My title - taken from a very British musical of the 1950s, featuring meaningful lyrics such as:

'Once our beer was frothy
But now it's frothy coffee
And Fings aint wot they used to be'

- is frivolous, but my theme is not. The message I would like to get across is that sea-power, as a military phenomenon, has changed, probably irrevocably. This is due to a number of factors that have been around for a very long time, that have been brought together in the second half of the twentieth century and given a hard focus by computer and information systems. I speak from the perspective of someone who has seen service, a practitioner, in the navy of a medium-power, of an island nation lying not far off a continent with which we are inevitably intertwined and with which we have not always had common cause. I believe that much of what I have to say is true for nations smaller than mine, and indeed larger, but not necessarily all of it. I am not, I should emphasise, a professional historian.

Sea-power up until the 1960s was real, dominant and decisive. The history of sea-power is as old as history itself, and equally the pre-history of sea-power matches the shadowy story-lines of pre-history itself. The spread of homo sapiens across seas to uninhabited lands was achieved by those with the strength and knowledge to use the sea. Notably this was true in the example of the Australasian, Indian Ocean and Asia-Pacific regions. Colonising communities were either sustained by use of the sea, or became isolated, lapsed in their development and were later subsumed by stronger users.

Sea power came from and still comes from sea control. Sea control equals sea use plus sea denial. You can control the sea for your own use or to deny its use to others: Sea use and sea denial are not symmetrical mirror-images, nor are they absolutes. They may be incomplete and variable in time, function and geography. The sea itself however is neutral. As the English humorist Alan
Bennet puts it 'I've never seen the point of the sea. Except where it meets the land. The shore has point, the sea none'. Even so, the sea and the seabed beneath it contains life - fish, cetaceans - and mineral resources - gold, manganese, oil. The use, or exploitation, of these resources is liable to be disputed, primarily by neighbours, and needs to be controlled. This control can be implemented by statute and civil means, but may in the last resort, or preemptively in the first, be controlled by the use of force: sea power. Here again there are noteworthy examples in the Western Pacific and the South China Sea. The sea can be used to transport material and people for civil or military purposes, whether it is spice from the Orient, treasure from South America, or more recently the 'sinews of war\textsuperscript{1}' that might have had to pass along the Atlantic re-supply and reinforcement routes from the United States to Europe had the Cold War ever got hot. Such use can be denied to an enemy. The British naval blockade of European ports in the French Revolutionary and Napoleonic Wars denied re-supply to France: 'Those far distant, storm-beaten ships, upon which the Grand Army never looked, stood between it and domination of the world' (as that admirable American admiral, Alfred Thayer Mahan put it in 1892). The same navy that denied resupply to Napoleon used the sea to project General Arthur Wellesly (later the Duke of Wellington and coincidentally Founding President of the Royal United Services Institute) ashore in Portugal for the Peninsula Campaign, and thereafter to sustain him on the way to Waterloo.

At sea, the various levels of warfare can become indistinct in the fog of war and the mind of the commander. In the Battle of the Glorious First of June (1794) the British intercepted a supply convoy from the United States, bound for France and won a victory at the tactical level - more enemy warships sunk - but conceded a strategic defeat as the grain ships got through. This was demonstrated more vividly at Jutland in 1915 when the British Fleet took severe losses, but the German High Seas Fleet fled back to harbour in Wilhelmshaven, never thereafter collectively to take part in the war. It was said that Admiral Jellicoe, the British Fleet Commander could not have won the War - the First World War - but was the only person who could have lost it in an afternoon.

\textsuperscript{1} When Cicero first used the phrase 'nervos belli' (5\textsuperscript{th} Philippic Chapter 5), he adds 'pecuniam infinitam', or 'unlimited money'. The cost of military logistics remains critically high as does their importance.
Thus victories at sea could be decisive, not only at sea, but also for the concomitant land campaign for example, Trafalgar in the Napoleonic War, Tsushima in the Russo-Japanese War\(^2\), and the great Pacific naval battles of the Second World War, Midway, Coral Sea and Leyte Gulf. All were victories of long lasting grand strategic importance.

Control of the sea has allowed power to be projected from the sea. Once it was armies, and maybe, in principle, it still is. 'The Army is a projectile fired by the Navy', as naval officers still say when they want gently to irritate their army colleagues. Julius Caesar had the control of the 22 miles across the English Channel and projected his army across it in 55 and 54 BC, Hitler did not, could not, and then unwisely decided to march on Moscow\(^3\). Hitler certainly suffered the attributes of a typical continental 'land-animal', and was ill-equipped for sea control. His efforts to deny the use of the seas for the re-supply and reinforcement of Britain and then Western Europe failed in the long and harshly fought Battle of the Atlantic. Moreover one key factor that led to Rommel's defeat at El Alamein was the inability of the Axis powers to use the sea, against mainly British air and naval forces, to supply their forces with essential fuel and ammunition. The United States Marine Corps and the US Navy's amphibious task forces and groups, and the British maintenance of a smaller amphibious capability give abundant evidence today that the capability to use the seas is still valued. The ability of an amphibious force to poise at sea and hold at risk a far larger enemy force was demonstrated repeatedly in the Second World War and again in the Gulf War. Gunboat diplomacy, that nice mix of coercion and deterrence, did much to sustain the British Empire: the gunboats deposited small groups of soldiers on the coast or up rivers, whilst cruiser squadrons that may or

\(^2\) There are indeed many similarities between the Battles of Trafalgar and Tsushima. Although 100 years apart the Japanese and British admirals displayed similar tactical boldness. Even their messages before battle were similar. Nelson's 'England expects that every man will do his duty,' compares with Togo's 'the rise or fall of the Empire depends upon the results of this engagement; do your utmost every one of you.' It is tempting to see commonality in the two admirals' approaches to command, their people, and their way of fighting. (The Russo-Japanese War Vol III Kinkodo 1905).

\(^3\) Hitler’s experience can be likened to that of Napoleon who said of the English Channel, 'C'est un fossé, qui sera franchi lorsqu'on aura l'audace de le tenter.' (It is a ditch, and will be crossed as soon as someone has the courage to attempt it.) Napoleon did not have the necessary daring, and also, disastrously, marched on Moscow.
may not have been lurking just over the horizon, gave assurance against prolonged resistance or escalation. Today, the support and re-supply of armies is still transported by sea (95% of war stores for the Gulf War arrived by sea), though the majority of people now go by air. Now, would it not have been interesting if the Iraqis had had a few small and capable conventional submarines, perhaps with air independent propulsion, blocking the Straits of Hormuz and contesting the United States' and the allies' control of the straits, thereby denying access to the Saudi ports? And the Iraqis certainly had some ingenious sea-mines that were difficult to counter but not very cleverly used, and sea-mines are a classic weapon for a smaller nation faced with a far-stronger opponent.

The sea is a place from which to bombard the land. Bombardment by cannon of coastal defences was over the centuries localised and often ineffective. Today, bombardment can take place at long range (more than 1000 miles) and is varied in nature (ship and submarine launched missiles, carrier-borne attack aircraft, close air support of troops ashore, guns). Once again, naval forces can concentrate, but hold at risk much larger areas, moving or poising in international waters, able to re-deploy within a conflict region or from one regional conflict to another, and to surge their efforts at critical times. Bombardment at its extreme is vested with Submarine Launched Ballistic Missiles in the strategic deterrent capability which, in case of UK forces, can target almost the entire global land-mass from the Atlantic operating areas. And in the case of United States SSBNs with their rather more extensive operating areas, even islands in the far southern oceans can be targeted if so required. Since the collapse of the Former Soviet Union the passages across the oceans for Western navies have not been seriously challenged, indeed apart from in the

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4 At best, the threatened presence of quiet and hostile conventional submarines in the approaches to the Straits of Hormuz would complicate both the planning and execution of logistics and reinforcement operations. At worst it could severely disrupt them. Action against them would be difficult, even with the most sophisticated platforms and sensors. Anti-submarine warfare (ASW) conditions are frequently bad with high background noise levels, multiple false targets, and marked variations in water temperature, pressure and salinity.

5 With the acquisition of Tomahawk Land Attack Missiles, the Royal Navy has acquired a new capability for coercion at the start of a conflict. TLAMs from SSNs were the first British systems into action in both Kosovo and Afghanistan. The tasks and capabilities of sea-power can still expand and be renewed.
North Atlantic, they were not at risk for some years before that. The threat of sea
denial in the 'blue waters' is not great, even though the risk rises at choke points,
for example the Suez Canal and the Red Sea or the Malacca Straits.

However, opposition may be expected in the littoral seas, the 'brown
waters', from the land, from missiles, land-based aircraft, coastal submarines, sea
mines etc. These are not new phenomena: NATO's naval forces advancing into
the Norwegian Sea would have been confronted by shore-based Soviet missile-
ammed long range aircraft and surface attack groups as well as submarines, all
informed by a supposedly well-coordinated sensor and command system that
concentrated opposition progressively as the incoming fleet approached the
Soviet Navy's arctic bastions. In a sense, the Soviets were trying to deny NATO
forces the use of the sea to strike the Soviet northern bases and to deny them the
use of the Arctic ocean. Those same Soviet submarines would also have
attempted to deny NATO the use of the Atlantic reinforcement and resupply
routes. NATO, in turn, placed naval forces in the gaps between Greenland,
Iceland and the UK to attempt to block, or deny, Soviet submarines, the ability to
break-out from the Norwegian Sea. In earlier years, the Soviet navy's shorter-
range missile firing submarines also used the sea off the United States eastern
seaboard to set up the Western Atlantic Missile Patrol Area.

This is how it was; and to some extent how it still is. But perspectives
have changed, and so has the terminology. The phrase in UK now used to
describe naval operations, 'Maritime Contributions to Joint Operations', indicates
the manner and the extent to which things have changed. This is not an absolute
change, but it is a marked change. Naval forces are no longer self contained on
or under the sea, they cooperate with other forces in a joint battlespace. This is
not new either. When General Arnold, the great American aviator said in 1946
'The greatest lesson of this war (The Second World War) has been the extent to
which air, land, and sea operations can and must be coordinated by joint
planning and unified command' he was probably not the first to utter these
sentiments, and he certainly was not the last. Nor, except in the case of the
United States, are these joint national forces able to operate unilaterally (except
in small localised operations), but they will operate combined with forces from
other nations in some form of coalition\textsuperscript{6}. There is no longer a separation from land forces once they have been put ashore; this has been replaced by intricate interaction over many hundreds of miles. And the vast majority of capitals, industrial complexes, people and targets can be found within 1500 miles of some coast-line. Operations at sea in the littoral, affected by land forces, can equally extend many hundreds of miles to seaward. Thus 'littoral' does not mean close to the coast. Air forces can be based either on land or at sea and can operate with facility over both. There are constraints and singularities in each, but there are also powerful commonalities. Above all this, there is space and its use by forces at sea is a pre-requisite for communications, precise navigation and information gathering, and an option for weapons and sensor platforms, and hence command and control. Space has to be used for network-centric warfare at sea - or as it is sometimes called - network enabled operations, and to provide the simple sounding, but difficult to achieve, 'recognised picture' - so that all forces know, accurately and real time, what is going on.

Space is the new sea, and space itself is inherently more neutral than the sea ever was. However the use of space for military purposes is not very new. As a warship and task unit commander in the 1980s, I spent much of my time trying to avoid giving information away to the SOSS - the Soviet Ocean Surveillance System - that was built upon a well-developed and comprehensive space capability: trying to deny to the Soviets the value of their use of space. Space is the pre-eminent environment of globalisation. Space enables cyber-space. And it is the application of the computer, the development of information technology and the soaring importance of C4ISTAR (Command, control, communications, computers, intelligence, surveillance, target acquisition and reconnaissance), that have radically changed the nature of conflict. C4ISTAR dominance will lead in turn to increasing dominance across the spectrum of missions for conventional forces. The potential exists for absolute dominance in

\textsuperscript{6} National operations by medium-sized forces can still, exceptionally, take place. The expedition to recover the Falklands in 1982 was some time ago but is a valid example, although some help was obtained from third parties eg US and Chile. The more recent operations in Sierra Leone, in support of, but separated from, UN forces is perhaps more relevant. This residual need is one reason for continuing to maintain balanced rather than specialised forces. Another is that the nature of future coalitions cannot be predicted with any confidence, and thus neither can the nature of a required contribution.
which the enemy will have virtually zero capability to respond. This is largely because they will not be able to respond to an event before a subsequent event negates any action taken by them against the first event. This, yet again, is not new in concept and commanders from many countries have found that maintaining a higher tempo than the opposition can cope with, will cause disarray, perhaps catastrophic. There is however a crucial exception to this trend, and that is that human beings will into the foreseeable future still have to make some decisions; fewer certainly, but often more difficult ones, often based on insufficient information and under pressure of time. And these decisions will be more difficult to anticipate and train for notwithstanding the wonders of synthetic environments and networked simulators.

This has two results. One is the rise of asymmetric warfare as a new factor despite having existed as a means of warfare for thousands of years. As an example, in 67 BC, King Mithridates of Pontus, as Strabo tells us in his 'Geography', faced the apparently overwhelming power of the Roman general Ptolemy. But Mithridates realised that in his whereabouts on the Black Sea coast near Trabzon, the honey contained a poison from the nectar of rhododendrons and laurels. Ptolemy's soldiers were lured into feasting on the Trabzon honey which was acutely toxic and hallucinogenic. They subsided into drunken convulsions and narcosis, were set upon by Mithridates' waiting army and roundly massacred. Asymmetric warfare is new to the extent that it is a response, perhaps a last resort, to a new and disproportionately effective degree of western dominance, and new because the same tools of the dominance - globalised information systems and transport - enable the operations of the asymmetric responders. And this seems set to continue. Moore's law tells us that the power of computers doubles every 21 months: it has done so for some forty years and is set to continue for at least another twenty. I suspect that it was when Moore's law began to kick in, that the separateness of sea power as an operational entity became unsustainable. Another law tells us that the cost of a unit of computing capability asymptotically approaches zero. An innovation in

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7 In this, and other, instances the asymmetric action was spectacular but ultimately unsuccessful. Ptolemy's other army returned and took their revenge a few months later. The issue is whether now and in the future, asymmetric warfare is going to achieve the long term results desired by the protagonists.
information technology may be expected largely from the commercial sector, this all means that increasingly capable information systems will be available to many without national barriers. Operations to deter, defend against, and manage the consequences of asymmetric warfare, and to coerce and dissuade its practitioners and supporters have opened up a litany of new roles and tasks for naval forces and the people in them, and new capabilities will be required. These new tasks and capabilities will include those adapted from the current expeditionary strategy. Deterrence may well include both an assurance of capability and the leaving of uncertainty in the mind of the aggressor as to the limits, and scope, of countermeasures. One new capability may be to provide afloat platforms for missile defence systems, another may be the clandestine insertion of special forces from the sea. For the UK, as Geoff Hoon, the Secretary of State for Defence made clear on 5 December in London, there will still be a need 'to go to the crisis, before the crisis comes to us' notwithstanding the events of 11 September. From this he has deduced that the adapted joint and national strategy will continue to be centred around the acquisition of two new aircraft carriers and appropriate aircraft during the next decade and a half. Accordingly, the Royal Navy's operational concept is aligned to a manoeuvrist approach and is expressed in terms of gaining and maintaining core capabilities - littoral manoeuvre, maritime strike, optimised access and C4ISTAR⁸ - as opposed to core platforms eg carriers, nuclear submarines and amphibious forces. In addition to this I believe we shall see new tasks to counter terrorism at sea and in this I include the old but burgeoning crime of piracy on the high seas. I suspect that the kernel of the new tasks will be in intelligence, security and the

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⁸ A brief description of these capabilities is: littoral manoeuvre places maritime and amphibious forces into the littoral to threaten or apply force against an enemy's decisive point or centre of gravity. Within the joint campaign, it will conduct and support land operations ensuring that the littoral flank remains an enemy vulnerability. Maritime strike gives the capability to interdict the land using direct and indirect fire, tactical air power, and attack helicopters. Optimised access encompasses manoeuvre in the open ocean and littoral, enabling entry into theatre, sea control and joint force protection. The last will be achieved not only from the characteristics of forces required for littoral manoeuvre and maritime strike - carrier airpower for example - but also making maritime forces hard to hit through distribution and dispersal, signature control, cooperative deception and mobility, and harder if hit, through novel composite materials and collective protection. Finally C4ISTAR, where our future platforms will contribute to a fused, accurate and shared real-time picture of the joint battlespace as well as command and control of future joint operations.
policing of the littoral seas. We can expect more operations requiring maritime embargoes, and the recent 'stop and search' of a freighter bound for London via Mauritius and Djibouti is an early example. Keeping a tight grip on territorial seas alone may not be enough. There are, it seems, specific vulnerabilities in the structures and functions of littoral, coastal and inland seas, and ports, that will have to be addressed and may require additional resources. This may all be described, albeit clumsily, as the 'Maritime Contributions to Countering Asymmetric Responses' or rather better as the 'Maritime Contribution to Homeland Security'. This will bring forth another round of adaptation of sea control, use and denial. Furthermore, I would be surprised if asymmetric warriors of bad intent have not already busied themselves with identifying lessons from the Afghan campaign (and elsewhere), perhaps rather quicker than the rest of us.

The second result is that the role of the human as a decision-maker remains. In many military missions, particularly those at the lower intensity end of the spectrum, the role of the human is still critically important and particularly in the case of peace support operations the human 'value-added' cannot be replicated by systems. 'Mission Command', whereby senior commanders delegate the achievement of broadly defined tasks to trusted subordinates is at the heart of British defence doctrine. It is arguably derived from the German auftragstaktik. As a result, the position of the human, and groups of humans, needs to be safeguarded, sustained, cherished and where necessary adjusted. The people who do the business of using elements of sea-power as a contribution within the joint and combined battlespace will still in their own perceptions be linked to the sea and the naval service. So the linkage of the human to his or her environment and the people he/she works with - ship-mates - remains, and sea power still is healthy in the character of its practitioners. As Admiral Cunningham said when the Royal Navy was taking heavy losses during the evacuation of the British Army from Crete in May 1941. 'It takes 3 years to build a battleship, it would take 300 to rebuild a tradition'. Winston Churchill may have irritably derided naval tradition as: 'Nothing but rum, sodomy and the lash', but the tradition of naval people is the greatest single factor in being able to adjust to new strategies, doctrines, scenarios and technologies. For all of the three, four, or five armed services can be a country's greatest asset - or if all goes
wrong - the greatest liability. They must be trained, nurtured, and honed to perfection. Like 'time on reconnaissance', money wisely spent on training and exercising is seldom wasted. Loyalty in battle is given to the next highest grouping, be it ship, battalion or squadron: people in action live and perhaps have to die in the ethos of their uniform. The education and training of people change, the technology they use changes, numbers may contract or even expand, but ethos can remain unassailed. So this is the counterpoint of the joint and combined battlespace. People are different and important.

This difference in people has to be managed into being a positive factor, for there is more to jointness than having a common operations organisation. There are undoubtedly economies that can sensibly be made in the common management of people without damaging operational effectiveness. Equally single service logistics chains are inevitably inefficient overall and huge economies are potentially available, provided that the support of individual fighting units - where the people are - is assured. Money saved can be used to provide more capability, for the provision of capability may be driven by requirements but is inevitably constrained by finance ministries. The people who fight want the best capability and it matters not to them how it is acquired. As an example, the Royal Navy's Type 45 destroyer is being procured by an integrated team led by an Army brigadier, who is a missile expert. From this, two points emerge. First, that the Navy's contribution to joint operations is increased by having the best person procuring the ship regardless of Service; second, the capability of the whole system should take precedence over the acquisition of the platform, and in this case, missile capability is not confined to one service or environment. If the capability required could better have been provided from an air or ground platform, then that should have been selected. Inter-service rivalry

9 For the British Army the very word 'uniform' is virtually an oxymoron, such is the array of styles, colours, head-gear, stable-belts and woolly-pullies. But these eccentricities of dress help to define the fighting unit and hence focus group loyalty.
10 In 1917, the Royal Navy, Royal Marines, Royal Naval Division and Women's Royal Naval Service peaked at 457,000. In 1918 the USN and USMC numbered 455,000. Today the British naval service numbers some 45,000. Thus the numbers in the British naval service have contracted markedly. The ethos may be considered to have survived unscathed.
11 Napoleon also said: "À la guerre, les trois quarts sont des affaires morales, la balance des forces relles n’est que pour un autre quart." (In war, three quarters turn on personal character and relations, the balance of manpower and materials counts only for the remaining quarter).
is linked to platforms not systems. This can be destructive and is not the same as unit loyalty - which is, in the case of navies, to platforms that are already in service: those in which people serve. Over all this should come a joint defence ministry, that can look at the defence capability required, and then at the component capabilities required: capabilities for sea, land, and air power. There is a nice little irony here: if the case can be well made for having more systems at sea and hence attracting more resources, then the efficiencies implicit in a joint approach can lead to more power at sea, and more power available to be projected from the sea, than if sea power is itself pursued exclusively. Many countries are moving along this path, and it is a path not without obstacles.

If the national joint road is difficult, then the internationalisation of joint capabilities is far more hazardous and one on which vision currently outstrips progress. Just to take again the example of the Type 45 destroyer. This national project started in 1991, as a tri-national French, Italian, British project, but broke up in frustration. That tri-national project itself grew from the wreckage of a multinational project of the 1980s called the NATO Frigate Replacement for the 90s. The in service date of the Type 45 is, incidentally 2007, some nine years delayed from the original requirement to replace the capability of the Type 42 destroyer.

So sea-power - like many other things - is not what it used to be; no longer can borders be safeguarded, a nation sustained, or empires established by having it, and it alone. Similar arguments can be made with respect to land and air power, but are sometimes avoided. Sea-power is a pillar supporting the application of capability in the joint and combined battlespace, a vital contributor still to stability that depends on military capability. And now, as before, and into the future, a key contributor to national and international security.