conditions of exposure and development.
Exposure	This is the product of the intensity of the light (I) and the exposing time (t). This term is often but incorrectly used to express the exposing time, (shutter speed).
Exposing Time	The length of time to which the film is exposed to the object or light-source. The length of time the shutter is open.
Filter	A material that is transparent and is placed in front of or behind the lens to alter the composition of the light reaching the film by selective absorption.
F/number	The effective size of the lens aperture expressed as a fraction of the focal length of the lens.
Focal length	An expression of the size of a lens. Generally, the higher the number, the greater the magnification of the object.

Infra-red	Invisible radiation that has a wavelength longer than that of red light and so lies outside the region of spectrum that can be seen. It can however be recorded on specially sensitized 'infra-red' film.
Latitude	In practice the amount by which a film can be over or under exposed and still provide an acceptable or usable result.
Panchromatic (pan)	Sensitive to ultra-violet, blue, green, yellow and red radiation (light).
Processing	The development and treatment of the film after exposure.
Stop	Aperture of the camera lens or the setting thereof.
Filter Factor	The amount by which the exposure must be increased to allow for the light absorbing properties of a particular filter.

APPENDIX 14

CHECKLIST OF SITE PHOTOGRAPHS

(a) wide angle - north to south

(b) wide angle - south to north

(c) wide angle - east to west

(d) wide angle - west to east

(e) panoramic photographs from centre of site

(f) wide angle of any tree or plant damage around site

(g) close up (several) of imprints with card indicating which imprint you are photographing, include a ruler in some of the photographs to indicate size

(h) close up of any unusual marks or burns in or around site (with ruler in photographs indicating size)

(i) close up of tree or plant damage

(j) view from witness's observation point

(k) view from centre of site toward witness's point of observation

(l) wide angle of entire site area

(m) aerial view of site (if possible)

(n) photograph of witnesses

Note:

(1) The ideal time for taking photographs would normally be 10.00 to 14.00 GMT. Items photographed during early morning or evening hours may be distorted by shadows. Low evening or morning light can show up indentations etc.

(2) This checklist has been prepared by Mr Ted Phillips of the Mutual UFO Network, Inc. (MUFON).

(3) In addition to the above photographs, the investigator should make detailed sketches and accurate drawings (based on actual measurements) of the site and any visible effects.

APPENDIX 15

UFO HYPOTHESES

1. That the sightings involve mis-identifications of objects which are manmade or natural and are well known to experts.

2. That the sightings involve manmade devices only known to their inventors.

3. That the sighting reports are hoaxes or involve fabrications.

4. That the sightings involve natural events which are not observed often enough for scientists to have produced suitable scientific explanations.

5. That the sightings are mental projections by or received by the witness.

6. That the sightings involve devices produced by one or more alien advanced technologies, which originate

   A. elsewhere in our Universe, being (i) within our Solar System,
   or (ii) within our Galaxy,
   or (iii) beyond our Galaxy.

OR B. in a Universe which is not obvious to us yet using conventional techniques and which is

   (i) parallel to ours in space and time,
   or (ii) parallel to ours in space but not contemporaneous,
   or (iii) parallel to ours in time but not space.

7. That the sightings are of intelligent processes beyond our space-time continuum and not explicable in any of the categories listed above.

BUFORA is working on the assumption that the UFO reports made to us are mainly of category 1 and a small percentage belong to categories 2 to 5 but that a few percent of all reports are consistent with hypothesis 6 or 7.

While it is true that many of BUFORA's members are interested in category 6.A., BUFORA's Research Department welcomes constructive articles and research proposals from anyone whose major interests lie within any of the other categories.

The above list is not exhaustive and may be supplemented or amended as appropriate in the course of time.

	TITLE	AUTHOR	PUBLISHER	EDITION	COMMENTS
GENERAL					
1	Whitakers' Almanac	-	Whitakers		Useful, especially for astronomical information
2	Dictionary of Science and Technology	-	Chambers	1975	Good value in paperback (2 vols.)
3	Letts Science Diary	-	Charles Letts & Co.	Annual	Useful, portable and very comprehensive for its size
4	"Observer Books" (as appropriate)	-	F. Warne & Co.	-	Concise and well illustrated introductions to many subjects inc. Astronomy, Weather and Aircraft
5	"Hamlyn All-colour Paperbacks" (as appropriate)	-	Hamlyn	-	
6	"Time-Life Books" (as appropriate)	-	Time Life Inc.	Pocket 1969	The "Light and Vision" book in the series is essential reading (see Isihara colour-blindness tests on p.127)
7	"Teach Yourself Books" (as appropriate)	-	English Universities Press	-	The book by P. Abbott on Trigonometry is very useful and contains "log-tables"
8	Physical and Mathematical Tables	Various	Various	-	Comprehensive and cheap reference work
ASTRONOMY					
9	Times "The Night Sky"	-	Times Newspapers	Annual	Handy monthly sky charts and events
10	Daily Telegraph "Chart of the Northern Hemisphere"	-	Daily Telegraph	-	Can be mounted on a board for quick reference
PSYCHOLOGY					
11	The Senses	Dr.Lotts Lowenstein	Pelican/Penguin	1st 1966	Very readable
12	Eye and Brain	Dr. L.R.L. Gregory	World University	1st 1966	Essential reading for every investigator. Well illustrated. The chapter on illusions is outstandingly good.

TITLE	AUTHOR	PUBLISHER	EDITION	COMMENTS
PSYCHOLOGY/Cont				
13 Sense and Nonsense in Psychology	Prof. L.H.J. Eysenck	Pelican/Penguin	1958	Interesting chapters on Hypnosis, Lie Detectors, Telepathy and Clairvoyance and personality and conditioning
PARAPHYSICS				
14 The Complete Illustrated Book of Psychic Sciences	W.B. and L.R. Gibson	Souvenir Press	1966	Useful for reference
15 The Occult	Colin Wilson	Hodder & Stoughton	-	Meticulous reference work
16 Notes for Investigators on Spontaneous cases	Society for Psychical Research, London	S.P.R.	1968	Useful
17 Superminds	Prof. John Taylor	Abacus	1975	Prof.Taylor has done research into the "Geller" phenomenon and this book illustrates scientific methods as applied to paraphysical phenomenon
18 The Invisible College	Dr.Jacques Vallee	E.P. Dutton & Co	1975	Excellent review of the overlap between paraphysics and ufology
NATURAL PHENOMENA				
19 UFO's Identified	Philip J Klass	Random House	1968	Klass Propounds theory that UFO's are freak natural phenomena, some uncatalogued by science (plasma and ball lightning)
20 The Taming of the Thunderbolts	Dr.Maxwell Cade and Delphine Davis	Abelard Schuman	1969	Strongly recommended detailed study of ball lightning
21 The World of Flying Saucers	Prof.Donald Menzel and Lyle G.Boyd	Double day (R.G.)	1963	Important in order to obtain a balanced view but authors attempt to explain all UFO reports.

TITLE	AUTHOR	PUBLISHER	EDITION	COMMENTS
UFOLOGY - Special Topics				
22 Scientific Study of UFO's	Dr.E.Condon and the University of Colorado Projects	Bantam	1st 1969	Essential reference work. The following chapters strongly recommended :- SECTION III Chap.2 - Photographic Evidence 3 - Direct Physical evidence 4 - Indirect Physical evidence 5 - Optical and radar analysis SECTION IV All chapters (1-10) dealing with Perception, Conception, Psychological aspect, Mirages, Radar, Balloons, Atmospheric electricity, instrumentation for UFO searches and statistical analysis.
23 UFO's - A Scientific Debate	Drs. Carl Sagan and Thornton Page	Cornell University Press	1972	Expensive but very important. The following chapters are instructive :- 6 - UFO's The Modern Myth (Prof. Donal Menzel) 8 - Motion Pictures of UFO's (Dr. R. Baker) 9 - Sociological Perspectives (Prof. R. Hall) 12 - Abilities and Limitations of witnesses (Prof. F. Drake) 15 - The Nature of scientific evidence (Prof. P. Morrison)

TITLE	AUTHOR	PUBLISHER	EDITION	COMMENTS
UFOLOGY - Special Topics/Cont				
24 The UFO Experience - a scientific enquiry	Prof.J.Allen Hynek	Corgi (Paperback) Abelard-Schuman(R.G.)	1974 1972	Essential reading, particularly:- Chap 4 - Classification of reports and strangeness probability (S.P.) diagram Chap 12 - Review of scientific method used by Condon Project Chap 13 - Recommendations for future research
25 The Humanoids	Edited by Charles Bowen (Editor of Flying Saucer Review)	Neville Spearman	-	Unique report on occupant cases. Essential reading.
26 Physical Traces Catalogue	Ted Philips	Centre for UFO Studies, USA	1975	Unique catalogue and study of world wide physical traces reports
UFOLOGY - General				
27 UFO's and related subjects. An annotated bibliography	Lynn E Catoe	Library of Congress US Government Printing Office, Washington	1968	Excellent bibliography to many important publications and documents
28 UFO's Yes !	Dr.David Saunders and Roger Harkins	Signet	1968	Should be read in conjunction with "Scientific Study of UFO's"
29 The UFO Evidence	NICAP (Washington)	NICAP	-	Very good summary of characteristics with examples
30 Flying Saucers - the startling evidence of the invasion from outer space	Coral E Lorenzen	Signet	1966	The sensational title belies the importance of the contents Ch. 9 (Physical evidence - Ubatuba, Brazil) is illuminating
31 Unidentified Flying Objects	Robert Chapman	Mayflower	1970	Good account of major UFO cases in Great Britain

APPENDIX 17

ADDRESS LIST OF USEFUL NATIONAL SOURCES OF SECONDARY INFORMATION

Name	Address	Telephone No.
Ministry of Defence	S4(Air), Main Building, Whitehall London SW1	01 930 7022
Meteorological Office	London Rd, Bracknell, Berks RG12 25Z	Bracknell 20242
Aerofilms Limited	Elstree Way, Borehamwood, Herts.	01 207 0666
House of Commons	Westminster, London SW1	01 930 6240
Prime Minister's office	10 Downing Street, London SW1	01 930 1234
RAF Air Traffic Control HQ	Uxbridge, London	Uxbridge (0895) 36363
London Airport	Heathrow, London	01 759 4321
Manchester Airport	Ringway, Nr. Wilmslow, Gtr. Man.	061 437 5262
Birmingham Airport	Elmdon, Birmingham	021 743 4747
Cardiff Airport	Rhoose Airport, South Glamorgan	Rhoose 710296
Edinburgh Airport	Edinburgh	031 334 2351
Glasgow Airport	Glasgow	041 887 1111
Royal Aircraft Establishment	Farnborough, Hampshire	0252 24461
Royal Observatory	Herstmonceux, Sussex	032 181 3171
Royal Observatory	Blackford Hill, Edinburgh 9	031 667 332
Royal Radar Estab.	Malvern, Worcestershire	06845 2733
Royal Observer Corps.	HQ. Bentley Priory, Stanmore, Middx.	01 958 6377
Soviet Embassy	(Satellite Info.) 18 Kensington Palace Gardens, London W8.	01 229 3628
USA Consulate	24-31 Grosvenor Square, London W1	01 449 9000
USAF Upper Heyford	Upper Heyford, Oxford	086 932 2331
Fylingdales	Early Warning Station, Yorkshire	
Jodrell Bank	(Radio Telescope) Goostrey, Nr. Holmes Chapel, Cheshire	Lower Withington 321
British Museum	Great Russel Street, London, WC1	01 636 1555
British Museum	(Newspaper Library) Colindale Avenue London NW9	01 205 4788/6039
Police - Scotland Yard	New Scotland Yard, Broadway, SW1	01 230 1212
BBC TV Centre	Wood Lane, London	01 743 8000
BBC Radio	Broadcasting House, London	01 580 4468
ITV Granada	PO Box 494, 36 Golden Sq. London W1	01 734 8080
Press Association	85 Fleet Street, London	01 353 7440

TITLE	AUTHOR	PUBLISHER	EDITION	COMMENTS
UFOLOGY - General / Cont				
32 Anatomy of a Phenomenon	Dr. Jacques Vallee	Neville Spearman	1966	Chapters 4 and 5 are helpful
33 Challenge to Science	Jacques and Janine Vallee	Neville Spearman	1967	Chapter 10 and the Appendices are novel. The bibliography is very good.
34 The Edge of Reality	Prof.J.Allen Hynek and Dr. Jacques Vallee	Henry Regnery	1975	Collaboration between the subject's two most influential scientific proponents

APPENDIX 18

CHECKLIST OF LOCAL SOURCES OF SECONDARY INFORMATION

	Address	Tele.No:
REGIONAL INVESTIGATION CO-ORDINATOR:		
LOCAL UFO GROUP/S:		
POLICE STATIONS:		
AIRPORT:		
WEATHER CENTRE:		
ROYAL OBSERVER CORPS:		
ASTRONOMICAL ASSOCs & OBSERVATORIES:		
LOCAL TV STATION:		
LOCAL RADIO STATION:		
LOCAL PRESS:		

NB Complete the above list with addresses and telephone numbers for your local contacts to serve as quick reference in emergency. Add any further useful addresses in your locality.

APPENDIX 19

BUFORA - General Information

The British UFO Research Association (BUFORA) is an organisation dedicated to the unbiased scientific investigation of the UFO phenomenon. It is open to membership from any person who possesses an open-minded attitude. BUFORA publishes a bi-monthly journal and various special research reports and papers. A regular lecture programme is held throughout most of the year and an annual weekend conference. Membership, as of November 1st, 1976, is £5 per annum.

Membership Secretary: Miss Pam Kennedy
30 Vermont Road,
Upper Northwood
LONDON SE19.

The success of BUFORA depends upon attracting members who are willing to offer practical assistance in certain areas.

1. Investigation

BUFORA depends largely upon its membership to investigate UFO sighting reports. A regional investigation system and an investigator training programme is in operation. All interested parties are requested to apply to become an investigator to the National Investigations Co-ordinator.

2. Research

BUFORA has a research department which has various sub-departments such as the Photographic Analysis and Investigation Department. Research programmes are continuously in operation and the Research Projects Officer is always interested to hear suggestions for any project, or offers of assistance for any current ones. A system of research and investigation advisers is in operation and if any members feel suitably qualified or experienced to assist here they should contact the Research Co-ordinator.

3. Adminstration

There is always a need for people to assist with the work involved in keeping the organisation running smoothly. For example, persons able to translate foreign articles are required. If you feel there is any way at all that you can help in an administration capacity then contact the Secretary for general matters and the Journal Editor for publications. All articles for inclusion in the Journal should be submitted, neatly typed and clearly spaced, to the editor. BUFORA a-so has Regional Liaison Officers who are available to deal with problems from

any member who feels that he is not fully integrated into BUFORA or is not being adequately represented.

You are asked to write DIRECT to the official concerned with the aspect to which you wish to refer. This reduces administration and will speed up the flow of communication. If in any doubt, write to the Secretary (or the Research Director if it is concerned with research).

Secretary:	Miss Betty Wood 6 Cairn Avenue, London W5 5HX.
National Investigation Co-ordinator:	Mr. L. Dale, 11 Wimborne Avenue, St. Pauls Cray, Orpington, Kent, BR5 2NS.
Research Director:	Mr. Anthony Pace, Newchapel Observatory, Newdhapel. Stoke-on-Trent, Staffordshire.
Research Projects:	Mr. Charles Lockwood, 5, The Ridgeway, Farnsfield, Newark Nottinghamshire.
Northern Regional Liaison:	Mr. B. Hartley, 23, Hastings Road, Thornton-le-Fylde, Lancs.
Journal Editor:	Mr. Norman Oliver, 95 Taunton Road, London, SE12 8PA.

(N.B. It would greatly help if a stamped addressed envelope could be included with your communication).

The above list is correct as of 28th February 1979. It is subject to alteration and you are advised to refer to the current edition of BUFORA Journal for any amendments.

REV. 2/79