1984

ORGANISATION INTERNATIONALE
DE POLICE CRIMINELLE - INTERPOL

SECRÉTARIAT GÉNÉRAL

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INTERNATIONAL CRIMINAL
POLICE ORGANIZATION - INTERPOL

GENERAL SECRETARIAT

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2nd INTERNATIONAL FORENSIC SCIENCE SYMPOSIUM

SAINT-CLOUD, 25th-28th November 1968

The 2nd International Forensic Science Symposium opened at 9.30 a.m. on 25th November 1968 at the headquarters of the International Criminal Police Organization in Saint-Cloud, with Interpol Secretary General Jean NEPOTE presiding.

A complete list of persons attending the symposium is given in Appendix nº 1.

The draft agenda was adopted unchanged (circular nº 3404/PUTEC/205 of 23rd July 1968).

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Note :
Illustrated texts which have not yet been forwarded to the General Secretariat will be published in the International Criminal Police Review.

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A.- RESEARCH DEVELOPMENTS IN AREAS SELECTED AT 1st FORENSIC SCIENCE SYMPOSIUM IN 1963

1) USE OF DIAMOND-CELL WINDOWS IN INFRA-RED ABSORPTION SPECTROSCOPY.

(Co-ordinating laboratory :
Royal Canadian Mounted Police, Crime Detection Laboratory, Regina, Saskatchevan, Canada).

A report from Canada was distributed (see Appendix 2).

At the request of several participants, a number of questions were forwarded to the Canadian authorities (not represented at the symposium). The following answers were received :

1. Can diamond cell windows be adapted to other instruments ?

   Answer :
   Yes, they can be adapted to many instruments providing sufficient space is available to mount a beam-condensing system such as the PERKIN ELMER model 6 X.

2. How much does a diamond-cell window cost ?

   Answer :
   (See (3) below.

3. In what makes or types of instruments may diamond-cell windows be inserted ? How much do such instruments cost ?

   Answer :
   The high pressure diamond-cell is a complete unit including windows and holder. Our price was $1750, but it may have risen.

4. What precautions should be taken to prevent examined samples from losing their purity ?

   Answer :
   Samples are not damaged chemically by this method.

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5. What is the particular value of this method compared with other known methods ?

Answer :
The major value of the method is : small sample size, acceptance of corrosive substances, negligible sample preparation and needs no adulterant (e.g. KBR, solvents).

6. What are the results obtained by this method in near infra-red and far infra-red ? What is the wave-length of the ranges used?

Answer :
The diamonds windows are transparent through the region 2 - 50 microns. Our analysis has been in the 5 - 15 micron region and has been applied successfully to paint, rubber, plastics, inorganic and organic solids.

2) THE DETERMINATION AND APPLICATION OF PARTITION DATA USING COUNTER-CURRENT DISTRIBUTION TO THE SEPARATION, PURIFICATION AND IDENTIFICATION OF MATERIALS.

(Co-ordinating laboratory :
Laboratorio de Policía Judiciaria, Lisbon, PORTUGAL).

M. RALHA (Portugal) read out the laboratory's report (cf. Appendix 3).

It emerged from the ensuing discussions that this method could only be used in certain cases - when there were relatively large quantities of the substance available - but not in routine analysis work, as the method was too slow and not sensitive enough. The speaker thought that the system had not been fully explored; he had tried to find a more practical one using smaller quantities. It was a difficult problem, but a solution might be found.

The method had the advantage of using inexpensive equipment (approx. US $1,000).

3) DETERMINATION OF THE CAUSES AND AGE OF CRACKS IN METAL.

(Co-ordinating laboratory :
Israel Police Laboratory, Israel Police Headquarters, Tel-Aviv, ISRAEL).

M. KAPLAN (Israel) submitted the report (Appendix 4).

He stressed that research had been confined to clean surfaces with fresh, clean breaks. So far, the method had only proved valid for cracks 4 or 5 hours old; beyond this time-limit, it was not yet possible to identify the fractures. Research was still at the theoretical stage; a lot more had to be done before positive practical conclusions were reached.

Discussions revealed that the determining of the age of rust did not solve the problem, as the rusting process occurred at an indefinite moment after the fracture.

The United Kingdom delegation had also prepared a communication on the subject (cf. Appendix 5).

In reply to a question from the Netherlands delegate, the Israeli expert went on to explain the differences that could exist between brittle and ductile fractures. Research on the subject had to continue : many variables were involved, so mathematical exploitation would be very complicated.

4) NEUTRON ACTIVATION ANALYSIS.

(Co-ordinating laboratory :
National Office Laboratory, Alcohol and Tobacco Tax Division, 7575 Internal Revenue Service, Washington 25 D.C., UNITED STATES).

(See C.- "Neutron activation analysis and other techniques derived from nuclear physics (e.g. atomic absorption)", page 13).

5) RESEARCH ON THE POSSIBILITY OF FINDING A MATHEMATICAL FORMULA TO EVALUATE FIRING DISTANCE.

(Co-ordinating laboratory :
Kriminaltechnische Abteilung, Bundeskriminalamt, Wiesbaden, FEDERAL GERMANY).

Dr. LESZCZYNSKI (Federal Germany) gave a long lecture - illustrated by a number of slides - which will be published in the International Police Review, where illustrations will clarify the extremely technical text.

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Mr. IYENGAR (India) asked Dr. Leszczynski whether the mathematical formula he had established for measuring the firing distance applied to all types of firearms and ammunition. The German expert replied that he and his associates had only used the formula for a limited number and types of firearms and ammunition but that the formula had been found to be valid; he said they intended to continue with their research. 700 experiments were performed using an analogical computer and 1,000 on a digital computer; there 1,700 experiments had involved 73 different types of ammunition and 30 to 40 types of firearms. Despite difficulties, the results had revealed a regular pattern. This was encouraging for further research.

6) STUDY OF PAINT FLAKES FOR IDENTIFICATION PURPOSES.

(Co-ordinating laboratory :
Laboratoire de police scientifique de la Préfecture de Police, Paris, FRANCE).

Messrs CECCALDI and AUFROIX, the French experts, summarised the research undertaken by their laboratory; several articles on their findings had already been published in the International Criminal Police Review (nos. 195, 196 and 197 in 1966).

Mr. AUFROIX informed the symposium that his research had been the subject of a thesis entitled "Application of modern analytical techniques to the identification of paint traces" submitted to the Faculty of Science of the University of Paris.

The great advantage of the pyrolysis method was that it was cheap : the apparatus costs about US $50 (quartz seringue for chromatographic injection). No experiments had been made with induction pyrolysis.

The United Kingdom reported on the research carried out by Mr. C.R. TIPPET (Forensic Science Laboratory, Cardiff). His findings had been published in the Forensic Society Journal, vol. 8, nos. 2 and 3 in October 1968. He had examined 2,000 paint samples using gas chromatography. By this method, 98 % of the samples could be distinguished by microscopy, the rest by spectography or gas chromatography.

In Germany, similar research had been carried out and it was found that pale colours were more difficult to differenciate. Several experts showed their preference for methods that did not destroy the paint samples.

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Speaking of neutron activation analysis, several experts pointed out that it was a non-destructive method; others drew attention to the disadvantage of this method, which was that it left radio-active elements on the samples, making them potentially dangerous for a short time.

Mr. Aufroix thought that the electron microscope could give useful information, but it was too early to contemplate its use on a large scale.

7) BIOLOGICAL CHARACTERISATION PROCEDURES APPLICABLE TO BLOOD AND/OR SPERM.

(Co-ordinating laboratory :
Laboratoire interrégional de police scientifique, Lille, FRANCE).

This topic was the subject of a thesis by Dr. ROLIN sent to the Interpol National Central Bureaus in July 1967, and of an article in the International Criminal Police Review (no. 217, April 1968).

In view of the high risk of error in this field, it was advisable to use several of the many existing methods. Progress was still possible, but tests needed to be carried out in several laboratories.

With respect to sperm, there were two problems involved : isolate the spermatozoa and study the constituents of sperm. There was also the problem of determining the blood group : the stain had to be fairly recent. Future research should concentrate on very specific aspects.

(Dr. Rolin's thesis is available from the I.C.P.O.-General Secretariat on request).

8) STUDY OF METHODS TO DETERMINE THE AGE OF DRIED BLOOD STAINS.

(Co-ordinating laboratory :
Forensic Laboratory, New Scotland Yard, London, UNITED KINGDOM).

Miss PEREIRA (United Kingdom) read out the report submitted by New Scotland Yard's Laboratory.

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A discussion between the British and German experts clarified certain aspects of the problem, but led to the conclusion that, generally-speaking, this method gave only approximative results.

It was very difficult to determine the age of a blood stain with absolute accuracy because of the influence of atmospheric conditions.

Results were different depending on whether the blood stain being analysed was a mass of coagulated blood or simply a thin layer.

Further research was required on the subject, notably on the influence of atmospheric conditions on blood stains.

9) RESEARCH ON METHODS OF DETERMINING THE VEHICLE(S) OF PIGMENTS USED IN INKS.

(Co-ordinating laboratory :
Kriminaltechnische Abteilung, Bundeskriminalamt, Wiesbaden, FEDERAL GERMANY).

Mr. SEYLER (Federal Germany) informed the symposium that the volume of routine work had been such that the laboratory had been unable to carry out the programme it had been assigned. He apologised and asked delegates to refer to the text given in Appendix 7.

In reply to a question from a Swiss delegate, the German expert reported that it was not possible to differentiate between ink and its binding material.

Dr. IYENGAR (India) was concerned about whether the problem of determining the age of ink of ballpoint pens had been studied. The only known method consisted of establishing the dates when different ball point pen models were put on the market; the maximum possible age could then be fixed. Apart from this, no progress had been made.

Replying to a question from the Israeli delegate, the German expert explained that the research had been concentrated on ink that was still wet and not on ink that had dried; the latter posed different problems.

The Brazilian delegate reminded the meeting of the research carried out by Mr. W. Hoffmann (Switzerland) on the transformation of ballpoint-pen ink. However, this research did not solve the problem.

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10) EXAMINATION OF A WEAPON AND/OR PROJECTILES TO DETERMINE ELAPSED TIME AFTER FIRING.

(Co-ordinating laboratory :
Institut de police scientifique, Zürich, SWITZERLAND).

Dr. MEIER (Switzerland) read out the laboratory's report, which will be published in the I.C.P.R.

The Swiss expert explained the methods used very clearly : analysis of nitrate traces, and examination of dust particles. These three elements could be studied without destroying them. For the analysis of dust particles, the assistance of laboratories specialising in the study of pollen content - notably in honey - could be useful.

Nitrate traces could be studied both on the empty cartridges and on the inside of the firearm (the results were the same). The place where the firearm was left was very important, as there were great variations depending on the degree of humidity of the scene.

When the ammunition was well adapted to the firearm that was used, nitrate traces were minimal.

Research would have to continue if more accurate results were to be obtained.

Even if these methods did not make it possible to determine exactly when a weapon had been fired, it was possible to say whether a particular weapon had been fired and others (also under suspicion) not. This method had been used for the first time in Germany in a recent crime case (see article in Kriminalistik:Hoffmann case).

The United Kingdom delegate reported on the research carried out by Mr. George Price at the Nottingham Forensic Science Laboratory. His method consisted of examining the gas inside the barrel to trace the presence of carbon monoxide which was evidence of recent firing : carbon monoxide remained in the barrel after firing - sometimes for several hours, depending on the type and condition of the weapon and the place of firing. The method used consisted of removing a given quantity of air from the barrel and forcing it down a column of potassium palladosulphate. The yellow indicator turned brown if carbon monoxide was present. The length of the brown column indicated the amount of carbon monoxide present. This method did not destroy the material and could be used at the same time as another method for detecting solid traces.

The Nottingham method, and the Swiss method for analysing nitrate traces, were only valid if the examination was carried out within a few hours; investigators had therefore to submit suspected firearms to experts as quickly as possible.

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11.) STUDY OF THE BEHAVIOUR OF SPECIMENS (SUCH AS COLOURED TEXTILE FIBRES) COLLECTED WITH ADHESIVE TAPE.

(Co-ordinating laboratory :
Direction des services techniques du Parquet, Basel, SWITZERLAND).

A report from the laboratory was read by Mr. MARTIN (Switzerland); an article on the subject had also been published in the May 1965 issue of the I.C.P.R. (nº 188).

Tests had been begun two months previously in order to try and correct minor faults that had been detected in the gum usually used, but one could already say that the adhesive tapes were entirely satisfactory. A memorandum for investigators explaining how adhesive tape should be used had been circulated (cf. Appendix 8).

In Basel, police officers were kept informed of examinations and investigations carried out by the laboratory, so police officers collecting samples of fibres at crime scenes were aware of developments with this technique.

In some countries, the use of adhesive tape for collecting paint-flake specimens was forbidden as the paint flake could not afterwards be removed and it was impossible to use any other method subsequently.

This method was not used for human (non facial) hair as in practice it was only valid for microscopic physical evidence which was not visible to the naked eye. Mr. Martin referred to a case of rape where the police had been able to prefer charges after examination of fibres from clothing and from a carpet.

In this method, sweat and the dyes of different clothes played an important role.

The United Kingdom delegate reported that the Zeiss micro-spectrophotometer had been examined by Mr. Culliford of New Scotland Yard, but he was not favourably impressed. Mr. Kind recommended the micro-spectrophotometer which was being developed by Joyce, Loebl & Co., Team Valley, Newcastle-upon-Tyne, which would be available in June 1969 at the price of US $7,500.

In conclusion, it was agreed that the adhesive tape pioneered in Basel was satisfactory on the whole, at least as far as the tape was concerned. The methods was mainly suitable for microscopic traces.

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12) STUDY OF SUPERIMPOSED STROKES TO DETERMINE THEIR CHRONOLOGICAL ORDER.

(Co-ordinating laboratory.:
National Institute of Criminalistics, Explanada dos Ministerios, Bloco 10, 5 andar, Brasilia, BRAZIL).

Mr. VILLANOVA (Brazil) read out the text of his lecture, which will be published in the I.C.P.R.

After examining 200 real cases or experiments, the Brazilian expert had come to the firm conclusion that it was impossible to generalise and that every case was specific and had to be treated separately.

The "stereozoonic" microscope had to be placed at an angle of 40 % to the optical axis. Mistakes occurred if the light beam was wrongly oriented. The expert showed a number of slides illustrating his lecture; he wondered whether it was possible to use the method to study pencil strokes. He thought that polarised light and ultra-violet light were very useful in this field and he referred delegates to an article published in the German journal Kriminalistik.

In his opinion, the use of the electron microscope involved certain difficulties since it modified the document and this was unacceptable to the courts.

The Brazilian expert explained that betagraphy had not been used in this field. It was necessary to have several examples of crossed strokes to be able to study each case separately.

Non-optical methods had also been used in a laboratory in Israel, but the results had not been very satisfactory due mainly to the impossibility of appreciating the extent of the impregnation of the ink in the paper. The United Kingdom Institute of Criminology was to study non-optical methods. It was hoped that within a year or two, equipment would be devised for a reflection method which did not destroy the document.

Mr. MARTIN (Switzerland) reported that Mr. Hoffmann of Zurich had done some research on superimposed strokes.

With respect to the parasitic colouring of colour microphotographs, Mr. MATHYER (Switzerland) said that different factors influenced the colour photograph : the colour temperature of the light source had to be adapted to that of the film. Difficulties arose (Schwarschild effects) when the time of exposure exceeded a certain limit. This could be remedied by the use of emulsions specially devised for exposure times exceeding 10 or 20 seconds (already available on the market) and by the use of corrective filters. Firstly the surface of the paper was never uniform and secondly the ink - or ballpoint pen ink - very rarely produced strokes that were absolutely uniform.

There was a risk of error in the use of betagraphy when the time was relatively short.

When taking microphotographs Mr. MATHYER (Switzerland) used a camera wrapped in black paper with just a hole for the lens to avoid interference from reflected light.

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B.- REPORTS ON NEW METHODS AND EQUIPMENT

Communications submitted by participants :

1) USE OF ELECTRONIC MICROPROBE.

Mr. DEVAUX (France) submitted a report (reproduced in Appendix nº 9) illustrated with slides on the electronic microprobe.

He explained that the limits of detection varied with the element and matrix, but that it was on the order of 1 %. The process almost entirely quantitative, involved a pinpoint analysis on a tiny determinate area 1.2mm square.

A computer could be used to prepare the correction tables and a small computer was then sufficient for rapid reading of results.

The United States had compiled a complete bibliography which was brought up-to-date at regular international meetings.

Electronic microprobe equipment was expensive, and was found mainly in communication laboratories, mining research units, atomic energy and steel-refining research laboratories. In the U.S., this technique had been used for the determination of certain elements in coins submitted in connection with counterfeiting cases.

Mr. MARTIN (Switzerland) indicated that the German journal "Kriminalistik" had carried a report on a case (of burglary) in which these techniques had been applied.

2) USE OF LASER-BEAMS IN SPECTROGRAPHY.

Dr. WITTE (Netherlands) submitted a report (Appendix nº 10) accompanied by slides on laser beam equipment and its operation.

The device adopted by the Netherlands was the same one used in Austria; the subject should interest all forensic laboratories.

This particular model had been chosen because of the following factors :

- lens quality
- sturdiness of the electronic equipment
- easy utilisation
- regularity of the laser beam.

It cost Ø13,800 (U.S.) including the laser beam course.

Austria and the Netherlands, where such devices were in use, would send memoranda about them to the I.C.P.O. General Secretariat for publication in the I.C.P.R.

3) FREEZE-DRYING IN TOXICOLOGY.

Dr. WITTE (Netherlands) read out the text which appears in Appendix nº 11.

The freeze-drying device cost about Ø6,000. Main manufacturers represented in the Netherlands were : M. CHRIST, B.K.F., EDWARD, RENCO, NEW BRUNSWICK.

Not all materials could be processed with this technique, in particular when volatile poisons were expected.

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4) GAS CHROMATOGRAPHY.

Dr. LESZCZYNSKI (Federal Germany) read a paper in which he raised three problems :

- what is the role of this technique in criminology ?
- how far has it developed ?
- what are its prospects for the future ?

The first generation of equipment had not lived up to expectations. In the future, the ideal solution could be for the gas chromatography to be linked with a mass spectrometer, with a computer for intercalated data memorization.

The American expert felt that gas chromatography was an excellent technique for the identification of organic components. Naturally, its use did not exclude other methods, but it could be very useful.

The Vienna and Geneva laboratories used modern chromatographs extensively and extremely interesting results had been obtained in many cases (carbo-hydrates, fatty substances, paraffin, textiles, rubber, etc..).

About half of the attending delegations usedgas chromatography, although they did not have the expensive auxiliary equipment that Dr. Leszczynski had described.

The discussions brought out the need for a sharp distinction between comparative work -- in which gas chromatography could provide valuable results -- and the more complicated problem of identifying unknown substances. The police were more likely to need comparative analyses.

When a laboratory wanted to acquire a gas chromatograph, it was important to make adequate budgetary provisions for all theessential devices. Manufacturers' catalogues could be consulted.

Infra-red spectography was a good method for identifying materials.

Olfactronics could be a valuable complement to gas chromatography (see article in I.C.P.R. nº 210, September 1967).

5) ESTIMATING THE AGE OF INKS.

Dr. IYENGAR (India) gave a talk (reproduced in Appendix nº 12) profusely illustrated with slides.

In the discussions, the four methods of estimating the age of inks were examined in detail :

a) analysis of the ageing process as explained by Dr. Iyengar;

b) an indirect method : by identifying specific substances in the ink, it is possible to date its manufacture;

c) a comparative method based on a collection of specimens, which Interpol, for instance, could organise;

d) ink "marking" by manufacturers, who should be persuaded to include substances which would be easy to identify later.

It was felt that items c) and d) would be difficult to implement, that point a) required elaborate technical facilities. In this connection, the Indian delegate wanted to know whether other laboratories could explore and extend the basic findings submitted by his country.

Even b) (indirect method) had not proved entirely satisfactory.

In the U.S., the Internal Revenue Service (Treasury Department) had a large collection of chromatograms which could be used for comparing questioned and known ink samples. A major stumbling block was estimating the age of inks by chemical procedures because of the change that ink components underwent after approximately 10 days of exposure. These changes stablized, making it impossible to determine its age.

During the discussion, a book by Mr. Crown entitled "Identification of inks" was cited.

The participants thought it would be useful for Interpol to compile a list of major collections of specimens (ink and others) in various police laboratories throughout the world.

Some experts found it particularly significant that ball-point pens were replacing fountain pens, but the basic problems related to the nature of inks were the same in both cases. With fountain-pen ink, there was an additional problem of foreign matter polluting the ink.

6) INORGANIC MASS SPECTROMETRY IN FORENSIC SCIENCE.

Mr. KIND (United Kingdom) read a paper which appears in Appendix nº 13.

Several delegations expressed lively interest in the possibilities of differentiating glass fragments by this method. A report on the results obtained so far was scheduled for publication. The method had already provided the basis for expert testimony in court.

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C.- NEUTRON ACTIVATION ANALYSIS AND TECHNIQUES DERIVED FROM NUCLEAR PHYSICS (E.G. ATOMIC ABSORPTION)

Dr. PRO (U.S.A.) outlined the theory and practice of neutron activation analysis and described the results which had been obtained
His talk (Appendix nº 14) was illustrated with slides and he distributed additional documents. He described several actual cases (involving forged stamps, hairs, playing cards, etc.).

I_n reply to questions, Dr. Pro explained that :

- Dust could not be analysed by neutron activation method.
- Problems of homogeneity of specimens had to be taken into account. (In this connection, Dr. Meier from Zurich described a device developed by his laboratory for sorting particles).
- An analysis of alcohol took about 1 hour which could be spread over a period of up to 10 days.
- He preferred neutron activation analysis to gas chromatography, but the latter should be not be underestimated.

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- Of course, confronted with a substance which was liable to contain foreign matter (a hair, for instance), the pollution should be analysed first, before proceeding to neutron activation analysis. (On the special problems involved in analysis of hair, technicians should refer to Mr. Rate's very thorough study).

Dr. Pro also read a paper on neutron activation analysis of gunshot residues. His talk (see Appendices 15 an 16) was accompanied by slides.

A number of questions were put to him (distinguishing between suicide and murder, discriminating gunshot traces from professional residues or atmospheric reactions), and Dr. Pro agreed to write up a general paper on the subject for publication in the I.C.P.R.

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D.- NEW RESEARCH PROGRAMME

The symposium adopted a research programme to be carried out by volunteer laboratories.

The programme is as follows :

Question nº 1 :
IMMUNO-CHEMICAL CHARACTERISATION OF THE HUMAN ORIGIN OF BLOOD.

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- Co-ordinating laboratory :
  Laboratoire interrégional de police scientifique,
  Lille, Nord (FRANCE).

- assisted by :
  Forensic Laboratory, New Scotland Yard,
  London S.W.I. (UNITED KINGDOM).

Question nº 2 :
(Provisional title : STUDY OF METHODS FOR MEASURING THE AGE OF DRIED BLOOD STAINS).

- Co-ordinating laboratory :
  Central Research Establishment, Home Office,
  Aldermaston, Berks (UNITED KINGDOM).

- assisted by :
  Laboratoire interrégional de police scientifique,
  Lille, Nord (FRANCE).

Question nº 3 :
SUPERIMPOSED STROKES.

- Co-ordinating laboratory :
  Instituto Nacional de Criminalistica,
  Departamento de Policía Federal,
  Area Policial Sul, Brasilia D.F. (BRAZIL).

- assisted by :
  1) Laboratoire interrégional de police scientifique,
     35ter rue St. Jean, 69 Lyon (FRANCE).
  2) Laboratoire de police scientifique,
     9, rue des Chaudronniers, 1211 Geneva (SWITZERLAND)

Question nº 4 :
AGE OF INKS.

- Co-ordinating laboratory :
  Central Forensic Science Laboratory,
  30, Gorachand Road, Calcutta (INDIA),

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- assisted by :
  The Home Office, Central Research Establishment,
  Aldermaston, Berks (United Kingdom)
  (with respect to the use of the mass spectrometer).

Question nº 5 :
LASER SPECTROGRAPHY.

- Co-ordinating laboratory :
  Bundesministerium für Inneres, Abteilung 21,
  Kriminaltechnische Zentralstelle,
  A-1090 VIENNA, Rossaüer Laende 1 (Austria).

- assisted by :
  Forensic Science Laboratory, Ministry of Justice,
  Raamweg 47, The Hague (Netherlands)

Question nº 6 :
POLLEN ANALYSIS AS A MEANS OF ESTIMATING THE AGE OF PHYSICAL EVIDENCE AND DETERMINING THE LENGTH OF TIME OBJECTS HAVE BEEN EXPOSED TO THE AIR.

- Co-ordinating laboratory :
  Wissenschaftlicher Dienst Stadtpolizei Zurich
  Bahnhofquai 3, 8001 Zurich (Switzerland)

- assisted by :
  Police Laboratory, Israel Police Headquarters,
  Tel-Aviv (Israel).

Question nº 7 :
NEUTRON ACTIVATION (GENERAL).

- Co-ordinating laboratory :
  National Office Laboratory,
  Internal Revenue Service, 1111 Constitution Ave.,
  N.W., WASHINGTON D.C. (USA)

- assisted by :
  Laboratoire interrégional de police scientifique,
  35 ter, rue St. Jean, 69 Lyon (France).
  for the study of paints used in old paintings.

Question nº 8 :
ATOMIC ABSORPTION ANALYSIS.

- Co-ordinating laboratory :
  National Office Laboratory,
  Internal Revenue Service,
  1111 Constitution Ave, N.W. Washington D.C. (USA)

Question nº 9 :
USES OF SURFACE-FEELER INSTRUMENTS (E.G. STRIAGRAPH) IN CRIMINALISTICS.

- Co-ordinating laboratory :
  Institut de police scientifique et de criminologie,
  Université de Lausanne,
  Place du Château 3, CH-1005 Lausanne (Switzerland).

- assisted by :
  Bayerisches Landeskriminalamt,
  Abteilung Kriminaltechnik,
  8 München 19, Maillingerstrasse (Federal Germany).

Question nº 10 :
PROBLEMS CONCERNING GAS CHROMATOGRAPHY.

10,1 TECHNIQUES AND APPARATUS USED IN GAS CHROMATOGRAPHY.

10,2 THE USE OF GAS CHROMATOGRAPHY IN FORENSIC SCIENCE.

- Co-ordinating laboratory :
  Bundesministerium für Inneres,
  Abteilung 21, Kriminaltechnische Zentralstelle,
  A-1090 Vienna, Rossaüerlaende 1 (Austria).

Question nº 11 :
MASS SPECTROMETRY.

- Co-ordinating laboratory :
  Central Research Establishment, Home Office,
  Aldermaston, Berks (United Kingdom).

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- assisted by :
  Bundeskriminalamt,
  Abteilung Kriminaltechnik,
  62 Wiesbaden, Postfach A (Federal Germany)
  (providing the apparatus is acquired).

Question nº 12 :
DETERMINING TIME WHEN SHOT FIRED BY STUDYING THE AGING OF GUNPOWER STABILISERS.

- Co-ordinating laboratory :
  Laboratoire central de la Préfecture de police,
  39bis, rue de Dantzig, Paris (France).

- assisted by :
  Wissenschaftlicher Dienst Stadtpolizei Zürich
  Bahnhofquai 3, 8001 Zurich (Switzerland).

N.B.:
The following countries will send samples to the co-ordinating laboratory : BRAZIL (Brasilia, Rio de Janeiro), PORTUGAL, SWEDEN, GREECE.

Question nº 13 :
CONTINUATION OF RESEARCH INTO THE CAUSES AND AGE OF FRACTURES IN METAL.

- Co-ordinating laboratory :
  Police Laboratory, Israel Police Headquarters,
  Tel-Aviv (Israël).

- assisted by :
  1) Bundeskriminalamt, Abteilung Kriminaltechnik,
     62 Wiesbaden, Postfach A (Federal Germany).
  2) Forensic Laboratory, New Scotland Yard,
     London S.W.1. (United Kingdom).
  3) Wissenschaftlicher Dienst Stadtpolizei Zürich,
     Bahnhofquai 3, 8001 Zürich (Switzerland)
     for research into pollen.

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Question nº 14 :
RESEARCH INTO MATHEMATICAL FORMULA FOR CALCULATING FIRING DISTANCE.

- Co-ordinating laboratory :
  Bundeskriminalamt, Abteilung Kriminaltechnik,
  62 Wiesbaden, Postfach A (Federal Germany).

In addition, the symposium thought that papers on the following subjects should be given at the next symposium :

- the probatory value of scientific analysis;
- the human origin of bones.

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THE PROBATORY VALUE OF RESULTS OBTAINED BY OBSERVATION OR SCIENTIFIC EXPERIMENT.

The subject was introduced by Professor CECCALDI (France).

Every forensic scientist wondered sooner or later about the probatory value of his findings and hence of the various methods he used. There seemed to be no literature on the subject and a discussion from which some basic principles might emerge would be very interesting.

Dr. LESZCZYNSKI (Federal Germany) tackled the problem from a slightly different angle : what was the value of information obtained by the scientist in relation to absolute mathematical truth ? He therefore suggested a system of calculations leading to certain objective conclusions. This method, of course, concerned the scientist himself; the demonstration in court was another problem.

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From the lengthy discussions that ensued it appeared that the probatory value of a method could be determined either in relation to other methods or in relation to the absolute, and that the probatory value could interest either the scientist himself (for reassurance about the value of his findings) or the courts before which he had to produce and explain the evidence.

In conclusion, it was decided that Prof. Ceccaldi, in cooperation with the General Secretariat, would collect information for further discussion. Scientists who had ideas to contribute should write within one or two months to the General Secretariat or to Prof. Ceccaldi. The problem would be raised again either at a special symposium on the subject or at the next forensic science symposium. This could possibly lead to the setting up of a programme for evaluating different methods, with several laboratories being asked to solve a given problem by different methods for subsequent comparison.

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The agenda was finished by 4 p.m. on Thursday 28th November 1968. The delegates unanimously called for a third forensic science symposium. The 5-years interval between the first two symposia was deemed to be too long in view of the increased rate of technical progress. It was generally agreed that a period of 2 to 3 years between symposia would be more suitable.
