

The Dazzle Ships that Fooled the Iron Fish

Jeanne Robinson and Neil Johnson-Symington

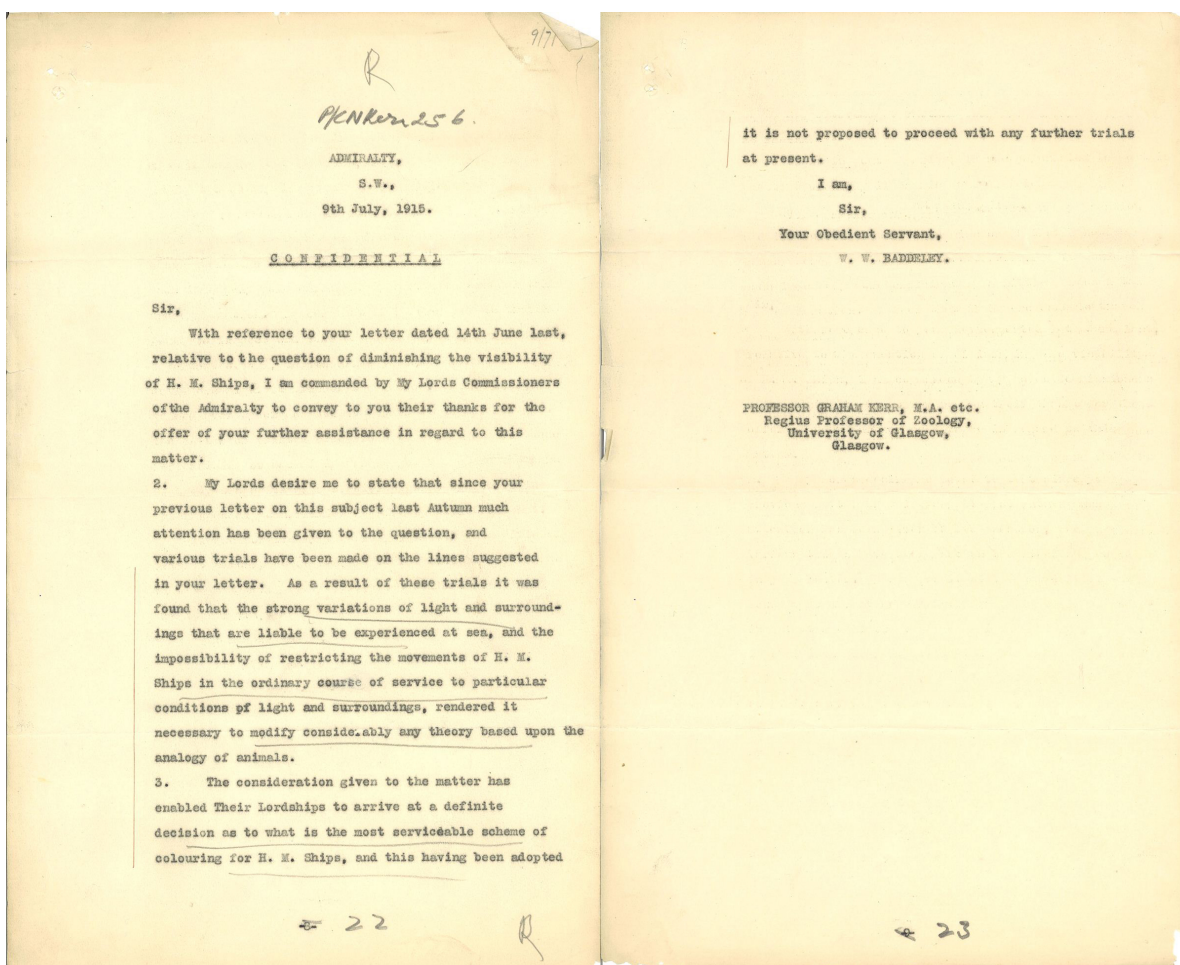
In Conversation: Jeanne Robinson and Neil Johnson-Symington

Riverside Museum's multi-disciplinary display, *Nowhere to Hide: Camouflage at Sea*, combines traditional museum classifications of technology with art and natural history to tell the story of dazzle camouflage. The exhibition is the direct result of a collaboration between two curators from different disciplines: Jeanne Robinson, Curator of Entomology, and Neil Johnson-Symington, Curator of Transport and Technology.

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Jeanne Robinson: Camouflage is a fascinating area, particularly for an entomologist, because there are so many strategies that insects employ to disguise themselves due to the fact that everything wants to eat them. When I started my research, the name John Graham Kerr of Glasgow University kept coming up. The other person I turned to for research was Graeme Ruxton, also from Glasgow University and following in Kerr's footsteps. He'd been interested in how animals avoid attack. I was looking for studies of how visual predators and their prey's camouflage really worked, instead of blindly adopting commonly held, human-biased assumptions.

Neil Johnson-Symington: It's good to reference Kerr here because, although we have no direct proof, I'd like to think that Glasgow did have some involvement with dazzle's development. We know that Kerr was a great exponent of what he called 'parti-colouring' and that during the First World War, he wrote to the Admiralty and Churchill to suggest that the same patterning you'd find on a ringed plover, skunk or zebra will also work with a ship. He was so tenacious and wouldn't stop writing. It took about a year of correspondence before he was advised that the Admiralty would not progress this. [Figure 1]



Figure

1: University of Glasgow Archive Services, John Graham Kerr collection, GB248 DC6/256/257

JR: The zebra and the plover [Figure 2] fit into the idea of disruptive colouration that's close to, and is quite prolific in the natural world. It involves geometric lines and angular shapes that break up the outline so that the silhouette – the thing that helps its predator identify it – is disrupted. Dazzle was of course doing this on a grand scale compared to our tiny geometrid moths or even the ringed plover. We can also consider another form of camouflage, where the insect prey startle their predators with their colouration, or disguise themselves as something inedible.

NJS: Deceptive colouration.

JR: Yes, something like the flashing of eye spots, when a bird is in pursuit of a moth or butterfly, and these big eyes suddenly appear on the insect's wings. For a visual predator that's fairly intimidating.



Figure 2:

The Zebra and Ringed Plover on Display. © CSC CIC Glasgow Museums Collection.

NJS: That works so well with the dazzle ships, as some schemes appear to be designed so that the attention is drawn away from the most vulnerable parts.

JR: The idea with the eye spots, as well as to deflect attack, is to get the predator to focus on the parts that are less vulnerable, away from the body: most butterflies and moths can take a blow to the wings.

NJS: Similarly, there's a species that has sacrificial tails. [Figure 3]

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Figure 3: Purple Spotted Swallowtail (*Graphium Weiskei*) from the Hunterian Museum's Collections, University of Glasgow. © University of Glasgow (Hunterian Museum).

JR: Yes, the Swallowtail and Hairstreak butterflies. Quite often when you're capturing these you find their tail tips missing as a result of attacks by birds.

The zebra is one of the most interesting stories, because there's a common misconception that its stripes help it hide in the long grass. This is simply not the case. It's been shown that zebra stripes help avoid parasite attack, as parasitic tsetse flies are attracted to solid black or solid white targets much more than stripy targets. Considering the fact that avoidance of parasites is crucial to animals' survival, this is a far better explanation for the zebra's dazzling stripes.

NJS: The grouping of the zebra and these tiny tsetse flies in the exhibition is one of my favourite parts of the display. Visitors are quite confounded to see this sort of thing in a transport museum, but together the zebra and tsetse flies demonstrate the same relationship as that of the dazzle ship and the U-Boat.

JR: A lot of my insects have quite complicated patterns in all kinds of earthy tones, and their backgrounds are also complex, so they have a lot more to disguise them, whereas something the size of a ship that just has predominantly the sea and sky, that's a much broader challenge.

NJS: Absolutely. That's the whole idea of dazzle – that they can't possibly mirror their surroundings or blend in. These ships were sitting ducks, totally vulnerable. That's what I really liked about some of the insects that you chose. The jewel beetles are quite extraordinary – they're so bright and shiny they literally have a dazzle effect.

JR: They look stunning and they illustrate the principles with the banding, spotting and dazzling. But there are actually lots of other potential reasons for their iridescent colours: advertising to mates that you're in fabulous condition; the light reflection may help you blend into a dappled woodland environment, or simply be a side-effect of some other trait like having a strong casing.



Figure 4: Detail of port side of SS War Drake, 1918. © CSC CIC Glasgow Museums Collection.

NJS: I think it's intriguing to relate them to the dazzle scheme drawings because the earlier ones were very brightly coloured, as *SS War Drake* [Figure 4] shows with its bright blues and so on. They couldn't keep that up though, not least because of the wear and tear caused by the ocean. But as they went on they started to focus on just a few colours, usually subdued but with as strong a contrast as they could achieve. There's a terrific cartoon by Tommy Livingstone of a dazzle ship at Govan in Glasgow from January 1918 that's full of incredible colours –violet, emerald, blue, orange. [figure 5]



Figure 5: © Estate of Thomas Cairns Livingstone under licence to Shaun Sewell

JR: Colours that any jewel beetle would be proud to sport. Nature's colours are considerably more durable though!

NJS: We don't know if it was artistic license or if it was actually an early dazzle scheme. It would tie in with some tests that the Admiralty commissioned with dazzle-painted ships. One of these was done on the

Firth of Clyde and not one of the crew could agree on the course of the painted ship – it would be amazing if this was the ship that Livingstone drew.

JR: The way that the dazzle ships evolved in relation to their hunters, and the way animal camouflage evolves in response to predation, is quite interesting – it's a similar relationship. That is, once you know what you're looking out for it becomes easier to spot – once you know the camouflage strategy that's being employed and you recognise that pattern, you become better at picking it out against the backdrop. When the dazzle ships first came out, they must have sent alarm bells ringing.

NJS: That's perhaps why a captain within the Admiralty suggested to Wilkinson that you should have each side of the ship dazzled in a different way, just to further add to the unpredictability.

NJS: When we talk about dazzle, we instinctively think of Norman Wilkinson, as he's credited as the mastermind of dazzle who led the whole team. But I still find myself thinking of Kerr and wondering what happened to him. He wrote to the Admiralty again to express his dismay at not having his idea taken forward and I think he does see similarities between his ideas and those of Wilkinson. Y. YY You can tell he's frustrated. He could be argued to have planted the seed, but there's no acknowledgement of this.

JR: What's interesting is when you walk around the insect collections of Glasgow University today, you still get a feel for what a key area it was for Kerr – a lot of the teaching drawers are still laid out displaying different types of crypsis, warning, mimicry and all these other things that we explored. Kerr was instrumental in setting up the zoology museum and sourcing the best possible specimens to illustrate the principles of zoology that he taught. [Figure 6]



Figure 6: Teaching drawer from Hunterian Museum Collections Illustrating Animal Camouflage. © University of Glasgow (Hunterian Museum).

NJS: So he certainly devoted his life's work to this school of thought.

JR: It was definitely a major theme that he was exploring.

NJS: Even though we mention him fairly briefly in the display we've curated, I'm so glad to have conveyed his perspective, since it's quite often overlooked in the dazzle story. Looking back on the project, what surprised you the most about the journey to the display? Did it inspire a new way of working?

JR: No, I've always enjoyed the crossover. I think it just reinforced what I've always thought, which is that usually nature has done it first. We always like to pat ourselves on the back and feel very clever and ingenious, but we're so linked with our environment even though it's not always totally apparent in our initial observation. Nature is such a powerful driving force and an inspiration for so much of what we do.

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<http://www.glasgowlife.org.uk/museums/riverside/Pages/default.aspx>

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