The Making of a Design Icon: The Utility Land Rover

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Etching of a Series 1 utility Land Rover intended for use in early press advertising
(Rover Company 1948)

Abstract

The Making of a Design Icon: The Utility Land Rover

The utility Land Rover when first launched in 1948 was designed to meet the assumed needs of agriculture and to address the British government's export imperative imposed after World War II. These very particular circumstances nevertheless yielded long-term success for the vehicle, leading to 67 years of continuous production. How then did a vehicle intended to overcome the commercial constraints of the post-war British motor industry, go from humble workhorse to long-lived mythologised automotive icon? This research examines the factors leading to its prolonged production, the petrification of the design, as well as the changing value complexes associated with the utility Land Rover over time. It also deconstructs by case study the notion of iconisation with regard to a technical artefact and the significance of the vehicle's reputation to the later hugely successful Land Rover corporate brand.

A hybrid methodological model developed as part of the research and drawing from actor network theory (ANT), elements of the social construction of technology (SCOT) as well as 'informational capital' is employed. This is then utilised to identify the factors that led to the utility Land Rover's longevity and its later frequent characterisation as an automotive icon. Furthermore, this innovative hybrid model seeks to make an original contribution to design history by combining existing methodologies in a manner that facilitates the intergraded analysis of diverse factors affecting the development and nature of technical artefacts, particularly those that are long-lived.

This thesis thereby demonstrates that the history of the utility Land Rover is one of persistence: operationally, culturally and temporally. Although anachronistic in many ways by the time production ended, the vehicle's ability to remain relevant for seven decades was largely rooted in its versatility, both in terms of application but also increasingly through interpretive flexibility and its significance to relevant social groups. Findings also reveal that the process of iconisation requires either physical or cultural longevity of the artefact and is largely a democratised process reached by consensus, although the term 'iconic' has been progressively devalued through habituated use in the media.

Additionally the research undertaken highlights and begins to address the limited design history research regarding automotive design particularly with regard to utility, the potential for engaging with enthusiasts and examining subjectivity in design historical scholarship, as well as the largely neglected topic of the design history of the car in developing countries.

Acknowledgments

I would like to thank the following for their support and contributions to this research: Firstly my supervisory team, Dr John Peters (my Director of Study) whose pragmatic and sage advice on navigating though the challenges of a PhD have been of great help and reassurance. Professor Kjetil Fallan who has provided tireless support, advice and encouragement as well as a seemingly endless knowledge on all issues relating to design history – your help has been boundless. Dr James Taylor whose knowledge, links with those working in the motor industry, incredible archive of all things Rover combined with his support and friendly encouragement has been highly valued. I would also like to thank those who allowed me to interview them, notably engineer Arthur Goddard (who at the age of 26 became responsible for the design and development of the utility Land Rover during its development in 1947), Roger Crathorne, engineer at Land Rover for more than half a century and ultimately the Director of Technical PR until his recent retirement and Peter Crowley-Palmer, Principal Designer at JLR. I would also like to thank all the enthusiasts, users of the utility Land Rover and those involved with the vehicle in other regards who have also allowed me to question them but who are sadly too numerous to mention individually. Finally I would like to thank my partner Diana Hawkins for her unerring encouragement and considerable tolerance of living with an individual undertaking a part-time PhD. Your belief in the project (and in me) has been an enormous source of support.

Thank you all.

Paul Hazell, April 2017

Contents

Introduction
An Enduring Expedient: Research Methodology and Literature Review

> *'There is something about the Land-Rover which has stirred the imagination and which has, by the confirmation of its unique qualities and special characteristics, created for itself a personality amongst Automobiles.'* [1]
>
> H.B. Light, 1965

At just after 9:30am on Friday the 29th of January 2016 the final example of the Land Rover Defender rolled off the assembly line at the Lode Lane factory site, Solihull, England. This marked the end of more than 67 years of continuous production for a vehicle that had initially been developed in seven months, was born out of post-war expediency, yet had seemingly defied the transfigurative powers of automotive fashion. This is in sharp contrast to current transient car designs, which despite taking an average of three years to develop, are being redesigned at an ever increasing pace with new and significantly reengineered models replacing old in as little as five years. The utility Land Rover is thus an interloper from another era: Initially designed as a functional vehicle both for the UK market and to meet an export imperative, it managed to survive as an archetype into the increasingly saturated and mercurial contemporary car market.[2] Although anachronistic in many ways by the time production ended the ubiquity and apparent petrification of the utility Land Rover has often been celebrated as a virtue with the vehicle frequently characterised as being 'fit for purpose', 'legendary' and the continuation of a fundamentally sound functional 'design classic'. The reasons for the vehicle's survival are however still more pragmatic than its utilitarian origins would suggest, being determined by circumstances and expediency as a matter of necessity as much as strategic thinking or as an automotive manifestation of functional perfection.

The utility Land Rover evolved slowly through several versions since its first introduction in 1948 and despite its largely unchanging silhouette has nevertheless gone through many incarnations, from agricultural vehicle, to military transport, to expedition workhorse, to fire engine, to ambulance and many other applications until arguably finally to 'SUV' (Sports Utility Vehicle) and cult classic. Both the reach and enduring nature of the vehicle were highlighted by Tony Gilroy, the managing Director of the Land Rover Group in the 1980s, when he stated '70% of all Land Rovers ever built are still in use [somewhere in the world]' which followed a similar and widely repeated claim of pervasiveness made by Rover (the then parent company) in the early 1970s that 'the Land Rover was the first car seen by 60% of the developing world's population'.[3] This characterisation of pervasiveness, along with its diverse application, informed the value complexes associated with the vehicle which, when combined with its longevity, have led to the widespread canonisation of the utility Land Rover as a design icon. This makes it particularly felicitous as a study of enduring automotive design with the utility Land Rover's manufacture spanning a period of significantly changed expectations amongst car designers, commentators and consumers alike, sold to a global market over seven decades, but with the artefact itself remaining remarkably immutable over the same period.

This research therefore undertakes a detailed study of the vehicle's design and development, the factors and circumstances leading to the utility Land Rover's persistence as an artefact and examines its later ascendancy and cultural transformation from utilitarian workhorse to a vehicle frequently characterised as an automotive icon. This introductory chapter accordingly reviews the existing literature in the following manner:

- Methodology adopted for the research (including a review of the related literature)
- Popular writing relating to the utility Land Rover
- Academic literature concerning the design history of the car and utility
- An overview of other primary and secondary sources employed

Methodology adopted for the research

Examining the Land Rover's transition from an austere utility vehicle borne of post-war expediency, to the status of an automotive design icon, highlights an apparent paradox in the vehicle's near 70 year history: that of being ostensibly functionally unchanged whilst simultaneously being culturally transformed over the same period. The utility Land Rover has become a much celebrated and romanticised vehicle over its life with the oft repeated myths associated with it at times obscuring or underplaying other contingent and external factors that have contributed to its persistence. The research encompassed in this thesis has therefore demanded the application of a range of methodological tools to allow an examination of this interpretive transformation.

It would be easy to assume that the utility Land Rover's significance as an automotive design has been solely based on its inherent properties of functionality and versatility with its unprecedented 67 years of production being an inevitable consequence of the vehicle's fitness-for-purpose.[4] Although these physical attributes are hugely important with regard to the vehicle's success and form the central spine of most accounts of the utility Land Rover's history, they are not unique to the marque and underplay significant socio-technical factors that have contributed to its frequent iconic characterisation. The range of 'soft' socio-technical factors and 'hard' material characteristics also intertwine and overlap with the relationship and balance between them varying in significance over time with both intention (design) and happenstance (chance and circumstances) contributing to the vehicle's emergence as a significant, long-lived and celebrated material artefact. The research undertaken here has therefore employed a range of methodological concepts to examine and better understand the multifaceted network of factors that have allowed the seemingly unchanged 'hard' material characteristics of the utility Land Rover in a context of significantly transformed 'soft' cultural factors which has become the lens through which the utility Land Rover has latterly been viewed and understood. Methodologies that have allowed an examination of both physical and socio-technical factors have been employed so the later

characterisation of the utility Land Rover as an automotive icon can be deconstructed rather than inadvertently celebrated further. Furthermore to examine and understand the long and manifold design history of the utility Land Rover has not only required the application of both established methodologies that (although frequently originating in other disciplines) have increasingly been applied to design history, but has also led to the development of a hybrid methodological model (see figure 3). In this chapter I present and discuss the key methodologies employed with an explanation of their characteristics and a rationale for their utilisation. This is followed in the last section of the chapter by an explanation of the methods employed for information gathering with the types of sources utilised also being described.

Methodological approaches employed

There has been a growing recognition in design history of the discipline's susceptibility to accusations of connoisseurship and canonisation without the application of theory that systematically addresses the social context of design.[5] Design history's origins, being largely based in art history, led to a frequent initial focus on design craft (i.e. the designer was also the maker). However as design historians increasingly began to examine the products of industrial design (where design and production are largely separated as processes) led the field to embrace methodological approaches that better suited the deconstruction of mass-produced artefacts with an increasing recognition of how these artefacts impact on society and society's reciprocal impact on design. As Kjetil Fallan explained, 'design has as little autonomy as technology does […], one should consider the relationship between society and design as a seamless web of sociodesign.'[6] This has led to the development or adoption of methodological tools that examine 'the seamless web of sociodesign' with this arguably moving design history, particularly when examining industrial design, further away from art history as a discipline and closer to the history of technology, or at the very least has obliged the design historian to adopt additional methodologies better suited to examining technical artefacts.[7] The history of technology, Science and Technology Studies (STS) and actor network theory all offer particularly appropriate methodologies for examining the persistence

and later iconisation of the utility Land Rover as such methodologies create a more nuanced and multidimensional interpretation of technology than linear models coming out of technologically deterministic thinking which has often lead to celebratory texts in the past (and continues to do so in much popular writing). Although beyond the scope of this thesis, this application of methodology is only one example of a widening field of study and approaches being undertaken by design historians where there is growing interest in craft practices (beyond the hegemonic traditions of 'art & craft'), pre-industrial design, non-western design, etc. leading to other parallel poststructuralist methodological developments.

The Social Construction of Technology (SCOT) is a methodological approach originating in the field of STS but has been increasingly employed by design historians as SCOT was developed and later built on as a methodological tool to better understand the interplay between physical artefacts and their socio-technical formation. In 1987 Pinch and Bijker (eds.) defined the key concepts and terminology in the introductory chapter to their book *The Social Construction of Technological Systems* where they argued that 'both science and technology are socially constructed cultures and that the boundary between them is a matter for social negotiation and represents no underlying distinction' and went on to point out that 'social groups give meaning to technology and that problems […] are defined within the context of the meaning assigned by a social group or a combination of social groups.'[8] In what might be considered a follow-up in 1994, *Shaping Technology / Building Society: Studies in Sociotechnical Change*, Bijker & Law (eds.), contained further case studies and has been of particular relevance to the research contained here as many of the chapters examine technical artefacts such as aircraft (the TSR.2), electric lighting, the car and further develop methodologies applicable to the utility Land Rover. Notably sociologist Madeleine Akrich presented her methodological concept 'script analysis' that highlighted the semiotic mediation of artefacts, which is discussed later in this chapter.[9]

Although both these books contain examples of Bijker's own research, this is expanded in his 1995 book, *Of Bicycles, Bakelite, and Bulbs: Toward a Theory of Sociotechnical Change*.[10] Here Bijker developed the concepts of 'relevant user groups' and 'interpretative flexibility', with the extended monograph format allowing room for the application of these increasingly refined methodologies to specific case studies – namely the safety bicycle, Bakelite plastic and fluorescent lighting mentioned in the title.[11] This has in turn made these theoretical concepts particularly useful when deconstructing the design history of the utility Land Rover.

Bijker described the process of identifying 'relevant user groups' as a means of preventing 'retrospective distortion' as it can reveal actors that might have otherwise been overlooked in previous 'whiggish' accounts (i.e. accounts that focuses on history as a form of linear progress that retrospectively largely appears inevitable).[12] Such accounts also favour historiography that focuses on the *successful* and can therefore lead to inadvertently triumphalist narratives regarding artefacts. This is evident in many popular accounts of design history such as the numerous books celebrating classic cars. There has however been a growing recognition in design history (as an academic discipline) that there is as much, if not more, to be gained by examining failed or largely forgotten designs.[13] The utility Land Rover is of course susceptible to such whiggish interpretation as it has been increasingly canonised and characterised as being an iconic automotive design. The use of 'relevant social groups' has therefore allowed a more objective and empirical analysis of the factors leading to the Land Rover's success and longevity by using what Bijker described as his technique of 'rolling the snowball and following the actors.'[14] In practice this has meant wherever possible investigating the full range of social groups mentioned in contemporaneous material in relation to the Land Rover at various times over its life. In addition it has also entailed identifying other 'relevant user groups' not usually considered (such as enthusiast groups and their various sub-sets) and incorporating these actors as a further means of unpacking the process relating to the social construction of the artefact by identifying and analysing their interests, agendas, and contributions to the shaping of the product. As Bijker stated: 'after

some time the researcher does not find reference to new groups, it is clear that all relevant social groups have been identified.'[15] Although not referring explicitly to SCOT, Thomas Brandt's investigation into users of the Vespa Scooter highlights many of the issues relating to relevant social groups and their impact on the value complexes associated with personal transport, it being an example of design history research that usefully 'follows the actors' as Bijker described it.[16]

The related concept of 'interpretive flexibility' is also encountered throughout the research as the approach can be utilised to reveal disunion regarding the interpretation of a given design. This is at its most pronounced where there is a conflicting reading between users or other actors leading to differing interpretations of the same artefact. This Bijker argues is 'the "working" and "nonworking" of an artefact [which are] socially constructed assessments, rather than intrinsic properties of an artefact.'[17] One such apparent example of disunion with regard to the utility Land Rover took place when increasing environmental awareness impacted on the perception of 4x4 passenger vehicles with growing opposition from environmental campaign groups to the growth in SUV sales in the early-to-mid 2000s, particularly when used in urban settings.[18] This therefore required the manufacturer to react with a range of strategies before this negative interpretation gained credence amongst potential buyers (therefore corporate communications, and later the design of the vehicle itself, sought to affect the interpretive flexibility of the artefact).[19] Although after a more systematic and nuanced reading of events it became clear that the utility Land Rover remained largely immune from such environmental criticism while other products from the company did not. This was due to the perception of the utility Land Rover, even amongst environmental campaigners, as being a useful working vehicle with this outweighing the 'gas guzzling' characterisation usually levelled at 4x4s (see chapter 5). The implication here is that although interpretive flexibility as a concept can usefully reveal differing perceptions of the same artefact, the characterisation may not necessarily be dichotomic or polarised. This, and its emphasis on 'set[ting] the agenda for a social analysis of design technology' may begin to

reveal where a sociological methodology, when applied to design history, needs to be employed judiciously.[20]

Actor Network Theory (ANT) pioneered by Bruno Latour et al. has also provided an additional and related conceptual framework by highlighting the many interacting elements (or actors) and their relational influence on one another.[21] In the case of the utility Land Rover these actors have included company management, product planners, automotive designers, engineers, sales and marketing departments, government officials, the media and various users such as agriculture, the military, enthusiasts, overseas buyers and the vehicle itself with the interests (where they exist) and interplay between these various actors forming networks. These actors have thereby formed identifiable nodes on the network without an artificially linear chronology or hierarchy being necessary for their identification. This has drawn attention to the negotiations between various actors with their behaviour or characteristics (conscious or otherwise) 'applying strategies preconditioned by their different interpretations, agendas, needs and desires.'[22] In turn this has highlighted the varying impact of these actors on the artefact (and vice versa) in changing circumstances over time whilst acknowledging that the interplay between them was as at least as important as the actors themselves. To give an example of this with regard to the utility Land Rover, the presumed uses the vehicle was intended for by its development team can be compared to the *actual* manner in which it was utilised once employed by users, which rapidly diverged and expanded (see chapter 4). This (and many other factors) in turn fed-back into the vehicle's later development. The concept of ANT allows a contextualised and integrated examination of this dynamic process across the network of actors over the vehicle's life.

Mentioned earlier, a further methodological tool that has assisted in the deconstruction of the utility Land Rover has been 'script analysis'. Akrich's concept has been judiciously distilled by Kjetil Fallan whilst outlining the way in which 'script analysis' can facilitate the deconstruction of artefactual mediation:

> *The materialization of the designer's more or less informed presumptions / visions / predictions about the relations between the artefact and the human actors surrounding it becomes an effort at ordaining the users' understanding of the product's use and meaning. However, there always is the chance that actors decide not to play the role ascribed to them by the designers, and also that users misunderstand, ignore, discard, or reject the "instruction manual" and define their roles and the producer's / designer's intentions as conveyed through the script. The script thus is a key to understanding how producers / designers, products, and users negotiate and construct a sphere of action and meaning.*[23]

Notwithstanding the developments in user testing, focus groups and operator feedback and even user training now commonplace in industrial design practice, identifying how the object's script has been modified by users and affected the 'product's utilitarian functions, aesthetic expressions, social meanings, and cultural identities' is a vital process in understanding an artefact's design history.[24] This has been particularly germane to the utility Land Rover, as its very versatility and general purpose nature make it in some regards an automotive 'blank canvas' leading to hugely diverse range of applications with these uses (and users) in varying contexts significantly affecting its 'script' over a prolonged period of production.

'Script analysis' has also accentuated the semiotic as well as the material nature of the utility Land Rover. What the vehicle conveys, whether as brand or artefact, is a major component of its postulated iconicity and identifying these semiotic messages is therefore valuable when wanting to better understand, which aspects of the actor network are plastic or fixed. For instance, the characterisation of the vehicle as being rugged and authentic is clearly a message the brand would want to project but the material nature of the vehicle itself has influenced both the network and the actors (and therefore the script) with regard to such messages. Whether it's the angular and functional appearance or its ability to absorb damage and wear in a manner consistent with its reputation, these characteristics were accommodated *by design*

for pragmatic reasons at the outset (i.e. a perpendicular shaped body allowing for ease of production and maximum interior space made up of aluminium panels simply formed in manufacture, resistant to corrosion and easily reshaped after accident damage). Furthermore, these (and other) functional attributes have been imbued with additional meaning over time with aesthetic and other subjective semiotic connotations frequently reinforcing what is already understood about the vehicle's merits. Hard worked or elderly Land Rovers for instance can frequently be seen to carry the effects of wear or damage on their bodywork as battle scars and thereby tell a tale of the vehicle's adventurous exploits, labour and long-life and therefore far from being detrimental, reinforce the values associated with the vehicle.[25] As the BBC's 'Top Gear' presenter Richard Hammond declared in the most romantic of terms in 2003: '[The Land Rover] [i]s beautiful, truly beautiful, in the way that the weather beaten care worn face of a desert nomad might be beautiful.'[26]

Fig 1: Script analysis: Hard worked utility Land Rovers (such as this Series II model dating from approximately 1960 and still in use as a farm vehicle after more than 55 years) frequently carry the effects of wear and damage on their bodywork and interior and thereby tell a tale of the vehicle's labour and long-life. (Photograph Paul Hazell)

This is in contrast to the largely negative semiotic connotations of damage on most other vehicles where dents and missing paint might suggest neglect, disregard for the vehicle or even financial hardship of the owner. It is therefore an example of how both the actor network

and script analysis can reveal subjective notions that impact on both materiality and reception as well as how one artefact, even in the same ontological category, might differ in interpretation when compared to another.

Although both ANT and script analysis offer the potential to analyse how consumers / users modify material culture for their own ends (a phenomenon particularly pronounced in car culture as can be seen in activity ranging from small scale adaptions to significant modifications, restoration and customisation) the topic remains an under-researched, although increasingly acknowledged, aspect of design history.[27] In part identifying and theorising about the phenomenon of modification and its link to the 'co-production of meaning' is recognised by SCOT in the shape of 'domestication theory'.[28] Kjetil Fallan outlined both the neglect of users and their consumptive activities whilst advocating domestication theory with regard to design history in the follow manner:

> *Traditionally, consumption has been regarded as a passive function in which the consumer conforms and adapts to directives issued by the producer. Newer research attributes both greater competencies as well as responsibilities to the consumer / user. Consumers / users play active roles in forming their lives through the adaptation to and creative manipulation of objects, meanings, and social systems according to their needs, desires, and abilities.* [29]

He continued, 'users modify their artefacts so that they suit their needs and desires in the best possible way but, at the same time, they and their behaviour, feelings, and attitudes are transformed by the products.'[30] Domestication of artefacts can be seen as a form of "taming" of technology and is particularly pertinent to cars in general and the utility Land Rover in particular. Major reconstructive or adaptive changes to utility Land Rovers have been common from soon after its inception as it was designed from the outset to be a universal vehicle capable of a myriad of functional roles. Demand for modified specialist Land Rovers was sufficiently large that from the late 1950s the manufacturer itself offered what was effectively a customisation service through its Special Vehicles Department to specifically

tailor vehicles to users' requirements (see chapter 3). Enthusiasts have also embraced the ability to modify the Land Rover themselves due in part to the availability of second hand vehicles, inexpensive parts and the 'bolt-on' modular construction making what would, for instance, be major body changes that would compromise the integrity of most vehicles, straightforward in the case of the utility Land Rover. Both the utility Land Rover's versatility and *adaptability* (when new as well as over its lifetime), are therefore of particular significance with regard to the value complexes associated with the vehicle and its design history.

Although specifically intended to address the 'seamless web of sociotechnology' which in turn affects which designs succeed or fail, SCOT and concepts such as ANT, script analysis and domestication theory by and large do not offer a means of gauging the relative proportional effect of the various actors in the network, largely one might assume as this can vary in each case.[31] Furthermore SCOT has also been criticised for over emphasising the social aspects of technology when used in a design history context and 'deemed inept at dealing with the materiality of artefacts', which is after all a central tenet of design history.[32] This materiality is best represented by the persistence of many artefacts or the 'obduracy of objects' as Akrich characterised it.[33] This criticism is pertinent to a better understanding of the history of the utility Land Rover as its longevity is particularly notable when compared to other automotive designs with its materiality remaining relatively fixed over a period of significant social change and growing consumer sophistication.[34]

The utility Land Rover can be examined both as an historic *and* contemporary artefact and as a result of being so long lived has required the corporate brand to coherently absorb the vehicle's characteristics and then exploit them for maximum commercial effect – a process that has greatly intensified in the last twenty-five years. John Heskett succinctly highlighted this issue when he stated that 'in everyday life, in contrast to the theories of academe, the new has never entirely replaced the old, but has instead been layered upon it... Design is therefore

simultaneously about change, continuity and adaption.'[35] As 'Land Rover' became the company name in the late 1970s and the utility Land Rover was renamed the Defender in 1990 the vehicle's heritage and exploits were filtered and re-projected for maximum commercial effect by the brand as the company's product range expanded in the 1990s. The significance of the gradual repositioning of Land Rover Ltd as a corporate brand over this period from one of being a maker of utility vehicles largely sold to commercial users, to one producing passenger carrying vehicles marketed to private consumers, is of great significance to the utility Land Rover's story. It is this shift in representation that propels the utility Land Rover and its parent corporate brand into greater public consciousness. This change has not only impacted in business terms but also in terms of how the utility Land Rover has been culturally understood and historicised since the 1980s. This has in-turn meant that representation of the utility Land Rover has required further analysis using methodological tools focusing more tightly on the value complexes both absorbed and re-projected by the brand.

The concept of 'informational capitalism' is a theoretical framework emanating from cultural studies intended as a means of exploring how ideas have value, both economic and social, and thereby inform (and are informed by) what Adam Arvidsson describes as 'value complexes'.[36] It is these value complexes that are capitalised on by commerce, most often in the form of 'branding'. As we will see however a technical artefact's value complexes are more extensive than that which is projected by its manufacturer and it is not fully controlled by the brand. Furthermore these values can extend well beyond the brand and in the case of an obsolete, but still well known artefact, not be part of any 'managed' communication at all. Nevertheless what is notable with the utility Land Rover is its ability to accommodate changing value complexes in its script, which have in turn been carefully utilised and applied more broadly through the company's marketing and brand management in recent years (see chapter 5).

It might be argued however that SCOT and informational capitalism, in their attempts at redressing the balance by highlighting the social aspects of technology, inadvertently result in underplaying the importance of materiality and by extension teleological attributes of technical artefacts, which Ruth M. Van Dyke described as 'things [being] relegated to secondary status in the social sciences.'[37] Such methodologies also remain relatively reticent on the strategies employed by designers, engineers and development teams to user test both the man/machine functionality of technical artefacts (i.e. ergonomics) as well as gauge their design's reception as cultural products (i.e. their value complexes).[38] This subjugation of materiality may be because STS is largely focused on the sociological aspects of technology whereas design historians inevitably wish to examine the artefact itself as much as human actors.

This, therefore, still represents something of a duality for design historians when examining technical artefacts and was acknowledged by sociologist Rudi Volti, when he argued that both history and sociology needed to 'bridge this divide between disciplines' if it was to better understand the nature and meaning of technical artefacts and therefore needed to draw on different methodological approaches to achieve this.[39] These teleological aspects are highlighted in 'the dual nature of technical artefacts', a theoretical framework that has emerged from the philosophy of technology in recent years. Peter Kroes and Anthonie Meijers described this as technical artefacts having a 'dual nature' i.e. they are designed to realise a function, which in turn refer to a human intentionality.[40] Due to the complexity of this task however Agnew had already made the case some years earlier that specific artefacts should be examined in detail to make such a task manageable (which he himself did by examining the wing design of the Mk1 Supermarine Spitfire).[41] More recently Gijs Mom adopted this concept of duality by putting forward the concept of the 'theory of agency and technical change' in design history. He argued for the need to historicise this dualism and this task therefore necessitates 'some theory of change.'[42] This Mom developed into a concept of technical 'properties' and relational 'functions' that both designer and the user of the artefact

are required to grapple with over the period of development, evolution and consumption of the technical artefact. This relationship of properties and functions Mom illustrated in the following way:

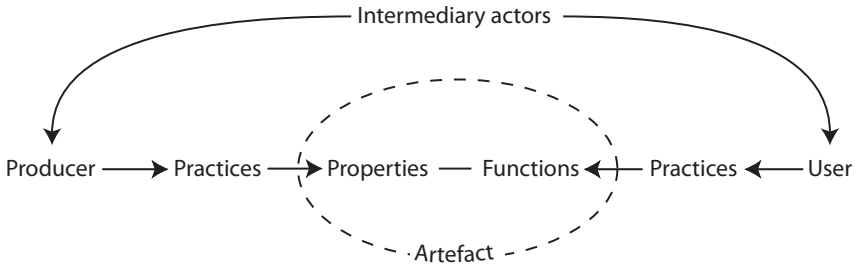


Fig 2: Gijs Mom's 'theory of agency and technical change' (Gijs Mom 2007)[43]

The desire to better understand the nature and meaning of technical artefacts as identified by Volti and addressed by Mom has led me to develop a hybrid methodological model which the intention of integrating Mom's 'theory of agency and technical change', Arvidsson's 'informational capital', Akrich's 'script analysis' and 'domestication theory' along with Bijker's 'relevant user groups' and 'interpretive flexibility'. This integration may at first seem overly ambitious but it is evident that there is considerable synergy and overlap between these concepts, which are at times however difficult to conceptualise when solely expressed in prose. In my efforts to integrate these concepts in a single model it has both facilitated an overview of their relationship and acted as a conceptual logic diagram regarding the interrelationship of the methodologies employed. If one compares the diagram above (fig 2) with my diagram below (fig 3) it is possible to see how I have expanded Mom's methodological concept 'the theory of agency and technical change' to accommodate many of the additional methodologies discussed above. This enhanced model therefore acts as a refined and consolidated tool for identifying the factors that lead to the utility Land Rover's longevity and frequent characterisation as an automotive icon. Furthermore, the model seeks to make an original contribution to design history methodology by combining existing methodologies in an information flow diagram that facilitates an integrated examination of the network of diverse factors effecting the development of technical artefacts more broadly, particularly those that are long-lived.

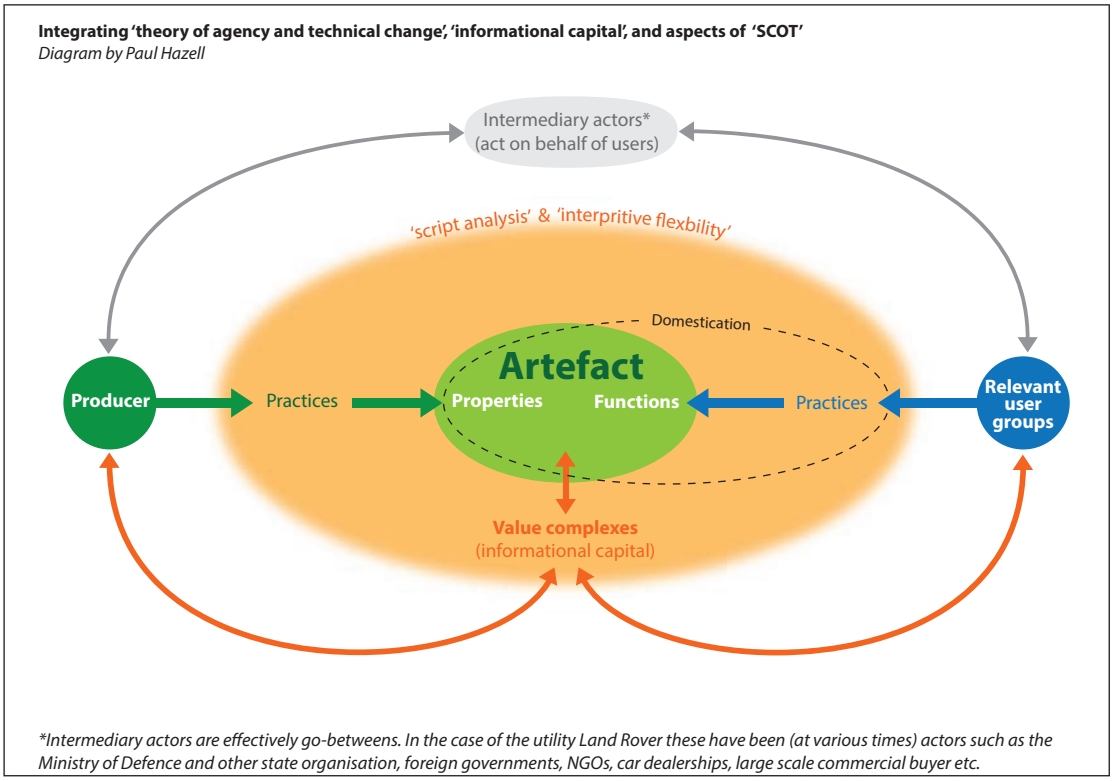


Fig 3: The diagram above seeks to integrate a range of significant methodological concepts outlined in this chapter into a single model for examining factors affecting a long-lived technical artefact. (Diagram by Paul Hazell)

It will be noted that actor network theory (ANT) has not been explicitly included in the diagram; this is for largely pragmatic reasons relating to clarity. The groups identified in figure 3 (users, producers, intermediaries) can be characterised as actors in a network but for ANT to be at its most effective these need to be broken down into specific actors such as the examples given earlier in the chapter (company management, product planners, automotive designers, engineers, sales and marketing departments, government officials, the media and various users such as agriculture, the military, enthusiasts, overseas buyers etc.) Therefore rather than attempting to identify all such actants and strive to include them in the diagram, the terms used in figure 3 (users, producers, intermediaries) function as receptacles for types of actors rather than specific examples to make the interrelationships between types manageable and maintain reasonable clarity in the diagram. ANT therefore becomes a means of identifying the actors occupying these receptacles and thereby maintains a reasonable level of clarity and flexibility with regard to the application of the model. The network (i.e. the relationship between actors) is specified, however, to better navigate such relationships with

regard to technical artefacts thereby attempts to go some way to address the criticism of ANT (with its origins in social studies) of being 'inept at dealing with the materiality of artefacts' as identified by Akrich and Fallan and of concern to design historians.

As can be seen in the methodological approaches taken I concluded that it was inappropriate to adopt only one dominant theoretical concept to apply to the design history of the utility Land Rover as the network of factors affecting both the artefact and its meaning has many facets that no one methodological approach was fully able to address. For instance, the value complexes that have been both absorbed and projected by the corporate brand have changed significantly over the long production life of the Land Rover as the vehicle has been consumed as both a contemporary product whilst also being increasingly considered an historic artefact first introduced in a different era of car manufacturing and consumption.[44] Even with the recent end in production of the utility Land Rover (i.e. the Defender) the vehicle will remain in use for many years to come both as a working vehicle and increasingly as a collector's item. This means the analysis undertaken cannot be an entirely retrospective one and has led to the employment of a number of overlapping methodologies from a range of disciplines. To (mis)use Akrich's terminology, the script continues to be written whilst the actors still perform, meaning the drama has not yet been concluded.

Popular writing and the utility Land Rover

The longevity and versatility of the utility Land Rover has made it a popular subject for motoring writers and journalists. A substantial number of books and magazine titles have been published about the vehicle over its life with there being a notable expansion of titles in the 1990s as interest in Land Rover products, both new and old, grew as SUV sales increased more broadly.[45] Such publications, generally aimed at owners and enthusiasts, can be broadly split into two categories: 'technical histories' or 'vehicle exploits' with some titles seeking to address both aspects. These two categories exemplify the characteristics of the material through which the utility Land Rover has been understood in popular culture, that of tapping into the emotional (adventure, fortitude, authenticity etc.) but also being subject to systematic

analysis (the merits of the vehicle's design and engineering over an extended period).[46] Motive designs that facilitate both personal and public transport are particularly prone to retrospective romanticisation with popular writing about classic cars, steam locomotives and vintage aircraft etc. frequently reinforcing such ideas. This is not only through the accounts of such vehicle's exploits (which are at times sentimentalised), but also through technical material relating to artefact's development histories and maintenance. This technically focused material, although more analytical in nature, has also allowed enthusiasts to become more deeply immersed in their chosen object of desire with both the volume and detail often further serving to confirm the standing of such artefacts in enthusiast's eyes.[47] In essence an enthusiast might say 'if there are so many books and magazines about the Land Rover, it must be pretty special.' This popular material, even before one engages in the content, therefore indicates the scale of the following that the utility Land Rover has acquired over time, which in turn suggests there is something about its function, properties and nature that generates significant levels of interest (i.e. its informational capital). Such material also gives the social context in which the vehicle operates and shows the concerns and pre-occupations of users and enthusiasts and therefore helps shed light on why a particular technical artefact might matter to particular groups.

Although there had been an attempt to produce a written history of the utility Land Rover as early as 1965, with *The Land-Rover Story* compiled by Rover employee H.B. Light, this was a relatively brief internal company document that did not achieve broader publication.[48] The first widely published account, providing a more comprehensive history of the utility Land Rover, appeared in 1976 and was titled *The Land Rover: Workhorse of the World*, written by motoring writer and journalist Graham Robson.[49] The book predominantly used interview, particularly with Tom Barton (the then design director of Land Rover), as a resource for its content with the dustcover notes setting the scene for the often-romantic tone of the narrative contained in the book:

> *The Land-Rover has become an institution: it has entered into the language as a term for maid-of-all-work or [a] 'workhorse of the world'. It is a vehicle that has won the hearts of its owners in most countries.*[50]

The book, although describing aspects of the Rover Company's history in relation to its 4x4 product, has as its main focus the development of the utility Land Rover up to that point and may have played a role in establishing various myths associated with the vehicle. These, at least in part, seem to have come from interviews with Tom Barton who frequently described the Land Rover as a stopgap product, which he characterised as facing apparent internal opposition (yet seemingly conquered all) with the book implying Barton was a senior member of the original development team.[51] As we will see in later chapters this version of events is only partially accurate but with several later writers appearing to use Graham Robson's book and the words of Tom Barton as a source for their own work it seem likely that it has inadvertently allowed various myths relating to the utility Land Rover to become established.

Five years later in 1981, *Land Rover: The Unbeatable 4x4* was published and provided something more akin to a company history with detailed accounts of various aspects of the organisation.[52] This first edition was followed by three updated versions in 1984, 1989 and 1994, which demonstrated both the increasing demand for material relating to the Land Rover's story over the 1980s and early 1990s as the company became more visible to mainstream consumers, as well as the rapidly changing context for the business over the same period which necessitated these later editions (with these two aspects being linked - see chapter 2). Utilising a number of contributors from both inside and outside the company it provided a detailed and often first-hand account of aspects of the development, evolution, successes and failures of the various models of Land Rover. However, later editions with various sections added (without earlier parts necessarily being updated) produced an account that read as contemporaneous yet covered a thirteen-year period of authorship leading to some disjointedness. Nevertheless with later editions running to 350 pages *Land Rover: The Unbeatable 4x4* began to solidify many of the narratives relating to the utility Land Rover and

served as the first and most authoritative account of the company's activities from the Land Rover's inception in 1947 through the difficult years of virtual nationalisation and later privatisation.

A more detailed account specifically examining the development and evolution of the utility Land Rover appeared in the 1980s as *The Land-Rover: 1948-1984* published in 1984.[53] This was the first of many highly detailed accounts of Land Rover product development written by James Taylor, which utilised primary research of period documentation from the company archives, distinguishing it from what at times was the rather more anecdotal style of the previous titles mentioned. This approach therefore started to reveal some of the serendipitous as well as design factors leading to the utility Land Rover's persistence but remained largely focused on the company's products rather than corporate strategy.[54] This was followed by many other similarly detailed titles by the same author such as *Land Rover Since 1983: Coil Sprung Models* (1996), Original Land Rover Series I (also 1996), etc. (see bibliography). What was of little more than a niche interest amongst Land Rover enthusiasts in the first four decades of the product's life became increasingly mainstream amongst car owners and enthusiasts as SUV sales rapidly developed in the 1990s.[55] This at times has led to titles that were often little more than general overviews of the company's history or 'coffee table books' (designed to capitalise on the increase in demand for such publications) with the earlier myths often being repeated in their pages.

As a largely separate strand of titles there have also been numerous accounts of what might be described as the utility Land Rovers 'exploits' such as vehicle-based expeditions or other specialist roles. In these titles the vehicle is either incidental to the narrative or the vehicle itself is the main focus with its reputation either being established through such writing or being further reinforced. Books by travel writers such as Barbara Toy and Tim Slessor in the 1950s helped establish the utility Land Rover's reputation as an adventurer's companion, which was later capitalised on by the corporate brand as a means of establishing authenticity

for new products by mining the utility Land Rovers heritage.[56] Such notions helped establish a link between Land Rover products and customers desires for adventure in the era of life-style marketing from the 1990s, even if in the majority of cases such fantasies were never realised by the majority of buyers. These aspects of the value complexes centred on the utility Land Rover are explored in chapter 4.

With the increasing number of private collectors and restorers of all types of utility Land Rovers there has been a parallel growth in the range of specialist books focusing on specific and often specialist applications of the Land Rover. These were again initially niche and aimed at the most dedicated of enthusiasts with titles such as *The Fighting Rovers* (1983) which was a low volume publication consisting of approximately 20 pages of contextual information followed by a further 60 giving detailed specifications of the various military types and associated equipment such as trailers. This information was taken from *British Military Vehicles* catalogues produced for the 'Fighting Vehicles Research & Development Establishment' exhibitions, which took place at the Chertsey test facility in Surry during the 1960s and 1970s.[57] In contrast, by the 1990s and increasingly in the 2000s, there were many more titles of higher production value examining specialist roles (see bibliography). An expansion in such titles again paralleled the increasing interest in the Land Rover company and its products as 4x4 vehicles moved into the mainstream with the expansion of the market for SUVs. In essence, as consumers bought Land Rover's Discovery and Freelander models in the 1990s and with the utility Land Rover also increasingly sold to private buyers, to some of these individuals it may have seemed that for the previous four or five decades the utility Land Rover had been hiding in plain sight as a commercial vehicle.[58]

Fig 4: Although lacking fidelity, the general trend in the growth of books with content relating to the Land Rover can clearly be demonstrated using Google's 'Books Ngram Viewer'. (Google Ngram)

Design history and the car

The capacity of some technical artefacts to become established in the popular imagination, carrying rich and extensive value complexes has led to potential veneration, a phenomenon that is often particularly true of the car.[59] As the French philosopher, Roland Barthes, famously observed in 1957 when reflecting on the design of the then new Citroën DS 19:

> *I think that cars today are almost the exact equivalent of great Gothic cathedrals: I mean the supreme creation of an era, conceived with passion by unknown artists, and consumed in image if not in usage by a whole population which appropriates them as a purely magical object.* [60]

It is noticeable however that the essay this quote is taken from in Barthes book *Mythologies,* despite being written sixty years ago, has been reproduced twice in contemporary design history books with it featuring in both *Autopia: Cars and Culture* and more recently still in *The Design History Reader.*[61] This may suggest the essay continues to be seminal and relevant, but it may also suggest that design history scholarship relating to car design has remained surprisingly limited and underdeveloped over the same period. When one considers the vast number of books published about the car it may initially seem surprising to claim that there has been relatively little produced by design historians about it in an academic context. With writing about the car as *object* associated almost exclusively with enthusiasts, and with the car's susceptibility to veneration, design historians have instead largely written about the

car as *subject* therefore producing works focusing on car culture and the vehicle's social impact rather than the artefact itself. Arguably however this is territory already well covered by sociologists themselves such as in books by David Gartman and more recently Rudi Volti.[62] More specific social aspects of the car such as the relationship between consumer capitalism and the environment as well as the consequences of the car on specific groups and cultures are also addressed in more tightly focused works and edited collections.[63] Although rich in content and often thought provoking, these publications, unsurprisingly (given the disciplines they have emerged from) focus on aspects of *use*, largely leaving issues relating to the process of design (and its networked relationship with use) underrepresented. This then is the territory I believe the design historian could better occupy.

As we have seen in the earlier section of this chapter addressing methodology, academic research emerging out of STS and the philosophy of technology further underlines some of these issues of approach, identified above. In their book *The Empirical Turn in the Philosophy of Technology* Peter Kroes and Anthonie Meijers described the collection of papers it contained as effectively 'one prolonged plea that the philosophers of technology should take technology more seriously'.[64] Jospher Pitt added a further dimension when he reflected that the philosophy of technology as a discipline had primarily been 'critical denunciations of the negative effects of technology on human values and human life'.[65] This model of research focusing on social criticism is also a theme that runs through 'automobility', an aspect of sociological research that examines the social impact and utilisation of automobiles as the major means of transportation particularly after World War II.[66] Clearly context is vital for effective historiography but the emphasis seems skewed to favour cultural aspects at the expense of the materiality of the object.[67] For example in the book *Autopia: Cars and Culture,* a collection of essays with contributions from design historians as well as other disciplines, it stated in the flysheet '*Autopia* is not written by car buffs or technical enthusiasts […] but writers, critics [and] historians*'* and thereby seemingly seeks to distance itself from accusations of automotive populism or even car 'fetishism'.

The apparent focus on the negative impact of technology does not, however, fully reflect the way many consumers and users integrate technology into their lives and derive meaning from it at an individual level. Where design historians have focused on the artefact itself a bridging between object and subject has been more apparent. This is an aspect that is revealed by both script analysis and domestication theory and there is more recent work that has begun to address these issues such as Kjetil Fallan's 2013 study of the Norwegian Kombi mini-bicycle examined as an artefact embodying material memories and one which is now considered an iconic design. The article was of particular use in relation to the mediation of technical artefacts and approaches relating to personal interaction of the design historian with industrial design objects. [68] This was an issue examined specifically in the article 'The Enthusiast's Eye: The Value of Unsanctioned Knowledge in Design Historical Scholarship' co-authored between myself and Kjetil Fallan two years later in 2015.[69]

A notable recent book that has addressed many of these artefactual issues is *Car* by Gregory Votolato published as part of the *Objekt series* by Reaktion Books.[70] Although wide-ranging in its approach the book nevertheless manages to examine aspects of production, design, marketing and consumption across a range of eras and markets in a manner that (as the series title would suggest) places the object in the centre of the discourse. This allows a deconstruction of the relationship between artefact and consumer/user without the frequent dichotomy of the reader type (i.e. enthusiast or academic). This was highlighted by Joe Kerr in his review of the book when he stated, '[The book is] an authoritative account of the car that would grace the shelves of *expert and enthusiast* alike, and which makes a measured and intelligent contribution to the growing but still *underdeveloped discipline of automotive history* [italics added]'[71] Extended academic writing in relation to specific automobiles is less common still with the divide between subject and object / academic and enthusiast only occasionally being bridged. One such publication was Phil Patton's book *Bug: the strange mutations of the world's most famous automobile*. The book reveals parallels between the Beetle and the Land Rover in that Volkswagen's car was born out of functionality with

largely unchanging physical characteristics over an extended production life but acquired significantly changed value complexes over the same period achieving celebration as an automotive icon in a similar manner to the utility Land Rover. As Patton explained:

> *By the 1980s the Beetle had become a piece of universal cultural code, a kind of gestalt. And for VW it remained a ghost that haunted the company.*

He continued.

> *It was the quintessentially modernist argument: design based on function goes beyond style. Just as improvements were invisible things, the decisions that went into the design were those of engineers, not stylists – or so we were lead to believe.*[72]

If the car has been underrepresented as artefact in design history scholarship, even less has been produced regarding other forms of automotive design particularly when of a utilitarian nature such as trucks, construction machinery, military vehicles and agricultural vehicles (all roles the utility Land Rover has been engaged in) where aesthetics and consumption (a frequent foci of many design historians) seem less obvious. Yet these examples of industrial design have evolved enormously and impacted significantly on materiality. Kjetil Fallan observed that 'conventionally design history's predilection for beautiful objects for the home has left out a vast array of material from other spheres, such as military equipment' and went on to comment that 'design history has rarely bothered with objects historians did not consider to be of high aesthetic value, objects that could be attributed to an author or objects outside the domestic sphere'.[73]

Utility design was however specifically addressed in Judy Attfield's (ed.) 1999 book, *Utility Reassessed: The Role of Ethics in the Practice of Design*. In the preface Attfield stated that she hoped the book would:

> *[...] downgrade the importance of aesthetics in the pursuit of a practice of design appropriate to today's world. Since the short-lived heroic phase that celebrated the history of Utility, it has been represented as a singularly unsuccessful example of Modernism, variously dismissed as unrealistic, ugly, mechanistic, boring, insignificant,*

> *dictatorial and out-dated. But if Utility design is not regarded as the poor product of a wartime economy in dire straits, but as a common-sense package that engaged actively with the conditions of the time, it is more possible to understand the importance of finding ways to take command of the creative sense of agency that makes it possible to effect change.*[74]

The book examined automotive design in a chapter written by Jonathan Bell describing the proposal in 1942 for a government controlled post-war utilitarian 'National Motor Vehicle' (NMV) for private motoring.[75] It is notable that Bell contrasts this unsuccessful proposal with the development and success of the early Land Rover, linking wartime thinking with regard to utility design with the post-war need and as a commercial imperative for manufacturers:

> *The Land-Rover combined wartime 'emergency design' with pressing commercial concerns to produce a vehicle which exhibited 'fitness for purpose'. […] The simplicity of the Land-Rover's construction resulted in high levels of adaptability and practicality, which ensured the vehicle's commercial success in its target markets.*[76]

The utility Land Rover, born of early post-war design thinking still driven largely by austerity and utilitarian demands with the functionality this approach propagated allowed the vehicle to remain relevant as a workhorse for many decades. This was much like other vehicles which emerged from similar utilitarian design thinking such as the Volkswagen Type 1 in Germany (what became the VW Beetle) and the Citroën 2CV in France, with both these examples also becoming appropriated as cult vehicles decades later.

Books such as *The Rover Story* (1977), *British Leyland: the Truth about the Cars* (1980) and *The Rover Group: Company and Cars 1986-2000 (2015)* which focused on the business history of the brand under various owners have also proved useful for contextualising the continued production of the utility Land Rover through periods of considerable corporate upheaval.[77] The brand's owners ranged from the Rover Motor Company (who originated the design), through the troubled British Leyland era of public ownership during the 1970s and early 1980s to the subsequent private ownership of the brand by companies ranging from

British Aerospace, BMW, Ford and finally the Indian conglomerate Tata. A still broader context was obtained through books such as *The Rise and Decline of the British Motor Industry* (2004) and journal articles on the British car industry and ownership structures which have provided a broader overview of the economic and political context over the near seven decades of the utility Land Rover's production life.[78]

I have also been able to make a contribution to the body of work relating to the car and design history by publishing two book chapters with both having emerged out of the research undertaken for this thesis. The first focused on the design historical significance of the Ford Model 'T' and the factors leading to its later characterisation as an iconic design, with the second focusing on the largely unsuccessful attempts at developing an indigenous car for rural Africa since the 1980s.[79] Both these chapters demonstrate a parallel in thinking separated by more than seventy years, that of the design challenges the Model T was required to address (i.e. the transport needs of rural America in the early twentieth century) and the strikingly similar design challenges that remain for transport design for rural Africa today. Many of these same challenges were also faced by the Land Rover's development team when designing a vehicle for use in arduous conditions in the late 1940s, and although not directly related to the research contained here, this parallel work has emerged out of it as a result of identifying an apparent gap in design history research, that of automotive design intended for utility or largely functional applications.

Other primary and secondary sources employed

The method employed for the research undertaken in this thesis has utilised a predominantly qualitative approach which has sought to address the methodological imperatives set out above so as to obtain a better understanding of the network of factors affecting the mediation and consumption of the utility Land Rover over its lifetime. As can be seen a great deal has been written regarding various aspects of the Land Rover story but this has frequently been produced with only limited reference to primary material often leading to repetition and the establishment or reinforcement of myths. To deconstruct both the materiality and value

complexes associated with the utility Land Rover over time (particularly with regard to established lore and origin tales) it has therefore been necessary to seek out and examine a broad range of both primary and secondary sources. Material has included period documentation, contemporariness publications and media coverage held in archives and private collections. Further primary research information has been gathered through semi-structured interviews with stakeholders (this can be identified in chapter endnotes), archival research, factory visits, attending Land Rover related events (which have also frequently led to interviews) and the examination and use of the vehicles themselves along with associated technical documentation. Information gathered has been triangulated against other primary sources wherever possible.

Rover Company minutes covering the period from shortly after World War II through to 1974 are in the public domain and held as part of the National Archives at the University of Warwick. These have proved particularly useful with regard to understanding strategic thinking at Rover during the initial design of the utility Land Rover and its subsequent development through the Series I, II and III eras. Further archival material such as production records, internal company publications, photographs and films that are held at the British Motor Industry Heritage Trust Archive Collections located at the British Motor Museum, Gaydon**,** Warwickshire. Private collections of archival material from all periods of Land Rover manufacturing have also been accessed including my own collection of documents as well as that of others such as material belonging to Dr James Taylor. Generous access to his extensive personal collection has been particularly useful with it providing a rich source of Rover related information from the company's earliest origins as a bicycle manufacturer in the late Victorian period through to today's JLR.[80] This has included items such as company correspondence, internal factory publications, marketing material such as brochures for both home and overseas markets, photographs and drawings. Other sources utilised have included official reports such as 'British Leyland: The Next Decade' (better known as the as the

'Ryder Report') of 1975 which examined the troubled company and outlined recommendations for its future.

Long form semi-structured interviews have been utilised to draw out contextual aspects of the Land Rover's history from its earliest development up to the end of production in 2016. Most significant amongst these have been telephone interviews with Arthur Goddard, lead engineer on the original Land Rover working for Rover from 1947 until 1956 (now living in Australia and in his mid-nineties), several interviews with Roger Crathorne, Head of Technical Public Relations and engineer at the company from 1964 until his recent retirement in 2015 and correspondence with Peter Crowley Palmer, Senior Designer for Jaguar Land Rover working for the company from 1987 to date (further details of principle interviews undertaken are listed in appendix vii). This has furnished personal insights into the design and engineering of the utility Land Rover over its life and provided an internal company perspective often revealing sometimes seemingly small details that when combined with other sources have shed new light on significant aspects of the vehicle's history. What has also been striking (as an unexpected consequence of using interview as an information gathering technique) is the frequent and obvious enthusiasm for the product from many employees, past and present, particularly amongst Land Rover engineers and designers. Additionally a number of interviews have also been carried out with those using the utility Land Rovers ranging from military personnel, to those involved with agriculture, utility companies, sales staff and private enthusiast owners both in the UK and from overseas. Enthusiasts present a particular challenge to the design historian but are also valuable informants because of their often-detailed artefactual knowledge but their very enthusiasm is a methodological challenge to the historian, as it may make them particularly prone to promoting a specific version of events - but this problem is by no means restricted to enthusiasts.[81] In interviews with enthusiasts for instance there is the ever present danger they will 'spin-off' at a tangent from the question asked as they revel in the opportunity to not only discus the object of their affection, but also demonstrate their depth of knowledge which has now apparently been legitimised by interest

from an historian. However, as Linda Sandino has noted of the use of oral sources, 'fidelity and subjectivity should be seen as complementary rather than as oppositional'.[82] An enthusiast 'spinning off' can lead to new discoveries, making it important for the historian to consider carefully when to let the enthusiasts expand and when to rein them in. It is crucial to acknowledge, though, that oral history, 'interviews are locally managed occasions of interaction in which participants collaboratively construct meaning'.[83]

Media coverage of the utility Land Rover has been extensive over its existence, not only in the motoring press but also in the mainstream media such as national newspapers and television. Reviews of vehicles and period coverage in the motoring press have provided contemporaneous interpretations of the product at various points in its development giving valuable insight into both the origins of the value complexes relating to the vehicle as well as the changing attitudes and expectations for the product at various times. The utility Land Rover has also featured regularly in the mainstream media either in its own right or as a semiotic facilitator (both incidentally and deliberately). This and other related aspects are examined in chapter 4 '*Value complexes: The utility Land Rover and its transfigurative significance.'*

There are many enthusiast groups and clubs focusing on the utility Land Rover, with some of these organisations dating back to the 1950s. Many of these clubs work together to serve members common interests under the 'Association of Land Rover Clubs', which lists fifty associate clubs (thirty seven in the UK and thirteen from other countries ranging from Botswana to Romania).[84] Such clubs often publish their own magazines and newsletters with the main focus generally centring on club events, specific aspects of vehicle development and history or technical issues. Although content is frequently highly specific and usually lacks a broader historical context it has at times nevertheless revealed issues of pertinency both of a technical and social nature. This was an aspect of interacting with enthusiasts I explored in a recent journal article when explaining how looking at an artefact in detail, even down to the

component level (as enthusiasts are often inclined to do), can reveal about the development of a technical artefact more broadly:

> *[…]apparently tiny detail may only be one small example of how the enthusiast's specific research can help that of the design historian when reaching broader conclusions [in this case about early manufacturing process for the utility Land Rover]. But such details can be missed if the historian is not engaging with enthusiasts whether as an 'outsider' or as enthusiast him or herself.*[85]

There are also numerous on-line communities either sharing information through web-forums or increasingly via social media on platforms such as Facebook. This has further internationalised the Land Rover enthusiast community and brought additional perspectives with regard to the vehicle and highlighted interpretive flexibility and social aspects of Land Rover ownership. Secondary sources generally aimed at enthusiasts such as the books outlined as well as the many Land Rover magazines published since the late1980s have also yielded useful information as well as the preoccupations of relevant social groups.

Examination of vehicles has also been undertaken with particular attention being given to unrestored preserved examples with there being two notable locations for such examples. Firstly the reserve collection held at the British Motor Museum, Gaydon**,** Warwickshire, which includes many first, as well as last, off the production line examples of various types (both military and civilian) as well as commemorative and milestone models from throughout the Land Rover's production run. Secondly the Dunsfold Land Rover Trust through its biennial open days has also provided access to many prototypes, one-off specialist models and development models.[86] The Trust was also generous enough to provide an opportunity to drive some of these vehicles providing a valuable insight into the vehicle's evolution, functionality and engage with rare one-off prototypes and the occasional engineering dead-end.

The preservation of industrial products has the potential to reveal much to the design historian about the design thinking in relation to technical artefacts. This 'hands on' approach to

historic artefacts is the norm as the starting point in archaeology but is almost non-existent in other areas of historical study as artefacts are not accessible in such a direct way (the closest equivalent for many historians would be primary research of original documentation). This however is not the case with the history of industrial design. As Agnew stated twenty five years ago when talking about technical artefacts (or industrial products as he describes them) and history: 'These objects [the industrial products themselves] embody extensive knowledge but usually cannot communicate it' and continued:

> *[...] the Twentieth Century Gallery of the Victoria and Albert Museum treats radios and duplicators very largely as cultural objects. On crossing the road to the Science Museum we find motorcars and machine tools being presented purely as expressions of technology. The anatomy and ecology of these objects as living organisms in an operational and economic environment are not studied.*[87]

There may therefore be an argument for adopting some methodological approaches from (industrial) archaeology when historicizing a technical artefact. Design history is after all, like archaeology, the study of material culture from the past.

Finally, the considerable personal experience I have with the utility Land Rover has also been utilised with more than twenty years of ownership of various examples as well as the use of several Land Rovers on expeditions and overland trips in North Africa and the central Saharan region in countries such as Morocco, Tunisia, Libya and Algeria since 2003.

> *Direct experience of, or interaction with, an artefact leads to a different and often more profound understanding of the object. It is rather a cliché but the Chinese proverb, 'What I hear I forget, what I see I remember, what I do I understand' goes some way to explaining the advantage of this direct interaction.*[88]

This has provided considerable insight into the vehicle's capabilities in harsh conditions and allowed a deeper understanding of its design characteristics as well as presenting an opportunity to see at first-hand a diverse range of local Land Rovers (old and new) operating in such countries. Further personal experience drawn on has been derived from the restoration

of five utility Land Rovers (as well as the ownership and maintenance of several more) from all eras of production ranging from a 1954 Series I through Series II and III models, to modern Defenders (the most recent dating from 2010). This has provided insight into the engineering and maintenance of the vehicle and highlighted its largely unchanged teleological character over the vehicle's 67 years of production.

Structure and scope of the study

To allow for both historical context as well as the deconstruction of the utility Land Rover's value complexes the thesis is structured in the following manner. Chapters 1 and 2 are largely chronological in nature to allow a detailed contextualised examination of the vehicle and the factors affecting its evolution over time. Chapter 3 however focuses on the vehicle's diverse applications in areas such as agriculture, industry, military service and latterly as a leisure vehicle with the structure being based on the differing 'nodes' these various uses represent rather than as a sequential narrative. In the final two chapters the analysis is increasingly focused on the network and interplay of factors with the theoretical approach outlined in the introduction being applied more explicitly. Chapter 4 therefore examines the changing value complexes associated with the utility Land Rover with chapter 5 deconstructing its increasing characterisation as an automotive icon.

Although the research contained herein is detailed and extensive, examining the entirety of the near 68-year production life of the utility Land Rover has meant the scope of the study has required careful management with regard to the depth of content in specific areas. Although all major topics relating to the vehicle have been addressed, the way in which this has been managed has been determined by the primary focus of the thesis (i.e. the factors leading to the vehicle's longevity and frequently declared iconic status). This has meant that some aspects of use, although often examined in some detail, inevitably have potential for further in-depth

study such as the hobbyist and 'do-it-yourself' aspects of vehicle modification or specific expedition utilisation for example.

With the source material for the research having been described and the approach to the research discussed, the following chapter examines the circumstances leading to the development of the first utility Land Rover in an austere post-war Britain seeking to rebuild its battered economy. It also examines the vehicle's acceptance across a range of applications leading to a rapid expansion in production volumes and the growing recognition of the utility Land Rover as an archetype.

Endnotes

[1] H.B. Light, *The Land-Rover Story* (internal company document, unpublished, 1965), 1. Note: at this time the 'Land Rover' name still contained a hyphen.

[2] The term 'utility Land Rover' is used throughout the thesis to refer to all marks of what is commonly refereed to as simply the 'Land Rover' by many but in fact underwent a name change to 'Defender' in 1990 (see chapter 4)

[3] Ken Slavin, J. Slavin & G.N. Mackie, *Land Rover: The Unbeatable 4 x 4 (*Haynes, Somerset, 1994)*,* 5: first quote. The claim that 'the utility Land Rover was the first car seen by 60% of the developing worlds population' was been frequently stated over many years but it was acknowledged by Roger Crathorne, (Land Rover's Head of Technical Communications) in interview with the author, that such a statement was impossible to verify.

[4] According to the website *Auto Notebook* (2014) the utility Land Rover was the third 'oldest car still being produced' with the VW Beetle (including the original Type 1 of 1938) being placed second and the Morgan 4/4 placed first having been produced since 1936. However, the VW Beetle has not been in continuous production (there was a twenty-year gap between the original model and the new and totally reengineered retro-inspired model based on the contemporary VW Golf). Similarly the Morgan 4/4 went out of production during World War II and again from 1951 until 1955. This means the utility Land Rover can make a strong claim for being the longest running car in continuous production. "Oldest Cars Still Being Produced", *AutoNotebook* (May 2014) available online at: http://www.autonotebook.com/14-oldest-cars-still-being-produced/15/

[5] Kjetil Fallan, *Design History: Understanding Theory and Method*. (New York: Berg, 2010), 55

[6] Fallan, *Design History: Understanding Theory and Method*, 56

[7] Fallan, *Design History: Understanding Theory and Method*, 55

[8] Wiebe Bijker, Trevor Pinch, Thomas Hughes, *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (London, MIT Press, 1987), 5 & 6

[9] Madeleine Akrich, 'The De-Scription of Technical Objects', in Wiebe E. Bijker and John Law, eds., *Shaping Technology/Building Society: Studies in Sociotechnical Change* (London, MIT press, 1992), 206.

[10] Wiebe Bijker, *Of Bicycles, Bakelite, and Bulbs: Toward a Theory of Sociotechnical Change* (London, MIT press, 1997)

[11] As a point of interest, the development of the safety bicycle as examined by Bijker in his book *Of Bicycles, Bakelite, and Bulbs* is largely credited to Jack Starley with his 'Rover' cycle, which first appeared in 1885. This was the origin of the Rover Motor Company that was to go on and later develop the utility Land Rover soon after World War II (see appendix vi).

[12] Bijker*, Of Bicycles, Bakelite, and Bulbs,* 45

[13] Notable amongst those examining unsuccessful or forgotten designs (in this case computer hardware) is Paul Atkinson with his book *Delete: A Design History of Computer Vapourware* (London, Bloomsbury 2013) and journal articles such as 'The Curious Case of the Kitchen Computer: Products and Non-Products in Design History' *Journal of Design History* (2010), 23 (2), 163-179
[14] Bijker*, Of Bicycles, Bakelite, and Bulbs,* 46
[15] Bijker*, Of Bicycles, Bakelite, and Bulbs,* 46
[16] Thomas Brandt, 'A Vehicle for 'Good Italians': User Design and the Vespa Clubs in Italy', in Lees-Maffei & Fallan (eds.), *Made in Italy: Rethinking a Century of Italian Design* (London: Bloomsbury, 2014), 271-285.
[17] Bijker*, Of Bicycles, Bakelite, and Bulbs,* 75
[18] Other examples of interpretive flexibility are also apparent throughout the research such as the unintended adoption of the Land Rover into British military service, its repositioning as a leisure vehicle and its ultimate cult car status and characterisation as an automotive icon.
[19] SUV – Sports Utility Vehicle, the popularly accepted term for passenger carrying 4x4 vehicles aimed at the consumer market.
[20] Bijker*, Of Bicycles, Bakelite, and Bulbs,* 76
[21] Bruno Latour, *Reassembling the Social – A Introduction to Actor-Network-Theory* (Oxford, Oxford University press, 2005)
[22] Fallan, *Design History: Understanding Theory and Method*, 67
[23] Kjetil Fallan, 'De-scribing Design: Appropriating Script Analysis to Design History', *Design Issues* (2008), 24 (4), 63.
[24] Fallan, 'De-scribing Design: Appropriating Script Analysis to Design History', 63.
[25] In recent years there has been a growing trend amongst some vehicle enthusiasts and car collectors to restore classic working vehicles such as Land Rovers and tractors to good mechanical order but preserve damaged and worn bodywork in a seemingly untouched state as a means of revealing the vehicle's working life (and thereby, in Madeleine Akrich's terms, highlight aspects of its 'script') with pristine fully restored vehicles at times being characterised as 'soulless' or 'over restored' by some enthusiasts. This may be a form of inverted snobbery however as the techniques employed to halt any further deterioration (such as lacquering corrosion) means the 'honesty' some preservationists wish to convey is in itself deceptive.
[26] *Top Gear*, Series 2, Episode 5. *Top Gear's Greatest Car of all time*, [TV] London, BBC, First broadcast 8 June, 2003
[27] A notable exception is Gregory Votolato's, *Car*: *Objekt* (London, Reaktion Books, 2015), 118-161 where both customisation and modification are examined in chapter 3 'Image'.
[28] Fallan, 'De-scribing Design: Appropriating Script Analysis to Design History', 67.
[29] Fallan, 'De-scribing Design: Appropriating Script Analysis to Design History', 67.
[30] Fallan, 'De-scribing Design: Appropriating Script Analysis to Design History', 68.
[31] Bijker, Trevor Pinch, Thomas Hughes, *The Social Construction of Technological Systems*, 4.
[32] Fallan, *Design History: Understanding Theory and Method*, 66
[33] Akrich, 'The De-Scription of Technical Objects', 206.
[34] It could be argued that the criticism of SCOT by design historians is a little unfair, it being a methodological tool developed for STS where the focus is social rather than artifactual with it later being adopted by many design historians. What this criticism does highlight however is the advantages of applying a range of methodological approaches alongside SCOT when examining artefacts.
[35] John Heskett, *A John Heskett Reader: Design, History, Economics* (London, Bloomsbury, 2016), 66
[36] Adam Arvidsson, *Brands : Meaning and Value in Media Culture* (London, Routledge, 2006) & Adam Arvidsson, (2007) 'The logic of the brand' *European Journal of Economic and Social Systems*, 20 (1), 99-116.
[37] Ruth M. Van Dyke, Book review of, 'In Defense of Things: Archaeology and the Ontology of Objects' *Journal of Design History* (2013) 26 (2), 224-227
[38] Donald Norman, *The Design of Everyday Things* (New York, Doubleday Books, 1988) explores many issues relating to use and ergonomics.
Land Rover Ltd, like most car companies, has utilised 'clinics' for many years where various existing or potential customers of differing categories are invited to examine and feedback on new or updated products through discussion and interview.
[39] Rudi Volti, 'Reuniting History and Sociology Through Research on Technological Change'. *Bulletin of Science, Technology & Society*, (2003) 23 (6), 459
[40] Peter Kroes & Anthonie Meijers*,* 'The Dual Nature of Technical Artefacts' *Studies in History and Philosophy of Science* (2006) 37 (1), 1-4

[41] Kenneth Agnew, 'The Spitfire: legend or history? An argument for a new research culture in design' *Journal of Design History*, (1993) 6 (2), 121-130
[42] Gijs Mom, 'Translating Properties into Functions (and Vice Versa): Design, User Culture and the Creation of an American and a European Car (1930-70)' *Journal of Design History*, (2007) 21 (2), 173
[43] Mom, 'Translating Properties into Functions (and Vice Versa', 172
[44] David Gartman, 'Three ages of the automobile' *Theory, Culture & Society*, (2004) 21 (4-5), 169-195
[45] According to the Society of Motor Manufactures and Traders, SUV or 'dual purpose' vehicle sales in the UK increased from 4.5% of new cars in the year 2000 (with 38 models available from manufacturers) to 11% in 2013 (with 52 models available) and continued to grow to 22% in 2016. Available at: https://www.smmt.co.uk/2014/09/tracking-suv-success-showing-dual-purpose-segments-traction-uk/?_sf_s=SUV. SUV stands for 'Sports Utility Vehicle', the industry accepted term for 4x4 passenger carrying vehicles with design features facilitating some degree of capability on unprepared surfaces. As this category has expanded into other sub-categories such as 'Leisure Utility' (the category the Land Rover Defender was later placed in) the overall category of 4x4s has become referred to as 'dual purpose' vehicles, a term first coined in the 1950s for the utility Land Rover when the need for a new legal category emerged.
[46] Robert Pirsig, when describing the appeal of the motorcycle from a philosophical perspective as long ago as 1974 exemplified this duality of characteristics (which are shared by many forms of transport) by saying, 'although motorcycle riding is romantic, motorcycle maintenance is purely classic [i.e. analytical]'. Robert Pirsig, *Zen and the Art of Motorcycle Maintenance*, (New York: William Morrow & Company, 1974), 61
[47] Paul Hazell and Kjetil Fallan, 'The Enthusiast's Eye: The Value of Unsanctioned Knowledge in Design Historical Scholarship', *Design and Culture,* (2015) 7 (1)
[48] H.B. Light, *The Land Rover Story* (unpublished, 1965)
[49] Graham Robson, *The Land Rover: Workhorse of the World* (London: David & Charles, 1976). The following year Graham Robson also published *The Rover Story, A Century of Success* (1977), which provided a company history of the Rover Co. from it earliest beginning as a bicycle manufactures to the British Lelyland merger of the 1970s and contained one chapter regarding the Land Rover.
[50] Robson, *The Land Rover: Workhorse of the World*, extract from front dustcover.
[51] Robson, *The Land Rover: Workhorse of the World, 13*
[52] *Land Rover: The Unbeatable 4x4*
[53] James Taylor *The Land-Rover: 1948-1984* (London: Motor Racing Publications Ltd, 1984)
[54] Dr James Taylor has been a prolific writer with regard to Land Rover products as well as models from many other automotive companies. He also contributed chapters to the later editions of *Land Rover: The Unbeatable 4x4* previously mentioned where he contributed a chapter on the development of the Discovery model as well as additional updated information with regard to the Range Rover.
[55] *The SUV craze* available at: http://news.bbc.co.uk/1/hi/business/6346299.stm., Accessed October 22, 2015
[56] Tim Slessor, *First Overland* (The Companion Book Club, Watford, 1957), Barbara Toy, *A Fool on Wheels* (John Murray, London, 1955) et al.
[57] Leslie Geary *The Fighting Rovers* (Romford: Ian Henry Publications, 1983)
[58] The role of the Land Rover in military service is examined in chapter 3 with a full list of related publications included in the bibliography.
[59] Grace Lees-Maffei, ed. *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014)
[60] Roland Barthes, *Mythologies* (Paris: Les Lettres nouvelles, 1957). Note: First published in English by Hill and Wang, New York, (translation by Annette Lavers, 1972).
[61] Peter Wollen and Joe Kerr (eds.) *Autopia: Cars and Culture* (London: Reaktion Books, 2002), 340-341 and Grace Lees-Maffie and Rebecca Houze(eds.) *The Design History Reader (Oxford: Berg) 399-400*
[62] David Gartman, *Auto Opium: A Social History of American Automobile Design* (London: Routledge, 1994). Rudi Volti, *Cars and Culture: The Life Story of a Technology* (Baltimore: Johns Hopkins University Press, 2004). (Rudi Volti also acted as an external academic expert on the proposal for this PhD)
[63] Tom McCarthy, *Auto Mania: Cars, Consumers, and the Environment* (London: Yale University Press, 2007). Daniel Miller, *Car Cultures* (Oxford: Berg, 2001)
[64] Peter Kroes & Anthonie Meijers, The Empirical Turn in the Philosophy of Technology (London: JAI, 2000), xvii
[65] Kroes & Meijers, The Empirical Turn in the Philosophy of Technology, xviii

[66] John Urry, 'The "system" of automobility', *Theory, Culture & Society,* (2004) 21 (4/5), 25-39.
[67] Daniel Miller, *Stuff* (Cambridge: Polity Press, 2010), 76
[68] Kjetil Fallan, 'Kombi-Nation: Mini Bicycles as Moving Memories', *Journal of Design History* (2013) 26 (1), 65-85
[69] Paul Hazell & Kjetil Fallan, 'The Enthusiast's Eye: The Value of Unsanctioned Knowledge in Design Historical Scholarship', *Journal of Design and Culture* (2015), 107-123
[70] Gregory Votolato, *Car* (London: Reaktion Books, 2015). The *Objekt series* also included other titles such as David Pascoe, *Aircraft* (2003), Steven E. Alford & Suzanne Ferriss*, Motorcycle* (2007) Paul Atkinson, *Computer* (2010*),* Gregory Votolato, *Ship* (2012)
[71] Joe Kerr, 'Book Reviews: *Car*' *Journal of Transport History* (2016) 37 (1), 116–117
[72] Phil Patton, *Bug: the strange mutations of the world's most famous automobile (Cambridge MA, Da Capo Press 2002), 133*
[73] Fallan, *Design History: Understanding Theory and Method*, 9 & 10
[74] Judy Attfield (ed.) *Utility Reassessed: The Role of Ethics in the Practice of Design* (Manchester: Manchester University Press, 1999), xv
[75] Jonathan Bell, 'The design of Utility vehicle's in wartime Britain' in Judy Attfield (ed.) *Utility Reassessed: The Role of Ethics in the Practice of Design* (Manchester: Manchester University Press, 1999), 92-109
[76] Bell in, Attfield (ed.) *Utility Reassessed,* 103-104
[77] Graham Robson, *The Rover Story* (Cambridge: Patrick Stephens, 1977), Jeff Daniels, *British Leyland: the Truth about the Cars* (London: Osprey, 1980), Mike Gould, *The Rover Group: Company and Cars 1986-2000* (Ramsbury: Crowood, 2015)
[78] Jim Tomlinson, 'The Government and the Car Industry, 1945-70', *The Journal of Transport History* (1999) 20 (1) 17-29
[79] Paul Hazell, 'Ford Model T, USA (Henry Ford, 1908)' In *Iconic Designs: 50 Stories about 50 Things* (Bloomsbury Academic, London, 2014. edited by Grace Lees-Maffei). Paul Hazell, 'A difficult road: Designing a post-colonial car for Africa' in *The Routledge Companion to Design Studies* (Routledge, London, Penny Sparke, ed. 2016)
[80] Jaguar Land Rover Ltd (JLR) was created in 2008 when the Indian conglomerate Tata bought both Jaguar and Land Rover from Ford and formed the new group.
[81] Linda Sandio, 'Oral History and Design: Objects and Subjects' *Journal of Design History,* (2006) 19 (4), 275-282. Jesse Adams Stein, *Hot Metal: Material Culture and Tangible Labour* (Manchester University Press, 2016)
[82] Linda Sandio, 'Introduction: Oral History *In* and *About* Art, Craft and Design.' In L. Sandino and M. Partington (eds), *Oral History in the Visual Arts*, (2013) 1-33. London: Bloomsbury Academic.
[83] Arlene Oak, 'Particulazing the Past: Perssuasion and Value in Oral History Interviews and Design Critiques.' Journal of Design History, (2006) 20 (5): 449-465
[84] The 'Association of Land Rover Clubs' members list available at: http://www.alrc.co.uk/member_clubs.htm
[85] Paul Hazell and Kjetil Fallan, 'The Enthusiast's Eye: The Value of Unsanctioned Knowledge in Design Historical Scholarship', *Design and Culture,* (2015) 7 (1), 112
[86] Dunsfold Land Rover Trust is an extensive and largely private collection of vehicles which is not on display the majority of the time due to lack of any suitable single site. The trust describes itself in the following manner: 'The Dunsfold Collection of Land Rovers is a registered charity dedicated to the preservation of Land Rover history. The Collection was started in 1968 by Brian Bashall who realised that his love of strange prototype and pre-production Land Rovers was of interest to others'. Available on line at: http://www.dunsfoldcollection.co.uk/about
[87] Agnew, 'The Spitfire: legend or history', 121-122
[88] Hazell and Fallan, 'The Enthusiast's Eye', 119

Chapter 1

Properties moulded by circumstance: The emergence, design and evolution of the utility Land Rover from 1947 to 1958

> *If the world had to be strictly economical for years to come, is [the Land Rover] not the sort of car that most of us need, one that is entirely practical and essentially usable? [M]aintenance is easy [and] there is no carrying about weight more or less uselessly devoted to fashionable appearance and not really essential luxury.*[1]
>
> The Autocar, 30th April 1948

The Rover Company and the post-war context

The launch of the Land Rover on April the 30th 1948 at the Amsterdam motor show marked a significant departure for the Rover Company.[2] In the decade before World War II, Rover had developed a reputation for producing quality cars marketed to the professional classes but was now embarking on selling a commercial vehicle aimed at a very different market to the one it had been familiar with before the conflict (see appendix iv for an overview of the pre-war Rover Company). The strategy before the war had been successful for the company but Rover ceased car production for the duration of the hostilities and put all of its efforts into war work, such as manufacturing the Rolls Royce designed Meteor tank engine (see appendix v for an overview of Rover's wartime activities).

During the conflict the supply of raw materials for civilian automotive production ceased as resources were redirected almost entirely to the war effort. With the war's end this policy of state control over manufacturing remained in place but was modified significantly. In the case of the motor industry, approval of what was produced by firms was not controlled directly by government ministries (unlike other industries, such as furniture manufacturing, with its 'utility scheme').[3] Instead the allocation of materials was used as a means of affecting manufacturing policy, thereby improving foreign earnings, by the government

linking the supply of steel to a vehicle manufacturer's ability to export. The Cabinet Office paper *Economic Survey for 1947* stated:

> *Owing to the loss of [the UK's] overseas income we can only pay for those imports by exports, [which are] practically all manufactured goods. Exports must thus have a high claim on national production, in competition with production for industrial equipment at home and consumption goods at home.*[4]

The paper continued:

> *Given the continuing stringency of steel supplies and the basic importance of steel in all industrial activity, the question arises whether there ought not to be a more deliberately selective allocation of steel between various industries than has obtained hitherto, with the object of facilitating by this means general economic adjustment.*[5]

The individual models a carmaker planned to produce were largely left to each manufacturer. However, with steel being directed to firms exporting 50% of their output (rising to 75% in 1947) and as a relatively small manufacturer, Rover (with no history of exporting) required a dramatic change in the range of vehicles it offered.[6] As Paddy Maguire observed in the Journal of Design History:

> *The problems experienced by individual firms were not those of finding markets for their products but of finding products for their markets. Labour and material shortages dominated business concerns. Increased output was the constant cry of government and its various agencies and allies. Within the domestic market controlled through rationing, which attained it peak in 1948, increased output could only find outlet in exports.*[7]

Before the war Rover had focused entirely on the home market and therefore had no export department and only produced right hand drive cars. This put it at a significant disadvantage after the war when compared with much larger British car manufacturers such as Austin, Nuffield and Ford who all had extensive overseas sales operations which their products could be sold through.[8] Rover had initially hoped to return to its old markets but was faced with

several problems. It's pre-war car designs were dated and needed significant reworking or replacement and as Rover was virtually unknown outside Britain, were only likely to sell to a domestic market. Secondly it was a period of considerable austerity where few private customers, despite demand, were able to buy a new car due to indirect state controls on domestic sales as well as through the rationing of fuel. As Ina Zweiniger-Bargielowska explained:

> *Demand was high [for manufactured goods], bolstered by large personal savings, but consumption during early post-war years continued to be restricted in order to facilitate the export drive as well as investment in capital equipment.*[9]

With the end of war, Clement Attlee's Labour Government implemented the policy of steel allocations being linked to a vehicle manufacturer's ability to export. This made it impossible for Rover to sell current or proposed designs in sufficient volumes to be economically viable, despite domestic demand. As Roy Church explained when examining the British motor industry in the immediate post-war period: 'Home demand [for cars] after the war was buoyant, but constrained by government controls'.[10] Rover's initial post-war plan had been to recommence production of their updated pre-war range and to initially supplement this with a smaller, cheaper model known as the 'M' type.[11] This, the company's senior managers reasoned, would be more marketable with the prospect of inevitable post-war austerity. Development work on the 'M' type had started in 1944 when the end of the war was in sight and Rover hoped to capitalise on pent up demand at home. It was soon abandoned however as it became clear that the model's export sales would not be sufficient to meet government post-war targets and secure sufficient allocations of steel. Fresh thinking was required with regard to vehicle design and overseas markets if Rover was to survive as an independent carmaker in the heavily regulated post-war manufacturing environment.

Genesis of the Land Rover: Matching customer need to manufacturing capacity

The circumstances outlined above left the Rover Company in a vulnerable position with little time to act. The company had expanded significantly during the war with shadow factory sites at Acocks Green and Solihull meaning that in peacetime the company had excess capacity.[12] The Managing Director, Spencer Bernau Wilkes, realised the company rapidly needed to become an exporter, or it would be in danger of slipping into deficit and ultimately bankruptcy.[13] The Rover Company was surviving on a mixture of capital funds, completing its military engine contracts (which had been cut with the cessation of hostilities) and sales of the 'P3' model (an updated pre-war saloon car design).[14] The company had little time to develop an all-new vehicle and whatever was developed had to appeal strongly to the overseas market.

Immediately after the conflict Rover had a capital surplus due to the number and scale of wartime government contracts. Evidence of this capital can be seen by the company's ability to invest in the development of the unsuccessful 'M' type, buy additional farmland around the shadow factory site at Solihull, and privately develop the jet engine for automotive use.[15] Arthur Goddard, later to be the Chief Development Engineer for the Land Rover, stated in interview 'There was no question of money at any time [1947/48]. I was never restricted. Nobody ever mentioned money.'[16] However steel rationing meant there were limited raw materials for its all steel car range, there was no new product that would sell strongly in the post-war market, and there was chronic over capacity due to the shadow factories that had now become Rover's (for further details on Rover's wartime shadow factories see appendix v). Three ideas therefore seem to have crystallised for Maurice Wilks (the younger brother of Spencer Wilks and the Chief Engineer to Rover at the time).[17] Firstly, aluminium could be utilised in the design of a new Rover vehicle, as its supply was not restricted in the same way as steel. Secondly, a vehicle design was needed that would be in demand for export, thereby freeing up the allocation of steel supplies and allowing Rover to again produce passenger cars. Finally, the Agricultural Act of 1947 was introduced to boost food production by, in

part, ‘guaranteeing prices’ to farmers.[18] This, in turn, encouraged them to invest in new machinery and to become increasingly mechanised as a growing income was assured. It seems likely that Rover was aware of this development and wanted to take advantage of it.

Maurice Wilks was also at the time using an American surplus wartime Willys Jeep on his property, Blackdown Manor, near Leamington Spa to clear snow from his property in the winter of 1946/47 and to turn hay the previous summer. He realised that when it wore out there was nothing new he could replace it with that offered the same versatility and reasoned that many small farms needed a similar tractor-like vehicle with the added advantage of higher speed and the ability to be used as a load carrier. Family photographs also show he was using the Jeep for leisure activities such as taking his small boat to the coast and driving on the beach with his children at his holiday home on Anglesey.[19] However, using an all-wheel-drive vehicle for leisure did not feature in the initial thinking for the Land Rovers despite many years later this being key to the company’s development.

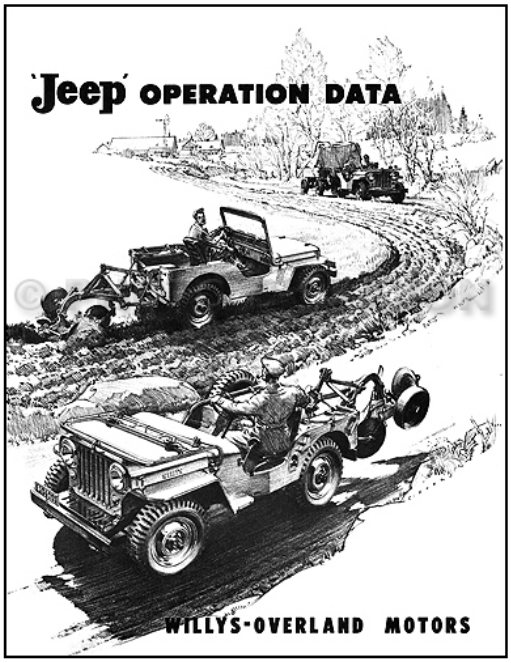
After discussion over the Easter weekend of 1947 between Maurice and Spencer Wilks the building of a prototype small 4x4 utility vehicle, initially using many Willys Jeep components, was sanctioned.[20] This became known as the ‘centre steer’ due to its centrally located steering wheel mounted in a similar manner to a tractor. It was very much an automotive ‘mule’ with its mix of Jeep and Rover components. There was no intention to mass-produce the vehicle; it was intended purely as a proof of concept, necessary as Rover had no experience of producing either a commercial, or an ‘off-road’ vehicle.[21] Arthur Goddard stated ‘none of us new what we were doing. No one had the expertise [in off-road vehicles at Rover] at that time.’[22]

Figure 1: Replica of the Rover/Jeep 'centre steer' prototype built by enthusiasts in 2005 with the originally being produced in late 1947 but later scrapped. (Photograph Paul Hazell)

Agriculture was to be (and has remained) one of the Land Rover's key markets and this greatly impacted on the design for the 'centre steer' concept. Rover was looking across the Atlantic at the Willys Jeep not only as a parts donor for the 'centre steer' but for the Land Rover concept itself. The Rover Company Board Meeting minutes of the 4th September 1947 stated:

> *Mr [Spencer] Wilks said that of the various alternatives that had been under consideration ['M' type, P3 etc.], he was of the opinion that the all-purpose vehicle on the lines of the Willys Overland [Universal] Jeep was the most desirable.*[23]

Willys-Overland had already launched a civilian version of its military Jeep as the 'Universal Jeep' or CJ-2A as early as July 1945 (before the war in the Far East had finished).[24] Aimed squarely at American agricultural and industrial buyers it was intended (from the manufacturer's perspective) to maintain sales of what was essentially the same design as the wartime Jeep for which military contracts from the US government had been greatly reduced.



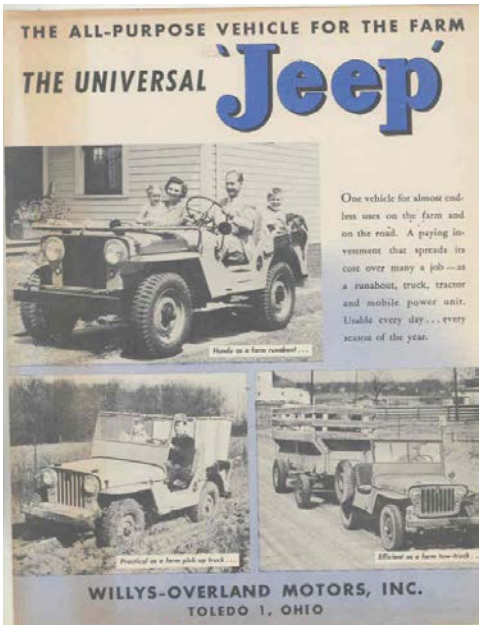


Figure 2 (left): Universal Jeep Manual & Figure 3 (right): Universal Jeep advertisement (Willys-Overland 1946)

Early thinking in the development of what was to become the Land Rover closely mirrored the activities of Willys but with the intention of improving on it. Arthur Goddard stated:

> *We'd had a good look at the Jeep but often it was to tell what not to do 'don't make it like that or it'll rust and fall to bits'. We did everything we could to make it a little bit better without putting the cost up too much.*[25]

The Universal Jeep was being marketed as a substitute tractor, mobile welder, small truck and many other applications, just as the Land Rover would soon be. However, the mirroring went further with the Land Rover's potential as a military vehicle being recognised very early on, both by Rover and the War Department (see chapter 5).[26]

The Rover/Jeep 'centre steer' was tested with ploughs and other field implements and a 'power-take-off' (or PTO), usually mounted on the rear chassis cross member, was a key part of the concept enabling the vehicle to be used as a mobile power source for various implements such as bench saws and threshing machines. The centre steering arrangement, proposed to avoid producing different versions for different export markets, was not

workable in practice however and was soon abandoned. Arthur Goddard recalled 'I might have driven [the 'centre steer' hybrid] 200 yards and decided it was rubbish because, as you can imagine, with your feet either side of the flywheel and clutch housing it made it an absolutely ridiculous idea.'[27] While testing of the 'centre steer' was taking place there was clearly sufficient confidence in the concept to sanction 50 pre-production Land Rovers to be produced (although 48 would ultimately be built with the last few overlapping with the first of the production vehicles).[28] These pre-production vehicles would be used for testing and to train employees in the manufacture of the new vehicle. In the Rover Company board meeting minutes for 16th of October 1947 it stated:

> *It was agreed that the all-purpose vehicle, which had been sanctioned for production at the last board meeting [4th of September 1947], should be called the 'LANDROVER' and Mr [Spencer] Wilks reported that production was being scheduled at the rate 100 a week to commence next spring, and that licences for the necessary materials had been applied for.*[29]

There is no mention in the minutes of any form of market research (other than looking across the Atlantic to Willys activities). However, even at this early stage it had become apparent that the market for the vehicle would be larger if it was not purely an agricultural vehicle. Once the 'centre steer' prototype had served its purpose, and whilst the production Land Rover was still a prototype, there was already considerable interest in volume purchases of the production vehicle by the British Army, the Indian Army and the British Government's East African (Tanganyika) 'Ground Nut Scheme'.[30] There had been no official announcement of the forthcoming Land Rover at this stage but the Ministry of Supply (MoS) were aware of the vehicle due to Rover's application for steel allocations. None of these potential customers wanted a purely agricultural machine however, but rather a utility vehicle for use on unprepared surfaces. In interview Arthur Goddard explained why the Land Rover success as a 'tractor substitute' was limited:

With that [large] turning circle [compared with a conventional tractor] you were not going to do any serious ploughing or [field] earthwork. If you had to reap the field you could do it, but it was never going to be as good as jumping on your Ferguson [tractor]. It was more for general purpose [use], if you wanted to take a couple of bales of hay across the snow to the cows in the next field that's how you'd do it. It did that very well.[31]

Potential orders for the vehicle from state sanctioned projects (e.g. the British Army and the 'Ground Nut Scheme') would also have been particularly attractive to Rover as such contracts would be agreed outside the company's existing steel allocation licence.[32] This meant the vehicle could be built for agriculture and export as already planned (within the steel allocation from the MoS) with additional sales arising from government orders as these fell outside this allocation. The desire to serve these diverse markets impacted on the design of the pre-production Land Rover and helped establish the idea of versatility, so important to the vehicles later reputation. From launch, the vehicle included options for left or right hand drive, PTOs, a ploughing hitch, oil-cooler for work in hot climates, tyre options for different ground conditions as well as more significant options such as being equipped as a mobile welder, a fire engine, and potential modification to suit military and paramilitary specifications. The phrase 'all-purpose vehicle' (rather than agricultural vehicle) in the minutes of October 19th 1947 may have been adopted from the Universal Jeep, however it also reveals that the application of the vehicle was being seen as one which was to be as broad as possible to maximise its potential market and to work efficiently within the steel allocation regulations. The allocation could be eased still further if the Land Rover was considered a commercial vehicle rather than a private car.[33] This consequently meant that marketing the Land Rover as a vehicle for leisure was not possible at this stage, even if it had been considered. In the Rover Company board meeting minutes for 12th of November 1947 Spencer Wilks stated:

[Spencer Wilks] had had several interviews at the Ministry [of Supply], and it appeared that they were having the greatest difficulty in finding the necessary material to satisfy the overall programme laid down for the [motor vehicle] industry, and this being so the

allocation both for our cars and for the Landrover [sic] might be below the above figures [an application had been made for 240 cars and 100 Land Rovers per week]. Mr [Spencer] Wilks was hopeful, however, that the Landrover [sic] would be placed on the Commercial Vehicle Schedule, and, if so, might receive a more favourable allocation [of materials] than it would on the passenger car schedule.[34]

It was therefore important to link the use of the vehicle to activities that were of a commercial nature to secure greater allocations of steel and other materials as well as excluding it from attracting purchase tax in the UK, thereby keeping the purchase price lower.[35] However, as will later be discussed, (see chapter 2 and 3) these developments were to also have the effect of cementing the ideas of versatility, flexibility and functionality in relation to the Land Rover very early on, both in practical terms and ontologically, once the vehicle was launched.

'Centre steer' prototype to pre-production Land Rover

The 48 pre-production vehicles differed in many ways to the 'centre steer' prototype. The use of Rover designed components, a conventional steering layout (both left and right hand drive), and a newly designed body mounted on an innovative box-section chassis marked it out as an entirely redesigned vehicle.[36] However, the 80" wheelbase dimension of the Jeep was retained. Senior engineers within Rover who had been involved with the 'centre steer' prototype were put at the disposal of the young development engineer, Arthur Goddard, who was given the task of directing the design and construction of the pre-production Land Rover with 8 months to develop both the vehicle and the production line.[37] He stated:

I was given the task of getting the factory ready and getting the thing in production. I was responsible for the project [and] given the run of the place. All the senior fellers [sic] had been told to give me what assistance I needed.[38]

He continued to explain the development staffing structures in a second interview:

There were people who directly worked for me [such as] Ralph Nash and Jonnie [John] Cullan, then there [were other senior] people allocated to work with me.[39]

Amongst these people allocated to work with Goddard were:[40]

- Olaf Poppe - responsible for production
- Gordon Bashford – Chassis frame
- Joe Drinkwater – development of Rover 1.6 litre petrol saloon car engine for use in the Land Rover (original engine designed by Jack Swaine, Rover's chief engine designer for the P3).[41]
- Frank Shaw - Transmission design
- Sam Ostler – Body work

In most published accounts, with the exception of Olaf Poppe, the individuals above are described as 'section leaders' (along with another Rover employee Tom Barton), with the implication that the roles were quite distinct.[42] However, all of the above were engaged in other projects as well, such as development work on saloon cars, and in some cases they became involved in more than one aspect of the Land Rover's development. Arthur Goddard explained that 'Olaf Poppe and Gordon Bashford worked closely together, not only on the chassis but on the bulkhead, a separate unit bolted on, as well as the body panels.'[43] The bulkhead on the Land Rover is a structural component so it is maybe not surprising that Poppe and Bashford were involved, even though it can be thought of as part of the body. What is more surprising is Goddard's recollection that they were involved with the body design, as this has generally been considered the work of Sam Ostler. Arthur Goddard explained the distribution of responsibilities in the follow way:

Sam Ostler worked in the body drawing office and did all the [detail] drawing for the panel work [after the production concept work done by Poppe and Bashford]. Overall shape of the thing was always down to Maurice Wilks, he looked after the total concept of the vehicle.[44]

There did not appear to be a clear distinction between individuals and their roles. Though the 'section leaders' had particular areas of expertise, this was drawn on in whatever way it was required to complete the task of developing the Land Rover. For a period of approximately seven months, from the autumn of 1947 to the spring of 1948, the senior engineering team listed above spent most of its time focusing on the Land Rover's development with the company dedicating considerable resources and manpower to the project. Arthur Goddard outlined the sizable allocation of personnel, plant and equipment to the Land Rover's development:

> *A lot of people give me the impression that they think that when I took over the Land Rover [project] I had [just] a field and a shed but it isn't quite true. I had a very sophisticated manufacturing organisation [at my disposal] that was producing 250 cars a week to an extremely high standard. They [Rover] had body shops, paint shops, chemists, test labs, the works: and a factory site where they could make anything from engines to back axles. So I wasn't exactly producing things out of the air, which people appear to think.*[45]

The design and engineering of the pre-production Land Rover matured rapidly using a mixture of: examination of the Jeep to learn what could be improved, examining existing components from other Rover models to find what could be utilised, and finally innovation in the use of materials and methods of construction.

Chassis Frame

The chassis frame, for instance, was of an unusual box section design based on a concept developed by Adrian Lombard, one of Rovers senior development engineers, and utilised on a prototype Rover before the war. Olaf Poppe & Gordon Bashford further developed this concept for use with the Land Rover. The conventional technique for producing a chassis frame was two 'U' section channels joined by riveted or welded cross members. Large press tools were required to manufacture this type of vehicle chassis and these would need to be

produced by an outside company if used on the Land Rover, leading to unacceptable delay. It is likely there was also resistance to investing in long-term production tooling initially, in case the Land Rover was not a success. Although not common at the time, other companies, such as Mercedes before the war and Bentley with their Mk VI launched in 1947, had employed a box-section chassis but in Bentley's case, each chassis rail was made up of two mirrored 'U' sections seam welded along their open sides to avoid heat distortion.[46] Bentley's design still required large and expensive press tools, however. As an alternative, both side rails and cross-members of a box section ladder chassis could be constructed from strips of sheet steel welded together at the box sections corners. This fabricated approach was adopted for the Land Rover, required no press tools, and with the added advantage it could be constructed with readily available fabrication tools such as a guillotine and a box folder. As well as allowing fabricated construction the rigidity of the chassis could be greatly enhanced over more conventional designs as Arthur Goddard explained:

> *We were interested in the torsional stiffness [of the chassis]. We hadn't made an off road vehicle before and the only off road vehicle we knew was the Jeep. So we checked the torsional stiffness of that and said 'make it half as stiff again as that it shouldn't be too bad.'*[47]

It proved far more rigid than the Jeep's chassis design and was later to prove to be simple to modify when longer wheelbase vehicles were produced. Both these factors (rigidity and ease of modification) meant the chassis design would be a largely unsung, but important factor in the vehicle's later development and reputation. Initially there was some concern that the localised heat produced by welding at the corners during construction would twist the chassis as it was fabricated, even though it was to be largely produced on a jig using automatic welders.[48] In practice it was found any distortion introduced on one side of a box section during fabrication was remedied when the opposite seam was also heated by welding. The technique proved to be so successful it was to carry on in use on short wheelbase Land

Rovers up to the end of Series III production in 1985, but it remained an uncommon approach to vehicle chassis construction amongst other manufacturers.

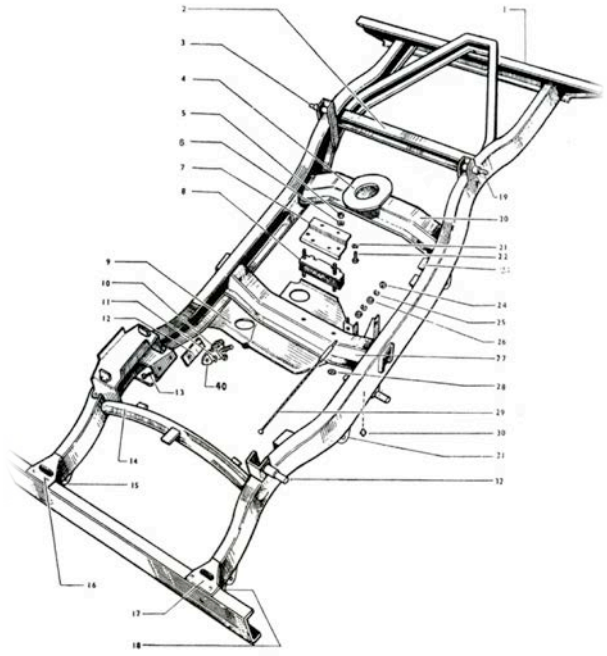


Figure 4: Willy's 'U' section Jeep chassis as shown in the vehicle's parts manual (Willys-Overland 1946)

Figure 5: The considerably stiffer Series I 80" wheelbase Land Rover box-section chassis of 1948 on display at the Solihull factory in 2015 (Photograph Paul Hazell)

Engine

The engine adopted for the production Land Rover was a 1.6 litre overhead inlet, side exhaust petrol engine producing 50 bhp. The engine had been in development by Rover just before the war under the directorship of Jack Swaine and was intended for use in saloon cars (it was utilised in the P3 or '60' model). Work on the engine recommenced after 'Victory in Europe' Day (May 8th 1945) and two years later it was adapted for use in the Land Rover by Joe Drinkwater. Changes were minimal as it was found that the engine already provided sufficient lubricating oil, even at extreme angles, and produced torque characteristics suited to off-road work. The main efforts were put into better air filtration systems so that the engine could cope with working in dusty off-road environments, and replacing the aluminium sump and valve chest cover with steel items.[49]

Transmission

The transmission consisted of a manual four-speed main gearbox connected to a two-speed transfer gearbox giving a total of eight forward and two reverse gears. The transfer box allowed the transmission of drive to both the rear and front axles by means of propeller shafts to conventional beam axles. The design was similar to the Jeep's transmission (although the Jeep had a three speed main gear box) but the gears and shafts were all slightly increased in size for added strength. This approach of using another manufacturers product, as a starting point for the design, was a further example of expediency in the Land Rovers design. James Taylor, Rover historian, commented:

> *Rover had to borrowed ideas from outside the company after World War II, because they had been out of the motor industry for a while. The [Rover] M Model was clearly inspired by the Fiat 500; we see the Land Rover inspired by the Jeep; and then the [Rover] P4 saloon inspired by the Studebaker.*[50]

This 'borrowing of ideas' may seem contradictory to the idea of a 'design icon'. However as the Design Historian Jan Michl observed:

…it can be argued that designers always start off where other designers (or they themselves) have left off, that design is about improving earlier products, and that designers are thereby linked, as though by umbilical cord, to earlier objects, or more correctly to their own or their colleagues' earlier solutions - and thus to yesterday.[51]

Arthur Goddard explained that where possible, already available Rover transmission components were utilised, with new transmission components being designed for production on existing plant and equipment:

Basically, [the Land Rovers main gearbox was] a [Rover] car gearbox with a completely new casing so it could be joined to the transfer box. We were using gears we already had or ones that could be made on our machines without new tooling. Also we liked to use proven parts to save time.[52]

Where the transmission did differ significantly from the Jeep was in the use of a freewheeling device. This had been developed for use in saloon cars and was intended as a fuel saving measure by disconnecting drive to the back axle when it overran the RPM of the engine on descending a hill or braking (similar to free wheeling on a pedal bicycle). For the Land Rover it was only applied to the front propeller shaft, giving permanent four-wheel-drive without transmission 'wind-up'.[53] It was also possible to manually lock the free wheel device by means of a 'ring-pull' in the driver's foot-well. This was necessary, as the front axle would not otherwise offer any engine retardation when descending a steep hill off-road. This use of engine compression to retard the rotation of the wheels is a key principle in most off-road vehicles as it slows the vehicle without the use of brakes, which tend to lock the wheels on a loose steep surface, leading to a skid and a loss of steering control. This ability to manually lock the free wheel device also improved traction in difficult conditions by preventing wheel spin sooner than relying on the automated system alone.

The permanent four-wheel-drive transmission of the early Land Rover may have had another unexpected advantage, which was again to help enhance the reputation of the vehicle once launched. Roger Crathorne, the Head of Technical Public Relations at Land Rover and an engineer at the company since 1963 , stated in interview:

> *It's the fact that it could go where other vehicles couldn't. It probably started off with people coming back from the Second World War, driving Jeeps [in the armed forces], going back to their farms, going back to their building and construction companies [and] being allocated a Land Rover, because they'd seen how useful a Jeep was during the war [then] finding the Land Rover would do things the Jeep wouldn't do. It [the Land Rover] had a much more sophisticated gearbox, it had the ability to keep going when the Jeep probably got stuck. That wasn't the Jeep's fault, that was the driver's fault because there were some levers down there [next to the transmission tunnel in the Jeep to select four wheel drive] which people had never really been shown what to do with and they only started waggling the levers once the vehicle got stuck.*

He continued:

> *Whereas the early Land Rovers kept going because they were permanent four-wheel-drive [so] even if you didn't go into low ratio and slipped the clutch [instead] it still kept going. I believe that's the thing that got the Land Rover well recognised in those early days. People didn't understand the freewheeling mechanism they just understood that as long as they were still going forwards they didn't lose traction.*[54]

The freewheeling device was deleted in October 1950 in favour of a mechanically simpler (but arguably more complex for the operator) selectable four-wheel-drive like the earlier Jeep, but by this time the Land Rover's capabilities were well established.[55]

The body

The Land Rover body, with virtually no double curvature panels, has sometimes been described by motoring writers as having been designed this way due to lack of funds for press tooling. However, this was not the case. The body design was a combination of:

- No time to wait for new press tools (which were manufactured by outside specialist firms) so the body was designed, initially, to be folded by hand at the Rover factory.
- Like the chassis, initially there was a resistance to invest in long-term production press tooling in case the Land Rover was not a success
- A desire to aid repair 'in the bush'

The flat aluminium panel work was to also have other advantages when the vehicle was in use such as ease of mounting accessories (jerry can holders etc.), convenient flat surfaces for standing/sitting on and relatively simple modification to other body styles. Affordances such as these were to become significant contributors to the Land Rover's reputation for functionality and fed directly into the vehicle's value complexes (see chapter 4).[56] The often-told story that aluminium was used as a material for Land Rover body panels due to the volume available after the scrapping of wartime aircraft seems to be myth. The production panels were manufactured using 'Birmabright', an aluminium alloy with the most appropriate properties for hand forming and corrosion resistance but it was not an aircraft grade alloy.[57] Birmabright, with its combination of lightweight (thereby keeping the vehicles centre of gravity low, an important attribute in an off-road vehicle) and ready availability made it an appealing material. Corrosion resistance was also an important factor in Arthur Goddard's thinking with regard to materials:

> *The Jeep which Maurice [Wilks] bought was a 'rust bucket' so the first thing [I was told] is 'we are not going to have any rust', that was the first thing to go on the design schedule, No rust: All steel galvanised and the rest in aluminium alloy. Aluminium [alloy] was chosen because of anti corrosion [properties], work hardening and low weight.*[58]

Launch of The Land Rover

By April 1948, the Rover for the land, or the 'Land Rover' as it became dubbed, was ready for launch at the Amsterdam motor show at the end of the month.[59] The new vehicle was

announced in The Times newspaper on the 20th of April 1948 under the headline 'New vehicle for agriculture from our motoring correspondent':

> *A special vehicle designed for agriculture and industrial work is to be made at a rate of 200 a week by the Rover Company at Birmingham. Called the Land –Rover, it bears a strong resemblance to the Jeep and is designed to be equally at home on main roads and across-country. It has the same four-cylinder engine as the Rover 60 car, eight forward speeds, and a power take-off for driving agricultural machinery. It has a non-corrodible light alloy body and weighs just over a ton with an overall length of 11ft. The price has been fixed at £450, no Purchase Tax being payable. The Land-Rover will be shown publicly for the first time at the Amsterdam motor show, which opens next week.*[60]

The vehicle was not yet in production with the modest production line still being constructed at the Solihull factory site. However, in July of 1948, deliveries of production Land Rovers began approximately 12 months after the concept was first considered. In late 1947 it is apparent from the company minutes that the production of 100 Land Rovers a week was thought to be sufficient to meet demand with the announcement in The Times of April 1948 mentioning 200 a week.

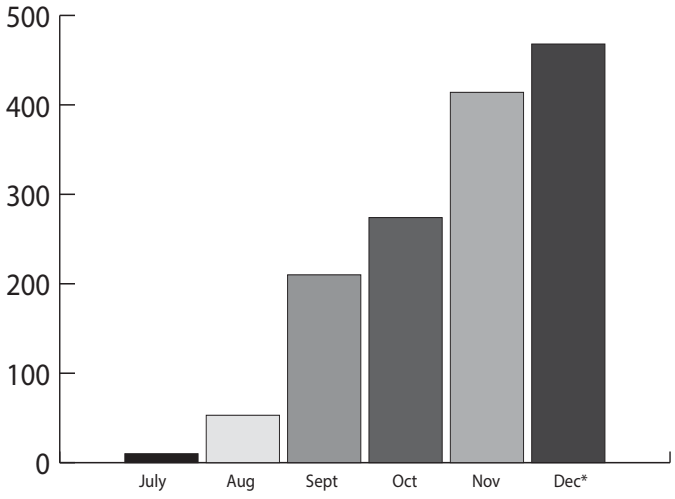


Figure 6: Land Rover production by month in 1948. The graph shows how monthly production grew rapidly from 10 units in July 1948 when the line became operational to 476 units in December. By the end of the first half-year over 1500 vehicles had been produced. *Note: The trajectory slows in December due to the Christmas break. Compiled from data in John Smith, *Land Rover: The Formative Years 1947 – 1967* (The Land Rover Series One Club, Bristol 2009), 107

Orders from both home and overseas buyers as well as from government projects were soon flooding in, indicating more ambitious production numbers were required. Maurice Wilks' assertion that a vehicle of the Land Rover's type would sell strongly, soon became apparent with it rapidly becoming established in countries of traditional British influence, with the majority going for export (75% by 1951).[61] The company board minutes of 21st of July 1948 stated:

> *Mr [Spencer] Wilks said it was becoming more and more apparent that there was a very extensive demand for the Land Rover both at home and abroad and that export orders and firm enquiries on hand at the moment amounted to approximately 8,000 of these vehicles*.[62]

These orders and enquiries represented more than a year and a half's production at the initially envisioned production rate before the vehicle had reached a single customer. Arthur Goddard stated in interview 'Maurice and Spen [Spencer] Wilks had the bright idea of producing the Land Rover. They were very clever people at making packages that were popular.'[63] It is tempting when examining secondary sources to see this market as merely a gap that Rover had exploited but the minutes reveal a different story, with the low initial production targets of 100 vehicles a week discussed in November 1947 suggesting that the company itself was surprised by the demand. A more accurate description may be that almost unwittingly Rover had discovered a *new* market where it had no competitor.[64] The burgeoning demand for the vehicle, an absence of competitors in its natural markets (i.e. colonial and commonwealth countries of traditional British influence) and the expansion in production meant ubiquity was soon to follow. However with the Land Rover's success, Spencer Wilks recognised that other manufacturers may soon spot this lucrative market as well. The company board minutes of 21st of July further stated:

> *It was hoped to achieve an output of about 150 Land Rovers a week by December [1948] but Mr [Spencer] Wilks advised that we should seriously consider contemplating an*

output in the neighbourhood of 500 a week of these vehicles in order to be in a position to satisfy the potential demand that there was for this type of vehicle and also with a view to reducing costs, so that we might be in a position to meet competition which he felt we might have to face from other manufacturers.

The minutes continued:

The Directors approved in principle Mr Wilks' recommendation that we should plan for an output of 500 Land Rovers and 200 cars a week.[65]

The phrase 'we should seriously consider contemplating an output in the neighbourhood of 500 a week' is revealing in its relatively excited tone for the otherwise restrained and sober board minutes.

Figure 7: HUE 166, No. 1 production Land Rover of July 1948 displayed at the British Motor Museum. Rover initially restored the vehicle in 1969 for the 21st anniversary of the Land Rover (Photograph Manuel Kehrli 2017)

The first production Land Rovers were sold for £450 and were of an extremely basic specification with doors, hood, spare tyre, starting handle and cushions for passengers all optional extras.[66] This made the price as attractive as possible until the new type of utility vehicle was established, but also suggests that some at Rover were clinging to the idea that

the vehicle was still a substitute tractor rather than a small commercial vehicle. However, although selling strongly for agriculture, only a small number of farmers were using the vehicle for field work with other customers not using the vehicle in this way at all.[67] By October 1948 all of the above items had become standard along with a towing hitch, a passenger handrail and a socket for trailer lighting. With these additions the price remained briefly at £450 but was increased to £540 in November.[68] The vehicle was very adaptable to new roles by the very nature of its expedient design and was therefore easily modified by virtue of being so simply built. This soon sealed the vehicle's reputation in agricultural circles as a go anywhere, jack-of-all-trades. Furthermore, British military interest and early contracts for the Army (see chapter 3) gave the vehicle a form of 'quality approval' for civilian buyers. Strong demand for the Land Rovers was rapidly established, with its versatility, capability as well as Rover's existing reputation for quality. The Land Rover was being employed in a bewildering number of diverse roles, with these often being demanded by customers, rather than necessarily generated by the manufacturer (see chapter 3 for an examination of the adaptive use of the Land Rover and its consequences). The Times of February 28th 1949 stated:

> *An announcement over the weekend reported the chairman as stating that the company [Rover] has export orders in hand for the Land-Rover sufficient to absorb its entire export quota to the end of 1949. Also, there are running orders for monthly deliveries going well into next year. The Chairman pointed out that the Land –Rover, although largely for use in agriculture, has many other uses, particularly in export markets, where it is in big demand for industrial, civil and military purposes. The vehicle is being supplied to oil companies, rubber and tea plantations, cattle ranches, and for general transport where road conditions are primitive. It is also being purchased, for military use, by several Governments for the transport of troops and military equipment over difficult ground.*[69]

However with such rapid expansion in demand, supply was to remain a problem for some time to come and impact on development. Arthur Goddard explained 'We were mainly limited by how many we could *make*, rather than how many we could *sell*.'[70]

A ‘stopgap’ product?

The term 'stopgap' has been repeatedly applied to the Land Rover’s developmental history and bears scrutiny in relation to its iconicity. There was large-scale interest in the vehicle before it had reached production and it is evident from company minutes that from early on the Rover Company realised there was a burgeoning demand for the product and that it was likely to out-sell its cars. In the Chairman's (E Ransom Harrison) speech to Rover shareholders at the AGM of 21 December 1948 he stated:

> *We considered that we should have some additional production to employ the organisation fully until such time as car markets became free again. The orders and enquiries we have already received indicate that this vehicle [the Land Rover] will be something very much more than an additional source of production.* [71]

No other suggestion of ‘gap-stopping’ has been found in any contemporary official discussion of the vehicle’s early development, yet the term persists in most published accounts of the vehicle’s history. When asked whether Rover perceived the Land Rover as a stopgap, or temporary product, during is development and early period of manufacture Arthur Goddard replied:

> *I don’t think that ever happened. It certainly wasn’t [a stopgap]. Whenever you bring out a new model you don’t know if it’s going to be a success and sell well or [if] it’s going to be a flop and sell nothing. They [the Wilks brothers] wouldn’t have got the support from me or anyone else if they said it was a stopgap.*

He continued

> *The last thing you’d do if you are trying to push a project along and its 600 or 700 people working on it, which is what we were for the 6 or 7 development months, you can’t keep that going if you say ‘this is just a bit of fun, it might work out, it might not.’ We were confident we were going to get the 1000 order from the army [the first major order was ultimately for nearly 2000] and we were getting quite a lot of interest [from overseas]. It didn’t look like a stopgap. It isn’t the way you’d go about a stopgap.*[72]

Soon after production had commenced Rover was investing funds in longer-term production methods that would only make financial sense if continuing sales were expected. For instance the bulkhead between the cab and engine (a structural component in the Land Rover) soon moved away from a fabricated construction to a pressed steel design requiring a large and expensive press tool. This speeded construction but would only payback over the longer term.[73] Furthermore this decision was made *before* the vehicle had been launched at Amsterdam suggesting a long-term commitment to the vehicle from early in its development. As we have seen the market for the vehicle had changed (and diversified) before it was launched. As the 'goal posts' moved, or more precisely, expanded, the design evolved rapidly but few major changes were made initially since high demand mitigated against product development. The pattern that emerged of the Land Rover's design playing 'catch-up' with customer's demands remained with the vehicle becoming a significant characteristic of the utility Land Rover in the future. There was recognition that the design needed to evolve from inside Rover as well, but the battle to meet production targets made this difficult. Arthur Goddard stated:

> *A lot of development ideas would come from Johnny Cullen as a result of vehicle testing [but] we pretty well [had] to [carry on with the Land Rover as it was] as we were flat out. We didn't want to make alterations at the factory [floor] of a serious nature.*[74]

There is a suggestion both from Arthur Goddard and Roger Crathorne, voiced independently in interview, that there was resentment over the success of the Land Rover from the saloon car division of the organisation, as some at Rover continued to see the company as first and foremost a quality carmaker, not a maker of utility vehicles. Roger Crathorne stated in interview:

> *There were a lot of people in Rover who thought of the Land Rover as a stopgap. Right up until the early 1970s it was still seen as a stopgap.*[75]

In a similar vein, Arthur Goddard stated:

> *People get attached to products, like Johnny Cullen, he was infatuated with Land Rover but you got other people who were infatuated with the cars. Making this folded up ugly looking brute [the Land Rover] wasn't their idea of what they should be doing. Certainly there were people at Rover who looked down their nose at its poor relation, but the poor relation was keeping them going!*[76]

Other long serving employees of Rover who were present in the period such as Tom Barton and Gordon Bashford, both used the term when interviewed for some of the first published accounts of the Land Rover's early development by motoring writers such as Graham Robson in the 1970s.[77] Tom Barton, four years before his death, was interviewed by BBCs 'Top Gear' in a feature celebrating 50 years of Land Rover in 1998 where he stated 'Maurice Wilks wanted a vehicle for the farmers as a temporary stopgap until they got going on cars.'[78] The apparent myth that the Land Rover was merely a 'temporary stopgap' with Rover seeing it's real business as making cars, may have been Tom Barton's way of telling a more dramatic, or media friendly, story. However, when asked if he thought this was Barton's motivation Arthur Goddard replied 'it probably suited Rover as well'.[79] This suggests the 'stopgap' story, once told, continued to be repeated as it helped cement the idea that not only was the 'plucky Land Rover' able to overcome any physical obstacles, it could also overcome *organisational* obstacles and apparent corporate indifference. Furthermore, the idea of toughness, dependability, 'pluckiness' and the ability to overcoming adversity are recurring themes in the story of the Land Rover, which have not only endowed the vehicle with a personality but also helped form the basis for much of the vehicle's later value complexes (see chapter 4) such as 'Britishness' and connotations such as 'the Dunkirk Spirit' with its ability to recover from difficult situations. Ironically there was to be genuine corporate indifference in the product during the British Leyland era of the 1970s and this may also have become merged with the stopgap story associated with its early history (see chapter 4).

A further possible explanation is that the term 'stopgap' changed it's meaning over time. Immediately after the war, the capacity at the former shadow factories, and the large work force both required new products that sold strongly if the company was going to survive. Therefore the 'gap' was the capacity and the 'stop' was the new Land Rover. This would not imply the new vehicle was considered to be temporary, as the term 'stopgap' has come to mean in Land Rover's history, but rather it had plugged a hole in Rover's over capacity. Whatever the origins of the phrase, it has fed strongly into the mythology around the vehicle and by extension is likely to have contributed to its iconic status by reinforcing the ontological perception of it being a vehicle able to overcome all obstacles (see chapter 5).

Customers, export markets & engineering evolution

Demand for the Land Rover continued to grow rapidly after the launch at Amsterdam, both at home and overseas. A significant part of this demand was due to a sizeable order from the UK military. There was a certain amount of serendipity leading to this initial bulk order for 1878 vehicles in June 1949 linked to on-going problems with the purpose designed four-wheel-drive for the British Armed forces, the FV1801 or Austin Champ (see chapter 2).[80] Problems with the Champ created a capability gap left by the out-going Jeep that, with the end of 'lend lease' from the US, was no longer available to the UK armed forces. The Land Rover was therefore seen as an expedient able to bridge this gap. This led to orders from foreign governments for military and paramilitary applications as adoption by the British Army was seen as an indication of quality and dependability due to the rigorous testing carried out by the Ministry of Supply for any new military vehicle (see chapter 3).[81]

The Land Rover continued to sell strongly to agricultural users both at home and in overseas markets but sales of PTO equipped examples were small, suggesting it was not being used as a mobile power source, but rather as rugged transport. Strong sales were also evident for

industrial use and construction projects. Companies such as Wimpy Construction Ltd and major civil engineering projects such as the 'Snowy Mountain Hydro Electric Scheme' in Australia purchased the Land Rover in large numbers to transport workers and equipment around construction sites.[82] Company minutes from the period reveal that exporting the Land Rover was at times difficult due to lack of shipping space and new import taxes being imposed in various territories making the vehicle uneconomic to import as a complete vehicle. To lessen the impact of these new tariffs Rover set up production lines in countries such as South Africa and Australia so vehicles could be constructed locally using 'Complete Knock Down' or CKD 'kits' from the Solihull factory.[83] This reduced the import duty, thereby making the vehicle less expensive in-country, whilst also reducing shipping volumes. The tariffs (as intended) developed economic activity in each territory by creating local employment in the assembly plants for CKD Land Rovers and encouraged locally sourced components to be used. These components were usually items such as tyres, paint, glass, batteries and canvas hoods, Rover being prepared to accept this rather than fail to sell its product in that particular market. James Taylor, in his book *Land Rover: 60 Years of the 4x4 Workhorse* stated:

> *The first CKD Land Rovers were shipped abroad during 1950, and in that year no fewer than seven plants around the world began assembling Land Rovers from kits of parts sent out from Solihull. [T]hese plants were in Australia, Denmark, Eire, India, Mexico, South Africa and Venezuela.*[84]

Production was also licenced to overseas companies where the local company would manufacture a significant percentage of the Land Rover parts rather than just assembling a kit. One such example was Minerva in Belgium who constructed nearly 9000 examples beginning in 1952 using their own design of steel body to maximise local content and thereby achieve an import licence from the Belgian state.[85] Later, other companies such as Santana in Spain had similar manufacturing arrangements.

A further boost to export sales, and to raising awareness of the Land Rover in general, was achieved through its use as a review vehicle during the Queen's tour of the commonwealth after her coronation in 1953. Several Land Rovers were converted so the Queen, accompanied by her husband the Duke of Edinburgh, could safely stand in the back to inspect military forces and be seen by crowds. These vehicles were modified by Rover and shipped around the globe to be available for the Royal couple when required. Rover employee, Roger McCahey, stated:

> *In the early fifties Land Rovers were still relatively unknown [overseas] and the Rover Company Limited even less known. The use of Review Land Rovers in countries around the Commonwealth by the Queen and The Duke of Edinburgh, and particularly on occasions of the greatest crowd scenes, was a major factor in laying the foundation of the vehicle's own success.*[86]

Figure 8: Queen Elizabeth II and Prince Philip utilising a specially converted Land Rover 'Series I' during their coronation tour of the Commonwealth in 1953/54 (State Library of Queensland, Australia)

Film footage of the Queen using Land Rovers to review troops was shown around the world thereby further exposing the vehicle to Rover's export markets, portraying it as much more than an agricultural vehicle and simultaneously creating a Royal 'seal of approval' for the vehicle. This presented the BBC with some difficulties however when referring to the vehicle

on radio and television due to their commitment, as a publicly funded organisation, not to advertise. '[I]logically [the BBC] spoke freely of the 'Jeep', until the Rover Company pointed out that in so doing they were inadvertently promoting an American producer over a British one.'[87] The BBC was to modify its description to 'field car', persevering with this description until the Land Rover name became a virtual synonym for an all-wheel-drive utility vehicle, with the Corporation finally conceding to use the model's name in subsequent years.[88]

Despite increasingly strong sales, customer feedback, both civilian and military, was asking for greater engine power and load carrying capability. By the end of 1951 a revised 2-litre petrol engine replaced the 1.6 version.[89] In 1954 the 80" wheelbase was replaced by an 86" standard wheelbase (giving 25% more load space) with a 107" long wheelbase pickup being added to the range. Arthur Goddard stated:

> *We thought [80" wheelbase] was the right thing [initially], it was very similar [sic] to the Jeep, but it became clear that it would be much more useful to us both from the point of view of [mounting] equipment upon it, like welders, compressors and so on, and the military [could] get another couple of men on it if it was a little bit longer. That [86" wheelbase] is what we should have selected to start with.*[90]

The 86" wheelbase gave a further boost in sales but again in 1956 the standard wheelbase was further increased to 88" and the long wheelbase to 109". This did not add any load space but instead added 2" between the bulkhead and front axle to accommodate the new 2 litre diesel engine which was about to be introduced. At the time, small diesel engines were not common, being considered as a fuel type more suitable for lorries and large machinery (most tractors were offered with petrol engines during the 1950s for instance). However, Rover felt compelled to introduce a diesel version, as again it was a change being requested by customers, many of which were operating larger diesel powered vehicles such as plant machinery or trucks who wished to standardise on one fuel type for their entire fleet.[91]

It was also possible to specify the vehicle in the following standard body configurations:

- 'Full-length' soft-top on a tubular frame with the canvas 'tilt' over the front seats and load area
- 'Truck cab', A rigid cab over the front seats with either an open pickup body or a frame and canvas 'tilt'
- 'Full-length hardtop'
- 'Station Wagon'[92]

Rover's first attempt at making a passenger carrying Land Rover was unsuccessful and only remained available unto 1951. This 80" wheelbase station wagon utilised a hand built body by the coach building company Tickfords Ltd using aluminum panels over a wooden frame in the style of many pre-war cars. The model was available through Rover dealers but only sold in small numbers due to the unsuitable construction technique for an off-road vehicle and cost, particularly in the UK where it attracted Purchase Tax on top of a high manufacturing cost making it more than twice the price of a standard Land Rover.[93] By 1954 the 86" 'Station Wagon' was introduced and proved to be much more successful. This utilised existing Land Rover panels redesigned to accommodate additional windows and improved interior 'trim'. This greatly reduced manufacturing costs when compared to the 'Tickford' and brought the purchase cost inline with other Land Rover models. These early developments in passenger carrying were to open up a further new market for the Land Rover as a vehicle for private motoring, which is examined in chapter 3.

The end of the beginning

By the beginning of 1958, 660 Land Rovers were being produced a week with 75% being exported. Throughout the period from 1948 to 1958 Rover's all-wheel-drive had sold strongly and was simply known as the Land Rover. However, other manufacturers had seen the growth in sales and had started to show an interest in producing their own four-wheel-drive vehicles. Rover responded with a redesign of the Land Rover, with greater emphasis for

the first time on the vehicle's styling, but leaving the well-proven mechanical design relatively unchanged. This was launched as the Series II Land Rover in April 1958 with the earlier model retrospectively becoming known as the Series I. This new model, its successors and their impact are examined in the follow chapter.

Endnotes

[1] 'An All-purpose Rover', *The Autocar* (30th April 1948)

[2] The vehicles name was originally 'Land-Rover' (with a hyphen), later Land Rover (no hyphen) after the formation of Land Rover Ltd in 1978. Amsterdam was chosen for the launch of the Land Rover as it was the first major car show in the 1948 calendar that the new model was ready for. See appendix ii for list of parent companies during the Land Rover's history

[3] Judy Attfeild *Utility reassessed: the role of ethics in the practice of design* (Manchester and New York, Manchester University Press 1999), 203.

[4] Economic Survey for 1947. CAB 129/16, Nation Archive, Cabinet Office papers, 102, paragraph 2

[5] Economic Survey for 1947. 106, paragraph 42

[6] Roy Church *The Rise and Decline of The British Motor Industry* (Cambridge: Cambridge University Press 1995), 47.

[7] Paddy Maguire, "Designs on Reconstruction: British Business, Market Structures and the Role of Design in Post War Recovery", *Journal of Design History* 4, no. 1 (1991): 22.

[8] The Nuffield organisation was the result of a prewar merger between Morris, Wolseley, MG and Riley. Austin was to later merge with the group in 1952 to form the British Motor Corporation (BMC)

[9] Ina Zweiniger-Bargielowska *Austerity in Britain: Rationing, Controls, and Consumption, 1939-1955* (Oxford: Oxford University Press, 2002), 54.

[10] Church, *The Rise and Decline of The British Motor Industry*, 47.

[11] The 'M type' ('M' for Miniature) was a small saloon car.

[12] Construction of Acocks Green shadow factory commenced in late 1936 and was operational by July 1937 producing parts for Bristol Hercules radial engines. Later in the war the factory also produced Meteor tank engines. Two farms (Wharhall and Fordrough) were purchased in 1936 by the British Government on which to build the Solihull shadow factory in preparation for potential war with Germany. The factory was allocated to Rover for the manufacture of complete Bristol Hercules aero engines. Later in the war Rover took the opportunity to buy over 200 acres of adjoining farmland using it to construct a test track a few years later.

[13] Spencer Bernau Wilkes was a barrister by training but after military service in the First World War joined the Hillman motor company and had risen to joint managing director. When the Rootes Group acquired Hillman Motor Company, S B Wilks's influence was reduced and this may explain why he decided to move to the Rover Company.

[14] The P3 salon car was an interim post-war model produced briefly from 1948 to 1949 and consisted of two subtypes, the 60 and 75 models (depending on the engine fitted). The model was based on a pre-war design.

[15] Soon after the war Rover started development on a gas turbine powered car as an extension of its wartime work with Frank Whittle (the inventor of the jet engine) on aero engines. See appendix v for an overview of Rovers wartime activities.

[16] Interview between author and Arthur Goddard, 23rd of November 2012. See endnote '37' for further details on A Goddard.

[17] Soon after Spencer Wilks was appointed his younger brother, Maurice Wilks, also joined the company taking a role in the design department. Maurice was an engineer and joined Rover having also left the Hillman Company.

[18] The Agriculture Act of 1947, The Cabinet Papers 1915 – 1981, The National Archives. http://nationalarchives.gov.uk/cabinetpapers/themes/farming-agriculture-acts.htm accessed 6/11/12

[19] John Smith, *Land Rover: The Formative Years 1947 – 1967* (The Land Rover Series One Club, Bristol 2009), 28 & 32, 33

[20] This discussion is alleged to of taken place on the beach at Anglesey where Maurice Wilks outlined his ideas to his brother Spencer (the Managing Director of Rover), for what was to become the Land Rover by drawing a sketch of the layout of the vehicle in the sand with a stick.

[21] Graham Robson, *The Rover Story: A Century of Success (*Patrick Stevens, Cambridge, 1979), 41.
[22] Interview, Goddard, 23rd of November 2012
[23] Rover Company Board Meeting minutes, 4th September 1947
[24] CJ-2A History by R. Harold West. Available at http://www.thecj2apage.com/history.html accessed 26 October 2012
[25] Interview, Goddard, 23rd of November 2012
[26] War Department was responsible for the development and purchase of military vehicles becoming the Ministry of Defence in 1964
[27] Interview, Goddard, 23rd of November 2012
[28] James Taylor, *Land Rover: 60 Years of the 4x4 Workhorse (*Crowood Press, Ramsbury, 2007), 18.
[29] Rover Company board meeting minutes for 16th of October 1947
[30] The British Army tested two pre-production Land Rovers in June 1948, ordered 20 for further testing in late 1948 and then placed the first large scale order for 1878 vehicles in June 1949. This was to account for 25% of total weekly production for nearly a year and from this point *all* Land Rovers were produced in the military 'Deep Bronze Green' rather than the earlier 'Pale Green' to maintain a single colour policy for standard vehicles (see chapter 3). Indian army order enquiry mentioned in Rover Company Minutes of 23rd March 1948. East African (Tanganyika) 'Ground Nut Scheme' was initiated in 1946 to cultivate groundnuts in the British colonies for the production of vegetable oil. After a three-month study, the Minister of Food John Strachey, authorized £25 million to cultivate 150,000 acres of scrubland in six years. Areas of Kenya and Rhodesia were designated as well as southern, western and central Tanganyika. 500 Land Rover were purchased for the project, however the scheme was cancelled in January 1951 after difficulty cultivating the land. Alan Wood, *The Groundnut Affair* (The Bodley Head, London 1950).
[31] Interview, Goddard, 23rd of November 2012
[32] The evidence for this can be seen in Rover Company minutes of 30th March 1948
[33] During the 1950s UK law stated that the maximum speed for a commercial vehicle was 30mph on open roads (the Land Rover was capable of nearly twice this speed). In 1956 a Mr C. Kidson was fined £3 for exceeding the limit for a commercial vehicle in his Land Rover but appealed. On reaching court Lord Justice Goddard ruled that as an all-wheel-drive vehicle, the Land Rover should be classified as a 'dual purpose vehicle' and therefore not be restricted to 30mph. Smith, *Land Rover: The Formative Years,* 130. & Slavin, Ken, Slavin, Julie, Mackie, George N. & McDine, D. *Land Rover : the unbeatable 4 x 4* (Haynes, Somerset,1996), 29.
[34] Rover Company board meeting minutes for 12th of November 1947
[35] Purchase tax was 20% on cars below a £1000 in 1948
[36] Other specialist British suppliers were subject to orders from Rover for the manufacture and supply of components: Smith, *Land Rover: The Formative Years*, 121.
[37] Born in January 1921, Arthur Goddard joined Rover as an Engineer in 1945 from the Aero Engine Research Laboratory run by the Ministry of Aircraft Production. When war ended he hoped to move to Alvis Ltd to carry on working with aero engines, however he was diverted to work for Rover by the Ministry of Labour to help with development work on the V12 Meteor tank engine (derived from the V12 Merlin aero engine with which he was familiar). However once arriving at Rover he was diverted once again to work on the development of car engines as a result of Jack Swain, senior engine designer, being off work due to a motorcycle accident. Goddard rose quickly within Rover and in 1947, at the age of 26, became responsible for the design and development of the Land Rover. In interview with Arthur Goddard on the 23rd of November 2012 he stated: 'The target was 8 months [to reach production], which we didn't achieve but we did achieve about 12. [This was] about a third of [of the time of] what anyone else had done.'
[38] Interview, Goddard, 23rd of November 2012
[39] Ralph Nash, Experimental Workshop Manager for the Land Rover . John Cullen, Land Rover Project Engineer, carried out much of the test-driving of the pre-production Land Rovers with Arthur Goddard stating 'Johnny Cullen did most of the crawling through the mud. A real [Land Rover] enthusiast, I think he took it to bed with him!' Interview, Goddard, 23rd of November 2012. Following quote in main text from second interview between author and Arthur Goddard, 30th of November 2012.
[40] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse*, 7.
[41] The Rover P3 was the next design following the abandoned M type.
[42] Tom Barton is often also described as a 'section leader' (a term used to distinguish between roles in the drawing office) on the Land Rover during it development, indeed he described himself this way. However according to Arthur Goddard this was incorrect (see endnote 77).

[43] Interview, Goddard, 30rd of November 2012
[44] Interview, Goddard, 30rd of November 2012
[45] Interview, Goddard, 23rd of November 2012
[46] The Bentley Mk VI was announced in May 1946
[47] Interview, Goddard, 23rd of November 2012
[48] Automatic chassis welders consisted of an arc welding head traveling along a track that mimicked the contours of the chassis profile at a set pace and voltage to give consistent results faster than manual welding.
[49] Interview, Goddard, 30th of November 2012
[50] Email conversation between author and James Taylor, 10th January 2013.
[51] Jan Michl, *On Seeing Design as Redesign*, available at http://www.designaddict.com/essais/michl.html accessed 17/4/13
[52] Interview, Goddard, 23rd of November 2012
[53] 'Transmission wind-up' is a phenomenon occurring in all wheel drive vehicles where the front and rear axles are only allowed to travel at the same speed. This 'locking' of the front and rear axles on a slippery surface is an advantage as torque to the wheels is evenly distributed and wheel spin is reduced. However on a surface such as tarmac where there is considerable grip strains are introduced into the transmission, known as 'transmission wind-up', as the front wheels of a vehicle travel further than the rear due to each wheel describing a different arc while traveling through a bend.
[54] Interview with Roger Crathorne, 7th August 2009. Head of Technical Communications at Land Rover (until December 2014 when he retired) and an engineer at the company from September 1963 when he joined as an apprentice.
[55] Smith, *Land Rover: The Formative Years*,162.
[56] For further detail on 'affordances' and their significance see introductory chapter: '*Research Methodology: Scrip Analysis'*. Also see chapter 5: '*Defining an Icon: The application of the term 'iconic' to the utility Land Rover'*
[57] A lightweight sheet metal alloy of aluminium and 3% magnesium. Birmabright is a trade name of the former Birmetals Co. (Birmingham, UK).
[58] Interview, Goddard, 23rd of November 2012
[59] James Taylor stated 'According to the late Richard Wilks, nephew of the Wilks brothers, Spencer Wilks owned a retreat on Islasy, a little island in the Hebrides of the coast of Scotland. Spencer Wilks was there on holiday in the late summer of 1947 with numerous members of his family and went out for a walk with his son Thomas and nephew Richard [who] promptly suggested 'Roverlander' [when told about the new vehicle over lunch]. Uncle Spencer didn't like it though. The solution came however from young Thomas Wilks, who suggested, 'Why not call it the Landrover?' and that name stuck.' Taylor, *Land Rover: 60 Years of the 4x4 Workhorse*, 15. As well as the Amsterdam show the Land Rover was exhibited in 1948 at the following events: Royal Ulster Show, Belfast (May 26 to 27), Bath and West Show Cardiff (May 26 to 27), Royal Highland Show, Inverness (Jun 22 to 26), Royal Show, York (July 6 to 9), Toronto Motor Exhibition (Aug 27 to Sept 11), British Exhibition, Copenhagen (Sept 18 to Oct 3), Paris Motor Show (Oct 7 to 17), London Motor Show, Earls Court (Oct 27 to Nov6), Commercial Motor Show, London (Oct 1 to 9). Smith, *Land Rover: The Formative Years*, 97.
[60] The Times newspaper on the 20th of April 1948 p. 2
[61] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 36.
[62] Rover Company board meeting minutes for 21st of July 1948
[63] Interview, Goddard, 23rd of November 2012
[64] Willys 'Universal' Jeep was the only potential competitor for the Land Rover in 1948 but Rover was serving the markets of the remaining British Empire and countries of traditional British influence. These were generally not markets the Jeep was sold to, though Australia was an exception. In markets where the Jeep and the Land Rover were both sold many buyers moved to the Rover product after problems with corrosion on the Jeep.
[65] Rover Company board meeting minutes for 21st of July 1948
[66] The retail price of £450 for a Land Rover in July 1948 is the equivalent of approximately £12,800 in 2012 calculated using the Retail Price Index (RPI). Figure obtained from http://www.measuringworth.com accessed 30/11/12
[67] The Ferguson TE-20 Tractor was launched in 1946 with hydraulic three-point-linkage. This innovation brought to an end the era of 'dragging' implements as the Land Rover had been designed to do, further undermining it suitability for fieldwork.

[68] Smith, *Land Rover: The Formative Years,* 111. The average cost of a car bought in the UK in 1948 was £590 according to the website hillarys.co.uk. Available at: https://www.hillarys.co.uk/back-in-my-day/
[69] The Times newspaper of February 28th 1949, p.9
[70] Interview, Goddard, 30rd of November 2012
[71] Rover Chairman's speech (E Ransom Harrison) of 21 December 1948 to Rover shareholders at the AGM. Transcript dated 26 November 1948 (i.e. about a month before the meeting) courtesy of James Taylor
[72] Interview, Goddard, 23rd of November 2012
[73] The pressed bulkhead was introduced in December 1948 to speed production but had been in planning since before the launch in April of the same year thereby showing there was significant confidence in long-term sales for the vehicle. Michael Bishop, *They Found Our Engineer: The Story of Arthur Goddard, The Land Rover's First Engineer* (Author House, Milton Keynes, 2011), 85
[74] Interview, Goddard, 30rd of November 2012
[75] Interview with Roger Crathorne, June the 6th 2010
[76] Interview, Goddard, 30rd of November 2012
[77] Frank Shaw (lead engineer on the Land Rover transmission) had amongst his team, Tom Barton. Barton was to become a noteworthy figure in the later story of Rover as he rose to become the Land Rovers chief engineer in 1963 and expanded the already considerable appeal of the vehicle still further (see chapter 2). Tom Barton described himself as a 'section leader' in the development of the Land Rover in 1947/48, however, according to Arthur Goddard, he worked *under* Frank Shaw at the time; 'Tom Barton was a junior, he was designing such things as exhaust mounting brackets.' This may throw doubt on the accuracy of other aspects of Bartons telling of Land Rovers early history. Graham Robson, *The Land-Rover: Workhorse of the World* (David & Charles Publishers Plc, Newton Abbot, 1976), Graham Robson, *The Rover Story: A Centaury of Success (*Patrick Stevens, Cambridge, 1979) & Graham Robson, *The Range Rover/Land-Rover* (David & Charles Publishers Plc, Newton Abbot, 1979)
[78] Top Gear (original format), *50 Years of Land Rover*, BBC Television, series 39, edition 13, first broadcast on the 14th May 1998.
[79] Interview, Goddard, 23rd of November 2012
[80] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 23.
[81] In 1954 the MoS created an organisation specifically tasked with research and the development of military vehicles known as the 'Fighting Vehicle Research and Development Establishment' or FVRDE.
[82] 300 were bought in the 'Series I' era with many more being used buy other contractors on the project. Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 25.
[83] 'Complete Knock Down' or CKD is the term used by the motor industry for supplying the major components of a vehicle, such as chassis engine and body, as a kit of parts for local assembly.
[84] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 25.
[85] Actual number was 8,805. Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 38.
[86] Slavin, Ken, Slavin, Julie, Mackie, George N. & McDine, D. *Land Rover : the unbeatable 4 x 4* (Haynes, Somerset,1996), 181.
[87] Slavin, *Land Rover : the unbeatable 4 x 4*, 33.
[88] The issue of ubiquity and its link to iconicity is explored in chapter 5
[89] The 2-liter engine was a 'bored out' (enlarged capacity) revision of the earlier 1.6. This produced more torque, which had been requested by users, but could be made to fit in the existing engine bay without significant modification to the vehicle.
[90] Interview, Goddard, 30rd of November 2012
[91] Best of Land Rover: a compilation of original promotional films from Land Rover. *Ready for Anything (1957): The launch of the new diesel model*, [Video: DVD] London, David Weguelin Productions for the BMIHT, 2005
[92] The emergence of the Land Rover as a passenger carrying vehicle is examined in chapter 4
[93] The 80" wheelbase station wagon was subject to 66% Purchase Tax (levied on all passenger cars costing over £1000) whereas other Land Rover models, classed as commercial vehicles, were not.

Chapter 2

Properties moulded by demand and propriety: The evolution of the utility Land Rover from 1958

> *Every so often automobile manufacturers produce a design which is a winner from the start – the basic concept is right, and though detail alteration may be called for, in general the vehicle is exactly what is required.*[1]
>
> The Autocar, 18th April 1958

Introduction

The following chapter examines the development of the utility Land Rover from the emergence of the Series II model in the late 1950s, through to its final iteration as the Defender in the 1990s. This was to be a turbulent period for British vehicle manufacturing with the creation and then near collapse of British Leyland in the late 1960s, the company's virtual nationalisation in 1975 and the later privatisation in 1988. The impact of these events and the Land Rover's evolving properties are explored in relation to application, competition and market with the factors affecting the vehicle's seemingly 'frozen' design (particularly with regard to styling) also being scrutinised. The continuing influence of the US car market on strategy and the effects of adopting US automotive design practices, such as product planning, are also examined. Finally, the chapter begins to explore the impact of the Land Rover's unchanging silhouette and continuing ubiquity on its value complexes, such as the emerging characterisation of the vehicle as having an increasingly 'legendary' status.

The Land Rover matures

The period from the mid-1950s through to the early 1960s saw a surge in developments of the Land Rover with the launch of the new Series II model, a range of specialist types for the military and civilians alike and an ever-increasing number of conversions to the basic vehicle. These developments were triggered by a combination of emerging competition from other

manufacturers, increasing demands from the British Army (after difficulties with the Austin 'Champ') and civilian customers requesting ever-increasing versatility and capacity as the full potential of the Land Rover as a utility platform became apparent. Rover's desire to serve these growing markets led to organisational changes initiated in 1956 when the company's Assistant Chief Engineer, Arthur Goddard left to take up a senior post at Girling (Brakes) Ltd.[2] At this point Rover split car and Land Rover engineering responsibilities into two separate roles and appointed Colonel Jack Pogmore to the role of Assistant Chief Engineer to lead on expanding the Land Rover product range.[3]

Colonel Pogmore was new to Rover and a former officer of the British Army's Royal Electrical and Mechanical Engineers (REME) and had latterly been involved in military equipment procurement at the Ministry of Supply. It seems likely that Rover believed it would be beneficial to appoint him to maintain and develop their relationship with the British military since the armed forces were becoming an increasingly important and sizeable market for the Land Rover (see chapter 3). Rover's Directors also hoped to expand the customer base for the civilian Land Rover but were becoming aware of potential competition, most notably from the Willys Motor Company (maker of the Jeep and part of the Kaiser-Jeep company) and Austin (then part of the British Motor Corporation or BMC), both of which were significantly larger companies than Rover and therefore posed a serous threat to the market the Land Rover had established.[4] Rover remained in the fortunate position of being able to sell as many Land Rovers as it was able to produce; but this demand also demonstrated the expanding market for small all-wheel-drive vehicles and thereby highlighted this new and lucrative opportunity to other motor manufacturers.

Competition and the development of the Land Rover during the late 1950s

The Jeep was well established in the small utility 4x4 market several years before the Land Rover was developed and was also the catalyst for Rover investigating the potential for a similar vehicle of its own in 1947 (see chapter 1). However, Willys-Overland (then maker of

the Jeep), did not threaten to become a significant competitor to Rover until it emerged in 1954 that it was examining setting up a manufacturing base in Europe. Although Willys-Overland's plan was not to come to fruition, it is likely to have been an early factor in the decision to significantly update the utility Land Rover.[5] In February 1956 the Rover board sanctioned £249,000 for initial development of what the company board's minutes described as the 'New style 88" and 109" Land Rovers & Land Rover Station Wagons', i.e. what was to become the Series II Land Rover.[6] This in practice meant, rather than continually evolving the design of the Land Rover, (which had been the modus operandi since 1948) it was decided to instead introduce a range of engineering improvements into a substantially restyled body and thereby generate a significant publicity and marketing opportunity for the 'new' Land Rover Series II. James Taylor explained these developments in his book *Land Rover Series II and IIA: Specification Guide* in the following way:

> *Land Rover engineers were encouraged to pull together all their plans for improvements to the vehicle and to prepare them as a package that could be promoted as a new Land Rover.* He continues*: Calling these Series II models would draw attention to the package of improvements that they embodied and would help counter BMC's promotional efforts for their Austin Gipsy.*[7]

In the UK, Austin had already attempted to sell a simplified version of the military FV1801 or 'Champ' to the civilian market in the early1950s but sales were limited due to complexity and cost of the machine. Austin had therefore decided to develop a simpler and more Land Rover-like vehicle with the intensian of not only taking a share of the Land Rover's market (where Rover remained virtually unopposed in regions of traditional British influence) but also to capitalise on the growing demand for utility all-wheel-drive vehicles. This competing machine was to emerge as the Austin 'Gipsy' in February 1958 with a pressed all steel body and independent front suspension.

Figure 1: Austin developed the Gipsy during 1956-57 as a competitor for the Land Rover. In addition to four-wheel drive it featured independent trailing arm suspension with 'Flexitor' rubber springing. Engine options were 2.2 litre four-cylinder petrol or diesel, with four-speed main gearbox and two-speed transfer box.
(Austin Motor Company 1958)

Austin had at its disposal an extensive international distribution network via its parent company BMC giving it considerable reach into overseas markets from the outset, thereby creating a significant threat to the Land Rover's dominance.[8] Rover was however aware of the development of the Austin Gipsy nearly two years before its launch as several engineers had been 'poached' from Rover by the offer of jobs at BMC to develop the new vehicle.[9] It therefore seems likely that Rover's awareness of these developments by BMC were the catalyst for what became the Series II, a replacement (at least in marketing terms) for the existing Land Rover. It was becoming clear that the continual introduction of evolutionary improvements in the Land Rover was underplaying the vehicle's contemporaneity. Furthermore, from a potential buyer's perspective, these developments were largely invisible, as the vehicle had, up until then, remained outwardly the same.[10] This 'new' Land Rover in the form of the Series II would mitigate against the danger of the vehicle's design appearing to have stagnated when alternative and *new* all-wheel-drive utility vehicles from other manufactures started to compete.[11]

The redesign of the Land Rover's exterior was largely the work of a small newly constituted team of 'stylists' led by David Bache, who had joined Rover from Austin in 1954.[12] It is noteworthy that the title of 'stylist' was a new one at Rover, Bache being the company's first, with the term referring to those involved with developing a vehicle's aesthetic. The role of the automotive 'stylist' seemingly differed in its practice in the UK compared to the United States during the period. According to architectural historian Kenny Cupers, many in the design elite in the US thought it "the absolute subjection [of design] to market research statistics" as it focused on consumer desires and detached itself from engineering considerations and modernist ideals.[13] In the US the term 'car stylist' was increasingly seen by other design professionals such as architects as a cynical activity that was solely driven by sales and was leading to dangerous automotive designs as examined in Ralph Nader's 1965 best seller exposé *Unsafe at Any Speed*.[14] In the UK the title of 'stylist' seems to have remained much more integrated with engineering and in contrast to the US, consumer opinion was largely absent from the design process until the 1970s when product planning was introduced (see below). The title of 'stylist' would eventually develop into that of 'car designer' in the UK and elsewhere as the role expanded to include not only a vehicle's aesthetics, but also ergonomics, aerodynamics and legislative considerations.[15]

The design of the Series II Land Rover appears to have been a mixture of strategic thinking combined with serendipity. In 1956 Bache and his team had worked on a stillborn project that was part-car-and-part-Land-Rover, known as the 'Road Rover', which utilised a Land Rover Series I chassis cloaked in an entirely new body. This was the second iteration of the 'Road Rover' as the company sought to develop a less utilitarian, yet still rugged, vehicle for passenger carrying. The proposal was likely to have been influenced by Willys-Overland's development and successful sales of Jeep based station wagons in the United States. However the 'Road Rover' concept was ultimately not taken further until the development of what Rover referred to as the '100 inch Station Wagon', which by its launch in 1970 had become the ground breaking proto-SUV, the 'Range Rover'.

Figure 2: Second iteration of the stillborn 'Road Rover' project built in 1956, which became the prototype body design for the new Series II Land Rover, which was launched in 1958. The basic silhouette and style cues of all utility Land Rovers have remained broadly the same ever since (Rover Company Ltd 1956)

However, as James Taylor explains: 'Rover management liked it [the Road Rover body] so much that its design was set aside for the Series II model'.[16]

The body for the Series II differed significantly in detail from what was to retrospectively become known as the Series I model but maintained a very similar silhouette, which although to a great extent was determined by functional considerations was also becoming a key recognition factor for the vehicle.[17] The design sought to harmonize the various versions of Land Rover that were available, from short wheelbase pick-ups to the long wheelbase passenger carrying Station Wagons. The redesigned body produced a considerably tidier appearance, most noticeable when comparing the Series I and Series II station wagons. The vehicle was made wider at the waistline with 'barrel' or 'tumble' sides i.e. a curved shoulder running along from the front wing all the way to the rear of the vehicle.[18] This conceptually simple styling change made for a more cohesive and smoother appearance, created additional

internal space, yet retained the essentially perpendicular panel work so suited to the vehicle's utilitarian role. Form, was no longer so slavishly following function.

Figure 3: The Series I Station Wagon utilised as many components from existing Land Rover body configurations as possible and exemplifies the evolutionary and expedient approach to the Series I's design. Although functional this approach led to a disjointed and poorly styled appearance. (Photograph Paul Hazell)

Figure 4: Illustration of the then recently introduced Series II station wagon from a sales brochure of 1960. The illustration clearly shows the cleaner lines of the Series II when compared to the Series I and marks the first and only significant restyling of the production utility Land Rover. (Rover Company Ltd 1960)

In styling terms the Series II was a significant shift in thinking at Rover with regard to its only commercial vehicle and showed that the Land Rover had matured into a coherent and immensely flexible design. The Series I body had not so much been styled, as engineered, with its appearance not only being primarily informed by its functional application (i.e. agricultural and industrial utility vehicle), but also by other functional considerations in terms of its construction (i.e. rapid initial development and economical/simple manufacture). For example, the Series I body was almost exclusively single fold aluminium sheet with little in the way of press tools being required. However, the newly styled Series II not only exhibited simple curves but also items that were purely cosmetic such as sill panels to hide the chassis, wheel arches with more complex and an almost flowing base lines and an option for a double curvature 'deluxe' bonnet. The so-called 'truck cab' was particularly curvaceous with a deeply domed roofline and a radiused rear panel complete with curved glass rear quarter lights (see figure 18). These aesthetic enhancements not only served to modernise the now familiar silhouette of the Land Rover but in detailed ways *enhanced* its functionality whilst simultaneously tidying-up the vehicle's appearance and improving its proportions. The opportunity was also taken to address other issues which had emerged after ten years of Series I production, such as the very shallow sides to the rear body being made considerably deeper allowing more to be carried in the load-bed and increased safety for passengers when sat on the inward facing rear bench seats. No longer were they in danger of being toppled out of the vehicle when traversing rough terrain.[19] The redesigned body also remained highly modular in its construction, with all models sharing a common set of frontend panels. The rear 'tub' allowed for the fitment of either a 'hard-top', 'soft-top' or 'truck-cab' upper body. Due to these assemblies' simple bolt on design, the body configuration was not fixed at the point of manufacture and could therefore be simply changed if required providing continued adaptability, flexibility and potential repurposing of the vehicle over its life.

Initially the engines available for the Series II short wheelbase 88" model remained the same 2,000cc petrol or diesel as before. However, the long wheelbase 109" model was available

with a new larger 2,286cc petrol engine from the start of production in 1958, followed by the introduction of a new 2,286cc diesel engine (derived from the same block) three years later. With the full introduction of these new engines the Land Rover Series II became the Land Rover Series IIA in September of 1961, a title it was to keep until the introduction of the Series III ten years later.[20]

The new Series II Land Rover was launched in April 1958 (ten years to the month from the launch of the original vehicle) with the intention that it would divert attention from the emerging competition (i.e. the Austin Gipsy which had launched in February of the same year) and reinforce the notion that the Land Rover remained a synonym for small four-wheel-drive vehicles. This marketing strategy was further reinforced by a series of adverts from as early as October 1955 in magazines such as Country Life which stated: 'There's no substitute for a Land Rover'. By June 1957 (seven months before the launch of the Austin Gipsy) this had become a more assertive 'Petrol or Diesel, there's no substitute for the 4-Wheel Drive LAND-ROVER' (note the word 'no' is now underlined).[21] This theme continued after the launch of both the Austin Gipsy and the Series II when over a quarter of a million Land Rovers had been produced but its new competitor was in its infancy with Rover's adverts proclaiming: '250,000 Land-Rovers prove there is no substitute for EXPERIENCE'.[22]

Figure 5: As a response to competition from the new Austin Gipsy this 1959 press advert implied there was no *real* substitute for the well established Land Rover (Rover Company Ltd 1959)

The Austin Gipsy ultimately proved to be insufficiently rugged for the task expected of it, with its rubber mounted independent trailing arm suspension and all-steel bodywork, which was prone to rust when subjected to the demanding life of an off-road utility vehicle.[23] The growing negative reputation this created inhibited potential sales further with production peaking at approximately 4,000 units a year compared to Land Rover's annual sales of over 50,000 by the late 1960s.[24] This resulted in significant reengineering of the Gipsy by Austin undertaken over the production life of the vehicle with what, in technological terms, might have been seen as retrograde steps by utilising leaf springs and beam axles. This made the Gipsy more rugged, but with its already similar boxy appearance it appeared to again copy the Land Rover's design but without the latter's advantage of a largely corrosion free aluminium body and now long established reputation. By the late 1960s Austin ceased production of the Gipsy due to continuing low sales volumes as well as Rover and BMC later finding themselves part of the same parent company when British Leyland was formed (see chapter 4) meaning an internal competitor for the same market made little sense particularly given the dominance of the now ubiquitous Land Rover. BMC were also looking at a Morris Mini-derived 4x4 named the Austin Ant. A prototype was passed to Land Rover for evaluation after the BL merger and initially it was thought that it would complement the existing Land Rover as it was aimed at a different sector of the market. However, BL decided not to go ahead with it for reasons explained by James Taylor:

> *One problem seems to have been that production costs [of the Austin Ant] were expected to be close to those of the Land Rover, even though the anticipated selling price was considerably lower. In the end, British Leyland top management saw the Ant as an unnecessary complication in an already complicated product line-up, and by March 1969 the project had been abandoned.*[25]

Having effectively killed-off the potential UK competition the Land Rover once again achieved a virtual monopoly for small all-wheel-drive vehicles in Britain and the

Commonwealth. However there were already signs that Rover's market share was being eroded in regions such as Australia by Japanese competition in the form of early versions of the Toyota Land Cruiser. For example, the vast civil engineering construction project in New South Wales known as the 'Snowy Mountain Hydroelectric Scheme' had from the outset in 1949 used Land Rovers numbered in the hundreds for transportation of personnel and equipment. However as these vehicles became due for the replacement in the later 1950s it was Toyota who secured the contract for new 4x4 vehicles in 1958 and not Rover. This proved to be an early portend of where the bulk of future competition would emerge, initially in Australasia and over the next thirty years in other key export territories for Rover and British Leyland such as Africa and South America as Asian 4x4 manufactures gradually established themselves in what had been the Land Rover's traditional markets.[26]

As well as ever increasing specialist applications for the Land Rover during the 1960s there was a strategy to broaden the basic vehicle's appeal by targeting new types of customers as well as offering an expanded range of significantly re-engineered Land Rover models. Under Jack Pogmore a much larger and heavier duty 129" wheelbase vehicle was developed to prototype stage then cancelled (six were built). This was intended to compete with vehicles such as the Dodge Power Wagon, which was proving popular with oil companies for desert use in the Middle East.[27] However, the development of the Land Rover 129" 4x4 truck proved too ambitious as the vehicle was much heavier duty than any the company had produced before. It shared few components with existing models, and sales volumes were looking increasingly likely to be small, meaning the investment required for mass production would be too great for an uncertain financial return.

Figure 6: The stillborn 129" Land Rover did not proceed beyond the prototype stage. (Photograph Paul Hazell)

Although Jack Pogmore oversaw the developments outlined above, he left the company in 1962 with Tom Barton replacing him in the role of Land Rover's Assistant Chief Engineer. Barton, as an engineer involved with the Land Rover from its initial development in 1947, was by all accounts a great enthusiast for the vehicle and took a technocratic approach to its future development. Barton wished to capitalise on the introduction of the Series II by increasing sales of specialist and derivative models (several of which had been initiated by Pogmore) and by actively responding to customer's demands for increasing versatility. By 1963 the company stated in its advertising, 'Your Land Rover is as personal as your signature' and went on to exalt the vehicle's ever growing adaptability in the following manner:

> *A perfectly standard Land-Rover is about as rare as a heat wave in January. Almost every model that rolls off the production line is custom-built for someone. Body styles alone number over twenty, and special features run into three figures. Whatever you need from your Land-Rover, there's a model as individual to you as your own signature.*[28]

Barton's willingness to adapt the Land Rover to a vast number of applications was to increase sales but may also have been a factor in the vehicle's relative stagnation in design terms after the launch of the Series II as the specification needed to remain basically unchanged for converters to invest in many of the specialist adaptions (see chapter 3). Production volumes and the adaptation of the basic design to new roles was the dominant strategy under Barton. It could be argued that design of the basic vehicle had already been optimised for the utility role so further development for the time being was unnecessary.

A further attempt was made in 1962 to develop the basic Land Rover into a heavy-duty cargo model by doubling its carrying capacity to 1,524kg whilst utilising much of the standard vehicle's existing components. This was to emerge as the 'IIA Forward-Control' Land Rover, and although looking significantly different to its conventional bonneted siblings, it in fact shared many existing components with the standard 109" long wheelbase model and could be built on the same production line. The initial version was underpowered however and proved unstable off-road. Although outwardly similar, a significantly reengineered 'IIB Forward-Control' was launched in 1966 to replace the earlier model and address the type's shortcomings. Making clever use of many existing standard Land Rover components that maximised the application of both the chassis and revised Series II body the motoring journalist Graham Robson summarised the Series IIB forward control in the following way: 'Although a solid, unpretentious machine, it fell rather uneasily into the little explored hinterland between light truck and large 4x4s'.[29] Its 'unpretentiousness' might also be described as 'ugliness' in styling terms however, and although proving the flexibility of application and modularity of the Land Rover's revised body panels and chassis, the cohesiveness and balance of the vehicle was lost both stylistically and physically. Sales volumes of the Forward Control model remained low and production ceased in 1972.

Figure 7: The Series IIB Land Rover Forward Control shared approximately 70% of its components with the conventional bonneted Land Rover but only sold modestly between 1966 and 1972. (Photograph Paul Hazell)

Broadening customer appeal

Diversifying, and thereby increasing, the customer base for the basic utility vehicle was also actively pursued after the launch of the Series II. Soon after its introduction in 1958, a brochure showing a full-colour illustration of the new Short Wheel Base Land Rover recovering a yacht from a slipway indicated Rover's marketing department's intent to target the leisure and private non-commercial market with the Series II Land Rover.

Figure 8: 'The new Series II regular Land Rover' depicted recovering a yacht as the new model is explicitly linked to leisure for the first time thereby broadening its market beyond industry and agriculture.
Land Rover Series II brochure cover (Rover Company Ltd 1958)

Until the launch of the Series II the Land Rover had rarely been promoted as being suitable for leisure or non-commercial use. Although it was marketed during the 1950s as being well suited to equine sports by virtue of its towing capacity making it ideal for pulling a horsebox both on road, and across paddocks, this remained a rare example of the vehicle being actively marketed for leisure. This role was also closely associated with its agricultural origins, so although significant, it did not represent a distinctly different use for the existing vehicle. What was notable however, is that the Land Rover for equine pastimes was firmly targeted at women during the Series I era, when all other contemporary press adverts exclusively showed men using the Land Rover as a 'work horse', or occasionally (such as in one of Rover's many promotional films) for the farmer's wife to borrow and travel to town for the shopping.[30] The Series II and IIA utility Land Rover, although remaining basic, was now a more refined machine than its predecessor so the company was more willing to market it to sectors that might have previously been served by large cars or were emerging market segments. The late 1950s marked a significant shift in leisure culture and its commercial exploitation with rapid economic growth across Western Europe as well as North America leading to near full employment, an increase in disposable personal income and extended vacation periods. This resulted in a vast market for leisure activities with the car increasingly representing a portal to an optimistic and leisure filled future. The growth of second cars amongst the British middle classes and the increasing use of the car for leisure was a market that was underexploited by Rover and the Series II Land Rover began to be tentatively marketed to these emerging affluent consumers.

Throughout the 1960s a series of adverts promoting the vehicle as family transport, for shopping and 'the school run' were published with these advertisements particularly targeting women. It is tempting to characterise this as the point that the 4x4 began to move into the mainstream of automobility (i.e. what was later to become the SUV and urban 4x4). However, rather than predicting the eventual growth in this sector of the automotive market it

seems more likely that the Rover marketing department were once again looking at how all-wheel-drive vehicles were being marketed and sold in the United States, a market that it was commonly believed showed future trends for the UK. In the United States all-wheel-drive station wagons, such as the Jeep Wagoneer and the Ford Bronco, were becoming established as urban and leisure transport and Rover was keen to develop a similar UK market sector.[31] This proved to be of limited success when marketing the utilitarian Land Rover however, but was to lead to the development of a far more sophisticated passenger carrying 4x4 in the form of the 100" Station Wagon, or Range Rover which was launched in 1970.[32]

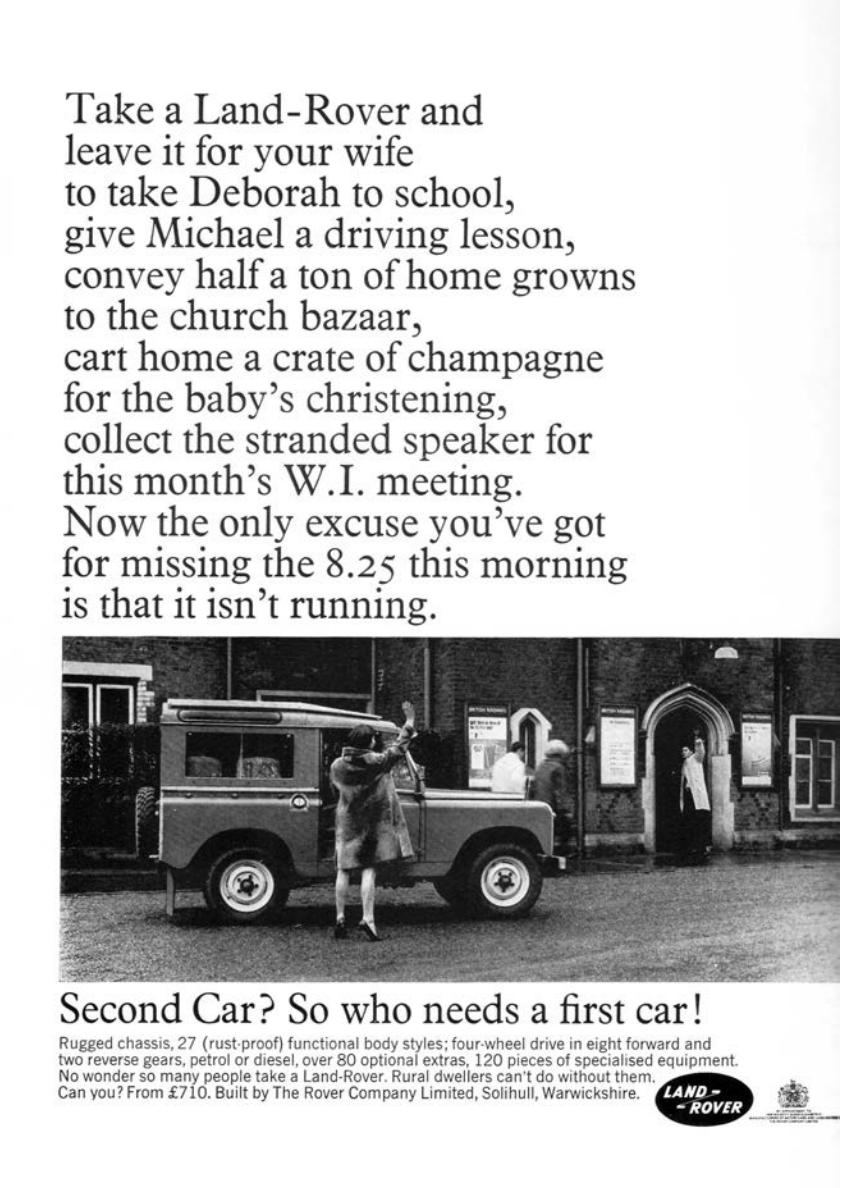


Figure 9: 'Take a Land Rover and leave it for your wife'. During the 1960s (before the introduction of the Range Rover in 1970) the Series II Land Rover was, for the first time, being marketed as an alternative to the family car. However both the patriarchal and class assumptions of the period remain unshaken in this June 1966 *Country Life* Magazine advertisement from 1966 (Rover Company Ltd 1966)

Land-Rover: for the tougher jobs in your life.

When it comes to hard work, you can't beat a Land-Rover. Take a really tough assignment. Like collecting the kids from school. And their friends. And their friends' friends.

The Land-Rover can handle it. Comfortably.

You can seat all-comers on soft-cushioned seats.

Cruise smoothly on the highways.

Drive confidently along the smallest, crudest byways.

You can even take the short cut across the fields if you're really daring.

Otherwise, you just notice that the Land-Rover is a nifty parker in a shopping street.

A family fun machine on a picnic.

A sporty convertible when the sun's shining.

Maybe the only tough side you'll see of a Land-Rover is that it doesn't wear out. Its aluminium body never corrodes. Its panels don't easily dent and fall off.

A Land-Rover can put in a hard day's work winching down trees in a farm field.

Even running the saw that turns them into logs.

But then you might see how useful it really is. When it takes the evening off and goes to the pictures.

LAND-ROVER

You'd be surprised how many things a Land-Rover can do.

Figure 10: The Land Rover's well-established attributes of 'toughness' and 'versatility' were increasingly being used in an equivocal manner during the 1960s to target previously neglected potential customers. *Country Life Magazine,* November 1968 (Rover Company Ltd 1968)

An unchanging silhouette

Although the outward appearance of the standard utility Land Rover remained virtually unchanged during the 1960s there continued to be on-going engineering changes. The most significant of these was the introduction of an optional six-cylinder petrol engine giving

greater torque than the more common four-cylinder type but it was to suffer from high fuel consumption. The only styling changes introduced over the Series II/IIA era were due to legislative requirements leading to the headlights being relocated from the protected and recessed front panel, outboard, to the front wings leading to a slightly redesigned front grille.

Despite the success of (or arguably because of) the subtle but highly effective restyling of the Land Rover in the late 1950s, which led to the Series II, the vehicle was again to remain virtually unchanged in appearance for the next twenty-five years. There was however, a notable deviation in the characteristically evolutionary design of the Land Rover in 1965. A project was undertaken to explore a *total* redesign of the vehicle with a new proposal, which became known as the 'One-Double-One' due to its 111" wheelbase. The concept examined the potential for a reimagined Land Rover for the 1970s, to replace the then current Series IIA. The design was radical and had striking visual similarities to the later highly successful Mercedes-Benz G-Wagon 4x4 (which was developed by the German company during the 1970s and launched in 1979).[33] The 'One-Double-One' also pre-empted many of the styling cues incorporated into the much later Land Rover Discovery launched 25 years later. Rover historian James Taylor noted: 'Unusually, it was the Styling Department rather than the Engineering Department who took the lead throughout, and the key work was done by Tony Poole [who had worked under David Bache on the Series II restyling].'[34] Ultimately the proposal did not progress beyond the relatively inexpensive stage of drawings without any engineering work being undertaken. As James Taylor commented:

> *[The One-Double-One] seems never to have achieved the status of a legitimate Engineering Department project. Before it could gain much ground at Solihull, the company began work on the 100-inch Station Wagon, which would become the Range Rover in 1970. As funds wouldn't stretch to cover two radically new Land Rover products, the One-Double-One bit the dust.*[35]

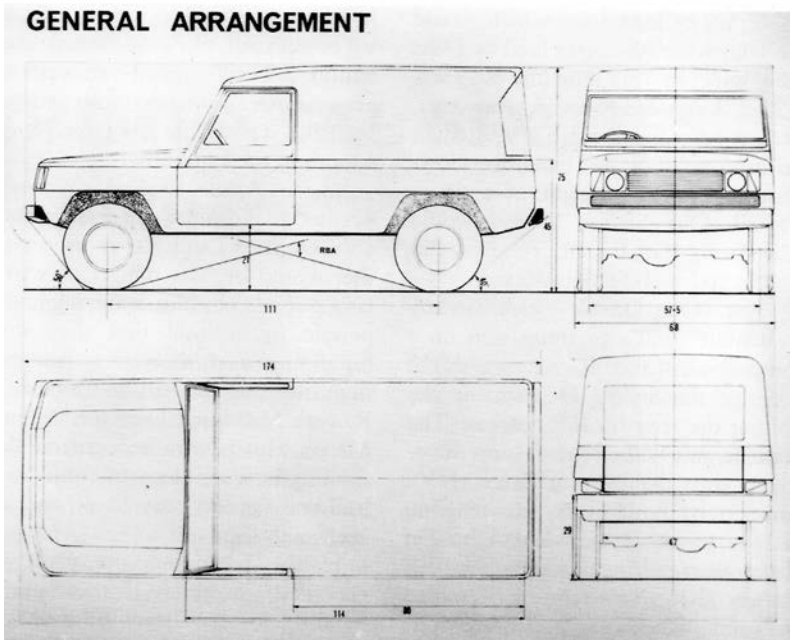


Figure 11: General arrangement drawing dating from 1965/66 for the 'One-Double-One' design proposal for a radically restyled and much modernised utility Land Rover. (Rover Company Ltd 1966)

Figure 12: Three-quarter view of the Land Rover 'One-Double-One' concept produced by Rover's Styling Department in 1966 headed by Tony Poole. The later, and highly successful, Mercedes-Benz G-Wagon of 1979 bore a striking visual resemblance to Rover's earlier concept vehicle. Images from internal company brochure (Rover Company Ltd 1966)

The relationship between the Engineering and Styling Departments is noteworthy here: the former traditionally led Land Rover developments with senior managers generally being drawn from engineering backgrounds rather than design (or styling as it was then known).

This, as well as on-going financial constraint, may have contributed to an environment where evolution, not revolution, was to remain the order of the day with regard to the Land Rover.

The Series IIA Land Rover's ubiquity combined with lack of any obvious change; although feeding directly into the ideas of iconicity and 'fitness for purpose' also meant that when competition was to resurface, the vehicle would start to look dated. Seemingly ever-increasing sales of the basic vehicle and limited company funds once again mitigated against design changes much as they had done in the 1950s. Whilst sales were strong, and the Land Rover continued to be highly profitable with (once again) no real competitors, this 'freezing' of the basic design was accepted. This desire to 'freeze' a successful design that was selling well was not new to the motor industry however. Henry Ford had taken a similar approach with the first truly mass-produced car, the 'Model T', forty years earlier, which inadvertently allowed an opening for the competition, much as it would later do with the Land Rover:

> *The very strength of the Model T that had allowed for the most efficient mass production – the freezing of its design - was by the mid 1920s to become its Achilles' heel. Competitors such as General Motors and Chrysler realised that designers needed to restyle the appearance and occasionally update the engineering of their vehicles. This would make them continually attractive not only to new customers but also to existing car owners who now had a reason to want to replace their automobile.*[36]

Like the Model T, the Land Rover would remain largely unchanged and often described as 'iconic', however both would also suffer from falling sales as more modern competition arrived.

However, rapid change was taking place during the 1960s with much of the British car manufacturing industry finding itself in slow decline as old certainties regarding both domestic and overseas markets were eroded by foreign competition. This resulted in the consolidation of many previously independent vehicle manufacturers into larger groups.[37] Rover, although still profitable, would not be able to remain immune from these changes.

Although benefiting from the continuing sales growth of the Land Rover, there were pressing economic factors emerging for Rover. The factory at Solihull was becoming dated and needed significant new investment so that facilities and plant could be modernised and productivity increased. Rover, although continuing to develop new car models, remained relatively small by industry standards meaning the volume of capital available for modernisation, as a proportion of income, was limited.[38] For new investment to be forthcoming amalgamation into a larger organisation was required and Rover therefore firstly took a controlling interest in Coventry based Alvis Car and Engineering Company Ltd in 1965 (by then primarily a builder of military vehicles) then willingly joined Leyland Motors Ltd during the winter of 1966-67 thereby ceasing to be an independent carmaker.[39]

Despite Rover's absorption into Leyland and sales of the utility Land Rover booming in the late 1960s and early 1970s, the profit it generated was increasingly being used to support the loss-making car division of the newly formed British Leyland when it absorbed BMC (see chapter 4). Significant updating of the Land Rover's design was therefore further delayed due to increasing financial constraint. Leyland's focus continued to be marketing the existing Land Rover to a greater diversity of customers, often as a result of highly specialist applications for the vehicle. All developments were once again evolutionary and dominated by engineering changes, with the physical appearance of the vehicle remaining essentially unchanged.

The Series III Land Rover

The financial and organisational difficulties confronting British Leyland impacted on the Series III Land Rover, launched in 1972. Outwardly the new model was almost identical to the Series IIA model it replaced with developments once again being focused on engineering improvements. These included a newly developed all-synchromesh gearbox and a stronger back axle on long wheelbase models after consistent complaints from customers concerning rear half-shafts failing when the vehicle was driven fully laden off-road in difficult

conditions.[40] There were some concessions to modernity and ergonomics however: A new injection moulded plastic front grill helped distinguish the new model from the old. There were redesigned door and windscreen hinges as well as a padded dashboard, but these developments were as much to do with complying with changing safety regulations as styling considerations. The instrument binnacle was for the first time 'handed' and placed in front of the driver rather than in the centre of the vehicle's front bulkhead. The Series III fundamentally remained the same in concept as its predecessor being a tough but stark workhorse with leaf sprung suspension, unassisted and relatively heavy steering and an interior that could be washed out with a hosepipe.

This apparently unvarying design fed into the vehicle's emerging iconicity, since consistency (either physically or culturally) is a key factor in a design being labelled 'iconic' and the Land Rover was to accomplish both (see chapter 5). Paradoxically, despite the essentially 'frozen' design (in stylistic terms) a significant factor in the Land Rover's longevity continued to be the design's ability to remain relevant, both in its core utility role, but also to be sufficiently adaptable in other applications to remain in production for more than 67 years. This may therefore challenge the notion of a design artefact being of its time and place if its functional attributes remain pertinent (see Chapter 4).[41]

The arrival in 1970 of the all-new coil-sprung Range Rover fitted with a powerful Buick derived 3,528cc Rover V8 petrol engine now meant any aspirations the company might have had for the existing Land Rover to move into the car or leisure market were shelved.[42] The utility Land Rover's sales were still strong (see appendix iii for annual breakdown) but the vehicle's marketing during the first half of the 1970s now wholly focused on the utility/commercial market once again. Adverts showing a horsebox being towed, or a 4x4 being used in urban or passenger carrying scenarios now featured the new Range Rover, not the Land Rover.

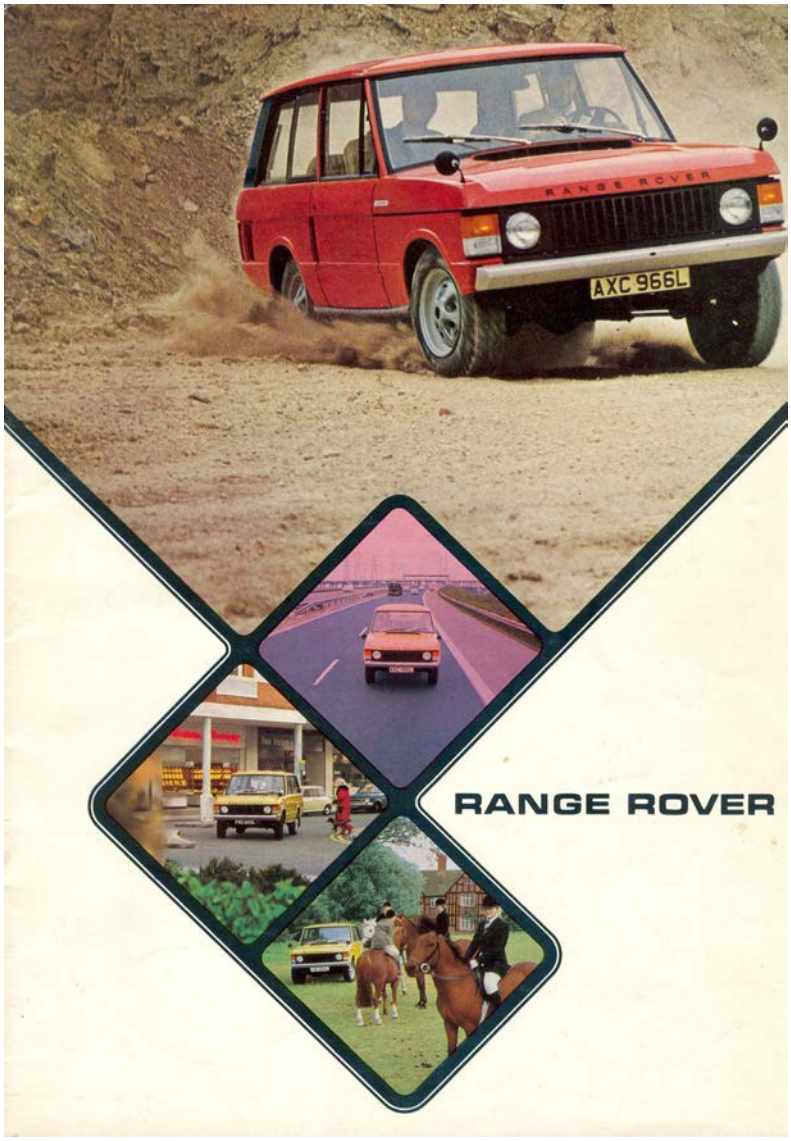


Figure 14: The all-new Range Rover, was to fill an emerging gap in the market for car-like 4x4s leaving little apparent need for the Land Rover Series III to be marketed as anything but a workhorse during the 1970s. *Range Rover brochure front cover* (British Leyland 1975)

Not long after the launch of the Series III Land Rover in 1972, British Leyland's 'Specialist Division' began to once again investigate a more radical redesign of the utility model, which on this occasion would get somewhat further than the stillborn 'One-Double-One' concept of 1965. The proposed design was again styled by Tony Poole and therefore unsurprisingly resembled the earlier 'One-Double-One' concept. It was intended as low-cost, easy to produce (with overseas assembly in mind) modernised utility model that this time would take the Land Rover into the 1980s as the 'Series IV'. The design was codenamed 'SD5' (Specialist Division 5, the earlier numbers being used for various BL car designs) and was

developed as far as a full-size wood and clay mock-up utilising the Rover V8 engine and taking some styling cues from the Range Rover. The project was arguably less cohesive in appearance than the earlier 'One-Double-One' proposal but promised to be versatile with its modular construction (making varying body styles straightforward to produce), coil sprung front suspension and a full-width body providing seating for eight people even within the short wheelbase version.

Figure 15: The SD5 was a proposed replacement for the existing Land Rover Series III but was cancelled before it progressed beyond a non-functional styling 'buck'. (British Leyland 1975)

As James Taylor explained in his book *Land Rover: 60 years of the 4x4 workhorse*:

> *[W]hen Sir Don Ryder started researching his report on British Leyland's future for the Government in early 1975, the Land Rover stylists were asked to give him a presentation on the SD5 in order to demonstrate what Land Rover had in mind for the future. Just a few months later, Ryder recommended a massive investment of £400 million into the Solihull four-wheel drives; was his decision perhaps influenced by what he saw at the SD5 presentation?*[43]

Despite three years of development work on the SD5 and its possible link to securing government investment, it was to be cancelled in 1975 before it reached the prototype stage. British Leyland was entering its most turbulent period during the mid-1970s and with the Series III still selling strongly, the need for a replacement may have seemed an unnecessary expense once again.

The introduction of 'Product Planning'

After the partial nationalisation of British Leyland in 1975 and the acceptance of the recommendations made by the Ryder report, government funding began to make an impact on the future direction of the utility Land Rover (see chapter 4). Prior to this, however, a study was conducted focusing on how the vehicle should be developed over the coming years, particularly internationally as the export market still dominated sales. Land Rover Engineer, Roger Crathorne was appointed to a new role to carry out this study between 1972 and 1974 and he explained its significance in the following way during interview:

> *A job was coming up within Land Rover International for someone to go out and do a world study on where Land Rover should be going [in the future]. It was offered to senior managers within Land Rover development [but] none of them wanted to take it. I was called into Tom Barton's office and [following this] I worked for two years for British Leyland International as Sales Development Manager, which was basically trying to help the sales department get the product right for the markets we were selling in around the world. We were selling in around 160 markets then [and] out of that study lots of things came about. In the Middle East market, and some of the South American markets, they asked for more power. Other markets asked for greater carrying capacity, others asked for better comfort and of course the one thing they all hit us with was quality [such as back axle failures in the Series IIA model].*[44]

Roger Crathorne's role in examining potential future products led to an approach from Roland Maturi (who had come from BL cars) asking him to work with him on writing what the company referred to as an 'Assumptions Manual' i.e. how the planning for the Land

Rover should be developed.[45] This was to lead to the formation of a 'Product Planning' department during the mid 1970s and signalled a significant shift in the company's strategic approach. This allowed the vehicle's development to be driven by customer needs and desires rather than engineering intuition or subjective interpretation of the market. This was not an innovation of Rover's however, the concept of 'Product Planning' had its origins in the United States at companies such as General Motors and Ford in the 1950s and was increasingly adopted by British Leyland during the 1970s (BL had employed many Ford people soon after it was formed).[46] Once Rover was absorbed into BL, product planning was also gradually applied to its existing and future products. The approach across much of British manufacturing had traditionally been to develop a product based on what a company was best able to produce or what engineers or directors felt would sell and *then* a market would be identified. However 'Product Planning' was more systematic, basing future developments on research findings of what the market *wanted*. Up until this point Land Rover's marketing department for instance had only been able to make suggestions about future products to the board unofficially, their role having focused on post-developmental marketing and *not* as part of Product Planning.[47] The change was not popular with all at Land Rover however. Roger Crathorne explained that Tony Poole, (who was by then in charge of styling Land Rover products and had played a significant role in the SD5 study) disliked the idea:

> *'It certainly upset many of the traditional designers like Tony Poole, he didn't like it at all. [He] had an unprintable description of what he called Product Planning!'*[48]

Tony Poole's resistance to Product Planning and the 'Assumptions Manuals' may reflect the concerns of many in industrial design at the time that 'designers had lost their autonomy as they were increasingly required to respond to the results of consumer research rather than to design for the public as they saw fit.'[49] However, individuals such as senior engineer Mike Broadhead (Tom Barton's deputy at the time and later to become Land Rover's Engineering Director after Barton's retirement in 1980) recognised the advantages of the new approach:

'People like Mike Broadhead treated the 'Assumptions Manuals' (produced by Product Planning) like bibles. Mike would say 'this is the way they told us we are going to go.'[50]

The government funding for product development which was forthcoming following the recommendations from the Ryder report was to be split into phases with 'Stage 1' (as it became known) looking at addressing the most pressing issues emerging out of the Product Planning department's initial findings. Roger Crathorne explained in interview that up until the late 1970s, 'Funding was never really put there [Land Rover], we were secondary to cars.'[51] This echoed a sentiment dating all the way back to the Series I era of 1948 to 1958 when, as we have seen in chapter 1, Arthur Goddard, (who was then the Senior Engineer for the Land Rover) voiced a similar observation in interview: 'Certainly there were people at Rover [cars] who looked down their nose at its poor relation [the Land Rover], but the poor relation was keeping them going [financially]!'[52] This subsidising of Rover, and later BL cars from the profitable Land Rover had starved the company's utility vehicle of development funding for much of its history. The situation now needed addressing urgently if the Land Rover was to compete with growing competition, particularly from the Far East (Toyota, Nissan etc.) and maintain its market share.

The first phase to commence after a substantial £400 million injection from central government, was to design an interim Stage 1 model of the Land Rover that would introduce many of the revised engineering features to be incorporated into the eventual replacement for the Series III (i.e. what was to become 'Stage 2' of the plan). The need for greater engine power was prioritised as the Land Rover had been using the same 2286cc engines for 20 years since the launch of the Series II, with the optional (but dated in concept), inline six-cylinder power unit becoming available in 1966 with greater torque. The powerful Buick derived Rover 3,500cc V8 engine, which had been utilised for eight years in the Range Rover, was the obvious choice and led to the revised long wheelbase utility model that was officially

named the ‘Land Rover V8’ but is often referred to as the ‘Stage 1 V8’ by enthusiasts.[53] This was in essence a Series III hybrid model fitted with the more powerful petrol V8 engine, permanent four-wheel-drive using the transmission from the Range Rover (to cope with the increased torque produced by the new larger engine) and for the first time, a flush (i.e. non-recessed) front grille to accommodate the physically larger engine. This ‘new’ leaf-sprung model was far less radical, and once again much more evolutionary and expedient in nature, than the recently cancelled SD5 or even the much earlier ‘One-Double-One’.

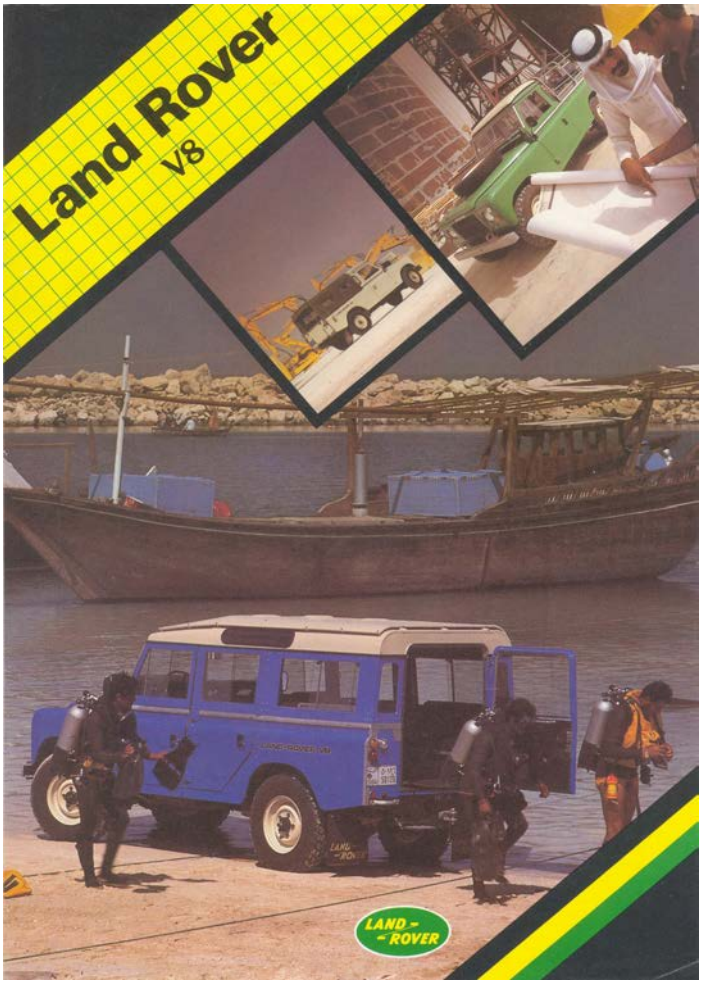


Figure 16: The Land Rover V8, launched in 1979, was initially only available for export where more power was particularly in demand (note Arabic registration plates). By 1980 the Land Rover V8 was also available in the UK. *Land Rover V8 brochure front cover* (British Leyland 1978)

Although the V8 Stage 1 Land Rover was thirsty in terms of fuel consumption this mattered little for the markets that the Product Planning department had identified as having a need for more power, such as the Gulf States and other oil producing regions where fuel prices were low. In the UK the V8 powered Land Rover sold in modest numbers between 1980 and 1985

(when it was discontinued) to market sectors where increased power or refinement were the priority such as for the emergency services or for the passenger carrying Station Wagon model. The 1970s and 1980s were a period in the British car industry when differing trim-levels and engine fitment had become an increasingly important means of creating market segmentation even within a single model range. Manufacturers such as Ford in the UK frequently utilised boot-lid badges on models such as the Cortina to create a product hierarchy (e.g. L, GL, S etc.) depending on engine or equipment level. The new Stage 1 model adopted a similar approach with prominent 'Land Rover V8' stickers on the vehicles rear quarters and a range of four new bright colours (taken from the BL car range in addition to the six existing choices) to differentiate the vehicle from the more prosaic four cylinder models. However the V8 decals on the vehicle's sides were discontinued after less than a year, their purpose of highlighting the new more powerful engine having apparently been served. Interestingly marketing material for the new model featured not only industrial applications but also leisure/adventure activities such as diving & horse riding etc. for the first time since the end of the Series II era. Again this may have been an American influence even though the Stage 1 V8 model was never sold into the US market. In North America 4x4 station wagons and even pick-ups with large engines were increasingly being used for leisure activities and BL, with its new V8 powered Land Rover, had a vehicle with the potential to address these trends particularly in the Middle East where fuel remained inexpensive and Land Rover Ltd was often competing directly with American manufacturers.

A further finding emerging from the product planning exercise carried out in the mid-1970s was limited load capacity (particularly volume). Fleet buyers complained that they were not able to load a standard shipping pallet, measuring 1000x1200mm, into the Land Rover's relatively narrow pick up body. Roger Crathorne stated in interview, 'I talked Roland Maturi into buying a Toyota FJ45 and we copied that rear body, but we made it out of aluminium [rather than Toyota's steel] and that became the high-capacity [or hi-cap] pick-up.' The Toyota FJ45 had been available with a large pick-up body from as early as 1963 and this

offered the ability for goods to remain on their shipping pallet and be placed directly into the vehicle with a forklift. This reduction in handling led to improved productivity and was highly desirable to many customers yet it had taken Land Rover a full *19 years* to offer a similar model to the FJ45 in 1982. As the 'hi-cap' pick-up, as it became known, demonstrates, with sales of the utility Land Rover declining in the late 1970s and early 1980s due to increased competition (particularly from Toyota with their 'Land Cruiser' range), the advent of Product Planning at Land Rover had arrived not a moment too soon.

Figure 17: The Toyota FJ45 was fitted with a large pick-up body capable of taking a standard shipping pallet from as early as 1963 (Photograph Jeremy Smith)

Figure 18: Land Rover's conceptually similar high-capacity pick-up mounted on a long-wheelbase 'truck cab' chassis was launched in 1982, 19 years after the Toyota FJ45 was introduced (Land Rover Ltd 1982)

Before the new Land Rover (which was being developed under the Stage 2 programme to replace the ageing Series III and Stage 1 V8) would emerge, there was one final small but cogent development of the outgoing leaf-sprung model in 1982. As passenger carrying Japanese 4x4s began to grow in popularity in the UK and Europe (whilst Land Rover Ltd sales were in decline) the company found it had no answer to the emergence of what was to become the Sports Utility Vehicle (or SUV) in its product range despite being a manufacturer exclusively of 4x4s. From the early 1980s the Range Rover finally receiving new investment (also under the Stage 1 plan) and began its inexorable trajectory 'up-market' with a gradual increase in price moving it into a different market sector as the demand for luxury cars grew during the decade. Increasingly the Range Rover was marketed as the most capable and luxurious 4x4 available anywhere in the world, which in turn meant the specification was continually upgraded to stay ahead of competitors such as Toyota who were entering the same market. Such strategies were to have far reaching effects on the Land Rover brand as it began to be associated with luxury and aspiration rather than purely utility. The Land Rover however remained a workhorse leaving a large gap in Land Rover's product range, which was being increasingly filled by Japanese small 4x4s. Therefore a 'County Station Wagon' version of both the short and long-wheelbase versions of the passenger carrying Land Rover was announced. The enhancements found in a 'County' model compared to a standard 'Station Wagon' were minimal with a range of new colours, improved interior trim, cloth seats and striped vinyl graphics on the body sides stating the 'County' model's name. These changes may have been small but the intent was clear. This was once again a vehicle aimed at the leisure, rather than commercial, users and showed the company's emerging awareness of how the market for 4x4 vehicles was changing in the 1980s whilst simultaneously demonstrating the company's ill preparedness.[54]

It is noteworthy that the British Leyland conglomerate of the 1970s has consistently been characterised by motoring writers as a disastrous period for the British automotive industry. Inevitably the reality of this infamous period is more complex and contradictory. The research

outlined here undermines some aspects of this reoccurring narrative, suggesting instead that the introduction of 'Product Planning' (adopted from Ford and established at Land Rover under BL) was to have both a positive and far-reaching strategic effect on Land Rover. Although the period that Land Rover was under British Leyland control was undoubtedly troubled with financial difficulties, inefficiencies due to the duplication of production facilities created by merger and poor industrial relations; the story across the BL group was not an entirely negative one. With the Ryder report and the subsequent investment planning that followed, Land Rover Ltd by the late 1970s was finally receiving the reinvestment it required for the first time since the early 1960s.[55] These dual developments: Product Planning and targeted reinvestment (both implemented under British Leyland) it can be argued secured the company's future by laying the groundwork for Land Rover developing it into a modern brand (as distinct, ontologically, from a simple product line) and helped the company transition through what would be a further difficult period during the 1980s.

A new Land Rover with minimum change

Plans to replace the leaf sprung Series III Land Rover had been in train throughout the 1970s but funding remained unavailable for the Land Rover's development due to the perilous financial position of British Leyland, which had led to the cancellation of the SD5 project. Even before the injection of Stage 2 funding from the Government (as a result of nationalisation and recommendations from the Ryder report) there were those at Land Rover who were experimenting with how the existing product could be modernised by utilising existing componentry. This engineering expediency was a tradition that could trace its routes as far back as the original Land Rover's development in 1947 and remained a significant characteristic of the vehicle's evolutionary design. In interview Roger Crathorne explained his early tentative steps at developing a more modern coil-sprung utility Land Rover and the resistance that this initially met.

> *I'd also almost got myself the sack [for trying to update the Land Rover]. On my drawing board during my lunch break I started grafting coil springs [from the Range*

Rover] onto a 109" Land Rover. Tom Barton walked through the office one day and he saw [it] and he went absolutely berserk. I was doing things I hadn't been asked to do. After [later] talking to Tom [Barton] I said, 'look Tom I'm only doing it as an enthusiast and to me it's the obvious thing to do'.[56]

The resistance from Tom Barton (Land Rover's Senior Chief Engineer) to a coil sprung Land Rover appears to have been based on two factors. Firstly a concern about the consequences of improving the ride meaning operators were likely to drive the vehicle much harder off-road leading to component failure and increased warranty claims. Secondly, engineers such as Roger Crathorne, developing their own design proposals without consent, undermined Barton's authority and his stated view that leaf springs were the most appropriate suspension for the utility Land Rover. However, without the availability of sufficient funding required for a totally reengineered replacement for the Series III (such as the now abandoned SD5) an evolutionary approach to the Land Rover's development was once again adopted. As before the thinking was led by engineering priorities combined with expediency as a matter of necessity. Roger Crathorne stated:

When Land Rover started looking at where it should go in the future [as a result of Product Planning] one of the ideas that came from quite high up was: ok we've proved that the Range Rover chassis works, why don't we do something along those lines with Defender [sic]. Good old Bill Morris said to Tom Barton 'well you nearly sacked Roger for coming up with this idea a long time ago, why don't you give him the project to build some [coil sprung] prototypes?' I scrounged 4 rolling [Range Rover] chassis from manufacturing, four sets of [Land Rover] body panels, seven fitters [were] allocated and [we] built four hybrid [vehicles of varying wheelbase], which were presented to Michael Edwards [recently appointed Chief Executive of British Leyland]and the BL board.[57]

He continued:

We put a programme together for the BL board to assess the vehicles at Eastnor Castle [test facility]. And I think the thing that sold it to them was not just the ride, but the traction and [axle] articulation - doubling the amount of wheel travel it gave. We went

from 4 ¼" to between 8" and 9" of wheel travel. Fantastic. We actually got the tick in the box [i.e. the go ahead] from Michael Edwardes and his team [that day].[58]

The new vehicle still owed much to its predecessor and although a significant development in terms of its drivetrain and suspension, in styling terms the vehicle's appearance was to remain, once again, much as it had before by utilising essentially the same body design. With the updating of the Land Rover in the late 1970s however the investment was targeted at enhancing its functional ability rather than its styling. The absence of significant external change has frequently been characterised by motoring writers and enthusiasts as evidence of how 'fit for purpose' the Land Rover was for its intended role. However, as Roger Crathorne explains, there was another factor even more prosaic than its function as to why the body design was largely carried over from the Series III.

One of the unfortunate two words [sic] that came into an engineer's vocabulary was 'minimum change'. This [expression] was [due to] the 'bean counters' [i.e. accountants]. We'd have done better to redesign it [the Land Rover] completely.[59]

The new coil sprung Land Rover would be utilising the wider coil sprung axles derived from the Range Rover, which greatly increased suspension travel, improved the ride and allowed for a reduced turning circle. This therefore presented an opportunity to widen the body not only for styling reasons but also to increase internal space (just as had been proposed in the SD5) as the literal lack of 'elbow room' was an aspect of the Land Rover's interior that was often criticised. However, Stage 2 funding, although substantial, would only stretch so far as it continued to also fund Range Rover developments and modernise the Solihull factory site. This would result in the existing body shape, functional as it remained, being largely carried over from the Series III as a cost saving measure rather than for any inherent 'fitness for purpose' considerations. Roger Crathorne (RC) characterised how those working in financial control (FC) addressed issues raised by engineers in the following rather sardonic manner during interview:

RC: 'Its going to have [the wider] Range Rover axles on it.'

FC: *'Minimum change: we'll put some spats or eyebrows on it' [i.e. wheel arch extensions]*.

RC (long pause): *'Ok, these vehicles are going to be driven much harder [due to better suspension']*.

FC: *'We'll put the Range Rover disc brakes on the front'*.

RC: *'What about the back?'*

FC: *'Minimum change; let's stick with drum brakes [on the back]'*.

Production of the coil sprung model began in 1983 with the new vehicle being named the 'Land Rover One Ten', reflecting the vehicle's now slightly longer 110-inch (2,800 mm) wheelbase (the Series III had been 109").[60] This new model name also indicated that by *not* being called the 'Series IV' that this was a significantly different vehicle to its predecessor. However, this revised nomenclature was undoubtedly undermined by the vehicle's strikingly similar appearance to its predecessor due to inheriting the 'hand-me-down' body design of the Series III, which was itself adopted from the earlier Series II of 1958. Like many 'hand-me-downs' however it can be argued that being so long lived denotes quality or the attributes of a 'timeless classic', or an 'iconic design' and the 110 conveyed a particularly purposeful appearance with its wider track and larger windscreen. More disparagingly such a 'hand-me-down' approach could also be thought of as perpetuating an anachronism however. This was a balancing act the utility Land Rover would continue to strike for more than the next thirty years as the introduction of the coil sprung Land Rover was to be the last significant redesign of the vehicle to reach production. The 'classic-or-anachronistic' debate was frequently expounded by the motoring press over this period with Peter Crowley-Palmer (a current senior designer at Land Rover) characterising this balancing act in the following way during interview in 2014: 'You can think of the Defender [i.e. coil sprung Land Rover] as a classic car you can buy new!'

The new short wheelbase version followed in 1984 with a 92.9" (2,360 mm) wheelbase (replacing an 88'' wheelbase) providing an increased load area when compared to its predecessor. However the smaller vehicle was marketed as the 'Land Rover 90' as the actual wheelbase length of approximately 93" was felt to be too awkward for use in the model's name. Additionally in 1984, a new extra-long wheelbase model known as the Land Rover 127, with its 127" (3,226 mm) wheelbase was also launched. This specialist vehicle allowed for a much larger load bed or a six-person crew-cab and load bed, which was to prove popular with utility companies.

The styling changes incorporated into the 90 and 110 were subtle, adopting much of what had been established with the earlier Series II and Series III Land Rovers, with the vehicle once again retaining the same perpendicular 'two box' silhouette.[61] A full-length bonnet (taken from the Stage 1 V8 model) was now utilised for all engine types, a revised front grille, deeper one-piece windscreen and wheel arch extensions were the most significant of the exterior changes. While the engine options, box section ladder chassis and body panels were largely carried over, in other mechanical aspects the 90 and 110 were significantly modernised. Along with the new coil spring suspension which offered a more comfortable ride and improved axle articulation, there was also a permanent four-wheel-drive system derived from the Range Rover, an updated interior and progressively more powerful and modern engines over the coming years.[62] The leaf-sprung Series III Land Rover was to remain in production until 1985 when the remaining fleet orders had been completed.

Figure 19: Facing page from the brochure for the new Land Rover Ninety and One Ten. (Land Rover Ltd 1984)

The reaction in the motoring press to the new vehicle was a mixture of disquiet at how visually similar the 110 was compared to its predecessor tempered with praise at its impressive off-road capability and comfort due to inheriting the Range Rover's long travel coil sprung suspension.[63] Typical of the reviews is this extract from *Overlander* magazine of May 1983 where the motoring journalist Brian Hartley describes the 110 soon after its launch in March of the same year:

> *I nonchalantly strolled under the arch; the grille badge baldly proclaiming, as it came into focus, "LAND ROVER 110". To use an eloquent and somewhat earthy expression I was totally "gobsmacked". It looked like an ordinary 12 seater Safari! [sic]. Therein*

> *lies the One Ten's biggest weakness. It looks like any other [previous] Land Rover, when in reality the outcome of this cross breeding exercise [between the Series III and the Range Rover] is a completely different animal.*

He continued.

> *The One Ten's on and off road driving manners came as something of a revelation to one who was weaned on the 'old' type Land Rover. Taken as a whole the driving experience was more impressive than either the Range Rover or the Mercedes G-Wagon… Could it be, I wonder, that we are witnessing the birth of a new legend?*[64]

This characterisation of the new 110 as a future 'legend' is an early example of an increasing trend amongst motoring journalists from the 1980s onwards to refer to the Land Rover as an automotive phenomenon with its reputation, paradoxically, being reinforced by being both apparently unchanging whilst simultaneously possessing improved capabilities. These improvements were in its functional aspects, with the attributes only being revealed in operation. This in turn led to a characterisation of its unchanging styling imbuing the Land Rover with a sense of permanence and automotive immortality.

During the 1980s the Land Rover 90 and 110 continued to be sold into their traditional utility roles but were also increasingly marketed as private recreational vehicles through the 'County Station Wagon' sub-brand as sales to traditional markets such as Africa shrank and the European market became more important.[65] The 'County' was marketed as a multi-purpose leisure vehicle; once again featuring improved interior trim and seating. Significantly, what had already become common practice amongst other manufacturers was adopted for Land Rover's County models, with detail changes and improvements introduced each 'season' in an effort to attract new buyers and to encourage existing owners to trade in for a new vehicle.[66] The recognition that 'fashion' could be used as a marketing device as well as a means of differentiation was new territory for the selling of the utility Land Rover (a vehicle commonly associated with being the *opposite* to that of 'planned obsolescence' common to most consumer products) and was a sign of the growing sophistication of the brand's marketing strategy.[67] These changes included different exterior styling graphics and colours,

the introduction of new options, such as radio-cassette players, headlamp wash systems and power steering, as well as accessories such as bike racks and roof bars for canoes and surfboards. These enhancements, although appearing somewhat pedestrian compared to the options list for a new car today, indicated how increasingly 4x4 vehicles were being linked to the *lifestyle* (both real and imagined) of buyers as much as for utility and function. This approach to marketing the Land Rover and later Defender saw significant development in the 1990s and 2000s with an expanding number of 'limited edition' models and linking the Land Rover more overtly to leisure, lifestyle and adventure (see chapter 3).

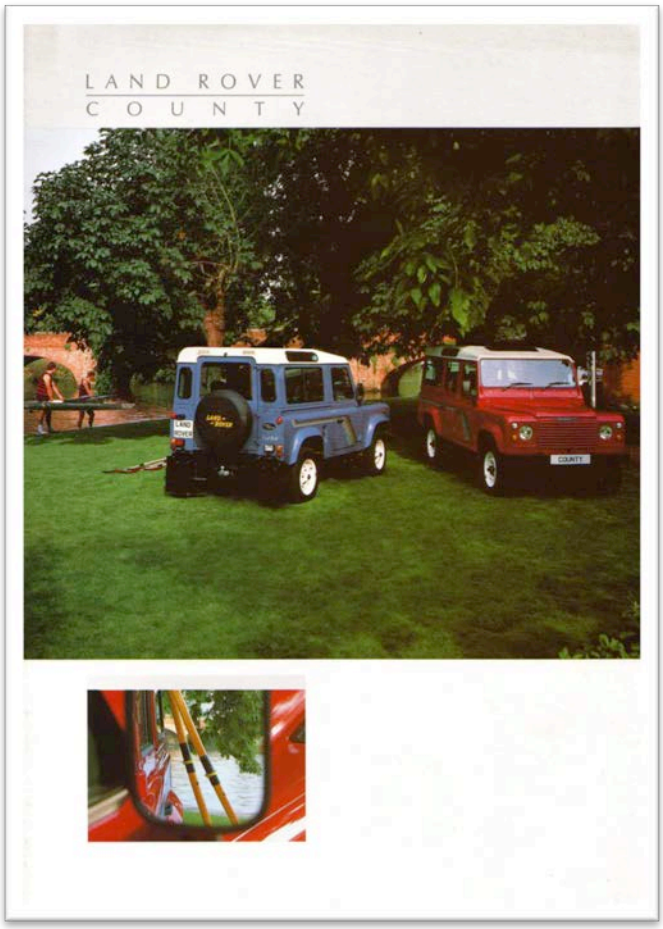


Figure 20: The higher specification Land Rover County continued into the Ninety and One Ten era and was marketed as a leisure vehicle for private motoring thereby filling a gap between the luxurious Range Rover and the basic Land Rover until the arrival of the Discovery. *Land Rover County brochure front cover* (Land Rover Ltd 1989)

The growing trend for using a 4x4 for leisure as well as an everyday alternative to a conventional car was further exploited in 1989 with the launch of Land Rover's third model,

the passenger carrying ‘Discovery’ which again utilised the coil sprung chassis derived from the now luxurious Range Rover and thereby filled an ever expanding product gap between the Ninety/One Ten and the Range Rover. To avoid possible confusion between the company’s three models and the manufacturer’s own name, the Land Rover Ninety and the Land Rover One Ten were renamed the ‘Defender 90’ and ‘Defender 110’ in 1990 with the ‘Land Rover 127’ becoming the ‘Defender 130’ (although the wheelbase remained unchanged).[68] The name ‘Land Rover’ would now only refer to the company and brand itself rather than any of its models. The upgraded ‘County’ sub-brand of the Defender was dropped from the range however when the Discovery was launched as there was concern that the passenger orientated specification of the ‘County’ would damage Discovery sales.

Despite the fundamentally unchanging design of the production Defender there were several proposals examining what might replace the vehicle, the majority of these concepts failed to progress beyond drawings however. One of the few proposals to reach the stage of an engineering prototype was based on the development work carried out for the Discovery. Code named 'Challenger' three 114" wheelbase prototypes were constructed in 1991 with the vehicle consisting of a stretched chassis from the Discovery along with a heavily modified cab incorporating removable door tops and folding windscreen to provide a low profile as the vehicle was seen as have potential for filling military contracts. However, tests revealed that the Discovery based design would not be able to carry sufficient payload without major reengineering. The cost for this development was considered too high resulting in the project being abandoned.[69]

After the renaming of the coil sprung Land Rover as the Defender it would continue to slowly evolve over the next 25 years with various engine fitments and detailed design changes until the end of UK production on January the 29th 2016 (see chapter 4). The Defender’s apparently unchanging design could be interpreted as stagnation or neglect of the product with the vehicle only benefiting from minor updating rather than fundamental redesign. From Land

Rover's perspective replacement of the utility model was continually delayed as other projects offering potentially greater sales volumes and profit margins took priority. This was to be compounded by several rapid changes of ownership with accordingly varying agendas. In 1988 Land Rover Ltd (along with Rover Cars) was privatised and bought by British Aerospace after two years of political machinations centring on the political necessity of 'keeping Land Rover British' after the 'Westland [Helicopters] Affair' and accusations in the media of the State selling off British assets to foreign corporations (see chapter 4).[70] However the Rover group (which included Land Rover) was again sold five years later in 1993 this time going into the foreign ownership of BMW.[71] This was followed by BMW splitting up the Rover Group, keeping the rights to the Mini and selling Land Rover to the Ford Motor Company in 2000. Finally, and most recently, Land Rover was sold again to the Indian conglomerate 'Tata Group' in 2008. Each of these changes of ownership meant a focus on the profitable luxury range of vehicles the company was increasingly offering (Range Rover, Discovery, Freelander, Range Rover Sport, Range Rover Evoque etc.) rather than its aging workhorse, the Defender, which although still making money, offered much smaller profit margins. Roger Crathorne summed up these priorities in the following way in interview: 'we are here to make money, not cars'.[72]

Conclusion

The unchanging appearance of the Land Rover and later Defender was frequently celebrated as a virtue by the 1990s and 2000s with the vehicle being increasingly characterised as being 'fit for purpose', 'legendary' and the continuation of a fundamentally sound functional 'design classic' both through its application and marketing. The reasons for a relatively frozen design were more pragmatic than this characterisation would suggest however, being determined by circumstances and expediency as a matter of necessity rather than strategic thinking or as an automotive manifestation of functional perfection. In fact as we have seen there were several unsuccessful attempts to fundamentally redesign and replace the existing utility Land Rover from as early as the mid 1960s. This petrification of the vehicle's form, far

from being detrimental to the vehicle however, led to a 'classic' status for the Land Rover, which was increasingly developed into an asset by the brand (although it was not wholly controlled by it as being so long-lived consumer sensibilities changed over the vehicles history). This, along with the vehicle's application, informed its value complexes and was gradually absorbed (and reinforced) though cultural and social osmosis by consumers. A network of factors therefore begins to inform the 'iconic' characterisation of the vehicle from the early 1980s after the introduction of the coil spring 90 and 110 models. It is these aspects of 'timelessness' and 'functionality' that chapter 3, *Changing functions: The versatility and diverse application of the utility Land Rover* and chapter 4, *Value complexes: The utility Land Rover and its transfigurative significance* go on to explore.

Endnotes

[1] 'More Refined Land Rover', *The Autocar* (18th April 1958)

[2] Interview between author and Arthur Goddard, 23rd of November 2012.

[3] Major Jack Pogmore joined Rover directly from the British Army in 1956.

[4] Willys-Overland became Willys Motor Company in 1953 when it merged with Kaiser Motors. Similarly Austin became part of the British Motor Corporation in 1952 when it merged with Morris (see footnote 7). In both cases these newly merged companies were larger than the still independent Rover Company and represented a considerable potential threat to the Land Rover's markets.

[5] By 1958 the Willys Motor Company, rather than competing directly with the now well established Land Rover, examined how it might work with the company with a proposal that went as far as building a Jeep/Land Rover hybrid but unlike in 1947, when Rover had used the wartime Jeep as a starting point for its own 4x4, the development was sanctioned by both companies. By 1959 the proposal was dropped however with Jeep returning largely to it traditional markets and Rover to theirs.

[6] Rover Main Board minutes, 28th February, 1956

[7] James Taylor, *Land Rover Series II and IIA: Specification Guide (*Crowood Press, Ramsbury, 2010), 7

[8] British Motor Corporation Limited (BMC) was formed after an agreed merger between Morris and Austin automotive businesses in 1952. In September 1965 BMC took control of its major suppliers of vehicle bodies, Pressed Steel Ltd. This was a contributing factor to Rover joining Leyland Motors as Pressed Steel Ltd manufactured Rover's car bodies but was now owned by a competitor making Rover's position vulnerable. Late in 1966 BMC changed its name to British Motor Holdings Limited (BMH) merging in May 1968 with Leyland Motor Corporation Limited, creating British Leyland, which was partially nationalised in 1975.

[9] Interview between author and Arthur Goddard, 23rd of November 2012.

[10] Paul Hazell, "Ford Model T, USA (Henry Ford, 1908)." In *Iconic Designs: 50 Stories about 50 Things* (Bloomsbury Academic, London, 2014. edited by Grace Lees-Maffei).

[11] Competition was growing on several fronts, as well as the Jeep (which by the mid 1950s was selling 65,000 a year globally) Alfa and Fiat had developed military derived 4x4s for civilian application, however these ultimately only sold in small numbers.

[12] David Bache was Rover's first 'stylist' or what we now refer to as a 'car designer'. The term 'stylist' was used at the time to differentiate the role from that of a design engineer.

[13] Kenny Cupers, *Use Matters: An Alternative History of Architecture* (Routledge, 2013), 156

[14] Ralph Nader*, Unsafe at Any Speed: The Designed-In Dangers of the American Automobile* (Grossman, 1965)

[15] Peter Stevens "Stylists or designers?", *Car Design News,* (2nd March, 2015) available online at: http://www.cardesignnews.com/articles/design-essay/2015/03/stylists-or-designers-by-peter-stevens/
[16] Taylor, *Land Rover Series II and IIA: Specification Guide,* 9.
[17] The importance of an object's silhouette in relation to iconicity is discussed by Grace Lees-Maffei in, *Iconic Designs: 50 Stories about 50 Things* (Bloomsbury Academic, London, 2014).
[18] In accounts from Land Rover personnel both 'barrel sides' and 'tumble sides' are used as terms to describe the rounded shoulder just above the Land Rover's waistline introduced on the restyled 'Series II'.
[19] Deeper body sides may have originated as early as 1952 on a prototype Land Rover. The idea *was* used on long wheelbase Series Is however with their separate rectangular body 'tub' but not on short wheelbase models of the same era.
[20] The 'A' in the 'Series IIA' was the only time Rover used the vehicle's version suffix in the official model title for conventional bonneted Land Rover even though suffixes such as B, C, D etc. were used to designate specification changes during the Series II production era. These later suffixes, although appearing on the end of vehicles' chassis numbers, were not used to describe the model type, this remaining 'IIA'.
[21] *Country Life Magazine,* 13th October, 1955. *Country Life Magazine – Royal Show Supplement*, 27th June, 1957.
[22] *Country Life* Magazine, 17th December, 1959
[23] Austin spelt the model name 'Gipsy' rather than 'Gypsy'. The original vehicle had independent suspension using 'Flexitor' rubber springs, which although giving the ability to travel at higher speeds over rough terrain were unreliable.
[24] Graham Robson, *A-Z of British Cars 1945–1980* (Devon, UK: Herridge & Sons, 2006).
[25] James Taylor, 'If At First You Don't Succeed…', *Classic Military Vehicle Magazine*, (November 2015)
[26] The huge Snowy Mountains Hydroelectric Scheme is made up of sixteen major dams, seven power stations and 225 kilometers of tunnels that were constructed between 1949 and 1974.
[27] Derived from the Dodge 3/4 ton WC series military truck of World War II, the Power Wagon was introduced in 1946 and remained in production in later versions until 1980.
[28] *Country Life* Magazine, 27th June, 1963
[29] Graham Robson, *The Land Rover: Series One to Freelander* (Crowood Press, Ramsbury, 2006), 45.
[30] Promotional film for the new diesel engine fitment in the Land Rover, *Ready for Anything*, (Rover Ltd, 1957)
[31] The Jeep Wagoneer (often described as the first luxury 4x4 and proto-SUV) was produced from 1963 to 1991 in various versions for the US market. Similarly the Ford Bronco was produced from 1966 to 1996 and helped fuel the early growth of 4x4s aimed at the leisure/car market.
[32] Such US trends continued to influence Rover and eventually led to the launch of the 100" Station Wagon, or Range Rover, in 1970.
[33] R.M. Clarke, *Mercedes G-Wagen 1981–1994,* (Cobham, UK: Brooklands Books, 1999).
[34] James Taylor, *Land Rover: 60 Years of the 4x4 Workhorse* (Crowood Press, Ramsbury, 2007), 120.
[35] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 122.
[36] Paul Hazell, "Ford Model T, USA (Henry Ford, 1908)" In *Iconic Designs: 50 Stories about 50 Things* (Bloomsbury Academic, London, 2014. edited by Grace Lees-Maffei).
[37] Roy Church *The Rise and Decline of The British Motor Industry* (Cambridge: Cambridge University Press 1995), 88.
[38] Despite celebrating the building of the 250,000th Land Rover after nine years of production in 1959, Rover remained a small manufacturer by industry standards and the Land Rover a relatively niche product. For comparison, when Ford UK launched the Dagenham built 'Cortina' in 1962 it reached the same quarter of a million units production figure in the first year of the model's production.
[39] In September 1965 BMC took control of its major supplier of vehicle bodies, Pressed Steel Ltd. This was a contributing factor to Rover joining Leyland Motors as Pressed Steel Ltd also manufactured Rover's car bodies but was now owned by a competitor making Rover's position vulnerable.
[40] Interview with Roger Crathorne, 7th August 2009. Head of Technical Communications at Land Rover (until retirement in 2015) and an engineer at the company from September 1963 when he joined as an apprentice.
[41] This is particularly evident in technical artefacts designed for purely utilitarian roles were continued useful functionality leads to longevity. This is particularly common amongst military vehicles, particularly amongst aircraft where to take one of the most extreme examples the Boeing B52 Stratofortress bomber which had its maiden flight in 1952, entered service in 1955 but is projected to

remain in active service until the 2040s using airframes built in the early 1960s giving a working life of some 85 years as a type.
[42] Initial development of the Range Rover started in 1966 as the 'Interim Station Wagon' and later the '100" Station Wagon'. This was an all-new design incorporating innovative long travel coil spring suspension. The design of the Range Rover was finalised in 1969 and launched in 1970.
[43] Taylor, *Land Rover: 60 Years of the 4x4 Workhorse,* 195.
[44] Interview between author and Roger Crathorne, 7th August 2009.
[45] Roland Maturi had previously been responsible for Product Planning on the Austin (BL) 'Allegro' saloon car.
[46] Interview between author and Roger Crathorne, 7th August 2009.
[47] Interview between author and Roger Crathorne, 7th August 2009.
[48] Interview between author and Roger Crathorne, 7th August 2009.
[49] Kenny Cupers, *Use Matters, p*156
[50] Interview between author and Roger Crathorne, 7th August 2009.
[51] Interview between author and Roger Crathorne, 7th August 2009.
[52] Interview between author and Arthur Goddard, 23rd of November 2012
[53] The Rover V8 engine was not officially made available as an option in the short wheelbase leaf sprung Land Rover. Nevertheless, 25 were built for a police force in the Caribbean, however the order was later cancelled.
[54] This gap in Land Rover's range was to finally be filled seven years later with the launch of the Land Rover Discovery in 1989.
[55] Land Rover Ltd was formed in 1978 as a solely owned subsidiary of British Leyland giving the Solihull factory increased independence and relieving it from subsidising BL cars. See chapter 4 for details.
[56] Interview between author and Roger Crathorne, 7th August 2009.
[57] A number of the hybrid vehicles shared the Range Rover's 100-inch wheelbase. However according to Rover historian James Taylor there were also 90" and a 110" types among them. The numbers of each variation remains unclear however. Bill Morris later became chief engineer at Land Rover.
[58] Interview between author and Roger Crathorne, 7th August 2009. Michael Edwardes was the Chief Executive of BL from 1977 to 1982.
[59] Interview between author and Roger Crathorne, 7th August 2009.
[60] Although 'One Ten' was the official model name at the time of launch, sales literature and vehicle badges frequently used numerals in the form of '110'.
[61] Passenger cars are often described by automotive designers as either having a 'two-box' layout such as in the case of a hatchback or estate car (i.e. an engine compartment and a passenger compartment), or a 'three-box' design (i.e. an engine compartment, a passenger compartment and a separate boot/trunk) such as in the case of a saloon.
[62] A selectable four wheel drive system was also offered when the 110 was launched in 1983 but this option was dropped a year later as virtually all orders for the new coil sprung Land Rover were for the permanent all wheel drive transmission.
[63] Bob Cooke, "One-ten to anywhere", *Autocar Magazine* (March 12, 1983); Brian Hartley, "One Ten – Land Rover's new Land Rover", *Overlander Magazine* (May, 1983); "Land Rover's New Baby", *All Wheel Driver Magazine* (Spring 1984); et al.
[64] Brian Hartley, *Overlander Magazine,* May 1983
[65] Land Rover's share of its traditional markets in Africa and the Middle East was shrinking in the late 1970s and early 1980s due to cheaper competition from the Far East (such as the Toyota Hilux) and political difficulties selling into some markets since the Yom Kippur War of 1973.
[66] A 'season' in this context in refers to a 'model year' and normally ran from September to August in the case of Land Rover Ltd.
[67] Harley Earl and Alfred P. Sloan implemented "Dynamic Obsolescence" (i.e. planned obsolescence) and the "Annual Model Change" as the guiding principle at General Motors in the 1930s by linking model identity to a specific year thereby encouraging owners to update and change their car. Applying similar thinking to a vehicle designed for long life and utility at first appears contradictory and may explain why Land Rover Ltd took some time to adopt the practice.
[68] The utility Land Rover grille badges remained the same from 1983-1989, when they then changed from 'Land Rover 110' to simply '110' for a single year with the same principle being applied to the short wheelbase model. The numerals returned in 1990 when the 'Defender 90', 'Defender 110' and 'Defender 130' names were introduced. The Defender's wheelbase lengths were dropped from the vehicle's badging altogether in 2007.

[69] James Taylor, Rover Historian, explained in email (December 2015) "It is now clear that 'Challenger' was an early iteration of the vehicle that became 'Wolf ' [A heavy duty version of the Defender for the MoD] and was primarily for the British Army even though work was also done on civilian models. There was a civilian Station Wagon prototype and also a full-size short-wheelbase styling buck."
[70] Alan Bristow, *Alan Bristow: Helicopter Pioneer: The Autobiography* (Pen and Sword, Barnsley, 2010), 357
[71] Bayerische Motoren Werke AG, or more commonly BMW, German automobile, motorcycle and engine manufacturer founded in 1916.
[72] Interview between author and Roger Crathorne, 7th August 2009

Chapter 3

Changing functions: The versatility and diverse application of the utility Land Rover

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> *Customers have always expected the Land Rover to go anywhere and to do anything. Generally speaking, the Land Rover has obliged; there was just one thing it could never do and that was look too decorous. Still, if it is good enough for the Queen….*[1]
>
> L.J.K. Setright

Introduction

After the Land Rover's launch in April 1948 it rapidly became employed in a bewildering number of diverse roles with these often being demanded by customers, rather than instigated by the manufacturer. The vehicle was exceptionally adaptable to new roles by the very nature of its expedient and functional design and was therefore easily modified by virtue of being so simply built. It had been intended as a vehicle for agriculture and as a substitute tractor on small farms but the military also saw the potential for the Land Rover and placed substantial orders. This soon sealed the vehicle's reputation as a go anywhere, 'Jack-of-all-trades' with the British military contracts providing the vehicle with a form of 'quality approval' for both other foreign armed forces and civilian buyers alike. However, an application not initially recognised by Rover (but ultimately Land Rover Ltd's most significant market) were private individuals increasingly using the vehicle for leisure and related applications such as sporting activities as the era of austerity began to come to an end for many consumers in the late 1950s and early 1960s. The consequences of these diverse and frequently unforeseen applications were far reaching for both the vehicle's development and its reputation. This chapter examines the circumstances of these developments, their consequences (such as the Land Rover's gradual technical evolution) and the vehicle's growing cultural embeddedness and interpellation.[2]

The farmer's friend: The adoption and retention of the Land Rover in agriculture

From the outset agriculture was intended as the primary market for the utility Land Rover both at home and overseas and has remained a significant component of the vehicle's sales ever since. However, even though farmers enthusiastically adopted the vehicle during the 1950s, it was not utilised in the manner originally intended by the manufacturer, i.e. that of a mobile power source and substitute tractor. Rather it was employed as a general utility vehicle on the farm and for the first ten years of production until the arrival of the 'Austin Gypsy' in 1958, the Land Rover remained the only small utility 4x4 available to purchase new in the UK.

Fig 1. Throughout the 1950s the Series 1 continued to be marketed to agriculture as a mobile power source by virtue of its 'Power Take Off' or PTO and as an alternative to the tractor. However, agricultural users rarely employed the vehicle in this manner (Rover Co. marketing material 1952)

Immediately after the Second World War the choice of used all-wheel-drive vehicles was limited to ex-War Department types until the arrival of the Land Rover. Although often inexpensive, these surplus military vehicles were frequently in poor condition and (with the exception of the Jeep) were much larger and more cumbersome vehicles than was desirable for utility use on the farm. Even if a used Jeep could be found in reasonable condition, in its military guise, it had characteristics that made it less than ideal for agricultural applications.

With very limited weather protection and a steel body prone to corrosion the wartime Jeep was not well suited to the British climate. The lack of an opening tailgate to make loading simpler and the absence of a load space bulkhead to prevent cargo sliding forward into the front seating area was also a significant limitation for farming use. Therefore the military surplus Jeep's main virtue was its low purchase price and its all wheel drive capability (although unlike early Land Rovers, this was only available if manually selected).[3] As we have seen in chapter 1, Maurice Wilks noted these limitations with his own Jeep (which he had been using on his farm in Anglesey immediately after the War), which in turn became the impetus for the original Land Rover's development.

The Land Rover, having used the Jeep as its inspiration, had addressed all of these shortcomings as agriculture was seen as the vehicle's primary application from the outset. The Series 1, originally available with permanent four-wheel-drive, was keenly priced, and had many features specifically designed to meet what Rover believed were agriculture's needs.[4] Not only did this include an opening tailgate but also doors and a full canvas hood for better weather protection (later a hardtop also became available) and optional items of specific use on the farm such as a multi-position towing hitch and, crucially it was thought, a power-take-off (PTO) for driving implements. According to an interview with Tom Barton, Maurice Wilks had stated:

> *[It should be] a proper farm machine, not just another Jeep. Much more versatile, much more use as a power source…able to drive things, to have power-take-offs everywhere, and to have all sorts of bolt-on accessories, to be used instead of a tractor at times…to be able to do everything!*[5]

The introduction of agricultural subsidies shortly after the Second World War provided what was effectively a guaranteed income to British farmers for their produce meaning there was a clear incentive to boost production which in turn led to the desire for productivity gains through a range of developments.[6] These included changes in farming practices such as the

use of chemical fertilizers and pesticides, the cultivation of what had previously been considered marginal land by clearance or drainage, and finally greatly increased mechanisation. The Land Rover, by virtue of its versatility and ruggedness, was able to not only boost agricultural productivity but was also being sold into a market where (unlike private UK car sales in the late 1940s and early1950s) there were private funds available for new vehicles, with the Land Rover uniquely offering to bridge the gap between tractor and car.

In the 1957 edition of *The Land Rover Salesman's Manual* which was intended for use by sales staff at Land Rover distributors, there were no less than 15 pages set aside to specifically highlight the vehicle's suitability for agricultural applications, starting with a comprehensive list of roles the Land Rover could undertake on the farm (see below) followed by 14 pages of captioned photographs showing the vehicle carrying out many of these duties. It can be imagined that this section of the spiral bound salesman's manual would have systematically been worked through with the salesman highlighting to the farmer how indispensible the Land Rover could be to their business. The length of this section seems likely to have made the sales procedure one of attrition with the vehicles ubiquity on the farm seemingly being indisputable by the end of the process. The range of agricultural applications for the Land Rover were outlined in the following way (see following page):

Land Rovers are taking a very active part in the sphere of agriculture and will effectively undertake the following duties:

GENERAL
- *Hay Sweeping*
- *Crop Spraying and Dusting*
- *Pumping*
- *Tree Felling and Ground Clearance*
- *Transporting Stock to Market*

TOWING
- *Cultivating*
- *Harrows*
- *Rollers*
- *Gang Mowers*
- *Binding*
- *Combine Harvesters*
- *Water Trailers*
- *Horse Boxes*
- *Fertilizers*
- *Horse Rakes*
- *Two and four-wheeled Load- Carrying Trailers*

TOWING AND DRIVING [From the PTO]
- *Rick Elevators*
- *Hammer Mills*
- *Silage Blowers*
- *Saw benches*
- *Mobile Milking Machinery*
- *Compressors for paint, sprayers, scaling tools, riveters, etc.*
- *Hedge cutters*

TYPICAL [agricultural] USERS
- *Agricultural Development Teams*
- *Botanical Survey Teams*
- *Colonial Soil Survey Teams*
- *Forestry Commissions*
- *Game Wardens*
- *Game Preservation Units*
- *Estate Supervisors*
- *Dairy Companies*[7]

Many of the applications listed above demonstrate how the Land Rover was being marketed throughout the Series 1era as a substitute tractor, particularly to small farms of the type typical of the UK at the time, where offering one multifunctional vehicle in the place of a tractor *and* road transport was, Rover's Board believed, likely to be appealing. It was intended that the Land Rover's flexibility in being able to utilise existing implements (many dating from the horse drawn, belt driven or early tractor era before the post-war widespread introduction of the tractor mounted three point linkage) provided the opportunity for a gradual change over of equipment thereby spreading reequipping costs.[8] Furthermore the Land Rover's ability to undertake a range of fieldwork if required also meant that even if a farm had fully mechanised, the new utility vehicle could act as a supplementary tractor at busy times. Despite the manufacturer's intentions this was not the primary reason the Land Rover became synonymous with farming. Instead, its capabilities as rugged and relatively high speed transport was the more commonly utilised attribute of the Land Rover with the vehicle filling a gap between the conventional car and small lorry but with the added advantage of considerable off-road ability and longevity in the often-harsh conditions dictated by farming.[9]

Light all-wheel-drive utility vehicles were, and have remained, in great demand in agriculture but the need to act as a substitute tractor with a PTO etc. had not in fact materialised in the

way Rover had anticipated. Therefore what Rover Ltd. had thought of as the Land Rover's unique selling point of 'having power take offs everywhere' was not a significant factor for most agricultural buyers. Maurice Wilks's view that what farmers required was a *universal* vehicle that was a rugged car-come-tractor was largely based on his own experiences as a small holder and by the probable examination of the marketing strategy in the US for the civilian CJ-2A 'Universal Jeep'.[10] However, commercial farming was as likely to be looking at the potential productivity gains that the Land Rover offered as a small load carrier, towing vehicle and personal transport in both on-road and off-road conditions as they were as a mobile power source, this latter role now having firmly become the domain of the modern tractor equipped with 'live PTO' and three point linkage.[11] George Mackie, who was responsible for Land Rover's 'Special Projects Department' from the late 1950s until 1981 (which carried out, or approved of, many of the specialist adaptions of the Land Rover), explained in the early 1980s:

> *It was becoming clear as the years sped by from 1948 that the original idea of using the Land Rovers as an alternative to a tractor in agriculture wasn't really taking off. As a workhorse, the vehicle was being used far more by public utilities and by industry. In the farming world, apart from a few dedicated people who insisted on doing everything with their Land Rover, we found that the vehicle was being used for personal transport and for towing horseboxes and trailers, while tillage work, or any farming activity of that nature, was left to tractors.*[12]

The Land Rover's suitability as a towing vehicle, a compact load carrier and as personal transport in difficult conditions, combined with the lack of any competitor in the UK and Commonwealth until the late 1950s, meant it rapidly became established in, and synonymous with, agriculture.[13] Therefore even as competition gradually emerged in the 1960s, the Land Rover had so firmly established its suitability for use on the farm its place remained secure. Throughout the 1960s and 1970s agriculture, both in the UK and overseas, remained the largest single market for the Land Rover after military sales.[14]

Fig 2. With the launch of the re-styled Series 2 Land Rover in 1958 the vehicle's suitability for use in agriculture was still emphasised. However, the promotion of its use as a substitute tractor greatly diminished as it became clear that this was not how it was being employed on the farm (Rover Co. Brochure 1958)

By the 1983 edition of the Salesman's Manual the ruggedness of the Land Rover was still emphasised, as well as the many different body configurations, but specific mention of agriculture was limited to a single sentence that linked the outgoing leaf sprung Series 3 to agriculture rather than the incoming coil sprung One Ten.

> *The One Ten will also be of added interest to fleet and public utility users as sales of 109"* [leaf-sprung] *models have been predominantly to these sectors. The current Series III 88" models will continue to attract the majority of customers from the large agricultural sector, and it remains the most popular model of the current range representing the majority of sales in certain European countries and over half of all sales in the UK.*[15]

This statement, separating the new coil sprung One Ten from the elderly leaf sprung Series 3, seemed designed to prepare the ground for what was the soon-to-be-launched Ninety short wheel base model that would finally replace the Series 3. However the almost total absence of content relating to farming in the 90 page document also suggests that the company thought the agricultural market was so established and well understood that it seemingly barely required mention. The many specialist adaptions of the utility Land Rover for agricultural and

industrial use, although largely still available, had also become just that, *specialist* rather than a key selling point. The Salesman's Manual now focused on the vehicle's standard features rather than its potential applications. Tellingly, a large section of the salesman's manual was now dedicated to identifying competition in the market. This consisted of a list of different manufacturers and models outlined with their pros and cons in relation to the utility Land Rover to assist the salesman in promoting the company's vehicle over its competitors. The list consisted of the following vehicles, many of which had emerged since the launch of the Series III ten years earlier:[16]

Manufacturer (and model family)	**Specific Models**	**Country of origin**
Toyota (Land Cruiser)	FJ40 FJ43 FJ45 FJ55 FJ60	Japan
Toyota (Hi-lux)	Pick-up truck	Japan
Nissan Patrol	Hard top (standard), Hard top (delux) High roof hard top High roof hard top (heavy duty) Pick-up	Japan
Suzuki	LJ80 LJ80V	Japan
Daihatsu	F20 S.W.B F25 L.W.B F50 S.W.B F55 L.W.B	Japan
American Motors Jeep	CJ5 CJ6 CJ7 J10	USA
Mercedes Benz (Explorer) [sic]	230G 240GD 280GE 300GD	Germany
Fiat (Campagnola)	Torpedo Torpedo long body Hard top Hard top long body	Italy
ARO Ranger:	240 242 243 244	Romania
Cournil	SCD14 SCD18 SCD24	France

With the introduction of the coil sprung Ninety and One Ten models the Land Rover was at it's most functionally capable to date, yet its sales were lower than at any other time since

1954 with only 20,000 vehicles being sold in 1984 compared to a peak of over 55,000 only 12 years earlier in the early 1970s.[17] Agriculture remained a very substantial proportion of vehicle sales as many farmers remained loyal to the brand as Land Rovers had often been employed on a farm for two or three generations with the type's contribution to the business being considered a given by many. In discussion with a Herefordshire farmer in 2012 (who employed two Defender 90s) he explained his continuing use of the utility Land Rover.

> *We've always had Land Rovers. They take the knocks, are easy to fix, can tow a heavy cattle trailer without complaint and are good in the rough stuff [i.e. off-road]. Even now not many 4x4s can tow as much [weight]. Parts are cheap too![18]*

Phrases such as 'We've always had Land Rovers' and 'tried and tested' reoccur when talking to those still using the Land Rover in farming and typify the thinking of many that if a particular machine has proved beneficial and capable in the past it is likely to be so in the future given its apparent unchanging nature. This may underplay other less pragmatic aspects of vehicle choice that have nevertheless served to keep the Land Rover and later Defender in use on many farms for more than 65 years. According to Oliver Mark, agricultural machinery editor for the *Farmers Weekly*, in an article marking the end of Defender production in January 2016, the vehicle had become the 'romantic choice':

> *Despite its frailties and the fact that is has continued largely unchanged for decades, it remains the romantic choice for anyone after a proven off-roader. At the time [it was introduced as the One Ten] there were few rivals to match the towing capacity and go anywhere ability of the Defender. Since then more sophisticated pick-ups have arrived, which are now more than able to match, and out-do, most of its credentials.[19]*

A significant factor for agricultural buyers remained the Land Rover Defender's considerable towing capacity of 3500kg (4000kg was permissible with power braking fitted on the trailer). This towing capacity was available from the introduction of the One Ten model in 1983 and for three decades this was class leading although in the last decade so called 'crew-cab pick-ups' have grown to dominate the market by offering similar towing capacity to the Land Rover Defender.[20] These included (for the UK market) the Isuzu Dmax and Ford Ranger

(both with a towing capacity of 3500kg), the Mitsubishi L200 (towing capacity of 3100kg) and the Toyota Hilux (towing capacity of 2700kg).[21] With these more modern types of 'crew-cab' vehicles being offered at lower purchase prices but with similar specifications and greater comfort than the Defender, they became increasingly popular not only with farmers, but also construction and industrial users, leading to the Land Rover Defender's traditional markets being further eroded despite '…30% of Defenders regularly tow[ing], and 80% go[ing] off road at least weekly'.[22] The Defender, although arguably remaining the most capable light utility four-wheel-drive vehicle for severe off-road conditions with its high ground clearance and enormous axle articulation, has remained ergonomically compromised by these very capabilities – capabilities that many users will never fully utilise. The original concept (as characterised by the Series 1 Land Rover) of a compact, rugged, versatile and manoeuvrable farm vehicle has not disappeared however with this market now being increasingly filled by a rapidly growing range of four-wheel drive UTVs (Utility Task Vehicles). This side-by-side configuration of small four-wheel-drive vehicle (of similar proportions to the earliest 80" wheelbase Land Rover of 1948) is currently offered by well over twenty manufacturers.[23] Although lacking a conventional PTO many UTVs are capable of attaching agricultural and industrial implements in a similar manner to the original Land Rover concept.

Fig 4: The Kawasaki Mule is a typical example of a Utility Task Vehicle (UTV) many of which are capable of being fitted with a range of front and rear mounted implements making such UTVs reminiscent of the original Series 1 Land Rover concept in size, function and application (Photograph Forest & Kim Starr)

Land Rover Ltd themselves produced an engineering test vehicle unofficially named 'The Farmer's Friend' utilising mainly reclaimed Subaru components during 1998. This single seat, centrally articulated, prototype was built before the growth in UTV sales and was arguably ahead of most other manufacturers. However the concept did not proceed beyond a single test vehicle with the company deciding not to enter the emerging UTV market.[24]

Fig 5: Land Rover's single UTV concept vehicle named the 'Farmer's Friend' and dating from 1998, is now preserved at the Dunsfold Land Rover Collection, Surrey (Photograph Paul Hazell)

By the final edition of the Salesman's Manual in which the Defender was listed (the booklet was now titled the *Land Rover 16MY [2016 Model Year] Pocket Reference Guide*) in its brief five-page section on the Defender there was no mention of agriculture at all. Under the heading of 'Why Buys' [sic] within a list of the twelve main utilitarian attributes of the Defender such as the vehicle's towing capacity and variety of body styles, it also listed 'Classic iconic design – form and proportions defined by function' as a factor.[25] This shift from utilitarian vehicle to what the *Farmers Weekly* described as 'the romantic choice' reveals the vehicle's gradual ontological move from workhorse to automotive cult classic in its final years of production. This is a transformation that is explored in more detail in Chapter 4: *Value complexes: The utility Land Rover and its transfigurative significance.*

Beating ploughshares into swords: The unintended adoption of the Land Rover into British and foreign military service.

When one thinks of the Land Rover in British military service it is not hard to picture vehicles undertaking roles such as patrolling the streets of Northern Ireland during the 'troubles' or more recently the mountains of Afghanistan during the thirteen-year conflict in the region. Such imagery on the television news and in the daily newspaper could lead one to assume that the Land Rover had been specifically designed with the military in mind. However, the Land Rover's introduction into the armed forces in the late 1940s was far from a certainty, it being seen initially as something of a temporary measure by the War Office in the early post-war period.

Fig 6: A typical scene during the height of 'The Troubles' in Northern Ireland in the 1970s. A green British Army Land Rover and a grey Royal Ulster Constabulary Land Rover (both lightly armored) stop to investigate individuals on the street behind the Europa Hotel, Belfast in 1974 (Photograph George Garrigues)

The Land Rover's long, and extraordinarily diverse, military service is more nuanced than that of purely the vehicle's development. It reveals much about the British government's post-war strategic thinking in relation to military vehicle design, the impact the experiences of World War Two had on the tactical requirements of the armed forces and the environment in which automotive manufacturers were operating in the early cold-war period in the UK. It also reveals a tension that exists - arguably to this day - between military equipment designed

and specified by institutions of the state or that which emerges as a private venture and is then adopted by the military.

Much has been written about the post-war Labour government's commitment to building a New Jerusalem in an impoverished Britain with expansion of the welfare state, the introduction of comprehensive education and the introduction of a National Health Service.[26] The electorate's desire for a left-wing government and a change from the pre-war status-quo is often portrayed as a country's desire to move away from a rigid class structure to a more peaceful and egalitarian time. However, with the increasing tensions of the Cold War immediately after 1945, it can be argued that a new Sparta was also emerging with ambitious plans to modernise and re-equip the British Armed Forces with the aim of maintaining Britain's reputation as a superpower and preventing the spread of communism. Due to a combination of military and political circumstances, strategic policy and financial difficulties, the UK in the late 1940s and early 50s was developing its own often-ambitious military hardware rather than adopting or purchasing further equipment from the United States. With the British lead in wartime development of the jet engine a new generation of diverse high performance military aircraft were under development by a very large and still world leading British aircraft industry as well as new fighting ships being commissioned to protect Britain's still considerable interests 'east of Suez'. Furthermore, with the United States' refusal to share its nuclear expertise immediately after the war due to the passage of the McMahon Act in the US meant the UK felt obliged to develop an independent atomic weapon.[27] Other experiences from the war such as the huge losses of both life and war material suffered by the Atlantic convoys meant the UK Government wanted its military production to be independent from other nations and therefore home produced. Finally, with the UK's limited financial ability to buy imported goods, domestic production was desirable both as a means of generating full employment as well as the potential for exporting military equipment thereby generating much needed foreign income in the early post-war period.

On land, the design and development of military vehicles was not neglected either. In the light of wartime experiences, the War Department (what was to become the Ministry of Defence in 1964) hoped to move away from the previous practice of either purchasing (sometimes inappropriate) vehicles out of expediency or issuing requirements to private industry and then allowing these companies to decide how best to meet the specification. Although the approach had led to very large numbers of vehicle types rapidly entering service during the war, it also made for complex logistics and vehicles that were seen very much as expedients.

An example of the limitations of this war-time approach can be seen with vehicle types such as the 'Car, Light Utility 4x2'. This was the response to a War Department requirement for a small utility vehicle to carry personnel and equipment. What became known as the 'Tilly' (short for utility) was essentially a civilian car modified to become a pickup or van with the addition of more aggressive tyres on the rear axle to give its two wheel drive chassis improved ability away from surfaced roads. However, with its origins being that of a family saloon, these vehicles were wholly inadequate in front line areas being insufficiently rugged and lacking any real cross-country ability due to the absence of all-wheel-drive.

Fig 7: 'Standard 12 Tilly' an example of 'Car: Light Utility 4 x 2' based on various saloon cars and produced in the early part of World War Two for the British Armed Forces before the introduction of the all-wheel-drive Willys Jeep from 1941 (Photograph Imperial War Museum)

Salvation came in the form of the American Jeep, developed in a very short time scale by Bantam but produced in bulk by Willys Overland and the Ford Motor Company as a standardised design specifically for the US military in the light utility role. Jeeps were supplied in large numbers to the British armed forces through Roosevelt's lend lease policy. With the end of the war came the end of the lend lease scheme and further supplies of military equipment of US origin would not be possible without manufacturing under licence (the route the French took for example with the 'Hotchkiss M201', a Gallicised version of the American war-time Jeep) but this would have created a further pressure on the UK balance of payments.[28] Instead supplies that arrived after the termination date of the scheme in August 1945 were sold to Britain at a large discount. A clock was now ticking to find a replacement that addressed not only the military need but also the financial and strategic challenges as no more Jeeps, or any other military vehicles, would be supplied at such generous terms from the United States.

A further, but less immediately visible problem arising out of purchasing vehicles based on availability, rather than suitability, was that of parts compatibility. This was not merely an issue of the supply of components for different manufacturers vehicles where several manufacturers might produce vehicles intended for the same role (in the case of the 'Tilly for example, four manufacturers produced mechanically different vehicles that met just this one specification). It also affected what might be thought of as usually interchangeable components such as nuts and bolts where vehicles of US origin required the American Unified Thread (known as UNF or UNC depending on its thread pitch) whilst vehicles of UK origin required British Standard Fine threads (known as BSF) or Whitworth threads. Such issues made component supply and logistics complex and maintenance in the field challenging leading to a great deal of cannibalisation and improvisation. After the war the Ministry of Supply and the War Office began to examine all of these issues and sought a way of addressing them by the development of a range of standardised front line vehicles that shared many components and which were designed with British military requirements as the

primary driver. Even before the war had ended it was decided that the War Department would itself become the design agency for a range of new military vehicles through the Fighting Vehicles Research and Development Establishment (or FVRDE) based at Chertsey in Surrey.[29] Private automotive companies would then be invited to tender as manufacturers of the FVRDE designs. The scheme was ambitious, with a range of proposed 'standardised' front-line wheeled military vehicles of load capacities from ¼ of a ton (to replace the war-time Jeep) up to 60 tons for a future tank transporter being designed and prototyped.[30] Similar initiatives were taking place with tracked and armoured vehicles but they fall outside the scope of this thesis.

Fig 8. Prototype 'Champ' (known as the 'Mudlark' and built by Nuffield) in the left of the photograph parked next to the massive prototype FV1003, 60 ton capacity Tank Transporter in approximately 1949. Both vehicles were of FVRDE design with the tank transporter, like many others in the CT class of vehicles, never entering service (Photograph Leyland Motors)

The proposed ¼ ton capacity vehicle under the scheme was intended to be an altogether more sophisticated machine addressing what the War Department saw as the deficiencies in the Jeep's design. The specification included, 24 volt fully screened electrical system to power the new post-war radio equipment known as 'Larkspur' (as compared to the Jeeps 6 volt

system), independent suspension, four forward and four reverse gears so the vehicle could travel as fast backwards as forwards, full mechanical and electrical waterproofing so the vehicle could be 'waded' to a depth of 5' and use of a 4 cylinder power unit taken from the new range of 'B Series' standardised military petrol engines being produced by Rolls-Royce.[31]

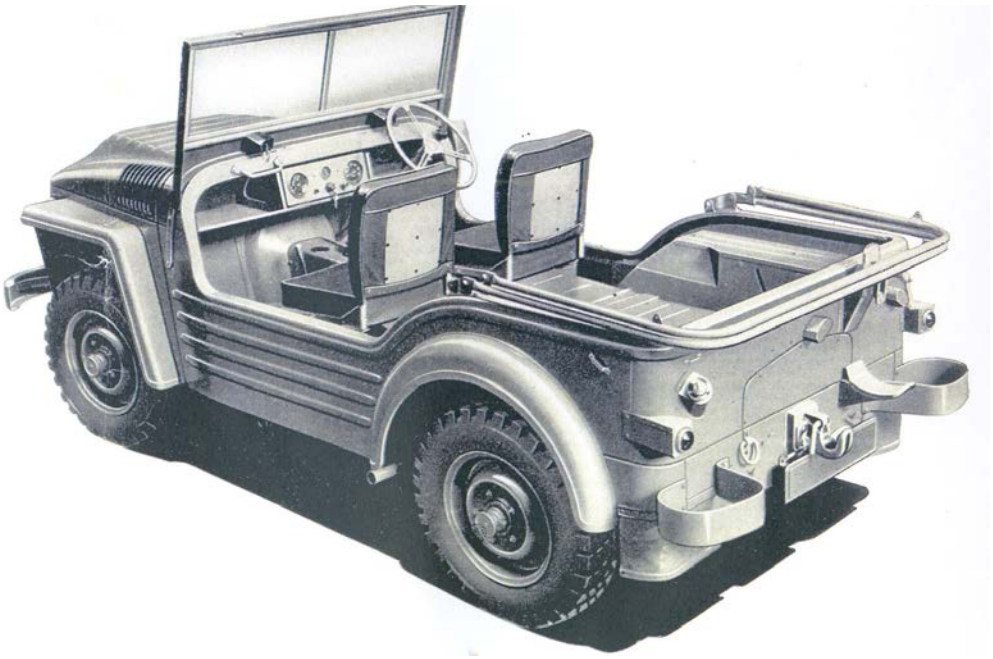


Fig 9: 'FV1800, Truck, 1/4 Ton, 4x4, CT, Austin Mk.1' or 'Austin Champ'
(taken from the *User Handbook*, W.O Code No. 11780, October 1958)

The vehicle eventually emerged as the 'FV1800, Truck, 1/4 Ton, 4x4, CT, Austin Mk.1', but was more commonly known as the 'Champ'. Austin had not been responsible for the design however, but instead had tendered for the manufacturing contract. The Champ finally entered service in 1951 six years after the last Jeep had been supplied to the UK armed forces. It is noteworthy that Rover had itself been approached by the Ministry of Supply to manufacture the F1800 Champ before the contract was awarded to Austin. However, although not ruling out tendering for the contract, Spencer Wilks had taken the opportunity to promote Rover's own 4x4 and the potential saving it offered over the complex 'Champ'.[32]

When the Champ entered service as the Jeep's replacement it immediately ran into problems with a propensity to break rear axles, poor weather protection for those traveling in it making it unpopular with many soldiers as well as new levels of complexity making maintenance in the field challenging. Other difficulties encountered included high fuel consumption, limiting the vehicle's range and a very high initial purchase price of £1200 pounds in 1951. This compares to approximately £540 for a contemporary Land Rover (a *difference* of approximately £25,000 per vehicle in today's terms).[33] The last three factors of complexity, fuel thirst and cost, were reoccurring themes with the majority of the FVRDE designed range of standardised vehicles suffering from one or all of these afflictions with the organisation seemingly being more used to developing specialist armoured vehicles rather than high-production volume wheeled utility types.

It was soon recognised by the War Department that not all military transport roles required such complex vehicles. Therefore, the range of British non-armoured, or what were often known as 'soft-skin vehicles', was split into three categories: Firstly a family of vehicles classed as 'CT' or 'Combat'. This was the new ambitious, standardised range designed at Chertsey by the FVRDE of which the Champ was a part, and was intended for the frontline use in the most arduous conditions. The next category was the 'GS' class or 'General Service': These were often also specialist military types intended for second line duties to the rear of the front line but were still required to be rugged and capable of good cross-country performance. Crucially however, as we will see, this class of vehicle was *designed* as well as produced by private motor manufacturers and were essentially militarised civilian designs being rigorously tested and then adopted by the FVRDE. Finally the 'CL' class or 'Civilian' Specification vehicles: These were vehicles intended for third line duties and usually consisted of cars, lorries, buses and vans of the same design as their non-military counterparts making them essentially 'off the shelf' types.

The development of CT or Combat class vehicles soon floundered however, as specifications became fluid due to modified tactical requirements, changing political circumstances and engineering difficulties as evermore complex and ambitious designs were proposed. The General Service vehicles broadly mirrored that of the Combat types and it was found that the civilian designed GS vehicles could generally perform as well, and often better than the CT class making the cost and development time of these supposedly superior vehicles difficult to justify. After much delay and very few of the CT types ever entering service, the commitment to a state designed standardised range of military vehicles was quietly abandoned in the late 1950s.[34] However, some vehicle types, such as light utility 4x4 vehicles were problematic when it came to substitution. As we have seen the Austin Champ in the CT class was beset with problems and ultimately only one contract for 15,000 vehicles was ever placed with this single contract being reduced by 4000 vehicles before its completion. 11,000 vehicles of one type may appear a large number, but in the context of replacing the now worn-out vehicles dating from the war, a total of 52,500 new-wheeled vehicles had been purchased for the British Armed forces in the five years between 1950 and 1955.[35] With delays in its introduction and the small numbers of Champs being available the Army in particular was left with a significant shortage of light utility vehicles for its still global commitments in the remaining outposts of the British Empire as well as the increasing demands for the British forces in West Germany. The Ministry of Supply were therefore forced to look elsewhere for suitable vehicles, again looking for expedients and stop-gaps in a very similar manner to which it had done during the war, this ironically being the very scenario it had wished to discontinue.

In parallel to these developments, many private motor manufacturers were independently developing their own new vehicles aimed at the export market, for ostensibly civilian requirements. These were often of simple and rugged design for sectors such as oil exploration, agriculture and the construction industry with the Land Rover being the most successful example.[36] The British Armed Forces, even as early as the late 1940s, began to

look to these vehicle manufacturers to become temporary suppliers of new military vehicles based on these civilian types, first as expedients whilst difficulties with the new standardised CT range continued, and later as substitutes or replacements when the plan was abandoned. There has often been a close relationship between utility vehicles used in civilian or commercial operations and their military counterparts. However, it is easy to appreciate that there is a wide gulf between vehicles such as tanks and other armoured vehicles, and almost any type of civilian vehicle. There are several reasons for the close connections between utility vehicles intended for military use and with those for civilian roles. The most notable is that the uses to which the soft-skin utility vehicle can be put, i.e. basic transport duties of goods and personnel, still account for most of such vehicles sold, whether to military or civilian customers.

The MoD's unintended adoption of the ostensibly civilian Land Rover greatly benefited Rover over the next five decades as it ultimately led to the company supplying vehicles, not just to the British Armed Forces, but ultimately to over 140 military and paramilitary users around the world.[37] The vehicle, much like the Jeep, was very adaptable to new roles and the British Military rapidly identified the potential for the Land Rover and soon placed substantial orders for vehicles to be used in the GS role, but also in reality to supplement the Jeep soldiering on in frontline roles while the Champ's entry into service was continually delayed.

Throughout the 1950s problems with the CT range of vehicles continued and with so few proposed types in the class entering service it was decided to downgrade Ministry designed vehicles such as the FV1800 Austin Champ to General Service types putting them in the same category as the privately developed Land Rovers already in military service. This immediately legitimised the Land Rover as a front line vehicle, a role in which it had already been active as an expedient for a decade, and prompted the manufacturer to make more significant modifications to the essentially civilian Land Rover for military use. This led to

'military-only' versions of the Land Rover entering service from 1960, that although were outwardly similar in appearance to their civilian counterparts, differed in many detailed ways to satisfy the British Armed Forces. Changes included a modified chassis with extended 'drop-shackle' suspension, which raised the vehicle to allow for the optional fitment of larger tyres for desert use, fully water-proofed lighting, fitment of military tow hitches, bumper over-riders and many other detail modifications to satisfy the MoD.[38] According to the motoring journalist Quentin Willson 'The Solihull manufacturer [Rover] had stumbled into a market bigger than their wildest imaginings!' and with the military being the biggest single customer for the Land Rover, Rover was more than willing to answer the MoD's requests.[39]

Fig 10: Although based on the contemporary civilian model the military version of the Land Rover Series 2 had been extensively adapted to meet the specification laid down initially by the War Office and from 1964, by the Ministry of Defence (*British Military Vehicles* exhibition catalogue, 1965)

By the middle of the 1960s Rover was willing to not only adapt the existing model but also to develop unique and often significantly reengineered variants of the Land Rover specifically for the British Armed Forces needs. The first successful type to emerge from these developments was the 'FV 18101, Truck, GS, ½ Ton, 4x4, Rover 1' and 'FV18102, Truck,

FFR, ½ Ton, 4x4, Rover 1' better know as the 'Air-portable' or 'Lightweight' Land Rover which entered service in 1969.[40] Although sharing the basic chassis design and driveline with the civilian 88" wheelbase Series 2 Land Rover the 'Lightweight' had a radically redesigned body with many demountable parts (doors, rear body sides, upper-bulkhead, spare tyre etc.) to lighten the vehicle for helicopter lifting, parachute dropping and general air transport yet retain full functionality as transport even in this austere stripped down form.[41] The type was updated to Series 3 standard in 1972 with ultimately over 15,000 being employed by the British Armed Forces. Although remaining a purely military type the vehicle was successfully exported to several foreign armies to fulfil similar roles and also became popular with Land Rover enthusiasts after disposal with its austere functionality being considered a favourable characteristic by many of its civilian owners during the 1980s and 1990s as the contemporary Defender became increasingly complex and expensive (see chapter 4). Production of new 'Lightweight' Land Rovers ended in the mid-1980s once contracts had been fulfilled.

Fig 11: The military-only ½ ton payload air-portable 'Lightweight' Land Rover shown here in stripped down form (*British Military Vehicles* exhibition catalogue, 1971)

There were several other specialist types prototyped for the MoD including amphibious and heavier duty versions of the Land Rover. The most numerous and successful of these specialist types, though, after the ½ ton payload 'Air-portable' type described above was a significantly larger and heavier duty model developed as a gun-tractor, and later as an ambulance. This was also designed to be air-portable by the now larger and heavier lift helicopters entering service in the 1970s with the Royal Air Force but the vehicle was required to remain compact, leading Rover to develop a new forward control model known as the 'Truck GS, 1 tonne, 4x4 Rover' or '101' (due to its 101" wheelbase) utilising the powerful yet lightweight petrol V8 engine and many of the drive line components from the recently launched Range Rover.

Fig 12: Prototype air-portable forward control gun tractor or 'Truck GS, 1 tonne (payload) 4x4 Rover' also known as the '101' (*British Military Vehicles* exhibition catalogue, 1971)

During the 1980s the new coil-sprung Ninety and One Ten models were also adapted and introduced into military service culminating in the final variant of the military utility Land

Rover in the late 1990s. This was based on a significantly reinforced vehicle mixing parts from the contemporary civilian Defender, differential components from the second generation Range Rover and a significantly reengineered extra heavy duty chassis and became known as the 'Wolf 90' or 'Truck Utility Light (TUL) HS' and the 'Wolf 110' or 'Truck Utility Medium (TUM) HS'.[42] It is these vehicles that are now gradually being withdrawn from British military service, and with the end in production of the Defender, also represents the end of Land Rover's association with the British Armed Forces. It is likely, though, that some specialist types of the Defender 'Wolf' will carry on in military roles more than 30 years after the last types entered service. Graham Archer, a former senior engineer on the 'Wolf', recently reported that '[The 'Wolf'] was [originally] due to be phased out [of British military service] in 2015, the current thinking however is [that] it will go on in service until 2030.'[43]

Fig 13: Line up of Land Rover 'Truck Utility Medium (TUM) HS' or '110 Wolfs' when new. These types represent the last Land Rovers to enter British military service with some scheduled to remain in service until as late as 2030 (Land Rover Ltd, 1997)

There remains a role for light military 4x4 utility/reconnaissance vehicles, to which the Defender was ideally suited. However, even for compact military vehicles, the trend has been for the integration of armoured plating to protect the vehicle's occupants due to the use of improvised explosive devices in recent conflicts such as Iraq and Afghanistan. Although the Defender 'Wolf' has been through several upgrades whilst in British Military service to

address this requirement with derivatives such as the WMIK (Weapons Mounted Installation Kit) and RWMIK (Revised Weapons Mounted Installation Kit) the added weight of equipment and armour has now reached a point that is beyond the vehicle's design specification.[44] As Graham Archer explained in 2013:

> *The [military] customer profile has changed. The customer said "we want to go this route [armoured]" and the vehicle can't cope with it. Land Rover now has no military sales force, it's got no [military] engineering sales force and it's certainly got no manufacturing capability […] because [the requirement] has moved in a direction that Land Rover can't follow.*[45]

The Land Rover was a design born of expediency in a similar way to many allied wartime vehicles. A need was identified and this was met by a simple design answering the perceived users' needs, whether military or civilian. The vehicle's versatility and adaptability of design was a key factor in its success with military customers in contrast to an industrial military complex that often seeks high degrees of specialism in ambitious and often therefore very complex designs. This, it can be argued, remains a problem with the design and procurement of specialist military equipment to this day.[46]

Industrial applications, 'one-offs' and specialist vehicles

Industrial and specialist applications for the Land Rover were recognised as potential markets for the vehicle already from its introduction in 1948. Rover was once again heavily influenced by the American post-war civilian Willys-Overland CJ-2A (CJ standing for 'Civilian Jeep').[47] The CJ-2A was outwardly little changed from the war-time MB military model but was intended for agricultural and industrial applications and had been adapted accordingly with modifications such as an opening tailgate and improved weather protection for its occupants (see Chapter 2). A further significant, but less visible variation from the CJ-2A's wartime predecessor was the optional fitment of a front or rear PTO. As described by R. Harold West, 'The PTO could power a large assortment of equipment including the capstan

winch, hydraulic lift, mower, discer [sic], bailers, generators, welders, cultivators, plows [sic], field cutter, harvesters, grain separators, saws, post-hole augers, and other farm and industrial gear.'[48] The Series 1 Land Rover broadly adopted the same approach, although as we have seen, for agricultural buyers the PTO and the use of the vehicle as a substitute tractor on the farm was not as popular as Rover had anticipated. Still, the vehicle's ability to be utilised as a mobile power source was to lead to a considerable and often highly specialist demand for industrial and public utility applications.

From the launch of the Series 1 Land Rover, Rover had initially offered factory conversions for roles such as fire fighting, crop spraying and mobile welding early in the production life of the vehicle. The specifications customers demanded varied considerably, making it problematic for a volume vehicle maker to integrate specialist vehicles into the production line. Although the range of standard accessories and body styles available from the options list was extensive in the Series 1 era, the demand for more major modifications to the basic Land Rover increased with the introduction of a diesel engine option in 1956. Diesel power was better suited to economically powering a PTO at constant RPM than petrol with the added advantage of being a fuel type more commonly used by industrial operators.[49] Rover wished to better serve this growing market for specialist industrial and public utility applications with the forthcoming introduction of the Series 2 model, but without necessarily becoming the converters themselves – particularly where more radical conversions were being proposed. To address this, in January 1957 a 'Technical Sales Department' (later renamed 'The Special Projects Department') was established under engineer George Mackie to specifically deal with factory approval for the growing list of companies wishing to offer specialist conversions.[50] As James Taylor explained, 'Land Rover Approval simply meant that Solihull [i.e. Rover and later, Land Rover Ltd] would honour its standard warranty, as it had assessed [usually by testing] that the conversion would not compromise the integrity of the [basic] vehicle, but it was always viewed as extremely valuable [to the converter] because it allowed the aftermarket products to be publicised [and therefore endorsed] through Land

Rover [Ltd] itself.'[51] These developments were timely as the restyled Series 2 body presented an opportunity to capitalise on the Land Rover's already modular construction but to do this in such a way that major body modifications could be achieved in a more coherent manner. As Peter Crowley Palmer, a contemporary designer at Land Rover, whose remit included the most recent Defender models, stated in interview with the author:

> *The simple shallow flat panels of the Defender* [and its predecessors] *require[s] minimum tooling energy to manufacture and so it has remained very cost effective. The constant sections of the body sides* [since the Series 2] *lend themselves to being cut* [and] *extended very easily. This offers the maximum potential to vary the build both on* [the production] *line and by specialist manufacturers. The variety of options that have been developed over the years is greater than any other vehicle in the history of the motor industry.*[52]

This therefore established a triad of design characteristics in the Series 2 and later models, which when combined, made the utility Land Rover an ideal platform for modification and conversion to specialist roles. These characteristics consisted of:

- Engine driven front, centre or rear mounted Power Take Off (PTO)
- Highly modular body design (particularly with the introduction of the Series 2)
- Easily modified box-section rigid chassis

With the establishment of the 'Technical Sales Department' in 1957 and the introduction of the new Series 2 model in April 1958 (which had been developed with ease of conversion being a primary requirement of the design from the outset) this period marked the start of a rapid expansion in major conversions being made available. These conversions were being evaluated, promoted and endorsed by Rover in a more cohesive way than had been carried out in the Series 1 era. This in turn led to the Land Rover becoming increasingly recognised as *the* platform for such conversions during the 1960s. This was fuelled by a combination of there being no significant competitor for the basic Land Rover, Rover's growing willingness to allow third party companies to undertake major conversions to the vehicle and the

company's strategy of marketing these successful conversions directly through the approval scheme. These factors led to a virtuous circle of growing visibility of the vehicle in increasingly diverse applications (as such conversions became more commonplace) with this in turn, prompting third party specialist manufacturers to develop further potential conversions utilising the Land Rover. This was of great benefit to Land Rover sales as a pattern emerged of converters approaching Rover to seek approval for a proposed conversion rather than Rover having to find new applications for its vehicle and then carrying out the modifications when they themselves were not necessarily a specialist in that field (as Rover had tried to do in the early years of the Series 1 with mixed results).

These conversions ranged from the relatively commonplace, such as ambulances and fire appliances, to the more radical and eccentric such as cushion-craft (a relative of the hovercraft) and tracked vehicles.[53] Richard de Roos outlined the distinction between factory options and conversions in the following way:

> *[…] the production models, for which a comprehensive accessory set is optionally available comprising of either towing brackets, power take-off, winch or roof-rack, to adapt the vehicle to the job. Yet these items do not in themselves constitute 'conversions'. Conversions are instead effected by radical modifications – a role performed by, amongst others, the Special Vehicles* [Project] *Department within Land Rover Limited.*[54]

The growth in the Land Rover's use as a platform for diverse and specialist conversions led to the vehicle's presence becoming increasingly commonplace in both urban as well as rural settings (particularly in the UK) as local councils, utility providers (water, electricity etc.) and construction companies increasingly used the Land Rover as a platform for a hugely diverse range of applications. These factors, combined with the already well-established reputation of the basic vehicle (e.g. corrosion resistance, off-road ability, ruggedness and simplicity), served to further establish the key teleological aspects of the Land Rover throughout the

1960s and 1970s such as versatility, adaptability and ubiquity in both user's minds as well as the public more widely.

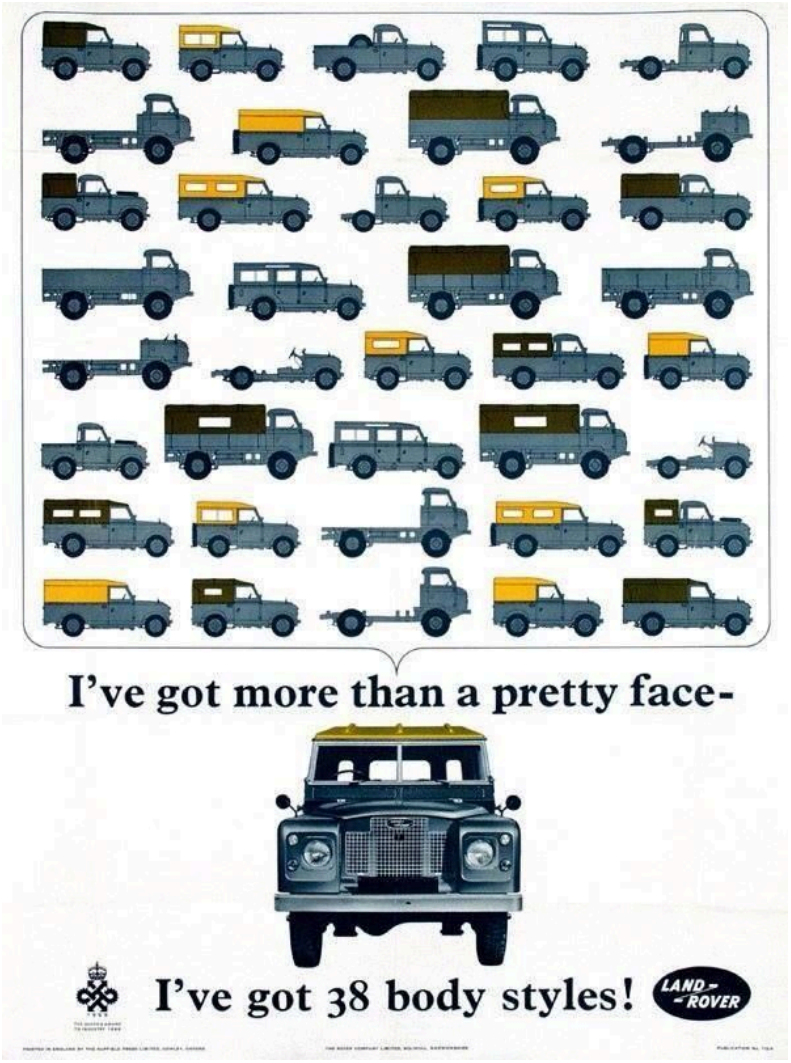


Fig 14: By the late 1960s the number of production configurations for the basic utility Land Rover was considerable. Beyond these body styles however, a huge range of specialist and bespoke conversions could be ordered. (Land Rover Ltd 1968)

By the end of the 1970s the range of Land Rover approved conversions produced by a wide range of manufacturers was extensive and included:

- air compressor vehicles
- airfield rescue units
- ambulances
- angle-dozers
- armoured vehicles (for money transfer, para-military and media)
- articulated vehicles
- backhoe diggers
- breakdown recovery vehicles
- bird scaring units
- camper vehicles
- 'cherry pickers' (hydraulic access platforms)
- concrete mixers
- dental units
- drilling rigs
- expedition vehicles
- field sprayers
- fire appliances
- forage harvesters

- forestry vehicles
- gang mowers
- generator vehicles
- gritting vehicles
- ground radar stations
- luggage elevators
- mast vehicles (for elevated photography and flood lighting)
- mobile cinemas (projector units)
- mobile workshops
- plant maintenance (lubrication units)
- post hole borers
- police vehicles
- pope-mobile and state-review vehicles
- powered axle trailer adaptions
- pumping vehicles
- refuse collection
- riot control vehicles
- road/rail vehicles
- sheep shearers (vehicle mounted)
- shooting brakes
- six wheel drive chassis
- skip loaders
- slurry pumping
- snow ploughs
- snow blowers
- three point linkage systems
- tipping bodies
- tracked conversions
- welding generators
- wheelchair accessible conversions
- X-ray units.

These conversions were promoted though a range of two page leaflets (see overleaf) that conformed to a similar layout and cohesive appearance, which was stipulated by Rover and thereby conferred an endorsement of each specialist type. These leaflets were made available through the converters themselves, Land Rover distributors and Rover Ltd with these manufacturers being required to pay for the production of the promotional material. Whilst endorsing many conversions and benefitting from the additional sales it produced, Rover was also careful to protect its own reputation and limit its liability. For instance the company's 1970 guide to *Proprietary Equipment and Special Conversions* stated in its foreword '[…] the [additional] equipment is not of Rover manufacture and the company is in no way responsible for sales […] service or warranty claims' meaning conversions were still considered an 'add-on' to the vehicle by Rover, rather than being truly integrated from a sales and marketing perspective.[55] Many of the example conversions listed above were available from more than one manufacturer and although extensive, the list does not included types that did not seek or obtain Rover approval (of which there were many, particularly with regard to fire appliances) or conversions that were developed for military applications.

Fig 15: With the launch of the Series 2 the newly introduced 'Special Projects Department' began approval of a diverse range of conversions to the Land Rover. These were promoted though a range of two page leaflets (a small selection is shown here) that followed a broadly similar layout. These leaflets were then made available through the converters themselves, Land Rover distributors and Rover Ltd. (Authors collection)

The Special Projects Department continued as a testing and approval unit within Land Rover Ltd until the mid-1980s. However with the retirement of George Mackie in 1981 (who had been both the founder and manager of the department since 1957) the department 'seemed to drift for a while'.[56] Mackie's retirement also coincided with that of Tom Barton's (Land Rover's Chief Engineer since 1962) as well as the development of the significantly re-

engineered coil sprung Land Rover 110. This last factor is likely to have meant that many of the previously offered conversions for the Series 3 would need re-approval, re-engineering or would no longer be suitable for the new vehicle as the new 110 differed in areas such as body mounting points, weight distribution and suspension travel. The implications of this model change combined with the departure of 'the old guard' (in the form of Mackie and Barton) in a period of on-going difficulties within British Leyland may explain the apparent hiatus within the Special Projects Department's operations in the early 1980s. It was not until the mid-1980s that the procedure for major conversions was re-examined. Roland Maturi, a champion and former member of 'Product Planning' (see Chapter 2) developed a plan for reorganizing the Special Projects Department into what became renamed Special Vehicles Operations, and according to James Taylor:

> *He presented* [the reorganization plan] *to Land Rover MD* [Managing Director] *Tony Gilroy, who liked Maturi's vision and the additional profits it promised. Maturi was duly appointed to head the reorganised department, which from July 1985 was formally known as Special Vehicles Operations.*[57]

The plan for Special Vehicles Operations (SVO) was to take the process of utility Land Rover conversions full circle with a long-term plan of bringing much of this business back in-house for the first time since the early 1950s. However there were strategic differences when comparing the original in-house system of the Series 1 era with the new plan. Land Rover, by the mid 1980s, had the benefit of nearly four decades of experience with regard to conversions and which types sold in reasonable numbers. This, combined with Maturi's expertise in product planning (i.e. basing developments on what users actually wanted rather than what the manufacturer believed they required), would lead to a new range of commercial Land Rovers fitted with standardised box bodies know as the 'Quadtec' range which were designed to make maximum use of the new extra-long 127" wheelbase Land Rover (later marketed as the Defender 130). The Quadtec range of bodies would not be fitted on the production line however, but in a separate workshop dedicated to specialist conversions using vehicles that had already left the production area having been suitably specified for the

changes that SVO would then make. By doing such work in-house the profit margin for Land Rover Ltd on each converted vehicle would be increased with it also being possible to order converted types directly through Land Rover dealers. Third-party conversions were still possible under the approval scheme with the testing being increasingly carried out by the converters themselves, at their own expense, but complying with Land Rover's examination standards. It seems likely that these changes were not popular with all converters, however some were to work more closely with Land Rover Ltd under the new system, such as Powered Access Ltd (hydraulic access platforms) and Polymark Beaver Ltd (backhoe excavators) although the latter, despite being the first conversion offered by the new SVO department, achieved only very limited sales due to the advent of the more versatile tracked mini-digger.

Fig 16: The newly reconstituted SVO department's first offering was what was described as a 'Rapid Transit Backhoe [digger]' developed especially for the then new coil sprung Land Rover 110 by Polymark Beaver Ltd. However the type met with limited sales with this rare example pictured above (originally Land Rover Ltd's own demonstrator) now under restoration by the author. (Photograph Paul Hazell)

In 1992, with the departure or Roland Maturi from the company, Special Vehicle Operations was renamed once again becoming Land Rover Special Vehicles (LRSV). This continued to

offer conversion approval as well as the 'Quadtech' range but also had the expanded remit of carrying out custom and ultra-luxurious finishes to other Land Rover models such as the Range Rover 'Autobiography'.[58]

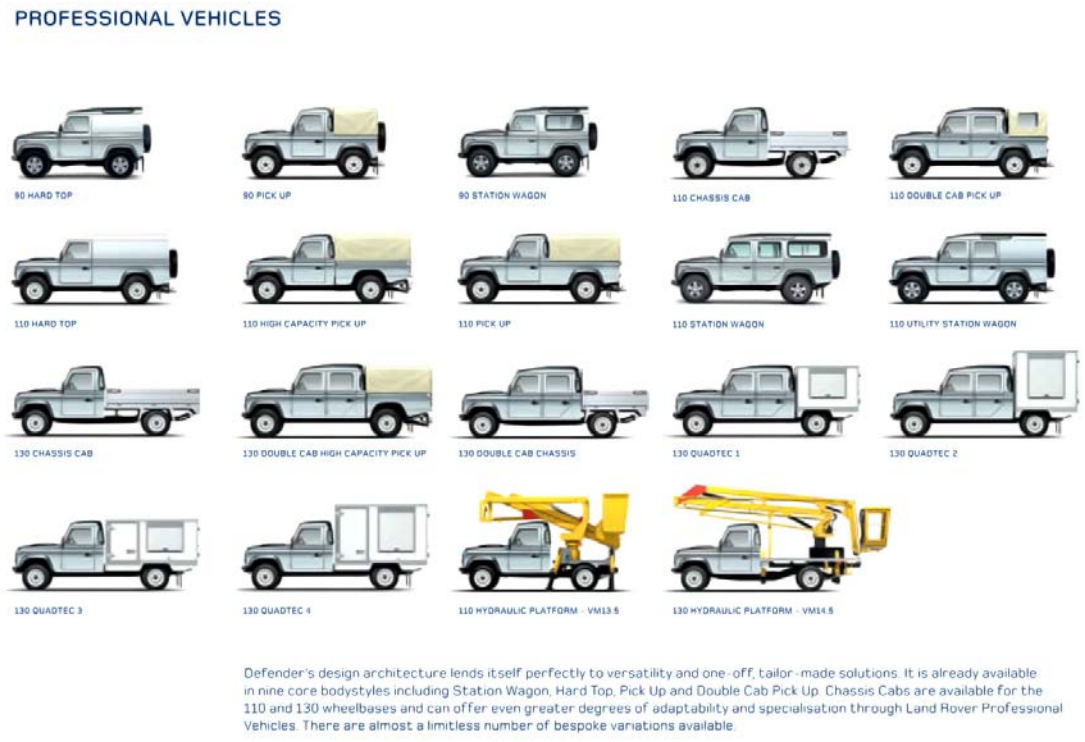


Fig 17: By 2007 the Defender brochure not only pictured the varied, though diminished, range of standard body styles available but also the most popular utility conversions such as 'Quadtech' box bodies and hydraulic platforms know as 'cherry pickers' mounted on the Defender 110 or 130 chassis (Land Rover Ltd 2007)

Semi-customised, limited editions of the Defender (i.e. non-standard paint schemes, graphics and accessories etc.) also began to emerge during the 1990s with LRSV carrying out much of this work. Such 'specials' became increasingly numerous through the 1990s and early 2000s with approximately sixty variations being produced over 25 years. This demonstrates a significant change in the marketing strategy for the Defender as Land Rover's share of the utility vehicle market continued to diminish, cost effective production volumes for the Defender were therefore maintained by increasingly marketing the vehicle as a niche leisure vehicle, trading heavily on its long history and ruggedness.

Defender limited edition models[59]	**Year**	**Market**
Defender 90 'Trophy'	1992	France
Defender 90SV	1993	UK
Defender 110 'Tanami'	1995	Australia
Defender 90 'Eastnor'	1996	France
Defender 90 'X-Trem'	1996	France and Belgium
Defender 90 'Highlander'	1997	France
Defender 90 'Ultimate'	1998	France
Defender 90 'V8i 50 Collectors Edition'	1998	UK
Defender 90 'V8 50'	1998	Outside UK
Defender 90 'Tdi 50 Hardtop Limited Edition'	1998	UK
Defender '50th'	1999	France
Defender 'Heritage Edition'	1999	UK
Defender 'X-Treme 2'	2000	France
Defender 90 'X-Tech'	2000	UK
Defender 90 'X-Tech 2'	2001	UK
Defender 90 'Hawaii'	2001	France
Defender 'Tomb Raider'	2001	Global
Defender 'Tomb Raider'	2001	Australia
Defender 90 'Arusha'	2002	France
Defender 90 'Braemar'	2002	Scotland
Defender 90 'Sun Rider'	2002	France
Defender 'Black'	2002	UK
Defender 90 'Technium'	2003	France
Defender 90 'Highlander'	2003	France
Defender 110 'Black'	2004	Brazil
Defender 'G4 Edition'	2004	Global
Defender 90 'X-Tech'	2004	UK
Defender 90 'Libyan Sand'	2005	France
Defender 110 'Experience'	2005	Germany
Defender 'Silva'	2005	Netherlands and Belgium
Defender 'Black Silver'	2005	France
Defender 110 'G-Star Raw'	2005	Netherlands
Defender 90 'Bel Air'	2005	Belgium and Luxemburg
Defender 'Silver'	2006	UK
Defender 'Limited'	2006	Germany
Defender 'Black Edition'	2006	Switzerland
Defender 'G4 Challenge'	2006	France
Defender 110 'Experience'	2006	Germany
Defender 'Style'	2006	Germany
Defender 90 'Cabriolet Two'	2006	Germany
Defender 'SVX'	2008	Global
Defender '60th Anniversary'	2008	Switzerland
Defender 110 'Edition 60 Years'	2008	Germany
Defender 'Fire and Ice'	2009	Global
Defender 90 'Classic'	2010	Netherlands
Defender 'Cao Horn'	2010	France
Defender 110 'Experience'	2010	Germany
Defender 'Collection'	2010	France
Defender 'Rough'	2011	Global but not UK
Defender 90 'X-tech'	2011	UK
Defender 'Blaser Edition'	2012	Germany
Defender 110 'Piet Boon'	2012	Netherlands
Defender 90 'Eden Park'	2012	France
Defender 'Excusive'	2012	Belgium
Defender 'X-Tech'	2012	UK
Defender '65th Anniversary Edition'	2013	Global
Defender 'LXV'	2014	Global
†Defender 'Heritage Limited Edition'	2015	Global
†Defender 'Adventure Limited Edition'	2015	Global
†Defender 'Autobiography Limited Edition'	2015	Global

Notes: †Final 'run-out' models marking the end of Defender production
List only includes official company limited edition versions of the Defender

In 2008, with Land Rover Ltd and Jaguar Cars coming under the common ownership of the Indian Conglomerate Tata, the company was renamed Jaguar Land Rover (JLR) with LRSV not only overseeing Land Rover special builds, but also those for personalised Jaguar cars, leading to a further renaming of the division as 'Engineered To Order' (ETO) in 2012 then most recently returning to 'Special Vehicles' in approximately 2015.[60]

Domestication of the utility Land Rover

Land Rover enthusiast groups began to emerge in the late 1950s as used vehicles became available on the second-hand market and coincided with the expansion in second car ownership as many consumers gradually became more affluent during the 1960s.[61] Although many private owners of the Land Rover initially purchased the vehicle for functional reasons such as its ability to be a stable towing platform for caravans and horseboxes, some also began to explore the Land Rover's proficiency off-road finding the vehicle's capabilities exhilarating and the driving rewarding. These activities led enthusiasts to form groups such as the 'Land Rover Owners Club' as early as the late 1950s (with overt factory support from 1958) with the UK Caravan Club being an early adopter of the Land Rover both for its towing ability, but once unhitched, 'off-road' competitive trials could be undertaken forming the early history of 'off-roading' as a leisure pastime in the UK.[62] Trialling grew in popularity during the 1960s and 1970s but remained a relatively niche activity attracting both existing Land Rover owners as well as those drawn to trialling purely as a motorsport and therefore often purchasing a used Land Rover to be able to take part in the pastime.[63] Recreational off-road driving outside competition also grew during 1980s as owners began to seek-out un-surfaced public roads (referred to as 'green lanes' in the UK) to experience the capabilities and exhilaration of the sometimes challenging off-road driving such routes offered.[64] Using a Land Rover for such activities was accessible to many, with used vehicles being inexpensive to buy, plentiful and with parts supply excellent. A significant appeal for many enthusiasts was also the 'Meccano-like' construction and simple maintenance the vehicle offered making modifications and customisation of the vehicle by the amateur mechanic relatively

straightforward to achieve.[65] Modifying of the basic vehicle steadily expanded in popularity through the 1990s with major modifications, such as raised suspension to accommodate larger tyres and increase ground clearance, the fitment of roll-cages for added passenger protection (and for the rugged appearance), larger or non-standard engines to increase performance, drive train enhancements such as changing gear ratios and fitting stronger differentials and the fitment of recovery winches etc. A large number of specialised after-market suppliers emerged during the 1990s to service this expanding demand, with enthusiasts themselves often starting business to service the demand.

This domestication or 'taming' processes of the Land Rover by owners demonstrates the appropriation of the vehicle by enthusiasts with many adapting the basic vehicle to increase its competitive abilities off-road or to satisfy their own personal aesthetic preferences while also finding pleasure and satisfaction through the process of carrying out modifications and making the Land Rover 'their own'.[66] As Simon Schaffer stated in 2013 when discussing the fascination many individuals have in mechanical devices; 'If you really want to understand something then what you should do is build it [yourself].'[67] Such amateur adaptations of the Land Rover by enthusiast owners can largely be characterised as being 'hands-dirty' i.e. the owner-enthusiast gaining as much pleasure from personally working on the vehicle as using it for transport or leisure motoring. Such modifications were also to feedback into the representation of the vehicle by the manufacturer but often for a different and largely 'hands-clean' customer who found the rugged appeal of the Land Rover attractive, could afford to buy new, but wanted the 'look' that enthusiasts were achieving without the manual labour or mechanical expertise such modifications demanded. This change in the representation of the Land Rover was evident through the growing range of largely cosmetic factory and dealer fitted accessories that became available during the 1990s with a notable example being the introduction of factory fitted 'alloy wheels' in 1993, a largely functionally redundant feature on a utility 4x4, but an increasingly important option on a vehicle being purchased for its appeal as a fashionable leisure vehicle.[68] By the mid 1990s the Defender, according to its

former Brand Manager Mike Gould, was being moved "[…] into a new segment known as 'leisure utility'. This move would be reinforced by a succession of niche products intended to extend the Defender's appeal".[69] The growth in these 'niche' limited edition models also shows how the manufacturer was responding to changing consumer desires with this type of short-run model increasingly being represented as a 'collector's item' to private buyers. The vehicles 'toughness' and 'authenticity' remained however with the Defender still selling as a utility vehicle used in extreme conditions to commercial and military users with this reputation, and its associated value complexes, helping to mitigate against the ergonomically compromised design when sold to private buyers.[70]

The amateur restoration of all periods and types of Land Rover is also particularly strong within the Land Rover community, either merely to achieve mechanical roadworthiness or increasingly to create high levels of originality and period authenticity, particularly with early or unusual examples (see chapter 5).

Figure 7: The restoration of all periods and types of Land Rover is also particularly prevalent within the Land Rover enthusiast community with high levels of originality and period authenticity being important to many owners. This ex-Royal Air Force TACR-1 (Truck Aircraft Crash Rescue Mk1) built in 1974 was restored to original specification by the author including all period equipment. (Photograph Paul Hazell)

Figure 8 & 9: The same vehicle whilst undergoing restoration. (Photographs Paul Hazell)

Social groups built around the Land Rover, particularly 'classic' examples, are also particularly evident with many enthusiasts' web forums and websites covering all aspects of the Land Rover. These cover areas such as specific periods of the vehicle (from the original Series I to the modern Defender) and its diverse applications from 'off-road competition' and expedition use to military vehicle applications. This peer-to-peer communication and sharing of information through the internet mixed with meeting like minded individuals at club events has developed into a large scale community that it is apparent has led to the foundation of lasting friendships for many that reach beyond an interest in Land Rovers.[71] As well as clubs focusing on particular periods or major model types there are also many specialist groups and clubs focusing on specific types such as ex-military Land Rovers, with enthusiasts often owning multiple examples. Land Rover shows and events are commonplace along with groups traveling together to off-road destinations from local tracks to ambitious overland trips across Africa and the Middle East.

Conclusion

A reoccurring theme explored in this chapter has been the often unintended, unforeseen or serendipitous application of the utility Land Rover combined with the basic design's seemingly innate ability to adapt and prosper in new roles. The Land Rover's use as a metonym for 'utility 4x4' in agriculture, industry and the military, as well as its adoption as a leisure and recreational vehicle, reach far beyond Rover's original aspirations for the vehicle

and have given the Land Rover a distinctive and much celebrated character. The changing uses of the basic design and its success at dominating these markets in the UK and its traditional markets of Africa and the wider Commonwealth (particularly in the 1960s and 1970s) simultaneously highlight the initial serendipity of the vehicle's global success but also the Land Rover's seemingly limitless capacity for versatility and diverse application. These factors have fed into the vehicle's characteristics such as longevity, rugged authenticity, a seeming willingness to please, endless versatility and in turn led to the vehicle's ubiquity and oft suggested iconic status. It is these changing value complexes and the meanings that became attached to, and synonymous with, the utility Land Rover that are examined in the following chapter.

Endnotes

[1] Leonard John Kensell Setright, 'Racer Rover, Hover Rover, Shunter Rover, Hunter Rover, Land Rover', *Car and Driver* (May 1979)

[2] Louis Althusser, "Ideology and Ideological State Apparatuses (Notes towards an Investigation)". In *Lenin and Philosophy and Other Essays*. (Verso: 1970). The concept of 'interpellation' (i.e. in this context the cultural internalisation of a technical artefact's value complexes) is explored in chapter 3.

[3] Willys-Overland had already launched a civilian version of its military Jeep as the 'Universal Jeep' or CJ-2A in July 1945, which featured modifications specifically for agricultural use such as improved weather protection and a folding tailgate. However this was not available to the UK market (see introductory chapter).

[4] The retail price of a new Land Rover in July 1948 was £450.

[5] Ken Slavin, J. Slavin & G.N. Mackie, *Land Rover: The Unbeatable 4 x 4 (*Haynes, Somerset, 1994)*, 13.* Note: There is some evidence that Tom Barton was inclined to embellish stories regarding the early history of the Land Rover, such as the significance of his own role in its early design and his 'quotes' of others in the company such as the example here. However, even though at times Barton's words may not be truly accurate, the general thrust of his statements are consistent with other sources such as company minutes and contemporary marketing material.

[6] The Agriculture Act of 1947, The Cabinet Papers 1915 – 1981, The National Archives. http://nationalarchives.gov.uk/cabinetpapers/themes/farming-agriculture-acts.htm accessed 6/11/12

[7] Rover*, Land Rover Salesman's Manual,* Publication No. 506/A (The Rover Company Ltd, Solihull, May 1957), 66.

[8] Three-point-linkage was pioneered and by Ferguson Tractors as the 'Ferguson System' and introduced on the T20 model. This system allowed implements to be hydraulically raised and lowered by the operator, as well as automatically if an implement (such as a plough) became too embedded in the ground and therefore was in danger of stopping the tractor.

[9] This was a role filled by the pick-up truck in the US market, from makes such as Ford, Chevrolet and Dodge. Such utility vehicles were firmly established in US agriculture from as early as the 1920s.

[10] The CJ-2A use as substitute tractor was also of limited success in the US.

[11] A 'live PTO' (as fitted to tractors such as the Ferguson 35 from the mid-1950s) is able to run independently of ground speed meaning implements can continue to be powered even if the tractor is stopping and starting while undertaking field work such as mowing. The Land Rover however was limited to a ground speed PTO meaning if the vehicle was towing a powered implement and stopped the PTO would also become stationary.

[12] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4, 85.*

[13] 1958 saw the introduction of the (ultimately unsuccessful) Austin Gipsy as a direct competitor for the Land Rover

[14] By the time the Series 3 was introduced in 1972 competition from a range of manufacturers was steadily growing. In other parts of the world many agricultural buyers were gradually beginning to move away from the Land Rover as a greater diversity of light utility 4x4 vehicles became available. This is particularly notable in Australia where during the 1970s the Toyota Land Cruiser and later the Toyota Hi-lux, grew to dominate the market. Toyota's reliability and large engines with greater torque were particularly attractive in the often-harsh Australian bush. Furthermore, falling sales of the Land Rover were also in great part due to poor availability of replacement parts in Australia from British Leyland in the UK leading to vehicles becoming non-operational for extended periods. This accelerated many potential buyers' move away from Land Rover during the difficult British Leyland years of the 1970s and 1980s.
[15] Land Rover Ltd*, The New Land Rover One Ten Salesman's Manual,* (Land Rover Ltd, Solihull, 1983), v.
[16] Land Rover Ltd*, One Ten Salesman's Manual,*11/2.
[17] A significant factor in the drop of sales volumes of the utility Land Rover in the early1980s was in part due to collapse of fleet sales to African states and NGOs as a consequence of the reduction in the Overseas Development budget from the UK Government during 1979.
[18] Discussion with A. J. Pitt, mixed framer, Lower Brockley Farm, Herefordshire, 2012
[19] *Love affair with the Defender leaves us misty-eyed*, Farmers Weekly, 12 February 2016, 66
[20] The proceeding Series 3 model had an on-road official maximum towing capacity of 2000kg.
[21] *Ford Ranger: Payload and Towing*, Available at: http://www.ford.co.uk/Cars/Ranger/Utility#primaryTabs, Accessed March 23, 2016; *Toyota Hilux model specification*, Available at: https://www.toyota.co.uk/newcars/hilux/index.json?gclid=CN2J5KyY18sCFQbgGwod0-YLdQ&gclsrc=aw.ds, Accessed March 23, 2016; *Isuzu Double Cab Specs*, Available at: http://isuzu.co.uk/the-range/double-cab/specs/, Accessed March 23, 2016; Mitsubishi L200 Specifications, Available at: http://www.mitsubishi-cars.co.uk/l200/specifications.aspx/, Accessed March 23, 2016
[22] *Land Rover Defender – A farewell to arms,* Available at: http://fleetworld.co.uk/news/2016/Jan/Land-Rover-Defender-8211-A-farewell-to-arms/0434023108, Accessed April 5, 2016
[23] The market for what has become known as 'Utility Task Vehicles' or UTVs has grown considerably over the last fifteen years. Companies ranging from tractor and plant manufactures such as Case, Bobcat, John Deere and New Holland along with makers of garden machinery, motorcycle and even snow mobiles such as Kubota, Kawasaki, Honda, Yamaha and Polaris having all entered the market.
[24] *1998 Farmer's Friend Concept Vehicle*, http://www.dunsfoldcollection.co.uk/collection/concept/the-farmers-friend-concept-vehicle, Accessed February 27, 2016
[25] Land Rover Ltd, *Land Rover 16MY [2016 Model year] Pocket Reference Guide,* (Land Rover Ltd, Solihull, 2016), 7.
[26] David Kynaston, *Austerity Britain, 1945-1951 (Tales of a New Jerusalem),* (Bloomsbury Publishing, October 2008)
[27] Brian Cathcart, *Test of Greatness: Britain's Struggle for the Atomic Bomb* (John Murray, London, September 1994); The National Archives, Cabinet Papers 1915 -1988, *Atomic weapons: Cooperation, competition and testing,* Available at: http://www.nationalarchives.gov.uk/cabinetpapers/themes/co-operation-competition-testing.htm, accessed March 12, 2016
[28] Pat Ware, *M201: The Story of the Hotchkiss M201 and the French Jeep* (Jeep Books Ltd, January 2002), 5. It is evident from the Rover Company Board Meeting minutes of 1 November 1949 that Rover began negotiations with 'Automobiles Talbot' for them to build Land Rovers under license for the French Military. However this contract was ultimately awarded to Hotchkiss and the license built M201 Jeep.
[29] Pat Ware, *Tugs of War: Heavy Recovery Vehicles, Tank Transporters and Artillery Tractors of the British Army, 1945-1965* (Warehouse Publications, 11 December 1995), 57.
[30] Pat Ware, *Tugs of War, 57.*
[31] *Rolls-Royce 'B' Series Petrol Engines* (brochure), Publication 711, (Rolls-Royce Ltd, Crew, July 1956). The Rolls-Royce range of 4, 6 and 8 cylinder military 'B' range engines had been derived from the Company's 6 cylinder Bentley car engine in the latter part of WWII and was to go on and power a large range of post-war British military vehicles from small utility vehicles up to heavy trucks and armoured personnel carries with some types remaining in service until the first Gulf War in 1991.
[32] Minutes of the Rover Board meeting, 11th of July 1950

[33] Calculated for inflation using the Retail Price Index (RPI). Figure obtained from http://www.measuringworth.com accessed 18/12/12
[34] Pat Ware, *Tugs of War:* 8.
[35] Pat Ware, *Tugs of War:* 8.
[36] Other types of civilian all-terrain vehicle designs that were adopted by the War Department in the 'General Service' role during the 1950s included models produced by British companies such as Scammell, AEC and Thonycroft.
[37] Due to the stringent testing the FVRDE carried out on vehicles intended for British military service this acted as a significant endorsement of approved types for other overseas military buyers.
[38] *An Exhibition of British Military Vehicles* (The Society of Motor Manufacturers and Traders, Halkin, London and The Ministry of Defense, Chertsey, Surrey, May 1966), p18, 19, 22 & 23.
[39] Quentin Willson, *The Car's the Star: Land Rover* [TV] London, BBC, First broadcast BBC2, 17 Feb. 1995
[40] FV 18101 'General Service' or 'GS' vehicle was fitted with 12 volt electrical system whereas the FV 18102 was classed as 'FFR' or 'Fitted For Radio' and was equipped with a 24 volt system.
[41] *British Military Vehicles* [exhibition catalogue] (The Ministry of Defence, Chertsey, Surrey, May 1971), p9 -11.
[42] HS stands for 'High Specification' to differentiate the type for the standard 90, 110 and Defender military models.
[43] Graham Archer, Land Rover Military Vehicle Engineering (retired 2010) speaking at Dunsfold Land Rover open weekend, 15 June 2013.
[44] Final upgraded variants of the Wolf, the 'RWMIK+' (fitted with strengthened axles, suspension and a larger engine) were nearing 5 tons in gross vehicle weight, nearly 1.5 tons greater than the vehicles original design specification.
[45] Graham Archer, Land Rover Military Vehicle Engineering (retired 2010) speaking at Dunsfold Land Rover open weekend, 15 June 2013.
[46] Lewis Page, *Lions, Donkeys and Dinosaurs: Waste and Blundering in the Military* (Arrow Books, Random House Group Ltd, London, April 2007)
[47] Minutes of the Rover Board meeting, 4th of September 1947
[48] *CJ-2A History* by R. Harold West. Available at http://www.thecj2apage.com/history.html accessed 26 October 2012
[49] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4, 71 & 147.*
[50] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4, 71.*
[51] James Taylor, *Land Rover: 60 Years of the 4x4 Workhorse* (The Crowood Press Ltd, Wiltshire, 2008), 72.
[52] Interview between author and Peter Crowley-Palmer, January 2012
[53] Richard de Roos, *Land Rover Conversions and Applications Since 1948 (*Motor Racing Publications Ltd, Croydon, 1995), 19, 97 & 98
[54] Roos, *Land Rover Conversions*, 6.
[55] Land Rover Ltd, *Proprietary Equipment and Special Conversions*, Publication No. 779 (Land Rover Ltd, Solihull, April 1970), 1.
[56] James Taylor, *Land Rover Defender, 90 and 110: 30 years of the Coil-Sprung 4x4 Models* (The Crowood Press, Wiltshire, 2013), 17.
[57] Taylor, *Land Rover Defender*, 17.
[58] The Range Rover 'Autobiography' offers buyers a selection of unique non-standard luxury options for the vehicle similar to those offered by prestige carmakers such as Rolls-Royce and Bentley. In the final year of production a limited edition Defender 90 'Autobiography' was also offered retailing at over £66,000 equipped with an all leather interior and two-tone matt and gloss paint finish.
[59] Sources for table: Taylor, *Land Rover Defender*, 151-178. *Celebrate Defender,* http://www.landrover.co.uk/above-and-beyond/celebrate-defender/index.html, Accessed April 26, 2016. Note: Some of these limited Editions were produced in-territory by importers, adding special badges and parts from the Land Rover accessories catalogue.
[60] Email exchange with James Taylor, 23rd May 2016
[61] Joyce Dargay, Dermot Gately and Martin Sommer, "Vehicle Ownership and Income Growth, Worldwide: 1960-2030", *The Energy Journal* (2007), 28 (4), 149
[62] Interview conducted by author with Roger Crathorne, Head of Technical Public Relations, Land Rover UK, 12th June, 2010
[63] Off road trials traditionally take place on farmland and are usually organized by a trialling body such as the Association of Land Rover Clubs. The course consists of 'gates' marked by two bamboo canes,

placed vertically on difficult terrain. The gates are narrow, being only wide enough to get a standard vehicle through. One vehicle attempts the course at a time (at slow speed), and is deemed to have cleared a gate if at least one of the front wheel hubs passes between the canes. The vehicle's attempt ends when it comes to a stop.

[64] As the popularity of 4x4s for leisure grew in the 1990s driving on un-surfaced tracks in the UK (known colloquially as 'green lanes') became controversial as their use increased. This led to the formation of 'GLASS' (the Green Lane Association), a national green-lane user group who state their aim is 'to promote legal and responsible driving as a way of enjoying the countryside, campaign against irresponsible use and aim to keep them open for all to use'. Available online at: http://www.glass-uk.org/index.php/about-us, accessed June 11th, 2016.

[65] 'Meccano' is a model construction system composed of reusable metal strips, plates, wheels, axles and gears etc. created by Frank Hornby and in production from 1901 to date.

[66] Domestication theory highlights the role of users in innovation and modification of technical artefacts to their specific needs or wishes (see page 11 of introductory chapter for further details)

[67] Professor Simon Schaffer, *Mechanical Marvels: Clockwork Dreams*, [TV] London, BBC, First broadcast 3rd June, 2013, BBC4, Furnace Ltd for the BBC

[68] Factory-fitted alloy wheels were announced in June 1993 and became available in August 1993 for the North American Specification Defender (NAS) 90 and UK-model Defender SV90. The light weight traditionally associated with alloy wheels when fitted to performance vehicles was redundant when fitted to a utility Land Rover due to the vehicle's high un-sprung suspension mass and the solidity of the alloy wheels making them a similar weight to the standard steel rims. Such a wheel fitment was therefore largely a cosmetic choice. Of note however is that specially designed spoked alloy wheels were fitted to some military variants of the Defender such as the 'WIMIK' and the armoured 'CAV100' (or 'Snatch') to reduce the effects of mine blast by allowing the wheel rim to separate from the hub in the event of driving over a land mine or improvised explosive device in theatres such as Afghanistan and Iraq.

[69] Mike Gould, *Rover Group: Company And Cars, 1986-2000* (The Crowood Press, Ramsbury, 2015), 180

[70] Value complexes such as 'authenticity' and 'ruggedness' continually emerge as key factors for ownership for many owners when interviewed.

[71] René Algesheimer, "The Social Influence of Brand Community: Evidence from European Car Clubs", *Journal of Marketing* (July 2005), 69 (3), 19-34.

Chapter 4
Value complexes: The utility Land Rover and its transfigurative significance

> *'Diehards may lament the fact that Land Rover is now more cultural than agricultural.'* [1]
>
> Andy Knowles

Introduction

On the 6th of April 2016 at the *Techno-Classica* historic vehicle show in Essen, Germany, Jaguar Land Rover Ltd announced it would once again be building the 1948 model Series I Land Rover at its Solihull factory after its direct descendant, the Defender, had ceased production in January of the same year. The Telegraph online explained:

> *Customers will be able to select their preferred base [donor] vehicle in conjunction with Land Rover Classic's restoration team, and they will be able to follow the car's restoration from start to finish at Land Rover's new Classic workshop at the original Defender factory in Solihull. Many experienced workers from the old Defender production line are contributing to the restoration of the 25 Series 1 cars.*[2]

With a projected cost of between £60,000 and £80,000 for each immaculately restored vehicle (approximately four or five times the original 1948 price when adjusted for inflation) the announcement marked the final leg of arguably the most extraordinary journey the utility Land Rover had yet undertaken: from a simple expedient workhorse, through esoteric enthusiast's vehicle to a fetishized highly valued classic car.[3] The announcement of these factory-restored vehicles, coming 68 years to the month after the first Land Rover was launched, highlights a growing trend amongst car manufactures to strategically capitalise on their own heritage and elevate their early products to tangible automotive totems.[4] Although factory-restorations of discontinued models are not a new phenomenon, it has traditionally been the preserve of only the most prestigious car manufactures or the makers of renowned hand-made items such as Steinway pianos, Artek furniture, Rolex watches and Purdey shotguns.[5] With Land Rover's increasingly luxurious model range, close partnership with Jaguar cars (which for some time had been offering a similar scheme) and production gap of

at least two years between the outgoing Defender and its replacement the scheme's introduction was judicious. Tim Hannig, director of the newly created 'Jaguar Land Rover Classic' department was quoted as saying:

> *The launch of the 'Reborn' initiative represents a fantastic opportunity for customers to own a valuable and collectable automotive icon. 'Reborn' showcases Land Rover Classic's expertise in restoring and maintaining our loyal customers' prized Land Rovers.*[6]

The (re)production of early vehicles was however much more significant to the brand than merely targeting wealthy collector clients - particularly in the case of the utility Land Rover. Such activity seeks to create a form of automotive canonisation or 'halo effect' as such factory endorsed activities codifies the vehicle as a historically significant artefact of supposed similar cultural value to celebrated works of art or other forms of venerated cultural production thereby adding considerably to the brand's perceived value. Furthermore, in the case of the Defender, with the replacement not due until 2019 (and the newly developed vehicle likely to be targeted at a different and more affluent market sector than the outgoing model) the restoration programme for Series 1 kept the utility Land Rover alive in the public's eye. This was achieved by offering a temporal bridge for both consumers and commentators alike between the increasingly canonised 1948 original and the proposed, but yet to be revealed, all-new Defender replacement.

With the creation of Land Rover's anthropomorphically titled 'Reborn' initiative it also revealed the interpretive flexibility associated with the utility Land Rover over its 68 year history.[7] This highlights the complex network of actors ranging from designers, users, enthusiasts, commentators and marketers as well as diverse and changing factors such as application, time period, competition and circumstances that have affected the vehicle's changing value complexes.[8] In recent years the ways in which the brand has capitalised on this has become increasingly sophisticated as it has sought to harmonize the long and

complex history of the Land Rover for best commercial effect. This chapter therefore examines the vehicle's changing cultural connotations and its later codification.

Marketing the Land Rover

Much like a 'power-chord' played on an electric guitar creates a distinctive and coherent harmonic that cuts through the surrounding noise; the Land Rover brand has been simplified, fine-tuned and amplified by the company's marketing strategy during the latter years of the vehicle's production life. This was in an effort to harmonize the complex and sometimes-contradictory value complexes the Land Rover conveyed into a focused and memorable message which is most clearly exemplified by the often-reductive use of the term 'iconic' when describing the vehicle and its significance (see chapter 5).[9] This relatively recent strategy has drawn selectively from the vehicle's history to solidify the brand's heritage, whereas for much of the first forty years of its existence the Land Rover was almost exclusively marketed as a straightforward yet versatile working vehicle particularly suited to agricultural, military and other utility applications.

As identified in chapter 3, by the 1990s with the explosion in the number of limited edition versions of the Defender, (a concept largely irrelevant to commercial buyers but appealing to many private consumers) the vehicle's appeal began to subtly broaden into leisure segments as sales in its traditional markets, such as developing countries, continued to shrink.[10] This shifting representation of the utility Land Rover by its manufacturer is reflected in the marketing slogans associated with the vehicle in company brochures and advertising over the vehicle's lifetime with a chronological listing revealing these changing brand values. It is evident that between 1948 and 1986 versatility as a characteristic of functionality remained *the* key message in the company's marketing material with both brochures and advertising linking the strapline 'The World's Most Versatile Vehicle' to imagery focusing largely on industrial and utility applications. By the end of the 1980s the manner in which the vehicle was portrayed was subtly changing as it was more explicitly associated with notions of

adventure, individualism and ruggedness as new types of customers were sought as the company's range of 4x4 vehicle's broadened and target markets stratified.

Slogans associated with the utility Land Rover in company publications from 1948 to 2007

Date	**Slogan/strapline**	**Type of document**	**Publication No.**
April 48	Britain's most versatile vehicle/go anywhere vehicle	Brochure for launch at the Amsterdam motor show	No number
Sep 49	Will meet all your requirements	Brochure for 'Tickford' station wagon	No number
Mid 51	Britain's most versatile vehicle	Dealer advertisement	No number
Jan 52	Go anywhere vehicle	Brochure	No number
Oct 53	The World's most versatile vehicle/ go anywhere vehicle	Brochure	No number
Early 56	The World's most versatile vehicle/anywhere on earth	Brochure	521
Late 56	It's the four-wheel drive that does it!	Dealer guidance on local advertising from Rover Co.	No number
Late 59	Leads on the Land	Farming brochure	584/B
March 64	The World's most versatile vehicle	Brochure	657/A 65
Jan 68	The World's most versatile vehicle	Brochure	703/A
Mid 68	Versatility *Plus*	Brochure	756/B
1970	The World's most versatile vehicle	Brochure	767/A
1971 April	The World's most versatile vehicle	Brochure	804/5.71
1971 Sept	The World's most versatile vehicle	Brochure: launch of SIII	811/9.71
Late 75	More than ever… The World's most versatile vehicle	Brochure	BLI23
Oct 79	V8 for the great outdoors	Stage 1 V8 Brochure	LR111/10-79
March 80		Promotional materials for dealers etc pin badges, matches balloons etc	LR119/3.80
Feb 82	Land Rover: A world of difference	Brochure	LR201/2.82
Feb 83	'Pushing forward the world's frontiers' – 'Land Rover's new Land Rover'	Brochure: launch of 110	LR229/2.82
June 84	From strength to strength to strength 'The best 4x4 on Earth (and on Tarmac)'	Launch of 90	LR84/002
Nov 85	You won't find a more versatile 4x4 vehicle if you go to the ends of the earth.	Brochure	LR384 E issue 1
Dec 87	Nothing else is a Land Rover	Brochure	LR442
Dec 87	Land Rover 'County'	Brochure (all leisure use images)	LR443
1988	Opening up new horizons with 4x4 versatility	Brochure	LR455
April 1988	The Best 4x4xfar	Salesman's brochure	
June 88	The Best 4x4xfar	Press advert	No number
1990	Built on success	Brochure	LR563
Late 1990	Going where others fail to tread	Brochure	No number
1994 March	The spirit of adventure	Brochure for the Defender 90	LRD900
1999	The Best 4x4xfar	Brochure: The description 'extreme' is used frequently	LR005/99
2001	All Action	Brochure: Tomb Raider film inspired limited edition model	LR404/01
Late 2003	ICON	Brochure (Defender 04 model year). Word icon shown in large capitals	LRML2097/04
2007	Go Beyond	Brochure (Defender 07 model year).	LRML2333/06

Between 1988 and 1994 the use of slogans began to move away from focusing on the Land Rover's functional capabilities to asserting the vehicle's long heritage and the fostering of a sense of prestige with straplines such as 'The Best 4x4xfar' and 'Built on success'. A notable television advertisement, which featured a red Land Rover Ninety winching itself up a near-vertical dam, was aired in 1987 and marked this gradual shift in representation of the brand. The dramatic imagery shown in the advert was set to refrains taken from the stirring and unequivocally British 'Dam Busters March' with a well-spoken and deep English male voice stating 'Next time you're late for work it's worth remembering that nothing, but nothing, gets in the way of a Land Rover. The best 4x4xfar.'[11]

Fig 1: Still from Land Rover 'dam climbing' television advert first shown in 1987.[12]
(Land Rover Ltd 1987)

Although the advert showed the vehicle traveling over difficult terrain and ultimately surmounting the seemingly impossible challenge of a near-vertical concrete dam, the advert also demonstrated the move away from purely functional representations of the Land Rover to connotations of supremacy, improbable capability, implied longevity and a particularly British form of stoicism and toughness demonstrably shown through the vehicle's 'dam-busting' abilities. Arguably the advert was not designed to market the utility Land Rover as such, but to remind consumers of the interpellated and long established (and therefore potentially taken-for-granted) Land Rover brand and its values more broadly. The strategy also suggests a desire from Land Rover Ltd to broaden the appeal of its products and create a

'halo effect', particularly with the 'Discovery' model scheduled for launch 18 months later, which was to be aimed at more mainstream consumers who may have previously only owned conventional cars and not a 4x4.[13] This therefore may explain why this was to be the only occasion the utility Land Rover was promoted through a mainstream British television advertisement. As an aside, it is noteworthy that the 'Land Rover climbing a dam' television advert, although unique when it came to the utility model, was sufficiently well remembered to be recreated thirty years later by the BBC's 'Top Gear' television programme in 2015 to commemorate the end of Defender production, this time utilising a restored Series 1 model with presenter Richard Hammond behind the wheel.[14] The choice of a Series I model for the sequence served to not only neatly 'bookend' the Land Rover's production run but to show that fundamentally the vehicle's capabilities had remained the same over its lifetime.

From 1994 there was a transition to the use of increasingly conceptual and abstract associations in the company's marketing slogans such as 'The spirit of adventure' and 'All action' as the market for the utility Land Rover shifted and marketing of cars in general progressively focused on chiming with consumer's lifestyles and aspirations rather than solely focusing on the application of the vehicle itself.[15] By the early 1990s Land Rover Ltd was producing three models, the Defender, the Range Rover and the Discovery and sought to harmonise the representation of these products through the company's branding strategy. The ambition of this approach is most clearly demonstrated by the development of 'marque values' which were disseminated to staff by presentations and the issuing of a credit card sized document to employees in 1994 listing key-words that were designed to exemplify the core values of the brand which were as follows:

- *Individualism* *Knowing your own mind: independence*
- *Authenticity* *Specialist 4x4 manufacturer: fit for purpose*
- *Freedom* *Go where you want to: choice*
- *Adventure* *Exploring the unknown: confidence*
- *Guts* *Giving everything you've got: endurance*
- *Supremacy* *Superior 4x4 performance: leadership*[16]

It was intended that employees should carry the card with them, so those working for the company could then absorb these values as almost implicit articles of faith. This strategy of relating subjective characteristics rather than concrete attributes to the brand was explained in the following way by marketing scholar Vivienne Shaw in 1999:

> *[T]he marque values have been seen as a way of instilling a sense of shared values within the Land Rover organization as a whole. Initially targeted at dealers, a cascade effect was created throughout the organization as John Russell, former managing director, Sales and Marketing, Rover Group, insisting that everyone within the organization be invited to attend the same presentation. Talk to people on the assembly line or development engineers and they can tell you what marque values are and identify with them. The creation and communication of marque values has reinforced a sense of pride within the Land Rover organization. Instilling a sense of shared values within Land Rover is not about training, but as John Stubbings of Bates Dorland [Land Rover's advertising agency at the time] notes '[it] is seen almost as a form of evangelism'.*[17]

Such evangelistic belief in the brand has also been voluntarily adopted by enthusiast owners of utility Land Rovers with many choosing to apply company slogans and display them as stickers purchased at Land Rover events, club websites or online auction sites such as eBay. Although only officially used for the Tierra Del Fuego 'Camel Trophy' event in 1998 the slogan 'One Life: Live it' has proved particularly persistent and popular amongst many enthusiasts with owners continuing to apply the abstract proposition to their vehicles.[18] So popular did this phrase become that some Land Rover owners sought to subvert its abstract values and introduce a note of knowing cynicism with T shirts, mugs and stickers with derivative but mocking slogans such as 'One wife, livid!' and 'One life: farm it!' As Andy Knowles co-founder of design agency jkr observed 'Diehards may lament the fact that Land Rover is now more cultural than agricultural.'[19] However such affectionate ridicule of Land Rover's marketing slogans also revealed enthusiasts' knowledge and absorption of the company's branding strategies, consciously or otherwise.

Fig 2 (left): Preserved Defender 110 from the Tierra Del Fuego 'Camel Trophy' event in 1998 displaying the 'One Life: Live it' slogan on its front doors which was soon adopted by many enthusiasts and applied to their own Defenders (JLR 2013). Fig 3 (right): Spoof versions of the slogan also later became available (Land Rover Monthly Magazine 2015)

Such recondite phrases from Land Rover Ltd reached new heights in 2005 with the introduction of the slogan 'Go Beyond'. Feature writer John Morrish scrutinised this nebulous yet aspirational imperative in *Management Today* by describing it in the following manner:

> *If you're the kind of person who buys a four-wheel drive, you want to feel that, even if you use it only to go to Waitrose [supermarket], you're ready to veer off the main road and up a muddy hillside. Not all 4WDs give you that confidence, but Land Rovers are special. They have a strong off-road heritage, carefully stressed in the company's marketing, which emphasises adventure and exploration. These cars are the real thing, and their slogan, coined in 2005 by ad agency RKCR/Y&R and used around the world, is a reminder of that. It's a bold imperative, instructing you to leave your comfort zone, cross boundaries and head off into unexplored terrain, literally and metaphorically. 'Beyond' is a preposition and demands a noun to attach itself to: 'beyond the beaten track', for instance. Left open-ended, it has a little bit of grammatical unorthodoxy that makes it memorable. But the slogan is also an invitation to exceed or surpass what is reasonable and give in to temptation - by, for instance, buying an expensive vehicle whose full capabilities you will probably never use.*[20]

Land Rover's presumed supremacy as a maker of 4x4 vehicles, reinforced by the company's long history and diverse application, was further emphasised by the adoption of the updated and aspirationally incremental strapline 'Above and beyond' in 2014.[21] This transition in the marketing of the Land Rover over its history from one that emphasised the functional attributes of the vehicle to a strategy from 1990s onwards which largely focused on abstract

concepts such as individualism, freedom and adventure marks a significant shift in how the vehicle and the brand more broadly was characterised. This changing characterisation parallels a similar shift in marketing of cars in general, from one of rational modernist design thinking which emphasised a vehicle's use and application, to post-modern marketing techniques focusing on the emotional and evocative connotations a car can generate.[22] However, unlike the cycle of constant redesign and replacement demanded of most car designs, the utility Land Rover remained fundamentally unchanged despite a shift in marketing strategy. Just as the early advertising had promised that the Land Rover was sufficiently versatile to accommodate all manner of utility applications, it had also proved sufficiently versatile to be reimagined as a recreational vehicle and remain relevant and profitable in a fundamentally changed car market 67 years after the type's introduction.

There is a parallel to be drawn here between the utility Land Rover and other apparently unchanging vehicle designs that later became codified as cult-classics. For instance, both the original VW Beetle and Harley Davidson motorcycle exude an evident rejection of 'planned obsolescence' in their designs, seemingly not being subject to the vagaries of fashion.[23] The original VW Beetle has for instance often been characterised as a form of 'anti-car', with this perception being reinforced as a virtue by the Doyle Dane and Bernback advertising agency from as early as the 1960s.[24] This was particularly true in the United States, due to the car's relatively small size and unchanging design, which was counter to the continual model replacement, used by the majority of US car manufacturers and thereby '[…] established the VW as an antidote to conspicuous consumption'.[25] Later however, both the VW Beetle and the Harley Davidson motorcycle moved from being merely straightforward and somewhat anachronistic transport to vehicles that carried extensive value complexes with this informational capital being utilised as significant brand assets by their respective manufactures.[26] Both the original Beetle and the 'Harley' became the subject of restoration and customisation by enthusiasts and small enterprises specialising in such work. However, for the manufacturers themselves the cult-classic connotations of their earlier products

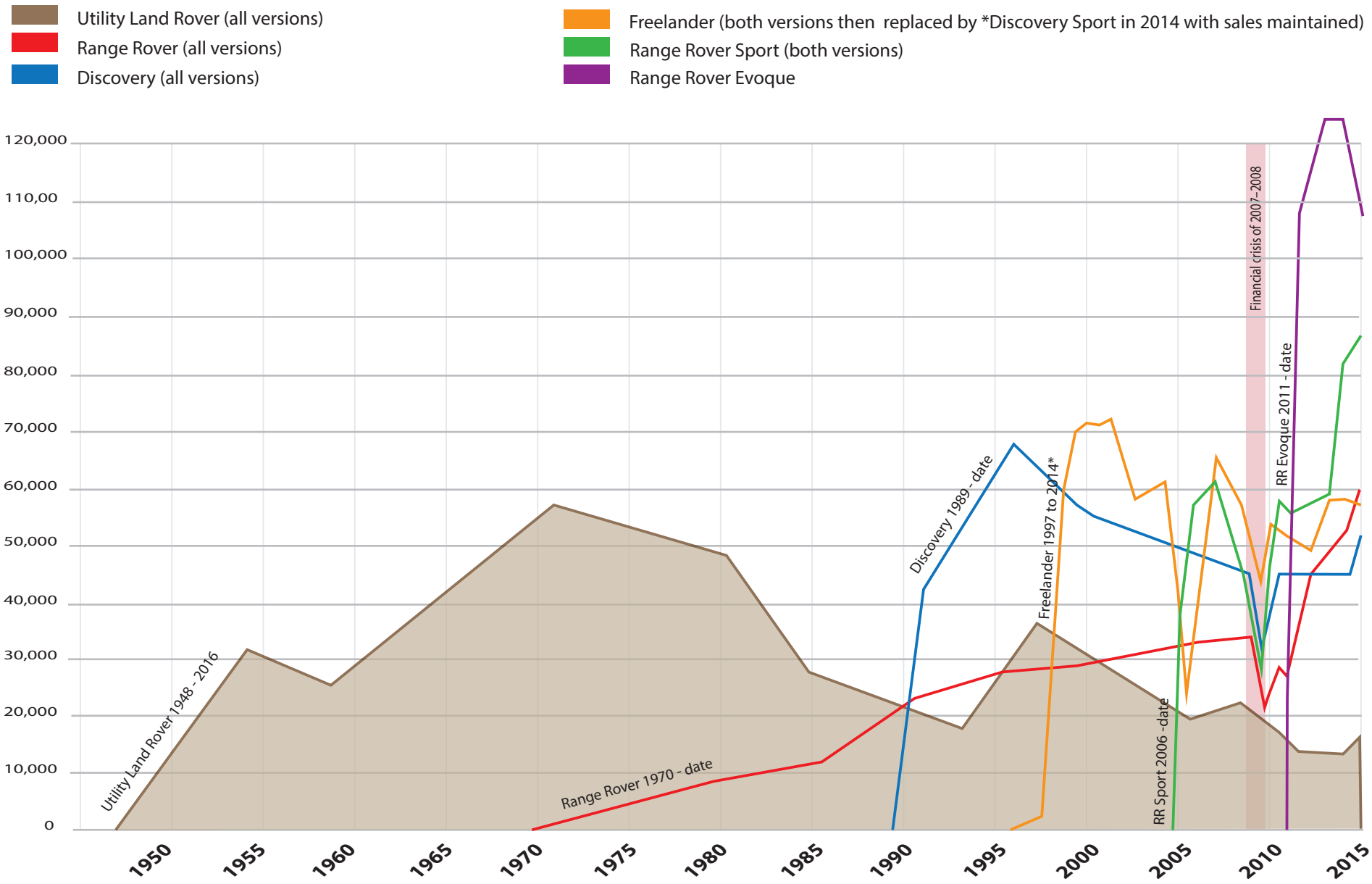
allowed, in the case of VW, an all new 'retro' inspired Beetle model to be launched in 1997 and for Harley Davidson to re-establish itself 'as the quintessentially American' motorcycle manufacturer after facing near bankruptcy in the 1980s.[27]

In 1994 sociologist David Gartman traced this shift in representation of the private automobile by describing the first period of the car from 1885 to 1918 as 'a luxury item (often little more than a curiosity), affordable to only a very limited number of people.' In the second period from 1919 to 1958 he stated, 'the technological variation decreased as mass production took hold but competition in the market increased.' The final period from 1959 he characterised as the era of 'mass car ownership where a new range of consumers with different needs and desires were able to afford a car'.[28] By the end of Gartman's second period the Land Rover had been in production for 10 years. However Rover's considerable sales success in these early years does not entirely fit the general trend he describes as 'mass production taking hold but competition in the market increasing'. Certainly mass production was employed in the manufacturing of the vehicle, but as we have seen, the Land Rover had virtually no competitor in its established markets. For a further ten years until the early 1970s Land Rover was able to sell all it could produce, as a result of being so well established in these markets even though competitors were beginning to emerge. The 1960s and 1970s saw a shift with consumers increasingly having desires rather than merely needs. In an echo of the changing sensibilities toward another car born of utility (but in an earlier motoring age), the Ford Model T, 'it was no longer enough for a product to be affordable and functional [now, not even a utility 4x4]. In an increasingly crowded automotive market the product also had to be *desirable*.'[29]

Design and marketing at Land Rover have become increasingly closely linked to how new vehicles are developed, with the two working hand-in-hand to make best use of the brand identity.[30] By contrast, early thinking at Rover, with regard to the utility Land Rover was led by engineering and a belief that a market existed. In many ways Rover and later Land Rover

Ltd played 'catch-up' with the uses relevant social groups were putting the vehicle to and then retrospectively built a brand identity and design strategies on these emerging value complexes.[31] This rich, and in automotive terms extremely long history, has been both an asset and at times a hindrance to the Land Rover's brand identity as the consumers' sensibilities have changed and the Defender became increasingly dated. However, ultimately, the company has managed to use notions of adventure and its associated values such as heroism, drama and exhilaration and link them to its products both old and new in a manner which now appears seamless and in keeping with contemporary sensibilities. These connotations allowed the utility Land Rover to not merely be a technical artefact but to become a *concept*. It carried with it a range of values, some controlled by the manufacturer, but many as a result of its heritage and design history. These values were capitalised on by an increasingly sophisticated marketing strategy, which sought to bestow credibility on the growing range of new models by exploiting the notion of inherited venturesome characteristics with these links being further underpinned by the use of slogans such as 'Adventure: it's in our DNA'.[32]

Rover Co., British Leyland, Land Rover Ltd and JLR Ltd (Land Rover models) comparison of production volumes by type 1948 to 2015



Figures compiled from agrigated company sales and production figures

As we have seen in chapter 2, the various owners of Land Rover throughout the 1990s and 2000s either considered abandoning production of the Defender or left it largely unchanged to concentrate on the development of models with potentially higher profit margins. In terms of the brand there may have also been a reluctance to discontinue the Defender as it had for many years formed a key meritorious ancestral root for the ever-expanding range of vehicles with more car-like interiors and performance such as the Discovery and the Freelander. Such models' rugged credentials could be cemented in buyers' minds by explicitly linking them with the undoubtedly capable and long established Defender. However the Range Rover model was also now long established having been introduced in 1970 with its mix of prestige *and* off-road ability making it arguably a more appropriate ancestral root for the company's new and progressively more sumptuous models. These links were made more explicit though nomenclature by association with models such as the Range Rover Sport and the Range Rover Evoque by capitalising on the Range Rover's prestigious (and therefore highly marketable as well as profitable) value complexes through 'brand extension'.[33] The expansion, change in character and resultant sales success of the company's new portfolio of vehicles may have meant that the increasingly anachronistic Defender was harder to integrate into the company's increasingly prestigious identity and its key function of brand credibility could be made best use of through the heritage the vehicle offered rather than the actuality of the utilitarian and thirty two-year old design, which was itself based on styling dating back to 1958. This change in value complexes would therefore allow for the discontinuation of the Defender without the credibility of the company's other 4x4 vehicles being damaged. Alastair Duncan of the marketing website *The Drum* described the demise of the Defender and its impact on the Land Rover brand in the following way:

> *From a brand point of view, a vehicle that genuinely performs in the toughest conditions [i.e. the Defender] is vital in a market crowded by so many 'soft roaders' [and] sports utility vehicles that rarely venture close to any rough terrain. It must have been a hard decision to end production of the Defender, but it seems the story doesn't end there. Jaguar Land Rover has shifted […] the business from an exporter to a*

> *global brand. It now has a clear portfolio of products for identified market segments. In the case of Defender, the product was running out of headroom [i.e. ability to remain in production] in its current form.*[34]

The brand had moved from functional utility, to aspirational versatility, where the various models' rugged capabilities could be validated through the oft-repeated heritage inherent in the seven decades of utility Land Rover production.

Value associations: Expeditions, sport and leisure applications

As early as 1949, little more than a year after the first Land Rover had been launched, the adventurer and former First World War Royal Flying Corps pilot, Colonel LeBlanc, privately purchased an 80inch Series 1 model and travelled overland to Abyssinia in North Eastern Africa.[35] This thereby started the Land Rover's long association with expeditions, a role that although it had not been designed for, became inextricably linked with the marque.

> *Colonel LeBlanc was a colourful adventurer, who's independent efforts to sell the Land Rover overseas were producing orders for the Rover company even before it had an export department. By 1951* [LeBlanc] *regarded Land Rovers as his old friends and as production was by now well up, and the company was keen to widen its market, Rover offered him a job as a sort of travelling salesman, demonstrating his Land Rovers wherever he went, for a basic retainer. He accepted the job, but turned down the fee: his term would be no salary, no expenses, but 0.5 per cent of all future sales to the Middle East – a far-sighted policy indeed!*[36]

Another early adventurer to make use of a Land Rover for expedition use was the now largely forgotten theatrical director and playwright Barbara Toy. Toy, with help from friends, purchased a very early second hand Series 1 Land Rover, named it 'Pollyanna' and undertook a solo expedition through North Africa and the Middle East in 1950, only a few years after fighting in the region had ceased. This early Land Rover overland expedition became the subject of her first book published in 1955 with the self-effacing title 'A Fool on Wheels.'[37] Toy was to go on and publish a further six books of her travels up to the 1970s and became well known as a pragmatic and independent adventurer.

Fig 18: Barbara Toy's 1948 Series I Land Rover 'Pollyanna' survives in preservation (Photograph Paul Hazell)

By the late 1950s, Rover had realised the marketing potential of Toy's expeditions and provided her with a brand new Series 2 Land Rover 'Dormobile' camper and asked her to give up her now tatty Series 1 in exchange, as having become a well known travel writer, the company did not want her to be seen in their 'old' model. Initial conversions to the Land Rover as a camping vehicle were an amateur affair as this was not a market Rover had initially identified for the new vehicle as they saw it as essentially as a commercial type. The Dormobile however was typical of a growing number of commercially produced camping conversions available for the Land Rover, particularly on the long wheel base Series 2 due to its size and easily adapted modular construction. Company's such as Martin Walter with their 'Dormobile' range and competitors such as 'Carawagon Ltd' produced 'pop-top' campers providing internal standing room, cooking facilities and as many as four berths while retaining the vehicles go-anywhere capability and relative compactness.[38]

Further adventure travel, such as the 'First Overland' expedition of the mid 1950s, was also raising the vehicle's profile. This was a journey from London to Singapore, the first time the

route had been attempted. The expedition was described as one of 'friendly rivalry' between Oxford and Cambridge Universities where the two vehicles used were painted in the light blue and dark blue traditional 'Oxbridge' colours and crewed by graduate students from the two institutions. The sporting credentials of the two universities were drawn on in how the expedition was promoted but in reality it was anything but a race. Rover provided two new Land Rovers for the trip and David Attenborough, then a junior producer at the BBC, commissioned a television documentary of the journey with Tim Slessor, one of the participants in the expedition, writing a book describing the experience.[39] Land Rover was now being seen and read about as the vehicle of choice for adventure; often independently of the company's own marketing. Other privateers started to undertake expeditions and by the June 1956 a long-wheel-base Station Wagon model was introduced to carry passengers, rather than just goods, in difficult terrain that lent itself particularly well to such overland applications.[40] Revealingly however, many users insisted on describing the Station Wagon model as a 'Safari Land Rover' (a term never officially adopted by Rover) as the model became inextricably linked to expeditions, particularly in Africa. With the increasing availability of used Land Rovers in the 1960s and '70s private individuals also undertook ambitious overland trips. In the early years of the Land Rover, the Rover Company would often sponsor such trips as it was seen as excellent marketing for the robustness and versatility of its products. By the late 1960s, though, such journeys were so commonplace that requests for support were politely declined and responded to by the posting out of a factory-produced booklet titled *A Guide to Land Rover Expeditions* giving tips about overland travel and 'bush' repairs, so popular had such trips become.

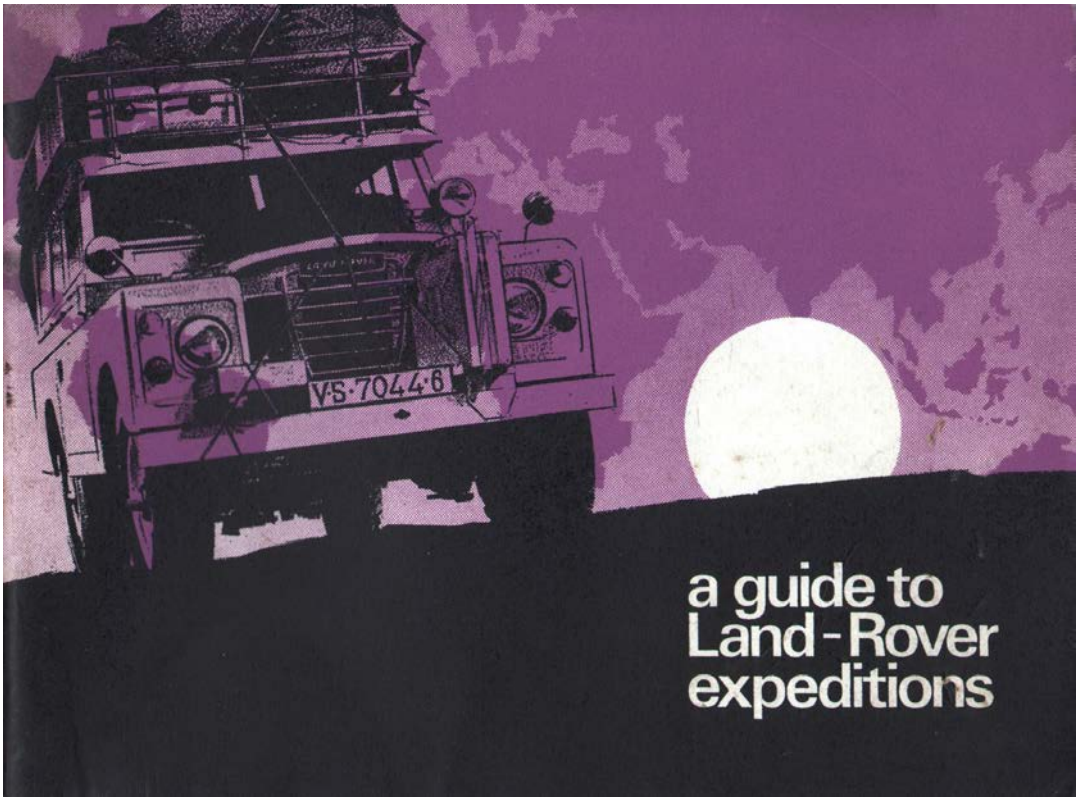


Fig 19: Overland expeditions utilising the Land Rover had become so commonplace during the 1960s that Rover published a factory-produced 22-page booklet featuring LWB Station Wagon Series 3 model on the cover and titled 'A Guide to Land Rover Expeditions'. Above shows the 1972 edition (British Leyland 1972)

As we have seen in chapter 3, in the UK the Caravan Club was also an early adopter of the Land Rover as it was seen as an ideal towing vehicle.[41] This led to club meetings where once the caravan was unhitched, 'off-road' competitive trials could be undertaken. This formed the early history of 'off-roading' as a pastime in the UK and led to a demand for used Land Rovers purely for competition and as a fun vehicle. In many ways this was an early precursor of the SUV or Sports Utility Vehicle and during the 1960s Rover began to realise the potential of a 4x4 for sport and leisure.[42] The Land Rover was thought of as too utilitarian to satisfactorily address this emerging market, particularly in the US. This led to a desire by Rover for a gradual change in the value complexes associated with the vehicle and in time, spawned the proto-SUV Range Rover. At twice the price of a Land Rover, the Range Rover, launched in 1970, was rapidly seen as an 'up market' and increasingly aspirational car. Rover was keen to state the Range Rover's comfort over long distances on road, but also its off road credentials. The company did not want buyers to think the brand had 'gone soft' and this was

again achieved by adventurous travel.[43] The British Trans-Americas Expedition in 1972 led by John Blashford-Snell used two Range Rovers and followed a route from the tip of North America to the tip of the southern continent via the infamous 'Darien Gap' in Panama where there was no road connection between the continents, only swamp and jungle.[44] This exposed the vehicle to the North America market and, simultaneously, established its reputation as being as tough as the existing utility Land Rover. It is noteworthy, however, that after difficulty forging a path through the dense virgin jungle of the Darien gap, a locally purchased used short-wheel-base Series 2a Land Rover, (with its greater approach and departure angle) was used as a pathfinder to establish a route suitable for the following more cumbersome Range Rovers.

Sporting use of the Land Rover and Range Rover, in keeping with the times, took on a more aggressive and macho image in the 1980s and was most typified by the Camel Trophy. The event, a gruelling off road competition, typically made up of sixteen international teams equipped with a Land Rover product each, was held annually in various remote parts of the world.[45] However, by the late 1980s there was a widening gap in the model range between the still utilitarian Land Rover and the increasingly luxurious Range Rover. The need to fill this gap was further emphasised by Japanese car makers introducing cheaper Range Rover-like vehicles for family use, e.g. the Mitsubishi Shogunn/Pajeroa and Isuzu Trooper, etc. Lack of investment once again meant it took until 1989 for the gap to be filled with the new Discovery. The Discovery's marketing made much use of sporting and leisure imagery as well as the dramatic imagery from the Camel Trophy as did the smaller Freelander launched in 1997.

Fig 20: Land Rover Defender 110, Camel Trophy, Guyana 1992 (Land Rover Ltd 1992)

By 1998 the Camel clothing company, the main sponsors of the Camel Trophy, wanted to move the focus away from off-road driving by introducing events such as canoeing and mountain biking, and thereby showcase its outdoor clothing further as it distanced itself from the parent cigarette brand. As a result Land Rover decided to cancel their involvement with the event and in a press statement made by Martin Runnacles (Rover Group Marketing Director at the time) he stated, '…with the changing character of the event it will no longer provide us with an active demonstration of Land Rover's brand essence - future activities will concentrate on our customer base with the emphasis very much on rugged off-road adventure.'[46]

From 2003 Land Rover briefly replaced its involvement with the Camel Trophy by a similar event, the tri-annual 'G4 Challenge'.[47] However, aggressive off-road driving was becoming inconsistent with Land Rover Ltd.'s growing desire to project an image that was environmentally aware. Therefore, somewhat ironically, the company itself decided to include elements such as cycling and canoeing in the new event, just as the Camel Trophy had attempted to do some years earlier. With the economic down turn of 2008 and a change

of ownership of Land Rover Ltd from Ford to Tata, the third G4 challenge was cancelled, thereby ending (intentionally or otherwise) Land Rover's official association with competitive motor sport. Land Rover derived products do however remain involved with aggressive and competitive areas of off-road motor sport through the JLR's close links with Bowler Motorsport, manufacturer of specialist racing 4x4s (using many Land Rover components with their products often resembling the company's production vehicles) intended for 'Safari' endurance rallies such as the Paris-Dakar.[48] In recent years Land Rover's own vehicle models have continued to be closely associated with sport but in more subtle ways, more in keeping with the aspirational image of their current products by sponsoring events such as the Burghley Horse trials and the Rugby Premiership.[49] The company's product range has also continued to make links with sporting connotations, most obviously it might be argued by the naming of the Range Rover Sport and Discovery Sport models. The use of Land Rovers for sport, competition and adventure parallels the relationship between design and branding at the company over its 68-year history. The shift from the vehicle being used to go 'off-road' out of necessity (i.e. functional design and marketing which promoted these values) then to 'off-roading' for competition or pleasure, (i.e. motoring as leisure) and finally to the potential of the vehicle to take you on an adventure, even if in reality a vehicle was used for nothing more demanding than the commute to work.[50] From early in the Land Rover's history in the late 1940s to the end of Defender production in 2016, it had become a truism that '[…] amateur adventurers felt they could indulge their fantasies: get a Land Rover, and away we go!'[51]

Sport and leisure were key factors in creating a desire for the ownership of various Land Rover models amongst consumers, but association with, rather than participation in, competitive activity was often key to the Land Rover's portrayal. Therefore if the relationship between sport and Land Rover since 1948 was to be characterised, the vehicle could be described as more frequently playing the role of an *enabler* rather than a competitor. This enabling function allowed the brand to absorb the sporting connotations along with the other

value complexes associated with the Land Rover, whether it was sporting, adventurous, utilitarian, leisure, toughness (through its use by the military) or merely as capable transport.[52]

Fig 4: Land Rover Defender as adventure enabler. *Defender brochure* (Land Rover Ltd 2007) [53]

Portrayal of the utility Land Rover in the mass-media

Despite being a utility (and often specialist) vehicle the pervasiveness of the Land Rover into people's lives was ever expanding during the 1960s and '70s. The increasing universality of the vehicle meant that the Land Rover was regularly to be seen in the mass-media such as featuring in travel and wildlife films, providing transport when 'on safari', transporting the British Royal family at equine events or more prosaically appearing in articles in newspapers or on the evening television news being deployed by the Police and Military in various trouble spots.[54] The vehicle was also becoming an increasingly familiar sight in people's everyday lives through its primary civilian application of agriculture, or increasingly in urban settings by utility companies and local authorities. Furthermore the enduring and highly recognisable silhouette of the Land Rover continued to reinforce the vehicle's ubiquity as both sales and applications for the basic vehicle continued to expand. The Land Rover by the late 1960s was not only firmly established as part of Britain's automotive landscape but increasingly, through interpellation, as part of the country's *cultural* landscape as well creating, as we have seen, a rich seam for later marketing strategies.[55]

Figure 13: The British Royal Family's long association with the Land Rover has helped keep the vehicle in the public eye and strongly reinforced connotations of the marque's 'Britishness' (Photograph PA Wire)

The Land Rover also soon became well established with the 'country set' through its use in hunting, shooting and equine sports, which were all closely linked to the vehicle's agricultural origins. Royal patronage of the Land Rover for such activities was capitalised on in contemporary Rover press releases, cementing the idea of 'Britishness', quality, utility and the royal seal of approval, all in one message.[56] 'Country set' buyers later also embraced the Range Rover particularly after government investment (prompted by the Ryder report of 1975), allowed British Leyland to move the vehicle further 'up market' in the 1980s.[57] This was achieved by the design of increasingly plush interiors and various engineering enhancements with such development making sound economic sense, as even though a Range Rover may have cost more to manufacture than a utility Land Rover, the retail price was considerably higher, leading to significantly increased profit margins per vehicle. A similar strategy was later employed to great effect after the millennium thanks to renewed and considerable investment from parent companies BMW, Ford and Tata. Trading on the Land Rover's and Range Rover's significant brand value Land Rover Ltd and later JLR Ltd

undertook rapid expansion introducing new prestige models targeted at a range of affluent market sectors (i.e. the Discovery 3 in 2004, Freelander 2 in 2006, Range Rover Sport in 2007, Discovery 4 in 2009, Range Rover Evoque in 2011 & Discovery Sport in 2014).[58]

The utility Land Rover's semiotic significance, particularly in the portrayal of British agriculture in the media, remained as manifest as the Border Collie or kicked-off muddy wellington boots left at the farmhouse back door. These associations have led to the vehicle frequently being used as a shorthand for rural authenticity in representations of British farming in popular culture, particularly on television for both factual and fictional programing thereby further reinforcing the Land Rover's inseparable association with agriculture and country life.[59]

Fig 14: Rural authenticity: The semiotic significance of the Land Rover, particularly in the portrayal of British agriculture, remains as manifest and commonplace as the Border Collie sheep dog
(Photograph Paul Hazell)

Richard Hammond described the Land Rover's contribution to agriculture on the BBC's 'Top Gear' programme in the following way: 'it is totally and utterly classless […] in a Land Rover you can work the land or you can own the land […] it supported the livelihoods of millions [sic] of [farming] families.'[60] Such sentiments further served the sense of 'no-nonsense' credibility that the Land Rover managed to endow on many of its users. However, competition in the utility vehicle market was increasing in the early 1980s and BL's marketing had not yet turned the relative petrification of styling and semiotic suggestion of rugged authenticity of the Land Rover's design into a postmodern marketing asset.

Later, as the company's marketing strategy began to focus more on 'lifestyle' than utility, appearances of the Land Rover in cinema served to reinforce the brands image of toughness and adventure. Most recently 'Jaguar Land Rover Special Operations' provided heavily modified Defenders for 'Spectre' the 24th James Bond film. John Edwards, Managing Director of Jaguar Land Rover Special Operations at the time stated: 'This is an exciting partnership for Jaguar Land Rover and an opportunity to demonstrate the fantastic capabilities of the Special Operations team.'[61] With the Defender going out of production only a few months later it is noteworthy that the company's association with the Bond film was being promoted through JLR's 'Special Operations' division (i.e. its in-house modification and customisation facility) more than through the Defender brand itself. However the connotations the utility Land Rover could project, such as the continued versatility of the brand, remained powerful marketing tools even beyond its production life (as can be evidenced by the 'Reborn' initiative outlined at the beginning of this chapter).

Fig 15: Actress Naomie Melanie Harris (who played Eve Moneypenny) poses next to a much-modified Land Rover Defender 110 'crew cab' which featured in the dramatic opening sequences of the 2015 James Bond thriller 'Spectre'. (JLR 2015)

The utility Land Rover which featured in 'Spectre' was however just the latest in a long line of appearances in action motion pictures such as Judge Dredd (1995), Tomb Raider (2001), and several James Bond films including 'Skyfall' (2012) and 'The Living Daylights' (1987).[62]

Such representation formed a virtuous circle of semiotic reinforcement that was largely positive for the manufacturer as well as users, whether commercial or private. The utility Land Rover has repeatedly featured in other brands' marketing as a means of conveying concepts such as Britishness, authenticity and ruggedness with these values having been established for many decades since the early history of the utility Land Rover. Companies such as the Automobile Association (the AA) used the Defender in a series of print and TV advertisements to effectively reassure would-be members of the car recovery organisation that should they need to be rescued due to snow or flood, the AA had vehicles capable of carrying out the job. Few vehicles conveyed this reassuring message more strongly to a British audience than the 'trusty' utility Land Rover.

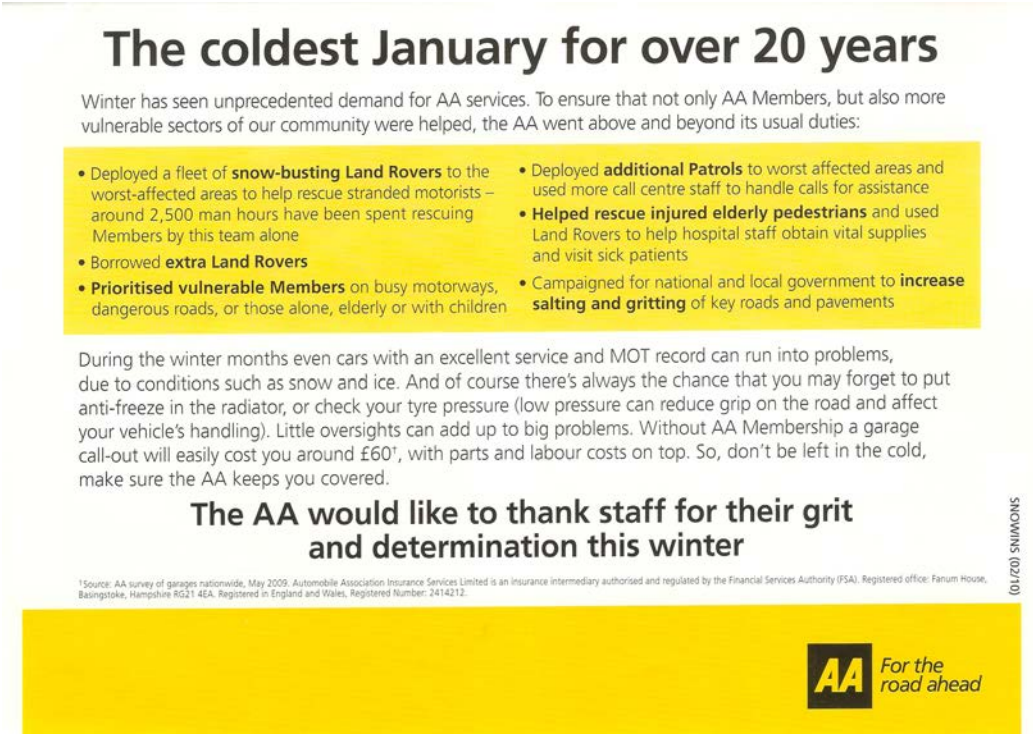


Fig 16 & 17: AA advert 2010 made mention of 'deploying a fleet of snow-busting Land Rovers' and 'borrowing extra Land Rovers' and thereby demonstrates the 'halo effect' and virtuous circle of semiotic reinforcement employed by non-related brands featuring the utility Land Rover in their own marketing.
(Automobile Association 2010)

Fig 18: By association, Mulberry (leather fashion goods brand) evokes ideas such as a 'British timeless classic' in its use of a Land Rover Series I in its advertising. Such associations, although subjective, are easily absorbed by consumers when semiotically linked in such a manner and usually work advantageously for both brands. (Mulberry 2015)

Fig 19: Although advertisements such as the one above may appear crass to contemporary eyes the principle of 'authenticity' by association remains much the same today as it did in 1979. (Camel Cigarettes 1979)

Not all media representations of the Land Rover brand were positive however. The environmental impact of 4x4 vehicles attracted increasing negative media attention in the early 2000s due to their high CO_2 emissions when compared with smaller cars. Land Rover was particularly vulnerable to such criticism as sales of its large prestige models such as the Range Rover and the Discovery grew in popularity and were increasingly being used in urban settings. According to Jonathan Duffy of the BBC on-line News Magazine (writing in 2006):

> *Greenpeace points the finger at "gas guzzlers" rather than 4x4s per se, making the point that there are plenty of high-polluting cars that are not four-wheel drive. But it singles out the 4WD Land Rovers, built in the UK, for particular criticism, highlighting the fact some models do as little as 12 miles per gallon (mpg) in the city.*[63]

Land Rover Ltd had published a booklet titled 'Fragile Earth: Land Rover and the Environment' as early as 1990 but this was designed to address concerns regarding the growing recreational use of 4x4s in terms of ground erosion, noise and impact on wildlife but no mention was made of climate change, which was not a mainstream issue at the time. The booklet largely put the onus on the owner to act responsibly however and featured many photographs of Defenders doing 'good works' with organisations such as the Royal Geographic Society.[64] The company was initially slow to address concerns about emissions but for the 2007 model year it finally introduced its 'Carbon Offset Package' which was 'based on offsetting the CO_2 produced by a vehicle over [its first] 45,000 miles.'[65] The funds this self-imposed levy generated were largely spent on wind turbines and a hydro-electric schemes in China and although the 'Carbon Offset Package' may have gone some way to addressing emissions concerns in terms of public relations and consumer guilt, the strategy was not without criticism from environmental groups.[66]

> *We do not believe that any of the methods of 'offsetting' should form part of the plans to tackle climate change. The world is producing too much CO_2, and we need to tackle this head-on by taking responsibility and reducing our emissions to a sustainable level. 'Offsetting' schemes probably do more harm than good by giving the impression that we can all carry on just as we are.*[67]

By 2013 the Land Rover company had moved to a strategy of transforming the entire business with a target of being 'carbon neutral' by 2020 through initiatives ranging from manufacturing, parts transport, use of solar and wind power, recycling, reduced materials consumption and redesigning vehicles to become lighter and more efficient with this being outlined through detailed annual 'sustainability' reports.[68] These changes may have been driven by a public relations imperative, but with the company repositioning itself as a responsible environmental *innovator* the organisation was seeking to turn a reputational vulnerability into a marketing asset.

The Defender itself managed to remain largely immune to much of the criticism targeted at leisure 4x4 vehicles due to its associations with utility, function and a reputation for doing 'good-deeds' (such as use by the emergency services, charities in developing countries and agriculture). For the Defender, these associated value complexes mitigated against the growing condemnation of 4x4s and was articulated by a somewhat tongue-in-cheek blog on the Greenpeace UK website in 2006, 'The Land Rover Defender is actually quite a useful bit of kit in certain situations. This no more excuses the Range Rover Sport than Kylie [Minogue] excuses Dannii [Minogue…] but credit where credit's due.'[69] Land Rover Ltd itself seemed well aware of the Defender's apparent immunity to criticism and reinforced its largely positive reputation for good with regular donations of Defenders (and occasionally other models) to organisations such as the British Red Cross and the Born Free Foundation plus the development of experimental zero-emissions versions of the vehicle such as the all-electric Defender later used to pull a passenger 'road train' at the environmentally conscious Eden Project in West Cornwall.[70] Despite changing public perceptions about the impact of 4x4 vehicles the Defender's 'halo' was to remain largely intact.

Fig 20: Experimental all-electric Defender in use at the 'Eden Project' in Cornwall as part of Land Rover's investigations into the electrification of all-terrain vehicles (Jaguar Land Rover 2013)

Enthusiasts and their relationship to the brand

Owner-drivers of the utility Land Rover (the 'Defender' since 1990) often wave at each other when they pass. This is unusual in modern motoring and there is a protocol of course; drivers of Defenders owned by the Army, farmers or the electricity board etc. rarely acknowledge each other. However private individual owners of the Land Rover Defender usually do, but why? Is it because the first group (soldiers, farmers and contractors) see the Land Rover as purely a workhorse, a tool to get the job done? The second group differ, as they have been motivated in some way to spend their own money to buy a capable but rather thirsty, noisy and slow vehicle. Nevertheless, they seem to be saying with a simple wave to a fellow Land Rover owner 'I get it too'.[71] There is, it seems, a desire to acknowledge their enthusiasm with likeminded strangers.

Figure 6: Land Rover Etiquette:
Spoof instructional sticker produced by the Norsk Land Rover-klubb. (Author's collection)

Membership of this community also often entails substantial knowledge, both artefactual and contextual, of the shared object of affection.[72] Such observable manifestations of enthusiasm are highly revealing of the significance of subjective engagement, emotional attachment and 'unsanctioned' knowledge in design culture, and should therefore warrant the attention of design historians (see concluding chapter).

A significant indication of the level of interest in the marque and the scale of the enthusiast movement is evident in the publication of a large number of independent Land Rover magazines. By the millennium there were five high-street magazines in the UK alone catering for the growing number of Land Rover enthusiasts. 1987 saw the launch of *Land Rover Owner* magazine, which was the first magazine of its type focusing on the Land Rover run entirely independently of the vehicle's manufacturer and featured articles on maintenance, adventure travel, off-road competition and articles about the history of the vehicle and its manufacturer. In the UK titles such as *Land Rover Owner International* (1987 to date), *Land Rover World* (1993 to 2013), *Land Rover Monthly* (1998 to date), *Classic Land Rover* (2013 to date) and *Land Rover Enthusiast* (2000 to 2010) all sought to serve enthusiasts' desire to familiarise themselves with the type's history, application and maintenance.

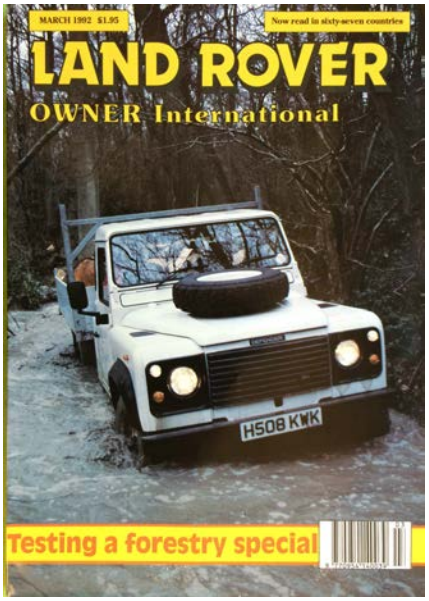


Figure 10: Launched in July 1987, *Land Rover Owner International* (LRO) is the longest running magazine for Land Rover enthusiasts (published monthly by Bauer Consumer Media).

There are also many Land Rover magazines available in other countries such as *Land Mag* and *Univers Land* (France), *Rovers Magazine* (USA), *Land Rover Africa* (South Africa) and Land Italia (Italy) plus tens of club magazines with these often being of similar glossy high production standards comparable to commercially available titles such the Land Rover Series One Club magazine 'Legend'. In the UK this range of one-marque magazines is greater in number than titles published for any other specific vehicle type.[73] A huge number of books dealing with the technical history and specific models of utility Land Rover have also been published with a rapid expansion in this type of title taking place from the late 1980s onwards as interest in the Land Rover from enthusiasts grew and publishers sought to serve this expanding market (see introductory chapter). Many maintenance, modification and restoration manuals have also been independently published in addition to factory publications to support owners and vehicle restorers. Re-release of period training and marketing films has expanded as enthusiasts have sought to engage and immerse themselves in the vehicle's multifarious applications and rich history through a range of DVDs as well as period clips on online video archives such as *You Tube*.[74] Period publications such as early handbooks, factory manuals and publicity material are much prized and are now highly collectable with authenticity and originality being a significant component of ownership for many enthusiasts. All these types of publications may also serve another role in addition to their more obviously informational function, by acting as a form of automotive 'scripture' with the artefactual 'teachings' they offer allowing dedicated enthusiasts to become closer and more immersed in the narrative, accomplishments and significance of their chosen object of affection. Although this analysis could be considered hyperbolic and not the manner in which enthusiasts themselves would characterise their engagement in ownership, the level of artefactual expertise, financial commitment and dedication to the Land Rover for many enthusiasts does at times appear to reach heights of almost religious commitment. As Tony Gilroy, the former Managing Director of the Land Rover Group observed: 'To some people the Land Rover is not just a vehicle - it's a way of life.'[75] With tee-shirts and stickers

available with such sentiments as ‘My Land Rover is not a hobby, it’s a way of life’ and ‘Land Rover: if you have to ask you won’t understand’ there does appear to be a level of self-mocking self-awareness with regard to the level of engagement that some owners and enthusiasts enjoy indulging in.

There is a strong sense of attachment from many owners to their particular Land Rover with terms such as ‘part of the family’ and ‘we would never sell it’ being frequently used when interviewing owners. This bond seems in part due to the longevity of Land Rovers meaning they become familiar and reassuring objects to owners and due to their functional nature there is often a feeling of shared experiences in sometimes difficult or memorable circumstances, much as there is in friendships between people. Peter Crowley, Principal Designer with Land Rover explained in interview:

> *The enthusiasm is genuine, people have often grown up with a Land Rover being owned/driven by a parent or older sibling, it has been seen as a magic portal to adventure and fun whether on a major expedition, or simply being able to say that you were the only one in your road to get out when it had snowed. In truth everyone else probably wanted to stay in, in the warm, but your Land Rover meant you could be different and many people gain something very positive from these experiences. These people [are] very often second-generation owners and often their Defender is the second or even third car in the family.*[76]

THE HEREFORD TIMES, Thursday, January 13, 2011 11

Appeal after car stolen from town’s car park

A GREEN LandRover that was “almost like a member of the family” was taken from Knighton over the weekend, causing its owner great distress.

The 15-year-old Defender disappeared on Sunday from Bowling Green Lane car park shortly after two men with snow shovels were spotted nearby.

PC Bill Cowan has asked them to get in touch if they were simply clearing snow so that they can be eliminated from enquiries by calling 01267 222020 or emailing bill.cowan@dyfed-powys.pnn.police.uk.

Figure 11: “almost like a member of the family”. Forming a strong bond with one’s utility Land Rover is not uncommon amongst owners (Hereford Times 2011)

Owners naming their Land Rover, whether old or modern, is also commonplace with this anthropomorphism of an inanimate object further demonstrating both how owners domesticate their vehicle but also feel sufficient affection for it that it requires designating with its own unique identity and 'pet' name. According to research carried out by the Automobile Association in 2014 39% of drivers in the UK have given their car a name with the most popular naming method being based on the registration number (30%) followed by choosing a name that seemed to suit the car's 'personality' (27%). Furthermore the AA's own website stated:

> *The AA even names some of its own vehicles. The Special Operations Response Team (SORT) names each of its specially adapted Land Rovers that are used for flood rescue. Each Land Rover is named after a fish: Trout, Pike, Carp, Tench, Roach, Bream, Wanda and Perch.*[77]

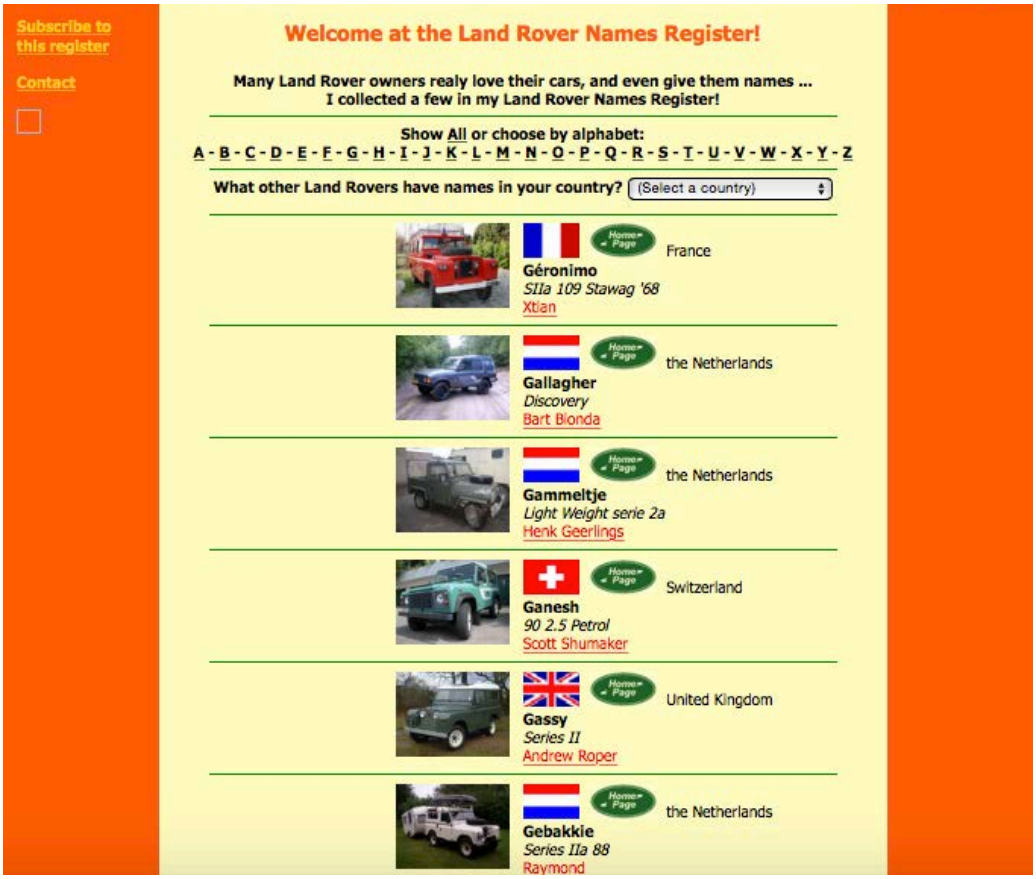


Figure 12: Dutch Land Rover enthusiast Gerard List maintained a list, catalogued in alphabetical order, of pet names that owners from around the world had given to their vehicles and then contributed to the website along with a photograph (Gerard List 2010)[78]

This palpable sense of personality that some owners attribute to their Land Rover is of course not unique to the marque and there are aspects of such anthropomorphism that are observable across other automotive brands and models. Such notions are often associated with 'cultish' cars with strong design identities and cultural associations with such attributes being particularly numerous and identifiable in the utility Land Rover. Vehicles such as the Volkswagen Beetle and the Harley Davidson motorcycle also exude similar types of characteristics and analogous fascinations amongst enthusiasts with factors such as longevity (either physical or cultural), aesthetics, application, function and cultural resonance being amongst the most significant.[79] This impression of permanence and longevity is particularly intense for many Land Rover enthusiasts and when combined with a sense of robustness inherent in the vehicle's design (both physically as well as temporally) and adventurous spirit which are then repeatedly articulated through representations of its heritage and mythologised back-story.[80] Although such manifestations of enthusiasm are not unique to the utility Land Rover, what is notable is the scale and internationalisation of the Land Rover enthusiast movement with interest in the vehicle as diverse as its application, with clubs and individuals dedicated to particular eras of the vehicle, types – whether military, agricultural or for expeditions – and in all conditions from fully restored pristine original early models to battered off-road 'play-things'. As we have seen however, much of these retrospectively coherent value complexes were serendipitously woven into the brand (both formally and informally) by a range of actors from consumers, enthusiasts and the manufacture themselves combined with the sustained, and largely consistent, portrayal of the utility Land Rover in popular culture.

Conclusion

The utility Land Rover's diverse application, longevity and associations with adventure have informed the vehicle's value complexes with these being largely reinforced over its sixty eight year history.[81] Amongst enthusiasts this agency has manifested itself in the Land Rover as a 'personality'. This can be characterised as an apparent willingness to 'keep going' in

difficult conditions whether operationally, temporally or in terms of its ceaseless versatility and often despite the apparent disregard from its own manufacturer at various points in its history which has only served to further reinforce its reputation for overcoming any obstacle. The utility Land Rover has gone through many incarnations, from agricultural vehicle, to military vehicle, to expedition workhorse until arguably finally to 'SUV' (Sports Utility Vehicle) and cult classic. All these stages of development and transformation in its history have informed and codified the Land Rover's value complexes. This backstory was later gradually transformed into 'informational capital' with the brand showing its 'ability to appropriate and commodify a socially produced immaterial externality' as Adam Arvidsson described it when theorising on how successful brands create value.[82] The diverse functions, resolute properties and endurance of the vehicle have generated significant levels of devotion for the utility Land Rover amongst enthusiasts. Its longevity, fitness for purpose and often very loyal following has made the Land Rover a metonym for 'four wheel drive' in the UK and other nations where there has historically been a significant British influence leading to it frequently being described as an 'iconic' automotive design. It is this epitaph and its validity that is examined in the following chapter.

Endnotes

[1] Andy Knowles, *Champions of Design: Observations on creativity for competitive advantage from jkr.* (London: jkr Brand First Books, 2011), 44

Endnotes

[2] *Telegraph Newspaper* (6th April, 2016) available online at: http://www.telegraph.co.uk/cars/news/land-rover-to-produce-new-series-1/

[3] The retail price of £450 for a Land Rover in July 1948 is the equivalent of approximately £15,000 in 2016 calculated using the Retail Price Index (RPI). Figure obtained from http://www.measuringworth.com accessed 2/11/16.

[4] *Land Rover Reborn,* available online at: http://www.landrover.co.uk/above-and-beyond/reborn.html, accessed August 12, 2016

[5] *Steinway & Sons Restoration Centre,* available online at: http://steinway.co.uk/services/restoration-centre/, accessed August 23, 2016. *Artek 2nd Cycle and Vintage*, available online at: http://2ndcycle.artek.fi/?___store=english&___from_store=default, accessed November 23, 2016. *The Rolex Service Procedure,* available online at: https://www.rolex.com/rolex-dealers/servicing-your-rolex.html, accessed August 25, 2016. *Purdey Service*, available online at: shttp://www.purdey.com/guns-rifles/services-storage/, accessed August 25, 2016

[6] "Land Rover to produce 'new' Series 1"*, Telegraph Newspaper* (6th April, 2016), available online at: http://www.telegraph.co.uk/cars/news/land-rover-to-produce-new-series-1/

[7] Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other", *Social Studies of Science* (1984), 14 (3), 421.
[8] Adam Arvidsson, "The Logic of the Brand", *European Journal of Economic and Social Systems* (2007), 20 (1), 99-116. See page 13 of the introduction for further explanation of 'value complexes'.
[9] Land Rover Ltd, *An Icon for Over 68 Years*, available online at: http://www.landrover.co.uk/vehicles/defender/index.html, accessed August 22nd, 2016.
[10] Subramanian Balachander, "Limited Edition Products: When and When Not to Offer Them", *Journal of Marketing Science* (2009), 28 (2), 336-355.
[11] *The Dam Busters March* composed by Eric Coates is the theme to the 1955 British war film *The Dam Busters*.
[12] Original TV advertisement available online at: https://www.youtube.com/watch?v=YTlIL8--r0U
[13] Land Rover specifically targeted car drivers who had not owned 4x4s before with the Discovery (launched in 1989) as a way of expanding their market. The strategy met with great success with the Discovery rapidly becoming the company's best selling model and created the foundation for the company's hugely successful move into the leisure and broader SUV market.
[14] *Top Gear*, Series 22, Episode 4. *Climbing A Dam In A Land Rover*, [TV] London, BBC, First broadcast 15th February, 2015, available online at: https://www.youtube.com/watch?v=7TZTa2tgJTs
[15] Marketing for the Land Rover had been largely undertaken 'in house' over the vehicles production life with advertising campaigns carried out by specialist creative agencies. For twenty years (1995-2015) during the period of expansion and repositioning of the company as a manufacturer of prestige all-wheel-drive cars this role was undertaken by the Young & Rubicam agency. However in early 2015 Jaguar Land Rover transferred its global creative advertising accounts to 'Spark44', an agency jointly owned by its management and JLR thereby effectively moving the *entire* marketing process in house.
[16] According to Roger Crathorne (interviewed by the author, 7th August 2009) the 'Marque values' listed were developed by Land Rover North Americas Marketing Director Russell Ternham but later 'Developed by the Land Rover marketing team, in consultation with their advertising agency Bates Dorland and communication agency Cricket' according to Vivienne Shaw (see endnote below).
[17] Vivienne Shaw, 'Land Rover: the Discovery success story', in: Peter Doyle & Susan Bridgewater, ed. *Innovation in Marketing.* (London: Routledge, 1999), 80
[18] An abridged version of the slogan was used for the title of Land Rover's factory magazine 'One life'
[19] Andy Knowles, *Champions of Design: Observations on creativity for competitive advantage from jkr.* (London, jkr Brand First Books, 2011), 44
[20] *Slogan Doctor: Land Rover 'go beyond',* available online at: http://www.managementtoday.co.uk/slogan-doctor-land-rover-go-beyond/article/969272#btZmT596MMUVmOlm.99 01 Dec 2009, accessed September 27th, 2016.
[21] "Land Rover goes 'above and beyond' in biggest ever global marketing campaign", *Campaign (October 10th, 2014)*, available online at: http://www.campaignlive.co.uk/article/1316625/land-rover-goes-above-beyond-biggest-ever-global-marketing-campaign
[22] Although manifest, there is no specific point in the history of automotive marketing where the transition from modernist marketing techniques emphasizing the functional to increasingly post-modern emotional and evocative approaches takes place with it varying both by vehicle type and country. For instance, for passenger cars marketed to private consumers in the United States (of domestic manufacture) it can be argued this transition happened as early as the 1930s as style and fashion became increasingly important for maintaining car sales. The shift in the marketing of all-terrain utility vehicles (i.e. 4x4s) for leisure and as a lifestyle choice starts to emerge much later (initially in the US with vehicles such as the Jeep 'Wagoneer' in the 1960s), becomes increasingly established in the 1980s and is commonplace by the 1990s with the term 'Sports Utility Vehicle' (SUV) being broadly accepted.
[23] "Annual model change was the result of affluence, technology, advertising." *Automotive News* (14th September, 2008), available online at: http://www.autonews.com/article/20080914/OEM02/309149950/annual-model-change-was-the-result-of-affluence-technology-advertising
[24] Phil Patton, *Bug: The Strange Mutations Of The World's Most Famous Automobile* (Da Capo Press, Cambride, MA, 2002), 92-95.
[25] Gregory Votolato, *Car (Objekt)* (Reaktion Books, London 2015), 157
[26] Douglas Holt. *How Brands Become Icons: The Principles of Cultural Branding* (Harvard Business School Press, Boston, 2004), 39.

[27] Elizabeth Guffey, *Retro: The Culture of Revival* (Reaktion Books, London, 2006), 70. Peter Stanfield, "Heritage Design: The Harley-Davidson Motor Company", *Journal of Design History* (2002), 5 (2), 142
[28] David Gartman, "Three Ages of the Automobile", *The Journal of Theory, Culture & Society* 21, (4-5) *(1994)*: 169-195
[29] Paul Hazell, 'Ford Model T', in: Grace Lees-Maffei, ed. *Iconic Designs: 50 Stories About 50 Objects*. (London: Bloomsbury Academic, 2014), 30
[30] Steve Gardener and Chris Evans, *Design and Designing*, Chapter 15, Richard Woolley *Designing for Markets (Land Rover)*, Berg, London, 2012, 224.
[31] Gijs Mom, "Translating Properties into Functions (and Vice Versa): Design, User Culture and the Creation of an American and a European Car (1930-70)", *Journal of Design History* 21, no. 2 (2007): 171-181. Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other", *Social Studies of Science* (1984), 14 (3), 414.
[32] 'Spark44: Land Rover 'Adventure. It's In Our DNA'' available at: http://www.thedrum.com/creative-works/project/spark44-land-rover-adventure-it-s-our-dna
[33] Despite the nomenclature, in engineering terms the Range Rover Sport and the Range Rover Evoque were not related to the Range Rover. The Range Rover Sport was derived from the 'T5' platform developed for the Discovery 3 and the Range Rover Evoque shared a (much modified) platform with the Freelander 2. Mike Gould, *Rover Group: Company And Cars, 1986-2000* (The Crowood Press, Ramsbury, 2015), 102
[34] Alastair Duncan, "Brand profile: Reports of the Land Rover Defender's death have been greatly exaggerated", *TheDrum.com* (February 3rd, 2016), available online at: http://www.thedrum.com/opinion/2016/02/03/brand-profile-reports-land-rover-defenders-death-have-been-greatly-exaggerated, accessed March 27th, 2016.
[35] Abyssinia is the region now made up of the northern half of present-day Ethiopia and Eritrea.
[36] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4, 298.*
[37] Barbara Toy, *A Fool on Wheels* (John Murray, London, 1955)
[38] Martin Walter Ltd produced a range of camper conversions under the brand 'Dormobile' for various vans (Bedford, VW etc) from the mid 1950s until the mid 1980s with the Land Rover Dormobile offering a further extension of the range from 1958 but with an increased 'overland' and expedition bias. At the time of writing the Dormobile brand still survives and remains virtually unchanged in its design but is now owned and operated by parent company SHB 4x4 Hire.
[39] Tim Slessor, *First Overland* (The Companion Book Club, Watford, 1957)
[40] The model name 'Station Wagon' was adopted from the American term for a large people-carrying vehicle suitable for collecting a group from a railway station.
[41] Interview conducted by author with Roger Crathorne, Head of Technical Public Relations, Land Rover UK, June 2010
[42] *The Ancaster Trial 1963*, YouTube, http://www.youtube.com/watch?v=_iCBVHN1O4U, Accessed August 22, 2012 & *Land Rover Club 8th Annual Rally & Fenny Compton Trial c1964*, YouTube, https://www.youtube.com/watch?v=f2wc0_r0IYY, Accessed August 22
[43] Interview conducted by author with Roger Crathorne, Head of Technical Public Relations, Land Rover UK, June 2010
[44] Russell Brandon, *The Hundred Days of Darien* (Collins, London, 1974)
[45] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4,* 284.
[46] Rover Group Marketing Director Martin Runnacles quoted in a press release Issued by Jardine Wesson International PR Consultants, 25 February 1999 available from http://www.landroverclub.net/Club/HTML/Camel_press_release.htm, Accessed August 28, 2012
[47] *G4 Challenge Owners Club*, http://www.g4ownersclub.com/, Accessed August 28, 2012
[48] *Bowler Motorsport Heritage,* available online at: http://www.bowlermotorsport.com/bowler-motorsport-heritage/ accessed November 20th, 2016.
[49] *Land Rover Backs Burghley Until 2013,* http://www.landrover.com/gb/en/lr/about-land-rover/land-rover-news/land-rover-backs-burghley-until-2013/, Accessed August 20, 2012. *Rugby Overview*, http://www.landrover.com/gb/en/lr/about-land-rover/sponsorship/rugby/, Accessed August 20, 2012.
[50] *Been anywhere interesting lately?* Land Rover UK television commercial, 2011, YouTube, http://www.youtube.com/watch?v=g4ZbRJ94y4U, Accessed August 28, 2012
[51] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4,* 296

[52] Paul Hazell, (2012, September). *A very British SUV: How Land Rover used sport, competition and notions of adventure to reinvent the utility four wheel drive*. Paper presented at the Design History Society Annual conference, University of Brighton, England.
[53] Brochure, *New 2007 Defender* (Land Rover publication number LRML 2381/07, 2007)
[54] *The Times* Newspaper for example contained numerous articles relating to the Land Rover between 1960 and 1970. The American children's series *Daktari* (CBS, 1966 to 1969) was a fictional story set in the African Bush that aired on US and British television. It heavily featured several Land Rovers with one finished in black and white Zebra stripes. This was reproduced by Corgi Toys in both black and white and Black and green stripes. The British film *Born Free* (Open Road Films Ltd. and Columbia Pictures,1966), again set in the African Bush also heavily featured Land Rovers.
[55] Louis Althusser, "Ideology and Ideological State Apparatuses (Notes towards an Investigation)". In *Lenin and Philosophy and Other Essays*.(Verso: 1970)
[56] Slavin & Mackie, *Land Rover: The Unbeatable 4 x 4,* 176.
[57] Sir Don Ryder, *British Leyland: The Ryder Report* (Her Majesty's Stationary Office, London, 1975)
[58] Mike Gould, *Rover Group: Company And Cars, 1986-2000* (The Crowood Press, Ramsbury, 2015), 55
[59] The Land Rover continues to be used to signify British agricultural and rural authenticity in both factual and fictional television such as the rural affairs program *Countryfile* (BBC 1988 to date) and David Dimbleby's history of rural Britain *A Picture of Britain* (BBC 2005) as well as contemporary and period dramas such as *Heartbeat* (ITV 1992–2010), *Monarch of the Glen* (BBC 2000- 2005) & *Down to Earth* (BBC 2000-2005) et al.
[60] *Top Gear*, Series 2, Episode 5. *Top Gear's Greatest Car of all time*, [TV] London, BBC, First broadcast 8 June, 2003
[61] "Jaguar Land Rover announce partnership with Spectre, the 24th James Bond adventure", *landrover.com*, available online at: http://www.landrover.com/experiences/news/partnership-with-spectre.html, accessed August 2, 2016
[62] "Land Rovers in movies", *Internet Movie Cars Data Base,* available online at: http://www.imcdb.org/vehicles_make-Land-Rover.html, accessed August 2, 2016. The Land Rover also made comic appearances in films such as 'The Gods Must Be Crazy' (1980) and on television in caricatured model form in Aardman Animation's 'Shaun the Sheep' (2007 – date), the former without company endorsement, the latter with.
[63] Jonathan Duffy, "4x4 or against?" *BBC (online) News Magazine* (22nd March, 2006), available online at: http://news.bbc.co.uk/1/hi/magazine/4829628.stm
[64] *Fragile Earth: Land Rover and the Environment*, Land Rover Ltd (booklet, LR563), 1990
[65] *A balanced approach towards a more sustainable future*, Land Rover Ltd (leaflet, LRML2357), 2006
[66] There was growing pressure on Land Rover Ltd to be seen to be doing something about its vehicle emissions particularly after a high profile campaign during 2005 and 2006 by the environmental protest group 'Greenpeace'. The groups' direct action included activities such as bringing the Range Rover assembly line to a halt after entering the factory without consent in 2005 as well as wheel-clamping customers Range Rovers and Discoveries in the street and labelling them 'climate crime scenes'. "Greenpeace shuts down Range Rover assembly line" (online) Greenpeace UK (16th May 2005)), available online at: http://www.greenpeace.org.uk/blog/climate/greenpeace-shuts-down-range-rover-assembly-line
[67] "Offsetting", *Carbon Independent*, (1st Mar 2007, last updated 2nd February, 2015), available online at: http://www.carbonindependent.org/offsetting.html
[68] "Jaguar Land Rover Sustainability Report 2012/13", *JLR Ltd* (2013), available online at: http://www.jaguarlandrover.com/media/22638/Sustainability-Report-1213-Interactive-080114.pdf?_ga=1.156029243.1052278385.1462531379
[69] "Land Rover really aren't as bad as people say, you know", *Greenpeace UK* (23rd July, 2006), available online at: http://www.greenpeace.org.uk/blog/climate/day-four-land-rover-really-arent-as-bad-as-people-say-you-know
[70] "Land Rover's Innovative Electric Defender Research Project Begins Real-World Trials At Eden Project", *JLR Media Centre* (31st July, 2013), available online at: http://newsroom.jaguarlandrover.com/en-in/land-rover/news/2013/07/lr_electric_defender_eden_project_310713/
[71] Interview conducted by author with Roger Crathorne, Head of Technical Public Relations, Land Rover UK, 7th August, 2009

[72] Deyan Sudjic. *The Language of Things: Design, Luxury, Fashion and Art. How We Are Seduced by the Objects Around Us.* (London, Penguin Books, 2008)
[73] In the UK enthusiasts have been generously catered for with the publication of a significant number of independent Land Rover magazines available through newsagents. Land Rover limited also produce their own official magazine for owners titled 'OneLife' magazine (available both in print and on-line). Available at http://onelife.landrover.com/#!onelife
[74] *Best of Land Rover* [DVD] BMIHT/David Weguelin Productions 2005. This was followed by further DVD titles re-released by *Heritage Motoring Films* featuring 'original promotional films for the Land Rover Archives re-mastered for DVD'
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Chapter 5
Defining an Icon: Application of the term 'iconic' to the utility Land Rover

> *'Iconic is a wildly overused term, but if there's one car that's worthy of it, it's the Land Rover Defender.'*[1]
>
> Steve Huntingford

Grappling with the subjective: an ode to the utility Land Rover

The Land Rover, old or modern, continually affirms its functionality; and for those who are receptive to it, affords poetry in its utility. As you approach the vehicle its tall angular shape suggests solidity, robustness and habituated purposefulness. When you haul yourself up into the vehicle by grabbing the steering wheel and climb aboard (and it is a *climb*, as evidenced by the popular fitment of optional side steps to ease ingress) you are aware this is not so much a large car, as a small truck. The ascent into the vehicle immediately separates the intimate from the unacquainted. An adept and seamless hop distinguishes the former and an awkward and haphazard clamber the latter with this often followed by expressions of the awkwardness of the entry by the unfamiliar and an amused smile from the acquainted. The ergonomic failures far from detracting from the vehicle only serve to reinforce the much-admired resolute nature of the utility Land Rover amongst enthusiasts. Shutting the door produces a reassuring clunk from the lift-up slam locks fitted to early vehicles – later versions close with a slightly more refined thump. In older models your nose is greeted with a mix of vinyl seating, vaguely sulphurous EP90 transmission oil and a hint of fuel. For those who have used a Land Rover for many years the smells are reassuring and highly nostalgic of earlier adventures. With the engine started the vibration and noise is carried throughout the boxy vehicle and you are left to choose from eight, ten, twelve or even sixteen forward speeds depending on the transmission fitted and your willingness to dip into the off-road ratios afforded by the vehicle's 'low-box'.[2] Which gear to choose for the conditions ahead can generate a feeling of intimidation and inadequacy in the unfamiliar or expertise and

satisfaction in the accustomed. In an era where modern cars seem to effortlessly waft their occupants along, the utility Land Rover feels like it must be collaborated with, rather than merely steered – particularly away from tarmac. The many gears accessible through two or sometimes three separate selectors suggests the vehicle has considerable abilities to offer in difficult conditions but to get the best may also demands familiarity and training.[3] Such characteristics create an involving and visceral experience for the susceptible that is rarely achieved in modern mass-produced vehicles. And all this before you have moved off and explored the vehicle's capabilities off-road.

Although the description above is celebratory and largely subjective the sentiment it conveys is no less real for many enthusiasts of the utility Land Rover and may explain why the vehicle's anachronisms are frequently forgiven by the converted. Motoring journalists have also indulged in similarly evocative writing when attempting to explain the lasting appeal of what by the end of its production life, was an antiquated yet still capable design. David Vivian writing in *Autocar* magazine in 1998 (marking the Land Rover's 50th year) is typical of such romantic descriptions of the vehicle's lasting appeal.

> *It's the smell that hits you first: a bouquet of chainsaw and rusty petrol cans with lingering notes of frayed oily rope, the inside of radiators and boiled mud. My nostrils flinch. I feel momentarily light headed. […] An old Land Rover engages the senses with raw immediacy that would shock and disturb the soft-roader generation. Made out of girders and bent aluminium, it looks at one with the countryside, as if it might have grown where it stands.*[4]

If the notion of iconicity (a form of celebration in itself) and its application to the utility Land Rover is to be explored such subjective responses require acknowledgment and recognition, particularly when "[a]s a group, cars are disproportionately [characterised as] iconic."[5]

Describing the utility Land Rover as an icon of automotive design has become an apparent truism. Seemingly every book, magazine article or TV item featuring the Defender (or its

predecessors) has in recent years used the term to succinctly delineate the Defender as a vehicle of distinct significance and standing. With the end of production of the utility Land Rover in early 2016 the use of the expression 'Iconic Land Rover Defender' in newspapers and motoring magazines reached almost epidemic proportions with numerous headlines in British national newspapers such as *The Daily Mail*'s 'The final mile for the Land Rover Defender: The iconic vehicle, loved by drivers from the Queen to James Bond, ceases production on Friday', *The Independent*'s 'Iconic Land Rover Defender to be discontinued', *The Mirror*'s 'Last Land Rover Defender rolls off production line after 68 years of iconic vehicles' and *The Daily Telegraph*'s 'Land Rover Defender: my life-long love affair with a British icon'. [6] As design historian Grace Lees-Maffei observed, 'It is a commonplace of journalism to affirm that the subject of an article is an icon, or is iconic, as a way of insisting on its importance, to secure the attention of readers'.[7] For such reasons the term 'iconic' has become problematic, particularly amongst design historians, as it implies celebration without analysis and has become increasingly devalued by its overextended and hackneyed application to all manner of objects and beings. Is there, therefore value or justification for expounding the utility Land Rover as an automotive icon in a design historical context? What does it reveal about the Land Rover's place in popular culture, its 'interpretive flexibility' and its significance to 'relevant social groups'?[8] By building on the analysis of the vehicle in earlier chapters as both design object *and* cultural totem, this chapter deconstructs the nature and identification of an iconic technical artefact by examining factors leading to the application of the term to the Land Rover as well as the nature of the vehicle in relation to the cultural canonisation that the term 'iconic' implies. The focus is less 'is the utility Land Rover iconic?' and more 'why and how has the utility Land Rover become thought of in this way?'

The iconisation of design

The origins of the words 'icon' and 'iconic' are rooted in the Greek word *eikon* meaning 'likeness, image or picture' and its later use in the medieval period with the Christian Orthodox church's use of religious symbols and their veneration.[9] Contemporary use however

is better defined by *The Oxford Dictionary*, which describes an icon as 'a person or thing regarded as a representative symbol or as worthy of veneration.'[10] The notion of *veneration* remains pertinent in both the early religious context and the contemporary iconisation of artefacts. The concept of 'likeness' is now more complex however and has shifted from literal representation, to mediated embodiment of a set of value complexes often communicated most visibly through branding. Importantly though, for an iconic design to be perceived as authentic, consistent media representation is required, often through frequently repeated myths, origin tales and semiotically consistent representations of the artefact in popular culture.

Defining a design as being iconic, it might be argued, is largely done subjectively yet its a term that can make one believe it is an objective judgment of significance and quality – particularly when stated and repeated by 'high priests' (i.e. opinion formers such as motoring journalists, historians and the persuasive weight of sophisticated marketers). It is also important here to make a distinction between iconic *artefacts* and iconic *brands*. A significant amount has been written concerning the latter (both products and companies) across various disciplines such as media and cultural studies, and particularly marketing and business management. Much less has been written about specific contemporary artefacts described as 'iconic' that have not also already been mediated by branding for commercial purposes. As branding has become increasingly sophisticated and progressively integrated into consumers' understanding of material culture, separating the designed object (the artefact) from the subject (the brand) has become increasingly difficult requiring the questioning and investigation of often well established origin myths.[11]

A common criticism of the term 'icon' or 'iconic' when applied to design is its recurrent and overextended use. Even amongst journalists – the very group who are most accused of its overuse - there is a move to employ the word less frequently after often ill considered, simplistic and sometimes banal application. Miranda Green of *The Financial Times* and *The*

Guardian newspapers commented: "The word icon is [now] usually banned in journalism for the very good reason that it's so over used".[12] Anyone can of course label an object or design iconic, sometimes merely as an indication of preference or for emphasis, but the characterisation of an artefact as iconic needs to gain traction amongst larger groups for the term to become legitimised and firmly linked to its referent. Although limited in its empirical specificity Google's *Books Ngram Viewer* through the use of analytics reveals this increased use of both 'icon' and 'iconic' in books published since the mid 1980s.

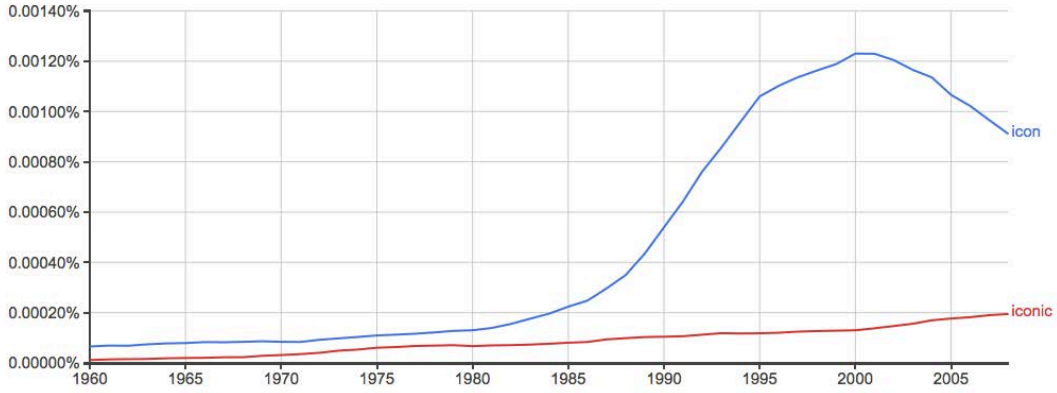

Fig 1: Increasing use of both 'icon' and 'iconic' in books published since the mid 1980s (Google's 'Books Ngram Viewer')

Where design historians have attempted to examine artefacts labelled 'iconic' more rigorously such as in the 2014 book *Iconic Designs: 50 Stories about 50 Things*, here too, brands and branding are (perhaps unsurprisingly) continually mentioned when deconstructing the things the book title refers to.[13] It may therefore be largely impossible to separate commercial products and their properties from how they have been communicated through branding. However, it *is* possible to find examples of designs that have been consistently labelled 'iconic' but have *not* been subject to managed branding. Such examples can serve as a means of examining the factors that lead to such veneration outside a brand, which is discussed later in this chapter using the example of the Supermarine Spitfire fighter aircraft used by the allies in World War II.

Finding methodological tools to objectively identify an iconic design is also problematic, although in the introduction to *Iconic Designs: 50 Stories about 50 Things,* the editor, Grace Lees-Maffei sets out to define the 'identifying characteristics shared by religious icons and design icons alike as functions of reception, representativeness, recognition and reverence'.[14] The four characteristics identified by Lees-Maffei greatly assist in assessing the factors leading to iconisation, but may not be exhaustive. The diagram below specifies these major constituent parts of the four 'Rs' (Recognition, Representation, Reverence, Reception) in a single schematic as a means of identifying an iconic design but also proposes a fifth, 'Robustness' as a result of the research outlined throughout this thesis. Longevity and authenticity (aspects discussed throughout) are placed under this additional heading to create five, rather than four, 'Rs' when identifying an iconic design. The significance of longevity (whether cultural or physical) is therefore highlighted but as the diagram shows, this like any of the other factors, is not sufficient in itself for the artefact to move from ubiquity to iconicity. The artefact is required to be accepted as a cultural touchstone, a process that takes time, meaning for an artefact to be legitimised as being iconic, persistence of the artefact (cultural and/or physical) is also required. Such longevity is important and can be used to distinguish between objects which merely appropriate iconic characteristics through how they are designed and marketed, from those that are accepted as being iconic in the broader culture *over the long term*. These headings are then further linked in what is essentially a Venn diagram, through an intermediate stage labelled 'cultural suffusion' i.e. the spreading and mixing of the characteristics identified, by both opinion formers and more broadly through popular culture, leading to the veneration of the artefact to the level of icon. The diagram has therefore contributed to identifying what evidence should be sought with regard to the utility Land Rover and its frequent characterisation of being iconic. Furthermore, as a result of this process the value complexes identified in the diagram have been continually reconsidered leading to further refinement over time as other key aspects, such as longevity, have either become evident or grown in significance.

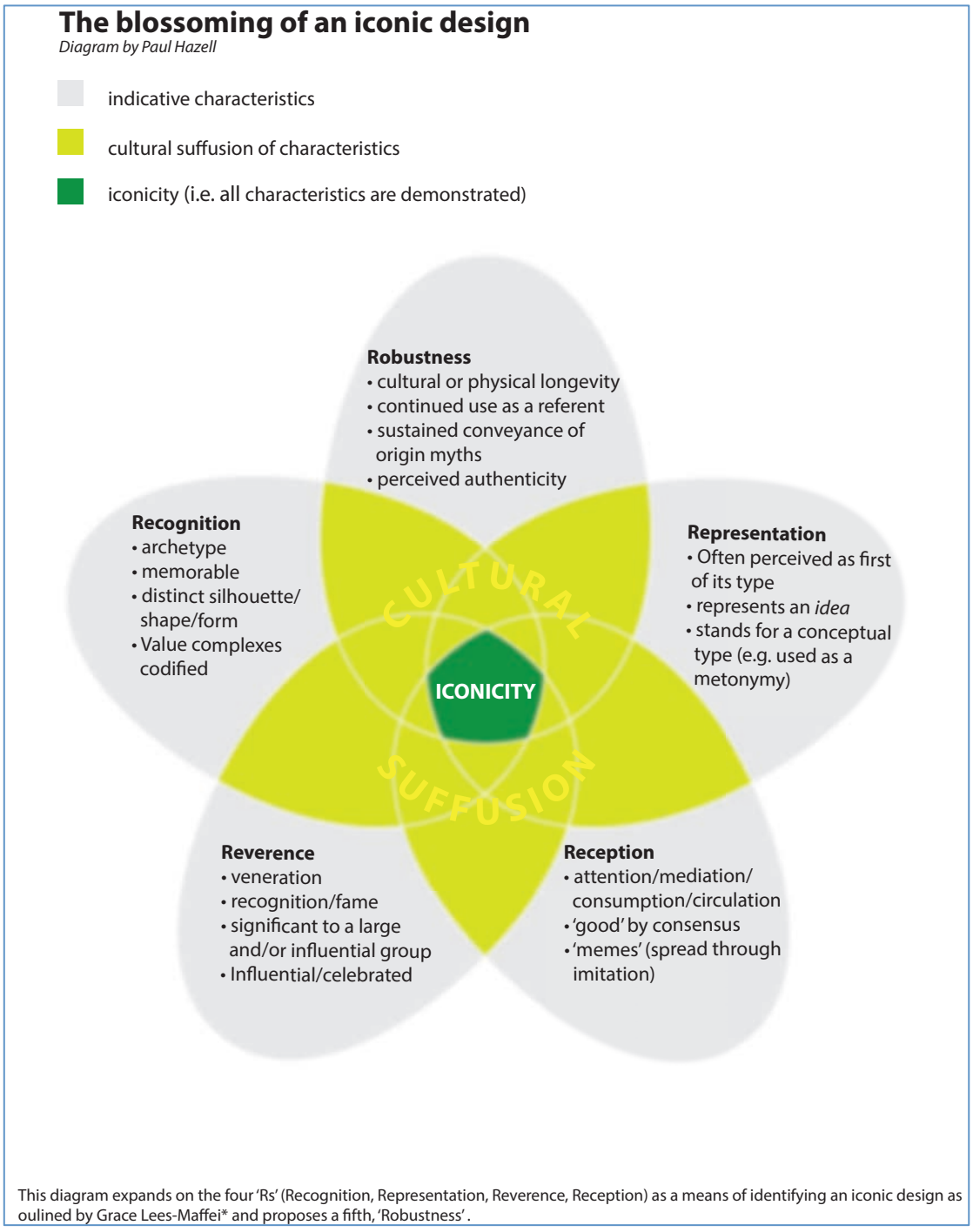

Fig 2: Diagram setting out the characteristics typically exhibited by iconic designs (diagram by Paul Hazell)

The emergence of the Land Rover as an iconic design

The utility Land Rover at its conceptually simplest was a rugged and versatile automotive product bought for diverse applications by consumers. Fundamentally, as *product* the manufacturer sought to sell the vehicle in the largest volumes possible by serving varying types of demand wherever these emerged. This has in turn meant that the value complexes

associated with the Land Rover have themselves become diverse, but latterly through increasingly sophisticated brand management and the persistence of the object itself, have also become crystallised over time. Early users of the utility Land Rover valued the versatility and functionality and could not have known what the vehicle would come to represent to later consumers. The vehicle started life as a versatile and utilitarian design born of functional necessity in the modernist tradition. In a contemporary post-modern context purchasers of the vehicle arrive at it as a choice through more varied routes ranging from the practical (a tool to do a job), to social (becoming part of an owner/enthusiast community), to cultural (an iconic vehicle design). According to Peter Crowley-Palmer, Principal Designer who has worked at Land Rover Ltd since 1987, 'I would say that many more Defenders now, than at any time in the past, find their way into the hands of owners that use them purely for recreational purposes'.[15] Therefore what the vehicle means to these groups may be diverse but is consolidated and made to overlap by representations of the product's history by various opinion formers (journalists, writers, brand managers, enthusiast groups etc.). If such messages are conveyed consistently over a sustained period these connotations develop into the accepted wisdom regarding the artefact and are largely crystallised in the popular imagination.

It could therefore be argued that the utility Land Rover's value complexes are purely socially shaped through the frequently celebrated history of its development and application. As we have seen this methodological approach to theorizing about technology originated in the field of science and technology studies (STS) and is exemplified in the social construction of technology (SCOT) (see introductory chapter).[16] Christine Hine, when examining the Internet from an ethnographic perspective described social shaping of technology (in this example with reference to the bicycle as this was used as an exemplar by *Pinch and Bijker* when defining SCOT) in a manner that could also equally be applied to the utility Land Rover.

> *Social shaping implies that what the technology comes to be is the upshot of social processes of negotiation between different interest groups who view the advantages*

> *and disadvantages of the technology differently. The upshot of these processes involves the reaching of a closure around the definitions of the technology and the final version of the technology depends on which relevant social group's conceptualization wins out. The iconic example for this approach is the bicycle (Pinch and Bijker, 1987; Bijker, 1995). Although it might seem that the design of the bicycle current today is simply the most efficient way for it to be, it can be shown that the self-evident design of the bicycle came about through processes of negotiation around the definitions of uses and problems of the relevant social groups. Technologies possess interpretive flexibility, such that not only do relevant social groups view the technology differently, but the technology could be said actually to be a different thing for each. Only in retrospect does the design that emerged come to seem self-evidently the best.*[17]

The uses of the phrases 'only in retrospect' and 'self-evidently the best' are significant here. The longevity that the phrase 'only in retrospect' requires of the artefact can be either physical or cultural, and is a key component with regard to a design being decisively labelled 'iconic'. If we take an alternative example of a technical artefact that has frequently been described as iconic, the Supermarine Spitfire fighter aircraft of World War II, the aircraft was (unlike the Land Rover) relatively short lived operationally but despite this, its *cultural* longevity even 70 years after the war's end shows no sign of abating in British culture.[18] The widely held popular notion of the Spitfire being 'self-evidently the best' (although historically arguable) led to widespread and oft repeated veneration due to, most notably, the aircraft's much-celebrated role in the Battle of Britain and (in a parallel to the Land Rover) its versatility over its operational life.[19] Such popular consensus regarding which artefacts should be venerated is a further key characteristic of iconicity and although this is often inadvertently legitimised by historians deconstructing such objects this is no more significant (in popular terms) than the views of other commentators such as journalists or enthusiast groups. This means agreement regarding an iconic design is largely democratised and reached by common popular consensus, although opinion formers frequently influence this process.

Therefore the consideration of the nature of a technical artefact extends beyond its period of design, even beyond its original properties and period of use. Some technical artefacts can acquire new functions but also new value complexes. As the sociologist Rudi Volti stated:

> […] *technologies do not succeed or fail as a result of intrinsic technical virtues or shortcomings but because significant social groupings have interests in particular outcomes, and are in a position to make their interests a reality.*[20]

For example, long after the Spitfire left front line service and its operational life had ended it carried with it (or acquired) additional value complexes such as notions of 'Britishness', engineering excellence, physical beauty, national pride etc. Many years later this in turn allowed an entirely new enterprise to emerge around it (or more precisely the nostalgic memory of its accomplishments) in the form of books, magazines, aircraft restoration, memorabilia, models, events etc. This later crystallisation of value complexes may, at first glance, appear to be much like a managed brand. However this is not the case in this instance due to the obsolescence of both the artefact itself and the demise of its manufacturer in 1960 meaning what is conveyed now is not managed in any way.[21] Rather it is as if the Spitfire's value complexes coalesced by consensus creating not a brand, but a powerful cultural touchstone - the very territory a successful brand, particularly an iconic one, seeks to occupy.

The utility Land Rover has been through a similar process of iconisation to the Spitfire, i.e. it has acquired additional value complexes over its life. However it is not fully analogous as unlike the Spitfire is has also, until recently, remained in production over this extended period. This has meant the Land Rover has been required to absorb these expanding and changing value complexes over its life while still in production and available new. If it were to remain successful and relevant positive aspects of its characteristics would need to dominate, a task that has largely been achieved by a combination of two key factors. Firstly its inherent versatility as a design, i.e. the range of applications for the vehicle has been distinctive by virtue of its diversity meaning there was little surprise when it acquired further

roles for which it had never originally been intended – whether functional or cultural. Secondly, the later careful management and growing sophistication of Land Rover as a corporate brand, which increasingly capitalised on the vehicle's heritage, which was both rich in content and flexible in application, due to the very versatility the vehicle, had offered. However, unlike the original maker of the Spitfire, Supermarine, Land Rover as a company still exists, meaning the value complexes that have coalesced by cultural consensus around the vehicle as an *artefact* over its life are harder to identify and separate from how the story of the Land Rover has been mediated by the company's corporate brand management. In essence the early value complexes associated with the vehicle (versatility, longevity, authenticity, ruggedness, etc.) were appropriated and built on by the increasingly sophisticated corporate brand and applied more broadly to the company's growing range of products.

This change began when Land Rover Ltd was formed as a separate company in 1978 and greatly accelerated when the vehicle itself ceased carrying the Land Rover name as a model designation and instead became the Defender during the autumn of 1990 after the introduction of the Discovery the previous year. These developments coincided with the introduction of product planning in the late 1970s (see chapter 3), and developed gradually in the 1980s and early 1990s when the company expanded by repositioning itself as predominantly a maker of passenger carrying 4x4s rather than principally a manufacturer of light utility vehicles.[22] Simultaneously loyal users and enthusiasts also built up during the vehicle's life, which inadvertently reinforced and perpetuated the value complexes that were later capitalised on by the corporate brand. A similar pattern can be seen in other vehicles commonly described as iconic such as the VW Beetle and the Harley Davidson Motor Cycle.[23] Icons commonly have relatively fixed connotations as they act as archetypes and metonyms, paradoxically and advantageously in the case of the utility Land Rover, the fixed connotation that emerged as it became labelled iconic was that of versatility. When combined

with longevity – which indirectly implies fitness for purpose – this has made for a potent and valuable brand identity.

With the corporate branding for the parent company adopting many of the virtues exhibited by the utility Land Rover it has become difficult to disentangle the factors leading to the vehicles transition from ubiquitous technical artefact to one characterised as an iconic design. Although it is evident that this transition took place as the company's products (including the Defender) became increasingly targeted at private car buyers. Up until the late 1980s the utility Land Rover was sold almost exclusively as a commercial vehicle. This largely meant business-to-business sales for the vehicle's first 40 years of its existence with this predominantly commercial use meaning large scale public engagement with the utility Land Rover, either physically or semiotically, remained limited. These factors are likely to have inhibited its characterisation as an iconic design during this period.[24] Furthermore, such a characterisation was largely irrelevant to a commercial buyer who was likely to have bought the Land Rover because of other predominantly practical factors. The role of popularisation in the iconisation of design artefacts can be highlighted by comparing the utility Land Rover with another similarly versatile and successful vehicle produced over the same period but which has *not* achieved the same status. The German made Unimog vehicle (built by Mercedes Benz from 1951 to date) was designed to address remarkably similar requirements to the Series 1 Land Rover and entered production in 1947 only months before the Land Rover was launched. Much like Rover's new utility vehicle it was intended for use in agriculture as an off-road self-propelled machine providing a power take-off to operate agricultural implements. It was designed with permanent all-wheel drive, equal-sized wheels, in order to be driven on roads at higher speeds than a conventional farm tractor but unlike the Land Rover was of semi-forward control layout (i.e. cab positioned over the engine).[25]

Fig 3: Unimog on display at the Mercedes-Benz Museum, Stuttgart, manufactured by Boehringer Werkzeugmaschinen GmbH in Göppingen in 1948 before the takeover of Unimog by Mercedes-Benz in 1951. (Photograph Stephen Hanafin 2007)

The Unimog, initially a vehicle of similar dimensions to the Land Rover, grew to become a significantly larger off-road truck over the following decades and continued to expand its hugely diverse range of applications from agriculture, to local authority roles, to military truck and expedition vehicle all in a strikingly similar way to the Land Rover. However it never became a passenger-carrying vehicle and apart from a few dedicated enthusiasts, was not bought for recreational purposes but remained a commercial type. This in turn has meant that although highly capable and long-lived the MB Unimog has remained a niche commercial automotive product largely invisible to mainstream car buyers and therefore did not attain the popular appeal the Land Rover has achieved over the same period.

When did the utility Land Rover become iconic?

The characterisation of the utility Land Rover as an automotive design icon is now so commonplace that it may seem surprising that the word has been applied to the vehicle for approximately only twenty years. The term's increased use coincides with a period of rapid expansion in the consumption of 4x4s as leisure vehicles and the explosion in sales of SUVs to private individuals.[26] This expansion in SUV sales in the 1990s and the growing number of

models available from a diverse range of manufacturers (many with no previous experience of making 4x4s) seemingly required origin tales and associated canonised ancestors such as the wartime Willys Jeep and the utility Land Rover, particularly amongst motoring journalists. This canonisation of the utility Land Rover and its characterisation as a quintessentially British automotive product (despite what it owed to the wartime Jeep as a concept) made the brand particularly strong in terms of authenticity not only amongst British consumers, but also to those who found the value complexes it carried appealing. Other manufacturers of 4x4 SUVs, although arguably often offering more comfortable, reliable and cheaper alternatives were largely perceived as 'me-too' products that lacked the established authenticity of the original Land Rover, a vehicle rich in origin myths, genuine capability and of seemingly ancient antiquity in the context of the mercurial world of car design. The Land Rover to first-time private buyers of 4x4s in the 1980s and 1990s, had ostensibly been quietly hard at work for farmers, industrial users, the military and royalty for more than forty years before SUVs became popular amongst mainstream consumers. The already long established and industrious reputation generated creditability for both the corporate brand and its products. This grew in significance and value for the manufacturer as 4x4s became increasingly marketed as post-modern lifestyle products throughout the 1990s and into the new millennium. According to Land Rover designer Peter Crowley-Palmer:

> *'I am not familiar with a conscious decision to adopt the term 'iconic' in association with Defender. I am aware that when I joined the company in 1987 the […] term [iconic] was used [within the company] to describe the perception of Defender's usability and performance; whilst Range Rover's command[ing] driving position and upper market segment [positioning] were cited as giving these vehicles iconic status in [the] market [as] both vehicles had created all new stand alone new market segments for the company.*[27]

There is however little evidence of the term 'icon' or 'iconic' being applied to the utility Land Rover in-print before the mid-1990s. Up to this period descriptions of the Land Rover as 'legendary' or as a 'phenomenon' could be found in automotive books and magazines from as

early as the 1970s but the notion of the Land Rover being a design icon was yet to become established. The concept began to take hold as the Defender became increasingly perceived as not only a utility vehicle, but also a leisure vehicle (which as we have seen Land Rover Ltd had begun to capitalise on with the introduction of more comfortable 'County' models in the 1980s and the increasingly leisure orientated limited edition versions of the vehicle, particularly the Defender 90, in the following decade). One of the earliest examples of the utility Land Rover being characterised as iconic occurs in print in 1997, however not as might be expected by a motoring journalist, but by anthropologist Mils Hills. In an academic study Hills described the Land Rover as a 'distinctive cultural icon' and linked it to ideas of rural authenticity for those living in West Cornwall – both locals and affluent individuals who bought second homes in the area.

> *This distinctive cultural icon is used by both sides to define themselves, but in different ways. […] [T]he model of Land Rover that incomers purchase is the Discovery, the model which is explicitly marketed as a leisure vehicle. The farming fraternity, meanwhile, loyally continue to purchase (or mend!) the Defender, the original Land Rover model[.]*[28]

Here a clear distinction between leisure and utility is drawn but the term 'iconic' is applied to the corporate brand as a whole (just as the manufacturer might hope). Furthermore the quote also suggests that loyalty was particularly acute with regard to the Defender even as it aged and needed regular repair. This reflects Land Rover Ltd's move to market the Discovery as a leisure vehicle but suggests that the Defender, at least according to Hills, remained an *authentic* utility vehicle. The idea of authenticity (often as an aspect of originality) is essential to the concept of iconicity and has become increasingly important to how Land Rover Ltd has capitalised on the company's heritage and extended these value complexes to encompass a growing range of new models.[29]

Fig 4: Ancestry has become increasingly important with regard to how Land Rover Ltd has capitalised on the company's heritage and established the authenticity of new models.
'It's in the blood' campaign for the Land Rover Evoque, 2012 (JLR 2012)

The brand's application of the idea of authenticity to *all* Land Rover products has in turn directly fed back into both the design and engineering of other later Land Rover models with, for example, the company stating it was committed to producing the most capable 4x4 vehicles in each market segment that its models occupied. This created an echo chamber of brand credibility as each new model further reinforced the idea that Land Rover as a company were the maker of *the* most capable 4x4s that out-performed other manufactures' vehicles off-road, and increasingly on-road as well. Such value complexes informed the company's entire brand strategy and have allowed Land Rover to charge a premium for its products. Land Rover vehicles were, in short, the *real-thing* in the eyes of consumers and being the maker of the now iconic and long-lived Defender, which remained strikingly similar in appearance and function to the original 1948 model, directly reinforced this reputation and spread the iconicity from the object (the utility Land Rover) to the subject (the Land Rover corporate brand).

A further early application of the term 'iconic' to the utility Land Rover is evident in a January 1998 edition of the long running British weekly motoring magazine, *Autocar.* In an

article comparing the then new Land Rover Freelander model with an early Land Rover Series I utility model, journalist David Vivian stated:

> *When you consider that the Land Rover was a stop-gap-Jeep-alike envisioned to save Rover from the ravages of a depressed market and national steel shortage (hence the aluminium panels) and farmers from austere aftermath of the Second World War, it's easy to appreciate why its subsequent proliferation throughout the deserts, rain forests, swamps, mountains and war zones of the civilised (and uncivilised) world was held in such awe and considered worth protecting. Iconic is barely adequate as a description.*[30]

Made up largely of one long admiring sentence regarding the utility Land Rover's achievements the paragraph above set the tone of much of the journalistic writing that has followed with regard to the Land Rover and its achievements. With the description's rich and extended use of implied heroism, varied pragmatic achievements and origin myths (such as the vehicle being a stop-gap), it seemingly becomes impossible for the reader to argue with the second succinct and exalting sentence: 'Iconic is barely adequate as a description [for the utility Land Rover]'. 1998 marked the fiftieth anniversary of the original Land Rover and prompted the publication of many celebratory articles in motoring magazines with increasing use of phrases such as the 'iconic Land Rover'.[31] The fiftieth year of production also saw the company itself marking the event more visibly than it had at any previous anniversary as the marketing opportunities it presented were more strategically capitalised on than it had been in the past, particularly as the company repositioned itself as largely a maker of passenger carrying vehicles for private individuals.

This shift in the company's marketing strategy during the 1990s and growing confidence after the difficult years of virtual state ownership is exemplified by comparing the 40th anniversary model of what was then still simply the Land Rover in 1988 with the 50th anniversary Defender ten years later. In 1988 Land Rover Ltd had planned to mark the anniversary by producing a number of limited edition Land Rover Nineties built to a distinctly utilitarian

specification reminiscent of the Series 1 era (full-length soft-top, Bronze Green paint, standard steel wheels, diesel engine). This commemorative model was of such an austere specification that it looked little different to a standard military specification 90 concurrently being sold to the British Army. Although true to the Land Rover's origins as a working vehicle, in marketing terms it was likely to have communicated little to the types of customers increasingly buying small 4x4 SUVs from Japanese manufacturers. It was the Land Rover of old. In a further unfortunate indication of the circumstances at Land Rover Ltd at the time, only two were actually produced with the project then being abandoned due to industrial action taking place by workers at the factory. This made the 40th anniversary from a consumer's perspective a rather low-key affair.

Fig 5: Land Rover special 40th Anniversary limited edition model built to a distinctly utilitarian specification highlighting that the Land Rover 90 was still largely thought of as a commercial vehicle in 1988. Only two were produced due to Industrial action at Solihull (Authors Collection)

By 1998 things were very different at the company. The Discovery model had been selling strongly since 1990, the new Freelander had recently gone on sale and was well received and the second generation Range Rover was also selling well. Defender sales had also increased significantly over the first half of the 1990s and the commemorative model for the 50th anniversary of the Land Rover was an altogether more exuberant offering reflecting both the

direction and atmosphere at the company. The 50th anniversary model was again a 90 model but this time a fully trimmed station-wagon fitted with a powerful 4.0 litre fuel injected V8 petrol engine (borrowed from the contemporary Range Rover) connected to an automatic gearbox and shod with large all-terrain tyres on alloy wheels – the only time this performance specification was to be offered to UK customers.[32] The difference in these two anniversary models highlights the changing nature of Land Rover as a company over the same period, the continued versatility of the Defender and the shift in the value complexes the brand wished to project.

Fig 6: The 50th Anniversary Land Rover 90s were produced for the UK market with a limited run of 385 examples. The vehicle was fitted with a V8 4.0 litre petrol engine, automatic gearbox and alloy wheels making it a 90 clearly targeted at leisure rather than work and marked a clear transition in the brand over the preceding 10 years (Photograph Paul Hazell)

Quotes of the type highlighted above regarding the term 'iconic' may represent the early beginnings of explicitly linking the idea of iconicity to the utility Land Rover, which begins to solidify the concept in both car buyers', and motoring journalists' minds during the 1990s. By 2004 Land Rover Ltd itself was explicitly referring to the Defender as an icon in marketing material such as the brochure below.[33] The admiration of the vehicle the term iconic suggested had now been fully absorbed by the brand and was being projected back to

consumers. Paradoxically, this representation was also to create a problem for what had now become JLR by 2008 under Tata's ownership. As JLR's range of models increasingly traded not only on the notion of authenticity but also on innovation, performance and contemporary design, the Defender (despite various updates) was looking ever more anachronistic and out of kilter with the other JLR models. Having traded so heavily on the idea of authenticity however, discontinuing production of the ancestral root of *all* Land Rover products – the Defender and its forbears – presented a significant risk to the brand and how it was perceived.

Fig 7: The link between the Defender and its continually reiterated iconic status was boldly capitalised on (both literally and metaphorically) in the opening double page spread of the vehicle's 2004 marketing brochure. (Land Rover 2004, Publication Number: LRML 2097/04)

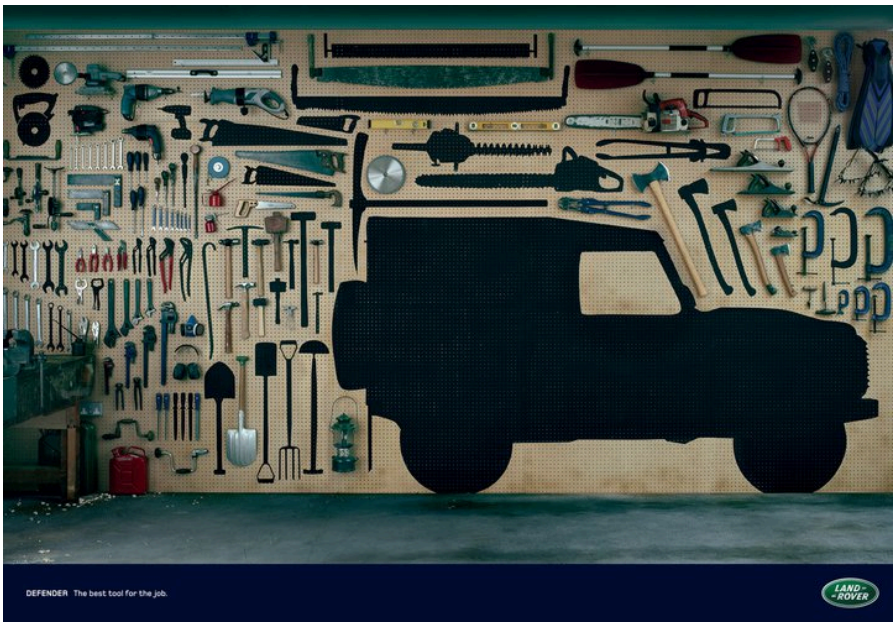

Fig 8: In the 2008 press advert: 'Defender: the best tool for the job' not only was the utility Land Rover's functionality reasserted, but through the use of the vehicle's readily recognisable silhouette (a significant factor in iconisation) its practicality was also emphasised (JLR 2008)

As we have seen in earlier chapters, although the company examined replacing the utility Land Rover with an all new model several times from as early as the mid-1960s this was repeatedly postponed due to other development priorities and frequent economic constraint due to changing circumstances (see chapters 3 and 4). The resulting and largely unexpected long-term continued production of the utility Land Rover was to later feed into the concept of the Defender being an iconic design and as a consequence almost inadvertently became a significant marketing asset for the corporate brand as a whole. The continued production of the utility Land Rover was increasingly characterised as evidence of the Defender's fitness for purpose, grandfather status and iconicity, rather than the company's inability to develop a significantly redesigned and reengineered replacement, which could meet the now hugely diverse customer expectations for the model. Even when production of the Defender finally ceased in 2016 the company was at pains to point out that the end of production had been forced upon them, it was claimed, largely by changing emissions legislation.[34] Behind the scenes it can also be argued that this allowed JLR to finally discontinue production of the dated yet venerated (and - paradoxically it might seem - affectionately reproached in the motoring press) utility model without appearing to have culled it themselves, thereby reducing the risk of damaging the brand's reputation for authenticity. This was further mitigated against by not only confirming that there would be a completely *new* model named Defender, but that this new design would also create an entire family of vehicles allegedly even more capable than any of its other models thereby carrying on the Defender's legacy, even if in all likelihood it would not be a working/commercial vehicle. There would be a delay of several years between the outgoing and incoming versions with this gap alluding to the continued difficulties of designing and developing a replacement for the original Defender.[35] The very essence of the original - its versatility - in an era of far more complex vehicle engineering, homologation and legislation from a practical engineering standpoint was proving problematic. Conventionally such gaps between old and new models were carefully avoided by car manufacturers so as to deter consumers finding a replacement vehicle from a rival manufacturer in the meantime. In the case of the Defender the willingness

(or necessity) of JLR to accept such a gap further suggested that the new version would be aimed at a new market made up of largely non-utilitarian applications whilst still capitalising on the original's heritage. However this break in continuity also provided an opportunity to reimagine the Defender for a different type of customer not least as the model's traditional market had largely gone. Furthermore for a product with so much of the brand's value and authenticity linked to it, the hiatus provided additional time to get the design concept right for a changed market. In this context the 're-born' initiative of factory-restored examples of the original Series I model (see chapter 4) can be viewed in a different strategic light as it sought to create a temporal bridge between the outgoing Defender and its replacement. This also allowed JLR to continue to demonstrate its commitment to its past whilst keeping the company's valuable heritage and associated value complexes alive (and by extension the brand's sense of authenticity) in the minds of consumers. It seems likely the strategy was to shift the iconicity of the utility Land Rover from a specific vehicle type to a family of new vehicles as well as to the corporate brand as a whole. This approach had already been largely achieved with the Range Rover – the other JLR model frequently described as being iconic. Rather than the name 'Range Rover' representing one specific unchanging model it had come to represent a group of vehicles with complimentary characteristics (but, it is worth noting, built on different platforms) such as the Range Rover Vogue, Range Rover Sport and the Range Rover Evoque.[36] All these models could simultaneously tap into, and reinforce, the more than 45 years of heritage the 'Range Rover' name represented. If a similar transition could take place with the utility Land Rover in its guise as the 'Defender', not only would the demise of the original not undermine or dilute the reputation of the Land Rover corporate brand, but sales volumes of the new Defender could be expected to be larger and the profit margin higher than the vehicle it replaced.[37]

Conclusion

This chapter has examined the events and conditions leading to the veneration of the utility Land Rover and its characterisation as a design icon. As we have seen, this transition can be

identified as taking place between the late 1980s and the mid 1990s as the utility Land Rover moved from being largely marketed as a commercial vehicle to one more readily associated with leisure and adventure.[38] This change led to the Defender becoming more visible to consumers, both as a result of how the vehicle was marketed (as its traditional markets shrank), but also as Land Rover Ltd's corporate brand repositioned itself as a company increasingly associated with producing passenger-carrying 4x4s across a range of categories. This led to the Defender becoming more visible in the wider popular culture and moved it from its interpellated position of ubiquity and being hidden-in-plain-sight, to the status of design icon. This growing veneration was further reinforced as consumers became more aware of the vehicle's early history with this in turn creating a powerful sense of authenticity for both the Defender and the Land Rover corporate brand more broadly. However with the ending of Defender production in 2016, it is also apparent that its replacement will be a distant relative of the previously unbroken line of utility Land Rovers produced over more than 67 years. There is as a result a danger that the legitimacy of the new Defender, as a worthy (and authentic) successor to the original, will become stretched as it moves much further from its utilitarian origins than it has at any point in the past.[39] For the new model to continue to take advantage of the hugely valuable iconic status of the original, the vehicle's value complexes will (at least initially), be required to be conveyed through the brand rather than the vehicle itself if it is to avoid being written-off as style driven pastiche of the original. This process of linking the credibility of the original model with the new, it can be argued, is also being addressed by strategies such as JLR stating that the new Defender will be even more capable off-road than its predecessor, the reiteration of origin stories in company marketing and the advent of factory restorations of the original Series 1 model. This has allowed the brand to project *backwards* and thereby highlight a particularly romantic and evocative period in the utility Land Rover's history.[40] This, it might be hoped, will allow projection *forwards* of the Land Rover's value complexes and iconic characterisation to the *new* Defender when it becomes available in the future, thereby completing a temporal bridge that allows the value complexes of the old to cross to the new.

Endnotes

[1] Steve Huntingford, 'End of the road for the Land Rover Defender' *Telegraph Newspaper* (29th January 2016) available online at: http://www.telegraph.co.uk/cars/news/end-of-the-road-for-the-land-rover-defender/

[2] The 'low-box' is the secondary two-speed transfer gearbox that doubles the number of available ratios available from main gearbox and allows the driver to select very low gears that produce higher torque/lower speed for off-road or difficult driving conditions. Two-speed transfer is a characteristic of heavier duty 4x4 vehicles designed for the most severe conditions and is usually not a feature of smaller SUVs.

[3] The Utility Land Rover has been fitted with 4, 5 and 6 speed main gearboxes over the various generations of the model. When combined with the two-speed transfer box this has provided 8, 10 and 12 forward ratios respectively. From 1975 until the early 1980s an optional overdrive designed for the 4 speed main gearbox was produced by Fairey Engineering giving an intermediate ratio in all gears and thereby providing 16 forward speeds (although it was advised by the manufacture that it was only used in 3rd and 4th when in high range).

[4] *Grime Watch UK*, Autocar Magzine, 28th January 1998, 70

[5] Grace Lees-Maffei, ed. *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014), 20

[6] "The final mile for the Land Rover Defender: The iconic vehicle, loved by drivers from the Queen to James Bond, ceases production on Friday", *Daily Mail online* (26 January 2016) available online at: http://www.dailymail.co.uk/news/article-3418186/The-final-mile-Land-Rover-Defender-iconic-vehicle-loved-drivers-Queen-James-Bond-ceases-production-Friday.html. "Iconic Land Rover Defender to be discontinued" *Independent online* (15 January 2015) available online at: http://www.independent.co.uk/life-style/motoring/features/iconic-land-rover-defender-to-be-discontinued-9981460.html. "Last Land Rover Defender rolls off production line after 68 years of iconic vehicles" *The Daily Mirror online* (29 January 2016) available online at: http://www.mirror.co.uk/news/uk-news/last-land-rover-defender-rolls-7267263. "Land Rover Defender: my life-long love affair with a British icon" *Telegraph online* (29 January 2016) available online at: http://www.telegraph.co.uk/men/thinking-man/land-rover-defender-my-life-long-love-affair-with-a-british-icon/

[7] Grace Lees-Maffei, *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014), 16

[8] Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other", *Social Studies of Science* (1984), 14 (3), 421.

[9] Robin Cormack, *Icons* (London: the British Museum Press, 2007), 11

[10] Although both published by the Oxford University Press, *Oxforddictionaries.com* focuses on current language and practical usage of words, while the *Oxford English Dictionary* focuses on etymological aspects and shows how words and meanings have changed over time. Therefore *Oxforddictionaries.com* has been chosen to define current usage of the term 'icon' and its application to a contemporary design artifact. The *OED* proximate definition to this is in the context of *cultural icons* where is defines the term as 'a person or thing regarded as representative symbol, especially of a culture or a movement; a person or institution considered worthy of admiration or respect.'

[11] Olga Kravets and Örsan Örge, "Iconic Brands: A Social-Material Sory", *Journal of Material Culture* (2010), 15(2), 207.

[12] *Andrew Marr Show* [TV] London, BBC, First broadcast 27th November, 2016.

[13] Grace Lees-Maffei, *Iconic Design*.

[14] Grace Lees-Maffei, *Iconic Designs:* 6-13. Note: Paul Hazell also contributed to the book with a chapter examining the significance of the Ford Model 'T' and the factors leading to its reputation as an iconic automotive design.

[15] Interview conducted by the author with Peter Crowley Palmer, Principal Designer with Land Rover, 21st August, 2011

[16] Wiebe Bijker, *Of Bicycles, Bakelites, and Bulbs : Toward a Theory of Sociotechnical Change* (New York & London: MIT Press, 1997)

[17] Christine Hine, *Virtual Ethnography* (London: SAGE Publications, 2000), 33

[18] Kenneth Agnew, "The Spitfire: legend or history? An argument for a new research culture in design", *Journal of Design History*, (1993) 6 (2). Agnew dealt specifically with the Spitfire's legendary status in an academic context in 1993. More than twenty years after this article, describing the Spitfire as iconic has continued as can be seen in the following recent examples: Ivan Rendall, *The Spitfire:*

Icon Of A Nation (London, Weidenfeld & Nicolson, 2009) & 'a formidable killing machine and a much loved British icon', "Why do we love the Spitfire?" *BBC iWonder,* accessed 25th January 2016, available online at: http://www.bbc.co.uk/guides/z3jkwmn

[19] The Supermarine Spitfire was a British single-seat piston engine fighter aircraft that was used by the Royal Air Force and many other Allied countries before, during and after World War II.

[20] Rudi Volti, "Reuniting History and Sociology Through Research on Technological Change", *Bulletin of Science, Technology & Society* 23 (6) (2003), 459

[21] Supermarine was a British aircraft manufacturer operating from 1913 to 1960. Vickers-Armstrong took over the company in 1928 until its demise through absorption into the British Aircraft Corporation at the end of the 1950s.

[22] The Range Rover, although developed as a passenger-carrying vehicle, was throughout the 1970s utilitarian in character with its rubber matted interior and vinyl seating. The luxurious reputation later associated with the vehicle did not start to develop until the 1980s, partly as a result of product planning and 'Stage 2' investment.

[23] Douglas Holt. *How Brands Become Icons: The Principles of Cultural Branding* (Harvard Business School Press, Boston, 2004), 69, 75-92, 155-187.

[24] There were of course other technical artefacts that were not sold directly to the public that were nevertheless characterised as being iconic. The Spitfire for instance had a sense of public cultural ownership due to its wartime role with other examples, such as the AEC Routemaster (London) bus and Giles Scott's telephone booth, although not purchased directly by consumers, where frequently engaged with by the public and at times in a manner that made the artefacts significant in individuals personal histories.

[25] "The Unimog Story", *The Unimog Museum website*, accessed 24th December 2015. Available online at: http://www.unimog-museum.com/faszination/unimog-geschichte/. "Unimog History", *Mercedes Benz UK website*, accessed 24th December 2015. Available online at: http://www.mercedes-benz.co.uk/content/unitedkingdom/mpc/mpc_unitedkingdom_website/en/home_mpc/Unimog/home/unimog_world/unimog_history/1945-1950.html

[26] 'SUV', standing for 'Sports Utility Vehicle' has become the accepted description for 4x4 vehicles designed for recreational and private use.

[27] Interview conducted by the author with Peter Crowley Palmer, Principal Designer with Land Rover, 21st August, 2011

[28] Mils Hills, "Conflicts and contrasts of identity in a changing Cornish village*", Journal of the Anthropological Society of Oxford*, Volume (1997), 28 (2), 156

[29] Explicit examples of how this ancestry is capitalised on can be seen in how the brand has used the Land Rover's heritage in its marketing of new models with straplines such as 'Adventure: Its in our DNA' (Land Rover Discover Sport marketing since 2014) and 'It's in the blood' (Land Rover Evoque campaign showing the new model parked nose-to-nose with a Land Rover Series 1, 2012)

[30] *Grime Watch UK*, Autocar Magzine, 28th January 1998, 73

[31] *Best 4x4xFarout*, Autocar Magzine, 1st April 1998, 71. Special issue marking 50 years of the utility Land Rover

[32] The Defender 50th anniversary model adopted broadly the same specification as the North American Specification Defender (NAS) 90, which had been market specifically as a leisure vehicle to compete with 4x4s such as the Jeep Wrangler.

[33] The codename 'Project Icon' was later used internally by the company to describe the on-going project to develop a replacement for the Defender

[34] It seems likely that more stringent crash and pedestrian safety regulation were a more significant factor effecting the continued production of the Defender, particularly in European Union markets.

[35] *"Land Rover Defender DC100 review", Autocar Magazine (online),* accessed 2nd Feb 2016. http://www.autocar.co.uk/car-review/land-rover/defender/first-drives/land-rover-defender-dc100-review. A further proposal for a replacement Defender was developed in 2010 and shown to the public as the DC100 (Defender Concept 100) in 2011 at the Frankfurt Motor Show. It received considerable coverage in the automotive press but was poorly received on social media amongst enthusiasts. The negative reaction may have been a factor in their being no immediate replacement for the out going Defender in 2016.

[36] Taking 2015 as an example year: The Range Rover Vogue was built on its own platform but the Range Rover Sport utilised the same basic platform as the Discovery 4 whilst the Range Rover Evoque shared much of the engineering with the Freelander 2 platform.

[37] Sales of the outgoing Defender model in the final years of production were typically in the region of 15,000 units per annum. JLR has frequently stated that sales would need to be in the region of 50,000+

units per year for the new Defender for it to be profitable. This figure is close to the peak sales of the utility Land Rover in the early 1970s.

[38] Higher profile use of the Land Rover in non-commercial applications grew in the 1980s and was most typified by the Camel Trophy. The event, a gruelling off road competition, typically made up of sixteen international teams equipped with a Land Rover product each, was held annually in various remote parts of the world (see chapter 4)

[39] Other retro-inspired 'successor' models such as the BMW Mini, the new VW Beetle, Fiat 500, Ford Mustang etc. have largely been commercial successes indicating that their relevant consumer segments deem them legitimate. However, the original models these remote successors reference were all passenger-carrying cars in their original iterations. The Defender by contrast will be required to not only succeed as a retro-inspired model but also change functional type and therefore stretch the vehicles credibility and ancestral legitimacy. This seems likely to be compensated for in marketing terms my building its functional credibility (a key comment of the originals characterisation) through on-road, and vitally, off-road ability as well as the vehicles continued versatility, although this is like to be focused largely on a non-commercial market.

[40] *Land Rover Reborn,* available online at: http://www.landrover.co.uk/above-and-beyond/reborn.html, accessed August 12, 2016

Conclusion: **Requiem for a Versatile Vehicle**

> *In the 21st century, the car's old-school character has become a big part of its charm, and there's little doubt the [Land Rover] Defender is comfortably ranked among the most iconic vehicles of all time.*[1]
>
> Autocar Magazine (29 January 2016)

The research undertaken for this thesis has examined the factors leading to the utility Land Rover's prolonged production, the petrification of the design, as well as the changing value complexes associated with the vehicle over its lifetime. I have deconstructed, by case study, the notion of iconisation with regard to a specific technical artefact and identified its significance to the later hugely successful Land Rover brand. This concluding chapter therefore summarises the issues identified in the preceding chapters, considers the implication of the research and identifies areas of on-going and future design history research emerging from the work undertaken here.

Chapter 1 examined the circumstances leading to the development of the first utility Land Rover and the Rover Motor Company's bold move in 1947 to developing an agricultural/light utility vehicle, a market in which the company had no prior experience. Selling overseas would be essential for the strategy to be successful due to the allocation of steel being linked to export success but the company had only ever sold a small number of cars outside of Britain before the war and had no overseas distribution network. Retrospectively the decision to expand the business in this new direction can be viewed as a particularly shrewd choice as the utility Land Rover sales outstripped that of the Rover Company's cars by a margin of 2 to 1 by 1958.[2] However the company was examining other opportunities for new and innovative vehicles in the early post-war period. These included the M type miniature car (what would have been Rover's 'people's car', but it was abandoned as a concept before development of

the Land Rover had begun due to the lack of export potential), the testing of a design for an agricultural tractor utilising all wheel drive as well as the testing of a gas turbine powered car. However, none of these projects got any further than experimental prototypes.[3] In this context it becomes apparent that the concept for the utility Land Rover was not an isolated epiphany for the Wilks brothers mythologised by stories of sketching the vehicle's layout in the sand at Red Wharf Bay. Instead it was the successful outcome of a range of diverse developments from a company that in the post-war context was willing, and (due to its relatively small size) required, to innovate in the dramatically altered post-war car market. Circumstances were driving change and Rover was willing to move in new directions in an effort to secure the company's future. Ironic then that in an environment of innovation the Land Rover itself became a relatively frozen design, which was to continually play catch-up with users' demands. Ever increasing sales, growing numbers of conversions being offered on the basic vehicle and a belief by some in the company that utility vehicles did not require restyling - all mitigated against significant change in the basic design. We also see the emergence of the 'stopgap myth' for this early period, which has continued to be frequently associated with the utility Land Rover's story ever since. This characterisation does not stand up to close scrutiny though, with artefactual evidence, interview and contemporary documentation undermining the idea of the Land Rover being considered temporary by the Rover Company even at the earliest stages of its development.

Chapter 2 examined the period of further rapid growth in sales of the Land Rover after 1958, partly as a result of Rover's willingness to adapt the vehicle to military applications but also as a consequence of diversification with regard to the roles for which the Land Rover could be utilised. Competition from BMC in the form of the Austin Gipsy initiated the only significant restyling of the utility Land Rover in 1958 in the form of the Series II model. The astuteness of David Bache's redesign of the vehicle's exterior could be seen as the primary reason the vehicle's styling was to carry on little changed until the end of Defender production in 2016. Although Bache's work was undoubtedly flexible with regard to the

modularity of the utility Land Rover, its persistence was also affected by other factors. These were most notably the need to maintain standardised dimensions for commercial converters of the utility Land Rover (a rapidly expanding market for the vehicle in the 1960s), as well as the model's development being managed by those with an engineering background with styling consequentially being considered a low priority (particularly in a period of booming sales where design changes would slow the production rate). These factors were further compounded by the lack of investment for major redesign initiatives for the Land Rover with company funds, although predominantly generated by sales of the utility vehicle, being frequently directed to other Rover car models that needed regular updating to satisfy private car buyer expectations. The largely unchanging silhouette of the Land Rover, although frequently celebrated, was therefore as much an effect of circumstances as it was a consequence of deliberate design.

The introduction of 'product planning' in the 1970s highlighted the stagnation of the utility Land Rover's design. The market driven approach characterised by product planning (i.e. basing future developments on research findings of what customers *wanted* rather than on engineering intuition or subjective interpretation of the market) contributed to the decision to provide additional funding from the State for Land Rover Ltd. after the publication of the Ryder Report. The document, officially titled 'British Leyland: The Next Decade', was produced for the British Government by Sir Don Ryder in 1975 and reported on the problematic state of the huge British Leyland Motor Corporation (of which Land Rover was a part). BL was beset with inefficiencies, non-competitive models, product duplication and industrial unrest and the report sought to give recommendations for the conglomerate's future.[4] The ring-fenced funding this later facilitated for Land Rover Ltd. (which was hived-off as an independent company as part of the reports recommendations) led to the development of the more powerful interim 'Stage 1' V8 Land Rover model as well as the more impactful 'Stage 2' project that led to the significantly re-engineered coil-sprung One Ten and Ninety models (which later became the Defender) although the vehicle remained

externally very similar. Product planning also identified the potential for moving the company's proto-SUV, the Range Rover, further up market as a means of boosting profitability and as a consequence creating market space for other models in the 4x4 range such as the Discovery in the late 1980s and the Freelander in the 1990s. It was these developments and the introduction of systematic strategic planning (i.e. 'product planning') both with regard to products and markets whilst Land Rover Ltd. was still part of British Leyland that were to build the foundations for the highly successful modern Land Rover corporate brand we see today. This, despite the BL era of ownership being a period frequently characterised as being a disaster for much of the British motor industry. The gradual change in thinking born out of product planning also facilitated the emergence of Land Rover as a corporate brand, not just a single vehicle type, thus allowing other later models such as Discovery and Freelander to trade on the *utility* Land Rover's reputation and rich heritage.

Chapter 3 explored the impact of relevant social and user groups with regard to how the Land Rover was employed, developed and perceived. For instance, the assumption that a power-take-off was a priority for agricultural buyers and that the vehicle would be used as a substitute tractor on farms was largely incorrect. However, the design and engineering thinking from the vehicle's development team for this perceived agricultural use led to a vehicle of such universality and flexibility that it could be readily adapted to other roles as they arose in the market place with many of these being identified by the users themselves, thus further feeding the reputation for versatility. Serendipity also played a part particularly with regard to sales to the British military after the failure of the Austin Champ. With 40% of all sales of the utility Land Rovers going to military and paramilitary buyers in some 140 countries over the vehicle's production life the boost to sales volumes of military contracts was enormous.[5] Sales to the military also acted as a form of endorsement for the vehicle's ruggedness, in essence if it had been tested and developed to cope with the demands of warfare in all corners of the globe, one might imagine that buyers felt it was more than good enough for more prosaic activities on the farm or in municipal roles.[6] Interestingly, the

military applications of the utility Land Rover were not utilised in advertising targeted at civilian buyers, although public relations advantage was derived from it.[7] In the 1960s and 1970s the endorsement military utilisation provided might have seemed so self-evident that it was not directly traded on with the company consistently choosing (or being compelled) to take a discreet and low-key approach to their military sales. Furthermore, sales to civilian users were booming in the same period (1960s and early 1970s) with the vehicle therefore seeming to have little to prove meaning advertising expenditure was utilised to target the specific markets relating to civilian users rather than to demonstrate the vehicle's qualities by association with military utilisation. Later in the 1990s the sales advantages of explicitly linking military applications of the Defender to a consumer culture that had broadly become one of lifestyle choices rather than functional consideration with regard to light 4x4s and SUVs meant such connotations could have been counterproductive. Still, the Defender name introduced in 1990 was seemingly a nod to the utility Land Rover's military use in a manner that sought to strike a benevolent and protective tone, rather than a militaristic or aggressive one.

Chapter 4 examined other aspects of this transition in the marketing and reputational transformation of the utility Land Rover from one that for approximately the first forty years of its production emphasised functionality, to a strategy from the 1990s, which refocused on notions such as individualism, freedom and adventure. This period marked a significant change in how the vehicle and the brand more broadly were portrayed, yet this shift from trading on functionalism in the modernist tradition, to lifestyle choices in a post-modern context, happened without the vehicle itself undergoing any significant redesign. The versatility the vehicle had always promised remained sufficiently adaptable to allow the Defender to be reimagined as a recreational vehicle (whilst also simultaneously selling as a utility vehicle, although such sales continued to shrink) and thereby remain relevant and viable despite its advancing years.[8] Representation in the British press, in film and on the television also acted as a key means of mediating the value complexes associated with the

vehicle. Whether its presence in travel and wildlife films, appearing in the news supporting troops or NGOs in various trouble spots around the world or transporting the British Royal family at equine events or military parades, the Land Rover's ubiquity was for many years seemingly consummate. Such connotations also allowed the utility Land Rover to move from being a familiar technical artefact to a *concept.* This agency manifested itself in the Land Rover as a 'personality', one that as mainstream consumers became more aware of the Land Rover's history exuded authenticity and capability. This both fuelled and legitimised the increasing iconisation of the design and, by association, its parent company - particularly once the Land Rover name became that of the company, not just its most famous product.

Finally, chapter 5 deconstructed the nature and identification of an iconic technical artefact by examining factors leading to the frequent application of the term 'iconic' to the utility Land Rover and comparing it with other utilitarian designs. The chapter highlighted the shift from functionality, through ubiquity to the vehicle increasingly being characterised as being of distinct significance and standing in automotive development, it having been increasingly absorbed as a steadfast and versatile presence often working in difficult conditions since its introduction in the late 1940s. The increasing use of the term 'iconic' was also explored in relation to design, both in journalism and popular culture more widely, making the term increasingly problematic in an academic context due to its subjective nature and connotations of celebration without analysis. However, as the word has gained traction as a means of denoting significant or 'good' design in popular culture the term 'iconic' has also taken on the mantle of apparently objective judgment when reiterated by opinion formers such as journalists. This habituated use of the term 'iconic' in the media has however led to accusation of the term having become devalued, and merely become an exclamation of preference. Such a reductive term also remains problematic for academics, partly because of its over-extended use, but also because of the danger that the popular engagement and preference for different artefacts (which the word iconic highlights) could be inadvertently underplayed by design historians through a rejection of subjectivity as a valid topic of

investigation. Yet the ways in which consumers interact and derive meaning from some products of industrial design and the car in particular is a significant aspect of material culture and therefore also of design history. Iconic designs, if accepted as such, highlight artefacts that become cultural touchstones, a process that takes time, with the persistence of the artefact (culturally and/or physically) being necessary for the artefact to be legitimised as being iconic. Such longevity is significant and can be used to distinguish between objects, which appropriate iconic characteristics through design cues, and marketing strategies, from those that are accepted as being iconic in the broader culture *over the long term*.

The absorption and expansion of value complexes the utility Land Rover has been subject to over its production life has also been examined particularly with regard to how the corporate brand has capitalised on and mythologised the vehicle's history and exploits. The vehicle's apparent unchanging physical characteristics have frequently been used to emphasise its fitness-for-purpose. When aligned with a history both rich in content and flexible in application due to the versatility of the utility Land Rover it has propagated a compelling mix of object and subject crystallised through the company's marketing that has in turn produced a seductive corporate brand. Although not boosting sales of the Defender itself (which continued to decline), the utility Land Rover's informational capital when exploited as a totemic representation of the entire brand has been of enormous value.[9] This has allowed Land Rover Ltd. (and subsequently JLR) to characterise its value complexes of adventure, authenticity and capability as the company's 'DNA'.[10]

Findings

This thesis has demonstrated that the history of the utility Land Rover is one of persistence: operationally, culturally and temporally. The vehicle's ability to remain relevant for seven decades is rooted in its versatility, not only in application but also in interpretation with it being envisioned as a workhorse but later absorbing (and ultimately trading on) its characterisation as a celebrated automotive icon. Self-evidently functional, its machine

aesthetic was determined by the utilitarian role it was intended to fulfil and although consistent with modernist ideals was developed without conscious reference to them. Ease of manufacture, simplicity of maintenance and practicality in use were the design priorities with it being intended to address an assumed need rather than a consumer desire. These origins, along with its many decades of diverse application in often essential roles, bestowed on the utility Land Rover a strong sense of authenticity, it being a vehicle repeatedly seen to be doing 'important things' often in difficult conditions. It may not have been especially comfortable or sophisticated; but it came to represent a form of automotive stoicism, a trait that chimed with a mythologised British characteristic so typified in the austerity of the 1940s, the very period when the Land Rover emerged. This mixture of indomitability, longevity and functionality provided the utility Land Rover with a distinct identity which was to differentiate it not only from the bulk of other largely transient car designs but also from the majority of other 4x4s as well. Later the Defender seemed at odds with the expansion in sales of mainstream SUVs, its character remained one of a tool rather than that of a toy – even if increasingly it was bought to be the latter in its autumnal years.

For much of the utility Land Rover's life however ideas of authenticity were irrelevant, the vehicle was bought based on its genuine utility and was initially the only choice (and later seemingly the obvious choice due to the vehicle's ubiquity) through the 1960s and 1970s if a proven lightweight and rugged off-road vehicle was required. With the last fundamental update to the utility Land Rover's engineering taking place in the early 1980s, yet the vehicle remaining in production for a further thirty-five years, the utility Land Rover was becoming increasingly dated in terms of comfort, styling and ergonomics by the millennium. Such factors may appear unimportant for a vehicle epitomising utility and indeed where functional capability was the priority for a customer, the Defender's relevance as a working vehicle remained. This can be evidenced by activity such as utility companies (electricity, water and gas etc.) continuing to buy the vehicle in significant numbers right up to the end of production due to its continued suitability for mounting hydraulic access platforms and other specialist

bodies and equipment along with its capabilities in the most difficult of conditions. Similarly, the British, as well as foreign, armed forces continued to buy new or put existing vehicles through rebuild programs to extend their useful lives due to the Defender's continued suitability in military and paramilitary roles. For such customers, comfort, styling and ergonomics were far less of a priority than utility and proven rugged ability.

There is also an association between artefacts valued for their functionality and their characterisation as design icons. This is not necessarily directly linked to the utility of the artefact itself, there are after all many designs characterised as being iconic with often-limited functionality.[11] Frequently though utility points to longevity as the object's usefulness leads to persistence due to its functionality remaining important and outweighing other considerations such as styling or its role as a status symbol. This longevity can be a precursor to ubiquity as the artefact becomes commonplace but is made almost invisible through interpellation. Such long-term familiarity with an artefact if highlighted (through the media or popular culture more widely) can shift an artefact from a position of ubiquity to one of canonisation and then potentially iconicity as the artefact becomes a metonym for its functional type whether it is for example the Boeing 747 'Jumbo Jet' or the Victorinox 'Swiss Army Knife'.[12]

Despite the utility Land Rover's continued versatility by the 2000s the Defender had become the romantic choice for many buyers and Land Rover Ltd. itself played on these notions in its marketing along with the increased availability of versions aimed at private consumers with cosmetic additions such as metallic paint and alloy wheels becoming factory options from the mid 1990s. Despite increasingly trading on nostalgia, the vehicle at the end of its production life was not a 'retro' design, as it had never gone away to be reinvented as a post-modern pastiche of its former self.[13] Rather it had once again demonstrated its versatility by being modifiable to leisure applications as well as utilitarian roles. As its global dominance as a utility 4x4 ebbed in the 1980s and 1990s it was increasingly viewed through the same lens applied to retro car designs, that of being totemic and of growing cult status. This mitigated

against its aging design as its petrification in this context could be characterised as an asset, an indication of its fitness-for-purpose in its slowly and efficaciously evolved form. The strategy also meant the Defender was increasingly on borrowed time as its share of the utility market shrank as more comfortable; less expensive and regularly updated Japanese 4x4 pickups increasingly dominated the utility 4x4 market. These vehicles were often less capable in the most arduous of off-road conditions due to characteristics such as lesser approach and departure angles and reduced axle articulation when compared to the Defender. The undoubted off-road abilities of the utility Land Rover were rarely utilised by most users however and in engineering terms these capabilities impacted on the levels of sophistication that it could offer in other regards (ride comfort, fuel efficiency, noise levels etc.). Although anachronistic in many ways by the time production ended, the utility Land Rover's ability to remain relevant for seven decades was largely rooted in its versatility, both in terms of application but also through interpretive flexibility and its significance to relevant social groups.

Contribution to knowledge and further research emerging out of this thesis

As well as the development of the hybrid methodological model described in the introduction (see figure 3 on page 16), the work undertaken for this thesis has led to the identification of specific under-researched aspects of design history with these having emerged from the detailed work undertaken with regard to the utility Land Rover. With the vehicle having been employed for several decades in many parts of the developing world for customers such as NGOs, the military and agriculture the Land Rover's second life in private hands after its official role has ended reveals much about how vehicles are utilised and repurposed, particularly in rural Africa. This has in turn highlighted the lacunae of research relating to the history of the car in developing countries more broadly (see below for further details).

A related issue is the limited amount of research that has been carried out regarding utilitarian automotive design with what has been done largely relating to wartime and early post-war

automotive initiatives.[14] However the design and use of utilitarian automotive products such as military vehicles, agricultural vehicles as well as plant and construction machinery is an aspect of design history that is likely to benefit from study as such artefacts have been largely ignored by design historians but have the potential to reveal new perspectives with regard to the relationship between function, utility and materiality.

A further area of growing interest to design historians is the potential for research that engages with enthusiasts and subjectivity in relation to design historical scholarship. This is an issue that has consistently arisen throughout the research undertaken regarding the utility Land Rover with the level of enthusiasm the vehicle evokes amongst a range of relevant social groups being notable. Indeed my own enthusiasm for the utility Land Rover was the starting point for the research detailed in this thesis as my reaction to the vehicle was far from unique and therefore begged questions relating to the often-evocative value complexes associated with some artefacts (and the car in particular) and how these emerge. The research contained here has sought to examine these issues in relation to the utility Land Rover but the value of examining enthusiasm amongst both users and consumers of artefacts more broadly as well as deconstructing the role of enthusiasm and subjectivity with regard to design history has I believe even greater potential. Having identified these issues I have also had the opportunity to undertake and publish parallel but related research that begins to address this lacuna with these aspects being outlined below.

Enthusiasts and their significance to design historical scholarship[15]

There is still only a small and rather scattered collection of research relating to design and the enthusiast (and the word is seldom mentioned specifically). However, the recent claim that 'Historians should not shun subjectivity and personal experience, but rather investigate its methodological and historiographical potential' allows ample space for further exploration of what the enthusiast can contribute to design historical scholarship.[16] Increased interest in the interplay between enthusiasts and artefacts is emerging, whether design historians using their

own enthusiasms as starting points or exploring the foci of special interest groups. There is also an increased willingness to critically evaluate commonly used, but subjective, terms such as 'iconic', 'classic' and 'enthusiast' in an academic setting.[17] Most designers are trained to consider the user's perspective in their work. Correspondingly, historians are increasingly interested in 'how users matter'.[18] Therefore, if the enthusiast is a user of historic artefacts, perhaps the time is right for design historians to incorporate these forms of subjective user experiences into their analyses and grapple with the consequences as an additional means of understanding our complex relationship with material culture.

At times people interact with things without realising they have done so; at other times design awareness is more conscious, ranging from dislike or annoyance to satisfaction or pleasure.[19] Occasionally however, these same users will become aware of an artefact as something that triggers or represents experiences or emotions. This can manifest itself as an affection or appreciation of a particular piece of design through to what might be described as 'full-blown enthusiasm' or perhaps even as 'object fetishism'.[20] Predicting such responses, though, is difficult, as product experience is both culturally contingent and individual: 'A user brings to the moment of interaction all his/her prior experiences and expectations, as well as, for example, his/her emotions and feelings, values, and physical characteristics'.[21]

Of the many modes of enthusiasts' knowledge, the most characteristic is probably in the parallel world of 'hobbies and interests' where many spend considerable time and money, and though unpaid and without obligation, often feel highly motivated and deeply engaged in a particular pastime. Are there, therefore, characteristics particular to some artefacts that mean an inanimate object can become a fascination to some? And what might this tell us about material culture as viewed through the enthusiast's eye?

The assumption that enthusiasts, collectors and amateur historians are dilettantes with no real commitment or structured knowledge may lead professional historians to neglect a useful

resource for their research. The enthusiast can make the transparent visible by selectively highlighting examples of material culture, and as a by-product of their personal interest, encourage academics to re-evaluate the significance of certain artefacts. Enthusiasts, and one's personal enthusiasms, can flag-up areas of potential research that design historians might at first consider unworthy of examination. If there is an observable, or even measurable, clustering of subjective personal opinions this pattern or phenomenon may be both significant and revealing if examined.

Vehicle design for the African continent[22]

The car in Africa has a long history but surprisingly has remained a topic neglected by design historians and those working in other disciplines.[23] This limited historical and social research contrasts significantly to research carried out with regard to African railways where both anthropologists and transport historians have written much.[24] However the car, and road transport on the continent more broadly, has remained largely ignored despite it being a key means of the former colonial powers exerting their control and undertaking economic exploitation.

Outside academia there are many published accounts of the motorcar in the African bush but these comprise mainly of stories of westerners 'overlanding' through the desert or savannah. However, for the historian, these accounts are of limited use as they usually rely on the journey as a narrative structure in which to place the many experiences, mishaps, challenges, personal encounters and adventures of the traveller. Although these aspects may make such travel appealing, such narratives reveal little or nothing (with the possible exception of road conditions and driving standards) about the realities of car use in the bush for those resident there.

Africa first saw widespread use of the car after World War II with vehicles such as the Land Rover and later the Toyota Land Cruiser being imported. Although being eminently suitable

for many of Africa's rural roads their use has been generally restricted to the police and armed forces, international companies and Non-Governmental Organisations (NGOs) such as charities with their purchase price far exceeding the budgets of the majority of rural Africans. However, these four-wheel drive vehicles, when sold or disposed of, would often eventually end up with individuals such as farmers, for rural load carrying duties and as informal buses. By this stage the vehicles were usually elderly and frequently in poor mechanical condition due to lack of spares or funds to purchase the required parts. Private personal transport has therefore centred on either walking, ox or donkey carts, mopeds/motorbikes or cars imported as insurance 'write-offs' from Europe. This has often been supplemented by the long tradition of 'upcycling' by mixing components from scrapped or crashed vehicles to create new transport solutions.[25] In recent years pick-ups, usually Toyotas, imported from the middle east to central Africa in large numbers have also gone some way to filling the transport needs of the region at more affordable prices. This influx of vehicles simultaneously demonstrates the demand for simple and robust transport while highlighting the lack of an indigenous car industry.

Western car manufacturers could be accused of looking at Africa as simply one market, as opposed to many countries with varying needs. For most western carmakers the African market is, at best, broadly split into two groups: South Africa and developing Africa. South Africa is a similar market to that in many western countries, with significant economic activity, relatively stable governance and a growing middle class able to buy a new car for the mainly surfaced roads. These are key factors for western car makes. As one senior employee at a large manufacturer put it 'we are in business to make money, not cars'.[26] Although having regions of considerable wealth where sales of prestigious cars have long been possible, car manufacturers exporting to Africa generally restrict their interests to urban areas. For the bush market, rugged 4x4s are sold to the state or NGOs, leaving private personal transport for the masses to local ingenuity.

This has led to a transport vacuum for ordinary Africans in areas away from rail routes or where bus services are either not possible due to the conditions or are economically unviable. This vacuum has to a great extended been filled by the ubiquitous 'motatus' taxi-van usually of Japanese manufacture or origin. These vehicles are often grossly overloaded with both people and goods, driven at speed over long distances on poor roads and are not engineered for the task being demanded of them.

Endnotes

[1] 'Saying goodbye to the Land Rover Defender – an Autocar special' *Autocar Magazine* (29 January 2016) available at http://www.autocar.co.uk/car-news/new-cars/saying-goodbye-land-rover-defender-–-autocar-special

[2] James Taylor *The Land-Rover: 1948-1984* (London: Motor Racing Publications Ltd, 1984), 32.

[3] Graham Robson, *The Rover Story: A Century of Success (*Patrick Stevens, Cambridge, 1979), 74 - details regarding 'JET1' prototype gas turbine powered car. John Smith, *Land Rover: The Formative Years 1947 – 1967* (The Land Rover Series One Club, Bristol 2009), 170 - details regarding the prototype Rover tractor. James Taylor *The Land-Rover: 1948-1984* (London: Motor Racing Publications Ltd, 1984), 14 - details regarding the 'M' Type.

[4] Sir Don Ryder was a businessman and Labour peer who later became the Chair of the National Enterprise Board tasked with compiling 'British Leyland: The Next Decade' or what became more commonly known as the 'Ryder Report'.

[5] David McDine 'Land Rover Conscripted' in Ken Slavin, J. Slavin & G.N. Mackie, *Land Rover: The Unbeatable 4 x 4 (*Haynes, Somerset, 1994)*,* 190-221

[6] Fighting Vehicles Research and Development Establishment (or FVRDE) based at Chertsey in Surrey undertook rigorous testing of vehicles intended for use by the British Armed Forces

[7] Land Rover's (both military and civilian) regularly appeared news reels shown before the main feature in UK cinemas such as 'Army On Land, Sea And Air' [Film] London, British Pathé, (1967) available at: http://www.britishpathe.com/video/army-on-land-sea-and-air/query/Land+rover

[8] The predominantly manual assembly process used to build the utility Land Rover remained much the same over its entire life. This would usually have made the building of the vehicle uneconomic by modern productivity standards due to the labour intensity of the process. However, this was largely mitigated against by the capital investment in plant and equipment relating to Defender manufacturing having been largely paid for many years earlier.

[9] The final full year of production in 2015 climbed by approximately 20% when compared to the average of the previous five years as a result of collectors ordering examples of the vehicle before it became unavailable new.

[10] 'Land Rover "Adventure. It's in our DNA" by Spark44', *Campaign* (December 07, 2016), available at: http://www.campaignlive.co.uk/article/land-rover-adventure-its-dna-spark44/1417988#oAR1Wqc2x4LtGzTx.99

[11] Grace Lees-Maffei, 'Juicy Salif Lemon Squeezer, Italy/France' in Grace Lees-Maffei, *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014), 184-187

[12] Catherine Rossi, 'Swiss Army Knife, Switzerland' in 'Grace Lees-Maffei, *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014), 207-209

[13] 'Retro' models such the Fiat 500, VW Beetle, Ford Mustang, BMW Mini etc. are now commonplace in the car market but unlike the Defender do not represent an unbroken line of evolution from the earlier models whose names they share.

[14] Judy Attfield (ed.) *Utility Reassessed: The Role of Ethics in the Practice of Design* (Manchester: Manchester University Press, 1999)

[15] This is an abridged extract taken from Paul Hazell's and Kjetil Fallan's, 'The Enthusiast's Eye: The Value of Unsanctioned Knowledge in Design Historical Scholarship', *Design and Culture,* (2015) 7 (1)
[16] Kjetil Fallan, 'Kombi-Nation: Mini Bicycles as Moving Memories', *Journal of Design History* (2013) 26(1): 82.
[17] Grace Lees-Maffei, ed. *Iconic Designs: 50 Stories About 50 Things*. (London: Bloomsbury Academic, 2014), 15-16
[18] Nelly Oudshoorn and Trevor Pinch, eds. *How Users Matter: The Co-Construction of Users and Technology*. (Cambridge, Mass.: MIT Press, 2003)
[19] Donald Norman, *The Design of Everyday Things*. (Cambridge, Mass.: MIT Press 1998). Julia Keyte, 'Objects in Purgatory: How We Live with Uncherished Gifts', *Interiors* (2013) 4(3), 315-338.
[20] Nicholas Oddy, 'An Uneasy Alliance: Collectors' Items and History'. Paper presented at the Design History Society Day Seminar 'It's Personal: Subjectivity in Design History', University of Hertfordshire, Hatfield, 2013, May 9.
[21] Piia Nurkka, Kujala Sari & Kemppainen Kirsi, 'Capturing users' perceptions of valuable experience and meaning', *Journal of Engineering Design*, (2009) 20(5), 449-465.
[22] This is an abridged extract taken from Paul Hazell's, 'A difficult road: Designing a post-colonial car for Africa' in *The Routledge Companion to Design Studies* (Routledge, London, Penny Sparke, ed. 2016)
[23] Jan-Bart Gewald, 'The Impact of the motor-vehicles in Africa in the twentieth Century: Towards a socio-historical case study', *ASC working paper,* 61, (2005), 12-22; Jan-Bart Gewald *The Speed of Change: Motor Vehicles and People in Africa*, *1890-2000* (Leiden: Brill Academic Publishers, 2009)
[24] John F. Due, 'The problem of rail-transport in tropical Africa', *The Journal of Developing Areas* (1978/79) 13 (4), 375-393; Patrick Moriarty and Clive S. Beed, 'Transport in tropical Africa', *in The Journal of Modern African Studies* (1989) 27 (1) 125– 32
[25] 'Students Build a Nano For Africa,' Wired Magazine, Accessed November 1, 2013http://www.wired.com/autopia/2009/04/move-over-tata/
[26] Roger Crathorne, Head of Technical Communications at Land Rover, Interview with the author, August 7, 2009.

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Appendix i: **Utility Land Rover production timeline**

1947: Prototype centre-steer Land Rover built (using many components from the Willys Jeep)

1948: On the 30 April the new 80" wheelbase Land Rover with a 1.6 litre petrol engine debuts at the Amsterdam motor show

1950: Selectable 4 wheel drive introduced (automatic freewheel system deleted)

1951: 2.0 litre petrol engine introduced

1953: 107" long wheelbase model introduced. Short wheelbase lengthened to 86" giving 25% extra load space

1954: Passenger carrying station wagon reintroduced

1955: 10-seater long wheelbase station wagon introduced

1956: Wheelbases increased by 2" to 88" and 109" in preparation for the fitment of new a diesel engine (except station wagon which remains as 107" wheelbase)

1957: Optional 2.0 litre diesel engine introduced

1958: Series II introduced in April with new 2.25litre petrol engine (some early short wheelbase examples had the existing 2 litre petrol engine fitted)

1959: 109" wheelbase 10-seater station wagon introduced

1959: 250,000th utility Land Rover produced

1961: 2.25 litre diesel introduced to replace 2.0 litre version

1961: Series IIA model introduced

1962: 12-seater long wheelbase station wagon introduced to take advantage of reduced UK taxation on passenger carrying vehicles classed as a mini-bus

1962: Forward Control Land Rover introduced

1966: 2.6 litre 6cyl petrol engine introduced as an option on long wheelbase models as well as the improved Forward Control model (series IIB)

1966: 500,000th Land Rover built

1968: Headlamps move to wings on export models

1968: Lightweight 88" wheelbase military air-transportable introduced

1970: Headlights move to wings on all utility Land Rovers

1971: Series III introduced. New all synchromesh gearbox and revised ‘soft dash’ interior

1971: 750,000th Land Rover produced

1972: Military 101" wheelbase Forward Control introduced with 3.5L V8 petrol engine and full-time 4-wheel drive

1976: 1,000,000th utility Land Rover produced.

1979: Land Rover SIII Stage-1 long wheelbase 3.5litre V8 with full-time 4 wheel drive introduced

1983: Coil sprung Land Rover One Ten launched

1984: Coil sprung short wheelbase Ninety launched

1984: 2.5 litre diesel engine introduced (replacing 2.25 litre)

1985: 2.5 litre petrol engine introduced (replacing 2.25 litre) and turbo charged 2.5 litre diesel engine also introduced

1985: Last leaf sprung models built

1989: 200tdi diesel engine introduced

1990: Up until the launch of the Discovery in later 1989 there had only been two models produced by Land Rover Ltd, the utility Land Rover and the Range Rover. After the introduction of the Discovery in the autumn of 1989 the Land Rover name is used exclusively for the corporate brand with the former Land Rover Ninety and Land Rover One Ten becoming known as Defender 90 and 110.

1994: 300tdi diesel engine introduced

1999: Td5 diesel engine introduced (replacing 300 tdi). V8 petrol engine no longer available as an option

2007: Ford 'Puma' diesel engine replaces the TD5 and the Defender has a significantly redesigned and more car-like interior fitted

2012: 2.2-litre version of the Ford Puma diesel engine fitted in the Defender

2015: 2,000,000th utility Land Rover build. Auctioned for £400,000 with the proceeds going to the Red Cross and the Born Free Foundation

2016: Just after 9:30am on the 29th of January Defender production finally comes to an end at Land Rover's Solihull factory after more than 67 years

Appendix ii: **Owners of the Land Rover brand since 1948**

1948 - 1967 **The Rover Company**

1967 - 1968 **Leyland Motors Ltd**

The Rover Company is voluntarily absorbed into commercial vehicle manufacturer Leyland Motors Ltd.

1968 – 1975 **British Leyland Motor Corporation**

Leyland Motors Ltd merges with British Motor Holdings (formally British Motor Corporation) to form the British Leyland Motor Corporation (BLMC).

1975 – 1988 **British Leyland**

BLMC becomes British Leyland with BL effectively being nationalised in 1975. Land Rover Ltd. is formed in 1978 (as a subsidiary of BL) and later becomes part of Rover Group plc. in 1986 in preparation for privatisation.

1988 - 1994 **British Aerospace**

Rover Group plc. is privatised and sold to BAe.

1994 - 2000 **BMW**

Bayerische Motoren Werke AG (BMW) buys Rover Group form BAe.

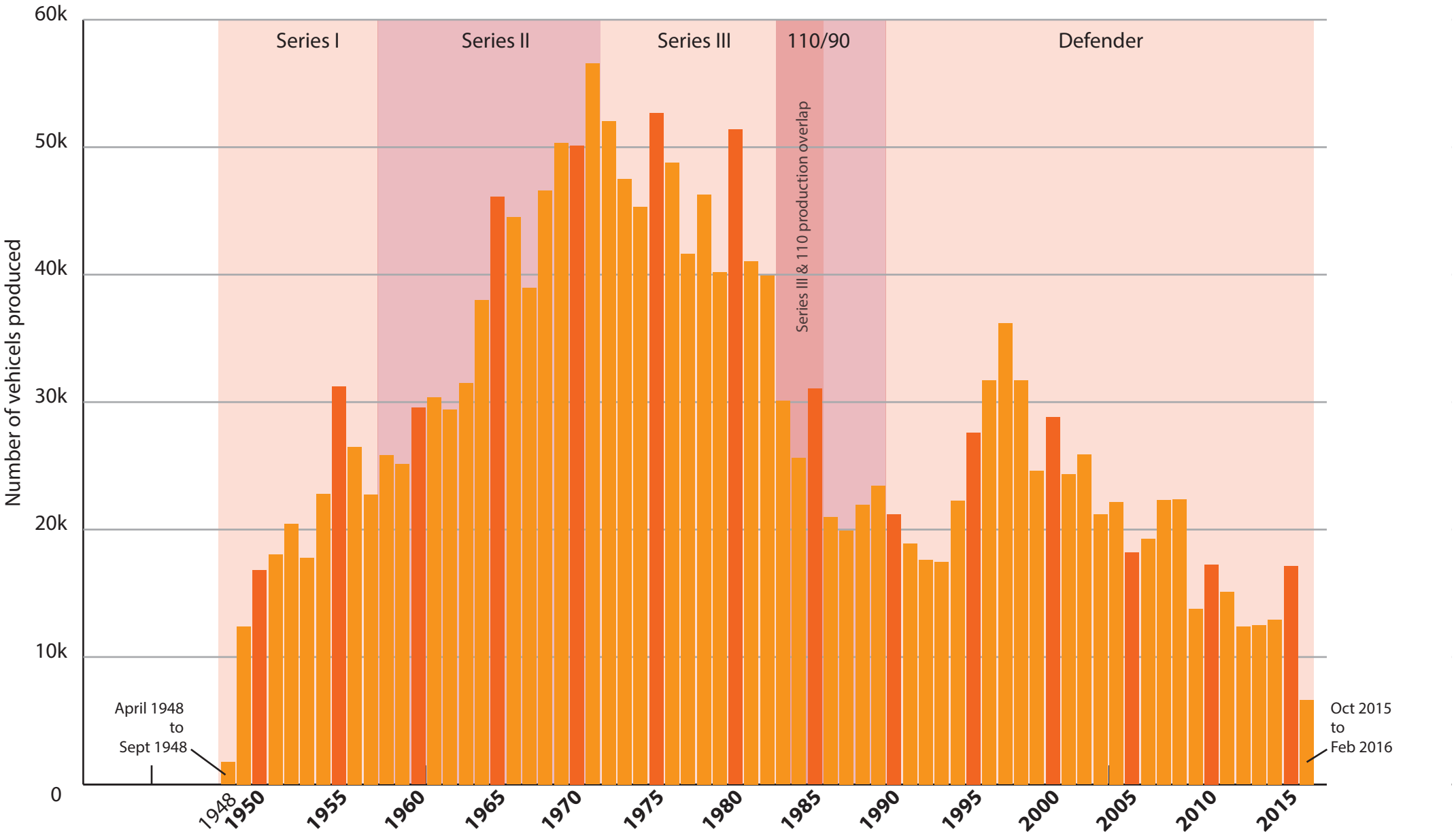
2000 - 2008 **Ford Motor Company**

Ford buys Land Rover Ltd. after BMW breaks up the Rover Group.

2008 - to date **Tata Motors**

Indian conglomerate Tata purchases Land Rover Ltd. as well as Jaguar Cars Ltd. from the Ford Motor Company forming Jaguar Land Rover (JLR).

Utility Land Rover production volumes1948 to 2016 (October to September)



Appendix iv: **The origins and development of the Rover Motor Company**[1]

The name 'Rover' first appeared in 1885 when it was applied to the 'safety bicycle' designed by Jack Starley.[2] The name was chosen as the cycle was marketed as allowing the user to 'rove' around the countryside, a pastime that was growing rapidly in popularity at the end of the Victorian period. It was not until June 1896 however that the name of the product also became that of the company when 'The Rover Cycle Co Ltd' was formed.[3] The Rover bicycle gained rapidly in popularity and led to Starley, like many Edwardian bike makers in Coventry, started to consider the production of motorcycles as the next logical step from the pedal bike.[4]

In 1899 Rover imported several Peugeot motorcycles for examination with a view to producing its own design. However, Starley died in October 1901 (at the age of 46) it was therefore under a new acting managing director, Harry Smith, that the company produced their first motorcycle in 1902.[5] The company was also ambitious to move into automobiles and began to produce cars of their own design from 1904. In 1905 the company name was therefore changed to the 'Rover Company Ltd' to better reflect its broader manufacturing interests.

Rover enjoyed considerable success with a range of pre-First World War car models. They continued to briefly manufacture cars after the outbreak of war but orders soon dried up from private buyers and materials became scarce. By 1915 Rover had changed over exclusively to war work manufacturing motorcycles of its own design for the War Office and for the Russian military. This work was supplemented by being contracted to build Maudslay 3 ton lorries and Sunbeam staff cars as well as a range of sundry war item.

After the Great War the company rapidly returned to car production. However the company struggled with the loss of their senor designer, Owen Glegg, stiff competition from Austin with their highly successful model the 'Seven' as well as the unsuccessful appointment of Jack Starley (Junior) as Managing Director. Indeed Jack Starley (Junior) in his period as MD from 1923 to 1929 did not manage to show a profit for the company and by the time he resigned at the end of the 1920s the company returned a £400,000 loss.[6] With Rover in danger of going into bankruptcy a shareholders' action committee met in 1928 and appointed Colonel Frank Searle to the board. However Searle had no motor industry experience but recognised the gap in expertise the company had at a senior level so in September 1929 employed Spencer B. Wilks (who had managed the Hillman Motor Company prior to its take-over by Rootes), as Rover General Manager.[7] The company minutes for September the 3rd 1929 read: 'On the recommendation of Colonel Searle, Captain S. B. Wilks was interviewed by the board, and it was resolved to appoint him as general manager of the company.'[8] Spencer Bernau Wilkes was a barrister by training but after military service in the First World War he had joined the Hillman and had risen to joint managing director. When the Rootes Group acquired Hillman Motor Company, S B Wilks's influence was reduced and this may explain why he decided to move to the ailing Rover Company. One presumes he saw more opportunity to make his mark in an independent carmaker, which needed his help (Searle had approached S B Wilks), than he did with the very large Rootes Group where the Hillman Company was now a subsidiary. Soon after Spencer Wilks was appointed his younger brother, Maurice Wilks, also joined the company taking a role in the design department. Maurice was an engineer and joined Rover having also left the Hillman Company. Spencer Wilks's title of 'general manger' looks at first glance to be a demotion but this was a new role at Rover and as Graham Robson observed in 1979, 'Rover had not previously needed [a general manager], and this [new role] was a tacit admission of [company] failure.'[9] The board was being cautious however, at least in title, as in actuality S B Wilks rapidly became the key figure in Rovers future strategy. Robson continued, 'Although the astute, judicious and very

analytical Wilks was not given a seat among the directors at first, he had almost a free hand to make improvements [to the companies products].'[10] Robson also stated:

> *It is not overstating the case to say that Spencer Wilks saved the Rover Company. Not only did he save it, but he also transformed it. Before his arrival in 1929 Rover was in a very rocky state. Within tens years the companies reputation, its financial standing, and its prospects, had been completely transformed.*[11]

S B Wilks philosophy according to Robson was 'that quality should always take precedence over quantity'. However Searle believed increasing production would lead to increased sales. The *market* for the company's products seemed to be missing from this latter strategy. S B Wilks was not able to implement his ideas in full however until his role in the company changed.

> *There was a watershed in the companies affairs near the end of 1931. It came when Colonel Searle set sail for New Zeland [...] when Spencer Wilks took charge of the day-to-day running of the entire business. Searle was never to return to Rover, while Wilks would officially became its managing director 13 months later, in January 1933.*[12]

Changes rapidly took place with Spencer Wilks cutting production, address quality control (which had been poor) and the rationalisation of production through increased standardisation. The results of this strategy, which was marketed by Rover as 'Quality-First' is demonstrated in the following table showing company activity from 1933 to the outbreak of World War Two (see overleaf):

Company Year (September to August)	Number of cars produced	Total UK car production	Rover share (%)	Company net profit
1933	4,960	220,779	2.2	£7,511
1934	5,946	256,866	2.3	£94,439
1935	7,253	311,544	2.3	£152,910
1936	8,335	353,838	2.35	£165,282
1937	10,183	389,633	2.6	£200,921
1938	10,516	342,390	3.1	£168,938
1939	11,103	350,586	3.2	£205,957

Endnotes

[1] Much of the information in this appendix is drawn from Graham Robson's book *The Rover Story: A Centaury of Success* (Patrick Stevens, Cambridge) 1979.

[2] The 'Safety bicycle' became the accepted name for a bicycle with wheels of the same diameter with the rear wheel being driven by a chain, geared sprocket and pedals. This separated them in concept from the 'penny farthing' and the early 'bone shakers' with a directly driven *front* wheel. The 'Safety bicycle' became the prototype for all modern bicycles. The virtue of *safety* was as a result of it being easier to ride than the earlier types due a lower center of gravity and the use of reduction gearing. The invention of the 'safety bicycle' is generally credited to John (Jack) Starley.
James Starley is the earliest origin of the Rover Company, he had been a former sewing machine engineer employed by Newton, Wilson and Co. He went on to set up with Josiah Turner to design and manufacture first sewing machines and then cycles. However he fell out with Turner in 1869 over bicycle design so James Starley then set up his own company with William Hillman (former works foreman and later to set up the Hillman car company. The story with Rover would intertwine once again in later years when two of his daughters would marry employees of Hillman who would later be very significant in the development of Rover: John Black and Spencer Wilks, [see footnote 17]). James employed his nephew John (known as Jack) an enthusiastic young engineer. However John later decided to leave 'Starley and Hillman' and join forces with William Sutton. It was this partnership, which made the first safety bicycle known as the 'Rover'. Later 'Starley and Sutton' becomes J K Starley and Co Ltd when Sutton left (amicably dissolved as Sutton didn't want the financial exposure of expansion). Starlet safety bicycles becomes 'The Rover Cycle Co Ltd' in 1869 making over 15,000 cycles a year.

[3] This process of naming the company after it's product was to happen again in 1979 when British Leyland (the then parent company for Land Rover) established the independent business of Land Rover Ltd as a result of recommendations from the Ryder report. This process of a product being better known than its manufacturer may provide early anecdotal evidence of a technical artifact moving into the realm of ubiquity, a stepping stone to iconicity.

[4] In The Rover Cycle Companies first year of operation (1896) approximately 11,000 cycles were built with an average price of £14.88 each. Total turnover was £160,000 and the first profit was £21,945. G. Robson, *The Rover Story: A Centaury of Success* (Patrick Stevens, Cambridge) 1979.
Later vehicle makers such as Ariel, Hillman, Singer, Lea and Frances, Swift and Humber all had roots in sewing machine maker Newton, Wilson and Co.
[5] G. Robson, *The Rover Story: A Centaury of Success*, (Patrick Stevens, Cambridge, 1979) 11. There is some disagreement amongst sources about the year the Peugeot motorcycles were imported. Some state 1897 others 1899. Harry Smith became full managing Director in 1904,
[6] To give perspective, the scale of the company loss of £400,000 in 1929 would have been the equivalent of a loss of £19,000,000 in 2010 using the retail price index (or £60,100,000 using average earnings). Source http://www.measuringworth.com accessed 5/4/12.

[7] S B Wilks had been in a senior role managing the Hillman Motor Company prior to its take-over by the Rootes Group. He was unhappy at the changes being made as a result of this takeover at the time the offer from Rover was made to him.
[8] Rover board meeting minutes: September 3 1929
[9] G. Robson, *The Rover Story: A Centaury of Success,* Patrick Stevens, Cambridge, 1979, p. 25.
[10] Ibid., p. 26.
[11] Ibid., p. 25.
[12] Ibid., p. 25.

Appendix v: **Rover and the Second World War**

The solid recovery and expansion of Rover brought it to official attention in the late thirties when the Ministry of Air Production (MAP) approached the company to be part of the 'shadow factory' scheme for armament production as the threat of war with Nazi Germany looked increasingly likely.[1] The increasing involvement in war-work was originally seen as a 'chore' by the Wilks brothers as well as a distraction from their plans for car development.[2] There was no room for expansion at Rovers Coventry works so MAP provided a green field site at Acocks Green (on the outskirts of Birmingham) for the new factory. In early 1937 (less than a year after initial discussions) deliveries of parts to Bristol Aircraft began. By the spring of 1939 war with Germany looked to be a certainty and Rover was again approached by the Air Ministry to take on a second shadow factory to produce complete aero-engines. This time a 65-acre green field site was chosen next to the town of Solihull (again on the edge of Birmingham) for the new plant. The board was clearly already thinking beyond the war however as Rover took the decision to buy an additional 200 acres of farmland adjacent to the shadow factory at the same time.[3] The factory was in operation within nine months with aero-engine manufacturing starting in January 1940.

Rover was approached again in early 1940 with a view to the company manufacturing Frank Whittles highly secret and still experimental jet engine. The relationship between Whittle and S B Wilks proved to be a very difficult one however, which both parties by 1943 were keen to dissolve. 'Rescue' came in the form of Ernest Hives the Managing Director of Rolls Royce who was 'an old friend' of S B Wilks.[4] As a result Hives was well aware of the jet engine project and knew there were problems. He agreed to meet with Wilks along with Stanley Hooker for dinner. According to Hooker:

> *After dinner Hs [Hives] turned abruptly to Wilkes [sic] and said with a twinkle in his eye, 'Why are you playing around with the jet engine? It's not in your line of business,*

you grub about on the ground and I hear from Hooker that things are going from bad to worse with Whittle.' They were great friends, of course, and Wilkes [sic], smilingly ignored the jibe, replied:'We can't get on with the fellow [Whittle] at all, and I would like to be shot of the whole business'.[5] *He [Hives] then said, 'I'll tell you what I will do. You give us the jet job, and I will give you our tank engine factory at Nottingham' In as short a time as that the deal was done.*[6]

This meant in effect Rover exchanged their involvement in the jet engine project with Rolls Royce, receiving in return manufacturing and design rights to the Meteor and Meteorite engines which were used to power tanks and other military vehicles.[7]

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[1] Many carmakers were approached to be part of the 'shadow factory' scheme for manufacturing aero-engines. The scheme meant new factories would be built which would be 'shadows' (i.e. facsimiles) of the facilities aero-engine companies already had as they could not cope with the sudden increase in military orders as rearmament began in 1936. These government financed 'shadow factories' would be run by the car making companies in parallel to car production until the outbreak of war. In Rovers case they initially built components for the Bristol Hercules radial aero-engine and later complete examples.
[2] G. Robson, *The Rover Story: A Centaury of Success,* Patrick Stevens, Cambridge, 1979, p. 36.
[3] This land was later used as a test area after the war, particularly for Land Rovers, and later allowed expansion of the factory site as the company grew in the 1960s.
[4] Stanly Hooker, *Not Much of an Engineer: Sir Stanley Hooker, an autobiography*. Airlife, Ramsbury, 1984, p. 73.
[5] This is disingenuous of Hookers as part of the later formal agreement Rover in fact kept the rights to develop jet engines for ground vehicle applications. Rover undertook considerable experimental work with a gas turbine powered car in the 1950s and later in commercial vehicles as part of British Leyland.
[6] S. Hooker, *Not Much of an Engineer: Sir Stanley Hooker, an autobiography*. Airlife, Ramsbury, 1984, p. 73.
[7] The 'Meteor' was the ground version of the Rolls Royce V12 'Merlin' aero-engine with the V8 'Meteorite' also being derivative it.

Appendix vi:

Conference papers emanating from the research carried out for the Ph.D.

A very British SUV: How Land Rover used sport, competition and notions of adventure to reinvent the utility four wheel drive

Conference paper: 'Design and Sport', Design History Society Annual conference, University of Brighton, Sep 10, 2012

This paper examines the uses of the Land Rover in sporting activities. It explores how these activities were used to promote and expand the brand as well as the changing (and at times contradictory) customer sensibilities, which significantly impacted both the brand and ultimately the design of vehicles themselves. The Land Rover, originally envisaged as an agriculture vehicle shortly after the Second World War, rapidly became established as the archetypal four-wheel-drive utility vehicle employed in a bewildering number of diverse roles. One such role to emerge in the 1950s was its use for expeditions, 'adventure' and the pursuit of sporting activities. Events such as the London to Singapore 'First Overland' expedition of the mid '50s, the 'Darien Gap' expedition of the '60s through to the 'Camel Trophy' of the '80s were milestones in its 'sporting' use. But there was also its use in amateur 'off- road' competition such as 'trialling' and its supporting role for the 'country set' through its use in hunting, shooting and equine sports. It has been said that Land Rover capitalised on the colonial notions of African adventures as well as masculine ideas of 'off-roading' to sell its products. However these themes were absorbed quite late in the products identity with the history of the brand being more nuanced and at times contradictory than the vehicles iconic status would now suggest. It can be argued that Rover (the original manufacturer) played 'catch-up' with the uses buyers were putting the vehicle to and then retrospectively built a brand identity on these emerging 'value complexes'. This lead to a change in the value complexes associated with the vehicle and in time, spawned the proto-SUV the 'Range Rover' and, later, other models such as the 'Discovery', 'Freelander' and 'Range Rover Sport'.

The enthusiast's eye: the dilettante of design history?

Paper: Design History Society Day Seminar 'It's Personal: Subjectivity in Design History', March 26, 2013

Individuals and enthusiast groups dedicated to particular aspects of material culture frequently emerge and manifest themselves in a variety of ways; whether it be car clubs,

individuals collecting particular items they take an interest in, or re-enactors interacting with objects from the past. These interested groups or individuals can hold considerable knowledge and expertise about an artefact and its history, but the term 'enthusiast' carries with it connotations of the passionate amateur and by implication unstructured knowledge, subjectivity, selectivity and nostalgia.

Design History is a relatively young field that has worked hard to become established as a discipline in its own right and build a reputation for rigor. Words such as 'enthusiast' and 'amateur' can be seen as pejorative terms with regard to the study of Design History that academics may feel they want to distance themselves from. However, if we are too ready to link the 'enthusiast' to ideas of 'celebration' or 'niche interest' we may be ignoring factors that help explain the success of some artefacts in relation to others, as well as underestimate the value of archival material held in private collections, which can be rich sources for design history research.

This paper therefore asks can 'the enthusiast's eye' be used as a starting point for grappling with the often-complex script some material culture creates by examining the enthusiasm an individual or a group may have for a particular period or artefact and integrating this with an appropriate methodology? What drives this devotion for particular artefacts, and if better understood, can this enthusiasm help provide a bridge between *subject* and *object*?

Designing the post-colonial car: A bumpy road for personal transport in Africa.

Conference paper: 'Design History and Post-colonialism', Design History Society Annual conference, National Institute of Design, Ahmedabad, India, Sep 6, 2013

The car in Africa engenders many of the colonial interests in the region but has remained a largely ignored topic for design historians. This paper explores the attempts made to develop and build a post-colonial car specifically for the 'bush' regions of the continent. Africa first saw widespread use of the car after World War II with vehicles such as the Land Rover and the Toyota Land Cruiser being imported by African states, international companies and Non-Governmental Organisations (NGOs) for use in rural areas. In less arduous regions robust models from Renault, Peugeot and Fiat proliferated. However, while personal private transport mushroomed in the industrialised western world, it remained out of reach for most in Africa. Private transport has usually centred on the moped/motorbike or cars imported as insurance 'write-offs' from Europe as well as the long tradition of 'upcycling' by mixing components from scrapped or crashed vehicles to create new transport solutions. In the 1980s

the Englishman Tony Howarth attempted to address the issue by designing the 'Africar', a vehicle intended specifically for rural Africa, constructed with a wooden chassis and an engine borrowed from the Citroën 2CV. In the 1990s the 'Uri', initially developed by a Namibian farmer as a simple and robust 4x4, emerged. More recently the 'Mobius', an inexpensive yet rugged car, is under development in Kenya. Success for all these vehicles has remained problematic however. This paper explores these examples and asks what factors have prevented the creation of a post-colonial iteration of a car for Africa. The recent 'centre-periphery' debate in design history is also used to examine the continued reliance on cars imported to the region, the notion that there is one solution for an entire continent, as well as the intra-African factors that have inhibited the emergence of an indigenous car industry.

Beating ploughshares into swords: The unintended adoption of the Land Rover into British military service.

Conference paper: Design for War and Peace', Design History Society Annual conference, University of Oxford, Sep 1, 2014

Much has been written about the post-war Labour government's commitment to building a new Jerusalem in an impoverished Britain. However, with the increasing tension of the Cold War immediately after 1945, it can be argued that a new Sparta was also emerging with ambitious plans to modernise and re-equip the British Armed Forces on land, sea and in the air.

In the light of wartime experiences with military vehicles, the Ministry of Supply hoped to move away from the previous wartime practice of either purchasing (sometimes inappropriate) vehicles out of expediency or issuing requirements to private industry and then allowing these companies to decide how best to meet the specification. Instead, it was decided the War Department would itself become the design agency for a range of new military vehicles, with the private sector then being invited to manufacture as sub-contractors to the Ministry of Supply's designs. The scheme was ambitious, with a range of 'standardised' wheeled military vehicles of load capacities from ¼ of ton (to replace the war-time Jeep) up to 60 tons for a future tank transporter being designed and prototyped.

However, the scheme soon floundered, as specifications became fluid due to modified tactical requirements, changing political circumstances and engineering difficulties as evermore complex and ambitious designs were proposed. After much delay and very few of the vehicle

types ever entering service, the commitment to a state designed standardised range of military vehicles was quietly abandoned in the late 1950s.

In parallel to these developments, many private motor manufacturers were developing their own new vehicles aimed at the export market, for ostensibly civilian requirements. These were often of simple and rugged design for sectors such as oil exploration, agriculture and construction with the Land Rover being the most successful example. The British Armed Forces, even as early as the late 1940s, began to look to these vehicle manufacturers to become temporary suppliers of new military vehicles based on these civilian types, first as stopgaps whilst difficulties with the new standardised range continued, and later as substitutes or replacements when the plan was abandoned.

Using the Land Rover as a case study, this paper examines the almost accidental adoption of a civilian design, which for many is now synonymous with military use, whether is on the streets of Northern Ireland, the deserts of Iraq or the mountains of Afghanistan. The paper also explores the increased state involvement in vehicle design in British post-war military policy between 1945 and 1960 and compares this with the approach taken by the private motor industry over the same period.

Sublime Design or Crass Contraption? Designing a mechanised means of exploring the utopian wilderness.

Conference paper: 'How we live, and How we might live: Design and the Spirit of Critical Utopianism', Design History Society Annual conference, California College of the Arts, Sep 12, 2015

This desire to travel through rugged landscapes and dramatic scenery away from the highway has led to the development of rugged forms of recreational vehicles. Designs that attempt to address this yearning to explore are often referred to as 'over-land' vehicles and their users 'over-landers'. Such vehicles, designed for use in remote areas and usually containing accommodation, cocoon their occupant thereby allowing them to engage in adventure rather than survival in what at times can be inhospitable regions. From the early days of motoring adventurous journeys using improvised motorhomes were undertaken. Later, 'over-landing' through Africa in vehicles such as the Land Rover gradually became commonplace. Arguably the ultimate manifestation of the wilderness camper appeared during the 1970s with the introduction of the unlikely sounding Winnebago 'Heli-Home', a flying remote area recreational vehicle. However, seeking out a wild landscape whilst cocooned in a

mechanised means of transport is full of utopian contradictions. The concept of an untouched 'Shangri-La' being traversed by a rugged oil-burning vehicle, capable of negotiating the realties of wilderness regions is an apparently paradoxical one. Using Domestication Theory and aspects of 'The Anthroposcene' (the character of man/nature relations) the role of the traveller/operator is considered and how this viewpoint can obscure the apparent contradiction between the 'mechanised' and the 'natural', the 'comfortable' and the 'adventurous'. The DIY aspects of many overland machines, the absorption of native tokens such as names and artefacts into adventure vehicles, the nostalgic links to earlier explorations and the masculinisation of traveling in the wilderness are all investigated with reference to example vehicles that have attempted to make visiting the 'utopian wilderness' a reality.

A design out of time: The persistence of the utility Land Rover in post-war British car design

Conference paper: 'Design and Time' Design History Society Annual Conference, Middlesex University, Sep 9, 2016

At just after 9:30am on Friday the 29th of January 2016 the final example of the Land Rover Defender rolled off the assembly line in Solihull, England. This marked the end of more than 67 years of continuous production for a vehicle that had initially been developed in seven months, was born out of post-war expediency and yet seemingly defied the transfigurative powers of automotive fashion. However, in the current mercurial automotive environment of rapid change how did the Land Rover survive for so long and arguably become a design out of time? The unchanging appearance and nature of the utility Land Rover has frequently been celebrated as a virtue with the vehicle increasingly characterised as being 'fit for purpose', 'legendary' and the continuation of a fundamentally sound functional 'design classic' both through its application and marketing. The reasons for the vehicle's survival are still more pragmatic than this characterisation would suggest however, being determined by circumstances and expediency as a matter of necessity rather than strategic thinking or as an automotive manifestation of functional perfection. There were in fact several unsuccessful attempts to fundamentally redesign and replace the existing utility Land Rover from as early as the mid 1960s. However, far from being detrimental to the vehicles reputation, the ubiquity and petrification of the original design led to an almost mythical status for the Land Rover as a perpetually willing workhorse and automotive icon. This paper therefore examined the notion of 'timelessness' in automotive design by examination of the persistence of the utility Land Rover into an era of rapid redesign and replacement in the automotive industry.

Rehabilitating a 'climate criminal': Overhauling the SUV for environmentally conscious times

Paper accepted for Design History Society Annual Conference 'Making and Unmaking the Environment', University of Oslo, Norway, 7 September 2017

This paper explores the background and responses to the growing criticism of car manufacturers with regard to environmental responsibility. Taking Land Rover as a case study, it examines how public relations, marketing strategy and latterly the re-design of products and processes has been used to address the accusation of environmental irresponsibility levelled at such brands.

In the early 2000s with the growing popularity of 4x4 'Sports Utility Vehicles' amongst car buyers the environmental impact of SUVs began to attract increasingly negative media attention due to their higher than average CO_2 emissions. Companies such as Land Rover, who specialise in manufacturing 4x4s, were particularly vulnerable to such criticism as sales of its large prestige models, the Range Rover and the Discovery, grew in popularity and were increasingly being used in urban settings. In 2005 Greenpeace singled out Land Rover for particular condemnation and accused the company of producing 'gas guzzlers' and the then parent company, Ford, of being a 'climate criminal' highlighting these criticisms through a carefully orchestrated campaign of direct action.

It can be argued that before such campaigns, Land Rover had been slow to address concerns with regard to its products and their impact. Initially, as the company attempted to grapple with questions regarding environmental responsibility in the 1990s, it largely characterised the issue as being the responsibility of the owner or operator. Later 'carbon offsetting' at the time of vehicle purchase was introduced as a way of addressing emissions concerns, however such strategies were not without criticism from environmental campaign groups. This was to lead to a more fundamental change in the company's approach to the environment with (re)design of both product *and* processes becoming increasingly important for creating a sustainable corporate future. Developments such as new aluminium chassis technology, changed manufacturing techniques and a target of achieving carbon neutral production by 2020 may have been driven by a public relations imperative, but with Land Rover repositioning itself as a responsible environmental *innovator* it has sought to turn a reputational vulnerability into a marketing asset through design.

Appendix vii:

Principle interviews undertaken

As part of the primary research carried out for this thesis interviews were undertaken with the following individuals who worked on the design and engineering of the utility Land Rover over the vehicle's development and production life.

Arthur Goddard

Born in the UK on the 31st of January 1921 and now living in Australia, Arthur Goddard joined Rover as an Engineer in 1945 from the Aero Engine Research Laboratory run by the Ministry of Aircraft Production. When war ended he hoped to move to Alvis Ltd to carry on working with aero engines, however he was diverted to work for Rover by the Ministry of Labour to help with development work on the V12 Meteor tank engine (derived from the V12 Merlin aero engine with which he was familiar). Once arriving at Rover he was diverted once again to work on the development of car engines as a result of Jack Swain, senior engine designer, being off work due to a motorcycle accident. Goddard rose quickly within Rover and in 1947, at the age of 26, became responsible for the design and development of the first Land Rover. Goddard left Rover in the late 1950s to join Girling Brakes (Australia) Ltd. After tracing Arthur Goddard through engineering company 'Vehicle Components' in Queensland Australia (where his son, Chris Goddard, is the Managing Director), I carried out two detailed telephone interviews with him on the 23rd of November 2012 and 30rd of November 2012, each lasting approximately two hours.

Roger Crathorne

Roger Crathorne joined the Rover Company in September 1963 as an apprentice, severed as engineer on many projects including the development of the coil-sprung prototypes of the Land Rover in the late 1970s, was instrumental in the introduction the 'Land Rover Experience' off road driving centres in the 1990s and rose to become the Head of Technical

Public Relations for Land Rover Ltd before his retirement in December 2014. I carried out two interviews with Roger Crathorne at the Gaydon Motor Heritage Centre in Warwickshire, the first on the 7th August 2009 and the second on the 11th June 2010 with these discussions totalling five hours.

Peter Crowley Palmer

Peter Crowley Palmer commenced work with 'Land Rover Design' in 1987 (then aged 33). Responsibilities included design and concept work on elements for the original Discovery interior and early concept development the Freelander. In 1990 the Design Team moved to Canley and became enrolled as part of the Austin Rover Group under the ownership of British Aerospace. After again moving, this time to Gaydon design centre, he worked on the Range Rover, contributed to the Range Rover Evoque interior as well as involvement with Defender development. I carried out interviews by email and telephone with Peter Crowley Palmer (by then a Principal Designer with Land Rover) with these taking place over the months of January and August of 2012.

Other contextual interviews

Interviews were also carried out between 2010 and 2016 with those using the utility Land Rovers in various applications, ranging from military personnel, to those involved with agriculture, utility companies, sales staff and private enthusiast owners both in the UK and from overseas. Details of these are identified in chapter endnotes throughout the thesis.