
Report of Dr Audrey Giles

**In the
matter of:** Medical Notes

Instructions from: The Inquiry into Hyponatraemia Related Deaths
(Ref: AD-0617-13)

Lab Ref: TC03913

Date: 13th September 2013

The Giles Document Laboratory Limited

T [REDACTED] F [REDACTED] DX [REDACTED] E agiles [REDACTED] I www.gdll.co.uk

Registered in England No 04619071

INSTRUCTIONS

My instructions have been received from The Enquiry into Hyponatraemia Related Deaths.

I have been asked to examine Notes and Records relating to Claire Roberts. In particular, I have been asked to carry out what examinations are possible with a view to determining the timing of the entries *"/encephalitis/encephalopathy"* and *"4pm"* made in the Clinical Notes.

SUMMARY OF FINDINGS

1. I found no evidence of impressions of either of the entries *"/encephalitis/encephalopathy"* or *"4pm"* on any of the other cards bearing Medical Notes, the Prescription Cards, or the Folder. However, this seems to be in keeping with manner in which the Medical Notes appear to have been written.
2. There is positive, albeit weak, evidence to support the view that the questioned entry *"/encephalitis/encephalopathy"* was written using a pen different from that used by Dr Sands to make an entry timed at 5.15 pm on a Prescription Card. However, the Raman spectrum obtained from the questioned entry *"/encephalitis/encephalopathy"* is similar to that which can be obtained from an analysis of commonly available BIC ballpoint pens.
3. My findings are essentially inconclusive. I am unable to determine when the questioned entry *"/encephalitis/encephalopathy"* in the Medical Notes was made by Dr Sands, or the entry *"4pm"* was made by Dr Webb, either in absolute terms or in relation to other entries made by him on these documents.

QUALIFICATIONS, BACKGROUND AND EXPERIENCE

I am a Bachelor of Science and a Doctor of Philosophy. I was formerly the Head of the Questioned Documents Section of the Metropolitan Police Forensic Science Laboratory (Scotland Yard). With over thirty-six years' experience in all areas of the scientific examination of documents and handwriting, I now lead the scientific work of The Giles Document Laboratory.

Training and background

I trained in all aspects of Forensic Document Examination in the Questioned Documents Section of the Metropolitan Police Forensic Science Laboratory (MPFSL) in London, where I worked for thirteen years. In 1986 I was appointed Head of that Section supervising the work of twelve experienced scientists. In addition to carrying out my own casework, my responsibilities at that Laboratory included direction of research, Quality Assurance and the Training of Questioned Document Examiners. From 2002 – 2009 I was registered with the Council for the Registration of Forensic Practitioners and was a Speciality Assessor of candidates for registration.

The Giles Document Laboratory

In 1989 I left the MPFSL to set up my own independent Laboratory. The Giles Document Laboratory is equipped to the highest standards for Forensic Document Examination. The Laboratory has made specific investment to ensure that the most up-to-date equipment is available for all necessary examinations, including the latest in Video Spectral Comparators and Raman Spectrometry for ink examinations, electrostatic detection equipment (ESDA) for detecting impressions, etc. I have worked closely with manufacturers in the development of new equipment, software and techniques. The Laboratory also uses image capture software to provide demonstration material for reports and Courts. The Giles Document Laboratory is accredited to the internationally recognised Quality Standard, BS EN ISO 9001 : 2008.

Standing in the profession

I am an active member of the leading learned organisations in the field:

- The Forensic Science Society
- The American Society of Questioned Document Examiners
- The Gesellschaft für Forensische Schriftuntersuchung

I have attended meetings in the United Kingdom, Europe, the United States and South America, contributing papers on original research carried out at the Giles Document Laboratory. I chaired the Forensic Science Society Questioned Document Group Meetings in 1987, 1991 and 1998. In 1999 I was appointed Chair for the Questioned Documents discipline at the 15th Triennial Meeting of the International Association of Forensic Sciences in Los Angeles, USA.

I have contributed to scientific journals and forensic science text books and am a member of the Editorial Board of the Journal of the American Society of Questioned Document Examiners. I have been appointed as an external examiner by the University of Strathclyde and have appeared as a consultant expert on television and radio a number of times.

In 1992 I gave evidence to the House of Lords Select Committee on Science and Technology (Sub-committee on Forensic Science), and in 1994 participated in the development of National Vocational Qualifications in Questioned Document Examination and in the Working Group for the Registration Council for Forensic Practitioners (CRFP).

Casework and Court Attendance

I have provided independent expert advice to Claimants, Defendants and Prosecutors in thousands of cases, both in the United Kingdom and overseas.

- Disputed handwriting and signatures
- Inks
- Alterations to documents
- Latent impressions
- Photocopies
- Faxes
- Typewriting
- Products of modern office technology

I advise a wide range of clients:

- Banks
- Building Societies
- Financial Institutions
- Solicitors
- Companies
- Government Agencies
- Police
- Crown Prosecution Service

My experience is extensive in presenting expert evidence in British and international courts of law (including the International Court in The Hague) as well as Arbitration and Employment Tribunals. As an expert who deals with both civil and criminal cases, I have given evidence in the High Court, the Court of Appeal, the County Court, the Crown Court and Magistrates Courts. I have been trained in the role of Single Joint Expert and routinely act in this capacity.

DOCUMENTS EXAMINED

(Copies of the parts of these documents relevant to my examinations are attached to this report)

<i>Nº</i>	<i>Description</i>	<i>Date</i>
[1]	Prescription Card	22 October 1996
[2]	Prescription Card – Re-written 9.30 pm	22 October 1996
[3.1 – 3.6]	Medical Notes	21 – 22 October 1996
[4]	Cardboard Folder	04 September 1987

THE DATING OF DOCUMENTS

The dating of documents is a difficult forensic science problem. There are no reliable techniques available which allow the absolute dating of ink on paper. Occasionally documents can be dated by association with other documents of known age by a study of latent marks and impressions which are not visible to the unaided eye.

Impressions of handwriting may be left on a document as a result of writing on another document which at the time of writing was overlying the first one. These impressions are rarely visible to the naked eye and need to be detected using specialised equipment and techniques.

I therefore examined the Prescription Cards [1 and 2], the Medical Notes [3.1 & 3.2 and 3.5 & 3.6], as well as the Notes [3.4] bearing the questioned entries, using the techniques of obliquely directed light and Electrostatic Detection (ESDA).

In addition, I used obliquely directed light to examine the Cardboard Folder [4] which is a document not amenable to examination using the ESDA technique.

Results

The results of my examinations are set out in the following table.

Table – Examination of impressions

Document	Impressions found
[1]	Impressions of encircled figures and "spm" from unknown sources
[2]	No significant impressions
[3.1]	"ALLEN" and "Epilepsy severe" – all from unknown sources
[3.2]	██████████ Removal of two staples Monday 28 October" from unknown source
[3.4]	No significant impressions
[3.5]	No significant impressions
[3.6]	"Claire Roberts" and some faint fragmentary impressions all from unknown sources
[4]	Some isolated figures from unknown sources

There are few impressions on the Medical Notes [3]. Those impressions which I did find appear to have originated from other documents which I have not seen. Accordingly, there is no evidence that the Medical Notes [3] were made whilst the individual cards [3.1 & 3.2], [3.3 & 3.4] and [3.5 & 3.6] were lying one on top of another.

I found no evidence of impressions of the entries "/encephalitis/encephalopathy" or "4pm", both of which appear on the Medical Notes [3.4], on any of the other documents.

EXAMINATION OF INKS AND PEN LINES

I examined the entry made by Dr Sands on the Prescription Card timed at 5.15pm [1] and the questioned entry "/encephalitis/encephalopathy" on the Medical Notes [3.4] using a Video Spectral Comparator. This instrument allows the ink of the writings to be viewed in infra-red light and also under conditions which cause fluorescence at different wavelengths. Using these techniques it is possible to examine features of the writings not visible to the unaided eye and to distinguish between inks which appear to be similar. I also examined these handwritten entries using a Raman Spectral Comparator which can be used to further distinguish between inks which appear similar.

I further examined the detail of these writings using low power stereomicroscopy.

Results

The entry made by Dr Sands on the Prescription Card [1] and the questioned entry *"/encephalitis/ encephalopathy"* are made in black ballpoint pen ink.

The ink of the questioned entry *"/encephalitis/encephalopathy"* [3.4] appears somewhat different from that of the writing on the Prescription Card [1] when viewed using the Video Spectral Comparator, and there are also differences in the Raman spectra obtained from these inks. The apparent differences in these inks are not easy to interpret and may have arisen, not as a result of different composition of ink being used, but because of the relative amount of dye in the ink being delivered from the pen to the paper in these writings. When viewed using low power microscopy the writings of the questioned entry *"/encephalitis/encephalopathy"* do appear to contain somewhat less dye than the entries on the Prescription Card [1].

I have also noted that the Raman spectrum obtained for the questioned entry *"/encephalitis/ encephalopathy"* is similar to that of BIC ballpoint pen inks from my laboratory collection. The components of the Raman spectra obtained for the ink used for other writing made by Dr Sands on the Prescription Card [1] may be from this brand of ink but are less easily identifiable.

CONCLUSIONS

I have considered the following propositions with regard to each of the entries *"/encephalitis/ encephalopathy"* and *"4pm"* on the Medical Notes [3.4]:

1. That the entry was made at a similar time to the other medical notes on this page.
2. That the entry was made at a significantly later time.

In this Laboratory, in keeping with the practice of Forensic Science Laboratories around the world, conclusions are expressed on a qualitative scale describing the strength of the evidence. The main points on the scale are:

Positive

Conclusive evidence
Very strong evidence
Strong evidence
Weak evidence

Inconclusive
evidence

Negative

Weak evidence
Strong evidence
Very strong evidence
Conclusive evidence

The results of my examination of impressions on the documents provided for examination [1 – 4] is consistent with the Medical Notes having been made with each card placed separately on the writing surface, rather than with the cards placed one on top of another in a pile. Therefore, although there is no evidence of impressions of either of the questioned entries *“/encephalitis/encephalopathy”* and *“4pm”* [3.4] on any of the other cards bearing Medical Notes [3.1 & 3.2 and 3.5 & 3.6], the Prescription Cards [1 and 2] or the Folder [4], this would be in keeping with manner in which the other Medical Notes appear to have been written.

There is positive, albeit weak, evidence to support the view that the questioned entry *“/encephalitis/encephalopathy”* [3.4] was written using a pen different from that used for writings made by Dr Sands on the Prescription Card [1] . However, I have noted the Raman spectra obtained from the questioned entry *“/encephalitis/encephalopathy”* [3.4] is similar to that which can be obtained from an analysis of BIC ballpoint pens. Such ink is very common and several pens each containing ink of similar chemical composition, although differing in the amount of usage, may have been available during the period when the relevant Medical Notes were made by Dr Sands.

My findings are essentially inconclusive. I am unable to determine when the questioned entry *“/encephalitis/encephalopathy”* in the Medical Notes was made by Dr Sands, or the entry *“4pm”* was made by Dr Webb, either in absolute terms or in relation to other entries made by him on these documents.

DECLARATION

1. I understand that my overriding duty in written reports and giving oral evidence is to the Inquiry. I believe that I have complied with that duty.
2. I am aware of the requirements of Part 35 of the Civil Procedure Rules and Practice Direction, and the Protocol for Instruction of Experts to give Evidence in Civil Claims.
3. The report reflects my views as an independent expert.
4. I believe my report to be accurate and to cover the issues which I have been asked to address.
5. Where relevant I have included in my report any information of which I have knowledge, or of which I have been made aware, that might adversely affect the validity of my conclusions.
6. Where relevant I have indicated in my report any sources of information upon which I have relied.
7. I will notify those instructing me immediately, and confirm in writing, if for any reason my existing report requires any correction or qualification.
8. I understand that my report, subject to any corrections before swearing as to its correctness, will form the evidence to be given under oath.
9. I understand that any cross-examination on my report may be assisted by an expert.
10. I confirm that I have not entered into any arrangement where the amount or payment of my fees is in any way dependent on the outcome of the case.
11. I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signed:



Date:

13th September 2013

DOCUMENTS EXAMINED

NORTHERN HEALTH & SOCIAL SERVICES BOARD
ALBANY BELFAST HOSPITAL FOR SICK CHILDREN
PRESCRIPTION SHEET

PARENTERAL DRUGS
REGULAR PRESCRIPTIONS

DRUG SENSITIVITY

Date Comm.	DRUG (Block letters please)	DOSE	Time of Administration										Method and other Instructions	SIGNATURE	Discontinued	
			AM 6	AM 8.30	MD 12	PM 12.30	PM 5.30	PM 6	PM 9.30	MN 12	Other Times	Date			Initials	
1/10/96	Penthrin	60mg		✓						✓		IV	T.H.			
1/10/96	MIDAZOLAM	2mg/kg										IV	T.H.			
1/10/96	CEFTIOXIME	600mg		✓		✓	✓	✓				IV	T.H.			
1/10/96	ALYLOXIC	240mg		✓		✓		✓				IV	T.H.			
1/10/96	FLUCON	5mg		✓		✓		✓				IV	T.H.			
1/10/96	Sodium Valproate	200mg										IV	S.H.	22/10	BM	

DRUGS-ONCE ONLY PRESCRIPTIONS

Date	DRUG (Block letters please)	DOSE	Time of Admin.	Method of Admin.	SIGNATURE	Given by Initials
1/10/96	DIAZEPAM	5 mg	12.15	PIV	T.H.	T.H.
1/10/96	Penthrin	60mg	2.45pm	IV	T.H.	T.H.
1/10/96	MIDAZOLAM	10mg	3.25pm	IV	T.H.	T.H.
1/10/96	SODIUM VALPROATE	400mg	5.15pm	IV	T.H.	T.H.

DESCRIPTION SHEET

PARENTERAL DRUGS

REGULAR PRESCRIPTIONS

Re-written 9:30 pm
-221 76.

DRUG SENSITIVITY

Date Comm.	DRUG (Block letters please)	DOSE	Time of Administration										Method and other Instructions	SIGNATURE	Discontinued	
			AM 6	AM 8.30	MD 12	PM 12.30	PM 5.30	PM 6	PM 9.30	MN 12	Other Times	Date			Initials	
2/10	PHENYTOIN	60mg		✓					✓			✓	JM			
2/10	MIDAZOLAM	2nd Phleg										✓	JM			
2/10	CETOPAKIME	600mg		✓		✓			✓			✓	JM			
2/10	FLUCLOXACIL	200mg		✓		✓			✓			✓	JM			
2/10	NEPSOL	Smis		✓		✓			✓			✓	JM			

DRUGS-ONCE ONLY PRESCRIPTIONS

[illegible]

TC03913 [2]

[illegible]

DRUG SENSITIVITY

[illegible]

**TAKE HOME DRUGS
INDICATE BY LETTER**

810	Details	Initials

ord	Name of Patient	Age	Hospital Number	Consultant
EM	CHARIE ROBERTS	91 10/12	328750	Dr Steen

DATE

CLINICAL HISTORY, EXAMINATION AND PROGRESS

1/10/96. 9 year old admitted via A&E
8pm.

pc Vomiting at 3pm and every hour since
Slurred speech + Drassy
Off food yesterday, loose motion 3 days ago.

Hx Severe learning difficulties
Seizures 6 mto - 1yr - Controlled by Me Valproate
Age 4 - x1 seizure
Anti-convulsant gradually weaned until
Epilepsy stopped.

HFS Speech - ca. speak in sentences, meaningful
Hearing @

V. vision @

FM scribbling - feed herself & supervise
Cannot dress herself

Grossly Walk, Rm. UP + Down stairs. Favours left side & body
- Torban? Special school. Dundee

- D. Gaston U.D., previously D. Myles

Recently tried Rhythmic - Dry mouth, The became
agitated, Dry mouth

OH nil

PH.

OT

all nil

9

DATE	CLINICAL HISTORY, EXAMINATION AND PROGRESS
9/6	37°
	Aes. I+II 80/min.
	R. clear
	Abd 80k. NDR tender no mass.
	CROS. Fundii normal, Discs NDR blurred.
	PERLA
	Hb VII - IX - X -
	PROS. Sit-up r SKAis Vacantly, ? Abaxie
	Power not ascribed
	Tone. upper limb R. L
	Cerebral Rigidity ↑ tone
	lower limb ↑ tone
	Reflexes R. L
	DJ H +
	TD H +
	SJS H +
	KJ H H
	AJ. + +
	P. ↓ L
	clonus ⁺ clonus ⁺
	Sene - not responding to parents voice / intermittently
	responding to deep per. responding

3rd clare & bob.

DATE	CLINICAL HISTORY, EXAMINATION AND PROGRESS
<u>Ad.</u>	Viral illness 2nd Encephalitis
<u>1w.</u>	BC - WtE - BCx - Viral titres, $\pm$ Lp. - afebrile.
<u>Wk.</u>	iv fluids, iv digoxin & ? seizure. Activity. Re-assess after fluids. / JOK
<u>2w.</u>	Slightly more responsive - No temp. Observe + reassess qn. / JOK
	Na 132. $\downarrow$ Hb 10.4 K ⁺ 3.8. PCV .31 U 4.5 WCC 16.5 $\uparrow$ Gluc. 6.6. platelets 422.000 Cr 36. Cl. 96. Naproxen (stop)
2/10/96	Wk DE Sanae Admitted? Viral illness. Usually very active ⁺ , has not spoken to parents or per normal. watching. No vomiting. Vagueness/Volant (apparent to parents)

DATE	CLINICAL HISTORY, EXAMINATION AND PROGRESS
	No seizure activity observed. Attended Dr Gaston (UHD) 6mths old seizures and Ix for this - ADHD. NTS - Vort. 132 - FBC - WCC 116.4. Heme 6.6. SE Apathic. On 10 fluids. Pale color. Little response compared to normal.
	CNS. Pupils sluggish to light. Ears Difficult to see fundi. Nostr difficult to Blas. long tract signs. full see
	Imp. Non fitting status. / encephalitis / encephalopathy
	Plan. Rectal Diagram Dr West Dr Dr Gaston re Pmtx
22-10-96	Neurology - Thank you
4pm	• 7yr old girl with known learning difficulties - Parents not available. - Grandmother HD - vomiting + diarrhea yesterday pm - followed by prolonged period of poor responsiveness - Dr No Red. • Note expected to improve following rectal diazepam 5mg at 12.30pm
	SE Apathic, No reactivity. Pale Responsive - Eye opening to voice, Non verbal, withdraws from painful stimuli. Reduced movements Rt side? Brigade, all 4 limbs. Mildly increased tone both arms Reflexes hyperreflexic brisk.

TC03913 [3.5] *jl*CH 328770
MISS CLAIRE ROBERTS
[REDACTED]10/01/87
Female
[REDACTED]EHSSB
CONSULTANT

WD/OP

DATE

CLINICAL HISTORY, EX

22.10.86

- Glaucoma - sustained both eyes

for 11.

- Sits up - eyes open - looks rascally.

Not sleeping normally.

- Pupils - 5mm.

Optic disc pale. No pupilloconstriction.

Pupils pinfixed & unequal movements appear (R).

Imp - I don't have a clear picture of problem & yesterday's episode.*note* *had* findings today are probably long standing but this needs to be

checked with Naim. The picture is of acute encephalopathy

most probably restricted to midline. I don't see brainstem signs.

Suggest if starting in progress or in progress the following:

1) 2.5mg/kg 12 hourly, which needs to be 6 hrs after morning dose

ii) 10mg 12 hourly

iii) if removal of fluid doesn't settle it

Diagnosis

22/10/86

2.30 pm

24 kg PHTHYTON 18 mg/kg - loading dose = 18×24
= 632 mg24 kg PHTHYTON 2.5 mg/kg 12 hourly = 60 mg 12 hourly either iv
or orally.

Check levels at 9pm.

Robtson

WNC 782

55

DATE	CLINICAL HISTORY, EXAMINATION AND PROGRESS
22/10/96	S/B. de Weert
	Still in status
	1. MIDAZOLAM 0.5 mg/kg STAT DOSE = 0.5×24
	= 12 mg IV STAT
	2. MIDAZOLAM 2 mg/kg/min = 2×24 mg/min
	= 48 mg/min
	= 48×60 mg/hr
	= 2880 mg/hr
	= 2.88 mg/hr INFUSION
	= 69 mg/24 HRS.
22.10.96	
17.00	- Gauri has had a loading dose of phenytoin & is looking
	of improvement. She continues to be largely unresponsive.
	She responds by flexing her (L) arm to deep supracotidal puffs
	& does have focal grimace - but no localisation
	She has intermittent mouthing & clasp movements.
	- Background from mum - contact with cousin in Aust who had a
	B.I.T. upset. Cousin had back problems on Sunday & Monday
	Monday. She had some focal ops on Monday & is still
	sleeping.
	- Plan. 1) Cover E. leproline & cyclobut > 48 HRS - I don't think
	neuroencephalitis is likely
	2) Check renal outcomes ? enterokinase - stool, urine
	blood & T/S
	3) Add IV sed. response 10 mg/kg IV bolus followed
	by infusion of 10 mg/kg IV over 12 HRS

On 11/11

TC03913 [4]

WRC-1

THE ROYAL BELFAST HOSPITAL FOR SICK CHILDREN

Name

Claire Roberts

Confidential

the

10 m
500 mg
380 mg
5 mg

ITAL No.

REGISTRATION

TC03913 [4]

Name and First Names (in block letters)

Roberts Clare

Date of Birth

10/1/87

Address (in block letters)

Sex

F

Telephone No.

797445

School

Religion-Inpatient and Special Outpatient only

Changes of Address

IMMUNISATION

DATE

B.C.G.

Heaf

Mantoux

Small Pox

Diphtheria

Pertussis

Poliomyelitis

Tetanus Toxoid (1)

(2)

(3)

Booster Dose

Tetanus (A.T.S.)

Family Doctor

McMillan

Person to be notified in an Emergency:-

Name

Roberts J.A.

Address

Telephone No.

Occupation of Father

Affix Blood Group Reports in this space

Date of Admission

Date of Discharge

Diagnosis

Code

9/87

18/9/87

Seizures

780-3

BELFAST HOSPITAL FOR SICK CHILDREN

CONSENT BY PARENT OR GUARDIAN

MARGARET JENNIFER ROBERTS of [REDACTED]

consent to the submission of CLAIR MCG ROBERTS to the operation
 CT SCAN, the nature and effect of which have been explained to me
 by R. HACKLE.

consent to such further or alternative operative measures as may be found necessary during the course of the
 and to the administration of a local or other anaesthetic for any of these purposes.
 assurance has been given to me that the operation will be performed by a particular surgeon.

8-9-87.

(Signed)

Robert

that I have explained the nature and effect of this operation to the child's parent/guardian.

8-9-87.

(Signed)

Joan A. Hackle

CONSENT BY PARENT OR GUARDIAN

of

consent to the submission of to the operation
 , the nature and effect of which have been explained to me

consent to such further or alternative operative measures as may be found necessary during the course of the
 and to the administration of a local or other anaesthetic for any of these purposes.
 assurance has been given to me that the operation will be performed by a particular surgeon.

(Signed)

that I have explained the nature and effect of this operation to the child's parent/guardian.

(Signed)

CONSENT BY PARENT OR GUARDIAN

of

consent to the submission of to the operation
 , the nature and effect of which have been explained to me

consent to such further or alternative operative measures as may be found necessary during the course of the
 and to the administration of a local or other anaesthetic for any of these purposes.
 assurance has been given to me that the operation will be performed by a particular surgeon.

(Signed)

that I have explained the nature and effect of this operation to the child's parent/guardian.

(Signed)