Great Britain - Home Office - POLICE SCIENTIFIC DEVELOPMENT BRANCH — REPORT 14/72

SYNOPSIS

This report on the work of the Police Research Services Branch and Home Office Central Research Establishment outlines the difficulties in tracing the source of illegal drug manufacture by the present method of laboratory analysis and police action.

The study concentrated on the drug L S D but the findings can equally be applied to other forms of illegal drug activities. In essence, the present methods of prevention rely on a concentrated effort by the police against the user. This person is usually at the extreme end of a complicated distribution chain and action against him does not reduce the amount of drug manufactured and therefore does little to reduce the overall problem.

The system of analysis by the Home Office Regional Forensic Science Laboratories is geared to provide evidence that a suspect substance does or does not contain a drug, and without extensive tests involving both time and manpower they cannot carry out sophisticated analysis to determine the various physical properties indicating a common source of origin to substances submitted at the various laboratories.

The fragmented system of intelligence regarding drugs now operated by the police, laboratories and other Government departments interested in the problem causes delays, inaction and frustration.

From the study it is suggested that a central drug unit should be formed, comprising selected personnel, drawn from all parties interested in the enforcement of drug legislation, operating in close conjunction with a central forensic laboratory capable of carrying out sophisticated drug analysis. The unit would be responsible for collating drug intelligence and taking operational action against the source of selected drugs.

Such a system would not preclude the functions of the present individual police forces' drug squads or of the Regional Forensic Science Laboratories' initial analysis of suspect substances for evidential purposes, but would supplement the system by allowing the central laboratory to analyse in depth selected substances and new preparations from all over the country. It would also allow uncommitted officers to concentrate their activities on the source of selected 'target' much in the same way that Regional Crime Squads concentrate on target criminals.

In addition, a national reference point for the exchange of police and scientific information would be provided which is essential as this problem is international.

The study has indicated the advantages of a centralised system but cannot

be conclusive until an operational organisation is set up to test or carry out the theory propounded.

D/Ch Supt J T F Warren

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INTRODUCTION

1. With the rapid increase in drug abuse over the past decade and the many technical advances in science a meeting was called by the Home Office in June 1971, to consider the use of scientific aids in the detection of drug offences. Representatives from the Home Office Drugs Branch, Central Research Establishment, Customs and Excise, Police Research Services Branch and the Police Service itself attended to discuss methods of dealing with the problem.

2. Owing to the limited resources available it was impossible to consider the whole range of drugs being used illegally, so after discussion it was decided to concentrate the study on one major type of drug, the premise being that any solution appertaining to that drug can equally be applied to other drugs in various degrees.

3. LSD was the drug finally selected for the study as its increased abuse within this country is of great concern. The rate of known increase is reflected in the number of convictions for offences involving the drug.

Year	1969	1970
No. of Cases	159	757

There is every probability of a considerable increase in the 1971 figures.

4. The drug LSD first appeared in this country during the early 1960's and until recently was mainly imported from illicit laboratories abroad. However, the United Kingdom has rapidly acquired a reputation for manufacturing the drug for both internal use and export. Despite this, little success has been achieved in tracing illicit laboratories in this country, to date only 4 have been detected, the most recent in 1969, although evidence of large scale manufacture having taken place in this country since that time is available.

5. Police activities within the drug field have tended to be directed towards the users of the drug rather than illegal manufacturers. Such activities do not effectively reduce the drug problem but tend to show

the growing distribution patterns from unidentified sources. The police, under the present system, are handicapped in a number of ways and part of the proposed study was to identify the problems of the present system and examine methods of providing information and techniques whereby action could be taken against the source of supply. The hypothesis being that if the source of supply could be curtailed this would result in fewer persons using the drug and enable the police to concentrate their efforts on the smaller number of professional 'pushers' and manufacturers.

6. This report deals with the combined studies of the Police Research Services Branch and the Home Office Central Research Establishment into this problem. A separate report dealing purely with the scientific contribution has been prepared by the Central Research Establishment and circulated independently.

PRESENT SYSTEM

7. To understand the reason for the study it is necessary to examine the present system of dealing with drug offences to identify its limitations and to suggest areas where research may assist.

8. At present there are 47 police forces in England and Wales and a further 20 in Scotland; added to these are police forces in Northern Ireland and the Channel Islands.. Some of these forces have full time drug squads others do not. The degree of police activities against illegal drugs traffic is a matter of force policy and there are very few concerted efforts by forces against any particular type of drug or manufacturer.

9. Drugs coming into the possession of the police in England and Wales are normally sent to the appropriate Home Office regional forensic science laboratory for analysis. The result of such analysis is usually confined to the dimensions, weight and colour of the substance and confirmation of the presence of a drug. This is sufficient for police evidential value. The result of an examination is not generally passed to other laboratories, or police forces except by local arrangements, conferences or casual conversation, this produces a time lag in the passing of the information which detracts from its usefulness.

10. A similar state of affairs exists in relation to police intelligence on suspected persons or property, and without a co-ordinated system of recording matters relating to drugs there is no easy way an officer can check on the many snippets of information he picks up when dealing with drug enquiries. This lack of a centralised system has been the subject of much comment in all areas dealing with law enforcement. Accordingly the Home Office drugs branch and Customs and Excise keep their own records some of which are duplications. Others are of great interest to all parties concerned.

11. The present system measures the success of police operations against unlawful drug activities by the number of persons reported for offences. This tends to encourage operations against the user of drugs rather than the manufacturer as it is more rewarding in terms of numbers. The user is frequently at the end of the distribution chain and by concentrating on this point it becomes extremely difficult to obtain information leading back to the source.

12. The forensic science laboratories having established the presence of a drug in a suspected substance is usually sufficient evidence for the police to take action against the person concerned. The significance of other information obtained, such as areas visited, time and date of visit, associates, addresses and background, is not always recognised by the officer dealing with the case as he is often unaware of factors which have a common link. Sometimes having obtained a conviction, the officer is too busy to follow up the apparently less fruitful areas.

13. A laboratory or police officer may recognise that a drug is appearing in their area in a new form but there is relatively no reference readily available to say whether it is a completely new form of drug preparation or whether it has previously been recorded elsewhere but it is making its first appearance in that district. This type of information linked with the facts of manufacture and distribution pattern together with intelligence gleaned through police sources could help in providing clues as to the source of manufacture.

14. From the foregoing paragraphs it will be seen that a number of problems existed which posed the following questions:

a. How to recognise drugs from a common origin?

b. Should scientific information at regional forensic science laboratories be co-ordinated?

c. How could police intelligence on drugs and suspects be co-ordinated?

d. What further information could be obtained from analysis of suspect substances?

e. How could action be taken against the source as well as the user?

EXPERIMENTAL CONSIDERATIONS

15. Before the present study was considered the Home Office had recognised the rising trends in the use of the drug LSD, and from June 1970 returns from the regional laboratories were submitted showing details of all LSD seizures. These returns were submitted through the Central Research Establishment at Aldermaston to the Home Office Dangerous Drugs Branch in a form shown in Appendix I.

16. During the first 6 months of notification of LSD preparations submitted to the regional laboratories the following information was recorded:

No. of Cases	Form
380	Tablets
101	Capsules
13	Powders
21	Other preparations (Blotting paper, sugar cubes, matchsticks etc)
Total 515	

Although this type of information was of a statistical value and allowed the broader trends of the abuse of LSD to be plotted it was not of sufficient recent origin to be useful in police operations.

17. Any experimental study had to be designed to achieve a rapid reporting and co-ordination of national information which would include laboratory and police intelligence so that attempts could be made to establish early warnings of new trends and provide indications as to

the source. Facilities had to be available for suspect substances to be further examined to identify common manufacturing origin by physical properties including analysis of excipients.

18. Subsequently, two experimental studies were designed to meet these requirements, the first was run as a feasibility study to produce areas for further consideration and as a consequence the second study developed. The results of these studies are reported later.

19. A team of scientists from the Central Research Establishment at Aldermaston comprising the Director, Dr A S Curry and 2 of his staff, Dr D A Patterson and Mr P J Gomm undertook the task of co-ordinating information received from the regional forensic science laboratories and performing more detailed analysis of selected substances. Det Chief Superintendent Warren of the Police Research Services Branch was responsible for co-ordinating the police intelligence and maintaining liaison with the Central Research Establishment.

EXPERIMENTAL STUDY NO. 1

20. This study was run over a period of 9 weeks from 26 July 1971 to 1 October 1971.

21. By reference to the most recent notifications of LSD cases to the Home Office by the regional laboratories, and by consultation with personnel at those laboratories and the laboratory of the Government chemist, 3 types of LSD preparations were selected as possible new trends in the early stages of circulation within the United Kingdom. These 3 types were to be named 'target preparations' about which the maximum information from all sources was to be rapidly collected.

22. The 'target preparations' on this occasion, were all tablets and their descriptions were as follows:

1. Yellow 6.0mm x 2.0mm - round, flat on both sides, half scored, of approximate weight 70 mg.
2. Red, 6.5mm x 4mm - round, bi-convex, of approximate weight 100 mg.
3. Speckled, various colours (mainly blue, pink, orange, green) 5mm x 1.5mm - round, flat on both sides, approximate weight 30-40 mg.

23. Samples of the tablets, together with explanatory letter (Appendix II) were sent to all laboratories. In addition, samples of the tablets were sent to the Special Testing Laboratory of the US Bureau of Narcotics and Dangerous Drugs (BNDD). Their report on the tablets is shown in Appendix III. All chief constables in England and Wales were approached seeking their co-operation in the exercise (Appendix IV).

24. The method adopted was that as soon as a tablet, appearing identical with one of the 3 'target preparations', was submitted to any laboratory for analysis the police officer dealing with the case would contact Det Chief Supt Warren at the Police Research Services Branch, who would record all pertinent information regarding the seizure, suspect and associates. The Central Research Establishment would be informed so they could carry out further analysis if necessary.

25. Details of the total number of LSD preparations submitted to the Forensic Science Laboratories during the period of the first experimental study are shown in Table I together with the proportion of the total which comprised of 'target preparations'.

TABLE I

Form	Total Cases	Target Preparations		
		Yellow	Red	Speckled
Tablets	224	2	9	26
Capsules	12			
Powder	4			
Others	15			

26. The above table shows that of the 224 tablet cases submitted to the regional laboratories during the period of the first experiment only 16.5% fell within the category of 'target preparations'. The numbers were considered too small to provide any positive results so details of all 'target preparations' submitted to the laboratories prior to the experiment were obtained. This resulted in the position shown in Table II.

TABLE II

Cases of yellow tablets notified Before Study/During Study		Cases of red tablets notified Before Study/During Study		Cases of speckled tablets notified Before Study/During Study	
12	2	2	5	79	31

27. The 'target preparations' were first seen at the laboratories on the following dates:

Yellow	1 May 1971
Red	1 July 1971
Speckled	4 February 1971

In the case of the red tablets the two seizures before the study related to a quantity of 898 tablets whereas the subsequent seizures after the commencement of the study concerned relatively small numbers of tablets. From this data it was concluded that the peak of the distribution was prior to the commencement of the study. This indicates how difficult it is to predict trends with a fragmented system of reporting. As will be seen from Appendix III both the yellow and red tablets had been seen in America but the speckled tablets were unique to this country at that stage. Most regional laboratories had seen the speckled tablet and considered it a coming trend, when, in fact, the centralised picture showed it had passed its peak. Full details as to the number and type of tablet involved are shown in Appendix V together with the date and police areas in which they were seized.

28. Police information regarding the facts of the seizure and details of the person concerned together with his associates were collected on a form Appendix VI and then cross indexed in a card file to see if any common factors arose. No significant facts were found in the majority of cases, but this was probably due to the large proportion of cases where only a small number of tablets were involved indicating that the person concerned was at the very end of a long distribution chain. Due to the scant information in this type of case little or no effort could be made by the police to trace the source.

29. One or two cases produced evidence that the person concerned was an intermediatory in the distribution chain but police activities in following up information from these sources depended greatly on the initiative of the officer in the case or the officer to whom the information was passed. In the main, the value of the fragmented pieces of information could not be fully appreciated as the officer in the case did not have a picture of the whole distribution pattern. Some lack of action could be attributed to force policy which confined activities within a restricted area or paid greater attention to the number of arrests within the force area. Another factor which inhibited action was the lack of confidence on the part of some officers in their colleagues in some other forces.

30. During the course of this initial study uncertainty arose as to whether a number of the tablets notified as coming under the speckled category, had come from a common manufacturing origin. Selected samples were forwarded to the Central Research Establishment for further analysis. The initial examination showed that they were similar in weight, size and shape but differed in colour. More sophisticated analysis revealed that the tablets could be grouped into various types. Full details of the examination are given in Appendix VII.

31. The results of this feasibility study indicated the need to eliminate the large number of petty cases if any meaningful attempt is to be made to concentrate on a particular 'target preparation' and its source. On the assumption that the more tablets a suspected person has in his possession, the greater the chance of his being closer to the source of supply and therefore producing a higher quality of information, a second experiment was designed.

EXPERIMENTAL STUDY NO.2

32. To counteract the number of disadvantages in the 'target preparation' approach used in the first study the regional laboratories and police were asked to

a. notify all seizures involving more than 50 LSD tablets, and
b. forward to the Central Research Establishment 10 of the tablets seized for further comparative analysis.

These 2 modifications weeded all the minor cases but left sufficient numbers for the Central Research Establishment to analyse thoroughly

and by concentrating on the seizures of over 50 tablets the information regarding the source was likely to be more reliable.

33. The second study ran for a period of just over 11 weeks from 11 October 1971 to 31 January 1972, during which time 22 notifications were received. The table below shows the details of all LSD preparations examined by the laboratories during the time of the second study.

TABLE 3

Form	Total Cases	Cases with over 50	Cases over 50 notified
Tablets	227	37	22
Capsules	15		
Powder	2		
Other	70		

34. The discrepancy between the number of cases involving over 50 tablets and the number actually notified is accounted for by one laboratory failing to report details on 9 cases; the remainder were made up of cases occurring at the beginning of the second study when 6 cases were missed due to administrative misunderstandings.

35. The results of the examinations and analysis of the 22 cases are shown in Appendix VII. These results show that the 22 cases comprised 11 different types. Eight of these types were sent to the Bureau of Narcotics and Dangerous Drugs for comparison with tablets seen in America. Only 3 of the 8 types compared had been seen there previously. This indicated a source of manufacture in this country or Europe. Unfortunately, as far as we are aware, no similar arrangements exist for comparing LSD preparations in Europe as there is no central agency for this purpose. The importance of being able to check a substance with records throughout the world to obtain the date and place of its first appearance and in what quantities it has appeared cannot be over-emphasised when attempting to trace a source and mount appropriate preventive action.

36. As a result of the second study new trends were quickly identified and during this period 2 types (a) the tablet known as the blue "micro-

dot" and (b) the tablet known as the pink 'disc micro-dot', came to light, followed shortly after the end of the study, by the pink cube and now a black 'micro-dot'.

37. The blue 'micro-dot' was first seen during September 1971 and within a month had been recorded at most regional laboratories. At the end of December 1971 the pink disc made its appearance and within 3 weeks had been noted in various quantities by 9 out of the 13 regional laboratories. The pink cubes and black discs have subsequently produced a similar distribution pattern.

38. One of the 11 preparations encountered during this second experiment was found to have phencyclidine and procaine present in addition to LSD which presented certain difficulties in analysis. Five laboratories notified seizures of this preparation within a 48 hour period. Two laboratories quickly developed procedures to solve the analytical problem and enabled all laboratories to be duly circulated with information.

39. The centralised system of reporting and analysing produced a quick recognition of trends and allowed difficulties in analysis to be appreciated and rectified more efficiently. The exchange of information stimulated interest and ideas for further experimentation and action.

40. Information collected from police sources was in a similar manner to the first study. Appendix V shows that in 11 out of the 22 cases notified the preparations were obtained from the London area but the lack of operational facilities prevented this information being thoroughly checked to test its potential in producing evidence leading to the source. However, a meeting was called of persons from the Police, Home Office Drugs Branch and the Customs and Excise who appeared to have information regarding the blue 'micro-dot'. By pooling the knowledge each representative had regarding this preparation the following picture emerged which was not fully appreciated by any one member prior to the meeting, although some members had similar pieces of the story which would tend to corroborate the story or produce areas for further investigation.

41. From the co-ordinated intelligence in respect of the 'micro-dot' it would suggest that an organisation existed for manufacturing up to 400,000 tablets for distribution throughout the United Kingdom and export to Sweden, Denmark and Germany. The shape and colour of the tablets were being deliberately changed at frequent intervals as a form of control, as the LSD deteriorates with time under certain conditions of exposure to light and air. The information was that laboratories were being set up in the provinces at premises which are rented on a 'once only' basis with new locations being found for the manufacture of each new batch. The whole operation was conducted under very strict security measures so that the location of the illegal laboratory is known only to those at the top of the organisation who in turn are known only to a few trusted colleagues. From this it will be seen that the likelihood of present police operation detecting a source is highly improbable and will rely mainly on chance. Only rapid collation of intelligence respecting a specific preparation supported by immediate police action would stand any chance of success.

42. The information obtained through intelligence sources is supported to some extent by the study undertaken, in that the study revealed that batches of LSD are distributed in new forms in cycles of about 3 monthly intervals. Large amounts appear to be manufactured at a time and distributed throughout the country within 3 to 4 weeks, as shown by their appearance at most regional laboratories within this period. Evidence of exports has not been checked with Europe and Scandinavia but during the study period 2 men were arrested in Australia on 29 January 1972, in possession of a large quantity of blue 'micro-dots'. These men had travelled from the United Kingdom and were suspected of importing as many as 30,000 of these tablets into Australia during January 1972.

43. The second study led to the conclusion that a centralised system was advantageous and could produce information from both the laboratories and the police on which action could be taken to trace the source of selected drugs, but no advantage could be gained in extending the study until steps were taken to form an organisation capable of pursuing this information operationally. This could be achieved by a small group of uncommitted police officers being attached to a central laboratory, and as soon as a new trend is recognised by the laboratory concentrating their activities on collating all evidence relating to the particular

preparation and physically checking immediately all information likely to lead to the source. This could form part of an extended study or the nucleus of a new system.

DISCUSSION

44. By reason of the studies undertaken it was found that it is usual for a suspected substance to be submitted to the regional laboratories within 1 to 2 days of the seizure, whilst at the same time the police have the majority of their information regarding the suspects etc. The procedure adopted in the 2 experimental studies provided a fairly rapid means of concentrating information at a central point.

45. The 'target preparation' approach adopted in the first experiment has the inherent disadvantage of concentrating attention on preparations which may not have been manufactured in this country but were selected because of their sudden appearance in increasing numbers.

46. During the second experiment, only relatively large seizures were notified and this had the disadvantage of hiding the beginnings of a new trend. To alleviate this, a possible modification would be to ask for notification at a central laboratory of

a. seizures of over 50 preparations,

b. preparations seen at the laboratory for the first time regardless of quantity.

47. Both studies indicated the need for a centralised system incorporating both the police and the laboratories working in close liaison to produce rapid information of new trends on which action may be taken. Such a system would enable an intelligence record to be compiled in respect of certain drugs. It would be able to identify 'target' drugs showing their distribution patterns, methods of production together with persons and places connected with the specific preparation. Such a system would provide a central reference point for all persons connected with drug law enforcement both within this country and abroad thus enhancing the exchange of valuable operational and analytical information. A special operational team of police officers are required to concentrate on the problems arising. The police unit must have the ability to pursue and

act independently upon information regarding a particular preparation in an endeavour to trace the source. On the recommendations of a centralised information system a preparation should be labelled 'target' and just as the Regional Crime Squads take action against a target criminal so the Drug Unit would take action against a 'target' drug.

48. The central drug laboratory can develop further techniques of analysis such as micro-spot, crystal and optical crystallographic tests together with comparisons by the type of quality control carried out by the pharmaceutical industry (eg for hardness, disintegration time and friability). Liaison could be set up by a central laboratory with drug agencies throughout the world for an exchange and publication of information in a form used by the Bureau of Narcotics and Dangerous Drugs in the United States. (Appendix IX)

49. In suggesting the formation of a central laboratory it is not anticipated that the functions of the regional laboratories would change in the performance of the initial normal analysis of drugs, the only difference being the reporting of certain matters and the forwarding of selected material for further analysis to the central laboratory.

50. Finally any national intelligence unit for drugs should be supported by the police, customs and excise, Home Office drugs branch and any other agency having enforcement duties so that fragmented intelligence is reduced to the minimum. Consideration would have to be given to accommodating Scotland and Northern Ireland in any proposed scheme.

ACKNOWLEDGEMENTS

51. In undertaking this study the thoughts and opinions of many people involved in the enforcement of law relating to drugs have been taken cognisance of and many are in support of a system broadly set out in paragraphs 47-50. I wish to acknowledge the help and assistance given by Dr A S Curry, Director of the Central Research Establishment and his staff of Dr D A Patterson and P J Gomm; all Chief Constables and their staff, especially the drug squads; the co-operation and advice from the Directors and staff of all Home Office Regional Forensic Science Laboratories, H B Spear Esq, Home Office Drugs Branch, S Charles Esq, Customs and Excise and J Gunn Jnr of the Bureau of Narcotics and Dangerous Drugs.

J T F Warren Det Chief Supt
Police Research Services Branch

BIRMINGHAM LABORATORY

LSD seizures for the period 1 February to 28 February 1971

Case Number	Dosage form (Tablets, capsules, etc)	Description (colour, size shape)	Number or Quantity seized and other observations
221/71	Tablets	Colour-mottled pink Dia: 5 mm Shape - Plan view - Round Side view - Biconvex	No. 2 Average weight - 42 mg Average LSD content - 151 µg
246/71	Fragments of tablet	Colour - light brown	14 mg LSD content - 22 µg
247/71	Capsule	Colour - Capsule coating - colourless Powder - white Size - No. 3	No. 1 Weight of contents - 80 mg LSD content - 206 µg
247/71	Tablets	Colour - orange Dia: 10 mm Thickness - 6 mm Shape - Plan view - Round Side view - flat	No. 2 Average weight - 300 mg LSD content - 142 µg
264/71	Tablets	Colour - light brown Dia: 5 mm Shape - Plan view - Side view - Biconvex	No. 12 Average weight - 66 mg LSD content - 183 µg
277/71	Tablets	Colour - pink Dia: 5mm Shape - Plan view - Round Side view - flat	No. 2 Average weight - 50 mg Average LSD content - 170 µg
277/71	Tablets	Colour - White Dia: 5 mm Shape - Plan view - Round Side view - flat	No. 2 Average weight - 70 mg Average LSD content - 152 µg
277/71	Fragments of tablet	Colour - Pale green	Weight - 18 mg LSD content - 22µg
367/71	Tablets	Colour - pink Dia: 5 mm Shape - Plan view - Round Side view - Biconvex	No. 2 Average weight - 59 mg LSD content - 164 µg

BIRMINGHAM LABORATORY

LSD seizures for the period 1 February to 28 February 1971 (contd)

Case Number	Dosage form (Tablets, capsules, etc)	Description colour, size shape)	Number or Quantity seized and other observations
427/71	Tablets	Colour - White Dia: 5.6 mm Shape - Plan view - Round Side view - Flat	No. 20 Average weight - 68 mg Average LSD content - 147 µg
427/71	Capsules	Colour - Capsule coating - colourless Powder - White Size - No. 3	No. 7 Average weight - 78 mg Average LSD content - 209 µg
427/71	Tablets	Colour - Pink Shape - Plan view - Square 3 mm x 3 mm Edge - 1 mm thick	No. 76 Average weight - 17.8 mg Average LSD content - 107 µg
439/71	Capsule	Colour - Capsule coating - Colourless Powder - White Size: No. 5	No. 1 Weight of contents - 73 mg LSD content - 183 µg
459/71	Capsule	Colour - Capsule coating - Colourless Powder - White Size - No. 5	No. 1 Weight of contents - 110 mg LSD content - 206 µg
490/71	Tablets	Colour - White Dia: 5 mm Thickness - 3 mm Shape - Plan View - Round Side view - Flat	No. 2 Average weight 66 mg LSD content - 183 µg

MRL
2 March 1971

(COPY)

APPENDIX II

HOME OFFICE
Central Research Establishment
Aldermaston, READING, Berks.
Telephone: Tadley 3833/4, ext. 5853
STD Code 0735 6

Please address any reply to
THE DIRECTOR
and quote: CRE/LHOL/46
Your reference:

20 July 1971

The Directors of all Regional Forensic Science Laboratories

Dear Director

CONFIDENTIAL

Following discussions between Dangerous Drugs Branch, the Police Scientific Development Branch, the Forensic Science Adviser and the Central Research Establishment, it has been decided to mount a joint research project into the use of intelligence in the investigation of drugs offences.

I write to seek your co-operation.

You will find enclosed specimens of 3 types of tablets containing LSD. With effect from Monday 26 July would you please ensure that the police officer in the case involving examples of these particular tablets telephones as soon as possible Chief Superintendent Warren on 01 834 6655 extension 677 who will collate police intelligence.

The tablets have been chosen as being relatively new on the scene and have national coverage.

The police officer should ring Mr Warren as soon as possible and NOT wait for laboratory confirmation that the suspected tablets contain LSD. If it later transpires that the suspected tablets do NOT contain LSD I would be grateful if the scientist in the case could ring Mr Warren.

The project will be reviewed in 3 months' time.

Thank you for your co-operation.

Yours sincerely

ALAN CURRY (Signed)

Copies to: E G Davies
H B Spear
Chief Superintendent Warren
Mr Charles, Customs and Excise

APPENDIX III

Mr William J Collins SAIC
London District Office
Region 17

OCT 18 1971

Program Manager
Laboratory Division

Ballistic Examination

Ballistic Lab No. S-1784

Ballistic examinations have been completed on the blue, yellow and pink tablets you forwarded to us in August, 1971. As you know, these tablets were received from New Scotland Yard officials, London.

The blue tablets were found to be unlike any in our reference collection and could not be identified as to manufacturing source. They were made on a set of punches 3/16th inch in diameter having round, flat unscored surfaces. Excipients include a large amount of glucose hydrate and a small amount of talc.

The yellow tablets were made on a single station tableting machine equipped with a set of 1/4th inch diameter punches. The punches are round, flat and unscored on one surface. Tablet excipients include a large amount of amorphous proteinaceous material (believed to be powdered skim milk), and small amounts of sucrose, corn starch and dolomite.

We have examined five other exhibits containing tablets from this clandestine tableting source. The initial exhibit, consisting of 20,500 orange tablets, were purchased for 18 cents per tablet in San Francisco, California on February 5, 1971. Each tablet contains approximately 130 micrograms of LSD. Two of these exhibits totalling 823 yellow tablets were purchased in Boston, Massachusetts on April 19 and 21, 1971. One of these exhibits, consisting of eight tablets, was purchased for $1.00 per tablet and each tablet contains approximately 160 micrograms of LSD. The other exhibit of 820 tablets each containing 130 micrograms of LSD, was purchased for 39 cents per tablet. Then in September, two exhibits were received from the Commonwealth Bureau of Narcotics, Department of Customs and Excise,

Canberra, Australia. Some of these tablets were yellow, others cherry-red and the Australian officials found these tablets to contain approximately 200 micrograms of LSD each. Additional information on tablets from this clandestine source is shown in Teble 116, a copy of which is attached.

The pink tablets (lavender) were manufactured on a multiple station. tableting machine equipped with a set of 1/4th inch diameter punches. The punches are round, biconcave and have unscored surfaces. Tablet excipients include a large amount of amorphous proteinaceous material (believed to be powdered skim milk), and small amounts of calcite and corn starch. Information on other exhibits that have contained tablets from this clandestine manufacturing source is shown in Table 148, a copy of which is attached.

Regarding future submissions, we would appreciate it if you could obtain certain information surrounding the collection of the exhibit being submitted for examination. The information we would like to have is shown in the attached tables and include such information as the subject's name, the date purchased, the potency per tablet if known, place purchased, and the amount paid for each tablet.

Original signed by
Donald W Johnson

Donald W Johnson

Attachment

(CO-)

U S DEPARTMENT OF JUSTICE BUREAU OF NARCOTICS AND DANGEROUS DRUGS

ANALYST WORKSHEET	1. PRODUCT LSD Tablets		2. GEN. FILE Drug Samples
3. DEFENDANT Not given.			4. REGION AGENCY Region 17 London D O
5. SEALS Intact BND-14	6. DATE RECD 8-31-71	7. RECD FROM Region 17	8. REGIONAL LAB REFERENCE S-1784

9. DESCRIPTION OF EVIDENCE
A BND-14 sealed "W J Collins SAIC London D/O", enclosing a smaller insulated manila envelope sealed with a stapler and clear, plastic tape and enclosing a small brass-colored metal box marked "Sample LSD Tablets from CRE", enclosing a tiny, heat-sealed plastic bag enclosing three tablets.

10. SUMMARY OF ANALYSIS Blue Tablet: one aqua, round, flat, unscored tab.; wt. - 29.8 mg.; diam - 4.87 mm. (3/16"); thickness - 1.27-1.28 mm. Edge of one surface ridged with tiny, oblique lump and also a gouge at edge. Tab. thickness uneven and surfaces are therefore, not level or parallel. Edges eroded and/or chipped.

Excipients: Glucose hydrate-large amt.; Talc and unidentified material-very small amount.

Tab. is unlike any in our reference collection.

Yellow Tablet: one round, flat, single-scored, yellow tablet; surfaces mottled with deeper yellow and have embedded clear fragments. Edge of upper (scored) surface round-beveled and lipped. Lower surface very slightly concave. Weight - 67.2 mg.; diam. - 6.48-6.49 mm (1/4"); thickness - 1.74 mm. Tab. has very faint straight striations near edge of lower face. Groove is shallow, V-shaped in cross-section. With flat bottom, widening slightly at ends and merging with lip; groove angle-ca, 99 degrees; width-ca. 1.16 mm.; depth-ca. 0.29 mm.

Excipients: Amorphous proteinaceous material-large amt.; sucrose, corn starch, and dolomite-small amounts.

Tab. was made with the same single pair of punches as R3-71-0014, Exh. 1 (S-0888) (W.S. dated 3-3-71).

Pink Tablet: one lavender (pinkish purple), round, biconvex, unscored, unbeveled tab; edges ridged, one edge more markedly so, in the form of an up-turned lip. Other surface has a very faint raised concentric ring slightly inward from edge and a faint tiny lump just inside ring. Wt. - 109.9 mg.; diam. -6.44-6.45 mm (1/4"). Center thickness-3.23-3.24 mm.; edge thickness-ca. 2.2-2.4 mm.

Excipients: amorphous proteinaceous material-large amount., calcite-small amt., corn starch-very small amt.

Tab. was made with the same multiple punch set as G3-71-0008 Exh. 4 (S-1479) (W.S. dated 7-8-71).

11. RESERVE EVIDENCE
Ca. 2/3 tab. of each type Blue tab-placed in collection; yellow tab. -to vault for disposal; pink tab. -to vault for disposal

APPENDIX IV

POLICE RESEARCH SERVICES BRANCH
HOME OFFICE
Horseferry House Dean Ryle Street London SW1

Telephone 01-834 6655 ext

To all Chief Constables

Your reference

Our reference

Date 26 July 1971

Dear Chief Constable

APPLICATION OF SCIENTIFIC AIDS TO THE DETECTION OF DRUG OFFENCES

The Police Research Services Branch of the Home Office in conjunction with the Home Office Central Research Establishment and the Home Office Drugs Branch are at present undertaking a feasibility study to determine whether specialised analysis of certain drugs can provide information as to the method and source of manufacture of the drug which together with police intelligence could assist operational work.

It is suspected that a large proportion of the drug L.S.D. comes from a limited number of sources and the purpose of this exercise is to discover whether these sources can be traced by a cooperative effort of scientific and operational intelligence. An initial experiment is being arranged whereby the Forensic Science laboratories throughout the country will notify the Central Research Establishment of certain types of L.S.D. submitted by the police for analysis. The selected types will be forwarded to the Central Research Establishment for further sophisticated examination in an effort to obtain information which might indicate the method of manufacture and source.

The findings will be made known to the Police Research Services Branch who have undertaken to coordinate the exercise and obtain from the police officer in the case all relevant information that might be of further use in determining a common factor indicating a specific line of enquiry which could lead to the source of manufacture. To this end it will require certain flexible information about each case dependant on the type of drug found and it is considered that this information can be best obtained from the officer in the case mainly over the telephone, this will enable the questions to be varied according to the finding of the scientists or from other information obtained.

My purpose in writing is to seek the co-operation of your Force and its officers in this study should suitable cases arise. Detective Chief Superintendent Warren of this Branch will be responsible for the collation and collection of police information and should your officers have any queries or suggestions in respect of this scheme they should contact Detective Chief Superintendent Warren at 01-834-6655 ext 677.

Yours sincerely

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Yours sincerely

DIRECTOR

APPENDIX V

DETAILS OF TABLETS NOTIFIED IN EXPERIMENTAL STUDY NO: 1

GROUP I: YELLOW TABLET 6.0 mm x 2.0 mm - ROUND, FLAT ON BOTH SIDES HALF SCORED, OF APPROXIMATE WEIGHT 70 mg

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
9	Yellow	Hampshire	1.5.71	Not Known
95	"	West Yorkshire	1.5.71	London
7	"	Bristol	8.5.71	London
11	Green	Durham	12.5.71	Not Known
1	Yellow	Devon & Cornwall	29.5.71	Not Known
9	Yellow	Gwent	29.5.71	Not Known
2	"	Devon & Cornwall	31.5.71	Not Known
494	"	Metropolitan	Before 26.7.71	Not Known
4	"	Metropolitan	Before 26.7.71	Not Known
1	"	Metropolitan	Before 26.7.71	Not Known
4	"	Metropolitan	Before 26.7.71	Not Known
32	"	Metropolitan	Before 26.7.71	Not Known
1,400	"	Lincolnshire	26.7.71	Not Known
2	"	Derby	9.9.71	Derby

GROUP II: RED TABLETS 6.5 mm x 4 mm - ROUND, BI-CONVEX, OF APPROXIMATE WEIGHT 100 mg

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
2	Red	Metropolitan	1.7.71	London
896	Red	Thames Valley	25/27.7.71	Reading
95	Pink	Lincolnshire	26.7.71	Not Known
2	Pink	Durham	29.7.71	South Shields
2	Red	Leeds	30.7.71	Not Known
14	Pink	Metropolitan	31.7.71	Kingston
44	Pink	Liverpool	14.9.71	Not Known

GROUP III: SPECKLED VARIOUS COLOUR TABLETS (BLUE, PINK, ORANGE, GREEN) 5 mm x 1.5 mm - ROUND, FLAT ON BOTH SIDES, APPROXIMATE WEIGHT 30-40 mg.

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
2	Pink	Birmingham	4.2.71	Not Known
1	Orange	Devon & Cornwall	17.4.71	Plymouth
14	White	Warwickshire & Coventry	6.5.71	Not Known
121	Pink	Warwickshire & Coventry	6.5.71	Not Known
7	Orange	Warwickshire & Coventry	12.5.71	Not Known
300	Green	Northumberland	12.5.71	Not Known
5	Pink	Mid-Anglia	12.5.71	London
100	Pink	Birmingham	13.5.71	Birmingham
11	Green	South Wales	14.5.71	Not Known
1	Green	Lincolnshire	14.5.71	Not Known
2	White	Lincolnshire	14.5.71	Not Known
10	Orange	Devon & Cornwall	19.5.71	London
16	Pink	Nottingham	21.5.71	London
10	Pink	Nottingham	21.5.71	London
4	Blue	Devon & Cornwall	22.5.71	St Ives
6	Blue	Durham	27.5.71	South Shields
2	Green	Durham	28.5.71	Sunderland
30	Yellow	Gwent	28.5.71	Cardiff
80	Blue	South Wales	28.5.71	Cardiff
4	Red	Lincolnshire	30.5.71	Boston
61	Blue	Durham	31.5.71	London
28	Blue	Nottingham	6.6.71	Not Known
1	Pink	Nottingham	7.6.71	Not Known
1	Pink	Nottingham	10.6.71	Nottingham
4	Blue	Nottingham	11.6.71	London
6	Blue	Devon & Cornwall	11.6.71	Not Known
18	Blue	Devon & Cornwall	12.6.71	Bromley
13	Pink	Norfolk	12.6.71	London
26	Blue	Norfolk	12.6.71	London
16	Orange	Devon & Cornwall	13.6.71	Not Known
1	Green	Durham	15.6.71	London
5	Blue	Devon & Cornwall	18.6.71	Not Known

GROUP III (Continued)

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
100	Blue	Northumberland	19.6.71	Durham
30	Blue	Durham	19.6.71	South Shields
1	Blue	Devon & Cornwall	13.7.71	Not Known
1	Blue	Leeds	15.7.71	Not Known
1	Blue	Kent	18.7.71	Not Known
31	Blue	Kent	20.7.71	London
1	Blue	Hampshire	23.7.71	Southsea
8	Blue	Thames Valley	25/27.7.71	Not Known
12	Blue	Thames Valley	25/27.7.71	Not Known
1	Blue	Thames Valley	25/27.7.71	Not Known
45	Blue	Thames Valley	25/27.7.71	Not Known
25	Pink	Thames Valley	25/27.7.71	Not Known
8	Blue	Thames Valley	25/27.7.71	Not Known
16	Blue	Thames Valley	25/27.7.71	Not Known
6	Blue	Thames Valley	25/27.7.71	Not Known
7	Blue	Thames Valley	25/27.7.71	Not Known
1	Blue	Thames Valley	25/27.7.71	Not Known
1	Blue	Thames Valley	25/27.7.71	Not Known
1	Blue	Thames Valley	25/27.7.71	Not Known
2	Blue	Thames Valley	25/27.7.71	Not Known
21	Pink	Metropolitan	Before 26.7.71	Not Known
2	Pink	Metropolitan	"	"
1	Pink	Metropolitan	"	"
7	Orange	Metropolitan	"	"
84	Brown	Metropolitan	"	"
1	Orange	Metropolitan	"	"
7	Pink	Metropolitan	"	"
6	Brown	Metropolitan	"	"
1	Brown	Metropolitan	"	"
2	Green	Metropolitan	"	"
26	Brown	Metropolitan	"	"
15	Blue	Metropolitan	"	"

GROUP III (Contd)

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
5	Pink	Metropolitan	Before 26.7.71	Not Known
6	Blue	Metropolitan	"	"
1	Green	Metropolitan	"	"
2	Blue	Metropolitan	"	"
2	Blue	Metropolitan	"	"
12	Brown	Metropolitan	"	"
29	Brown	Metropolitan	"	"
30	Brown	Metropolitan	"	"
5	Green	Metropolitan	"	"
6	Green	Metropolitan	"	"
75	Green	Metropolitan	"	"
23	Green	Metropolitan	"	"
91	Green	Metropolitan	"	"
3	Blue	Surrey	27.7.71	London
5	Orange	Staffs & Stoke	27.7.71	Not Known
83	Green	Metropolitan	"	"
26	Pink	Staffs & Stoke	"	"
54	Blue	Durham	"	"
3	Blue	Surrey	1.8.71	London
1	Blue	Devon & Cornwall	3.8.71	Not Known
10	Blue	Cheshire	4.8.71	Not Known
9	Blue	Metropolitan	4.8.71	London
30	Blue	Cheshire	4.8.71	Manchester
1	Orange	Leeds	5.8.71	Not Known
457	Blue	Manchester & Salford	5.8.71	Not Known
10	Blue	Nottingham	5.8.71	Not Known
193	Brown	Nottingham	5.8.71	Not Known
35	Pink	Nottingham	5.8.71	Not Known
3	Blue	South Wales	6.8.71	Not Known
1	Blue	Metropolitan	6.8.71	London
3	Blue	West Yorkshire	6.8.71	Sheffield
1	Blue	Leicestershire	7.8.71	Birmingham
1	Blue	Kent	7.8.71	London

GROUP III (Continued)

No of Tablets	Colour	Police Area where Seized	Date	District Obtained in
2	Blue	Dyfed- Powys	8.8.71	London
1	Blue	Essex	14.8.71	London
5	Blue	Hampshire	20.8.71	Not Known
1	Blue	Suffolk	25.8.71	Not Known
20	Blue	Lanarkshire	27.8.71	Edinburgh
65	Blue	Hampshire	27.8.71	London
36	Blue	Liverpool	4.9.71	Liverpool
5	Pink	Suffolk	7.9.71	Birmingham
85	Blue	Durham	8.9.71	London
4	White	Cumbria	10.9.71	Not Known
17	Blue	South Wales	19.9.71	Not Known
21	Blue	Hampshire	24.9.71	Not Known
43	Blue	Devon & Cornwall	-	Not Known

APPENDIX VI

DRUG INTELLIGENCE FORM REF NO:

DATE

TYPE
B-R-Y

SURNAME:-

CHRISTIAN NAMES:-

ALIAS:- AGE:-

ADDRESS:-

TEL NO:-

OCCUPATION:-

EMPLOYER:-

STUDENT:- INSTITUTION:-

STATUS:- (MARRIED, SINGLE, DIVORCED)

TYPE:- (HIPPIE, SKINHEAD ETC)

LIVES WITH:- SEX:-

ASSOCIATES (1) REF NO:-
(2)
(3)
(4)
(5)

AREAS VISITED:-

CLUBS OR ACTIVITIES:-

WHERE & WHEN ARRESTED (BRIEF DETAILS):-

PREVIOUS CONVICTIONS & OTHER INFORMATION INCLUDING NAMES & ADDRESSES & TELEPHONE NUMBERS FOUND IN POSSESSION:-

TABLETS - HOW OBTAINED:- NO:

PRICE PAID:-

METHOD OF CONCEALMENT:-

QUALITY:-

OTHER INFORMATION

OFFICER IN CASE:- FORCE:-

TEL NO:- DIVISION:-

APPENDIX VII

COMPARISON OF TABLETS RECEIVED DURING THE EXPERIMENT FROM 26 JULY 1971 to 1 OCTOBER 1971

TABLET DESCRIPTION	SOURCE
Control Blue	
D880/71 Blue	Home Counties Laboratory
C2113/71 Pink	Nottingham Laboratory
C1603/71 Blue (Bunt)	Nottingham Police
C1487/71 Orange (McQueen)	Nottingham Police
C1486/71 Orange (Crofts, Dean, Flood)	Nottingham Police
G/Drugs/407 Blue (Devenport)	Manchester and Salford Police
C1717/71 Blue (Davies)	Norfolk Police
C1615/71 Orange (Davies)	Norfolk Police
G5360/71 Blue (Doyle)	Kent Police
D1140/71 Blue	Home Counties Laboratory

(1) VISUAL EXAMINATION

Colour - All tablets are speckled either Blue, Pink or Orange as detailed above.

Weight - 40 mg approximately - all tablets

Size - 5 x 1.5 mm - all tablets

Shape - Round flat - all tablets

All tablets similar except for colour

(2) MICROSCOPIC EXAMINATION

(1) Low power (x40 - 50)

Sample	Striations and Punch Marks	Smoothness of Finish
Control	○ ——— Thick edge	fair
D880/71	◎	fair
C2113/71	◎ ——— Thick edge	fair
C1603/71	◎ and ○	very good fair
C1487/71	◎	good
C1486/71	◎	good
G/Drugs/407	○ and ○	fair
C1717/71	○	fair
C1615/71	◎	good

Sample	Striation and Punch Marks		Smoothness of Finish
G5360/71		and 	fair
D1140/71			fair
*D599/71			very good

Similar tablets are:

Blue Tablets

i. Control, G/407, C1717/71, G5360/71, D1140/71

ii. D880/71, G5360/71

iii. G/407, G5360/71

iv. C1603/71 same as *D559/71 (Reading Pop Festival tablets not received during this experiment)

Orange Tablets

i. C1487/71, C1486/71, C1615/71

(2) High power (x200 - 300)

All tablets similar - no starch found

3 THIN LAYER CHROMATOGRAPHY

i. Sugars

All tablets similar - Main sugar glucose confirmed in three tablets by X-Ray diffraction

ii. Dyes

Blue Tablets - Appear to be a single dye in all the blue tablets Rf 74

Orange Tablets - Appear to be two dyes in all three orange tablets Rf's 45 (yellow) and 07 (pink)

4. LASER ARC EMISSION

Sample	Major Elements Found					
	Si	Mg	Cu	Ca	Al	Fe
Control	weak	strong		strong		trace
D880/71	medium	strong	weak	strong		trace
C2113/71	weak	weak			weak	
C1603/71	medium	medium		medium		weak
C1487/71	weak	weak		medium		trace
C1486/71	weak	weak		weak		
G/407	med/strong	med/strong	weak	medium		weak
C1717/71	weak	weak		weak		
C1615/71	trace	trace		weak		
G5360/71	med/strong	med/strong	weak	medium		weak
D1140/71	med/weak	med/weak		weak		weak
*D599/71	med/strong	medium		medium		medium

Blue Tablets

(1) D880/71 similar to G5360/71 and G/407

(2) Control similar to C1603/71, D1140/71 and *D599/71 (Reading Pop Festival)

Orange Tablets

All three appear to be similar (C1487/71, C1486/71 and C1615/71)

5. X-RAY DIFFRACTION

A check was made on three tablets - Control, D880 and C2113 and all three gave an X-Ray diffraction pattern which confirmed the sugar to be glucose. As this test did not give any further information than could be obtained by TLC (sugars) it is only of use in confirming in cases of doubt.

CONCLUSIONS

All the tablets examined in detail belong to type 3 (speckled and plain coloured) as described on the Tablet Description form issued to Laboratories.

The Pink tablet appears to be different from the others received since it contains aluminium. Due to the absence of calcium and the little magnesium found it appears that the tablet material does not contain a lubricant such as Ca/Mg stearate.

The Orange tablets are identical except for a trace of iron in C1487/71 which could result from contamination.

The Blue tablets received fall into various groups according to striations and punch marks. The two most characteristic markings are (i)  and (ii) 

The tablets which exhibit the above markings (i) D880/71, G5360/71 and (ii) C1603/71, D599/71 (Reading Pop Festival) appear to be similar in other respects. These could have been made using a multiple punch machine, but the slight difference in the trace element composition tends to suggest a different manufacturing source. It will be possible to analyse the trace elements in greater detail when more tablets are supplied.

27 October 1971
Home Office Central Research Establishment
Aldermaston

COMPARISON OF TABLETS RECEIVED DURING EXPERIMENT II

From 11 October 1971 to 31 January 1972

	Tablet Description	Source
1.	Small blue cubes ('microdot')	Birmingham Laboratory Chorley Laboratory Home Counties Laboratory Bristol Laboratory Cardiff Laboratory
2.	Small pink cylinders ('microdot')	Harrogate Laboratory
3.	White speckled with grey	Birmingham Laboratory Chorley Laboratory Brighton Police
4.	Orange, round, biconvex	Harrogate Laboratory Cardiff Laboratory
5.	Pink squares, flat	Cardiff Laboratory
6.	Purple, round, flat	Bristol Laboratory Metropolitan Laboratory Nottingham Laboratory
7.	White, round ('icing sugar')	Bristol Laboratory
8.	Blue, round, flat	Bristol Laboratory
9.	Orange cylinders, biconvex	Home Counties Laboratory
10.	Small, blue, plano-convex	Nottingham Laboratory
11.	Large flat squares	Dangerous Drugs Branch, Home Office

1, 3, 4, 6, 7, 8, 10 and 11 were sent for comparisons with BNDD seizures. Only 3, 4 and 8 had previously been seen.

TABLET EXAMINATION

A. Visual

1. Small blue cubes ('microdot')

Colour	Blue - colour change on exposure to light; blue to black
Weight	4.5 mg
Shape & Size	1.7 mm x 1.7 mm x 1.5 mm Cubes

2. Small pink cylinders ('microdot')

Colour	Pink - colour change on exposure to light; pink to dark brown
Weight	3.5 mg
Shape & Size	1.7 mm diam x 1.2 mm Cylinder

3. White speckled with grey

Colour	White speckled with grey
Weight	51 mg
Shape & Size	5 mm diam x 2 mm

4. Orange, round biconvex

Colour	Bright orange, slightly speckled
Weight	120 mg
Shape & Size	6 mm diam x 3 mm round biconvex

5. Pink squares, flat

Colour	Pale pink/orange
Weight	16 mg
Shape & Size	3.5 mm x 3.5 mm x 1.5 mm Not exact square

Note: Samples of these tablets were not available for analysis.

6. Purple, round, flat

Colour	Purple speckled with white, contains small resin beads
Weight	62 mg
Shape & Size	5 mm diam x 3 mm

Note: Also contains Phencyclidine and Procaine.

7. White, round ('icing sugar')

Colour	White, crystalline
Weight	75 - 80 mg
Shape & Size	6 mm diam x 3 mm, irregular shape

Note: Possibly "pegboard triturates".

8. Blue, round, flat

Colour	Blue speckled
Weight	40 mg
Shape & Size	5 mm diam x 1.5 mm

9. Orange cylinders, biconvex

Colour	Orange slightly speckled
Weight	200 mg
Shape & Size	5.5 mm diam x 6.5 mm

10. Small blue, plano-convex

Colour	Bright mid blue, slightly speckled
Weight	52 mg
Shape & Size	5 mm diam x 2.5 mm

11. Large flat squares

Colour	Pale green, white mottled
Weight	133 mg
Shape & Size	7.5 mm x 7.5 mm x 2 mm irregular shape

B. Microscopical Examination

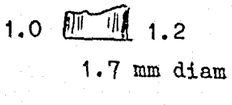
a. Low Power

1. Small blue cubes ('microdot')

Not a punched tablet
4 faces appear to be cut
One face (base) flat
One face (top) has ridge on 2 edges

2. Small pink cylinders ('microdot')

Not a punched tablet
One face flat, the other irregular with ridge on one side



3. White speckled with grey

No punch marks. Flat and smooth on both faces

4. Orange, round, biconvex

One side smooth, the other with characteristic punch mark

small punch indentation

5. Pink squares flat

These tablets not available for analysis

6. Purple, round, flat

Very smooth tablet. No punch marks. Pronounced ridge on the edge of both faces. Contains white particles and what appear to be resin beads.

7. White, round, ('icing sugar')

Irregular, round, flat. Not punched tablet. Possibly "pegboard triturate". Flat on one face. Very rough on the other. Tablet material resembles icing sugar.

8. Blue, round, flat

Similar to type 3 of Experiment I.

No punch marks. Surface on both faces fairly rough.

9. Orange cylinders, biconvex

Smooth, well made. No punch marks. Slightly rough with striations on the side of one face.

10. Small, blue, plano-convex

Fairly well made. No punch marks. Smooth on sides and both faces.

11. Large flat squares

Irregular shape. Rough texture. Not punched tablet.

b. High Power

Part of tablet material mounted in 20% aqueous alcohol for starch identification.

Tablet Number	Starch Found
1	Maize (Corn)
2	Maize (Corn)
3	None
4	None
6	None
7	None
8	None
9	Maize small quantity
10	None
11	Wheat

C. T.L.C.

a. Sugars

b. Dyes

Tablet	Sugars	Dyes	Rf of Dye
1	None	Blue/green	0
2	None	Pink/yellow	0
3	Lactose	None	-
4	Lactose	Orange	28
6	Sucrose/Lactose	Purple	16
7	Lactose	None	-
8	Glucose	Pale blue	60
9	Sucrose/Lactose	Orange	30
10	Sucrose/Lactose	Blue	0
11	Sucrose small quantity	None	-

D. Emission Spectrography

Tablet	Elements													
	Si	Mg	Cu	Ca	Al	Fe	B	Ti	Mn	Ba	Sr	Na	K	Li
1	M	S	W	VS	-	W	W	-	T	-	M	W	T	T
2	W	M	W	VS	-	W	W	-	T	-	M	W	T	T
3	W	S	T	VS	W	W	-	VS	T	VS	M	M	W	-
4	W	M	T	VS	W	W	-	-	T	S	M	M	M	-
6	M	M	W	M	S	T	T	-	-	-	-	-	-	-
7	W	W	W	M	T	T	-	-	-	-	-	-	-	-
8	M	VS	W	S	W	W	-	-	-	-	W	W	W	-
9	W	M	T	M	T	T	-	-	-	M	W	W	W	-
10	W	M	T	M	W	T	-	-	-	M	W	W	W	-
11	W	W	W	M	W	T	-	-	T	-	-	W	T	-

CODE:

Very Strong VS; Strong S; Medium M; Weak W; Trace T.

Subject's name (Where Known)	File Number	EXH No.	Date Pur'd	Tablet Identification					Punch Identification			Location
				Potency in MCG	Color	Number of Tabs	Price Per/T	Description	Type	Size	Formulation	
Steve Lozoff Larry Krause	B1-69-0129	1,2	10. 1.69	1=95 2=130	Orange with deep orange specks	100 624	P / 1.65	Round-flat unscored-unbeveled	Single (well made)	3/16"	Lactose Monohydrate Orange Coloring	Boston, Massachusetts
?	50-70-063	1	11. 3.69	220	Purple	4	G / None	"	"	"	"	New York, NY
Robert W Malone	R3-69-0158	1	12. 5.69	99	Yellow	20,107	S / .373	"	"	"	Protein Material Lactose Monohydrate Corn Starch	Berkeley, California
Larry Dawson	M1-69-0087	2	12. 5.69	151	Yellow	22	P / 2.72	"	" (crudely made)	"	Protein Material Lactose Monohydrate Gelatin Calcium Carbonate	Dallas, Texas
David Parsons	R4-69-0051	1	12.29.69	113	Yellow	77	P / 1.30	"	"	"	Protein Material Lactose Monohydrate Corn Starch	Honolulu, Hawaii
Alfred J Siguere	B1-69-0155	4	1. 9.70	100	Yellow	488	S / -	"	"	"	"	Amherst, Massachusetts
Mallory W Mayes	M1-69-0091	3	1.12.70	120	Pink	300	S / -	"	"	"	"	Austin, Texas
Robert Buesnard	M1-70-0018	1	1.13.70	70	Pink		/	"	"	"	"	Dallas, Texas
Charles G Cowles	R3-70-0010	2	1.16.70	129	Yellow	5,968	S / .418	"	"	"	"	San Francisco, Cal at airport coming in
Joe Kent Hajek	R3-69-0164	1	12.15.70	110	Pink	11,402	S / .355	"	"	"	"	Berkeley, California
Tom Tomkins	N1-70-0020	1	1.28.70	105	Pink		/	"	"	"	"	Denver, Colorado
Franklin F Green	R1-70-0036	16	1.29.70	107	Pink	144	P / .99	"	"	"	"	Pasadena, California

LSD - TABLE 40 (continued)

Subject's name (Where Known)	File Number	EXP No.	Date Pur'd	Tablet Identification					Punch Identification			Location
				Potency in MCG	Color	Number of Tabs	Price Per/T	Description	Type	Size	Formulation	
James C Kelnhofer	K2-70-0001	1	1.29.70	34	Yellow	98	P/2.41	Round-flat unscored-unbeveled	Single (Crudely made)	3/16"	Protein Material Lactose Monohydrate Corn Starch	Milwaukee, Wisconsin
Pierre Benoit	B2-70-0001	1 & 2	1.28.70	64	Yellow		/	"	"	"	"	Amherst, Massachusetts
Seymour Ashinsky	R1-69-0390	2	2. 9.70	135	Yellow	150	S/-	"	"	"	"	Los Angeles, California
David D Tooley	N1-70-0031	1,2	2.24.70	109	Pink	2,983	F/4.81	"	"	"	"	Boulder, Colo
Sam Rutherford	R4-70-0004	7	2.28.70	76.9	Pink	149	P/9.05	"	"	"	"	Honolulu, Hawaii
Steve Lozoff Larry Krause	B1-69-0129	9	3.10.70	123	Pink	12,265	S/-	"	"	"	"	Boston, Massachusetts
Nation Meyer	L1-70-0011	2A	4.17.70	86	Pink	1,040	S/-	"	"	"	"	Farifax, California
Pierre Benoit	B2-70-0001	4-A 4-B	2. 3.70	118 85	Rose-Pink Yellow-Gold	3,066 2,588	P/.28	"	"	"	"	Amherst, Massachusetts
Paul Johnson Thomas J Vendrone	J1-70-0041	1,5	5.20.70 5.28.70	105 113	Pink	213= 343=S	P/1.41	"	"	"	"	New Orleans, Louisiana
Bruce D'Alba	I1-70-0135	1	8.18.70	91	Orange	706	G/.62	"	"	"	" and Dolomite	Chicago, Illinois
Jon Woolsey	I2-70-0012	1	8. 6.70	117	Orange	430	P/1.10	"	"	"	Protein Material Dolomite Corn Starch	Anderson, Indiana
Terrence M Egler	I1-70-127	1	8. 7.70	120	Orange	3,863	F/.56	"	"	"	Protein Material Dolomite Sucrose Corn Starch	Rosemont, Illinois

LSD - TABLE 40 (continued)

Subject's name (Where Known)	File Number	EXH No.	Date Pur'd	Tablet Identification					Punch Identification			Location
				Potency in MCG	Color	Number of Tabs	Price Per/T	Description	Type	Size	Formulation	
..ori Eva Presser	X12-2-87	1-b	9.25.70	--	Bluish-green	100	S/ --	Round-Flat unscored-unbeveled	Single	3/16"	Protein Material Corn Starch Lactose Monohydrate Calcite	New Scotland Yard London, England
Daniel Calderwood	B1-Z-70	-	10.20.70	55	Orange	1	G/ --	"	"	"	Lactose Monohydrate Orange Coloring	Boston, Massachusetts
Donald Carry Michael Malone	H3-70-0027	3 4	10.21.70	182 196	Pink	649	S/ --	"	"	"	Protein Material Lactose Monohydrate Dolomite, Gelatin	Dayton, Ohio
- - -	S-0387	-	10.27.70	68	Pale Green	2	-/ --	"	"	"	Protein Material Dolomite Lactose Monohydrate Corn Starch	Florida
- - -	S-0520	-	11. 6.70	111	Green	80	S/ --	"	"	"	"	Gulfport, Mississippi
Viola Pauline Martin	R3-70-0077	4	11. 6.70	130	Orange	63	P/ 1.00	"	"	"	"	Alameda, California
Gary Allen Misheh	S-0691	-	11.15.70	118	Green	105	-/ --	"	"	"	" and calcite and Brushite	Milwaukee, Wisconsin
Arlin Anderson	N1-70-0074	1	11.20.70	140	Blue	10.135	F/ --	"	"	"	Protein Material Corn Starch Dolomite Lactose Monohydrate	Denver, Colorado
icky Barnes	S-0737	-	11.23.70	79	Yellowish-Green	21	-/ --	"	"	"	Protein Material Lactose Monohydrate Calcite, Brushite	Farmington, New Mexico
J Jefferson	S-0720	-	Dec. 70	--	Pale Green	15	-/ --	"	"	"	Protein Material Lactose Monohydrate Corn Starch Dolomite, Brushite	Honolulu, Hawaii, Australia

LSD - TABLE 40 (continued)

Subject's name (Where Known)	File Number	EXH No.	Date Pur'd	Tablet Identification					Punch Identification			Location
				Potency in MCG	Color	Number of Tabs	Price Per/T	Description	Type	Size	Formulation	
Juan Acosta	C2-70-0034	1	12. 7.70	121	Yellowish-Green	25	-/—	Round-flat unscored-unbeveled	Single	3/16"	Protein Material Corn Starch Lactose Monohydrate Dolomite, Calcite, Brushite	Buffalo, New York
Joseph Curtis	N1-70-0078	1	12.10.70	98	Pink	12,314	S/—	"	"	"	Protein Material Dolomite Lactose Monohydrate Gelatin	Denver, Colorado
- - -	C2-Z-79	3	2. 5.71	—	Pale Purple	5	—/—	"	"	"	Protein Material Corn Starch Lactose Monohydrate Dolomite, Calcite, Brushite	Rochester New York
- - -	S-0849	-	2. 5.71	—	Pale Purple	5	-/—	"	"	"	Protein Material Dolomite Lactose Monohydrate Gelatin	Rochester, New York
Dana Yvonne Larson	I1-71-0031	1	3. 9.71	100	Orange	1,020	P/.90	"	"	"	Protein Material Dolomite Corn Starch	Chicago Illinois
- - -	S-1102	1	3.12.71	—	Purple	5	S/—	"	"	"	Protein Material Dolomite, Gelatin Lactose Monohydrate	Tokyo, Japan
David L Corum	S-1171	-	3.31.71	30	Pink	30	-/—	"	"	"	Protein Material Lactose Monohydrate Corn Starch, Dolomite	San Francisco, California
Ruby Valley Dunason Scot Turrin	AM0007 R3-71-0026	1	4.30.71	150	Gray	4.070	P/.20	"	"	"	Protein Material Lactose Monohydrate Calcite, Dolomite, Glucose, Brass	Berkeley, California
Helen Claire Tanguay DOB 3/17/48	S-1455	—	3.09.71	—	Blue	71	S/—	"	"	"	Lactose Monohydrate Protein Material Dolomite, Corn Starch, Gelatin	RCMP Hull, Canada

APPENDIX X

INITIAL CIRCULATION LIST

Addressee	No of copies
Mr J B Howard A U S S	1
The Director, P S D B	1
The Director, P R S B	1
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Assistant Secretary F 5	1
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H M Chief Inspector	1
H M Inspectors	5
Assistant to H M C I C	1
Chief Scientist	1
Director, Central Research Establishment	4
Home Office Drugs Branch	2
Directors, Forensic Science Laboratories	10

END