



Marine Modelling – Revisited

The year 2010 saw twenty five years of Marine Modelling International magazine and for the author fifty years of waterline ship collecting. So here is a chance to re-visit some of those early and not so early articles virtually as they were – minimal editing/updating apart from the addition of new digital illustrations and the deletion of ‘swapmeet & model news’. Please remember that reported model availability and any prices quoted were at the time of writing. Each re-issue will attempt to maintain a theme and this time it is (more) modern warships.

Re-Issue 5: More Modern Warships

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## NOVEMBER 1997 - RN CARRIERS POST 1945

The subject of this issue's Waterlines is Aircraft Carriers of the Royal Navy since 1950, which takes in 10 vessels from HMS Eagle to the present day HMS Ark Royal. Lack of space limits the description to a brief review, concentrating on the various ships' appearances throughout the years. Waterline models have been produced of all the ships concerned, if not in all their various modification states. Those not yet covered will be clearly identified in the hope that one of the manufacturers might come up with the goods. One other ship, the cancelled CVA-01, will be saved for another time, perhaps as a scratchbuild modelling project.

### HMS Eagle

Ordered as far back as 1942, HMS Eagle was eventually completed in 1951, entering service the following year. As built she had much the layout of a wartime carrier - axial flight deck and near centreline lifts plus a heavy AA armament of sixteen 4.5" guns in eight turrets and over fifty 40mm Bofors. She was given an interim 51/2 degree angled flight deck and mirror landing aid during a refit in 1954/55 and from 1959 to 1964 reconstructed to provide an 81/2 degree angled deck, larger island with prominent radars (including Type 984 'Searchlight'), improved steam catapults and a revised armament of eight 4.5" (all aft) and six Seacat surface to air missile (SAM) launchers with all the Bofors removed. No commercial model has ever been produced of HMS Eagle in this state or as originally completed. In 1966/67 she was fitted with a waist catapult and equipped to handle the Buccaneer aircraft. She was paid off in 1972 providing a source of spares for HMS Ark Royal for several years before departing for the breakers in 1978.



Westfalia HMS Eagle

### HMS Ark Royal



Skytex HMS Ark Royal

This ship was laid down in 1943 (about seven months after the Eagle) but not completed until 1955. Time was taken to accommodate the latest developments in carrier aviation in the form of a side lift, slightly angled flight deck (just 51/2 degrees) and steam catapults (the RN's first). Space was still found for a full gun armament (as per HMS Eagle) although in 1956 the forward 4.5" turrets were removed to provide a clearer flying area. In 1959 the side lift, which sat across the flight deck,

was dispensed with as were most of the remaining guns (this state has not been modelled). Between 1966 and 1970 she was modernised to cope with the Phantom aircraft receiving a 81/2 degree angled deck, new catapults and two prominent bridle catchers, the forward of which nominally increased the ship's length to 845 feet. All guns were finally removed and provision made for Seacats but these appear never to have been fitted. She paid off in 1978 and was scrapped from 1980.

### HMS Victorious

HMS Victorious was completed in 1941 but is included here by virtue of her re-construction, virtually a re-build, from 1950 to 1958 at Portsmouth Dockyard which gave her all the latest features such as a 83/4 degree angled flight deck (the first in a British carrier), steam catapults and the ubiquitous Type 984 radar. Armament comprised six twin US Mk 33 3" guns and a single Mk 6 40mm Bofors. She was refitted in 1962 when the flight deck was strengthened, two 3" turrets & the Bofors removed, and a gangway fitted outboard of the island. During the course of a 1967 refit, a small fire broke out leading to the political (?) decision that she should be decommissioned. HMS Victorious was sold for scrap in 1969. Both Anker and Skytex models show the ship prior to the 1962 refit.



Mountford HMS Victorious

## **Centaur Class**

Ordered towards the end of the war, the three ships of the Centaur class - HMSs Albion, Bulwark & Centaur - were completed in 1953/54 as conventional fixed wing carriers, with thirty two 40mm Bofors. HMS Centaur entered service in 1953 with a nominal angled flight deck - a 51/2 degree angle painted on the deck - although the other two were built with an interim angled deck of 53/4 degrees by means of extra deck plating at the expense of three twin Bofors mounts. Between 1959 and 1962 Albion and Bulwark were converted to commando carriers carrying sixteen helicopters and four LCAs, with fixed wing paraphernalia such as catapults and arrestor wires removed. In the late 1950s HMS Centaur was refitted with steam catapults and she served as a carrier until 1966, finally being taken to the breakers in 1972. HMS Albion remained in service for ten years as a Commando carrier before being scrapped, whilst the Bulwark was refitted between 1977-79 as an ASW carrier. She was briefly re-commissioned in 1980 but paid off in 1981, spending some three years in Portsmouth Harbour before going to the scrappers. The Triang/Hornby models, all essentially identical, represent Albion and Bulwark as completed.

## **HMS Hermes**



Skytrex HMS Hermes

This ship was laid down in 1944 as the fourth of the Centaur class but due to the significant modifications applied during her construction has always been considered separately. Five particular features were added to the original design namely a 61/2 degree angled flight deck, side lift, Type 984 'Searchlight' radar atop an enlarged island, steam catapults and mirror

landing aid. She was completed in 1959. Between 1964 and 1966 she was equipped to handle Sea Vixen and Buccaneers with the flight deck widened by means of the so-called Alaskan highway to starboard of the island. Just five years later she was taken out of service for conversion to a Commando carrier; catapults and arrestor gear were removed, four LCAs shipped and the opportunity taken to strengthen the flight deck in anticipation of the VSTOL Harrier. HMS Hermes was re-commissioned in her new role in 1973. Delays with the first of the Invincible class necessitated a further conversion between 1976/77, this time for an ASW role, although the LCAs were retained. A ski-jump was also fitted, plus a pair of Seacat launchers aft. HMS Hermes served until 1984 at which point she became a harbour training ship, nominally at 30 days notice for sea; she was sold to the Indian Navy in 1986, becoming the Viraat.

## **Invincible Class**

From through-deck cruisers, via ASW carriers, this class are now termed CVS(G), the 'G' indicating a guided missile fit, in this case the Sea Dart SAM. HMS Invincible and HMS Illustrious were commissioned in 1980 and 1982 respectively. The latter was fitted with two Phalanx Close in Weapon Systems (CIWS) prior to commissioning, with one on the forecastle offset to starboard and the other on the starboard quarter of the flight deck; HMS Incincible was similarly equipped in September 1982. HMS Ark Royal was completed in 1985 to a modified design, the ski-jump being elevated to 12 degrees (compared with 7 degrees in the two earlier ships) and lengthened by 12 meters. Three Phalanxs were fitted, one on a new deckhouse to starboard of the island, one right forward on the centreline (where the bow was modified) and a third at the port quarter where the flight deck was cut away to install a small sponson. The same modifications were applied to HMS Invincible during a refit from 1986 - 1989, with the Phalanx superseded by their Dutch equivalent known as Goalkeeper. For this latter equipment it was necessary to provide a deeper sponson as elements of the weapon require below deck fitting. HMS Illustrious was taken out of service in 1989 for eventual modernisation between 1991 - 1994; this provided a 12 degree ski-jump and 3 Goalkeepers (as per HMS Invincible) but also included a new mainmast and revised sensor fit. At the time of writing only 2 (Invincible and Illustrious) are in commission, with HMS Ark Royal laid up at Portsmouth with effect from 1994 (refit due to start 1997). The Royal Navy are now considering a replacement for the class - apart from a potential displacement of 33,000 tons few details have yet emerged.



Albatros K HMS Invincible

## 1/1250 Models



Skytrex HMS Eagle

The various models are listed in the table. The two Westfalia models are resin castings but superbly cast and detailed. Unfortunately neither have been in production for a while, leading to the hope that Trident might see fit to produce T999 and T1000; these have been in the Trident catalogue for years but with little sign of appearing. More recently Trident added, although not yet released, T1210 (HMS Illustrious) but this seems to be overkill considering how well this class has been covered already. Trident T975 depicts HMS Invincible in a

sea trials state with the flight deck painted overall brown and the ship's waterline traced with a white line. Perhaps the least satisfactory from a ship collectors point of view are the models of the Centaur class - apart from a deck letter all three Triangs are identical and detail is scant. The model of HMS Albion as a commando carrier may not have been commercially issued but was definitely produced, featuring a printed paper helicopter deck glued on the flight deck. Some years ago a producer calling himself 'Solent' was showing a prototype model of HMS Centaur, circa 1970 as a fixed wing carrier with a solitary Sea Vixen on deck, cast mainly in resin with metal for some of the finer detail. The model seems never to have reached production. Skytrex's modern warship models are currently discontinued for re-work to an improved standard and we look forward to their re-appearance, *perhaps with the addition of HMS Eagle in her late 1970s appearance.*

SHIP	AS IN	MODEL(S)
HMS Eagle	1956	Westfalia 1; Trident T999 as in 1951.
HMS Ark Royal	1955	Westfalia 2, Trident T1000; Skytrex R1023 as in 1977.
<b>HMS Eagle</b>	<b>1964</b>	<b>Skytrex 1022 (added!)</b>
HMS Victorious	1958	Anker 25, Skytrex R1021 listed as in 1966 (but see text).
HMS Albion	1954	Triang M753, plus as a commando ship (no catalogue No.).
HMS Centaur	1953	Triang M752; Solent as in 1970.
HMS Bulwark	1954	Triang M751; duplicated by Hornby.
HMS Hermes	1982	Skytrex R1024.
HMS Invincible	1982	Skytrex R1025; Trident T975 as in trials fit.
HMS Illustrious	1982	Albatros K72; Trident 1210 as in 1983; Albatros K72B as in 1996.
HMS Ark Royal	1990	Albatros K72A, Skytrex R1025a.

List: RN Aircraft Carriers in 1/1250

## AUGUST 2002 – RN & RFA FALKLANDS FLEET 1982

If you have an interest in modern warships and naval auxiliaries, and would like a theme for building a small collection, the ships of the British Falklands Task Force of 1982 make a good choice. Virtually all of the ships have been produced as 1/1200 or 1/1250 waterline models with many still in production. Those which have been deleted may still be found second-hand and the search for such models is part of the fun of waterline collecting. Main sources for this article are 'The Royal Navy and the Falklands War' by David Brown for a list of the 68 RN, RFA and RMAS ships involved and the article 'Falklands Island Task Force Twenty Years On – Where are they now' by Steve Bush published in the March 2002 issue of the magazine Warship World (Maritime Books, Lodge Hill, Liskeard, P114 4EL). If there is the interest we could return to merchant ships taken up from trade another time although finding models here will be quite a challenge.



HMS Hermes returns to Portsmouth

Present at the beginning and the end

of the war was the ice patrol ship HMS Endurance and this famous vessel has been produced by Albatros (catalogue number ALK79), Trident Alpha (Ta 100) and Skytrex (R1077). The ALK model is the best of the bunch and also the only one still in production. The hub of the Force was the two carriers HMSs Hermes and Invincible and both these are available (as kits or assembled & painted) from Skytrex with as R1024 and R1025 respectively. Albatros have released HMS Illustrious (ALK 72) but this model would need the Phalanx removed, not something you would really want to do, to represent her sister ship during the campaign; planned from this manufacturer is HMS Hermes, circa 1982, but it is not known when this might appear. Invincible was also produced by Trident (T975) and, many years ago, by Fleetline in 1/1200.



Albatros K HMS Endurance

### Destroyers

Three large destroyers were involved: HMSs Antrim and Glamorgan of the County class and towards the end of the conflict and not directly involved, it is believed, HMS Bristol, the solitary Type 82. The County class has been much modelled including by Triang, Hansa (catalogue S102), Skytrex and Albatros. By the time of the Falklands the two ships had been fitted with 4 Exocet in place of 'B' turret and for this either Albatros ALK85 HMS Glamorgan or Skytrex R1029a HMS Antrim is required. Unfortunately the current Skytrex range (see [www.skytrex.co.uk](http://www.skytrex.co.uk)) omits all the small warships that were in their Triton 1250 series many of which



Albatros K HMS Glasgow

would have been useful for this project. The good news is that they do appear at swapmeets at reasonable prices. Again HMS Bristol is a ship covered by these same two makes (ALK81 and R1028).

Five Type 42 destroyers are needed and the main variations here are in funnel arrangement and radar fit giving need for three different models. Firstly there was the unique funnel fitted to HMS Sheffield (reproduced by Delphin as D129, R1027 & Fleetline); then there were typical class members of the era HMSs Cardiff, Coventry and Glasgow with the original T965 'bedstead' search radar (as on HMS Sheffield). Finally there was HMS Exeter which had the more modern Type 1022 radar. ALK83 HMS Glasgow is perfect but their model of HMS Exeter is post-Falklands with Phalanx added. R1027a is a T42 with the 965 radar and 1027c shows the T1022 fit.



Albatros K HMS Glamorgan

### Frigates

Fifteen frigates of four classes were present and numerically superior were the 7 Type 21s (HMSs Active, Alacrity, Ambuscade, Antelope, Ardent, Arrow and Avenger). Models of the Type 21 have been produced by Hansa (S251), Delphin (D121), Albatros (ALK86) and Skytrex (R1043/a/b). The latter two are right for 1982 with Exocet fitted; ALK86 has these missiles but omits the Seacat launcher (at least mine does) and the older Hansa and Delphin offerings have Seacat but no Exocet. Make what you can of that! Next are HMSs Argonaut, Minerva, Penelope and Andromeda of the



Albatros K HMS Active

Leander class; the first three of these were Batch II vessels converted to carry Exocet and the last a Batch III with both Exocet and Sea Wolf. Both Albatros and Skytrex have produced several Leander variants including the Batch II (ALK84 and R1044a) and III types (ALK84B and R1044c) needed here. R0144c was not a good model,



Albatros K HMS Andromeda

being let down by the casting of the hull, but Skytrex's other Leanders were worthwhile and reasonably priced. The oldest frigates present were HMS Plymouth and Yarmouth; these were Rothesay class ships as converted with a helicopter deck aft; only Skytrex produce the class in this configuration (R1047) with conversion possibilities existing for Wiking's rare Rothesay or, even though the wrong class, the Whitby by Hansa (S64) or Triang. Two key ships were the Sea Wolf equipped 'Goalkeepers' HMS's Broadsword and Brilliant, Type 22s. ALK80 and R1042 are the first of these, whilst only R1042a depicts HMS Brilliant, the third of class which has a slimmer funnel than the first two ships.

### Submarines

Operating independently of the main surface force were six submarines, five 'nukes' and the diesel electric HMS Onyx. The latter of the Oberon class has been covered ages ago by Fleetline, by Skytex (R1004) and by Trident (T219). The SSN classes, Valiant (represented by HMSs Conqueror, Courageous & Valiant) and Swiftsure (HMSs Spartan & Splendid) have been produced respectively as R1007 or T217 and R1008 or T216. ALK75 HMS Valiant is a future release and Fleetline's HMS Swiftsure long gone.



Albatros K HMS Broadsword (with Brazen's pennant no!)

Other minor but no less important warships were the patrol vessels HMSs Dumbarton Castle, Leeds Castle (ALK 76 or R1084) and survey ships HMSs Hecla, Herald and Hydra; these were used as ambulance vessels as in R1078 or ALK88a, the latter painted white with red crosses. Five trawlers, Cordella, Arnella, Northella, Junella and Pict, were used as minesweepers – there may be a Sea Vee model of this class (SV 510) or alternatively Ostrowski model 55, the trawler Cape Fame would suffice. Unfortunately both will be very hard to find.

### Amphibious Forces



Trident HMS Fearless

The amphibious force was led by HMSs Fearless and Intrepid; only the former has been listed by name as a model but surely any will suffice for either ship – the options are Skytrex R1075, Hansa S227 and Trident Alpha Ta100. All are good models with R1075 still in current production. Look out also for TaZ25 which was the LCM9s carried by the assault ships. The RFA deployed all six LSLs namely Sir Bedivere, Sir Galahad, Sir Geraint, Sir Tristram, Sir Percivale

and Sir Lancelot. The latter was the class prototype and differs in appearance from the others; model options are Ta101 Lancelot with Fleetline, Delphin (D134) or Skytrex (R1076) able to represent, if you can find them, any of the others.

### The RFA



As would be expected the RFA played a major part in the operation and was well represented with just about all classes deployed. Five Fleet Oilers were used – Olmeda & Olma ('O' class), Tidepool & Tidespring (Tide class) and Blue Rover (Rover class). Models wanted for the three classes are R1086 or T907, R1092 and R1085 or T974. Here and with all the other RFAs the Skytrex offerings are in current production. A further five Support Oilers were at sea – the elderly Pearleaf and Plumleaf plus the more modern Appleleaf, Bayleaf & Brambleleaf. R1100 is the only model of the latter group; for the two other any 1960s era tanker of the right dimensions (560' and 568' by 72') and configuration will have to suffice although it will be necessary to scratchbuild a RAS derrick. Pallium (S57) and Olympic Light (originally by Wiking, then by HDS Ensign) look the part. Five Fleet Replenishment

ships are needed: Regent, Resource ('R' class), Fort Austin & Fort Grange (Fort class) and Stromness. Plenty of model options here with two for each class - R1087 or SV 503/503a, R1089 or SV 502a and R1101 or T920. The three Skytrex models will be readily available but those from Sea Vee are far the best. R1101, listed as RFA Lyness, is a recent addition and is extremely well done except for the funnel which is just too small; reasonably easy to correct but it is difficult to

understand how such a mistake can have been made. The final RFA vessel was the helicopter support ship Engadine which reached the Falklands area on 7th June; this ship is modelled as R1090 or Ta80. Mention should also be made of two RMAS vessels involved, tug Typhoon (produced as Oceanic 89) and Mooring vessel Goosander. It's a shame to fall at the last hurdle but no model seems to exist of the Goosander. Oceanic models are pretty rare these days so maybe the RMAS will be AWOL from our collection.

### 1/1250 Manufacturers

The table summarises the status of the various makes mentioned in the text; those asterisked are German/Austrian ranges whose availability is easily checked via [www.wiedling.de](http://www.wiedling.de); for out-of-production ranges (marked #), the Theale swapmeet can be useful or try [www.galerie-maritim.de](http://www.galerie-maritim.de) (Martin Luther Strasse 21, 20459 Hamburg, Germany). Dreadnought Models (26, Gilkicker Rd, Gosport, Hants) who attend many swapmeets and provide mail order is a useful UK source for new and second-hand models. It is disappointing that so many ranges are out of production but it is surprising what can still be found.

Make	Cat.	Notes
Albatros*	ALK	Merchant ships and modern warships, particularly RN; quality very good
Delphin #	D	Fair quality 1960/70s warships and WW2 warships; quite cheap second-hand.
Fleetline #	n/a	Original 1970s metal kits in 1/1200; quality not bad for the time
Hansa#	S	Contemporaries of Delphin with merchantmen and warships, same comments apply
HDS Ensign	n/a	Fair quality white metal kits (write to 15 Orchardville, Bangor, Co Down BT19 1LP
Oceanic #	n/a	poor quality white metal kits but remarkable for some the ships produced; out of production and one for the swapmeet!
Sea Vee	SV	Superb models, limited availability and then only at swapmeets
Skytrex	R	Original Triton 1250 range gone but larger warships/auxiliaries retained; quality variable
Triang	n/a	Possibly more of interest to toy than ships collectors; some command high prices!
Trident Alpha* #	Ta	Good quality modern warships & auxiliaries; believed recently out of production
Trident* #	T	Huge range, quality reasonable; of interest here for those RFAs; again out of production
Wiking* #		Pre-war make which issued some new models in the 1960s; the latter are worthwhile

#### List: 1/1250 Manufacturers

### Surviving Ships (as of 2002)

So of the real ships, which survive today? Just eight of the warships (HMSs Invincible, Glasgow, Cardiff, Exeter, Spartan, Splendid and the two Castles) are still active in the RN; a larger number have continued their lives under foreign flags – the Indian Navy have HMS Hermes as the Viraat and HMS Andromeda as the Krishna (in a training role), the Chileans



HMS Bristol

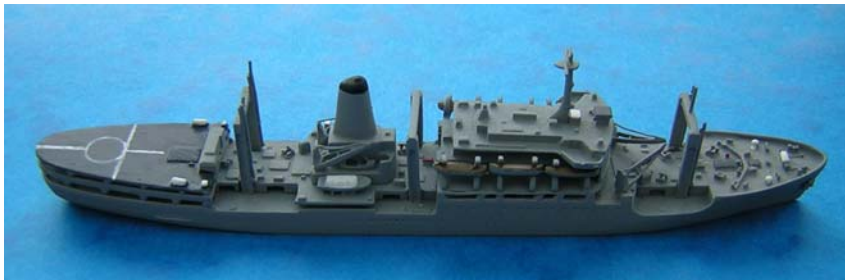
acquired both Counties (re-named Cochrane & Almirante Latorre, with the latter taken out of service 4 years ago), Pakistan bought 5 Type 21s and Brazil both Type 22s as Greenhalgh and Dodsworth; also in South America in the Ecuadoran Navy is the Presidente Eloy Alfaro, formerly HMS Penelope. HMS Hydra is now the Indonesian Dewa Kembar whilst her two sisters are in commercial service. Of the five trawlers Northella gave further service in a navigation training role (and was often seen at Portsmouth) whilst Junella apparently now trawls under the Argentinian flag. Several of the RFAs have new owners – Stromness is now the USS Saturn, Tidespring the Chilean Almirante Jorge Montt, Blue Rover the Portuguese Berrio, Appleleaf the HMAS Westralia, and finally Sir Lancelot is in the Singaporean Navy as the Perserverance. Still in existence in UK waters are the two assault ships, with HMS Fearless recently returned from her

final deployment, HMS Bristol can be seen on any Portsmouth harbour cruise, HMSs Conqueror and Valiant are laid up whilst their sister boat HMS Courageous is earmarked for preservation and public display at Devonport, a happy fate also bestowed on HMSs Plymouth and Onyx in Birkenhead.

### OCTOBER 2007 - RFA IN MINIATURE

This issue's subject has been prompted by various Royal Fleet Auxiliary (RFA) models that have been announced or have appeared in recent months. Not being an overly popular subject with the model manufacturers, these ships have frequently

been the subject of scratch-building as can be seen from the illustrations. Meanwhile this article attempts to identify all those which have been commercially produced over the years. Recent additions/imminent releases to the 1/1250 waterline RFA fleet have included Largs Bay & Fort Victoria by Albatros (ALK) and sister-ships Fort Grange & Fort Austin from Mountford (Mt). The table lists all known models including these new releases and features Fleetline (FSU, FO, FL), Oceanic (Oc), Santa Rosa (SR), Skytrex (Sky), Trident Alpha (Ta), Trident (T), Delphin (D), Fleetrain (Ft) and Sea-Vee (SV).



Trident Lyness

to those known to exist (in my collection!). Original Fleetline packaging was yellow but the models were also released under the Seascale name with blue packaging. Santa Rosa were hand-built resin models making use of kits in Len Jordan's range – they were not produced in great numbers and may be seen at meetings such as Theale (very sadly John Staggs, a great character and the maker of 'Santa Rosa', passed away in the Summer of 2007). Skytrex are probably quite well known – their RFAs are in current production and you can see further details at [www.skytrex.com](http://www.skytrex.com). Trident Alpha, Trident, and Delphin are all continental 1/1250s and unfortunately are largely discontinued. The only RFA model unique to these three was Sir Lancelot, although Trident have produced, to date, the best version of the 1966 Olna class as pictured. Again these models can sometimes be found second-hand for example at the time of writing [www.wiedling.de](http://www.wiedling.de) have RFA Engadine (Ta 80) for sale as part of their second-hand stock.

Sea-Vee started in the mid-1980s with resin cast models of the Falklands STUFT vessels Atlantic Conveyor & Atlantic Causeway under the name 'Fleetrain'. Over the following years a number of models were made, all in resin but to an ever



Trident Rover class

improving level of sharpness and detail, examples being HMS Gloucester (Type 42), HMS Cornwall (Type 22) and the two RFAs Sir Caradoc & Argus as relevant here. At some point Fleetrain abandoned resin in favour of metal and adopted the new name Sea-Vee. The models are only available in very short production runs so it's best to check their web site ([www.seaveemodels.com](http://www.seaveemodels.com)) for a history of all models that have been produced

and current availability. Shown in a printed catalogue at one point but, according the reference list on the website, never produced were Olmeda (SV506), Olna (SV506a), Resource (SV503a), Fort George (SV501a), Fort Austin (SV502a) and LSL Sir Galahad – 1987 ship (SV507).

For the modeller and collector the evolution of the 'Sir' class is quite complicated: the first of class, Sir Lancelot, was a prototype (giving 'version 01') and differed from the remainder ('version 02') namely: Sir Geraint, Sir Percivale, Sir Tristram, Sir Bedivere and Sir Galahad. The latter was lost in the Falklands and a new but much larger (8,541 ton) ship of the same name was completed in 1987 (new class but let's call it 'version 03'). Sir Tristram was badly damaged in 1982 and between 1983 – 85 she was rebuilt which included lengthening by 29 feet, an enlarged flight deck, new bridge and twin mast ('version 04'). This ship was last observed at Portsmouth in 2007. Sir Bedivere has been modified as described below and this gives another appearance option ('version 05') for the modeller. Plans to modernise similarly Sir Geraint and Sir Percivale were abandoned on cost grounds in 1997.

and current availability. Shown in a printed catalogue at one point but, according the reference list on the website, never produced were Olmeda (SV506), Olna (SV506a), Resource (SV503a), Fort George (SV501a), Fort Austin (SV502a) and LSL Sir Galahad – 1987 ship (SV507).

Ship	Date	Type	Models (notes)
Robert Middleton	1938	Auxiliary	FSU 17, SR14
Gold Ranger	1941	Tanker	FO15, Oc 25, 25a, SR11, SR12 (Admiralty design, 6 built)
Dingledale	1943	Tanker	SR s57 (Ministry of War Standard design)
Eaglesdale	1943	Tanker	SR25 (as above)
Fort Rosalie	1944	Supply	Oc 168 (Canadian built standard cargo ship)
Wave King	1946	Tanker	Oc 30/30a – d (Ministry of War Standard turbine design)
Eddybay	1951	Tanker	Oc 35 (Admiralty design, 7 built)
Surf Patrol	1951	Tanker	Oc 40 (requisitioned ex Tatry)



Reliant	1954	Stores	Oc 167 (former Ropner Line Somersby)
Tideflow	1956	Tanker	Oc 210 (3 built, plus 1 for RAN)
Agile	1958	tug	SV 531
Tidespring	1963	tanker	Sky 1092 (out of service 1991) (sistership Tidepool to Chile)
Sir Lancelot	1964	LSL	Ta 101 (class prototype & different appearance), sold 1989
Sir Bedivere	1966	LSL	Sky 1076 (as built, 5,674 tons)
Olwen	1966	tanker	T 907, Sky 1086 (ship taken out of service 1999)
Lyness	1966	replenisher	Sky 1101 (1982 - USS Sirius)
Stromness	1967	replenisher	T 920 (1983 - USS Saturn)
Engadine	1967	helo support	Ta 80, Sky 1090
Resource	1967	replenisher	Sky 1087 (ship taken out of service 1997)
Regent	1967	replenisher	SV503 (ship taken out of service 1992)
Sir Tristram	1967	LSL	FLS82, D134 (as built, 5,674 tons)
Gold Rover	1970	tanker	T 974, Sky 1085
Fort Grange	1978	replenisher	Sky 1089, SV 502, Mt (ship since re-named Fort Rosalie)
Fort Austin	1979	replenisher	Mt
Grey Rover	1978	tanker	T 998 (model has larger flight deck than T 974)
Bayleaf	1980	support tanker	Sky 1100 (conversion to RAN ship with flight deck possible)
Diligence	1984	repair	Sky 1097, SV508
Sir Tristram	1985	LSL	SV507b (post repair & refit, 5,794 tons)
Sir Caradoc	1983	LSL	Ft (ex Grey Master); chartered 1983 - 88
Argus	1988	helo support	Ft, Sky 1088, SV 504
Fort Victoria	1993	replenisher	SV 501, ALK 310
Largs Bay	2006	LSD(A)	ALK 309

List: RFA Models in 1/1200-1250 (chronological order)



Mountford Wave Class

Once all four Bay class enter service the RFA will comprise 19 vessels: two fast fleet tankers of the Wave class, four Bay class LSD(A)s, four support tankers – three 40,870 ton Leaf class and the one-off 49,377 ton Oakleaf, the two remaining Rover class small fleet tankers (of the older vessels Grey Rover is laid up & awaiting disposal; sold are Green Rover to Indonesia (1992) & Blue Rover to Portugal in 1993), four fleet replenishment ships – two ‘old’

Fort class & two ‘new’ Fort Class, LSL Sir Bedivere, aviation training ship Argus and forward repair ship Diligence. Sir Bedivere is the last operational vessel of the Sir Lancelot class – completed in 1967, she underwent a major Ship Life Extension Programme (SLEP) at Rosyth in the late 1990s which involved lengthening the ship by 39 feet, a modified “stealth” design superstructure, lowering of the aft helicopter platform by one deck and the addition of four LCVPs. The RFA Appleleaf was leased to Australia in 1989 as the ‘Westralia’ and purchased in 1994 (de-commissioned in 2006); the RAN also had the ‘Tobruk’, a modified Sir class LSL, which entered service in 1981. She has since been replaced by two ex USN Newport class LPAs – a 1/1250 model of this class was produced by Delphin (D122) but the ships have been substantially modified by the Australians.

Class	Ships	Tonnage	Launched
Wave	Wave Knight Wave Ruler	31,500	2002
Bay	Cardigan Bay Largs Bay Lyme Bay Mounts Bay	16,160	2006
Leaf	Brambleleaf Bayleaf Orangeleaf Oakleaf	} } 40,870 } 49,377	1980-82
Rover	Gold Rover Black Rover	11,522	1974
Fort (1)	Fort Rosalie Fort Austin	23,482	1978 1979
Fort (2)	Fort Victoria Fort George	31,565	1992 1993

Sir	Sir Bedivere	6,700	1967
--	Argus	28,080	1988
--	Diligence	10,765	1981

#### The Current RFA Fleet List (2007)

The one-off Sir Galahad completed in 1987 (and taken out of service in 2006) never made to model form, nor temporary 1980's RFAs Reliant (aviation support ship, ex MV Astronomer) and Sir Lamorak (LSL). Hopefully a fully SLEPed Sir Bedivere model will produced some time.

#### **References and Further Reading**

There seems to have been only a few books on the RFA, namely 'Royal Fleet Auxiliary' by E. Sigwart, published in 1969; 'Royal Fleet Auxiliary 1905 - 1985' by T. James published in 1985 and 'RFA in Focus' by J. Wise published in 2002. The first two titles, which are both out of print, are illustrated fleet histories. 'RFA in Focus' follows a familiar Maritime Books theme containing some 120 fully captioned illustrations from RFA Petroleum circa 1905 to Wave Knight in 2002. A quick search on [www.abe.com](http://www.abe.com) revealed plenty of second-hand copies of 'RFA 1905 - 1985'; each ship is listed with full technical details so this is a really useful volume. 'No Sea Too Rough' by G. Puddefoot (published 2007) tells the story of the RFA during the Falklands War.

#### **APRIL 2008 - RN AIRCRAFT CARRIERS AND ESCORTS SINCE THE 1960s**

History has a habit of repeating itself but let us hope the parallels identified here do not provide an example. Just over forty years ago there was, as now, great excitement in naval circles about the prospect of a new fleet aircraft carrier, designated CVA01. To escort the ship a new class of destroyer – the Type 82 – was planned. Back then we were left with just a single destroyer – HMS Bristol – when in February 1966 the carrier was cancelled. With the Type 82s reduced to one, a new smaller class of destroyer – Type 42 – was developed and these have formed the backbone of the surface fleet since. Indeed the last 4 vessels (Type 42 Batch 3) will serve alongside the latest carrier escorts – the Type 45 or Daring class. These will probably number six and with some contracts already in place the outlook for the new carriers (labelled CVF) is hopeful. CVF is procurement speak for 'Aircraft Carrier – Future'.

The waterline ship collector has a different set of constraints. Our fleets are still budget limited but are also affected by the availability of commercial models or our own ability to scratch-build to fill those gaps. So for this issue we are going to consider both real ships and waterline models for 'CVA01', 'Type 82', 'Type 42', 'CVF' and 'Type 45' plus for completeness the 'Types 43' & '44'.



Mountford CVA01

#### **CVA01 Class**

The design of CVA01 anticipated a 63000 ton full load ship with dimensions of 890 by 122 feet (at the waterline), 928 by 234 feet (at flight deck level; or 963 including bridle catcher). Circa 50 aircraft would have been carried including probably Phantom FG1s, Buccaneer S2s and Gannets plus Sea King & Wessex HAS helicopters. A single hangar served by 2 lifts – one centre line and one deck edge was intended with two steam catapults (one on the starboard bow & one in the waist). For self defence a Sea Dart surface to air missile (SAM) launcher was planned with a 40 missile magazine. The names HMS Queen Elizabeth (for CVA01) and HMS Duke of Edinburgh (for a second of class – CVA02) have been suggested; also HMS Furious has been noted but there are doubts as to whether a second ship was ever really considered. For more information [navy-matters.beedall.com/cva01](http://navy-matters.beedall.com/cva01) is recommended.

#### **Type 82 Destroyer**

The Type 82 was planned as a class of four to serve as escorts for CVA01 and even though the latter was cancelled in February 1966, it was decided to proceed with a single Type 82 and the 6000 ton ship was ordered in October 1966. Laid down in 1967 HMS Bristol became the test bed for a number of new systems including the Sea Dart surface to air missile (SAM) with a 40 round magazine and 2 Type 909 fire control radars, the Vickers Mk 8 4.5" gun, the Ikara ASW system (32 rounds) and the ADAWS-2 Command System. All these systems found their way onto subsequent ships and HMS Bristol later served as the Link 11 trials ship. Also fitted was a Limbo ASW mortar and the small flight deck aft could accommodate a Wasp although there were no aviation handling facilities. She was powered by a combined steam and gas plant giving a maximum speed of 28 knots.



Mountford HMS Bristol

An Anglo-Dutch air search radar was planned with a large radome (also intended for CVA01) to be installed on the bridge. When this was cancelled the Type 965 was adopted (replaced by T1022 in 1984) supplemented by the T992Q for surface search. Other electronics included the T 978 (later 1006) navigation radar and T170 & T184 sonars. In 1974 the steam engines were badly damaged by fire and the ship continued on gas turbines alone until 1976. In 1979 she was given some Corvus chaff launchers and a pair of vintage Oerlikon 20mm guns; at the same time the Limbo was removed and the well famously used, albeit briefly, as a swimming 'pool'. In 1982 the pool was plated over providing a larger flight deck and the ship deployed to the Falklands as escort to HMS Illustrious. In 1983 her close range AA armament was boosted by two twin Oerlikon/BMARC 30 mm and two single Oerlikon/BMARC 20 mm; SRBOC countermeasures launchers were also installed. In 1984 the Ikara was removed although plans to fit two triple STWS-1 ASW torpedo launchers failed to materialise. In 1987 she took over from the County class DLG HMS Kent as the Portsmouth training ship, where she may be viewed today on a harbour cruise.

### Type 42 Destroyer

Providing improved capabilities over the Type 82 but on a smaller (and therefore cheaper) hull, the Type 42 lost Ikara but added the all important helicopter hangar and the ability to operate and support a Lynx. Designed to strict size limits the first two 'batches' (aka the 'stumpies') came in at circa 413 feet oa and 4,350 tons full load. By the mid 1970s it was appreciated that a larger hull would confer benefits of sea-worthiness and space for extra equipments and the final batch (aka 'stretched') were 466 feet (and 3 feet wider at 49 feet) on 5,350 tons; later on a hull strengthening strake was fitted amidships to the Batch 3s. The first of class only – HMS Sheffield - was fitted with exhaust deflectors on the funnel. In the



HMS Southampton

wake of the Falklands the original sea boats amidships either side of the funnel were ditched for twin Oerlikon/BMARC 30 mm and two (some sources say four) single Oerlikon/BMARC 20 mm are carried. The 30mm themselves were later replaced by the Phalanx CIWS as can be seen on the ships today. The original Mk 8 gun has been upgraded and the newer version possesses a unique chiselled appearance – Kryton to some! In Batches 1 and 2 the Sea Dart magazine houses 24 rounds with 40 in the Batch 3. Originally carried were a pair of triple STWS-1 ASW torpedo launchers but these seem to have been removed from all Batch 1s and 2s.

The original Type 965 and T992Q radars have been superseded by the T1022 and T996 and these newer radars were first seen on the Batch 2s but were retro-fitted to the four surviving Batch 1s. Two 909 fire control radars are fitted. Other sensors include T1007 navigation radar and Sonar Types 2050, 2016 & 162. All are

propelled by Tyne and Olympus gas turbines giving a top speed of 30 knots from the latter.

Having completed HMS Sheffield, VSEL built a Batch 1 for the Argentine Navy (Armada Republica Argentina) with ARA Hercules commissioning in July 1976. In parallel a second - Santissima Trinidad - was built over a prolonged period by AFNE, Rio Santiago finally commissioning in July 1981. Both are thought to be in Puerto Belgrano, but in poor condition; reportedly the Hercules may still be sea-worthy and has been fitted with a new aft superstructure/hangar and Exocet missile launchers.

Name	Pennant	Builder	Commissioned	Notes
Batch 1				
Sheffield	D80	VSEL	Feb 1975	Sunk in Falklands War
Birmingham	D86	Cammell Laird	Dec 1976	Sold for Scrap
Newcastle	D87	Swan Hunter	Mar 1978	Awaiting Disposal
Glasgow	D88	Swan Hunter	May 1977	Awaiting Disposal
Cardiff	D108	VSEL	Sep 1979	Awaiting Disposal
Coventry	D118	Cammell Laird	Oct 1978	Sunk in Falklands War
Batch 2				
Exeter	D89	Swan Hunter	Sep 1980	} all probably
Southampton	D90	Vosper Thornycroft	Oct 1981	} to be withdrawn
Nottingham	D91	Vosper Thornycroft	Apr 1983	} from service in 2008
Liverpool	D92	Cammell Laird	Jul 1982	
Batch 3				
Manchester	D95	VSEL	Dec 1982	
Gloucester	D96	Vosper Thornycroft	Sep 1985	
Edinburgh	D97	Cammell Laird	Dec 1985	
York	D98	Swan Hunter	Aug 1985	

List: Type 42 Destroyers

## Types 43 and 44

Very briefly both these types did exist if only on paper. The Type 43 circa 1978 was a 6000 ton ship equipped with 2 twin improved Sea Dart launchers (fore and aft) and 4 twin (or 2 sextuple) Sea Wolf; the design included a Mk 8 gun plus 4 Exocet right aft. The helicopter deck was amidships with hangar provision for 2 Lynx or 1 Sea King. The 1981 defence review killed this expensive design and a smaller version which halved the SAM fit and lost the helicopter, this being known as the Type 44. For drawings of both please see British Destroyers and Frigates by Norman Friedman (pages 311 & 313).

## Type 45 Destroyer

From NFR 90, through Project Horizon, the RN's new AAW destroyer has been a long time coming. Having finally determined that a collaborative project would not give the Navy what it needed, it was decided to build our own – the Type 45. Planned at one point to number twelve, the class has been whittled down to six, the first of which – HMS Daring – was launched in February 2006 and should enter service in 2009. At 7350 tons and 495 by 69 feet, they are big ships.



HMS Daring



Albatros K Type 45

Existing weapons, such as the Mk 8 gun, Oerlikon 30mm and Phalanx, are to be fitted but the major new weapon system is the Principal Anti-Air Missile System (PAAMS). This comprises a SAMPSON Multi-Functional Radar (MFR) (for surveillance and fire control) and a 48-cell SYLVER vertical missile launcher, which houses a mixture of MBDA Aster 15 and 30 missiles giving both short-range and long-range anti-air capability. Also installed are a Signaal/Marconi S1850M Long Range

Radar (LRR) for air/surface search and the MFS 7000 sonar. Provision has been made for the STWS but this may not be fitted. A Lynx helicopter will be embarked and reportedly the facilities needed to handle Merlin have been removed from the design as a cost saving measure. Propulsion is via Rolls-Royce/Northrop Grumman gas turbines and electric drive motors and during sea-trials in August 2007, HMS Daring reached her design speed of 29 knots in 70 seconds & achieved 31.5 knots in 120 seconds.

Name	Pennant	First steel cut	Launched	Commissioned/ Status
Batch 1				
Daring	D32	Mar 2003	Feb 2006	2009 (due)/ Sea trials
Dauntless	D33	Aug 2004	Jan 2007	2010 (due)/ Fitting out
Diamond	D34	Feb 2005	Nov 2007	2010 (due)/ Fitting out
Batch 2				
Dragon	D35	Dec 2005		Under construction
Defender	D36	Jul 2006		Under construction
Duncan	D37	Jan 2007		Under construction

## List: Type 42 Destroyers

## 'CVF'



MBM Models CVF

Current plans are for the two new aircraft carriers – HMSs Queen Elizabeth and Prince of Wales - to enter service in 2014 and 2016, respectively. On 65,000 tons, flight deck level dimensions are 931feet by 239ft, making them very slightly larger than CVA01. The air group is expected to be 36 of the new Joint Strike Fighters (Lightning II) and 4 Airborne Early Warning aircraft (of a new type), although the GR Harrier could be operated. Many of the systems remain unspecified,

but most of the design illustrations that have been released so far show similar radars to the Type 45 with an S1850M long range radar on the forward island structure. Artists impressions show four Phalanx CIWS, one on each quarter of the ship.

### Waterline Models

The table lists the classes and all known waterline 1/1200-1250 models – no CVF as yet, but plenty of others. The principle manufacturers are Albatros (ALK), Skytrex, Mountford, Sea-Vee, Triang and MBM. Fleetline and Delphin both produced a single model but are long since discontinued. Although no longer listed on their website the Skytrex T42s and 82 which are white metal kits seem to be routinely available at swapmeets. Similarly the Mountford T42s are kits using a mixture of resin (for the hull/superstructure) and metal – each kit contains transfers for the various pennant numbers; Phalanx are not provided but as with the ‘Kryton’ Mk 8 can be bought as an accessory pack.

Ship	Model(s)	Notes
Type 82	Albatros ALK 81	As completed
	Skytrex 1028/ Mountford MM195	As in 1983
CVA01	Sea-Vee	
Type 42 Batch 1	Fleetline 41/ Delphin 129 HMS SHEFFIELD	
	Skytrex 1027 HMS SHEFFIELD	
	Skytrex 1027a HMS BIRMINGHAM	As built
	Skytrex 1027b HMS GLASGOW	With 30mm circa 1983
	Skytrex 1027d HMS NEWCASTLE	With T1022 & Phalanx
	Albatros ALK 83 HMS GLASGOW	As built
	Mountford & Triang	generic
Type 42 Batch 2	Skytrex 1027c HMS EXETER	with T1022 radar
	ALK 83a HMS EXETER	with T1022 & Phalanx
	Mountford & Triang	generic
Type 42 Batch 3	Albatros ALK 82 HMS MANCHESTER	Inaccurate rounded flight deck
	Skytrex 1026 HMS MANCHESTER	Same inaccuracy as above
	Albatros AKL 82a HMS EDINBURGH	
	Mountford & Triang	generic
Type 45	MBM 02 HMS DARING	
	Albatros ALK 306 HMS DARING	plus sister ships
CVF	<b>MB Models</b> (added!)	.

List: 1/1250 Models



Albatros K HMS Edinburgh



Albatros K HMS Dauntless

## FEBRUARY 2009 - USN MISSILE CRUISERS PT 1 THE CONVERSIONS & USS LONG BEACH

This month's article has been prompted by the Hobbyboss range of 1:1250 plastic kits which launched last year with three models of USN Ticonderoga class missile cruisers. As reported last issue these have since been followed by various USN Spruance and Kidd destroyers but for the moment we will look at evolution of the USN missile cruiser of which the 'Ticos' may well be the last.

The first ships were all conversions of existing cruiser hulls with CAG-1, the USS Boston, modified by 1955 with her sister-ship USS Canberra (CAG-2) following a year later. These 17,200 ton (full load) former heavy cruisers lost their aft 8" gun turret in favour of two twin Terrier surface to air missile (SAM) launchers (MK 5/72 missiles each) and the associated fire control radars. Both were scrapped in the late 1970s. Next came CLGs-3 to 8 which were 13,750 ton former cruisers of the Cleveland class. With these conversions which were all completed by 1960, there were four distinct groups:



Hansa and Ensign CLGs

- the first ship (CLG-3 USS Galveston) received a single twin Talos SAM aft (Mk 7 launcher/46 missiles) retaining two triple 6" guns forward,
- the next two (CLG-4 USS Little Rock, CLG-5 USS Oklahoma City) had a twin Talos SAM aft and an enlarged flagship's bridge leaving space for just a single 6" triple forward,
- the next two (CLG-6 USS Providence, CLG-7 USS Springfield) also had the enlarged bridge and hence single triple 6" turret but a twin Terrier SAM aft (Mk 9/60 missiles),
- the last (CLG-8 USS Topeka) received a single twin Talos SAM aft retaining two triple 6" guns forward.



Hansa USS Long Beach – projected appearance circa 1961

Of the CLGs, USS Oklahoma City lasted until 1998 when she was sunk as a target, whilst USS Little Rock has been preserved as a museum ship and is located at Buffalo in New York. Coming next chronologically was the first new missile cruiser built as such from the hull up, which also introduced nuclear power – this was CGN-9 USS Long Beach. This 17,350 ton ship had one twin Talos (Mk 12 launcher/46 missiles) aft and two twin Terrier (Mk 10 launchers/60 missile each) and very prominent large flat radars fitted to the square superstructure. Located amidships was the 8 celled Mk 16 launcher for the Anti-Submarine Rocket System (ASROC); this missile carried an AS torpedo which it could drop on the suspected position of a submarine (as in the film *The Bedford Incident*). In service the Talos was removed in 1979 with the space aft eventually used for two Tomahawk Armoured Box Launchers (ABL) each with 4 cruise missiles, the Terriers were replaced by Standard Extended Range (ER) SAM in 1981 and added were two quad Harpoon surface to surface missile (SSM) launchers, and two Phalanx Close in Weapon System gatling guns (CIWS). USS Long Beach was taken out of service in 1995.



Hansa USS Boston

The final and most comprehensive conversions came next and were three 17,500 ton Baltimore class heavy cruisers which by 1964 became CGs-10 to 12, the USSs Albany, Chicago and Columbus. Whereas all previous conversions were termed 'single-end', these were 'double-end' in that both ends of the ship were modified, each with a twin Talos SAM (Mk 12 launchers/46 missiles each) whilst to port and starboard of the bridge were twin Tartar SAM launchers (Mk 11/40 missiles each). A Mk 16

ASROC was located amidships. USS Columbus was scrapped in 1977 and the two others taken out of service in the mid 1980s. The main surface to air, i.e. anti-aircraft missile systems, mentioned so far are the three 'T's, the short range Tartar (10 nautical miles (nm)) , medium range Terrier (20nm) and long range Talos (75nm and also able to engage surface targets out to horizon range); more on the 'Standard' family of missiles next month.

## THE MODELS

As is traditional in Waterlines the table provides a checklist of 1/1250 models that have appeared over the years and for once coverage is comprehensive. Using parts from two Hansa S138s and four of the HDS kits it is possible to build all six of the CLGs (see picture). Despite various catalogue listings by Hansa for other CLGs USS Galveston was their only release. The USS Long Beach



Trident Alpha USS Chicago

has been produced by Hansa in three different mod. states - 1960 (speculative appearance as in Janes Fighting Ships 1959 with a Regulus missile amidships), 1962 (as completed) and 1984 (following modernisation). N2338 is a departure for Neptun as they normally concentrate on the WW2 era; although not strictly a missile cruiser look out also for N2343 which is the heavy cruiser USS Helena carrying out trials with the Regulus.

Ship	Pennant	Models
USS Boston	CAG -1	Hansa (S) 34, Wiking (plastic)
USS Albany	CG-10	Ta 2 (awful model!), Optatus (OPT-S) 09
USS Chicago	CG-11	OPT-S 09a, Trident Alpha (Ta) 204 (lovely model), N2338
USS Columbus	CG-12	OPT-S 09b
USS Galveston	CLG-3	S 138
USS Little Rock	CLG-4	HDS (metal kit)
USS Long Beach	CGN-9	S70 (1960), S216 (as in 1962), Argos 72 (1964), S 388 (1984)

List: Early USN Missile Cruisers

## MARCH 2009 - USN MISSILE CRUISERS PT 2 THE NEW BUILDS

Last month we considered the various conversions and the first of the new builds USS Long Beach. Now we have a minor dilemma in that chronologically the next four classes (Leahy – 9 ships, Bainbridge – 1; a nuclear powered Leahy, Belknap - 9 ships, and Truxton; a greatly modified Belknap with nuclear power) were all designated frigates when completed and arguably fall outside of the scope of this article. So even though all were re-classified as cruisers in 1975 it has been decided to leave these for another time.

### California Class

Based on size then, the next true cruisers were the 10,150 ton USSs California (DLGN-36) and South Carolina (DLGN-37) completed in 1971/72. As with the others they were re-assigned as CGNs in 1975. Armed on completion with two single Mk 13 Tartar SAM launchers, a Mk 16 Anti-Submarine Rocket System (ASROC) box launcher, torpedo tubes and two 5" guns, they later received a missile upgrade with Standard MR plus two quad



Delphin USS California

Harpoon fitted on the superstructure aft just forward of the 5" gun. Magazine capacity for missiles is an astonishing 80. Both ships were decommissioned by 1999 just outlasting the later Virginia class which are covered next..

## Virginia Class

Completed between 1974 and 1978 was the four strong Virginia class comprising USS Virginia (CGN-38) and three sister ships (CGN-39 to 41) as listed in the table. These 11,000 ton vessels were armed with two twin Mk 26/mod 0 missile launchers for Tartar or Standard Medium Range (MR) SAMs or, from the forward launcher only, ASROC with a total magazine of capacity 68. Two 5" guns and 6 torpedo tubes were fitted; later additions were two Phalanx CIWS (1985), Harpoon launchers (by 1988) and Tomahawk cruise missile launchers plus an upgrade to the MK 26 launchers for Standard SM-2 MR. All four ships were taken out of service in the late 1990s.



Trident Alpha USS Virginia

## Ticonderoga class

The only current missile cruisers are those the Ticonderoga class. On a tonnage of about 9,500 (ships vary), the first of class CG-47 carried two twin Mk 26/mod 1 launchers (for Standard MR/88 missiles carried), two quad Harpoon aft, two Phalanx CIWS amidships high on the superstructure, two 5" guns and six torpedo tubes. There are a number of appearance differences here with the third of class (CG-49) onwards competed with a tripod rather than 'quadripod' mast (USN terminology) and the sixth (CG-52) onwards with near flush decked MK 41 vertical launch systems (VLS) rather than the Mk 26s. Other technical enhancements are many but are rather less visible and not of significance to the modeller. The 27th and final ship USS Port Royal (CG-73) entered service in 1994 with the first five decommissioned in 2004/05 after about 20 years service. The remaining ships, starting with USS Bunker Hill, are scheduled for a lengthy modernisation programme running from 2008 for twelve years. As in service now all have the Mk 41 (with 122 Standard SM2 MR, Tomahawk & ASROCs), two quad Harpoon aft, two 5" guns, two Phalanx CIWS and torpedo tubes.

The first generation of SAMs (the three 'T's) were replaced by the Standard family of missiles initially with SM-1 in the 25 nm medium range (MR) version fired from the Mk 13 launcher (as on USS California) and 34 nm extended range (ER) from the Mk 10 & 26 twin armed launcher (as on USS Virginia). These evolved into SM-2 (MR and ER, with 40nm and 65nm ranges) and thereafter SM-2 MR was upgraded for firing from the MK 41



Argos USS Vincennes

VLS. These upgrades are called 'Blocks' and for example most can now engage incoming anti-ship missiles and Block 4 is capable against ballistic missiles. SM-3 and SM-6 are under development.

## The Models

As always the table provides a collectors checklist of 1/1250 models that have appeared over the years.

Pre Argos the Virginia class was covered by Trident Alpha, Skytrex (metal kit) and Optatus, all depicting the ships in the early 1980s with no Phalanx, Harpoons or Tomahawks. You can use 2mm square plastic rod cut into 7mm lengths for the Tomahawk missile armoured box launchers (ABL) now installed to port and starboard on the quarterdeck. Delphin's USS California can be similarly enhanced with Harpoon quads and Phalanx and in the past Trident did offer spare Harpoon launchers and Phalanx guns in packs of ten. With the Ticonderoga class there are three distinct configurations as given in the table. All may be collected either via the more expensive metal models or with the remarkably good value Hobbyboss offerings, the lower hull section of which can be used in conjunction with the Argos models if a full hulled version is wanted.

Ship	Pennant	Models/Notes
<b>California Class</b>		
California	CGN-36	Delphin 140, Argos (AS) 77/36 (1994)
South Carolina	CGN-37	AS 77/37 (1984)



<b>Virginia Class</b>		
Virginia	CGN-38	Trident Alpha Ta 210, Optatus (OPT-S) 14/38, Skytrex (metal kit)
Texas	CGN-39	OPT-S 14/39
Mississippi	CGN-40	OPT-S 14/40, AS 53/40 (1990)
Arkansas	CGN-41	OPT-S 14/41 AS 53/41 (1991)
<b>Ticonderoga class (CG-47 &amp; 48)</b>		<i>Heavy 'quadripod' main mast and Mk 26 launchers</i>
Ticonderoga	CG-47	Ta 293, Hobby Boss (HB) 82501, Skytrex (metal kit)
<b>Ticonderoga class (CG-49 to 51)</b>		<i>Lighter tripod main mast and Mk 26 launchers</i>
Vincennes	CG-49	AS 16 (1985), HB 82502
<b>Ticonderoga class (CG-52 onwards)</b>		<i>Lighter tripod main mast and Mk 141 VLS</i>
Bunker Hill	CG-52	AS 17 (1987)
San Jacinto	CG-56	AS 17b (1991)
Princeton	CG-59	HB 82503
Normandy	CG-60	AS 17b/60 (1994)
Vella Gulf	CG-72	AS 17a (2003)

List: Later USN Missile Cruisers

The Hobbyboss models are available from Creative Models Ltd, Unit 2 Honeysome Rd Ind Est, Honeysome Road, Chatteris, Cambs, PE16 6TG ([www.creativemodels.net](http://www.creativemodels.net)) and also from [www.waterline-ships.co.uk](http://www.waterline-ships.co.uk).

**A BRIEF HISTORY OF THE 'GUIDE TO WATERLINE MODEL SHIPS'**

The first issue of the guide was compiled in 1990 and was based on a series of eight articles published in Marine Modelling magazine during 1989. In producing a booklet it was possible to include much additional detail and to provide listings for certain manufacturers whose ranges were out of production and whose models would therefore not be listed in dealers' catalogues. Issue 1 then contained listings for Eagle\*, Ensign, Hornby Minic/Rovex\*, Airfix\*, Casadio\*, Triang\*, Delphin, Hansa, Star and Wiking. Issue 2 (which appeared in 1996) repeated those asterisked and added full lists for Len Jordan Models, Pedestal, Fleetline and Nelson. With UK collectors in mind, all British models produced by a further eighteen manufacturers were listed in tables.

Issue 3 appeared in 1999, followed five years later by Issue 4 which was available on CD only but added a digital photo library. Issue 5 in 2008/09 heralded the pdf download version with many new images. With all issues most entries are reviewed and of course new manufacturers added.

Courtesy of Marine Modelling International (see [www.traplet.com](http://www.traplet.com), then 'Online shop', then 'Marine Modelling', then 'Books') Issue 6 (2010) is the first for many years to find its way into print. With new models constantly appearing (and going out of production) it can only be a snapshot at the time of writing so please refer to the monthly MMI-Waterlines column for all the latest news and that extra level of detail re ships and models. Issue 6 was last amended in January 2010.

