

**Dental Comparison Report**

DEAD BODY

No 1

MISSING PERSON

Family name: HYYTIÄINEN

No. 1

Forename(s): Markku Tapani

Date of birth:

Day 15

Month 02

Year 1961

Male

Nature of disaster: Flight Accident (Swearingen N 26 RT, Fairchild Merlin 3)

Place of disaster: Tuusula (Helsinki) Finland

Date of disaster: Day 23, Month 02, Year 1989

Material. 1) Dental Chart, provided by Vihti Dental Care Center, Period Covered: From 15.02.1968 To 06.02.1986, two copies of Dental X-Rays (probably 06.02.1986), OPG (Ortopantomography) OBD (Obduction #) 381/89

d 18 AM present, PM present, id +  
 d 17 AM present a(malgam) O(cclusal) D(istal), PM present aOD, id +  
 d 16 AM present aO aD, PM present aO aD, id +  
 d 15 AM present, PM present, id +  
 d 14 AM present, PM present, id +  
 d 13 AM present, PM present, id +  
 d 12 AM present r(esin)M(esial) rL(ingual), PM present rM rL, id +  
 d 11 AM present rB(uccal), PM present rB, id +  
 d 21 AM present rB, PM present rB, id +  
 d 22 AM present rM, PM present rM, id +  
 d 23 AM present, PM present, id +  
 d 24 AM present aOB, PM present aOB, id +  
 d 25 AM present aOMB, PM present aOMB, id +  
 d 26 AM present aOD, PM present aOD, id +  
 d 27 AM present aO, PM present aO, id +  
 d 28 AM present, PM present, id +  
 d 38 AM present aOM, PM present aOM, id +  
 d 37 AM present aOMBDL, PM present aOMBDL, id +  
 d 36 AM present aOMBD, PM present aOMBD, id +  
 d 35 AM present, PM present, id +  
 d 34 AM present, PM present, id +  
 d 33 AM present, PM present, id +  
 d 32 AM present, PM present, id +  
 d 31 AM present, PM present, id +  
 d 17 AM present, PM present, id +  
 d 17 AM present, PM present, id +  
 d 31 AM present, PM present, id +  
 d 41 AM present, PM present, id +  
 d 42 AM present, PM present, id +  
 d 43 AM present, PM present, id +  
 d 44 AM present, PM present, id +  
 d 45 AM present, PM present, id +  
 d 46 AM present aOMD, PM present aOMD, id +  
 d 47 AM present aOD, PM present aOD, id +  
 d 48 AM present aOD, PM present aOD, id +

The AM X-Rays showing the teeth and ten (10) amalgam fillings and the X-Ray-anatomic shape of the root filling of d 37 correspond perfectly the shape visible in the PM OPG. Totally 23 id+, id- none. -  
 The dental identification is therefore beyond reasonable doubt.

Helsinki, 27th February, 1989.

**Odontologist**

Name Captain Hannu MÄKELÄ

Address The Finnish DVI-Team, Interpol-Helsinki

Phone number 358-0-16271, fax 358-0-174782, home phone and fax 941-631236

Signature Hannu MÄKELÄ

Police officer (writing the Dental Comparison Report)

Rank Deputy Chief

Name Matti TENHUNEN

Address The Finnish DVI-Team, Interpol-Helsinki

Phone number (358) -(0)-16271, fax (358) -(0)-174782

Signature Matti TENHUNEN

**D<sup>R</sup> OSCAR AMOËDO**

**L' Art Dentaire**

**EN**

**Medecine Legale**

**Masson & C Editeurs**

**120, B<sup>D</sup> S<sup>T</sup> Germain. Paris**

# L'ART DENTAIRE

EN

# MÉDECINE LÉGALE

PAR

LE D<sup>r</sup> OSCAR AMOËDO

Professeur à l'École Odontotechnique de Paris



PARIS

MASSON ET C<sup>ie</sup>, ÉDITEURS

LIBRAIRES DE L'ACADÉMIE DE MÉDECINE

120, BOULEVARD SAINT-GERMAIN

—  
1898



**DNA ANALYSIS IN FORENSIC MEDICINE:  
Application of the polymerase chain reaction (PCR)  
to the identification of individuals**

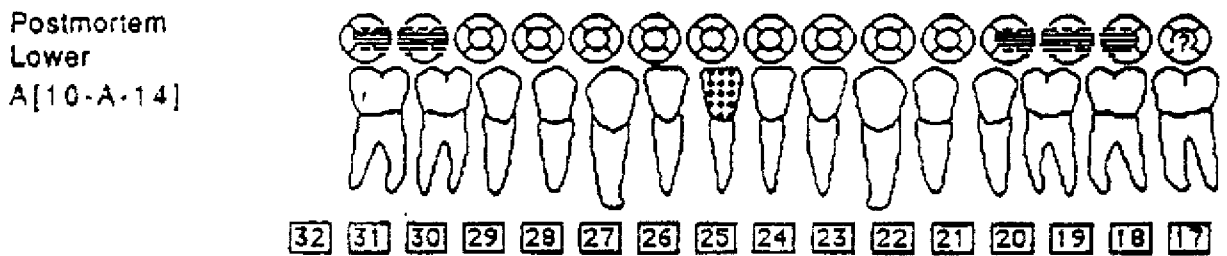
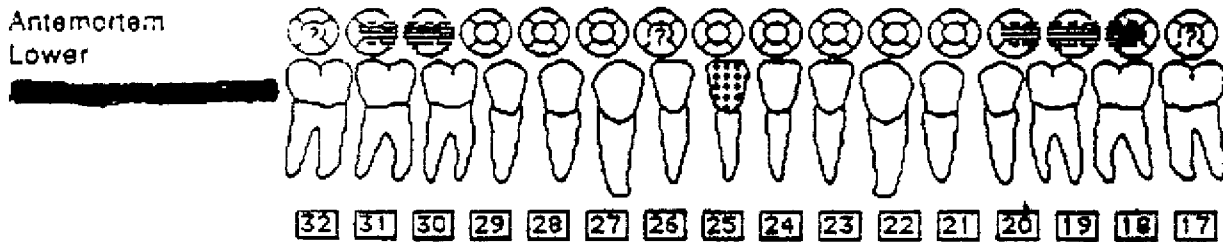
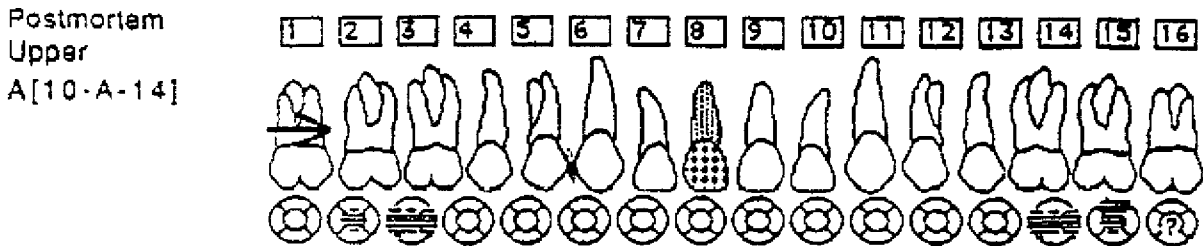
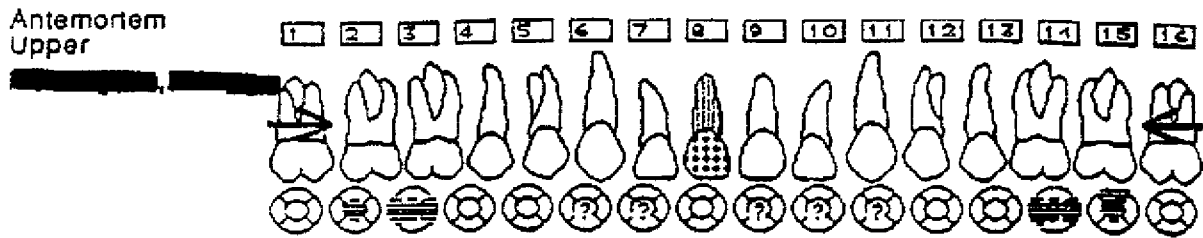
**Antti Sajantila**

**Appendix # 6**

The title page of Antti Sajantila's dissertation, "DNA Analysis in Forensic Medicine : Application of the Polymerase Chain Reaction, PCR, to the Identification of Individuals", Helsinki, 1992.

**ACADEMIC DISSERTATION**

To be publicly discussed, by permission of the Faculty of Medicine  
of the University of Helsinki, in the Lecture Hall of the Department of Forensic Medicine,  
Kytösuontie 11, Helsinki,  
on March 20<sup>th</sup>, 1992 at 12 o'clock noon




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Approved by Chief Odontologist      Date  
Wayne County, Michigan  
Allan Warnick, D.D.S.

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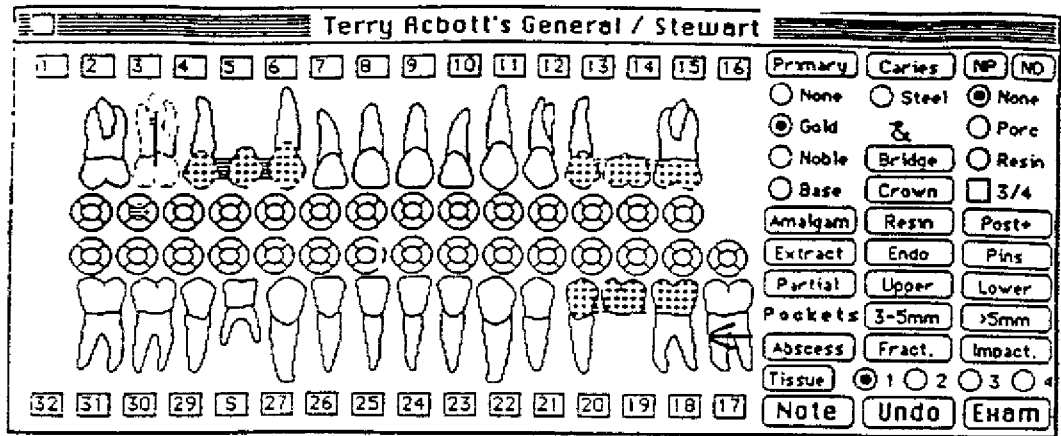
Approved by Chief Medical Examiner      Date  
Wayne County, Michigan  
Werner Spitz, M.D.

Monday, September 14, 1987

The Dental Comparison Output, included in a letter from NCB Washington to NCB Helsinki. The statement is signed by D.D.S. Allan Warnick, Chief Odontologist, and M.D. Werner Spitz, Chief Medical Examiner, both from Wayne County, Michigan, USA.

TOTAL F.I.C.

"The Mac and a suite of software tools called MatchPics played a critical role in speeding the identification of the 111 victims of the July 19, 1989, crash of United Airlines Flight # 253." A clip of MacWeek 12 September 1989 "Mac On Scene At Crash".



Charts created using MatchPics, developed by a dental forensics team lead by Northwestern University's Dr. Stephen Smith, were used to identify victims of the Sioux City airline crash.

## Mac on scene at crash

By Ben Templin

Sioux City, Iowa — The Mac and a suite of software tools called MatchPics played a critical role in speeding the identification of victims of the July 19 crash of United Airlines Flight 253 here.

Matching previous dental records with those of the unknown bodies was virtually the only way to identify the remains of most of the 111 victims of the airline disaster.

The dental forensics team arrived on the scene with four Macs and MatchPics, which uses HyperCard, Excel, 4th Dimension and a customized version of ToothPics, a dental management program from the Tempe, Ariz.-based Class One Inc. MatchPics lets forensic dentists build a database of dental charts and then search for identifying characteristics, such as a filling in a particular place or a missing tooth.

More than 100 of the victims in the Sioux City crash were recognized by matching previous dental charts to charts done in a post-mortem. The charts were then imported into HyperCard and compared on-screen with charts sent by the victims' dentists. The

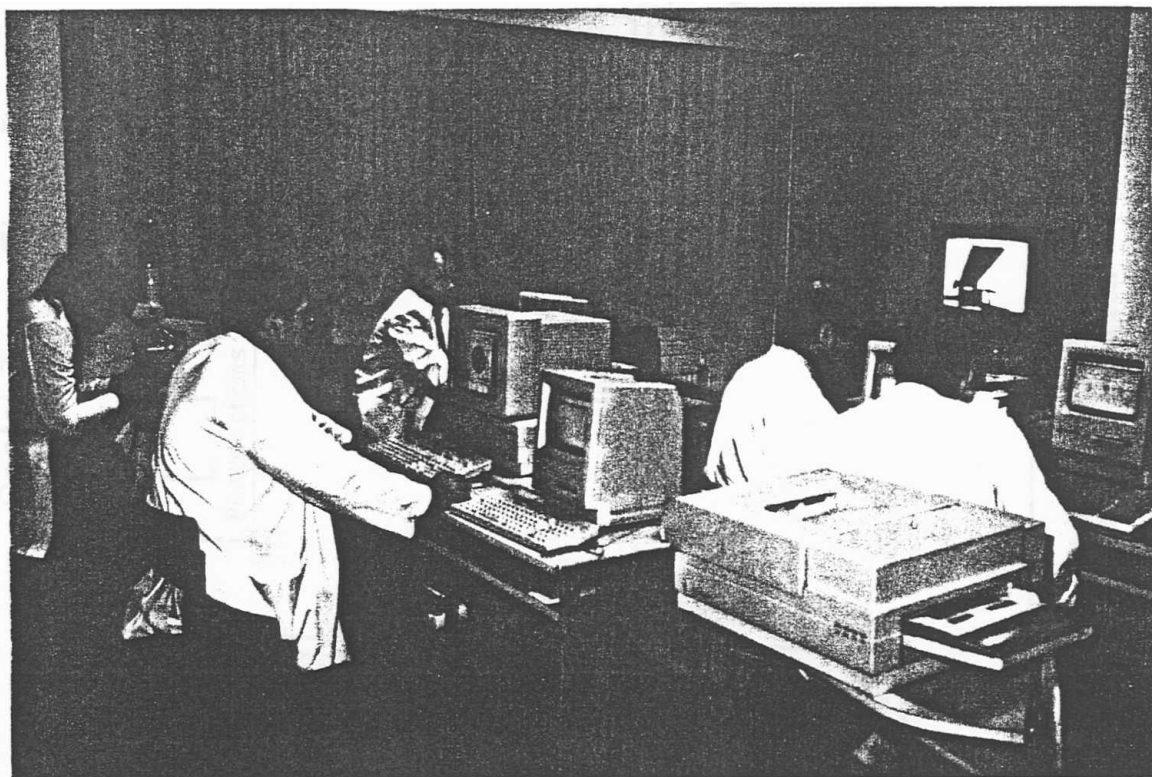
forensics team was in full swing within 36 hours of the crash, and all but six of the bodies were identified within two days after that. Without computers and the customized software, the identification process could have taken weeks, according to Dr. Stephen Smith, dental forensics chairman at Northwestern University in Chicago and head of the team at the crash site. The team provided computer updates to the airline and families every two hours and provided laser-printed documentation to medical examiners on the scene.

Smith also helped at the 1987 Northwest Airlines crash in Detroit, which claimed 156 victims (see MacWEEK, Oct. 13, 1987). The key there, as in Sioux City, was MatchPic's on-screen dental chart. "It's something familiar to all dentists," said Smith.

Smith said he sees the tools as useful for other relief efforts. "When you plan for a disaster like 20,000 dead in a San Andreas quake then it's an incredibly valuable tool. We are to a point where we have to consider getting it out to other people," Smith said. □

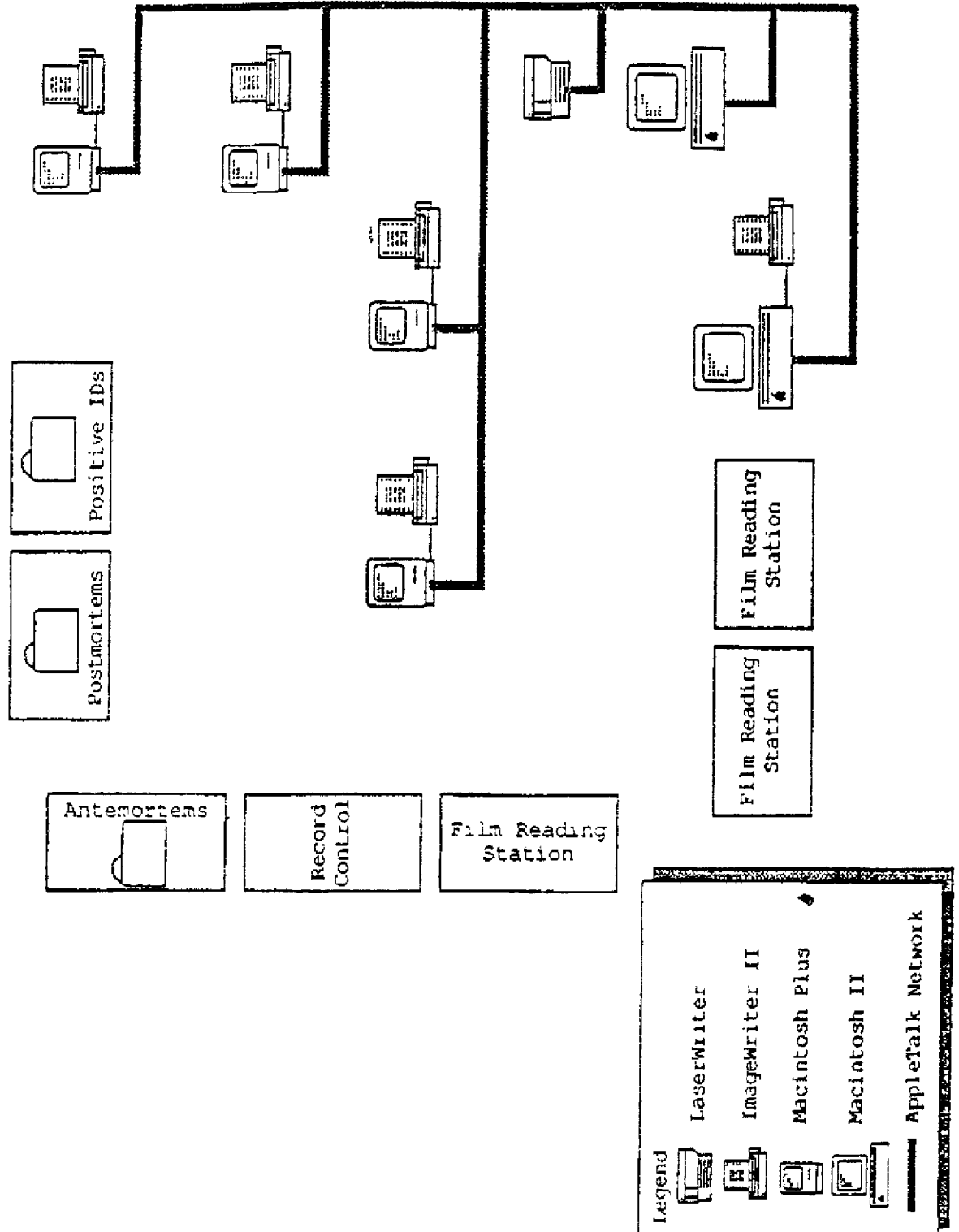
Appendix # 8

A photograph taken in the Finnish DVI Center, ForMedInstitute/  
Helsinki. The DVI Team members in their computerized work,  
February 1989.



The floorplan of the computers and peripherals used in connection of the Northwest Airlines Flight # 255 Accident, Detroit, September 1987 included in a letter from NCB Washington to NCB Helsinki.

# Northwest Airlines Flight #255 Dental Team Floor Plan





MISSING PERSON

Family name: DUNDEE No: 1  
 Forename(s) : MICHAEL JAMES  
 Date of birth: 01 Day 01 Month 50 Year Male  Female

a = Data not available b = Photo c = Further information on page G

INFORMATION RELATING to MISSING PERSON		a	b	c															
01	Family name	DUNDEE																	
02	Family name at birth	DUNDEE																	
03	Forename(s)	MICHAEL JAMES																	
04	Nationality	AUSTRALIAN																	
05	National ID number	<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td> </tr> </table>			1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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09	Occupation	CROCODILE HUNTER (SAFARI GUIDE)																	
10	Full address	Street/No. .... MAIN STREET/13 Postcode/Town 007/WALKABOUT CREEK Country ..... NORTHERN TERRITORY/AUSTRALIA																	
11	Religion	PROTESTANT																	
12	Next-of-kin	Name..... MR. WALTER REILLY Address . MAIN STREET/13, C/O HOTEL BAR 007/WALKABOUT CREEK, # 123-456-7890 Phone..... NORTHERN TERRITORY/AUSTRALIA Relationship..... BUSINESS PARTNER																	
13	For visual ID contact	Name..... MISS SUE CHARLTON Address..... WALL STREET 123, NEW YORK CITY NEW YORK, USA Phone... 987-654-3210 Relationship..... MISTRESS																	

Police officer: Rank..... DETECTIVE SERGEANT  
 Name..... JIM DONK, CREEK POLICE,  
 Address .... HQ, # 007-45-69  
 Phone number..:

Signature: *Jim Donk*

Appendix # 10

Interpol DVI Form, Ante Mortem, A 1, enhanced for easy readability for the international exchange of AM and PM information with a special forms program (TrueForm).

Appendix # 11

Inmarsat's global satellite coverage means that the transportable systems, like the TLC Lite, photographed in the Air Force HQ, Finland, work totally independent of local networks.

