Time Code	Visuals	Dialogue
10:00:00	OPENING SEQUENCE	
10:00:16	MUSIC/CAPTION IN The Edge	
10:00:18	CAPTION OUT	
10:00:20	DISSOLVE	
	EX C/U EYES	NARRATOR:
10:00:24		Most of us take sight for granted. It is
	VIEW THROUGH EYE	one of the most important of our senses.
10:00:28	DOWN STREET	The loss of eyesight is one of the most
10:00:31	C/U ADULT FACE OVERLAY	serious misfortunes that can befall anyone, but for millions around the world
10:00:34	OVERLAY OUT	it's a reality.
10:00:35	C/U BLACK BOY & ADULT	
10:00:38	OVERLAY OUT C/U ADULT EYE	
10:00:42	VIEW THROUGH EYE DOWN STREET	So can advances in science and technology offer new hope?
10:00:43	OVERLAY BLACK BABY	
10:00:48	DISSOLVE	
10:00:49	CAPTION IN Blind Visions	
10:00:53	CAPTION OUT	
10:00:54	VIEW AT STREET LEVEL	
10:01:00	BLIND LADY WITH GUIDE DOG IN STREET	Visual disability comes in many forms, some more noticeable than others, and
10:01:02	BLIND PERSON AT FOOT OF ESCALATOR ON UNDERGROUND	while the problem is always individual, in less industrialised societies without adequate medical support it can afflict
10:01:07	BLIND ASIAN PEASANT LED BY BOY	whole communities.
10:01:11	C/U ASIAN MAN WITH	

Time Code	Visuals	Dialogue
	CATARACTS	
10:01:14	AFRICAN MEN IN STREET	
10:01:21	FADE TO EX C/U EYE	
10:01:24		The eye is a complex organ, made up of a
10:01:28	FADE TO EYE DIAGRAM - ANIMATED	number of component parts. At the front of the eye is the cornea, a transparent shield that allows light in. The amount of light is controlled by the iris before it reaches the lens.
10:01:40		Controlled by muscles, the lens focuses the image onto the retina much like a camera lens focuses light onto film in a camera.
10:01:49		The retina responds to the light and impulses are sent to the optic disc through the optic nerve to the brain.
10:01:57	DIAGRAM OF CONNECTION BETWEEN EYES AND BRAIN - ANIMATED	
10:02:06	MUSIC OUT/FADE TO C/U HUMAN FACE	The eye and the brain act together to decode the world we live in.
10:02:08	GUYS PLAYING FOOTBALL	
10:02:11	SCHEMATIC OUTLINE OF BRAIN	In micro-seconds, we read the flight of a ball or people's responses.
10:02:13	MAN EATING FOOD C/U C/U WOMAN WATCHING	
10:02:15	EATER	Different parts of the brain analyse

Time Code	Visuals	Dialogue
	SCHEMATIC OUTLINE OF	colour, fine detail, movement and space.
10:02:15	BRAIN	
	GUYS PLAYING	
10:02:17	FOOTBALL	
	OUTLINE OF BRAIN	
10:02:19	GUYS PLAYING	
10:02:20	FOOTBALL	
	WOMAN LOOKING AT	
	MAN C/U	
	GUYS PLAYING	
	FOOTBALL	
10:02:21	C/U MAN	Our eyes are an integral part of a
10:02:25	OUTLINE OF BRAIN	sophisticated visual system.
10:02:26	GUYS PLAYING	If any component becomes diseased or
	FOOTBALL	damaged, the whole system can suffer.
10:02:33	DISSOLVE / MUSIC IN	
10:02:34	DIAGRAM OF EYE VIEW	There are a huge variety of conditions
	THROUGH IRIS	worldwide which lead to sight loss. The
10:02:37	MONTAGE OF IMAGES IN	statistics are daunting.
10:02:40	MINIATURE	
10:02:46	ONE IMAGE BLOWN UP	Of the 180 million with visual disability,
	TO FULL SCREEN SIZE	45 million are considered blind. Of these,
10:02:48	IMAGES INTERCHANGED	80% are preventable or curable and
	IMAGE OF CHILD	tragically many of them are children.
10:02:55	MAGNIFIED	
10:02:57	FOOTAGE OF BLIND	
	AFRICAN CHILD WITH	
	MOTHER	
10:03:01	BLIND CHILD WITH	Throughout the world, one child goes
	PARENT	blind every minute.
10:03:03	TWO BLIND BOYS	
10:03:06	BLIND BOY	

Time Code	Visuals	Dialogue
10:03:07	C/U BOTTLE OF VITAMIN A CAPSULES C/U BABY IN SLING BEING GIVEN DRUG	Lack of vitamin A is a major cause.
10:03:17	MUSIC OUT YORSTON EXAMINING CHILD	David Yorston is an ophthalmologist who has first-hand experience of the problems that exist in parts of Africa.
		YORSTON:
10:03:23	TO CAMERA WITH NORIA	Thank you. This is Noria, she's a thirteen year old girl who is blind from vitamin A
10:03:31	C/U NORIA	deficiency and unfortunately there's nothing more that can be done for her at this stage. Immunisation against measles would have prevented this or just being
10:03:38	YORSTON & NORIA TO CAMERA	given one capsule of vitamin A, cost of just a few cents, would have avoided this.
10:03:43		But sadly she's now blind and there is nothing more that we can do about it.
10:03:49	C/U NORIA	This is now incurable untreatable blindness.
10:03:50		This should never ever have happened.
10:03:54	DIAGRAM OF EYE MUSIC IN	This should not be happening.
		NARRATOR:
10:03:56	VIEW THROUGH IRIS	The leading cause of blindness worldwide
10:03:57	MONTAGE OF IMAGES	is cataract. It is most prevalent in Africa
10:03:58	MAGNIFICATION OF ONE IMAGE OF ASIAN WOMAN	and Asia.

Time Code	Visuals	Dialogue
10:04:03	DISSOLVE TO WHITE DIAGRAM OF EYE	Cataract is when the lens becomes cloudy and obstructs the passage of light entering the eye.
10:04:10	MUSIC OUT FADE TO PLANE ON	
10:04:12	AIRSTRIP	David Yorston's team visiting Somalia
10:04:15	AFRICAN PATIENTS AWAITING TREATMENT	treat as many cataract cases as possible.
10:04:20	YORSTON EXAMINING PATIENTS	One of the objectives of this exercise is to train local doctors to provide a long-term
10:04:23	LOCAL DOCTORS IN SURGERY	solution.
		YORSTON:
10:04:26	C/U LOCAL SURGEON LOOKING INTO MICROSCOPE AND VARIOUS SURGICAL PROCEDURES YORSTON TO CAMERA CAPTION IN David Yorston Moorfields Eye Hospital CAPTION OUT	I think skills transfer is the single most valuable thing we can do but also it has to be said we need money in the developing countries. There isn't the cash there to do these things.
10:04:36	LOCAL SURGEONS AT WORK	NARRATOR:
10:04:39		For David Yorston, it's frustrating because it's relatively easy and inexpensive to treat patients. It only takes a few minutes for the cataract to be removed and replaced by an artificial lens.

Time Code	Visuals	Dialogue
		YORSTON:
10:04:51	C/U EYE SURGERY	Everybody that we take a cataract out of gets a lens implant at the same time and that means that they may not have perfect vision afterwards but they have good
10:05:01	C/U YORSTON TO CAMERA	enough vision for normal daily living activities. They're no longer blind and that's guaranteed.
10:05:05	PATIENT POST-OPERATION	
10:05:06		There's a very nice example of how the
10:05:09	YORSTON TO CAMERA	high-tech developments in a centre like Moorfields have after a while been transferred in an appropriate way to
10:05:17	EXTERIOR MOORFIELDS EYE HOSPITAL	developing countries.
		NARRATOR:
10:05:19		Moorfields Eye Hospital in London is one of the world's leading specialist hospitals.
10:05:25	ALLEN AT MONITORS	
10:05:26		Here Bruce Allen is developing new
10:05:30	ALLEN MS	micro-surgical procedures for removing
10:05:33	C/U ALLEN	cataracts, implanting the next generation
10:05:34	C/U EYE SURGERY	of mass-produced artificial lenses.
		ALLEN:
10:05:37	TO CAMERA	What we're looking at here is a cataract
10:05:39	C/U EYE SURGERY	being removed and here it is being turned into a liquid by a high frequency ultrasound probe. Now the big difference between this and cataract surgery in days

Time Code	Visuals	Dialogue
		gone by is that instead of shelling the lens out like a pea, the hardened lens is turned into a liquid and removed through this tiny valve-type incision.
10:05:58	ALLEN TO CAMERA	This has been made possible by the
10:06:02	C/U EYE SURGERY	development of flexible lens implants. Here the cataract has been removed and the important point to appreciate is that we leave the capsule of the natural lens - think of the skin of a grape and you'll
10:06:11	ALLEN TO CAMERA	have the right mental picture - and this lens capsule is left behind or a bowl-
10:06:17	ZOOM INTO MONITOR	shaped remnant of it is, and the lens is injected into this bowl-shaped remnant
10:06:21	C/U EYE SURGERY	and you'll see the lens coming in here in the injector and in a moment that's going to unfold into the eye.
10:06:31		There we are.
		NARRATOR:
10:06:33	MUSIC IN DIAGRAM OF EYE - ANIMATED	Even with these new lenses, problems arise when scar tissue builds up on the lens capsule. The current solution is to use lasers.
		ALLEN:
10:06:42	MUSIC OUT C/U EYE SURGERY	What we're looking at here is is what we do to treat this. At the moment we use a -
10:06:48	ALLEN AT MONITORS	a laser and this laser is focused at a point in three-dimensional space. These two

Time Code	Visuals	Dialogue
10:06:52	C/U EYE SURGERY	red aiming beams, when they're co-
10:06:55	WHITE OUT TO EYED DIAGRAM - ANIMATED	instant, the laser is fired and the capsule tissues are taken apart and here you're
10:06:59	C/U EYE SURGERY	seeing that.
10:07:01		What we'd like is a material solution which will prevent this scarring reaction
10:07:06	ALLEN TAKING CULTURES FROM FRIDGE V/O	happening. The way we're looking at that over in the laboratory is with an organ culture model of the lens capsule and in essence what that is is the natural lens capsule pinned out in a tissue culture dish
10:07:19	C/U CULTURE DISH	with all the nutrients and so forth that the
10:07:23	ALLEN IN LAB WITH MICROSCOPE	cells would require to grow in life, and so this is a very accurate model of the clinical situation and allows us to
10:07:28	C/U ALLEN AT MICROSCOPE	determine the effects of different
10:07:29	C/U SLIDES OF CULTURE DISSOLVE	materials and different drug treatments on this scarring reaction.
10:07:36		NARRATOR:
10:07:36	MEETING AT INSTITUTE OF OPHTHALMOLOGY WITH YORSTON ADDRESSING DOCTORS	Back in London, at the Institute of Ophthalmology, which is the research partner of Moorfields, David Yorston works in his teaching capacity. He discusses some cataract issues with eye specialists from around the world.
10:07:50		Some patients need spectacles after having the cataract operation and children can sometimes be a problem.
		AFRICAN DOCTOR:

Time Code	Visuals	Dialogue
10:07:57	ADDRESSING YORSTON	The biggest problem I have is that these children need to go back for refraction in Kokoyu but you find that --
10:08:04		YORSTON: By refraction you mean being fitted with the right pair of glasses?
		DOCTOR: Yes.
10:08:08	YORSTON ADDRESSING GROUP	YORSTON: So what happens in India, I mean how could we improve the aftercare of these children that have had congenital cataract surgery?
10:08:15	ADDRESSING YORSTON	INDIAN DOCTOR: Many times these children just don't get spectacles so whenever they get them, they don't put them on and their parents aren't that motivated or knowledgeable enough to see that the child puts on the specs.
10:08:27	CHILD WITH AFRICAN PARENTS WEARING GLASSES	NARRATOR: In many countries, spectacles are simply not available or affordable, even for simple short- or long-sightedness.
10:08:33	WOMAN HAVING EYES TESTED	
10:08:36		The main issue is how to provide

Time Code	Visuals	Dialogue
		spectacles with lenses of the appropriate prescription.
10:08:43	SILVER ON STREET IN	
10:08:45	OXFORD	At Oxford University, Professor Joshua
10:08:47	SILVER PASSING OXFORD COLLEGE	Silver has come up with an invention modelled on the way in which human eye
10:08:50	SILVER ON STREET	lenses work. He is not an optometrist but
10:08:53	SILVER IN LAB	an experimental physicist and his approach was to look firstly at the problems to be solved.
		SILVER:
10:09:01	V/O	You have something like around 40
10:09:03	LOCALS AT AFRICAN MARKET TO CAMERA CAPTION IN Professor Joshua Silver Oxford University	million preventably blind people and you have a billion - a thousand million, - who have vision which needs correction.
10:09:12	SILVER IN AFRICAN MARKET	Just look at the numbers, I say wow!
10:09:14	CAPTION OUT	
10:09:17	TO CAMERA	A thousand million people who need
10:09:20	LOCALS IN MARKET	vision correction don't have it yet.
10:09:26	SILVER IN LAB	
10:09:29		I made a few early lenses, in fact they
10:09:32	TO CAMERA WITH SPECS C/U LENS	didn't work terribly well.
10:09:34	C/U EYE	I then actually made this lens here and I
10:09:37	VIEW THROUGH LENS	pumped fluid in or out of the lens and I
10:09:38	C/U	found that I could correct my own vision.
10:09:44	MUSIC IN	

Time Code	Visuals	Dialogue
	MS LIQUID BEING INJECTED INTO LENS	NARRATOR:
10:09:47		Both the adjustable lens and the human
10:09:48	VIEW THROUGH LENS	lens comprise of an outer membrane with
10:09:49	DIAGRAM OF EYE - ANIMATED	a flexible interior.
10:09:54	C/U SILVER WITH HYPODERMIC AND LENS SILVER TO CAMERA WITH SPECS	Joshua Silver spent many years working on how his flexible lens could be turned into an effective pair of spectacles.
		SILVER:
10:10:02		You end up with a device like this. This
10:10:07	MUSIC OUT	is, this is an adjustable pair of spectacles.
10:10:12	C/U SILVER ADJUSTING SPECS	There we are.
10:10:14	SILVER TO CAMERA IN SPECS	I've just now corrected my vision.
10:10:16	C/U ADJUSTMENT OF SPECS	Once you've screwed it down, you clamp this tube and then you cut this off with a
10:10:17	SILVER REMOVING SPECS	pair of scissors and you sort of pull it off here. And you dispose of it, and you then
10:10:18	SILVER WITH SPECS TO CAMERA	end up with - well you end up with a pair of spectacles that look somewhat like this. This is a slightly smaller variant on the same thing so you end up at the end of the process with a pair of spectacles where you've effectively made each lens yourself to correct each of your eyes.
10:10:48	MUSIC IN FOUR WHEEL DRIVE VEHICLE IN THE BUSH	NARRATOR:
10:10:49		Testing in the lab is one thing. But how

Time Code	Visuals	Dialogue
10:10:51	SILVER & TEAM IN VEHICLE	would the spectacles work in the hands of those who need them most?
10:10:54	FOUR WHEEL DRIVE ON DIRT TRACK WITH GOATS CROSSING	
10:10:57	LOCALS ON BEACH IN GHANA	Joshua Silver went to Ghana to try them out.
		SILVER:
10:11:01		There was a very interesting chap who
10:11:07	SILVER WITH HEAD FISHERMAN & DOCUMENT	was the head fisherman in a village. Because he was the sort of head man
10:11:08	MUSIC OUT	there, he needed to be able to read the
10:11:10	C/U DOCUMENT	official communications that came down
10:11:13	C/U MAN REPAIRING NET	from the government and he also needed to be able to see to repair his fishing nets.
10:11:16		He was also becoming presbyopic and so
10:11:20	SILVER TO CAMERA IN LAB	wasn't able to carry out these tasks and
10:11:23	HEADMAN BEING FITTED WITH SPECS BY SILVER	we found that if you provided him with a pair of glasses, he was able to do them immediately.
10:11:29		Go and have a look. Can you now see it? At that distance?
		HEADMAN:
10:11:35		It's good.
		SILVER:
		And is it clear?

Time Code	Visuals	Dialogue
		HEADMAN: It's very very clear. SILVER: Do you want to read it? HEADMAN:
10:11:38		Yeah I can read.
10:11:40	FISHERMAN AT SEA ON BOAT INCLUDING HEADMAN IN SPECS	SILVER:
10:11:42	V/O	We actually believe that the right way to apply our technology is to make it
10:11:51	SILVER TO CAMERA IN LAB	sustainable and when you make it sustainable you don't just sort of make something and give it away as charity. What you're really trying to do is to create an industry and the aim of adaptive
10:12:05	LOCALS ON BEACH IN GHANA	eye care is to get this technology to the populations that can benefit at a cost which is affordable.
10:12:13	DISSOLVE	
10:12:14	VIEW THROUGH LENSES C/U	In the earlier device here, you see the frames are rather thick and heavy. We
10:12:21	SILVER HOLDING SPECS MS	are working on a device which will have adaptive lenses with much thinner rims and there will be pumps that deliver fluid
10:12:31	C/U SPECS	to these lenses which will be mounted in the side-arms of a pair of spectacles and
10:12:35	SILVER WITH SPECS MS	what you'll be able to do is to switch say
10:12:38	SILVER TO CAMERA	between using a computer and reading,

Time Code	Visuals	Dialogue
		doing close work.
10:12:43	MUSIC IN EXTERIOR OF OPTICIANS IN HIGH STREET ZOOMING IN	NARRATOR:
10:12:49	EXTERIOR OF LASER CLINIC - GIRL ENTERING INTERIOR OF CLINIC -	The quest for better or even perfect sight takes us further into the commercial world. Laser surgery, already available at
10:12:56	PATIENT RECEIVING TREATMENT	some high street opticians, takes away the need for spectacles altogether - at a cost.
10:13:06		And the next generation of laser surgery is already being trialled back at Moorfields.
10:13:12	EXTERIOR MOORFIELDS	
10:13:16	STEVENS EXAMINING PATIENT	Julian Stevens is involved in the development of wave-front technology,
10:13:22	C/U VIEW ON SCREEN	using reflected laser light for diagnosis and a surgical laser for optical correction.
10:13:28	DIAGRAM OF EYE -	
10:13:29	ANIMATED	In the diagnostic procedure, a laser is fired into the eye through the pupil. This is reflected back from the retina. By monitoring and measuring the shape of the returning beam, Julian can pinpoint every optical aberration.
		STEVENS:
10:13:47	MUSIC OUT TO CAMERA CAPTION IN Julian Stevens Moorfields Eye Hospital	The wave method is just like throwing a stone into a pond and then looking at the ripples that come out.

Time Code	Visuals	Dialogue
10:13:53	CAPTION OUT	
	C/U MONITOR SCREENS	If it's a point source of light, the ripples
10:13:57	STEVENS TO CAMERA	are perfectly circular. But if anything
10:14:01	C/U MONITOR SCREEN	slows down the ripples or speeds them up, then those ripples become distorted and that's the basis of wave-front technology.
		NARRATOR:
10:14:07	C/U COMPUTER SCREEN	Forty thousand micro-mirrors in the computer help record highly detailed information of the patient's eyesight.
10:14:15	STEVENS HOLDING SMART CARD - ZOOM IN ON CARD	This information is stored on a Smart card for use in the actual operation.
		STEVENS:
10:14:19		And that information is then fed into the
10:14:23	STEVENS PUTTING CARD INTO LASER	laser itself. So what we do is feed it into the card reader here, in the laser, and then
10:14:30	STEVENS TO CAMERA	in about three to five seconds the laser's detected that and it's uplinked and in effect we're ready to drive the laser.
10:14:38	STEVENS SEATED AT LASER ABOVE PRONE PATIENT	
10:14:40	C/U LASER SCREEN / COMPUTER SCREEN	
10:14:46	V/O	The wave-front laser scan measures the
10:14:49	C/U EYE SURGERY	optics of the whole eye but the exema
10:14:55	VIEW THROUGH COMPUTER SCREEN OF SURGERY	laser to treat the optics actually only applies the treatment to the front of the eye onto the cornea which is the clear

Time Code	Visuals	Dialogue
10:14:57	C/U EYE SURGERY	window at the front of the eye.
10:15:00		Just going to lift the flap just here, OK, so that makes your vision fuzzy for a little while.
10:15:07	C/U STEVENS OPERATING LASER	
10:15:09	VIEW ON COMPUTER	
10:15:14	SCREEN	Bright light now for a moment.
10:15:15	STEVENS OPERATING	OK I'll just take off the plastic. There we are.
10:15:25	V/O STEVENS WITH PATIENT	At the present time, wave-front treatment is available only to very special groups of
10:15:27	C/U PATIENT'S EYE BEING EXAMINED BY STEVENS	people and that's people who have poor vision where the optics of the eye can be corrected with a custom laser treatment.
10:15:34	PATIENT BEING SAT UP POST-OPERATION	
10:15:38	STEVENS TO CAMERA	Wave-front technology is not actually very expensive and it's been in the astronomical community for a number of years and so it is possible to build wave-front scanners quite economically.
10:15:50		It means that those in developing countries where resources are very tight will almost certainly have wave-front
	MUSIC IN	
10:16:00	STEVENS OPERATING ON PATIENT	technology before too long.
		NARRATOR:

Time Code	Visuals	Dialogue
10:16:02		But these laser treatments are unlikely to address the real problems worldwide.
10:16:06	DISSOLVE	
10:16:07	C/U DIAGRAM OF EYE	
10:16:09	MONTAGE OF IMAGES	Corneal blindness results from trachoma. Trachoma is the second major cause of
10:16:16	IMAGE OF BLIND MAN BLOWN UP TO FILL SCREEN	blindness worldwide. It is a severe chronic eyelid and corneal infection, most often spread by flies. It leads to the
10:16:20	AFRICAN BOY WITH INFECTION AND FLY	cloudying of the cornea, which breaks up the light on entering the eye.
10:16:26	ALLEN AT COMPUTER	At Moorfields, Bruce Allen is exploring
10:16:29	SCREENS	the implantation of artificial corneas that
10:16:30	C/U ALLEN	will combine with human tissue.
10:16:32	ALLEN AT COMPUTER EYES ON SCREEN	ALLEN:
10:16:36	ALLEN TO CAMERA MUSIC OUT/CAPTION IN Bruce Allen Moorfields Eye Hospital	There's a drive to develop an artificial cornea or an artificial clear window to the front of the eye.
10:16:42	CAPTION OUT VIEW PAST ALLEN TO COMPUTER SCREEN & EYES	And here is the clear optic portion in the centre.
10:16:47	C/U EYE SURGERY	And here's a thin annular skirt, and that's
10:16:51	VIEW PAST ALLEN TO	porous and the tissues of the eye wall can
10:16:54	COMPUTER SCREEN AND EYES C/U EYE SURGERY	integrate with this skirt and stabilise the device in the eye.
10:16:59	ALLEN TO CAMERA C/U	And at the very end of the operation we've pulled over a flap of surface tissue

Time Code	Visuals	Dialogue
10:17:03	C/U EYE SURGERY	to allow the device to heal into place.
10:17:07		NARRATOR: It is hoped that these techniques using biomaterials for trachoma surgery will revolutionise treatment in less industrialised countries.
10:17:14	DOCTORS IN MEETING	
10:17:16		But in many communities where trachoma is rife, doctors have to address a number of issues including traditional beliefs.
10:17:25	AFRICAN DOCTOR ADDRESSING OTHER DOCTORS	AFRICAN DOCTOR: Trachoma shows richness, especially in the Wadi community. They show people who has got trachoma, who has got a lot of flies on his face - it shows the number of animals they have. So that really explains it.
10:17:35	AFRICAN VILLAGE SCENE	
10:17:38		NARRATOR: It is perhaps presumptuous to think that all culture should accept modern medicine without question.
10:17:45		Many who are blind or partially sighted feel more comfortable using traditional remedies.
10:17:51		YORSTON: Why do they use the traditional herbs

Time Code	Visuals	Dialogue
10:17:53	YORSTON IN MEETING	rather than going to a nice eye clinic?
10:17:56	RESPONDING	DOCTOR: They think that if, if you put let's say a medicine in the eye and you feel pain, that means that the medicine is good.
10:18:05	YORSTON TO CHINESE DOCTOR	YORSTON: We hear a lot about Chinese herbal medicines these days.
10:18:09	PAN TO CHINESE DOCTOR	CHINESE DOCTOR: Yeah Chinese herbal medicine are very famous because we have five thousand years history for the medicine. Now you know is used to treat eye disease with Chinese herbal medicine.
10:18:21	ADDRESSING DOCTORS	YORSTON: What about in Vietnam?
10:18:23	C/U DOCTOR RESPONDING	DOCTOR: The traditional healers they have their own opinion.
10:18:27 10:18:28 10:18:35	C/U AFRICAN DOCTOR MS DOCTORS LISTENING	AFRICAN DOCTOR: The best thing to do with traditional healers is not to scold them but to incorporate them in our health care system. What you need to do is just to put ideas into these traditional healers of modern medicine.

Time Code	Visuals	Dialogue
10:18:41	C/U AFRICAN DOCTOR	In fact we can even give them the eye drops, those that they think they can use.
10:18:47	DISSOLVE/MUSIC IN	
	DIAGRAM OF EYE	NARRATOR:
10:18:49	MONTAGE OF IMAGES	
10:18:51		But even in the more industrialised world
10:18:53	C/U EYES	where modern medicine can provide the most up-to-date treatments, there are
10:18:57	MONTAGE OF IMAGES	many who cannot be helped. John
10:19:00	IMAGES OF JOHN & ANNE MAGNIFIED	Welsman and Anne Fairweather have incurable conditions.
10:19:03	JOHN'S IMAGE FILLS SCREEN	
		WELSMAN:
10:19:04	TO CAMERA/MUSIC OUT	I was born with partial sight due to over-
10:19:08	CAPTION IN John Welsman Royal National Institute for the Blind CAPTION OUT	oxygenation or German measles, we're not really sure. Had cataracts up to the age of eleven and was able to ride a bike around and things like that.
10:19:14		
10:19:16	EX C/U JOHN'S EYES	At the age of twelve I got glaucoma
10:19:19	JOHN TO CAMERA C/U	which caused my retinas to be destroyed and eventually by the age of eighteen I'd lost my sight completely.
		FAIRWEATHER:
10:19:24	TO CAMERA	I was born visually impaired. It's a
10:19:26	CAPTION IN Anne Fairweather	genetic condition, recessive genetic condition, and hadn't sort of appeared in
10:19:32	CAPTION OUT	my family until myself and my sister, sort

Time Code	Visuals	Dialogue
10:19:37	EX C/U ANNE'S LEFT EYE PANNING ACROSS TO RIGHT	of completely out of the blue so I have in one eye particularly a small field of central vision and that's actually slightly
10:19:43	ANNE TO CAMERA	blurred so - it's manageable for some things but sort of fairly restricted for others like dull light.
10:19:53	DISSOLVE	
10:19:54	VIEW OF SHOPPERS MALL FROM CEILING DOWN	NARRATOR:
10:19:56		Although John is totally blind, his disability doesn't stop him from leading a
10:20:01	JOHN IN MALL USING HIS WHITE STICK	normal life. For him orientation is a primary concern.
		WELSMAN:
10:20:06	V/O	I think the one difficulty that blind and partially sighted people experience quite a lot of the time is finding out where they are, and finding out where they want to go in relation to where they are.
		NARRATOR:
10:20:20		A navigational device helps John find his way around this huge shopping centre.
10:20:24	ZOOM INTO TRANSMITTERS IN CEILING	These infrared transmitters trigger a receiver that delivers a set of options to John's earpiece.
10:20:28	C/U JOHN & HIS HEADSET	
10:20:32	C/U TRANSMITTERS	TRANSMITTER:
		Winter Garden and shops to John Lewis,

Time Code	Visuals	Dialogue
10:20:34	C/U JOHN MAKING HIS WAY AROUND	turn right. For Water Circus and shops to House of Fraser, turn left.
10:20:41	MAN SITTING IN FOUR WHEEL DRIVE CAR - INTERIOR SHOT	NARRATOR:
10:20:43	VEHICLE MOVING OFF	To complement the ceiling transmitters, a
10:20:45	VIEW FROM INSIDE VEHICLE	development is underway using the latest satellite technology.
		SATELLITE:
10:20:50	C/U ON BOARD MAP	Left turn ahead.
		NARRATOR:
10:20:51		Similar to the geo-positioning satellite
10:20:52	ON BOARD SHOTS MAN DRIVING	systems currently used in motor vehicles, this device could eventually help
10:20:57	VEHICLE IN TRAFFIC	orientate any blind person anywhere in the world.
		SATELLITE:
10:21:01	ON BOARD WITH DRIVER	You have arrived, turn right, then you have arrived.
		WELSMAN:
10:21:06	TO CAMERA	Someone who's quite mobile like myself could use a global positioning type
10:21:13	WELSMAN BY GREAT PORTLAND STREET WALKING WITH STICK	system to find my way down streets and know when to turn left, when to turn right, how many paces away a certain building would be, a restaurant or an office that I needed to go to.
10:21:25	ANNE & FRIENDS IN	

Time Code	Visuals	Dialogue
	CAFE	NARRATOR:
10:21:27		Anne has similar concerns but she's not totally blind.
10:21:32		What does she hope medical science or technology could do for her?
		FAIRWEATHER:
10:21:37	TO CAMERA	Give me transplanted eyes would be a start, I think, science and technology. If - it's very unlikely though.
10:21:46	MUSIC IN EX C/U ANNE'S LEFT EYE	
		NARRATOR:
10:21:48		In reality, what is the likelihood of
10:21:50	C/U ANNE	regenerating sight for someone in Anne's situation?
10:21:56	EX C/U EYE	
10:21:57		In many degenerative conditions, it is the
10:22:00	DIAGRAM OF EYE - ANIMATED	rods and cones, the photoreceptors of the retina, which become damaged. This is common in the ageing process and can
10:22:07	FADE TO EX C/U EYE	also be caused by genetic problems.
10:22:10	VIEW DOWN STREET - IMPAIRED	
10:22:11	EX C/U EYE	In the variety of degenerative conditions
10:22:12	DIAGRAM OF DAMAGE	here, the damage could have been caused
10:22:16	EX C/U EYE	by malfunctioning genes.
10:22:17	DIAGRAM OF DAMAGE	
10:22:22	EX C/U EYE	One way medical scientists believe that
10:22:24	DIAGRAM OF DAMAGE	they may be able to treat some of these conditions is to replace the cells that have

Time Code	Visuals	Dialogue
10:22:27	C/U STEM CELLS	damaged genes with cells that have normal genes. The use of stem cells is
10:22:34	EX C/U EYE	one of a number of ways that are being explored.
		HARRIS:
10:22:38	MUSIC OUT TO CAMERA CAPTION IN	Stem cells are cells in the body that can give rise to various tissue types, for example brain, heart, muscle, bone,
10:22:40	Professor Bill Harris Cambridge University CAPTION OUT	blood.
10:22:46 10:22:50	DIAGRAMS OF RETINA	In theory we could use stem cells to try to grow rods and cones that have been damaged through some degenerative disease.
10:23:02	HARRIS TO CAMERA C/U HARRIS WITH MODEL OF	We're learning where those embryonic stem cells are and if I take this example
10:23:09	EYE	of a human eye here, if you open it up and you look at the retina on the two surfaces, this is the back of the retina and this is the front of the retina, near where the lens is, inbetween the pigment empethilium which is this dark tissue here, and the pink tissue which is the retina, towards the very front of the eye, that's where stem cells are located in animals.
10:23:35	PAN UP TO HARRIS'S FACE	We think they're there in humans too.
10:23:37	C/U STEM CELLS	NARRATOR:

Time Code	Visuals	Dialogue
10:23:38		Whilst they haven't yet been seen in human eyes, we can see here stem cells replicating in the eye of a fish.
		HARRIS:
10:23:46		It's been observed in mammals that when
10:23:49	HARRIS TO CAMERA	stem cells are injected into the brain, those stem cells migrate to the right places and give rise to the appropriate cell types.
10:23:58	DIAGRAM OF EYE	So in theory retinal stem cells would be
10:24:00	FOOTAGE OF RETINAL CELLS MOVING	injected into the retina, the daughters of those stem cells would migrate to the
10:24:05	HARRIS TO CAMERA	right places in the retina, differentiate into rods and cones and fix the disease.
		NARRATOR:
10:24:13	ANNE & FRIENDS IN CAFE	It may be that in the future Anne could benefit from stem cell treatment so how does she view this prospect?
		FAIRWEATHER:
10:24:22	TO CAMERA C/U	From a social point of view, it would be one incredible change in status. I mean you'd have to relearn how to do everything just in the same way that you'd have to relearn if you lost your sight.
10:24:33	MUSIC IN	It would be - quite a trauma.
10:24:34	DISSOLVE	
10:24:35	BLINDING WHITE LIGHT	

Time Code	Visuals	Dialogue
	DISSOLVE MONTAGE OF IMAGES	
		NARRATOR:
10:24:40	VIEW AS PER IMPAIRED VISION DOWN STREET	For Anne and millions of other blind and partially sighted people around the world,
10:24:46	OVERLAY OF COLOUR STILL OF AFRICAN FACE OVERLAY OUT	living with their condition is the only option - at present - although there are number of ways of coping.
10:24:49	OVERLAY BLIND ASIAN	
10:24:50	LADY	
10:24:53	OVERLAY OUT OVERLAY OF WOMAN IN	
	OVERLAY OUT	Greater awareness of sight loss is
10:24:57	OVERLAY OF BLACK MAN IN OVERLAY OUT	fundamental to alleviating the problems, even though science and technology are creating breakthroughs in treatment.
10:24:59	OVERLAY OF CHINESE	
10:25:01	BOY IN OVERLAY OUT	
10:25:03	OVERLAY OF AFRICAN	
10:25:04	MAN IN OVERLAY OUT	
10:25:07	OVERLAY OF AFRICAN MAN IN	
		YORSTON:
10:25:08	YORSTON OVERLAY IN	We have the opportunity now at the beginning of the twenty-first century to eliminate avoidable blindness within the
10:25:14	OVERLAY OUT	next twenty years.
10:25:15	OVERLAY OF CHINESE MAN IN	NARRATOR:
10:25:17	OVERLAY OUT	Different causes of blindness worldwide

Time Code	Visuals	Dialogue
10:25:19	OVERLAY OF CHINESE BAY IN	can be targeted with public health measures and collaboration is key to
10:25:23	OVERLAY OUT OVERLAY OF BLACK MAN IN	eliminating needless sight loss.
10:25:26	OVERLAY OUT	YORSTON:
10:25:27	YORSTON OVERLAY IN	Now we've got the technology, we've got the tools. We need the resources to finish
10:25:30	OVERLAY OUT	the job.
		NARRATOR:
10:25:32	MONTAGE OF IMAGES - VARIOUS MELTING INTO BACKGROUND	Visual disability has profound consequences in all societies. Sight loss is a global issue.
10:25:41	DIAGRAM OF EYE	
10:25:44	LOOKING THROUGH IRIS TO BLUE SKY	
10:25:46	CLOUDY SKY	
10:25:51	CREDITS IN	
10:26:19	CREDITS OUT	
10:26:22	INFONATION LOGO IN	
10:26:23	DISSOLVE	

Time Code Visuals Dialogue

BLIND VISIONS

CREDITS

With thanks to
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Time Code	**Music Title**	**Composers**	**Publisher**	**Performer**	**Record Label**	**Use**	**Duration**
In 00:16 Out 02:06	*From Beyond: Mystery-Horror Volume 14.5* "Strange Ritual" (track no.15)	Robert J. Walsh And Larry Rust	First Digital Music- BMI Hollywood Film Music Library	N/A	FirstCom Music, Inc.- A Zomba Company.	F	1'50 secs
In 02:33 Out 03:17	As Above	As Above	As Above	As Above	As Above	B	44 secs
In 03:54 Out 04:10	A/B	A/B	A/B	A/B	A/B	B	16 secs
In 06:33 Out 06:42	A/B	A/B	A/B	A/B	A/B	B	9 secs
In 09:44 Out 10:07	A/B	A/B	A/B	A/B	A/B	B	23 secs

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In 10:48 Out 11:08	A/B	A/B	A/B	A/B	A/B	B	20 secs
Time Code	**Music Title**	**Composers**	**Publisher**	**Performer**	**Record Label**	**Use**	**Duration**
In 12:43 Out 13:47	A/B	A/B	A/B	A/B	A/B	B	1’04 secs
In 15:50 Out 16:36	A/B	A/B	A/B	A/B	A/B	B	46 secs
In 18:47 Out 19:04	A/B	A/B	A/B	A/B	A/B	B	17 secs
In 21:46 Out 22:38	A/B	A/B	A/B	A/B	A/B	B	52 secs
In 25:44 Out 26:19	A/B	A/B	A/B	A/B	A/B	B	35 secs

Time Code Visuals Dialogue

END							