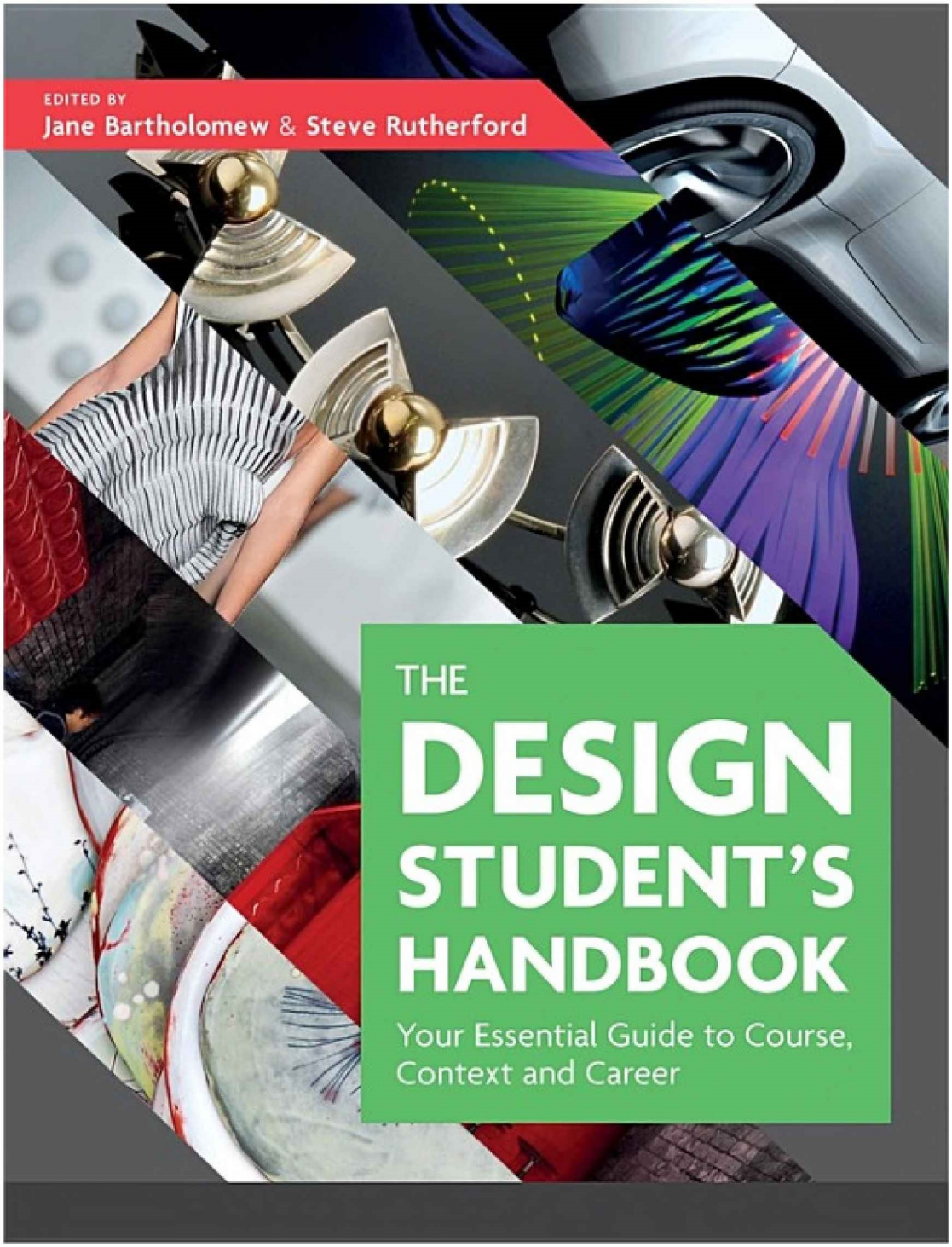

EDITED BY
Jane Bartholomew & Steve Rutherford
THE
DESIGN
STUDENT'S
HANDBOOK
Your Essential Guide to Course, Context and Career

selected to be part of the permanent collection of the Museum of Modern Art in New York.

See more of Alexander's work here:

www.alexandertaylor.com

Project story

Designer:
Andy Wheel, Designer for Jaguar Land Rover

Project title:
Land Rover Discovery

Tell us about the project

The Land Rover 'Discovery 3' project was formally started on July 1st 2000, and the first customer-ready car was manufactured in November 2004. My part in this project was as lead designer for the exterior design, reporting to Chief Designer George Thomson, Studio Director David Saddington and, ultimately, to Geoff Upex, Design Director for Land Rover.

When the project started there was already a great deal of planning in place regarding timing of the design phase and the start of production, the investment budget, the general concept for the vehicle, where it would sit in the Land Rover portfolio of vehicles and in the marketplace in general.

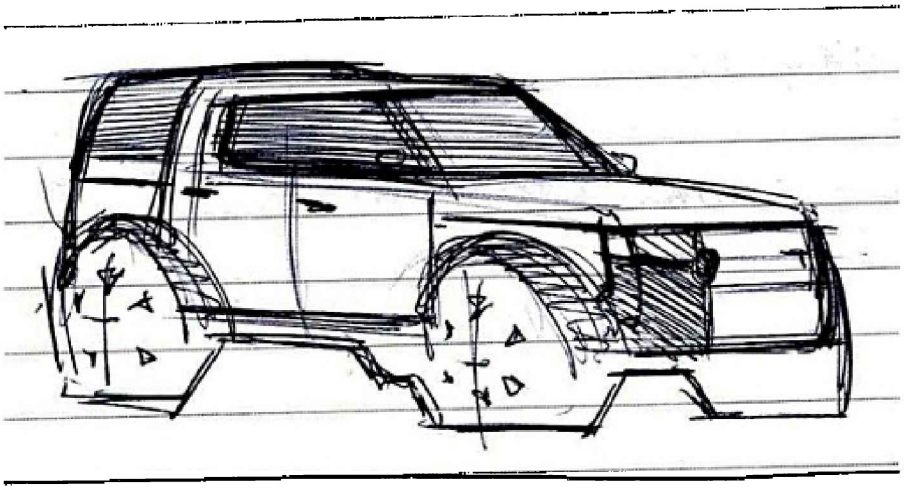
The design brief had three distinct elements:

1. '**Discovery-ness**' - We had already established that this product was a replacement for Discovery 2 and not a new product proposal, so we had to ensure that we communicated this heritage through certain key aesthetic elements.
2. '**Package Efficiency**' - The new vehicle had to offer the best seven-seater package in the marketplace, with a flexible and optimised cabin space.
3. '**21st-century Land Rover**' - This would be the first all-new Land Rover-badged vehicle of the 21st century, and had to embody the lineage of Land Rover in a contemporary way. (This last element of the brief was easy to write, but was the hardest element to define!)

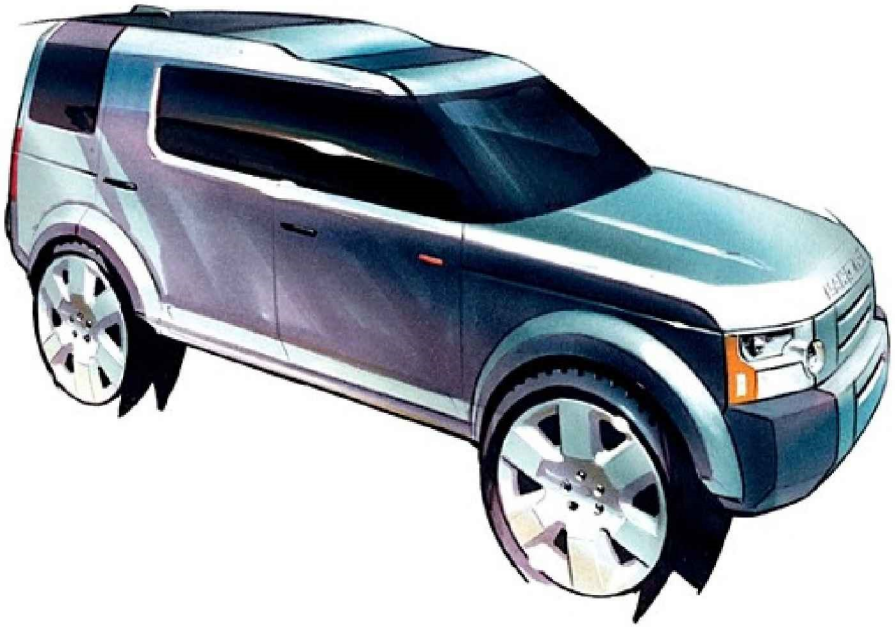
A small team set to work on several concepts, developing ideas in 2D (sketches, renderings) and in 3D (computer models). Each design proposal was presented to senior staff as 2D images accompanied by a verbal presentation.

I was extremely fortunate to have my design theme proposal chosen as the primary route for the exterior design. This occurred at a milestone called 'theme selection', or 'go for one', where several proposals are considered and a single theme agreed on for further development.

Based on these drawings, we created a set of elevation drawings over key hard points, such as the interior space and the drivetrain and suspension components, and went straight into a full-size clay model of the body.



Early sketch of the Discovery concept
Land Rover



Design proposal
Land Rover

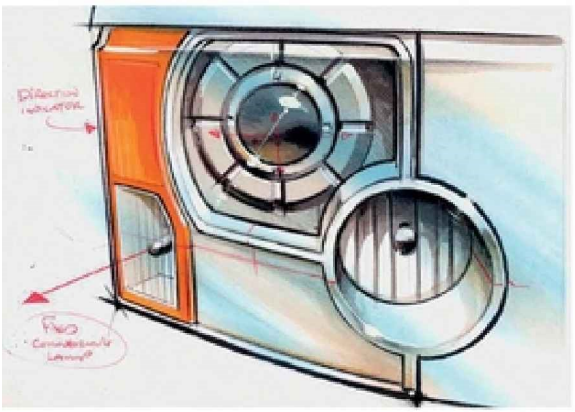
Full-size clay model
Land Rover

This master clay model was placed on a measuring plate so that we could regularly check overall proportions, feature lines and surfaces. We could also move it out of the studio into an outdoor 'viewing garden'. Here, in a more real-world lighting scenario, we could see it more realistically and from a greater distance than the space available in the studio.

The major turning point in the design and development process was a project milestone known as 'Stop Clay', which fixes the exterior design. 'Stop Clay' is the end of the creative phase and the start of finalising the design for production. Control of any design changes that might be needed transferred at that point from the design team to the product development team, whose responsibility it is to then make it ready for mass manufacture. From this point onward, any changes to the exterior design could only happen as a result of discussion between design and product development, and a detailed analysis to resolve a feasibility or cost issue.

What processes and skills were most relevant to this project?

Research. At the very start of the project my hypothesis was that Land Rover had a proven track record of creating vehicles that stood the test of time: that their aesthetic was set apart from other vehicles as a result of their functionality, and as a consequence they stood apart from other vehicles where aesthetics and style played a part. This meant that my research and communication skills were paramount in realising my ideas and getting them across to the design managers.



Sketch proposal for lights
Land Rover

I collated evidence to indicate that a minimal aesthetic approach, where there is no superfluous decoration and everything has 'a reason to exist', was the key contributor to customer relevance, product longevity and 'timelessness'. This evidence came from all disciplines of design and indicated that a minimal 'product design' approach would create a modern Land Rover.

Along with the evidence to support my hypothesis, I also had illustrations of how this philosophy translated into a product proposal, I spent a great deal of time critiquing all components, establishing whether they were necessary and, if so, could they be integrated in a seamless way with the rest of the vehicle - for example, designing flush surfaces.

Final resolution to the headlights
Land Rover

The 2D images at the 'theme selection' stage consisted of both 'influence' or 'mood' boards and 2D renderings of the vehicle from many angles. Realising my vision for the shape in a way that communicated what I meant to the decision makers was extremely important It was necessary to communicate the shape in a way that would produce the right emotional response from the viewers.

Detail sketch produced late in the project
Land Rover

Later on, in the development and detailing stage, sketch work was still an important communication method. There were many refinements to the design, some driven by aesthetics but most driven by production and engineering feasibility requirements. We produced a great deal of sketch work that went into more and more detail but always acted as a fundamental and nimble communication tool. This is a very important skill for any designer - the ability to engage your audience and get them to see, understand and support your vision is fundamental for success. This applies to all aspects of the design, from the smallest detail to the overall theme.

The sketching supported the development of the clay model, which was continually updated and changed. This was regularly scanned in 3D to generate the latest 3D computer data model of the design.

What challenges did you face?

I knew how big the investment budgets for new vehicles were, and had an awareness of how the sales of 'fashion'-led vehicles, such as the VW Beetle, tend to be high initially and then fall off very quickly. I was also considering that this product would start production at the end of 2004 and would expect to stay in production for a minimum of eight or nine years, a long time in the car world. Therefore the exterior look of the car was even more crucial to its success.

This meant that the vehicle needed to stay relevant to customer needs throughout that timescale and beyond. Discovery 3 would be around until the mid-2020s! Translating all this into a shape that embodied 'timelessness' was a complex process involving drawing, computer modelling and the hands-on shaping and re-shaping of a full-size clay model.

Later in the project this clay model became a very important tool to focus all the other, associated design modules that would deliver the vehicle to production - 'bumper systems', 'glazing', exterior lighting', etc. Each module has a set of targets for their system of parts. These targets are often associated with performance (e.g. no damage to bumpers on impacts up to 8kph) or technical sizes and requirements, and are usually driven by changing customer needs or legal requirements.

At this point, the role of the design team changed

fundamentally. We moved from being 'designers' to 'design police'! We had designed the exterior and needed to make sure that it wasn't compromised by any of the modules clashing with it. During the development of the exterior design there were several situations where different module targets were mutually incompatible - we could not achieve one requirement without compromising another. The master clay development brought these issues into the open and brought the module teams together with exterior and interior design to review options and agree on a balanced way forward.

What were the highlights of the project?

As well as being very fortunate to have my theme concept chosen for the final exterior design of Discovery 3, the high point for me was to be in a car in New York being followed by a Discovery 3 on the day after it had been officially unveiled to the world. We were taking some publicity pictures and I took the opportunity to tag along and see the final product 'in context' among other vehicles.

When I was able to see the modernity of the exterior style set against the vehicles and backdrop of New York I felt honoured to have been a part of the huge development group that took those initial ideas and worked as a team to deliver an incredibly complex and innovative product, wrapped in an equally innovative exterior design.

See and hear me talking about the design of Discovery 3 here: **www.youtube.com** (search for LR3 exterior design).