

Register of Preserved Electric Multiple Units & Railcars



Compiled By Graeme Gleaves

Issue Eight – September 2017

Introduction

This register has been produced to provide a list of all vehicles currently located in preservation in Britain that fall under the description of being either an electric multiple unit (EMU) or an electrically powered passenger carrying railcar, vehicles that have been modified from either of those types but still retain essential characteristics are also included. Only vehicles that are at heritage sites, or privately owned for non-commercial use or at a site that is open to the public are included in this register.

The register is presented in six sections:

- 1) Pre-Nationalisation Companies & Constituents.
- 2) British Railways 25kV OHLE Units.
- 3) British Railways London Midland Region Units.
- 4) British Railways Southern Region DC Third Rail Units.
- 5) London Underground & Constituent Companies.
- 6) Other Railways

Each section is broken down further to list units and individual vehicles that are not part of a complete unit. Subsequent sub-sections are provided to list items by supply system and geographic area of operation.

Each vehicle is listed by class or type, i.e. TOPS class for BR stock or whatever class system was used by its original operator. Then unit number is given which relates to either the unit number carried presently or the last unit number carried in service, in the case of individual vehicles the unit it was predominately formed in during its operating life is shown. The vehicle designation or type indicates what type of vehicle it is and relates to the table found at the end of the register. Vehicle numbers shown are the last number carried in normal service prior to preservation and may not be the actual number the vehicle carries at present. Build date, builder and current location are self explanatory.

What constitutes a complete unit

For the purposes of this document a complete unit is considered to be:

- ◆ vehicles from a unit formation that ran together in former use on the main line and all are preserved, though not necessarily at the same location.
- ◆ Where sufficient vehicles have been gathered at the same location, though not necessarily from an original unit but the intention is to form them as a new unit that is prototypically correct for that type.

What's not included

Any item that is at a private site for non-operational or non-heritage based commercial use and which is not accessible to the general public is not listed in this document. Neither are any vehicles exported overseas regardless of their status with their new owners. Also excluded are items that are stored, pending disposal or in departmental service with a part of the former British Rail or London Underground networks. Non powered trailer car units such as the 4-TC and Gatwick Express stock are not listed as they rely on another traction unit to be operated which need not be electrically propelled. The register does not list any fragments of EMU vehicles that survive such as cab or body sections or underframe only, the complete vehicle body must be extant to be eligible for inclusion. Finally vehicles that have, at some time in their life, been converted to temporarily run in EMU formations but have subsequently been converted back to loco hauled format are also excluded.

Finding out more about the vehicles in this register.

More detailed information may be obtained by searching the Railway Heritage Register Carriage Survey Database online at: <http://www.vintagecarriagetrust.org/se/search.asp>

Amendments, Updates and Corrections.

Whilst every effort is taken to ensure the accuracy of the information presented in this register, from time to time vehicles either move location or some may be disposed off. If you are aware of these changes or any other inaccuracies contained in this register then please contact the author at Graeme@emus.co.uk

Section One – Pre-Nationalisation Companies and Constituents.

London North Eastern Railway & constituent companies

Complete Units – DC Third Rail

Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
Luggage Van	-	DMBL	3267	1904	North Eastern Railway	Percy Main (from National Collection)

London Midland and Scottish Railway & constituent companies

Complete Units – DC Third Rail

Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
502	-	DMBSO	28361	1939	LMS Derby	Burscough Industrial Estate
		DTCO	29896	1939	LMS Derby	Burscough Industrial Estate
503	-	DMBSO	28690	1937	Met-Cam	Coventry Electric Railway Centre
		TCO	29720	1937	Met Cam	Coventry Electric Railway Centre
		DTSO	29289	1937	BRC&W Company	Coventry Electric Railway Centre

Individual Vehicles – DC Third Rail* Or DC Overhead Line \$

Oerlikon LNW31E	-	DMBSO *	8143	1914	LNWR	National Railway Museum – York
MSJ&AR	-	T \$	117	1931	Met-Cam	Midland Railway Centre
MSJ&AR	-	T \$	121	1931	Met-Cam	Midland Railway Centre

Southern Railway & constituent companies

Complete Units – DC Third Rail

Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
2-BIL / 401	2090	DMBS	10656	1937	Southern Railway	National Railway Museum – Shildon
		DTCK	12123	1937	Southern Railway	National Railway Museum – Shildon
4-COR / 404	3142	DMBSO	11161	1937	Southern Railway	East Kent Railway
		TSK	10096	1937	Southern Railway	Sellinge
		TCK	11825	1938	Southern Railway	Sellinge
		DMBSO	11201	1938	Southern Railway	Sellinge
5-BEL	3051	DMBPT	289	1932	Metro Carriage Wagon	Little Mill Inn, Rowarth Derbyshire
		TKF	279 HAZEL	1932	Metro Carriage Wagon	WH Davis (5-Bel Trust)
		TKF	282 DORIS	1932	Metro Carriage Wagon	WH Davis (5-Bel Trust)
		TPT	286	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
		DMBPT	288	1932	Metro Carriage Wagon	WH Davis (5-Bel Trust)
5-BEL	3053	DMBPT	292	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
		TKF	281 GWEN	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
		TKF	283 MONA	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
		TPT	285	1932	Metro Carriage Wagon	WH Davis (5-Bel Trust)
		DMBPT	293	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
487	-	DMSO	61	1940	English Electric	London Transport Museum – Acton

Individual Vehicles – DC Third Rail

1285 Class	4308	DMBS	8143	1925	Met-Cam	National Railway Museum – York
6-PUL	3012	TKC	264 RUTH	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
6-PUL	3017	TKC	278 BERTHA	1932	Metro Carriage Wagon	Carnforth
5-BEL	3052	DMBPT	291	1932	Metro Carriage Wagon	WH Davis (5-Bel Trust)
5-BEL	3052	TKF	280 AUDREY	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
5-BEL	3052	TKF	284 VERA	1932	Metro Carriage Wagon	Stewarts Lane T&RSD (VSOE)
5-BEL	3052	TPT	287	1932	Met - Cam	WH Davis (5-Bel Trust)
4-COR / 404	3131	DMBSO	11179	1937	Southern Railway	National Railway Museum - York
4-COR / 404	3135	DMBSO	11187	1938	Southern Railway	East Kent Railway

Section Two – British Railways 25kV OHLE Units.

Complete Units						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
AM3 / 303	303 032	DTSO	75597	1960	Pressed Steel	Bo'ness & Kineal Railway
	303 023	MBS	61503	1960	Pressed Steel	Bo'ness & Kineal Railway
	303 032	BDTSO	75632	1960	Pressed Steel	Bo'ness & Kineal Railway
AM6 / 306	306 017	DMSO	65217	1949	Met - Cam	East Anglian Railway Museum
		TBCO	65417	1949	Met - Cam	East Anglian Railway Museum
		DTSO	65617	1949	BRC&W Company	East Anglian Railway Museum
AM9 / 309	960 101	BDTC	977962	1962	BR York	Electric Railway Museum
	(309 624)	MBSO	977963	1962	BR York	Electric Railway Museum
		DTSO	977964	1962	BR York	Electric Railway Museum
AM9 / 309	960 102	BDTC	977965	1963	BR York	Electric Railway Museum
	(309 616)	MBSO	977966	1963	BR York	Electric Railway Museum
		DTSO	977967	1963	BR York	Electric Railway Museum
Individual Vehicles						
AM2 / 302	302 201	DTSO	75033	1958	BR York	Mangapps Farm
AM2 / 302	302 277	DTSO	75250	1959	BR York	Mangapps Farm
AM7 / 307	307 123	BDTBSO	75023	1955	BR Eastleigh	Electric Railway Museum
AM8 / 308	308 136	BDTCO	75881	1961	BR York	Electric Railway Museum
AM11 / 311	311 103	DTSO	76433	1966	Cravens	Summerlee/Coatbridge
AM11 / 311	311 103	MBSO	62174	1966	Cravens	Summerlee/Coatbridge
AM12 / 312	312 792	DT	78037	1976	BR York	Electric Railway Museum
AM12 / 312	312 792	TS	71205	1976	BR York	Electric Railway Museum

Section Three – British Railways London Midland Region Units.

Complete Units – DC Third Rail						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
501	501 183	DMBS	61183	1957	BR Eastleigh	Electric Railway Museum
	501 186	DTBS	75186	1957	BR Eastleigh	Electric Railway Museum
Complete Units – Experimental Battery Electric Multiple Unit						
BEMU	-	DMBS	79998	1957	BR Derby/Cowlairs	Milton of Crathes
		DTC	79999	1957	BR Derby/Cowlairs	Milton of Crathes
Complete Units – 1200V DC Third Rail Side Contact						
504	-	DMBSO	65451	1959	BR Wolverton	East Lancs Railway
		DTBSO	77172	1959	BR Wolverton	East Lancs Railway

Section Four – British Railways Southern Region DC Third Rail Units.

Complete Units						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
4-SUB / 405	4732	DMBSO	12795	1951	BR Eastleigh	Electric Railway Museum
		TSO	12354	1948	BR Eastleigh	Electric Railway Museum
		TS	10239	1948	BR Eastleigh	Electric Railway Museum
		DMBSO	12796	1951	BR Eastleigh	Electric Railway Museum
4-EPB / 415	5176	DMBSO	14351	1954	BR Eastleigh	Northampton Ironstone Railway
		TSO	15354	1954	BR Eastleigh	Electric Railway Museum
		TSO	15396	1954	BR Eastleigh	Northampton Ironstone Railway
		DMBSO	14352	1954	BR Eastleigh	Northampton Ironstone Railway
2-EPB / 416	5759	DMBS	65373	1956	BR Eastleigh	Southall
		DTS	77558	1956	BR Eastleigh	Southall
2-EPB / 416	930 053	DMBS	65321	1954	BR Eastleigh	Electric Railway Museum
		DTC	77112	1954	BR Eastleigh	Electric Railway Museum
2-EPB / 416	6307	DMBS	14573	1959	BR Eastleigh	Electric Railway Museum
		DTS	16117	1959	BR Eastleigh	Electric Railway Museum
2-HAP / 414	4308	DMBS	61275	1958	BR Eastleigh	National Railway Museum - York
		DTC	75395	1958	BR Eastleigh	National Railway Museum - York

2-HAP / 414	4311	DMBS	61287	1958	BR Eastleigh	Electric Railway Museum
		DTC	75407	1958	BR Eastleigh	Electric Railway Museum
3-CEP / 411	1198	DMBSO	61736	1960	BR Eastleigh	Chinnor & Princess Risborough Railway
		TBCK	70573	1960	BR Eastleigh	Chinnor & Princess Risborough Railway
		DMBSO	61737	1960	BR Eastleigh	Chinnor & Princess Risborough Railway
4-CEP / 411	2311	DMBSO	61804	1961	BR Eastleigh	Eden Valley Railway
		TSO	70607	1961	BR Eastleigh	Eden Valley Railway
		TBCK	70539	1961	BR Eastleigh	Eden Valley Railway
		DMBSO	61805	1961	BR Eastleigh	Eden Valley Railway
4-CEP / 411	2315	DMBSO	61798	1961	BR Eastleigh	Eden Valley Railway
		TSO	70229	1958	BR Eastleigh	Eden Valley Railway
		TBCK	70354	1959	BR Eastleigh	Eden Valley Railway
		DMBSO	61799	1961	BR Eastleigh	Eden Valley Railway
4-BEP / 412	7105	DMBSO	61229	1958	BR Eastleigh	Eastleigh Works (P)
		TBS	69013	1958	BR Eastleigh	Epping Ongar Railway
		TBCK	70235	1959	BR Eastleigh	Epping Ongar Railway
		DMBSO	61230	1958	BR Eastleigh	Eastleigh Works (P)
3-CIG / 421	1497	DTC	76764	1970	BR York	Spa Valley Railway
		MBSO	62402	1970	BR York	Spa Valley Railway
		DTC	76835	1970	BR York	Spa Valley Railway
4-CIG / 421	1753	DTC	76048	1965	BR York	Finmere
		MBSO	62043	1965	BR York	Finmere
		TSO	70721	1965	BR York	Finmere
		DTC	76102	1965	BR York	Finmere
4-VEP / 423	3417	DTC		1967	BR York	Strawberry Hill EMUD (P)
		MBSO		1967	BR York	Strawberry Hill EMUD (P)
		TSO		1967	BR York	Strawberry Hill EMUD (P)
		DTC		1967	BR York	Strawberry Hill EMUD (P)
MLV / 419	9001	DMBL	68001	1959	BR Eastleigh	Epping Ongar Railway
MLV / 419	9002	DMBL	68002	1959	BR Eastleigh	Southall
MLV / 419	9003	DMBL	68003	1960	BR Eastleigh	Eden Valley Railway
MLV / 419	9004	DMBL	68004	1960	BR Eastleigh	Mid Norfolk Railway
MLV / 419	9005	DMBL	68005	1960	BR Eastleigh	Eden Valley Railway
MLV / 419	9008	DMBL	68008	1961	BR Eastleigh	Southall
MLV / 419	9009	DMBL	68009	1961	BR Eastleigh	Southall
MLV / 419	9010	DMBL	68010	1961	BR Eastleigh	Eden Valley Railway
GLV / 489	9101	DMBL	68500	1984+	BR Eastleigh	Ecclesbourne Valley Railway
GLV / 489	9104	DMBL	68503	1984+	BR Eastleigh	Spa Valley Railway
GLV / 489	9107	DMBL	68506	1984+	BR Eastleigh	Ecclesbourne Valley Railway
GLV / 489	9108	DMBL	68507	1984+	BR Eastleigh	Great Central Railway (North)
GLV / 489	9110	DMBL	68509	1984+	BR Eastleigh	Vale of Glamorgan Railway

♦ Converted from older 2-HAP DMBS Vehicles

Individual Vehicles

4-DD	4002	DMBS	13003	1949	BR Eastleigh	Sellinge (P)
4-DD	4002	DMBS	13004	1949	BR Eastleigh	Northampton Ironstone Railway
4-CEP / 411	1589	DMBSO	61742	1961	BR Eastleigh	Dartmoor Railway
4-CEP / 411	1589	DMBSO	61743	1961	BR Eastleigh	Dartmoor Railway
4-CEP / 411	1524	TSO	70262	1958	BR Eastleigh	St. Leonards (HDL)
4-CEP / 411	1520	TSO	70284	1959	BR Eastleigh	Northampton Ironstone Railway
4-CEP / 411	1554	TSO	70292	1959	BR Eastleigh	Spey East Station, Granttown
4-CEP / 411	1559	TSO	70296	1959	BR Eastleigh	Northampton Ironstone Railway
4-CEP / 411	1698	TSO	70300	1959	BR Eastleigh	Fighting Cocks PH, Middleton St. George
4-CEP / 411	1500	TBCK	70345	1959	BR Eastleigh	Hydraulic House, Sutton Bridge, Cambs
4-CEP / 411	1597	TSO	70510	1960	BR Eastleigh	Northampton Ironstone Railway
4-CEP / 411		TSO *	70527	1960	BR Eastleigh	Great Central Railway
4-CEP / 411	1610	TSO	70531	1960	BR Eastleigh	Spey East Station, Granttown
4-CEP / 411	1569	TSO	70547	1960	BR Eastleigh	Hungerford (P)
4-CEP / 411	1567	TSO	70549	1960	BR Eastleigh	East Lancs Railway
4-CEP / 411	1589	TBCK	70576	1960	BR Eastleigh	Snibston Discovery Park
4-CIG / 421	1392	DTC	76740	1970	BR York	Southall

4-CIG / 421	1399	DTC	76747	1970	BR York	Dartmoor Railway
4-CIG / 421	1303	MBSO	62287	1970	BR York	Lincolnshire Wolds Railway
4-CIG / 421	1399	MBSO	62402	1970	BR York	Dartmoor Railway
4-CIG / 421	1306	TSO	71041	1970	BR York	Hever (P)
4-CIG / 421	1881	TSO	71080	1971	BR York	Barrow Hill (for Dean Forrest Railway)
4-CIG / 421	1884	TSO	71085	1970	BR York	Deptford (Confirmation needed)
4-BIG / 422	2251	TSRB	69302	1965	BR York	Abbey View Centre, Neath
4-BIG / 422	2260	TSRB	69304	1965	BR York	Northampton Ironstone Railway
4-BIG / 422	2254	TSRB	69306	1965	BR York	Spa Valley Railway
4-BIG / 422	2255	TSRB	69310	1966	BR York	Dartmoor Railway
4-BIG / 422	2258	TSRB	69316	1965	BR York	Waverly Route Heritage Centre
4-BIG / 422	2259	TSRB	69318	1965	BR York	Colne Valley Railway
4-BIG / 422	2257	TSRB	69332	1970	BR York	Dartmoor Railway
4-BIG / 422	2262	TSRB	69333	1970	BR York	Lavender Line, Isfield
4-BIG / 422	2209	TSRB	69335	1970	BR York	Wensleydale Railway
4-BIG / 422	2205	TSRB	69339	1970	BR York	Finmere
4-BIG / 422	2210	TSRB	69337	1970	BR York	St Leonards (HDLtd)
4-VEP / 423	3545	DTC	76875		BR York	National Railway Museum - York
4-VEP / 423	3568	DTC	76887	1973	BR York	Woking Miniature Railway
4-VOP / 423	3905	DTC	76397	1973	BR York	Dartmoor Railway
4-VOP / 423	3905	TSO	70904	1973	BR York	Dartmoor Railway
4-VOP / 423	3905	DTC	76398	1973	BR York	Dartmoor Railway
457	7001	DMSO	67300	1981	BR York	Electric Railway Museum

Section Five – London Underground & Constituent Companies

Tube Stock						
Complete Units						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
1938	-	DM	10012	1938	Met - Cam	London Transport Museum - Acton
		T	012256	1938	BRC&W Company	London Transport Museum - Acton
		NDM	12048	1938	Met - Cam	London Transport Museum - Acton
		DM	11178	1938	Met - Cam	London Transport Museum - Acton
1959	-	DM	1304	1961	Met - Cam	Finmere
		T	2304	1961	Met - Cam	Finmere
		NDM	9305	1961	Met - Cam	Finmere
		DM	1305	1961	Met - Cam	Dinton
1960	-	DM	3906	1960	Cravens	London Transport Museum - Acton (P)
		T	4927+	1938	BRC&W Company	London Transport Museum - Acton (P)
		DM	3907	1960	Cravens	London Transport Museum - Acton (P)
+ 1938 Stock Trailer						
1962	-	DM	1506	1962	Met - Cam	London Underground - Hainault
		T	2506	1962	BR Derby	London Underground - Hainault
		NDM	9507	1962	Met - Cam	London Underground - Hainault
		DM	1507	1962	Met - Cam	London Underground - Hainault
Individual Vehicles						
Pre 1938	-	T	7296	1923	Cammel Laird	London Transport Museum - Acton
Pre 1938	-	DT	5279	1925	Metro Carriage & Wgn	London Transport Museum - Acton
Pre 1938	-	DM	3327	1927	Metro Carriage & Wgn	London Transport Museum - Acton
Pre 1938	-	DM	3370	1927	Metro Carriage & Wgn	London Transport Museum - Acton
Pre 1938	-	DM	3693	1934	Met - Cam	London Transport Museum - Acton
1938	-	DM	11012	1939	Met-Cam	London Transport Museum - Covent Gdn
1959	-	DM	1018	1959	Met - Cam	Finmere
1959	-	DM	1030	1959	Met - Cam	Mangapps Farm Railway
1959	-	DM	1044	1959	Met - Cam	Alderney Railway
1959	-	DM	1045	1959	Met - Cam	Alderney Railway
1959	-	T	2018	1959	Met - Cam	Motcombe, Dorset (P)
1959	-	T	2044	1959	Met - Cam	Mangapps Farm Railway
1967	-	DM	3016	1967	Met - Cam	Walthamstow
1972	-	DM	3530	1972	Met - Cam	London Transport Museum - Acton
1986	-	DM	16	1986	Met - Cam	London Transport Museum - Acton
1983	-	DM	3634	1988	Met - Cam	Great Ormond Street

1983	-	DM	3734	1988	Met - Cam	London Transport Museum – Acton
Surface Stock						
Complete Units						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
CO/CP	-	DM	53028	1938	BRC&W Company	Buckinghamshire Railway Centre
		T	013063	1938	Gloucester RC&W Co.	Buckinghamshire Railway Centre
		DM	54233	1939	Gloucester RC&W Co.	Buckinghamshire Railway Centre
Individual Vehicles						
MET1904	-	T	9486	1904	Metro Carriage & Wgn	London Transport Museum – Acton
Q23	-	DM	4184	1923	Gloucester RC&W Co.	London Transport Museum – Acton
G	-	DM	4248	1923	Gloucester RC&W Co.	London Transport Museum – Covent Gdn
T	-	DM	2749	1932	BRC&W Company	Spa Valley Railway
T	-	DM	2758	1932	BRC&W Company	Spa Valley Railway
N	-	T	8063	1935	Met - Cam	London Transport Museum – Acton
Q38	-	DM	4416	1938	Gloucester RC&W Co.	London Transport Museum – Acton
Q38	-	DM	4417	1938	Gloucester RC&W Co.	London Transport Museum – Acton
R38	-	DM	22624	1938	Gloucester RC&W Co.	Mangapps Farm Railway
CP	-	DM	54256	1939	Gloucester RC&W Co.	Private Location In Essex
R49	-	DM	21147	1949	Met - Cam	Hanwell
R49	-	DM	22679	1949	Met - Cam	London Transport Museum – Acton
A60	-	DM	5034	1961	Cravens	London Transport Museum – Acton

Section Six – Other Railways

Individual Vehicles						
Unit Type or Class	Unit Number	Vehicle Type	Vehicle Number	Date	Built By	Location
LOR Unrebuilt	-	DMS	3	1893	Brown Marshalls	Liverpool City Museum
LOR Rebuilt	-	TF	7	1947	Liverpool Overhead Rly	Electric Railway Museum
Southend Pier	-	DTO 2'6" Gge	7	1949	AC Cars	Southend
Southend Pier	-	DMO 2'6" Gge	8	1949	AC Cars	Southend
Southend Pier	-	DMO 2'6" Gge	8 ?	1949	AC Cars	Mangapps Farm
Southend Pier	-	2'6" Gge	11	1949	AC Cars	Southend
Southend Pier	-	2'6" Gge	22	1949	AC Cars	Southend

Key to vehicle type codes:

D	Driving vehicle, cab at one or both ends.	M	Motor vehicle, fitted with traction motors.	B	Brake vehicle, has dedicated Guards accommodation or ; Buffet, the vehicle has a dedicated permanent buffet counter area.
T	Trailer vehicle, all axles unpowered	S	Standard, vehicle has standard or second class accommodation only. (on older vehicles this was previously called third class)	C	Composite, Vehicle has both standard and first class seating.
K	Corridor vehicle, has all compartment layout with side corridor or ; Kitchen provided (Pullman cars only)	L	Luggage, luggage only, vehicle has no passenger accommodation.	O	Open, passenger accommodation all open plan saloon.
ND	Non Driving (Tube stock only), Vehicle is powered but has no driving cabs or controls.	BD	Battery Driving (AC OLE Units), Vehicle has battery pack mounted underfloor for auxiliary power supply.		

Acknowledgements:

This document has been produced with assistance and input from the following:

The Railway Heritage Register Partnership, which is a joint venture between the National Railway Museum, Transport Trust and the Heritage Railway Association.

Input has been provided by the following individuals: John Atkinson, Brian Hardy, Michael Cope, Albert Mutton, Peter Spokes, Robin Johnson, Paul Lemon & Peter Hudson.