

INTRO		
THAMES AND PARLIAMENT  STILL: SHERLOCK HOLMES	10.00.01 10.00.20  00.26  00.30	MUSIC: PROVINCIAL TOWN MUSIC OUT COMM 01 The river Thames. Along whose banks the fictional detective, Sherlock Holmes, tracked down criminals with the forensic science he'd invented.
CUs WATER ON THAMES	00.35  00.37	V/O Elementary my dear Watson COMM 02 In his day, it was observation and deductive reasoning.
SCIENCE LABS	<u>00.43</u>	
NORTHAMPTON ARCHIVE	00.44	COMM 03 It's all very different today...
COMPARISON MICROSCOPE	00.46 00.50	COMM 04 Now it's... the Comparison microscope.
WHITE FLASH		SOUND EFFECT
BATCHING DNA TRACKING SHOT	00.56	COMM 05 Polymerase Chain Reaction – that causes a minute DNA sample to clone itself.
WHITE FLASH	01.00	SOUND EFFECT

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

BLOOD DROPS CROSSCUT MICROSCOPE: ADD PURPLE	01.00	COMM 06 Blood splatter analysis. Which can show how many blows a murderer struck.
WHITE FLASH	01.06	SOUND EFFECT
WAREHOUSE TOPSHOT WITH PURPLE DNA	01.07	COMM 07 And of course DNA itself. With its national Database of samples from nearly a million criminals.

BURGLARY INVESTIGATION

OLDBURY SET-UP SHOTS	01.15 01.21 01.23	COMM 08 The tools of detection are now pure twenty-first century, in the age old quest of detectives everywhere ..... to unravel the truth beyond reasonable doubt.  WPC FOXTROT, 35, 35, FOXTROT 32, Received.
POLICE CAR TO BURGLARY ALISON GOES INTO HOUSE	01.27	COMM 08a In a suburb of Birmingham, Central England, P.C. Alison Geddes has been called out to investigate a burglary.
CHATS TO OLD MAN		ACTUALITY ALISON
LOOKING AT GLASS ETC		COMM 09 But in Britain crime figures for burglary, theft, auto crime and drug crime are all down, as new forensic techniques have

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

		become routine.
	01.36	KEYHOLDER ACTUALITY This wasn't discovered. Broken glass here.
	01.39	COMM 10 This burglary couldn't be more mundane. Yet all the detective work of the new scientific methods will be brought to bear. P.C. Geddes secures the area against contamination.
ALISON LOOKS AT GLASS	01.49	ACTUALITY ALISON Have you touched these pieces of glass, sir, at all? ACTUALITY KEYHOLDER No ACTUALITY ALISON Just to double check. Yeah, that's looking like the favourite spot, I think.
	01.57	COMM 11 Then she calls in the specialists:
ALISON AND KEYHOLDER	02.00	ACTUALITY ALISON OK. I'll get onto the radio. And ask for our Scenes of Crime to attend...
ALISON ON RADIO	02.05	...Yeah, I'm at the scene of this burglary. I wonder if
JOHN ARRIVES	02.08	you could ask SOCO to attend.
	02.13	COMM 12 Even at routine domestic burglaries, Scene of Crimes officers attend. Why so much effort?
	02.21	ACTUALITY JOHN Morning... Not too bad thank-you

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

	02.23	COMM 12a Because the same criminals commit other crimes – sometimes much more serious offences. And if forensic evidence has caught a criminal once - he's on the database for life.
	02.34	ACTUALITY JOHN Was the key left in the door, do you know?  ACTUALITY KEYHOLDER On the inside
JOHN DUSTS FOR PRINTS	02.40	COMM 13 No matter how careful the burglars were they will have left something of themselves behind. John still checks for fingerprints. But he's also looking for other, more telling, forensic clues.
SOCO SCRAPES UP GLASS FROM GLASS PANES	02.54	MUSIC: IN THE LAB  COMM 14 Ten years ago this would just be broken glass. But all glass is manufactured in a slightly different way . Carefully examined, fragments of glass powder which may now be on the burglars' clothes are as individual as fingerprints.
		JOHN EXPLAINS
JOHN FINDS FIBRE ON WINDOW	03.12	COMM 15 Minute fibre traces, left on the broken window, can be just as damning. They too can be matched.
		JOHN EXPLAINS

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

	03.20	Just one. One length of a dark coloured fibre.
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FORENSIC LABS
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VARIOUS MEAN STREETS CROSSCUT WITH POLICE CRUISING IN CARS	03.25	ACTUALITY POLICE RADIO
	03.27	COMM 16 There are over fifty separate police forces in the United Kingdom, based around individual cities and counties.
NAOMI THROUGH DOORS	03.37	MUSIC: FORWARD PROGRESS
	03.39	COMM 17 But they send all their forensic evidence for analysis to only ten central laboratories.
NAOMI (NORTHAMPTON) CHECKS IN EVIDENCE BAG	03.43	NAOMI ACTUALITY Hi. Two lots of evidence for you.
	03.48	COMM 18 They process a hundred thousand evidence samples a year for police investigations.
	03.57	MUSIC ENDS
GVs EDINBURGH	03.57?	MUSIC: PROVINCIAL TOWN
	03.59	COMM 19 Edinburgh, Scotland.
TRACKING SHOTS HOUSING SCHEME etc	04.04	The whole of South-East Scotland is policed by Lothian and Borders Police.

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

EXT. LOTHIAN LAB POLICE CAR DRIVES UP RECEPTIONIST	04.10	ACTUALITY RECEPTIONIST  COMM 20 For the first time ever,
	04.12	
	04.16	
EVIDENCE BAGS BOOKED IN	04.17	cameras have been allowed access to their Forensic Science Labs to observe some of the new techniques used to solve crime; expensive science
GENERIC LAB SHOTS	04.26	that used to be reserved for high profile crimes, like rapes and murders, is now a conveyor belt process for virtually every infringement.
CAPTION [GLASS TRACES FROM CRIME SCENE]	04.37	MUSIC ENDS

GLASS SHARDS

GLASS REFRACTIVE INDEX MICROSCOPE	04.41	COMM 23 Take the glass refractive index microscope.
SOCO SCRAPES UP GLASS FROM GLASS PANES	04.45 04.49	COMM 24 Glass powder, too fine to be visible - found on a perpetrator's clothing and matched to shards at the crime scene - can trap a criminal.
B&W DVC PENCIL IN WATER	04.53  04.54	MUSIC: IN THE LAB  COMM 25 The science is based on the simple schoolboy trick of bending light through water.
DR ALLAN JAMIESON SYNC	04.59	DR ALLAN JAMIESON SYNC AJ15 When you put a pencil in water it appears to bend. And that's

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

		because the refractive index of water is
DVC PENCIL IN WATER	05.04	different from the refractive index of air. So there's this bending of light if you like...
DR ALLAN JAMIESON SYNC	05.08	...When things are in media that's the same refractive index then you don't see any any change in the light pattern...
SLIDE AND PIPETTE	05.14	...So... ...if you put diamonds in ice or water you can't see them and it's a great way of smuggling them.
	05.20	MUSIC: DOWN THE MICROSCOPE  COMM 26 But when applied to today's technology glass can be identified to the day of manufacture.
PROCEDURE	05.26	DR ALLAN JAMIESON SYNC AJ15 We take these very tiny fragments of glass put them in an oil...
		...The microscope stage is heated...
CU'S SCREEN	05.32	... The refractive index of the oil changes as it heats up. So clearly at one point the glass will have the same refractive index as the oil...
	05.41	...And at that point the glass disappears. The computer sees that, notes the temperature and hence the refractive index...
JAMIESON SYNC	05.49	...which is accurate to about three decimal places.

FIRE/PETROL (GAS CHROMATOGRAPHY)

GENERAL LAB PICTURES	05.53	COMM 27 Breaking down other samples into their constituent elements can provide a characteristic profile – a scientific fingerprint.
VHS FIRE DAMAGE	06.02	MUSIC: IN THE LAB  COMM 28 Gas chromatography is used on charred fragments from a fire,
DELIVERING EVIDENCE CROSSCUT WITH... GAS CHROMATOGRAPH	06.06	to identify accelerants like gasoline or kerosene that were used to start that fire.
CARS ON ROAD CROSSCUT WITH...	06.12	MUSIC: IN THE LAB  COMM 29 The gas volatiles are extracted and the proportions of different hydrocarbons are measured: how much propane, butane, octane. All things that cause fires to burn faster
VAUGHAN AND GAS CHROMATOGRAPH	06.25	COMM 30 These Scottish scientists can even identify the region gasoline was bought from: down to an individual oil company or refinery.

DRUGS / HAIR EVIDENCE

GRAPHIC: HAIR UNDER MICROSCOPE ZOOM IN ON HAIR	06.34	MUSIC STING AND FX
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CAPTION: 'DRUG HISTORY FROM HAIR PROFILE'		
DRUGS LAB	06.39 06.41	MUSIC: TEST TUBE  COMM 31 And <u>liquid</u> chromatography is used in the drugs lab.
	06.45	They can trace a batch of drugs to a particular dealer – by how pure it is, what it's been cut with, even what sort of soil it was grown in.
LOOKING DOWN MICROSCOPE AT HAIR  JPEGs CUs HAIR	06.54	COMM 32 The human hair provides even more clues. One strand will reveal the recent history of a person's substance abuse: drugs, alcohol, nicotine – everything taken - for the past six weeks or more.
DR ALLAN JAMIESON SYNC	07.09	DR ALLAN JAMIESON SYNC AJ16 People always view hair as as a dead tissue. But in fact you've got to remember that it's been made from a live tissue and that that is you...
	07.16 07.19	...The drug is... ...integrated into the hair structure and as the hair grows it's pushed more towards the end...
MICROSCOPE SLIDE	07.21	...What we can now do is to analyse the hair for the presence of those drugs. So if you imagine the hair as being em an extended record of em you and what you've been sticking into yourself...
	07.35	...We grow roughly 2 millimetres every every week, and we've therefore got a time scale for...
	07.40	...the length of hair...

PAINT ANALYSIS (BELGIAN MOTORCYCLIST)

GRAPHIC: VAN ZOOM IN PAINT CAPTION: 'Paint EVIDENCE'	07.46	MUSIC STING AND FX
COMPARISON MICROSCOPE	07.53 07.55	COMM 33 This is the comparison microscope, which solved the case of the Belgian motorcyclist.
EDINBURGH TRACKING SHOTS	08.01	MUSIC: FORWARD PROGRESS  COMM 34 In late spring of this year, a Belgian motorcyclist was driving down
MOTORWAY SHOTS	08.08	a major road just south of Edinburgh. As she began to slow down, a lorry driver ran into the back of her.
	08.13	MUSIC ENDS
STILL VAN DVC MOTORBIKE	08.14	CRASH FX
ROSTRUM STILLS LORRY EDINBURGH TRACKING SHOTS	08.15	COMM 35 She was killed, but the lorry driver drove off and later denied being anywhere near the scene.
DR ALLAN JAMIESON SYNC	08.21	DR ALLAN JAMIESON SYNC AJ6 The lorry driver initially denied having had any contact with the vehicle. Now, the lorry was a powder-blue colour. And in actual fact we found this powder-blue colour on...
CU BLUE PAINT	08.30	...the rear tyre of the the motorbike.
GRAPHIC REG. PLATE	08.32	And also on the registration plate.

COMPARISON MICROSCOPE	08.34	COMM 36 The lorry driver's lie was exposed when the two paint samples were put under the comparison microscope.
DR ALLAN JAMIESON SYNC	08.41	DR ALLAN JAMIESON SYNC AJ11 In effect it's two microscopes plugged together at the the viewfinder...
SPOT MAGNIFICATION ION VEHICLE	08.46	Now... ...if we take the the layers of paint...
	08.48	...you're actually looking to see if they both came from the same vehicle there would be several layers of paint.
JAMIESON TO I/V  PERSON LOOKING INTO SCOPE SPOT MAGNIFICATION	08.53	So if you imagine they as as my fingers there. What we do is we take those layers of paint, turn them round flat, put them on a microscope slide. And now we can see by looking at the comparison microscope - with one sample on one side and one sample on the other...
ROSTRUM: STILLS LORRY AND MOTORCYCLE PAINT SPOTS	09.06	DR ALLAN JAMIESON SYNC AJ6 ...that the two types of paint were exactly the same.
DR ALLAN JAMIESON SYNC	09.09	Em now that doesn't mean that it could only have come from that lorry but the question must arise where else did it come from on that road on that day. So this is very good evidence that in fact the the lorry had collided with the rear of the motor cycle.

BLOOD SPLATTER ANALYSIS

GRAPHIC: BLOOD ON SHOE ZOOM IN ON DROP CAPTION: 'BLOOD'	09.23	FX WHOOSH STING
DEREK SCRIMGER DOING ROUNDS	09.29  09.33	ACTUALITY DEREK Hi Sandra, what you up to?  COMM 37 This is Derek Scrimger. He analyses blood stains: - how blood sprays out at a crime scene.
BLOOD SPATTERED BODY	09.40  09.41	MUSIC: WAREHOUSE – THE FUTURE  COMM 37a He reconstructed the horrific sequence of events in the case
STILL NAKED BODY WITH BIBLE	09.45 09.46	of this murder. During a robbery in the early 90s this man was hacked to death
STILL CU BODY	09.50	with an ornamental axe.
STILL BODY IN LIVING ROOM	09.51	FX METALIC BLOW  MUSIC: ALIEN GREENHOUSE  COMM 42 Derek was able to show that the victim was attacked three times -
STILL	09.55	in the hallway, (METALLIC BLOW)

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

BODY IN LIVING ROOM STILL ORNAMENTAL AXE	09.56 09.57 09.59  10.01	in the living room (METALLIC BLOW) and then in the bedroom before succumbing to an axe blow to the head.  MUSIC ENDS
DEREK SCRIMGER SYNC	10.02	DEREK SCRIMGER SYNC DS13 Quite often court cases were asked er would the complainer be able to defend themselves. And in that sort of instance, we're looking to try and identify whether the complainer was upright or lying on the ground at the time when more blows were being rained on their maybe their head.
VICTIM DEAD IN TOILET	10.18 10.24	FX- WHOOSH COMM 38 In this drugs related murder the victim bled to death after barricading himself in the toilet. A blood splash revealed that he had been repeatedly stabbed whilst in another room.
MONTAGE OF BLOOD SPATTER SHOTS	10.31	DEREK SCRIMGER The Larger bloodstains are very often not the most important ... we can grade the spots by the size, small or minute, the minute ones being indicative to proximity to impact
MET ARCHIVE: BLOOD ON SOLE OF SHOE	10.46	COMM 41 When blood sprays onto a surface it is possible to identify the angle at which it hit.
DEREK SCRIMGER SYNC	10.52	DEREK SCRIMGER SYNC DS10 Em, in this instance here we have blood which is thrown directly onto a...
ZOOM IN ON BLOOD SPOT	10.57	...surface, which gives us a circular pattern.
DEREK SCRIMGER SYNC	11.01	DEREK SCRIMGER SYNC DS11 As the angle of incidence decreases...

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

	11.05	...we can see that the blood, not only has it moved down from the original stain. But there are tails starting to appear at the bottom of this. Which implies that the blood has not come straight on. It's actually started to arrive at an angle.
DEREK SCRIMGER SYNC BLOOD TRAILS	11.20	DEREK SCRIMGER SYNC DS12 This blood has arrived on this surface, again not at 90 degrees, but at a very sharp angle, probably from about here, 10 degrees in fact, em and has hit the surface and rolled down almost to to this area here, giving a tail whereby the rolling of the blood reducing as it goes down...
	11.33	...We can do calculations to find out the exact angle of incidence.
DEREK SCRIMGER SYNC	11.38	DEREK SCRIMGER SYNC DS13 And from that you can work out where the body was when it was being beaten.
	11.43	Comm Sometimes blood on the walls of a crime scene need a little more imaginative interpretation
SCRIMGER ACROSS DESK WITH TRAINERS AND CLUB	11.49	DEREK SCRIMGER er It was at a murder scene about two years ago and the weapon was unknown at the time and the pattern on the wall was a standard linear pattern, but there was two tracks, a double track and it took a wee while for me to click y=that this was actually
CU CLAW HAMMER TO SCRIMGER ACROSS TABLE	12.09	a claw hammer...and that the tracks were coming off the end of the claw as it was raining down. That was quite useful to the investigating officers when they were looking for a particular weapon.

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

BW SHOT OF BACK OF MAN	12.22	COMM As a result of Derek's evidence A Guildford man was found guilty of murdering his wife
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DNA ANALYSIS – P.C.R.

GRAPHIC: HAIR ON SCALP ZOOM TO DANRUFF CAPTION DNA PROFILE	12.28	FX STING
	12.30	MUSIC: WORKING LATE
LABORATORY	12.32	COMM 43 Of all the advances in forensic science over the last five years, DNA testing has had the most revolutionary effect.  Central London.
	12.42	
DNA EXTRACTED FROM EVIDENCE SAMPLES	12.46	COMM 44 The Head Offices of the Forensic Science Service.  Every week they test thousands of crime scene samples for DNA.
CHRIS HADKISS SYNC	12.55	CHRIS HADKISS SYNC CH1 First thing we have to do is to remove the DNA from say a blood stain, and that's done with a series of chemical processes.
	13.02	MUSIC OUT very small amount of material is taken out of the stain.

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

CHRIS HADKISS SYNC	13.06	CHRIS HADKISS SYNC CH2 The amount of DNA we need for a test these days is incredibly small.
CHRIS HADKISS SYNC	13.09	CHRIS HADKISS SYNC CH1 We only need about one millionth of a gram ideally.
MS CHRIS HADKISS ACROSS TABLE	13.12	CHRIS HADKISS SYNC CH2 So if there was a blood stain on my shirt that you could see with your eyes or even a microscope there would certainly be sufficient to test. Em the tests we're researching now and that we see coming available within the next year or two em would be dealing with an amount of DNA perhaps that are left just by touching a surface, a desk a telephone,
KEYBOARD	13.31	computer keyboard.  MUSIC: IN THE LAB
DR ALLAN JAMIESON SYNC	13.33	DR ALLAN JAMIESON SYNC AJ20 You would get... ... the letter bomber em who would be very careful. He'd use rubber gloves to construct their bomb.
DVC GLOVES ON	13.40	ACTUALITY GLOVE
DR ALLAN JAMIESON SYNC		DR ALLAN JAMIESON SYNC AJ20 Write their letter. They would cut all the letters out of the newspaper ...
DVC CUTTING LETTERS		ACTUALITY CUTTING LETTERS



11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

DR ALLAN JAMIESON SYNC	13.47	DR ALLAN JAMIESON SYNC AJ20 ...They'd go to all this probably. And then they'd lick the stamp.
DVC STAMP LICKED		ACTUALITY STAMP LICKED
DR ALLAN JAMIESON SYNC	13.50	DR ALLAN JAMIESON SYNC AJ20 And of course therein lies their DNA.
DVC STAMP THUMPED		ACTUALITY STAMP THUMPED
VODKA BOTTLE	13.55	COMM 45 Here they're obtaining DNA where a suspect has drunk from a vodka bottle. That's enough to identify him.
LAB WITH PCM STAGE	14.02  14.03	MUSIC: IN THE LAB  COMM 46 The reason so little DNA material is needed is because of PCR a new, breakthrough technique which makes the DNA clone itself: just like in 'Jurassic Park'.
CHRIS HADKISS SYNC	14.14	CHRIS HADKISS SYNC CH1 We take the DNA itself and chemically ask it to copy itself, so that we can take one copy of DNA for instance and produce a million copies of the same.
PROCESS	14.23	That's called Polymerase Chain Reaction or... ...PCR. That reaction takes a couple of hours.
LOADING UP LASER MACHINE	14.30	COMM 47 The DNA in this larger sample is then tagged with a colour so that it can be 'read' by a laser.
CHRIS HADKISS SYNC	14.36	CHRIS HADKISS SYNC CH1 Very simply, DNA fragments float past the laser.

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

LASER MACHINE	14.39	The laser sees the colours...
DNA GRAPHICS COMPUTER ROOM MONITOR PEAKS	14.41  14.49	...They'd appear as a series of peaks which a computer can interpret.  MAN OK.I'm gonna take a scraping from the the inside lining of your cheek, if you'll open your mouth a little bit.
SWAB TEST ON RICHARD	14.55	COMM 48 DNA from the scene of a crime can be compared with DNA taken in a small mouth swab from someone suspected of committing the crime. British police take eight thousand mouth scrapes for DNA testing every week.
CHRIS HADKISS SYNC	15.08	CHRIS HADKISS SYNC CH21 The legislation allows the police to take a sample from anyone that's arrested for a recordable offence, That is, an offence which could potentially carry a criminal record. The police can use that power and obtain a mouth swab from you. That mouth swab can be analysed and compared to the database.
COMPUTER ROOM  W/S COMPUTER	15.25  15.26	MUSIC: ALIEN COMPUTER  COMM 49 And DNA profiles are searched for matches using a simple computer software programme.
MONITOR: DNA GRAPHICS	15.32	CHRIS HADKISS SYNC CH12 If the numerical string we obtained for instance between your profile and the scene of the crime is different

THE DNA DATABASE		
GRAPHIC: WAREHOUSE ZOOM IN ON DNA CAPTION: 'THE NATIONAL DNA DATABASE'	15.45	MUSIC STING AND FX
COMPUTER ROOM	15.52	COMM 50 PCR made it viable to set up a <u>national</u> database.
CHRIS HADKISS SYNC	15.56	CHRIS HADKISS SYNC CH7 The UK had legislation to introduce a national database very early on and that was matched by a very newly emerging technology...
SLOMO BIRMINGHAM PEOPLE	16.04	...which meant that the UK had the worlds first national database by a period of some three years...
	16.10	...Most countries in the world are looking at DNA databases of some sort basically modelled on what we've done.
SET UP OLDBURY/ BIRMINGHAM	16.17	MUSIC: PROVINCIAL TOWN – OLDBURY
	16.18	COMM 51 Birmingham. Central England. Britain's second biggest city.
TOP SHOT WAREHOUSE ADD TRACKING SHOT	16.22	COMM 52 Here in a secret location over seven hundred thousand swabs of DNA are stored in fifty freezers for the database.

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

ADD MORE W/Ss	16.31	MUSIC: IN THE LAB
COURIER VAN ARRIVES BOXES ARE UNLOADED	16.33	COMM 53 Every day eight thousand DNA samples arrive here by courier from all over the country.
TRACKING SHOT BAR CODING	16.42  16.43	MUSIC: WORKING LATE  COMM 54 These are the swabs from every person in the country charged with a jailable offence. Their profiles are bar-coded, batched, and loaded into the database.
WAREHOUSE WITH FREEZERS	16.56	COMM 55 The DNA itself is then stored here.
CHRIS HADKISS SYNC	17.06	CHRIS HADKISS SYNC CH21 If you are convicted of that offence, your record will stay on the database throughout your life. If the case is not continued with or you're found not guilty, em either by the court initially or by the appeal court, your record is removed from the database so there is no further comparison possible.
END ON W/S	17.24	COMM 56 The database produces a very high proportion of successful matches.
CHRIS HADKISS SYNC	17.29	CHRIS HADKISS SYNC CH14 Our experience with the database is that when a police officer asks for a crime stain to be examined there is about a 40% chance that will subsequently result in an identification coming back from the database for intelligence purposes. That's an incredibly high percentage compared to any other type of

		evidence.
FREEZER WAREHOUSE	17.46	COMM 57 An unexpected bonus of the database is that many crimes are solved almost randomly. Because the same criminals offend again. And again. And again.
GRAPHICS DNA	17.56	CHRIS HADKISS SYNC CH20 An example...
CHRIS HADKISS SYNC	18.02	...which springs to mind is a person arrested for a disturbance at a petrol pump em in West Midlands. His DNA was taken added to the database. And there was found to be a match to an unsolved murder.

COLD CASE REVIEW – KEITH SAMUELS

GRAPHIC: NORTHANTS ARCHIVE ZOOM IN ON BOX CAPTION 'COLD CASE REVIEW'	18.07	MUSIC STING AND FX
TRACK OVER BATCHING AT OLDBURY	18.11  18.14	MUSIC  COMM 60 Once the database was in full operation, detectives realised that many unsolved cases could be methodically reviewed using these new techniques: - what's called "cold case review".
CHRIS HADKISS SYNC	18.26	CHRIS HADKISS SYNC CH28 We have cases going back 30 years
HEADLINE: DNA Catches Woman's Killer 15 Years Later.		which we've re-investigated using DNA technology.

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

(28/1-00)		
HEADLINE Tests suggest Hanratty was the 1961 A6 Killer. (20/7-00)	18.31	CHRIS HADKISS SYNC CH28 It's quite possible that DNA from 30 years ago or more will survive and provide the same information we can get in a modern day case.
MEAN NORTHAMPTON STEETS	18.40  18.42	MUSIC: STALKING/ALIEN MARSH  COMM 61 Northampton. A small market town in England's East Midlands.
CROSSCUT WITH GRAPHICS HEADLINE 'FEAR STALKS THE STREETS'	18.48	COMM 62 Five times during the nineteen-eighties, women were raped in their homes by the same man.
ROSTRUM STILLS ADDRESSES	18.54	FX STINGS
MOTORWAY SIGNS TO MILTON KEYNES ETC	18.54	COMM 63 The rapist then committed three rapes in nearby towns.
DISSOLVE TO STILL SAMUELS	18.59	Fourteen years after his first rape, he thought he'd got away with all his crimes...
CHRIS CROSS SYNC	19.05	CHRIS CROSS SYNC Walking Chat 1 These are the types of premises that Keith Samuels was breaking into...
C/A HOUSES	19.10	...All old Victorian terrace with enclosed rear gardens. And he was able to identify
CHRIS CROSS SYNC	19.15	either single women within the premises or premises where girls were alone on the particular occasion when he broke in.
C/A HOUSES	19.24	He was aware that with these types of properties very few of them had burglar alarms.
ROSTRUM:		COMM 64

11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

ARTIST'S IMPRESSION	19.33	The victims provided the police with an artist's impression.
ARCHIVE ex VHS POLICE PRESS CONFERENCE	19.38	And clues were found: small samples of hair, blood and semen. But not enough, back then, to get a DNA profile.  WOMAN ...See what we can find.
	19.49	JOHN BOND SYNC JB4 Around 1990...
JOHN BOND SYNC	19.50	...the amount of DNA required was fairly substantial, you need a piece sort of that size um about an inch and a half across, either semen or blood, to actually get a profile from.
NORTHAMPTON ARCHIVE ROOM	20.03  20.06	MUSIC: IN THE LABS  COMM 65 Even though the case seemed hopeless, the Northamptonshire Police meticulously filed away all their evidence in their archive vaults. Including the clothing with minute traces of blood and semen. For over a decade...
POLICE ACTIVITY	20.27	COMM 66 ...Until recently and the new DNA database. Suddenly, the Northamptonshire Police had the means to re-open what had been a cold case.
JOHN BOND SYNC	20.38 20.42	JOHN BOND SYNC JB7 We're going back to 1984. So, sort of like, at the time MUSIC ENDS it was 14 years old. But the DNA is fairly long lived. And the Forensic Science Service had kept those semen samples all that time. And it was still viable enough in one of the four offences that we have, that we had, to actually give a DNA profile.

11:13 AM3/12/01 FORENSIC SCIENCE - STRUCTURE 13

NORTHANTS POLICE	20.56 21.03	COMM 68 Meanwhile, not realising the police now had his DNA, the rapist committed a new, unconnected crime.  MUSIC: TEST TUBE
CHRIS CROSS SYNC	21.05	CHRIS CROSS SYNC CC7 We had some luck within this in that er Samuels at that time was using an escort agency um and has used er a young lady from out of the County. And had er dropped a stolen cheque on her.
ROSTRUM: SAMUELS	21.19	COMM 69 Samuels was arrested for this. He became agitated and violent, resisting arrest for a relatively minor offence.
	21.27	CHRIS CROSS SYNC CC8 The officer was suspicious of him...
CHRIS CROSS SYNC	21.31	...and was concerned that an individual who was being arrested primarily for a stolen cheque um was willing to use violence to resist arrest.
ROSTRUM: NEWSPAPER ARTICLE SAMUELS CAUGHT	21.39	COMM 70 A DNA swab was taken from Samuels. Which linked him conclusively to the Northamptonshire rapes.
ZOOM OUT	21.46	COMM 71 Keith Samuels is now in prison serving nine life sentences.
NORTHAMPTON	21.52	COMM 72 In Northamptonshire alone, the DNA database has solved thousands of crimes.



11:13 AM3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

	22.00	MUSIC ENDS
JOHN BOND SYNC	21.58	JOHN BOND SYNC JB13 Since 1995 up to the present day, we have got almost 2,000 hits on the database where it has linked particular offenders to particular crime scenes. And if you think that when we interview for one offence, several others may be cleared up at the same time by that offender admitting them, we've probably got possibly up to 10,000 crimes detected in Northamptonshire, through DNA, in the last five years, that without these advances in technology would clearly not have happened.

DNA PROBLEMS		
GRAPHICS: DNA WITH... WAREHOUSE, COMPUTER ROOM, DNA PEAKS ON MONITOR	22.28  22.29	MUSIC: STALKER  COMM 73 There are dangers in relying solely on DNA evidence. There are civil liberties implications when large numbers of us have our DNA kept on government-controlled databases. Especially if those databases might be vulnerable to mistakes.
	22.44	JOHN BOND SYNC JB12 If I shake someone's hand
JOHN BOND SYNC	22.46	that person's DNA is now on my hand and if I open a door I could quite easily leave that person's DNA on that door handle although they've never even touched it...
DVC CIGARETTE STUB	22.57	...And DNA is very easily planted now as well ...
JOHN BOND SYNC	23.02	...You could for example, take a cigarette end that you found in a pub, or you found on a street corner,
DVC CIGARETTE STUB		
	23.08	and you take that along to the crime you are gonna commit. And

		you could leave that in the house that you've burgled.
DVC CIGARETTE STUB		
JOHN BOND SYNC	23.14	And we'd look at that and our initial reaction would be that's gonna be the offenders DNA on that cigarette end.

THE FUTURE

GRAPHIC DNA HELIX CAPTION 'THE FUTURE'	23.21	
MONTAGE: SCIENCE SEQUENCE	23.22  23.25	MUSIC: STALKING/ALIEN MARSH  COMM 74 The future for forensic science is even more startling than the present.
CHRIS HADKISS SYNC	23.30 23.34	CHRIS HADKISS SYNC CH27 We see the advent of a hand held DNA reader where the technology is already there but the miniaturisation and the development needs to be established. But we imagine perhaps a police officer taking a DNA sample at the scene of a crime interrogating via a satellite link the national database and obtaining a result instantly.

F.L.I.N.T.S

BIRMINGHAM GVs	23.47 23.48	MUSIC: PROVINCIAL TOWN
	23.49	COMM 75 Add to this even more sophisticated databases. Already, West Midlands police have a database which combines every kind of forensic evidence :
RICHARD LEARY SYNC	23.58	RICHARD LEARY SYNC RL2 DNA, fingerprints, footwear, tongue marks, drugs, handwriting. Those sorts of things.
C/As FLINTS COMPUTER	24.05	MUSIC: ALIEN COMPUTER  COMM 76 The computer uses a simple search programme to reveal previously undetected patterns in crime.
	24.11	RICHARD LEARY SYNC RL8 Instead of concentrating on single cases what we're learning is that we can concentrate on whole masses of cases at the same time... ..
RICHARD LEARY SYNC	24.19	...It keeps an eye on every case you are investigating, not just one. And it's looking for links between isolated cases.
PC SCREEN	24.29	RICHARD LEARY SYNC RL12 I've loaded er the name of somebody that is a known offender in the Birmingham area...
RICHARD LEARY SYNC	24.34	...And he's connected to a quite a number of crimes. And he's also connected by alias to other people...
PC SCREEN	24.41	...What we've got here is an overview of the links that we have to this particular individual...
RICHARD LEARY SYNC	24.47	...And as you can see this individual is a mini-crimewave.

RICHARD LEARY SYNC	24.51 24.54	RICHARD LEARY These lines here around that square indicate evidence type links that to DNA. There's in fact a partial DNA...
	25.02	...Let's look at the geography.
	25.03	RICHARD LEARY SYNC RL 14 ...and see a national map.
RICHARD LEARY SYNC	25.06	RICHARD LEARY SYNC RL 15 Er here we have sixteen forensic links in... ...Merseyside, in Liverpool, look in the north west corner of England. We've then got um three forensic links in the West Midlands...
	25.19	...And then if we go down to London, we've got one forensic link... ...it might be useful to know that there is a main er motorway that connects Liverpool with London...
RICHARD LEARY SYNC	25.28	RICHARD LEARY SYNC RL 16 ... called the M6. And this individual, we think is operating as a burglar by stealing cars, coming off the motorway network, committing crime. We did in fact eventually learn that he lived in Liverpool.
	25.42	COMM 77 The FLINTS database will radically increase the number of detected crimes.
RICHARD LEARY SYNC	25.47 25.49	RICHARD LEARY SYNC RL9 We discovered that for every thousand cases, there are an additional four hundred and sixty-seven links when you apply this approach. You discover 46.7% more links than had you

		dealt with the information the old way.
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DNA FUTURES
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GRAPHIC GENE CROSSCUT WITH... VARIOUS LAB SHOTS	26.01  26.02	MUSIC: IN THE LAB  COMM 78 Now that the human genome project has roughly mapped human DNA, it will soon be possible to predict a suspect's physical characteristics from a DNA trace.
CHRIS HADKISS SYNC	26.13	CHRIS HADKISS SYNC CH25 We have tests now which can determine whether a person has red hair genetically.
GRAPHIC: FACE: ANIM: RED HAIR	26.17	So we could interrogate the stain in that way. Obviously if we have other hair types,
ANIM: SKIN COLOUR	26.21	skin colour types, and physical appearance generally, that would be very useful.
	26.26	CHRIS HADKISS SYNC CH26 So for instance we're looking at dimples in chins.
GRAPHIC: FACE ANIM: DIMPLE ANIM: HEIGHT/SHAPE	26.30	And the physical height and facial dimensions. And establishing the link between that and a person's DNA profile.
CHRIS HADKISS SYNC	26.37	It's very early days of the research but there does appear to be a genetic link that we can define.
GRAPHIC: FACE ANIM: GREEN EYES ANIM: NOSE	26.41	CHRIS HADKISS SYNC CH25 So we see building up a picture of a person's physical appearance from their DNA profile found at the scene of the

		crime and that's a very exciting possibility.
LAB GRAPHIC	26.50	COMM 79 Science can solve crimes - though, ultimately, it's just a tool - of ordinary coppering at routine infringements.
SOCO OFFICER AT BURGALRY	26.58	But from those mundane incidents, science increases the chance of a successful conviction.
	27.04	Ironically, most forensic evidence never comes to court. The criminal sees the evidence stacking up against him and decides to plead guilty.
DNA DATA VAULTS	27.13	And then he's on the database. For life.
RUN END CREDITS	27.18	MUSIC
WITH THANKS TO FORENSIC SCIENCE SERVICE		
LOTHIAN AND BORDERS FORENSIC SCIENCE LAB		
NORTHAMPTONSHIRE POLICE		
WEST MIDLANDS POLICE		
CAMERA PHIL BROOME SEAN CARSWELL		

GRAHAM WICKINS		
LOCATION SOUND PETER KERSLAKE DARRELL BRIGGS		
DUBBING MIXER GEORGE FOULGHAM		
MUSIC TIM BEDFORD		
GRAPHICS MARK PETERS		
PRODUCTION MANAGER SELINA KAY		
EDITOR ALEX ARCHER		
SERIES EDITOR RON BLYTHE		
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EXECUTIVE PRODUCER BERNARD CLARK		
PRODUCED AND DIRECTED BY PER-ERIC HAWTHORNE		

LOGO © CLARK PICTURES  TO BLACK	27.40 27.42	MUSIC OUT
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**MUSIC CUE SHEET FOR  
'THE EDGE - FORENSIC SCIENCE'**

All music composed by Tim Bedford except Title music.

10:00:00:00 – 10:00:20:00 Title Music, (N.B. REFER TO INFONATION)

10:00:22:16 – 10:01:24:14 String"2

10:01:27:16 – 10:01:46:19 Piano

10:02:38:05 – 10:03:25:00 In The Lab

10:03:38:00 – 10:04:16:15 POTP

10:04:35:00 – 10:04:40:12 POTP

10:04:52:00 – 10:05:49:00 In The Lab

10:06:34:00 – 10:06:39:00 POTP

10:06:39:00 – 10:07:11:00 Test Tube

10:07:47:00 – 10:07:52:00 POTP

10:08:00:00 – 10:08:13:00 Forward Progress

10:09:24:00 – 10:09:29:00 POTP

10:09:38:00 – 10:10:02:00 Warehouse

10:10:18:00 – 10:10:52:00 Warehouse

10:11:41:00 – 10:12:29:00 Warehouse

10:12:26:00 – 10:12:32:00 POTP

10:12:30:00 – 10:13:03:00 Working Late

10:13:31:00 – 10:13:55:00 Stalking

10:13:54:00 – 10:14:53:00 In The lab

10:15:25:00 – 10:15:41:00

10:15:45:00 – 10:15:51:00 POTP

10:16:04:00 – 10:16:36:00 POTP

10:16:42:00 – 10:17:29:00 Working Late

10:18:08:00 – 10:18:13:00 POTP

10:18:16:00 – 10:18:35:00 Piano

10:18:39:00 – 10:19:43:00 Stalking

10:20:02:00 – 10:20:43:00 Piano"2

10:21:02:00 – 10:21:59:00 Test tube

10:22:27:00 – 10:23:20:00 Stalking

11:13 AM 3/12/01 **FORENSIC SCIENCE - STRUCTURE 13**

10:23:19:00 – 10:23:25:00 POTP  
10:23:47:00 – 10:24:18:00 Piano"2  
10:26:00:00 – 10:26:20:00 In The Lab  
10:26:13:00 – 10:26:50:00 Stalking  
10:26:51:00 – 10:27:40:00 Piano"2