

## *Appendix 1. The Spanish Fleet, Ships and Seamen*



Key dates:

- 9 May - publication of the 'Lisbon Muster'
- 28 May - the Armada left Lisbon
- 21 July - the Armada left Corunna

*Squadron of Portugal, commanded by the Duke of Medina Sidonia*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Sailors returned	Previous action	Events or loss	Returned
<i>San Martín, capitana general</i>	<i>galeón</i>	1,000	<1574	Portugal	Medina Sidonia	Marolín de Juan, captain/senior pilot, Diego Flores de Valdés, Francisco de Bobadilla (both from 6 Jul.) Gonzalo de Erasó, Alonso Vanegas, chief gunnery officer, Father La Torre, Prince of Ascoli, Baltasar de Zúñiga, Don Felipe de Córdoba	177	161	138	1578 Morocco 1580 defence of Lisbon 1582 São Miguel 1583 Terceira 1586 pursuit of Drake	.	21 Sep. Santander, broken up 1593
<i>San Juan, almiranta general</i>	<i>galeón</i>	1,050	1586	Oporto	Juan Martínez de Recalde	Pedro de Esquivel, Lope de Vega, Piet O'Carri, Emanuell Francise	179	156	151		31 Jul. damaged, 19 Sep. took refuge in Blasket Sound	7 Oct. Corunna, scuttled 1589
<i>San Marcos</i>	<i>galeón</i>	790	1583-5	Lisbon?	Bobadilla until Corunna, then marquis of Peñafiel		117	108			c.22 Sep. sank between Mutton Island and Lurga Pt, Co. Clare	

<i>San Felipe</i>	<i>galeón</i>	800	1581-3	Lisbon	Don Francisco de Toledo		117	108		1583 Terceira	badly damaged in fighting, 9 Aug. captured by Dutch and English from Flushing	
<i>San Luís</i>	<i>galeón</i>	830	1583-5	Oporto	Don Agustín Mexía		116	100	71			1 Oct. Santander, wrecked Mozambique 1591
<i>San Mateo</i>	<i>galeón</i>	750	early 1570s	Goa, Portuguese India	Don Diego Pimentel		120	110		1578 Alcazar 1582 São Miguel 1583 Terceira	damaged in fighting (pulled a part by own guns), 10 Aug. surrendered to Dutch and English from Flushing	
<i>Santiago, el menor</i>	<i>galeón</i>	520	1583	Lisbon	Antonio Pereira		93	80	63		26 Jul. collided w <i>San Cristóbal</i> (CA)	1 Oct. Santander, broken up 1593
<i>San Cristóbal</i>	<i>galeón</i>	352	<1586	Portugal			59	79	64			1 Oct. Santander, broken up 1593
<i>San Bernardo</i>	<i>galeón</i>	352	<1587	Cantabria			64	65	52			2 Oct. Corunna, broken up 1593

<i>Augusta</i>	<i>zabra gruesa/galeoncete pequeña</i>	166	<1580	Cantabria		57	43	16		30 Sep. Santander, end unknown
<i>Julia</i>	<i>zabra gruesa/galeoncete pequeña</i>	166	<1580	Cantabria		72	48	19		1 Oct. Santander, end unknown
<b>Totals</b>	<b>11</b>	<b>6,776</b>				<b>1,171</b>	<b>1,058</b>		<b>3 lost</b>	<b>8</b>

*Squadron of Castile, all galleons owned by the Crown, commanded by Don Diego Flores de Valdés (moved to flagship 6 Jul.)*

Ship	Type	Tons	Built	Where	Commander	Sailors Lisbon	Sailors Corunna	Sailors returned	Previous action	Events or loss	Returned
<i>San Cristóbal, capitana</i>	<i>galeón</i>	700	1583	Guarnizo nr Santander	Gregorio de las Alas	120	116	51		26 Jul. collided w <i>Santiago</i> (PO), 31 Jul. tried to help <i>Rosario</i>	1 Oct. Santander, still active 1592
<i>San Juan Bautista, almiranta</i>	<i>nao</i>	750	c.1585	Cantabria	Marcos de Aramburu	136	90			spent time in Blasket Sound	14 Oct. Santander, discharged 1591
<i>Santa Catalina</i>	<i>nao</i>	882	c.1586	Cantabria		159	134	70			22 Sep. Santander, discharged 1591
<i>San Pedro</i>	<i>galeón</i>	530	1584	Guarnizo	Francisco de Cuéllar, demoted 9 Aug., moved to <i>Lavía</i>	131	90	76		damaged in Channel fighting	1 Oct. Santander, end unknown
<i>San Juan, menor</i>	<i>galeón</i>	530	1584	Guarnizo	Don Diego Enriquez	113	77	74			22 Sep. Laredo, end unknown
<i>Santiago, mayor</i>	<i>galeón</i>	530	1584	Guarnizo		132	103	93			22 Sep. Laredo, wrecked 1596?
<i>San Felipe y Santiago</i>	<i>galeón</i>	530	1584	Guarnizo		116	81	64			1 Oct. Santander, wrecked 1596
<i>Asunción</i>	<i>galeón</i>	530	1584	Guarnizo	Alonso de Tauste	114	70	72			22 Sep. Santander, still active 1591
<i>Nuestra Señora del Barrio</i>	<i>galeón</i>	530	1583	Guarnizo		108	81	57			1 Oct. Santander, end unknown

<i>San Medel y San Celedón</i>	<i>galeón</i>	530	1584	Guarnizo		101	75	55			22 Sep. Laredo, end unknown	
<i>Santa Ana, francés</i>	<i>galeón</i>	250	c.1581	France		80	54	56			22 Sep. Laredo, end unknown	
<i>Nuestra Señora de Begoña</i>	<i>nao</i>	750	c.1585	Cantabria		123	81	36			10 Oct. Cangas, Galicia, end unknown	
<i>Trinidad</i>	<i>nao</i>	872	early 1580s	Cantabria		122	79		1583	1583	15 Sep. disappeared near Valentia Island, Co. Kerry	
<i>San Juan Bautista/ Fernandome</i>	<i>nao</i>	650	c.1586	Cantabria?		93	57				26 Sep. burned Blasket Sound	
<i>Nuestra Señora del Socorro/ Rosario</i>	<i>patache</i>	75	c.1586	Castro Urdiales, Cantabria		25	15				mid-Oct. disappeared	
<i>San Antonio de Padua</i>	<i>patache</i>	75?	c.1586	Castro Urdiales, Cantabria		46	26				captured Blankenberg, nr Ostend	
<b>Totals</b>		<b>8,714</b>				<b>1,719</b>	<b>1,229</b>				<b>4</b>	<b>12</b>

*Squadron of Vizcaya, commanded by Juan Martínez de Recalde (28 March moved to San Juan de Portugal)*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Sailors returned	Action/ Events	Lost	Returned
<i>Santa Ana, capitana</i>	<i>nao</i>	798	1586	Cantabria	Nicolás de Isla	Pedro de Igueldo, accountant	114	198		28 Jul. missing, ended up in Le Havre, took no part in campaign	attacked by English ships and 19 Sep. sank in storm off Le Havre	
<i>Santiago, almiranta</i> (after 9 May)	<i>nave/nao</i>	666	1585	Cantabria			102	106	94			23 Sep. Pasajes, end unknown
<i>Gran Grín/San Jorge</i> (almiranta until 9 May, then capitana)	<i>nave/nao/galeón</i>	1,160					73	75			22 Sep. Clare Island, Co. Mayo	
<i>Nuestra Señora de la Concepción, mayor, de Zubelzu</i>	<i>nao</i>	468	1585	Cantabria		Juan López de Zubelzu, owner	70	58	67			23 Sep. Pasajes, sank Santander 26 Oct. 90
<i>Concepción, menor</i>	<i>nave/nao</i>	418	1585	Cantabria		Juanes Delcano, master and pilot	61	58	60		nr Mace Head, Galway?	22 Sep. Laredo?, end unknown?
<i>Magdalena</i>	<i>nave/nao</i>	530		England			67	61				23 Sep. Pasajes, end unknown
<i>San Juan Bautista</i>	<i>nave/nao</i>	350	1586	Lezo, Guipúzcoa			80	49	21			1 Oct. Santander, end unknown

<i>María Juan</i>	<i>nao/nao</i>	665	1585	Cantabria		Juan de Soranguren	100	93		badly damaged in Channel battles	8 Aug. sank off Gravelines due to cannon fire	
<i>Manuela</i>	<i>nao</i>	520	1580	England			54	48	55			22 Sep. Santander, discharged 1589
<i>Santa María, de Montemayor</i>	<i>nao/nao</i>	707	1578	Ragusa			45	47	44			22 Sep. Santander, captured by pirates 1590?
<i>María, de Aguirre</i>	<i>patache</i>	70		England, based in Castro Urdiales, Cantabria		Juan Lopez de Aguirre, owner	23	25				Oct. Santander, discharged 1589
<i>Isabela</i>	<i>patache</i>	71	<1583	Castro Urdiales, Cantabria			22	29	24		passed through Blasket Sound	7 Oct. Corunna, sank 10 Nov. Pasajes
<i>María, de Miguel de Suso</i>	<i>patache</i>	96	<1581	Castro Urdiales, Cantabria		Miguel de Suso, master	26	25	20	Terceira 1583		1 Oct. Santander, end unknown
<i>San Esteban</i>	<i>patache</i>	78	1585	Castro Urdiales, Cantabria			26	25	25		passed through Blasket Sound	7 Oct. Corunna, end unknown
<b>Totals</b>		<b>16</b>					<b>863</b>	<b>897</b>			<b>3/4</b>	<b>10/11</b>



*Squadron of Andalusia, commanded by Don Pedro de Valdés, then from 4 August Don Diego Enríquez*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Sailors returned	Action/Events	Lost	Returned
<i>Nuestra Señora del Rosario/ La Gallega, capitana</i>	<i>nao/nao</i>	1,150	1586	Ribadeo, Galicia	Don Pedro de Valdés	Alonso de Zayas, infantry captain, Fray Bernardo de Góngora, Tristram Winslade, William Stukeley	126	119		damaged in Channel 31 Jul.	1 Aug. surrendered to Drake	exhibited as prize, added to navy but never used, sunk for wharf 1618, broken up 1622
<i>San Francisco, almiranta</i>	<i>nao/nao</i>	915	1584	Cantabria		Juan de Valdés (cousin of Don Pedro)	78	85	73			1 Oct. Santander, discharged 1591
<i>San Juan Bautista</i>	<i>galeón</i>	810	1580	Cantabria?			50	84	62	to Strait of Magellan 1583		22 Sep. Santander, discharged 1591
<i>Nuestra Señora de la Concepción (de Retana)</i>	<i>nao/nao</i>	862	1580	Cantabria?			54	69	54			22 Sep. Laredo, discharged 1589
<i>San Juan de Gargarín</i>	<i>nao</i>	569	old	Cantabria?			35	38	30			22 Sep. Santander, discharged 1589

<i>Santa Catalina/ Caterina</i>	<i>nao/naue</i>	730	1584	Cantabria?			71	69	70			22 Sep. Laredo, discharged 1591
<i>Santa María de Juncal</i>	<i>nao/naue</i>	730	1584?	Cantabria?			48	66	72			23 Sep. Santander, to Azores 1591, end unknown
<i>San Bartolomé</i>	<i>nao/naue</i>	876	<1583	Cantabria?			42	56	53			24 Sep. Corunna, scuttled during Drake's raid 1589
<i>(Santa) Trinidad</i>	<i>nave/nao</i>	650	old	Cantabria?			79	54	55			22 Sep. Santander, discharged 1589
<i>Duquesa Santa Ana</i>	<i>urca</i>	900		Flanders			77	65			24 Sep. Loughros Mor Bay, Donegal	
<i>Espíritu Santo</i>	<i>patache</i>	70	1585	Castro Urdiales, Cantabria			12	15	18			1 Oct. Santander, end unknown
<b>Totals</b>	<b>14</b>	<b>8,262</b>					<b>672</b>	<b>720</b>			<b>2</b>	<b>9</b>

*Squadron of Guipúzcoa, commanded by Miguel de Oquendo*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Sailors returned	Previous action	Lost	Returned
<i>Santa Ana</i> , capitana (owned by Oquendo)	<i>nao</i>	1,200	1586	Cantabria	Miguel de Oquendo		82	125	110			23 Sep. Pasajes, 24 Oct. sank after explosion
<i>San Salvador</i> , almiranta until 1 Aug.	<i>nao</i>	958	c.1586	Pasajes		Juan de Huerta, paymaster general	75	90			31 Jul. exploded, towed to Weymouth, Nov. sank on way to Portsmouth	
<i>Santa Marta de la Rosa</i> , almiranta after 1 Aug.	<i>nao</i>	949	1586	San Sebastián	Martín de Villafranca, captain/owner	Francisco Ruiz Matute, Giovanni de Manona	64	85			21 Sep. sank Basket Sound	
<i>Santa Bárbara</i>	<i>nao</i>	525	c.1586	Cantabria			45	47	54			23 Sep. Pasajes, discharged 1592
<i>San Esteban</i>	<i>nao</i>	736	c.1586	Cantabria			68	73	84		21 Sep. wrecked Doonbeg, S of Mutton Is, Co. Clare	
<i>Santa Marta</i> (owned by Oquendo)	<i>nao</i>	548	c.1586	San Sebastián			63	73				23 Sep. Pasajes, end unknown

<i>San Buenaventura</i>	<i>nao</i>	379	<1582	Cantabria			53	54	55	Azores 1582 and 1583	23 Sep. Pasajes, scrapped 1593	
<i>María (San) Juan</i>	<i>nao/ nave</i>	291	1578	San Sebastián (for Martín de Villafranca)			30	40			11 Oct. Lisbon, discharged 1589	
<i>Santa Cruz</i>	<i>nao</i>	680	old	Cantabria			32	40	31	Strait of Magellan 1583	22 Sep. Santander, end unknown	
<i>Doncella</i>	<i>urca</i>	500		Germany			32	29			23 Sep. sank Santander	
<i>(N. S. de la) Asunción</i>	<i>patache</i>	60	c.1586	Castro Urdiales, Cantabria			23	16	16		1 Oct. Santander, end unknown	
<i>San Bernabé</i>	<i>patache</i>	69	c.1586	Castro Urdiales, Cantabria			23	17	20		23 Sep. Pasajes, to Azores 1591	
<i>Nuestra Señora de Guadalupe</i>	<i>pinaza</i>	c.50	c.1586	Castro Urdiales, Cantabria			15	12			7 Sep. in Calais, returned to Spain, discharged 1590	
<i>Magdalena</i>	<i>pinaza</i>	c.50	c.1586	Castro Urdiales, Cantabria			14	14	15		Ribadeo, discharged 1590	
<b>Totals</b>	<b>11</b>	<b>6,995</b>					<b>619</b>	<b>715</b>			<b>3</b>	<b>11</b>

*Levant (or Italian) squadron, commanded by Martín de Bertendona*

Ship	Type	Tons	Built	Where	Commander	Notable others	Owner	Sailors Lisbon	Sailors Corunna	Sailors returned	Previous action	Lost	Returned
<i>Regazona/ Ragazona, capitana</i>	<i>nave</i>	1,294		Venice	Martín de Bertendona		Giacomo Ragazzoni	80	80	49			10 Oct. Muros, Galicia, 8 Dec. wrecked Ferrol
<i>Lavia/ Santa María de Gracia, almiranta</i>	<i>nave</i>	728		Venice		Martín de Aranda, Judge Advocate, after 9 Aug. Francisco de Cuéllar	Paolo Antonio Labia	71	71		Azores 1583	21 Sep. wrecked Streedagh Strand	
<i>Anunciada/ N. S. de la Anunciada</i>	<i>nave/nao</i>	703		Ragusa			Stefan Olisti Tasovčić	79	80		Portugal 1580, Azores 1582 & 1583	19 Sep. abandoned and burned Scattery Roads, Shannon	
<i>Trinidad Valencera</i>	<i>nave</i>	1,100	<1581	Venice	Alonso de Luzón	Juan Ortega, Balthasar López del Árbol	Alvise Balancer	79	75		Azores 1583	14 Sep. wrecked Kinnagoe Bay, Donegal	

<i>Rata Santa María Encoronada</i>	<i>nave</i>	820	<1582	Genoa?	Alonso Martínez de Leyva	Giovanni Avancini, master, Thomas Granvelle, count of Paredes	Joan Arne Palo	70	84	93		21 Sep. abandoned and burned Tullaghan Bay, Co. Mayo	
<i>Julitana/Santa María, Santiago y Santa Clara</i>	<i>nave/nao</i>	860	1571	Mataró, Catalonia			Joan Arne Palo	65			Azores 1583	21 Sep. wrecked Streedagh Strand	
<i>San Nicolás Prodaneli</i>	<i>nave/nao</i>	834	<1582	Ragusa			Marin Prodanelić	81			Azores 1582 & 1583	c.22 Sep. Toorglass, Achillbeg, Mayo	
<i>San Juan de Sicilia/Santa María de Gracia y San Juan Bautista</i>	<i>nave</i>	800	<1582	Ragusa	Diego Tellez Enríquez <i>el cortovado</i>		Vincencio di Pietro, Jacome de Blasio	63		53	Azores 1582 & 1583	5 Nov. exploded Tobermory, Mull	
<i>Santa María de Gracia y Santa María de Visón</i>	<i>nave/nao</i>	666	<1582	Ragusa				71		70	Azores 1582 & 1583	21 Sep. wrecked Streedagh Strand	
<i>Trinidad (de) Escala</i>	<i>nave/nao</i>	900	1550s	Tyrrhenian Sea/Genoa			Jacopo de Scala	79		66			26 Sep. Santander, discharged 1589

<i>San Francisco (Florençia)</i> LE Oct. '87 - 31 Mar. '88, then Portugal, then back to LE at Corunna	<i>galeón</i>	961	<1582	Tyrrhenian Sea	Gaspar de Souza					86	89	84			1 Oct. Santander, discharged 1590
<i>San Bautista de la Esperanza</i>	<i>nave</i>	300		Castro Urdiales											joined fleet at Corunna; few details found
<b>Totals</b>	<b>12</b>	<b>9,966</b>								<b>843</b>	<b>810</b>			<b>8</b>	<b>3</b>

*Squadron of urcas, commanded by Juan Gómez de Medina*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Sailors returned	Lost	Returned
<i>Gran Grifón, capitana</i>	<i>urca</i>	650		Rostock	Juan Gómez de Medina	Burgat Querquerman, owner, Patricio Antolínez & Esteban Legoretta, infantry captains, Sir Thomas Geraldine	43	45		3 Aug. badly damaged in Channel, 27 Sep. wrecked Fair Isle	
<i>San Salvador, mayor, almiranta</i>	<i>urca</i>	650	1565	Germany		Pedro Coco Calderón, chief accountant	43	53	51		23 Sep. Santander, end unknown
<i>Barca de Amburg</i>	<i>urca</i>	600	1567	Germany, Hamburg?			25	30		c.1 Sep. sank off Malin Head	
<i>Casa de Paz, grande, hospital ship</i>	<i>urca</i>	650	c.1572				27	38		abandoned at Laredo	8 Dec. sank Laredo
<i>David, chico, horses &amp; mules</i>	<i>urca</i>	450	1563				24			damaged and sent to Portonovo, Galicia, then Corunna, where she remained	
<i>San Pedro, mayor, hospital ship</i>	<i>urca</i>	581	1567	Germany/Baltic			28	34		6 Nov. wrecked Hope Cove, Salcombe, Devon	



<i>Casa de Paz, chita</i>	<i>urca</i>	350	1560	Riga? Baltic			24	21	27	26 Sep. Santander, end unknown
<i>Sansón</i>	<i>urca</i>	500		Emden, Germany			31	31	30	28 Sep. Corunna, burned by Drake 1589
<i>Cierro Volante</i>	<i>urca</i>	400		Germany			22	39		22 Sep. Broad Haven, Co. Mayo
<i>Paloma Blanca</i>	<i>urca</i>	250		Flanders			20	30		6 Oct. Ribadeo, end unknown
<i>Falcón Blanco, mayor</i>	<i>urca</i>	500	1587	Germany	Luis de Córdoba		36	34		c.11 Oct. Ribadeo, sank, but refloated
<i>San Gabriel, horses &amp; mules</i>	<i>urca</i>	280	1561	Flanders			20	16		22 Sep. Santander, end unknown
<i>Castillo Negro</i>	<i>urca</i>	750		Flanders			34	46		disappeared Atlantic/Norway/Hebrides
<i>Perro Marino</i>	<i>urca</i>	200		Flanders			24	18		22 Sep. Laredo, end unknown
<i>Santa Bárbara</i>	<i>urca</i>	370	1559	Flanders	Cristóbal de Ávila, hanged 9 Aug.		22	24		20 Sep. nr Mutton Island?
<i>Santiago, mules &amp; soldiers' wives</i>	<i>urca</i>	600	1551	Netherlands		Alonso de Olmos, infantry captain	30	33		18 Sep. nr Bergen, Norway

<i>San Pedro, menor</i>	<i>urca</i>	500	1587	Germany?			23	22	20 Oct. sank Morbihan, Brittany	1 Oct. Santander, end unknown
<i>Gato, horses, mules &amp; soldiers' wives</i>	<i>urca</i>	400		Netherlands?			22	41		1 Oct. Santander, end unknown
<i>San Andrés, de Malaga</i>	<i>urca</i>	400		Scottish?			28	39		22 Sep. Santander, end unknown
<i>Barca de Anzique/ Danzig</i>	<i>urca</i>	450	1572	Germany			25	28	off Shannon, took goods off <i>Anunciada</i> (LE)	mid-Oct. Gijón, later sank
<i>Falcón Blanco, mediano</i>	<i>urca</i>	300	1564	Netherlands or Germany			27	23	25 Sep. wrecked Inishbofin, Galway	
<i>Ventura/ Buenaventura</i>	<i>urca/ charrúa</i>	160		Flanders			14	15		1 Oct. Santander, end unknown
<i>Esayas</i>	<i>urca</i>	280	1542	Germany			16	24		1 Oct. Santander, end unknown
<b>Totals</b>	<b>23</b>	<b>10,271</b>					<b>608</b>	<b>684</b>	<b>10</b>	<b>13</b>

*Squadron of pataches and zabras, commanded by Don Antonio Hurtado de Mendoza then Agustín de Ojeda*

Ship	Type	Tons	Built	Where	Commander	Sailors Lisbon	Sailors Corunna	Rowers	Previous action	Lost	Returned
<i>Nuestra Señora del Pilar de Zaragoza, capitana</i>	<i>nao/ nave</i>	305	c.1584	Castro Urdiales, Cantabria	Antonio Hurtado de Mendoza, until Corunna, then Agustín de Ojeda	51	59				22 Sep. Laredo, end unknown
<i>Caridad, inglesa (Charity)</i>	<i>urqueta/ nao</i>	180		England		36	37				4 Oct. Santander, w goods & guns salvaged from <i>Anunciada</i> (LE), still in use 1596
<i>San Andrés, escosés</i>	<i>urqueta</i>	150		Dundee, Scotland		29	38				23 Sep. Pasajes, end unknown
<i>Santo Crucifijo, de Burgos</i>	<i>patache gruesa</i>	150	c.1583	Castro Urdiales		29	24				22 Sep. Laredo, end unknown
<i>Nuestra Señora del Puerto</i>	<i>patache</i>	55		Castro Urdiales		33	27				1 Oct. Santander, still active 1591
<i>Nuestra Señora de la Fresneda</i>	<i>patache</i>	58		Castro Urdiales			20				1 Oct. Santander, discharged 1589
<i>Nuestra Señora de la Concepción, de Carrasa</i>	<i>patache</i>	70		Castro Urdiales		42	21				4 Oct. Castro Urdiales, w goods salvaged from <i>Anunciada</i> (LE), end unknown
<i>La Concepción de Castro</i>	<i>patache</i>	60		Castro Urdiales			19			Barrow Harbour, Co. Kerry?	Castro Urdiales?

<i>Nuestra Señora de Begonia</i>	<i>patache</i>	64		Castro Urdiales		26	23				c.4 Oct. Santander, w goods salvaged from <i>Anunciada</i> (LE), discharged 1589
<i>Nuestra Señora de Guadalupe</i>	<i>patache</i>	100		Castro Urdiales		42	32				1 Oct. Santander, end unknown
<i>San Francisco</i>	<i>patache</i>	86		Castro Urdiales		37				dropped out after Corunna, reason unknown	
<i>Concepción, de Capitulo</i>	<i>patache</i>	60		Castro Urdiales	Don Pedro de Mendoza	31	18				1 Oct. Santander, discharged 1589
<i>San Gerónimo</i>	<i>patache</i>	55		Castro Urdiales		37	40				Castro Urdiales?, Santander 4 Oct. w goods salvaged from <i>Anunciada</i> (LE), discharged 1589
<i>Nuestra Señora de Gracia</i>	<i>patache</i>	57		Castro Urdiales		34	26				23 Sep. San Sebastian, end unknown
<i>Concepción de Nuestra Señora, de Lastero</i>	<i>patache</i>	75		Castro Urdiales		29	18			sank off Orkney	
<i>Spiritu Santo</i>	<i>patache</i>	75				27					
<i>Trinidad</i>	<i>zabra</i>	40	<1583	Castro Urdiales		23	24		Terceira 1583	19 Sep. wrecked Tralee, Co. Kerry?	c.20 Oct. Santander, discharged 1590?

<i>Nuestra Señora de Castro</i>	<i>zabra</i>	50	Castro Urdiales		26	18	Terceira 1583	19 Sep. sank off N. coast of Spain	
<i>San Andrés</i>	<i>zabra</i>	40	Castro Urdiales		15	17			c.20 Oct. Santander, end unknown
<i>(N. S. de la) Concepción, de Somarriua</i>	<i>zabra</i>	50	Castro Urdiales		31	18	Terceira 1583	sank off Denmark or Norway?	some survivors returned
<i>Concepción, de Válmaseda</i>	<i>zabra</i>	50	Castro Urdiales		27?	18?			2 Aug. Lugo, Galicia, then Castro Urdiales, discharged 1590
<i>Santa Catalina</i>	<i>zabra</i>	50	Castro Urdiales		23	20			Dunkirk, 18 Nov. Santander?, end unknown
<i>Asunción (or Concepción) de Nuestra Señora</i>	<i>zabra</i>	50	Castro Urdiales		23	18			1 Oct. Santander, end unknown
<i>San Juan, de Carasa, or San Juan Bautista</i>	<i>zabra</i>	50	Castro Urdiale		23	29	Terceira 1583		Dunkirk, 1 Oct. Santander?, lost off Portuguese coast 1591
<i>San Juan</i>	<i>zabra</i>		Castro Urdiales						
<i>San Martín de Santander</i>	<i>zabra</i>		Castro Urdiales					sank off Ireland	
<b>Totals</b>	<b>26</b>	<b>c.2,000</b>			<b>674</b>	<b>564</b>		<b>7</b>	<b>18</b>

*Galleasses of Naples, commanded by Don Hugo de Moncada (d. 8 Aug. '88)*

Ship	Type	Tons	Built	Where	Commander	Notable others	Sailors Lisbon	Sailors Corunna	Rowers	Previous action	Lost	Returned
<i>San Lorenzo, capitana</i>	<i>galeaza</i>	5/600	c.1583	Naples	Don Hugo de Moncada		124	124	300: 6 per bank, 25 oars per side	Terceira 1583	8 Aug. broke rudder after fireships, grounded off Calais, Moncada killed, ship ransacked	
<i>Napolitana, patrona</i>	<i>galeaza</i>	5/600	c.1583	Naples	Perucho Morán		112	100	300: 6 per bank, 25 oars per side	Terceira 1583		22 Sep. to Laredo then Santander, lost off coast of Galicia Oct. 1591
<i>Zuñiga</i>	<i>galeaza</i>	5/600	c.1584	Naples	Pedro Centellas	Pietro Baptista, purser	112	102	300: 6 per bank, 25 oars per side		2 Sep. rudder broke again, 15 Sep. stopped in Liscannor Bay, Co. Clare	4 Oct. Le Havre, Aug. '89 to Santander, lost off coast of Galicia Oct. 1591
<i>Girona</i>	<i>galeaza</i>	600	c.1584	Naples	Fabricio Spinola		120	120	300: 6 per bank, 25 oars per side		28 Oct. Lacada Point, Co. Antrim	
<b>Totals</b>	<b>4</b>	<b>2,400</b>					<b>468</b>	<b>446</b>	<b>1,200</b>		<b>2</b>	<b>2</b>

Longer than galleys, and with the capacious hulls of merchant ships and similar sailing rigs, galleasses were developed for long-distance trade in the Mediterranean. To counter piracy they had a boarding ram at the bow and heavy armament at bow and stern. They were sluggish under oars, but the oars provided manoeuvrability in enclosed waters or progress in calm or unfavourable winds. At Lepanto in 1571 six Venetian galleasses, operating in support of a conventional galley fleet, played a decisive role. But their broad rudders, like those of galleys, hung awkwardly on curved sternposts (hinges don't work well on curves) and were very susceptible to damage. And in the event, despite their impressive appearance, the galleasses' performance in the Armada campaign fell short of expectations.

Emanuel van Meteren was probably exaggerating when he wrote that the Armada galleasses were 'of such bigness, that they contained within them chambers, chapels, turrets, pulpits [pulpits] and other commodities of great houses', but they were clearly impressive. John Mountgomerie was particularly struck by their vivid colour: 'the oars are all red, the sails had upon them the bloody sword [the red cross of holy war]; the upper part of the galleass was also red, signs [he continued self-righteously] and manifest tokens of the bloody mind' that had sent them. This colour scheme is confirmed by the Greenwich cartoon (Figure 16).

*Squadron of Gallies, commanded by Diego de Medrano*

Ship	Built	Where	Previous action	Sailors Corunna	Prisoners Corunna	Slaves Corunna	Total rowers	Rowers per oar	Oars per side	Total men Corunna	Fate
<i>Capitana Esphera?</i>	1576	Naples	1583 Terceira	25	267	53	320	5	30	428	ran aground July at Bayonne, 3 Aug. returned Fuenterrabía, 22 Oct. broken up
<i>Diana, patrona</i>	1571	Barcelona	1571 Lepanto 1581 Lisbon	22	169	24	193	4	23?	260	25 Jul. returned Vivero where oarsmen mutinied, 6 Aug. arrived Corunna, still active 1592, end unknown
<i>Princesa</i>	1571	Barcelona	1571 Lepanto 1581 Lisbon	16	184	25	209	4	24?	282	20 Aug. returned Pasajes, still active 1592, end unknown
<i>Bazana</i>	1574	Naples		11	165	23	188	4	22?	252	31 Jul. ran aground near Bayonne, 3 Aug. returned Fuenterrabía, still active 1592, end unknown
<b>Totals</b>				<b>74</b>	<b>785</b>	<b>125</b>	<b>910</b>			<b>1,222</b>	



The galleys' sailing performance was poor, while their low freeboard and lack of lateral stiffness made them vulnerable to high winds and rough weather. Their low-set bows, weighted with ordnance, were difficult in head seas. Overcrowding and minimal storage facilities demanded frequent replenishment of provisions. Hardly surprisingly, in view of the bad weather and frequent delays that dogged the Armada, all four galleys set off from Lisbon and reached Corunna, but could not cope with the weather they encountered in the Bay of Biscay. None reached the Channel.

A substantial galley force had been earmarked since the Armada's inception in 1586. Santa Cruz had specified forty, and intended to use them as he had when landing on Terceira in 1583. Had they been available off Flanders in 1588 they could have protected Parma's landing-barges as they crossed the shallows where the deep-draught Armada ships could not operate. And they were needed for other vital tasks. Independent of the wind, they were capable of beaching and of transferring heavy equipment. Historians have been inclined to see the inclusion of galleys in the Armada as a misplaced nostalgic reluctance to abandon a proven fighting machine, even though it was fundamentally unsuited to artillery-dominated naval warfare outside the Mediterranean. But Medina Sidonia asked for at least eight galleys, both to get the troops ashore and to tow the big ships. He had the strong support of his vice-admiral Recalde, who wrote to the king from Corunna on 11 July 1588 emphasizing the Armada's most pressing defects. Twelve more galleys, he suggested, were urgently needed to reinforce the current four. Twelve caravels were embargoed in Lisbon in spring 1588 to carry food supplies and water to the larger ships, with a thirteenth added at Corunna. Only nine or ten left Corunna. Those which returned to Santander were allowed to return home to Portugal.

Eleven *falúas* (feluccas) were built in Lisbon at the end of 1587, of which ten left Lisbon with the Armada. Only six left Corunna; two were lost in the storm which drove them to the Scillies, and one sank off Calais.

### Sources

BMO V, Anexo 5, 'Resumen del historial de los navios españoles que participaron en la jornada de Inglaterra de 1588', and references therein. I have also followed the order in which the squadrons and the vessels within them are listed there, with one exception. I have put *Florenzia* in the Levant squadron, to which she was originally assigned. Some time before the 'Lisbon Muster' she was moved to the squadron of Portugal, but was moved back to the Levant squadron at Corunna. Anderson, *Oared Fighting Ships*, 74–83; Guilmartin, *Gunpowder and Galleys*; Hakluyt, *Principal navigations*, II, 369–401; Mountgomerie, 'the navie', BL Sloane MS 262/66v.

González-Aller Hierro, J. I., 'Las galeras en la Gran Armada de 1588'.

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## *Appendix 2. The Spanish Fleet, Soldiers and Ordnance*



Key dates:

- 9 May - publication of the 'Lisbon Muster'
- 28 May - the Armada left Lisbon
- 21 July - the Armada left Corunna

*Squadron of Portugal, commanded by the Duke of Medina Sidonia*

Ship	Soldiers Lisbon 9 May	Soldiers Corunna 15 Jul.	Soldiers returned	Guns Lisbon 9 May	Bronze guns, iron shot 16 Apr.	Bronze guns, stone shot 16 Apr.	Large bronze guns 14 May	Smaller bronze guns 14 May	Iron guns	Total guns	Shot issued	Shot ret'd	Powder (qtx)	Powder returned
<i>San Martín, capitana general</i>	300	308	180	48	32	18	32	14		46	2,400	1,243	140	70
<i>San Juan, almiranta general</i>	321	366	407	50			34	24		58	2,500	1,200	136	70
<i>San Marcos</i>	292	278		33	16	17				33	1,650		85	
<i>San Felipe</i>	415	331		40	23	17				40	2,000		85	
<i>San Luís</i>	376	339	216	38			28	10		38	1,900	732	69	22
<i>San Mateo</i>	277	279		34	14	18				32	1,700		82	
<i>Santiago, menor</i>	300	307	66	24			20	6		26	1,200	455	46	18
<i>San Cristóbal</i>	125	132	95	29	8	12	17	6		23	1,000	250	22	18
<i>San Bernardo</i>	170	171	111	21			7	14		21	1,050	429	30	
<i>Augusta</i>	55	49		13			8	6		14	650	18?	9	2
<i>Julia</i>	44	87		14			9	7		16	700	120	10	3
<b>Totals</b>	<b>2,675</b>	<b>2,647</b>					<b>155</b>	<b>87</b>		<b>347</b>	<b>16,750</b>		<b>714</b>	

*Squadron of Castile, commanded by Don Diego Flores de Valdés*

Ship	Soldiers Lisbon	Soldiers Corunna	Soldiers returned	Guns Lisbon	Large bronze guns 14 May	Smaller bronze guns 14 May	Iron guns 14 May	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>San Cristóbal, capitana</i>	205	187	140	32	27	5		32	2,160	920	88	20
<i>San Juan Bautista, almiranta</i>	207	206		24	20	2	2	24	1,440	500	53	25
<i>Santa Catalina</i>	190	186	214	24	16	2	1	19	1,440	348	49	15
<i>San Pedro</i>	141	184	216	24	11	9	6	26	1,440		48	21
<i>San Juan, el menor</i>	163	207	199	24	5	8	8	21	1,440	268	49	20
<i>Santiago, el mayor</i>	210	190	166	24	9	10	3	22	1,440	310	47	14.5
<i>San Felipe y Santiago/ San Jacobo</i>	151	153	170	24	12	2	8	22	1,440	275	47	18
<i>Asunción</i>	199	170	191	24	7	6	9	22	1,440	246	49	16
<i>Nuestra Señora del Barrio</i>	155	196	165	24	17	0	4	21	1,440	262	49	32

<i>San Medely San Celedón</i>	160	197	209	24	13	1	5	19	1,440	88	48	34
<i>Santa Ana, el francés</i>	91	99	98	24	12		2	14	1,440	195	29	16
<i>Nuestra Señora de Begoña</i>	174	219		24				24?	1,440		52	
<i>Trinidad</i>	180	162		24				24	1,440		48	
<i>San Juan Bautista/ Fernandome</i>	192	183		24				24	1,440		47	
<i>Nuestra Señora del Socorro/ Rosario</i>	20	20		24		2	4	6	1,440?		3.5	
<i>San Antonio de Padua</i>	20	20		12		2	4	6	720		3.5	
<b>Totals</b>	<b>2,458</b>	<b>2,579</b>		<b>380</b>	<b>149</b>	<b>49</b>	<b>56</b>	<b>326</b>	<b>23,040</b>		<b>710</b>	

*Squadron of Vizcaya, commanded by Juan Martínez de Recalde, 28 March moved to San Juan (Portugal)*

Ship	Soldiers Lisbon	Soldiers Corunna	Soldiers returned	Guns Lisbon	Bronze guns	Iron guns 14 May	Total guns	Shot Lisbon	Shot returned	Powder (qrx)	Powder returned
<i>Santa Ana, capitana</i>	323	284		30	10	20	30	1,500		71	
<i>Santiago, almiranta (after 9 May)</i>	214	206		25	8	17	25	1,250		47	
<i>Gran Grin, almiranta then capitana 9 May)</i>	256	261		28			28	1,400		72	
<i>Nuestra Señora de la Concepción, mayor, de Zubeizu</i>	90	161	149	16	6	10	16	800		45	
<i>Concepción, menor, de Juan del Cano</i>	164	167	132	18	6	12	18	900		30	
<i>Magdalena</i>	193	183	151	18			18	900		38	
<i>San Juan Bautista</i>	114	141		21	4	14	18	1,050	300	36	12
<i>María Juan</i>	172	213		24	8	16	24	1,200		61	
<i>Manuela</i>	125	115	128	12	2	10	12	600	200	30	10
<i>Santa María de Montemayor</i>	206	155	80	18	6	12	18	900	50	38	16
<i>María, de Aguirre</i>	20	19		6	2	4	6	300		2	
<i>Isabela</i>	20	24	19	10	3	2	5	500		3	
<i>María, de Miguel de Suso</i>	20	20	27	6	2	4	6	300		2	
<i>San Esteban</i>	20	10	35	6	4	2	6	300		2	
<b>Totals</b>	<b>1,937</b>	<b>1,959</b>		<b>238</b>	<b>61</b>	<b>123</b>	<b>230</b>	<b>11,900</b>		<b>477</b>	

*Squadron of Andalucía, commanded by Don Pedro de Valdés, then from 4 August Don Diego Enríquez*

Ship	Soldiers Lisbon	Soldiers Corunna	Soldiers returned	Guns Lisbon	Bronze guns	Iron guns 14 May	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>Nuestra Señora del Rosario/La Gallega, capitana</i>	289	240		46	42	4	46	2,300		114	
<i>San Francisco, almiranta</i>	227	238	231	21	17	5	22	1,050	240	43	8
<i>San Juan Bautista</i>	239	249	212	31	8	24	32	1,550	450	50	30
<i>Nuestra Señora de la Concepción (de Retana)</i>	179	191	159	20	6	15	21	1,000	150	83	30
<i>San Juan de Gargarín</i>	173	165	155	16			16	800	120	21	12
<i>Santa Catalina</i>	220	220	131	23	9	15	24	1,150	900	41	55
<i>Santa María de Juncal</i>	228	221	136	20	4	14	18	1,000	30	31	36
<i>San Bartolomé (Santa) Trinidad</i>	224	184	184	27	12	16 small	28	1,350	500?	32	
<i>Duquesa Santa Ana</i>	203	156	156	13	3	10	13	650	200	20	12
<i>Espritu Santo</i>	280	207		23	7	16	23	1,150		30	
<i>Espritu Santo</i>	27	18	20		8		8			50	1
<b>Totals</b>	<b>2,289</b>	<b>2,089</b>		<b>240</b>	<b>116</b>	<b>119</b>	<b>251</b>	<b>12,000</b>		<b>515</b>	



*Squadron of Guipúzcoa, commanded by Miguel de Oquendo*

Ship	Soldiers Lisbon	Soldiers Corunna	Soldiers returned	Guns Lisbon	Bronze guns 14 May	Iron guns 14 May	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>Santa Ana,</i> <i>capitana</i>	303	275	276	47		9	47	2,350		106	
<i>San Salvador,</i> first <i>almiranta</i>	321	281		25	13	12	25	1,250		130	
<i>Santa María de</i> <i>la Rosa,</i> second <i>almiranta</i>	233	238		26	14	12	26	1,300		80	
<i>Santa Bárbara</i>	154	135	141	12	9	16	25	600		22	
<i>San Esteban</i>	196	201		26	11	15	26	1,300		43	
<i>Santa Marta</i>	173	166	193	20	9	11	20	1,000		43	
<i>San Buenaventura</i>	168	158	168	21	12	9	21	1,050		20	
<i>María San Juan</i>	110	95		12	2	10	12	600		14	
<i>Santa Cruz</i>	156	125		18	6	12	18	900	180	30	16
<i>Doncella</i>	156	112		16	2	14	16	800		28	
<i>(N. S. de la)</i> <i>Asunción</i>	20	18		9	3	6	9	450		2	
<i>San Bernabé</i>	20	17	16	9	4	5	9	450			
<i>Nuestra Señora de</i> <i>Guadalupe</i>	0	0		1	0	1	1	50			
<i>Magdalena</i>	0	0		1		1	1	50			
<b>Totals</b>	<b>2,010</b>	<b>1,821</b>		<b>243</b>	<b>85</b>	<b>256</b>	<b>133</b>	<b>12,150</b>		<b>518</b>	

*Levant squadron, commanded by Martín de Bertendona*

Ship	Soldiers Lisbon	Soldiers Corunna	Soldiers returned	Guns Lisbon	Large bronze guns 14 May	Smaller bronze guns 14 May	Iron guns 14/05	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>Regazona/Ragazzoni, capitana</i>	344	291		30	17	13	2	32	1,500		35	
<i>Lavia/Santa María de Gracia</i>	203	231		25	12	13		25	1,250		39	
<i>Anunciada/N. S. de la Anuncianda</i>	196	186		24	12	11		23	1,200		46	
<i>Trinidad Valencera</i>	281	338		42	16	16		42	2,100		125	
<i>Rata Santa María Encoronada</i>	335	355		35	26	7	8	35	1,750		80	
<i>Juliana/Santa María, Santiago y Santa Clara</i>	325	347		32	16	5	11	32	1,600		67	
<i>San Nicolás Prodanelli</i>	274	226		26	5	15	12	26	1,300		40	
<i>San Juan de Sicilia/Santa María de Gracia y San Juan Bautista</i>	279	267		26	16	7	3	26	1,300		79	
<i>Santa María de Gracia y Santa María de Visón</i>	236	255		18	10	7	1	18	900		32	
<i>Trinidad de Escala</i>	307	342	287	22	10	5	4	19	1,100		41	
<i>San Francisco (Florenca), in Levant Oct. '87 - 31/03/88, then Portugal, then back to Levant at Corunna</i>	400	294	180	32	27	24		51	2,600	100	75	20
<i>San Bautista de la Esperanza</i>				12?								
<b>Totals</b>	<b>3,180</b>	<b>3,132</b>		<b>324</b>	<b>167</b>	<b>123</b>	<b>41</b>	<b>329</b>	<b>16,600</b>		<b>659</b>	

*Squadron of urcas, commanded by Juan Gómez de Medina*

Ship	Soldiers Lisbon 09/05	Soldiers Corunna 15/07	Soldiers returned	Guns 09/05	Large bronze guns 14 May	Smaller bronze guns 14 May	Iron guns 14 May	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>Gran Grifón, capitana</i>	243	234		38	8	2	28	38	1,900		48	
<i>San Salvador, mayor, almiranta</i>	218	218	190	24	4	2	24	30	1,200	200	40	18
<i>Barco de Amburg</i>	239	257		23	8		15	23	1,150		31	
<i>Casa de Paz, grande</i>	198	did not sail		26			26	26	1,300		26	
<i>David, chico, horses</i>	50	did not sail		7			7	7	350		8	
<i>San Pedro, mayor, hospital ship</i>	213	110		29			29	29	1,450		21	
<i>Casa de Paz, chica</i>	162	154	92	15		1	17	18	750	300	12	3
<i>Sansón</i>	200	184	153	18	6		12	18	900	150	24	
<i>Cierro Volante</i>	200	132		18	6		12	18	900		19	
<i>Perro Marino</i>	70	80		7			8	8	350	50	7	6
<i>Falcón Blanco, mayor</i>	161	182		16			16	16	800		24	
<i>Castillo Negro</i>	239	157		27	6		21	27	1,350		23	
<i>San Pedro, menor</i>	157	176		18	6		12	18	900		34	
<i>Barca de Anzique/ Danzig</i>	200	150		26	5	2	13	20	1,300		29	

<i>Falcón Blanco, mediano</i>	76	57		16	5	2	12	16	800	19	
<i>Santo Andrés, de Malaga</i>	150	26		14	6		8	14	700	20	12
<i>Paloma Blanca</i>	56	67		12		6	6	12	600	11	
<i>Ventura</i>	58	49		4			4	4	200	8	3
<i>Santa Bárbara</i>	70	26		10			10	10	500	12	
<i>Santiago, mules &amp; soldiers' wives</i>	56	32		19			19	19	950	24	
<i>Gato, horses &amp; soldiers' wives</i>	40	30		9			8	8	450	8	1.5
<i>San Gabriel, horses</i>	35	31		4			4	4	200	5	3
<i>Esayas</i>	30	23		4			4	4	200	5	1
<b>Totals</b>	<b>3,121</b>	<b>2,375</b>		<b>384</b>	<b>60</b>	<b>15</b>	<b>315</b>	<b>387</b>	<b>19,200</b>	<b>458</b>	

Squadron of *Pataches* and *Zabras*, commanded by Don Antonio Hurtado de Mendoza, then from 27 June Agustín de Ojeda

Ship	Soldiers Lisbon	Soldiers Corunna	Guns 9 May	Large bronze guns 14 May	Smaller bronze guns 14 May	Iron guns 14 May	Total guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>Nuestra Señora del Pilar de Zaragoza, capitana</i>	109	114	11			11	11	550		18	
<i>Caridad, inglesa</i>	70	43	12			15	15	600	600	20	18
<i>San Andrés, escosés</i>	40	38	12			12	12	600		14	
<i>(Santo) Crucifijo, de Burgos</i>	40	40	8			8	8	400		5	
<i>Nuestra Señora del Puerto</i>	30	28	8		2	6	8	400	150		3
<i>Nuestra Señora de la Fresmeda</i>		0									
<i>Nuestra Señora de la Concepción, de Carasa</i>	30	18	5				5	250		2	
<i>La Concepción de Castro</i>		0					10				
<i>Nuestra Señora de Begoña</i>	20	0				4	4			1	
<i>Nuestra Señora de Guadalupe</i>	20	17			4	5	9		70		4
<i>San Francisco</i>	20					4	4				

<i>Concepción, de Capatillo</i>	20	0	10			2	2	500		2	
<i>San Gerónimo</i>	20	0	4			2	4	200		1	
<i>Nuestra Señora de Gracia</i>	25	17	5		1	4	5	250		1	1
<i>Concepción de Nuestra Señora, de Lastero</i>	20	0	6			6	6	300		2	
<i>Spiritu Santo</i>	20					4	4				
<i>Trinidad</i>	0	0	2		2	0	2	100			
<i>Nuestra Señora de Castro</i>			2		2	0	2	100			
<i>San Andrés</i>	0	0	2		2	0	2	100			
<i>Concepción de Nuestra Señora, de Somarriba</i>	0	0			2	2	4				
<i>Concepción, de Valmaseda</i>	0	0	2		2	0	2	100			
<i>Santa Catalina</i>	0	0				2	4				
<i>Asunción (or Concepción) de Nuestra Señora</i>	0	0	2		2	0	2	100			
<i>San Juan, de Carasa, or San Juan Bautista</i>	0	0			2	0	2				
<i>San Juan</i>											
<i>San Martín de Santander</i>											
<b>Totals</b>	<b>484</b>	<b>315</b>	<b>91</b>	<b>0</b>	<b>23</b>	<b>87</b>	<b>127</b>	<b>4,550</b>		<b>66</b>	

*Galleasses of Naples, commanded by Don Hugo de Moncada*

Ship	Soldiers Lisbon 9 May	Soldiers Corunna 15 Jul.	Guns 9 May	Large bronze guns 14 May	Smaller bronze guns 14 May	Cast-iron guns 14 May	Guns	Shot	Shot returned	Powder (qtx)	Powder returned
<i>San Lorenzo, capitana</i>	262	244	50	30	20		50	2,500		132	
<i>Zúñiga, patrona (Lisbon)</i>	178	196	50	30	20		50	2,500	6,800	118	8
<i>Girona</i>	169	229	50	30	20		50	2,500		130	
<i>Napolitana, patrona (Corunna)</i>	264	221	50	30	20		50	2,500		118	
<b>Totals</b>	<b>873</b>	<b>890</b>	<b>200</b>	<b>120</b>	<b>80</b>		<b>200</b>	<b>10,000</b>		<b>498</b>	

*Squadron of galleys, under the command of Diego de Medrano*

Ship	Built	When	Previous action	Sailors Corunna	Prisoners Corunna	Slaves Corunna 19 Jul.	Rowers per oar	Oars per side	Total rowers	Soldiers Corunna	Guns	Total men Corunna 19 Jul.
<i>capitana</i>	Naples	1576		25	267	53	5	30	320	55	5	428
<i>Diana</i>	Barcelona	1571	Lepanto	22	169	24	4	23?	193	27	5	260
<i>Princesa</i>	Barcelona	1571	Lepanto	16	184	25	4	24?	209	38	5	282
<i>Bazana</i>	Naples	1574		11	165	23	4	22?	188	28	5	252
<b>Totals</b>				<b>74</b>	<b>785</b>	<b>125</b>			<b>910</b>	<b>148</b>	<b>20</b>	<b>1,222</b>

**Sources**

BMO, V, Anexo 5; 'Resumen del historial de los navios españoles que participaron en la jornada de Inglaterra de 1588', and references therein. We have also followed the order in which the squadrons and the vessels within them are listed there, with one exception. We have put *Florentia* in the Levant squadron, to which she was originally assigned. Some time before the 'Lisbon Muster' she was moved to the squadron of Portugal, but was moved back to the Levant squadron at Corunna.

González-Aller Hierro, J. I., 'Las galeras en la Gran Armada de 1588'.

Porras Arboledas, P. A., 'La aportación de Castro Urdiales a la Armada Invencible (1586-1618)'.



## *Appendix 3. The English Fleet*



*The queen's ships*

Name	Type	Tons	Completed	Rebuilt	Guns 1588	Commander	Sailors	Gunners	Soldiers	Total (actual)	Previous action	Action in Channel	Later action	End
<b>Main fleet</b>														
<i>Triumph</i>	old galleon	1,100	1562	1578, repaired 1585-6	36/58	Sir Martin Frobisher	300	40	160	500		off Portland Bill and Solent		rebuilt 1596, sold to breaker 1618
<i>(White) Bear</i>	old galleon	1,000	1515	c.1538, 1564	34/31	Lord Edmund Sheffield	300	40	150	500 (490)		✓		rebuilt 1599, sold 1629
<i>Elizabeth Jonas*</i>	old galleon	800	1559	1577, repaired 1585-6	36/32/64	Sir Robert Southwell	300	40	150	500 (490)		✓		rebuilt 1598, sold 1618
<i>Ark (Raleigh/Royal)</i>	race-built galleon	800	built and bought 1587		32/55	Lord High Admiral Howard of Effingham, Sir Richard Leveson	270	34	126	425 (430)			Cadiz 1596 & 1625	rebuilt 1608 as <i>Anne Royal</i> , sank 1636
<i>Victory</i>	race-built galleon	800	1562	altered 1586	39	Rear Admiral Sir John Hawkins	270	34	126	400 (430)		✓		broken up 1609
<i>(Elizabeth) Bonaventure</i>	race-built galleon	600	bought 1567	1581	37/35/40	Lord Henry Seymour, then George Gifford earl of Cumberland	150	24	76	250	W. Indies 1585-6, Cadiz 1587	7 Sept. 'sent abroad to seek the Spaniards'	Counter-Armada?	broken up 1611

<i>Mary Rose</i> *	old galleon	600	1557			36/39	Edward Fenton	150	24	76	250		✓	Cadiz 1596	rebuilt 1589, scrapped 1618 (built into new wharf)
<i>Hope</i>	race-built galleon	600	1560	1584 like a galleass	36/30	Rear-Admiral Robert Crosse	160	25	85	250 (270)	1586 Hawkins's vice-flagship				rebuilt 1604 as <i>Assurance</i> , broken up 1645
<i>(Golden Lion</i> *	race-built galleon	500	1557	1582	40/35	Lord Thomas Howard, William Borough 1587	150	24	76	250	Cadiz 1587		✓	Counter-Armada, Cadiz 1596	rebuilt 1609, 1640, 1658, sold 1698
<i>Revenge</i>	race-built galleon	500	1577		40	Vice-Admiral Sir Francis Drake	150	24	76	250	Smerwick		captured <i>Rosario</i> , action off Portland Bill, shot Solent by galleass	Counter-Armada	taken and sunk Azores 1591
<i>Nonpareil</i> * ( <i>orig. Philip &amp; Mary</i> )	race-built galleon	500	1556	1584	40/32	Vice Admiral Thomas Fenner	150	24	76	250	1586 Hawkins's flagship			Counter-Armada, Cadiz 1596	rebuilt 1603 as <i>Nonsuch</i> , sold 1645
<i>Dreadnought</i>	race-built galleon	400	1573		34/27	Lord Sheffield, then Sir George Beeston	130	20	40	200 (190)	Cadiz 1587		✓	Counter-Armada, Cadiz 1596	rebuilt 1592, 1614, broken up 1648

<i>Swiftsure</i>	race-built galleon	300	1573	1559, 1580	34	Rear-Admiral Edward Fenner	120	20	40	180	Smerwick		Counter-Armada, Cadiz 1596	rebuilt 1592, rebuilt 1607 as <i>Speedwell</i> , wrecked 1624
<i>Swallow</i>	race-built galleon	300	1544	1559, 1580	30	Richard Hawkins	110	20	30	160		✓		sold 1603
<i>Foresight</i>	race-built galleon	290	1570	1581	30/25	Christopher Baker, then Luke Ward	110	20	20	160 (150)	Portugal 1587	✓	Counter-Armada and 1590	broken up 1604
<i>Aid</i>	race-built galleon	250	1562	1580	30	Rear-Admiral William Fenner	90	16	14	120	Smerwick?		Counter-Armada	broken up 1599
<i>Brigandine</i>	ship	90	1584							35				broken up 1589
<i>Charles</i>	pinnace	70/80	1586		16/12/8		36	4		45 (40)		7 Sep. 'sent abroad to seek the Spaniards'	Cadiz 1596	sold 1616
<i>Moon</i>	pinnace	60	1586		9/16		34	4		40 (38)		✓	Cadiz 1596	rebuilt 1602, condemned 1626

APPENDIX 3. THE ENGLISH FLEET

<i>Atarice</i>	pinnace	50	1586		13/10/6		31	4	76	250			Counter-Armada	sold 1617
<b>Narrow Seas squadron</b>														
<i>Rainbow</i>	race-built galleon	500	1586		26/54	Lord Henry Seymour	150	24	76	250	Cadiz 1587		Cadiz 1596, Sole Bay 1672	partly rebuilt 1602, rebuilt larger 1617, sunk as breakwater 1680
<i>Vanguard</i>	race-built galleon	500	1586		54	Sir William Winter	150	24	76	250		8 Aug., to Leith 1589	Cadiz 1596	rebuilt 1599, 1615, rebuilt larger 1631, sunk by Dutch in Medway 1667
<i>Antelope</i>	race-built galleon	340	1546	1558, 1581	24/28	Martin Frobisher, then Sir Henry Palmer	120	20	30	160 (170)				rebuilt larger 1618, blown up 1649

<i>Bull</i>	galleass, race- built galleon	200	1546	1570	21?		80	12	8	100	Smerwick	To Leith 1589	Counter- Armada	broken up 1594?
<i>Tiger</i>	race- built galleon	200	1546 galleass	1570 galleon	24		80	12	8	100	Smerwick	To Leith 1589	Counter- Armada	condemned 1605
<i>Tramontana</i>	bark/ galleon	150	1586		18		55	8	7	70				condemned 1618
<i>Scout</i>	bark/ galleon	120	1577		20		55	8	7	70				hulked c.1600, condemned 1604
<i>Abates</i>	ship/ bark	100	1573		18?		45	8	7	60	Smerwick			hulked 1590, sold 1605
<i>Merlin</i>	pinnace	50	1579		7		20	4		35 (24)	Smerwick?		Counter- Armada	scrapped 1601
<i>Sun</i>	pinnace	40	1586		5		26	4		30				scrapped 1603
<i>Cygnat</i>	pink or pinnace	30	1585		3					20				condemned 1603
<b>Detached on other duties</b>														
<i>Bonavolia</i>	galley	300	acquired 1562	1584	5?	William Borough				250				sold 1600

<i>George</i>	hoy	100	acquired 1546			16	4	24 (20)		✓	scrapped 1603
<i>Spy</i>	pinnace	50	1586	9	31	4	40 (35)	Cadiz 1587			scrapped 1613

There were six smaller vessels of unknown tonnage, carrying between 50 and 13 men.

There were eight newly built pinnaces (*BMO*, IV.2, 115), the six in the list above plus *Fantasy* and *Black Prince*.

\* denotes ships commissioned or completed during the reign of Mary (d.17 November 1558).

*Merchant ships with Sir Francis Drake at Plymouth*

Name	Type	Tons	Built	Owner	Commander	Total men	Action	Later action
<i>Galleon Leicester</i>	galleon	400	1578	earl of Leicester	George Fenner	160		
<i>Merchant Royal</i>	galleon	400	1576	Levant Co.		160		Counter-Armada
<i>Edward Bonaventure</i>	galleon	300	1574	Levant Co.		120		Counter-Armada
<i>Roebuck</i>		300		Sir Walter Raleigh		120	helped to capture <i>Rosario</i> , and escorted her to Torbay	
<i>Golden Noble</i>		250	1567?			110		Counter-Armada
<i>Griffin</i>		200			William Hawkins	100		
<i>Minion</i>		200	1579?		William Winter	80		Counter-Armada
<i>Bark Tailbot</i> (freship)	bark	200			Henry White	90	burned off Calais 8 Aug. '88	
<i>Thomas Drake</i> (freship)		200		Sir Francis Drake		80	burned off Calais 8 Aug. '88	
<i>Spark</i>		200			William Spark	90		
<i>Hopewell</i>		200				100		
<i>Galleon Dudley</i>		250				96		
<i>Virgin God Save Her</i>		200		Sir Richard Grenville	John Grenville	70		
<i>Hope Hawkins</i> (freship)		200		William Hart		80	burned off Calais 8 Aug. '88	
<i>Bark Bond</i> (freship)	bark	150		Sir John Hawkins		70	burned off Calais 8 Aug. '88	



<i>Bark Bonner</i> (fireship)	bark	150	1574				70	burned off Calais 8 Aug.'88	Counter-Armada
<i>Bark Hawkins</i>	bark	150	1560				70		
<i>Unity</i>		80					40		
<i>Elizabeth Drake</i>		60					30		
<i>Bark Buggins</i>	bark	80					50		
<i>Elizabeth Founes</i>		80					50		
<i>Bark St Leger</i>	bark	160				John St Leger	80		
<i>Bark Manington</i>	bark	160				Ambrose Manington	80		
<i>Hearts-ease</i>							24		
<i>Golden Hind</i>	pinnace	50				Thomas Fleming	30	brought news Armada was off Lizard	Counter-Armada
<i>Makesbift</i>		60					40		
<i>Diamond of Dartmouth</i>		60					40		
<i>Speedwell</i>		60					14		
<i>Bear Yonge</i> (fireship)		140				John Yonge	70	burned off Calais 8 Aug.'88	
<i>Chance</i>		40					40		
<i>Delight</i>		30				Sir William Winter	40		
<i>Nightingale</i>		50					30		Counter-Armada
small caravel	caravel	30					20		
<i>Flyboat Yonge</i>	flyboat	50					50		
<b>Total: 34</b>		<b>4,090</b>					<b>2,394</b>		

*Other vessels involved in action in the Channel or mentioned in this book*

	Type	Tons	Commander	Men	Action
<b>Ships and barks paid for by the City of London</b>					
<i>Hercules</i>		300		120	
<i>Toby</i>		120		70	
<i>Mayflower</i>		200		90	
<i>Minion</i>		200		90	
<i>Royal Defence</i>		160		80	
<i>Ascension</i>		200		100	
<i>Margaret &amp; John</i>		200	John Fisher	90	helped capture <i>Rosario</i>
<i>Bark Burr</i>		160		70	
<i>Tiger</i>		200		90	
<i>Brave</i>		160		70	
<i>Red Lion</i>		200		90	
<i>Centurion</i>		250		100	
<i>Passport</i>		80		40	
<b>Ships and barks under the Lord Admiral, paid for by the queen</b>					
<i>Anne Frances</i>		180		70	
<i>Disdain</i> , 'Lord Admiral's pinnace'	pinnace	80	Jonas Bradbury	45	issued first challenge
<i>Lark</i>		50		20	
<b>Coasters under the charge of the Lord Admiral and paid by her Majesty</b>					
<i>Hart</i> of Dartmouth		60		70	

<i>Barbolomeu</i>		130		70	
<i>Minion</i> of Bristol		230		110	
<b>Coasters under Lord Henry Seymour, 'whereof some were paid by Her Majesty, but the greatest part by the port towns'</b>					
<i>Elizabeth</i> of Lowestoft (fireship)		90		30	burned off Calais 8 Aug. '88
<b>Volunteers after arrival of Armada, paid by the queen</b>					
<i>Golden Ryall</i> of Weymouth		120		[50]	
<b>Not in Laughton's lists</b>					
<i>Angel</i> of Hampton (fireship)		120			burned off Calais 8 Aug. '88
<i>Hind</i> of Exeter					

*Overall Summary*

Vessels	No.	Total tonnage	Average tonnage	Total men	Av. men	Av. men per ton
The queen's ships	34	12,610	371	6,705	197	0.5
Merchant ships with Sir Francis Drake at Plymouth	34	5,170	152	2,294	67	0.4
Ships and barks paid for by the City of London	30	4,530	151	2,130	71	0.5
Ships and barks (including 15 victuallers) under the Lord Admiral, paid for by the queen	33	2,956	90	1,651	50	0.6
Coasters, great and small, under the Lord Admiral, paid for by the queen	20	1,931	97	993	50	0.5
Coasters under Lord Henry Seymour, 'whereof some were paid by Her Majesty, but the greatest part by the port towns'	23	2,243	98	1,090	46	0.5
'Voluntary ships, great and small', paid by the queen	23	1,806	79	1,044	45	0.6
<b>Total</b>	<b>197</b>	<b>31,246</b>		<b>15,907</b>		

Loughton's totals for the number of men on board are higher than achieved by adding up his figures for individual ships, but this may be because he added officers and their servants. For the queen's ships, for example, the totals for sailors, soldiers and gunners come to around 6,260, compared with his overall total of 6,705, which would mean that there were 445 extra men among the 34 ships, an average of 13 per ship, which sounds reasonable.

Friel says there were 34 royal ships and 192 privately owned (about 72 max. under Howard's direct control, 39 under Drake and 66 under Seymour). This includes non-combatants such as victualling ships. Many of the merchant ships were small, and the single galley proved useless.

**Sources**

Loughton, II, 324-31; Friel, 'English ships and shipping'; Knighton and Loades, *The navy of Edward VI and Mary I*, Appendix 1; Wernham, *The expedition of Sir John Norris and Sir Francis Drake*, 336-8; Winfield, *British warships in the age of sail, 1603-1714*, Appendix A. Not all these sources agree, and in some cases alternative figures are offered here.

# *Appendix 4. Guns and Gunnery*

BY COLIN MARTIN



## I. THE ARMADA'S ARTILLERY

Any attempt to classify sixteenth-century artillery carries with it the danger of implying that precise specifications for each type were widely accepted. They were not. In spite of various attempts to impose standards – that by Charles V in 1549 is the best known – guns of the Early Modern period are remarkable for their individuality, imprecise nomenclature and profusion of forms.

Contemporaries were dismayed by the lack of classification. ‘Through an intolerable fault’, wrote Cyprian Lucar in 1588, ‘all our great pieces of one name are not of one weight, nor of one height in their mouths’. This was echoed in 1592 by Luis Collado, who noted that the guns in Milan Castle needed more than 200 different sizes of charging implements when eleven would have served had the guns been standardized. The problems created by unstandardized shot diameters, he added, were just as serious. Many gunners who sailed with the Armada would have agreed. Nevertheless, despite this irrational variety of forms, gunners usually applied names to their pieces, however imprecise such definitions may have been. The important factors in classification were the type of metal; the gun’s weight; the weight and material of the projectile; the weight of the charge; the proportion of projectile-weight to gun-weight; and the length of the barrel expressed as a multiple of its bore. Beyond that, as one of the wisest of sixteenth-century gunnery authors put it, ‘It does not matter what their names may be, except to know their sorts and kinds’.<sup>1</sup>

An attempt must however be made, for descriptive convenience, to group the various ‘sorts and kinds’ into families. Armada documents provide general parameters for each type and type-group as understood by contemporary Spaniards, and

these are summarized below. The range of shot-weights for each type is shown from minimum to maximum figures specified in documents.

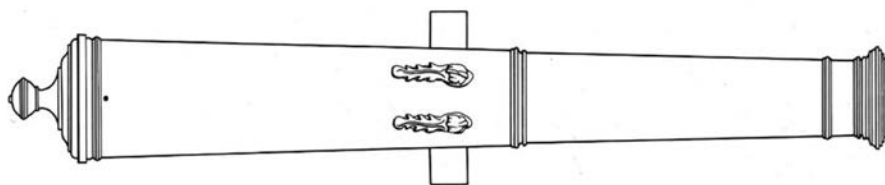
Family	Description	Shot-type	Spanish name	Shot weight Castilian <i>libras</i> * or English pounds	Nearest English equivalent name
				66	Cannon royal
<i>Cañones</i>	heavy-shotted, less than 25 calibres long	iron	<i>Cañón de batir</i> <i>Cañón grueso?</i>	40–50	Cannon (serpentine)
				c.40	Bastard cannon
			<i>Cañón</i>	28–35	Demi-cannon
			<i>Medio cañón</i>	15–27	Basilisk?
			<i>Tercio cañón</i>	10–14	
			<i>Quarto cañón</i>	9–12	
			<i>Cañoncete</i>	10	
<i>Pedreros</i>	short-barrelled, reduced powder- chambers	stone	<i>Cañón pedrero</i>	12–20	Cannon pedro
			<i>Medio cañón pedrero</i>	10–12	
			<i>other pedreros</i>	4–12	
<i>Culebrinas</i>	light-shotted, more than 30 calibres long	iron	<i>Culebrina</i>	16–21	Culverin
			<i>Media culebrina</i>	7–14	Demi-culverin
			<i>Sacre</i>	4½–8	Saker
			<i>Medio sacre</i>	3–4	Minion
			<i>Falconete</i>	2–4	Falcon
			<i>Medio falconete</i>	1	Falcon
			<i>Falcon</i>	1–3	Falconet
Anti- personnel		stone	<i>Falcon pedrero</i>	3–6	
		iron or lead	<i>Esmeril doble</i>	12 oz	
		iron or lead	<i>Esmeril</i>	6–8 oz	Robinet serpentine
Obsolescent		iron	<i>Verso</i>	1–3	
		iron	<i>Pasamuro</i>	1–2	
		stone	<i>Lombarda</i>	4–7	

\*The Castilian *libra* of 460 gm was almost identical to the English pound (454 gm)

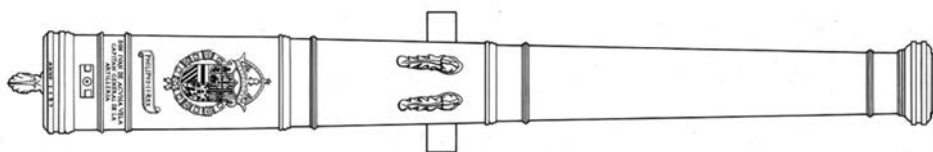
Below is a representative sampling of ordnance recovered from Armada shipwrecks where possible, or redrawn from reliable sources. When the Armada left Corunna it carried well over 2,000 artillery pieces, about 60 per cent bronze (about half of these classified as 'large') and 40 per cent iron (see Appendix 2). Fourteen *cañones de batir* were carried in the holds for the invasion force's siege-train, and were not part of the ships' armament. However, the four galleasses each carried five full *cañones*. These were undoubtedly for use at sea, emphasizing the unusually heavy firepower of these hybrid battleships.

### A. SPANISH ROYAL GUNS

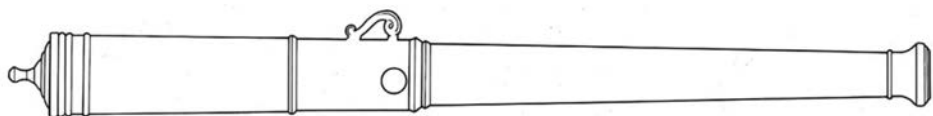
Most guns belonging to Philip II were either on board his ships, in garrisons throughout the empire, in the arsenals at Málaga and Cartagena, or on campaign. Almost all were bronze. They normally carried the royal arms and escutcheon, the name of the founder and the date of casting. The following, all of which are bronze, are typical of royal guns in the Armada as a whole.



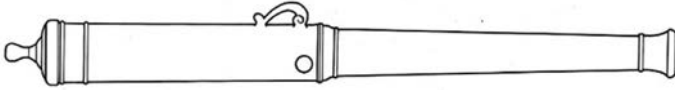
Medio cañón. *Weight* c.3,500 lb; *shot* 20 lb (iron); *bore* 5½ in; *length* 114 in; *bore/length* 1:20.7; *shot/gun-weight* 1:175.<sup>2</sup>



Culebrina. *Weight* 6,000 lb; *shot* 18 lb (iron); *bore* 5¼ in; *length* 158 in; *bore/length* 1:30; *shot/gun-weight* 1:33.<sup>3</sup>

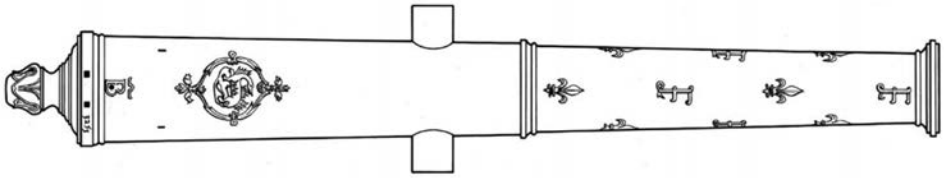


Media culebrina from Gran Grifón. *Weight* c.2,400 lb; *shot* 9 lb (iron); *bore* 4¼ in; *length* 139 in; *bore/length* 1:33; *shot/gun-weight* 1:267.

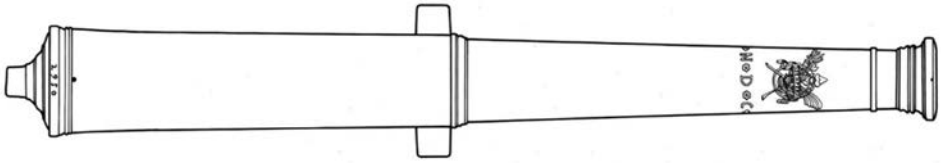


Medio sacre from Gran Grifón. Weight c. 800 lb; shot  $2\frac{3}{4}$  lb (iron); bore 3 in; length 90 in; bore/length 1:30; shot/gun-weight 1:290. This and the previous piece, although both newly cast, lack the royal arms (see chapter 9).

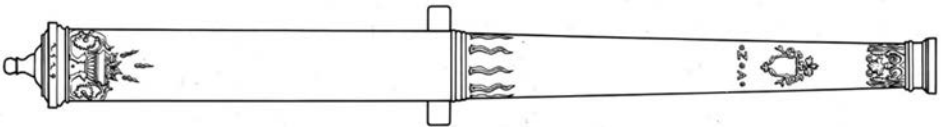
## B. NON-SPANISH GUNS (BRONZE)



Medio cañón bearing the monogram and attributes of Francis I of France recovered from San Juan de Sicilia in Tobermory Bay c. 1740. Now at Inveraray Castle. Weight by mark 3,253; shot 23 lb (iron); shot/gun-weight 1:141; length 112½ in; bore  $5\frac{3}{4}$  in; bore/length 1:19.6.

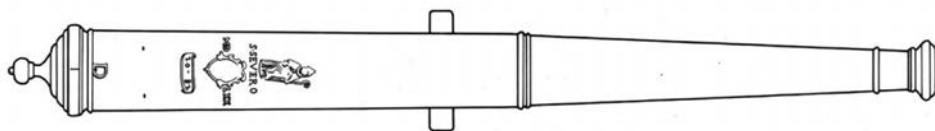


Light culebrina from Trinidad Valencera cast by the Venetian gunfounder Nicolo di Conti. The unidentified escutcheon depicts crossed olive and palm branches with the motto SENPER (sic) set in a scrolled cartouche. Weight by mark 2,950; shot  $13\frac{1}{2}$  lbs (iron); bore 5 in; length 120 in; bore/length 1:24; shot/gun-weight 1:219.



Sacre from Trinidad Valencera. Swans and crustacea support a vase emitting flames, moulded in relief around the touch-hole, while darts of flame extend beyond. More flames encircle the rear of the chase, and at the muzzle is an empty foliated escutcheon and the initials of Zuanne Alberghetti, from another Venetian gunfounding family. Weight by mark 2,529; shot 6 lb (iron); bore  $3\frac{3}{4}$  in; length 129 in; bore/length 1:34; shot/gun-weight 1:42.

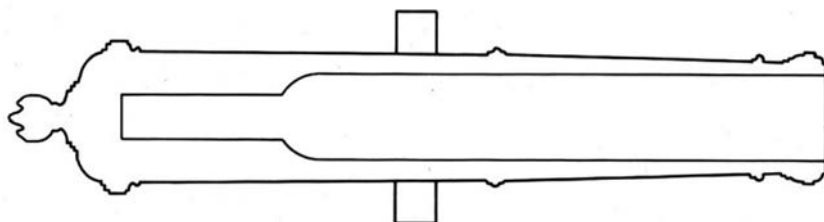




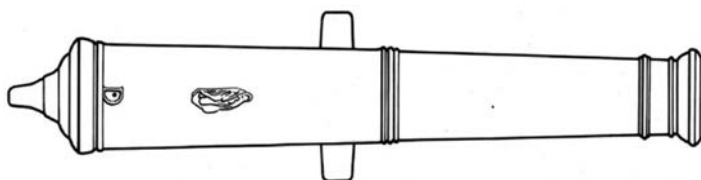
*Sacre from Juliana by Dorino II Gioardi of Genoa, dated 1570, when the ship was commissioned at Barcelona and equipped with a group of guns of that date depicting various saints. On the breech is an ecclesiastical figure with crook and mitre in relief, labelled S[AN] SEVERO (an early bishop of Barcelona). Weight by mark 2,082; shot 5 lb (iron); bore  $3\frac{1}{2}$  in; length 118 in; bore/length 1:34; shot/gun-weight 1:416.*

### C. STONE-SHOTTED GUNS

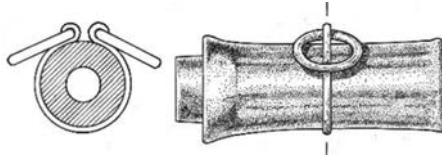
At close range stone shot could be more devastating than iron, shattering on impact with a strong anti-personnel effect. On the downside it was considerably more expensive than iron shot cast in a mould, because forming an accurate stone sphere of the right diameter was time-consuming and skilled work.



*Section of a pedrero based on Collado.<sup>4</sup> Note the characteristic narrow powder-chamber and thin-walled barrel, for a large-diameter low-mass projectile. Weight c.2,000 lb; shot c.20 lb (stone); bore 8 in; length 67 in; bore/length 1:8.4; shot/gun-weight 1:100.*



*Pedrero from Juliana by Dorino II Gioardi of Genoa. Virgin and Child in relief on the breech. Weight c.900 lb; shot c.7 lb (stone); bore  $5\frac{3}{4}$  in; length  $64\frac{1}{2}$  in; bore/length 1:11.2; shot/gun-weight 1:128.*



*Large wrought-iron chamber with swept-up ends from Trinidad Valencera. A band around its middle terminates in loops for two lifting rings. Its forward extension is sized to mate with the barrel, indicating a bore of 6 in, which would accommodate a stone shot of c. 20 lb. The chamber is 24 in long. The missing barrel might have been of either wrought iron or bronze.*

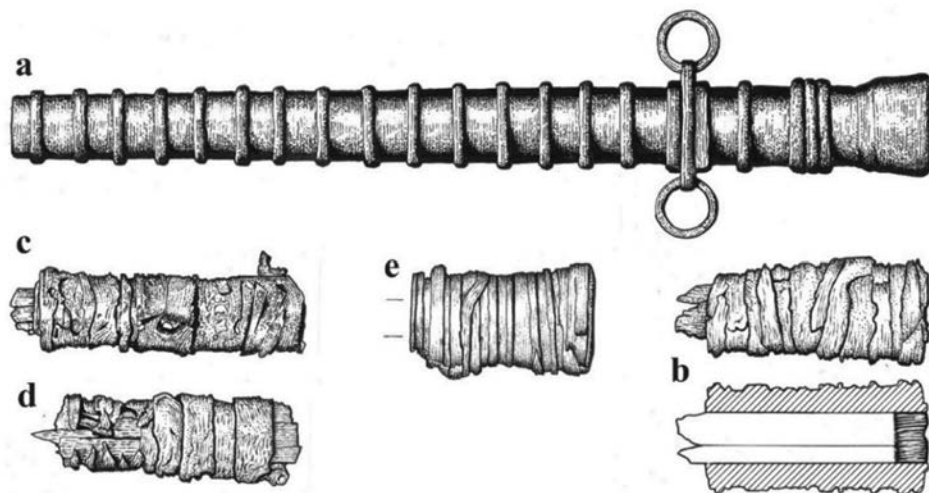
#### D. WROUGHT-IRON GUNS

From the introduction of gunpowder to Europe in the early fourteenth century to the end of the fifteenth, most guns were made of wrought iron. The barrel was constructed by hammer-welding staves around a wooden mandrel to form a tube, or by wrapping an already-formed sheet around the mandrel and lapping the join. Short cylinders were then shrunk on hot along the barrel, the joins being reinforced with iron hoops, again applied hot so they would shrink tight. The separate chamber which held the powder-charge was made in a similar manner, its end sealed with an iron plug. This type of gun was in general use until its gradual replacement by cast bronze from the later fifteenth century and cast iron from the second half of the sixteenth. The latter was not common in Spain until the early seventeenth.

Breech-loading wrought-iron guns continued well into the seventeenth century, for unlike cast ordnance which required major industrial facilities (often under state control), wrought-iron pieces could be built or repaired by any competent blacksmith. They were popular with merchant vessels for their cheapness, while their quick-firing capability made them effective against predators. A projectile was placed in the open breech, and a loaded chamber inserted and secured with a wedge.



*Corroded wrought-iron chamber from Gran Grifón showing the stave-and-hoop method of construction (scale 30 cm)*



a) Barrel 60 in long with lifting rings and a 3½-in bore appropriate to 4½-lb (iron) or 1½-lb (stone) shot.

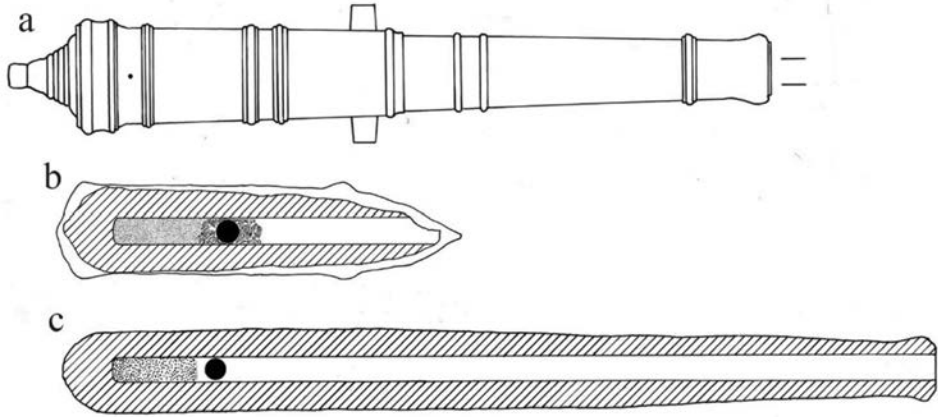
b) Remains of chamber and section drawing showing end plug, for a gun similar to

(c, d & e) Other chambers for wrought-iron guns. All from *Gran Grifón*.

Extra chambers made reloading quicker. Most of the Armada's wrought-iron guns came with the embargoed merchant ships. Though the Lisbon Muster describes all iron guns as *hierro collado* (cast iron), this cannot be so, for other sources refer to wrought-iron (*hierro forjado*) pieces and some have been found on the wrecks. Wrought-iron guns were mounted on wooden beds shaped to receive the lower half of the barrel and its hoops, sometimes with rings for lashing. The bed either sat flat as a 'sledge' or was fitted with a pair of wheels to aid manoeuvring. In either case it required breechings to hold it to the ship's side. Several wrought-iron guns and chambers have been recovered from the wreck of *Gran Grifón* (above). A large wrought-iron chamber from *Trinidad Valencera* may have been for a bronze-barrelled *pedrero* (see p. 58 above).

### E. CAST-IRON GUNS

Muzzle-loading cast-iron artillery appears on English ships during the first half of the sixteenth century. It was much cheaper than bronze, but harder to manufacture, and Spain, though a past master in forging iron (for example Toledo blades), was technologically backward in casting it. By the mid-sixteenth century northern



a) The most complete example is 87 in long with a 3½-in bore for a 4½-lb iron shot, making it a small sacre. The multiple moulding-rings are typical of guns cast in Sweden over the following two centuries. This was to become a major industry at Finspong, and these are very early examples: only one foundry was operating during the 1570s, with three more coming on line during the following decade. The guns are clean and well made, without embellishment.

b) Part of another piece with its chamber exposed, showing ball and wadding in place. A third eroded fragment is not illustrated.

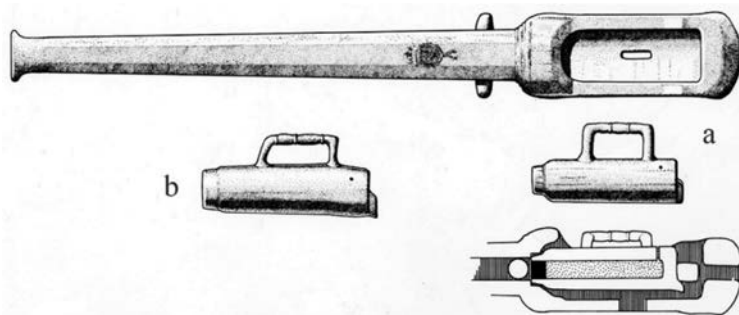
c) is longer than a). Though the full length is preserved, erosion has removed its profile and mouldings. It has an iron ball in its barrel confirming, together with b), that Medina Sidonia's order that the guns be kept loaded was still observed during the perilous north-about voyage.

European countries, notably England and Sweden, were producing good-quality cast-iron guns. Some came with requisitioned Armada ships, such as *Gran Grifón's* cast-iron guns of Baltic origin (above). All were found within an eroding matrix of concretion which allowed their 'fossil' imprints to be measured *in situ*.

These four iron pieces, all of *sacre* calibre, must have been part of *Grifón's* defensive armament as a Hanseatic merchantman. The longer one may have been a stern gun or chase-piece. Analysis of shot recovered from the wreck suggests that more was expended by guns of this calibre than the four bronze *medias culebrinas*, the largest guns she carried, perhaps reflecting the better quality of the iron pieces (Figure 115).

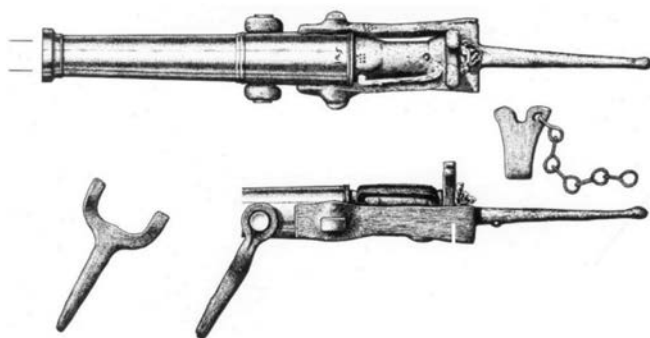
## F. SWIVEL-GUNS

Smaller bronze and wrought-iron pieces were mounted on swivels on the upper decks and fighting-tops as anti-personnel weapons.



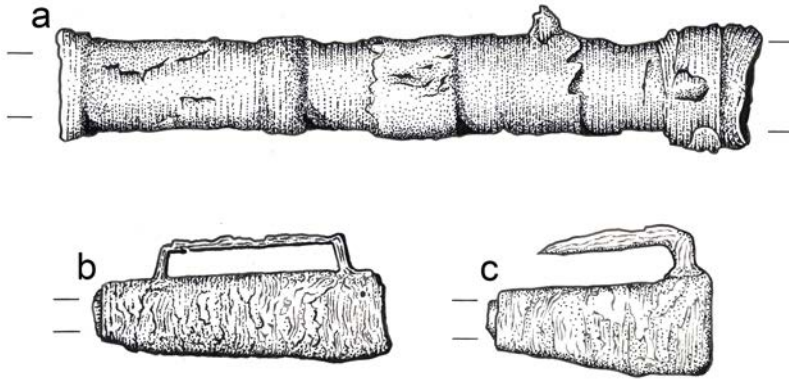
*a) Bronze breech-loading esmeril from Girona with an octagonal barrel of 2-in calibre, bearing Philip II's escutcheon. It fired a 14-oz iron shot, and ten were mounted along either side of the galleass, on walkways above the rowing benches (Figure 16). Each was provided with two chambers for rapid reloading, of which an example is shown. Weight c.200 l; shot 1 lb (iron); bore 2 in; length 64 in (an iron aiming tiller would have been added at the rear); bore/length 32; shot/gun-weight 1:200.*

*b) The wreck also yielded blocks for similar but larger guns called esmeriles dobles, which were of 2½-in calibre firing a 2-lb iron ball.*



*A 3½-in bore breech-loading Venetian petriera da braga (Sp. falcon pedrero) from Trinidad Valencera of a type shown in a seventeenth-century illustration. Its barrel is bronze, but the gun's other fittings are wrought iron. The piece is as its gunner prepared it, ready for action: there is a 2-lb stone shot in the barrel, a charge in the chamber stoppered with a wooden plug, and a twist of hemp in the touch-hole to keep the priming dry. A wedge locks the chamber in place, while a folded pad of leather behind it to ensure a tight fit. The wedge is flared to deflect flying sparks, and a notch in the top helped to aim the gun.*

*The long tiller allowed the gunner to stand well back when firing to minimize the danger of blowback from the imperfectly sealed breech. Guns of this sort could be reloaded much more quickly than muzzle-loading types, but were too small to be of other than anti-personnel use. The weight figure of 125 cut on the breech refers to the barrel-casting only, almost certainly in the Venetian libra grossa of 477 gm, giving a weight for the barrel of 69.6 kg or 130 Castilian libras. With its iron fittings the complete gun would weigh considerably more. Worthy of note are nine punch-marks on the edge of the stirrup and an identical group on the removeable chamber, to match one to the other.*



c) Wrought-iron barrel from Gran Grifón, 35 in long and 3 in bore. It has been forged from a single sheet of iron wrapped around a mandrel and seam-welded, reinforced by sleeves, one showing the stub of a trunnion. It is likely that this is the barrel of a falcon pedrero, similar to the bronze and iron composite piece described above. Stone shot of this calibre has been recovered from the wreck.

d & e) Handled chambers for iron swivel-mounted esmeriles.

## 2. ENGLISH GUNS IN 1588

Unlike the Spanish sources, no records of the guns aboard the English fleet survive, although a list of ordnance in the Tower of London in 1589 provides extensive information about types, calibres, weights and associated equipment. The armament of *Revenge* after her capture off the Azores in 1591 was described by Alonso de Bazán (brother of the marquis of Santa Cruz): the 'twenty on the lower deck were of 40 to 60 *quintals* [4,000–6,000 lb]; the other twenty two between 20 and 30 *quintals*'. All were bronze. Most had been cast in England and were of excellent quality. Seventeen of the upper-deck guns, taken off before she sank, included four *medias culebrinas* (7-, 8-(x2) and 9-pounders), seven *sacres* (4- and 5-pounders), two *medias sacres* (2½-pounders) and four 5-pounder breech-loading *passamuros*. This represents a formidable upper-deck armament, and at 40 to 60 quintals apiece the lower-deck guns were clearly massive. All were lost when the ship sank off Terceira and although most were subsequently salvaged neither the guns nor records of their specifications have survived. Although *Revenge's* armament in 1591 was not necessarily the same as it had been in 1588, it is unlikely to have changed significantly.<sup>5</sup>

Several dozen Spanish guns were obtained by the English when *San Salvador* and *Nuestra Señora del Rosario* were captured during the early stages of fighting.

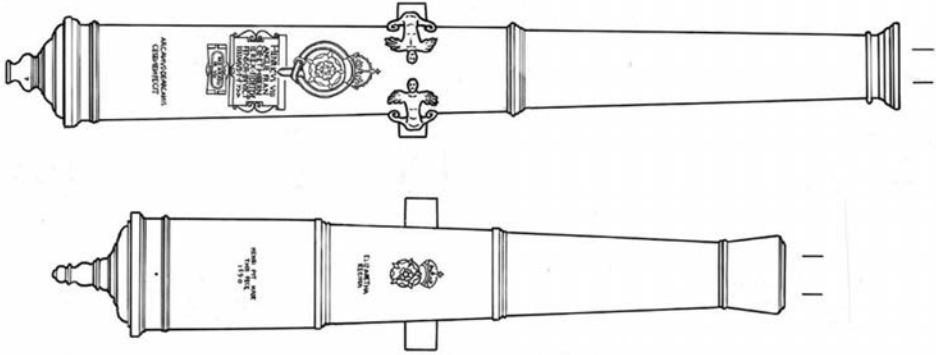


These were later described in inventories, in which each gun was given its equivalent English name. Since these same guns had also been inventoried in Spain, it is possible to compare the two sets of data to obtain a 'translation' between Spanish and English gun names. The result shows unexpected divergencies. When an Englishman spoke of a cannon he meant the kind of gun a Spaniard would call a *cañon de batir*. Table 1 (p. 54) lists approximate equivalents. What an Englishman would have called a demi-cannon was not the same as a Spanish *medio cañon*. There were very few full culverins on either side because they were simply too long to handle aboard ship.<sup>6</sup>

The long-held belief that the English went for (supposedly) long-range culverin types while the Spaniards concentrated on shorter-range *cañones* and *medios cañones* is substantially incorrect: notwithstanding the widely held misconception about the relationship between barrel-length and range, the majority of heavier guns on both sides were, broadly speaking, pieces of the same general proportions; only the names were different. What is true – though only recently recognized – is that the English fleet, and not the Armada, carried the heaviest complement of artillery in 1588. Their advantage was enhanced by a preponderance of shorter types of all sizes, and by their superiority in working them at sea. The Spaniards were disadvantaged by the fact that a large number of their medium guns, particularly in the 3- to 18-lb category, seem to have been of true culverin proportions.<sup>7</sup>

Although the full standardization of gun-types was still a long way in the future, the English probably came closer to it than the Spaniards and their allies. At the very least the use of a common language and constant standards of weights and measures must have made life on English gun-decks much more straightforward than the muddle which clearly obtained on the multilingual and arithmetically challenged Armada ones (see Chapter 16).

The apparent dominance of culverins aboard English ships at the time of the Armada masks the fact that most were not true culverins but shorter, squatter pieces of culverin bore. A Spaniard would call them *medios cañones*. The point is well made by the two guns illustrated below.



*Top: Henrican piece recovered from Mary Rose, cast in 1542 by Arcano dei Arcani of Cesena. It is a true culverin, 11 ft 8¼ in long and 5½ in bore. Bottom: An Elizabethan gun cast by Henry Pitt in 1590. It is of culverin bore, but at 9 ft 7¼ in considerably shorter. It is also much thicker walled, particularly at the breech. It would therefore withstand a higher initial peak of pressure, perhaps so it could use the more powerful 'arquebus' grade of powder, as the sources suggest. This grade, as we have seen, was used inappropriately by the Spaniards in their thinner-walled artillery.<sup>8</sup>*

### SAN JUAN DE ULÚA

The origins of English stand-off gunnery tactics can be traced back to 1568, and Hawkins's fight off San Juan de Ulúa (chapter 4). After the battle the Spaniards recovered and inventoried sixty-one guns from the abandoned *Jesus of Lübeck*, ranging in date between 1542 and 1557. Their composition and distribution shows clearly how Hawkins intended to fight his ship. Virtually all thirty-four small anti-personnel weapons had been stowed on the ballast. He had clearly discounted boarding action and cleared the decks to exploit his battery guns to best effect. On the main deck were four heavy culverins, three demi-culverins and four periers, giving a devastating ship-smashing capability close to waterline level. Sixteen lighter but still formidable guns were deployed on the upper deck.<sup>9</sup>

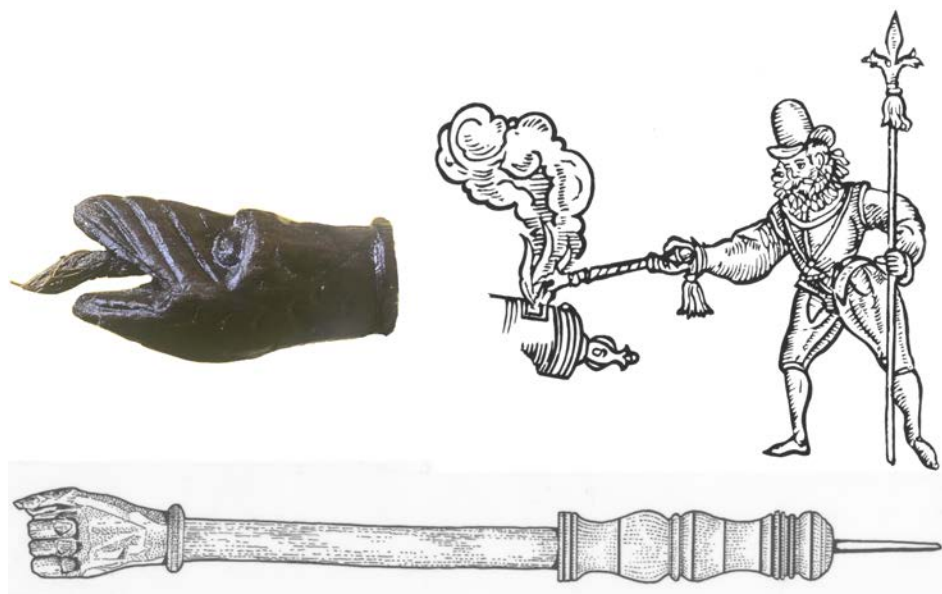
### 3. WORKING GUNS AT SEA

The documents are silent on how the Spaniards operated guns at sea (chapter 11). But it is clear that when preparing for battle the gunports were opened and the pre-loaded guns, secured to the ship's side by their heavy breeching ropes and side tackles, were unhitched and run out. This involved loosening the breechings and hauling on the side tackles, thrusting the barrels through the ports as far as they



would go. Then the tackles were made fast, fixing the carriage firmly to the ship's side (the later practice of leaving the tackles loose so the recoil would bring the guns back for reloading had not been introduced).

The touch-hole was exposed by removing a lead or sheepskin cover, and the gunner pierced the gunpowder-filled linen cartridge with a brass wire. After priming the touch-hole with fine-grade powder he decided whether to fire high or low, and instructed his crew accordingly. Guns were pivoted on their trunnions, which were set slightly forward of the point of balance so the barrels sat breech down. When the elevation was judged right it was fixed with a wedge inserted under the breech. Traversing was more difficult with the gun lashed to the ship's side, so rather than firing coordinated broadsides the attitude and position of the ship usually determined the best moment for each gun to fire. The crew would stand clear while the gunner blew on the tip of the slow match in his linstock to make it glow. The linstock allowed the gunner to stand well to one side since the gun, although restrained, lurched violently when discharged. On the word of command he would bring the glowing tip of the match onto the priming. There would be a flash from the breech as the priming ignited, followed a moment later by a bellow of smoke and flame from the muzzle and a lesser vertical eruption from the touch-hole as the main charge went off.



*Gunners made their own linstocks and traditionally carved the heads with a clenched hand holding the glowing fuse or a dragon's head with the match emerging from its mouth. Both these examples are from Trinidad Valencera, one still retaining its slow match. Many of both types were recovered from Mary Rose. The use of a linstock is seen in this detail from a woodcut of 1590.*

After firing the breechings were unhitched and the gun pulled inboard with the tackles. This involved strength and teamwork: the gun and carriage combination was not only heavy but awkwardly shaped, with a long trail reaching across the deck. Reloading took time. Each time the gun was fired the physics and chemistry of gunpowder ignition produced quantities of unburned material, much of which was dissipated as smoke and flame beyond the muzzle, but some built up inside the barrel as deposits which could retain glowing hotspots. First the gun had to be swabbed with a sheepskin-covered wooden ‘sponge’ soaked in water. This was vital, for any residual hot material left in the barrel could ignite the next charge as it was inserted, with devastating consequences. Such mishaps occurred all too frequently. Deposition also reduced the windage between barrel and ball, increasing the danger of a blowout, so barrels had to be given time to cool (wet sheepskins draped over the guns helped to speed up this process) and were frequently descaled. More insidious were the poor casting techniques which affected the quality of many pieces. Badly cast guns were often ‘honeycombed’; that is, the metal was aerated with small bubbles, and sometimes even cracked, which not only weakened the piece but left voids in the barrel where residual burning matter could escape quenching.

With the barrel swabbed and dried, a fresh charge was inserted using a copper ladle in the shape of a half-cylinder. This was not, as often supposed, used to insert loose powder (which in an open ladle would be extremely hazardous), but to support a filled linen cartridge with the ball and wadding attached to it so the charge could be pushed into the breech as a single entity. Once in place the shaft was turned through 180 degrees and the ladle withdrawn. Finally the charge was tamped home with a rammer, the gun primed and fired, and the cycle repeated. Lighter guns were ranged along the second deck. Breech-loading swivel-guns which could be traversed and elevated over wide fields of fire were located in commanding



*Armada-period gunnery implements: from top, worm for extracting a charge, loading ladle, 'sponge' head to extinguish burning residues, and rammer for driving the charge home (modern replicas based on archaeological finds).*

positions on the upperworks and fighting-tops. These, together with speedy reloading made possible by pre-charged chambers, would provide close-range support during a boarding assault, or repelling one.

Special care was taken with the supply and handling of gunpowder, which was stored in a sealed magazine low in the hold. The men wore soft-soled shoes and worked by the light of a shielded lantern. When powder was being handled a sheepskin was placed over the open keg to cover the loader's arms. Measured charges were packed into linen cartridges made on wooden formers sized to the gun for which they were intended, and attached to the shot-and-oakum 'sandwiches' for delivery in sealed boxes, each allocated to a particular gun to ensure that its calibre matched.

*Front: gunpowder-filled linen cartridge, with brass pricker to pierce the bag through the touch-hole; right: small powder flask for priming the touch-hole and pan; left: linstock with a length of slow match coiled around it to ignite the priming. At the rear is a ball sandwiched between two hemp wads, ready to be attached to the cartridge before loading (modern replicas).*



*Eroded breech end of a cast-iron sacre from Gran Grifón, revealing its chamber with a 3/4-in 5-lb iron ball in place. The shot is sandwiched between hemp wadding linked by strands of twine. Broken strands continue into the chamber, suggesting that the linen bag containing the charge had also been attached. The volume of the empty chamber indicates some 3 lb of powder, rather more than half the weight of the shot.*

Gauging the correct size of shot for a particular gun was not as straightforward as it might seem. Although the Castilian *libra* of 460 g was the Armada's official weight standard, a multiplicity of other units were in use across the polyglot fleet. This difficulty was manifest across the fleet, especially on the embargoed foreign ships (see Chapter 16).

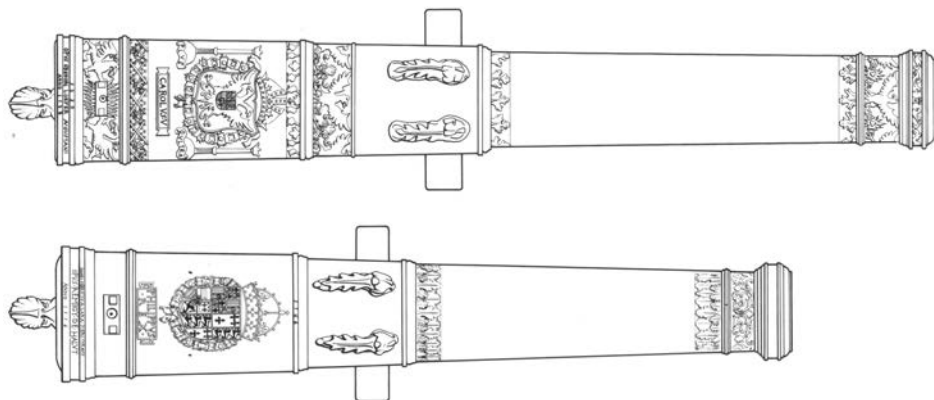
The origins of the Armada's guns ranged from the Baltic to the Aegean, some from prizes captured in battle. These include a Turkish siege-gun 'without weight' (i.e. with no marked weight-number) from *Trinidad Valencera* and a French piece bearing the arms of Francis I probably from *San Juan de Sicilia*, perhaps a trophy from the battle of Pavia (1525). Its weight was calibrated in unspecified 'livres', whose values varied according to the French region or town of origin. This confusion of standards in much of Europe was only resolved by Napoleon's introduction of the metric system in the 1790s.<sup>10</sup>

#### 4. THE SIEGE-ARTILLERY TRAIN

In February 1588 the Venetian ambassador to Spain reported that 'they have embarked twelve heavy siege-guns and forty-eight smaller ones, with a double supply of gun-carriages and wheels for the field batteries'. In the event there were fourteen *cañones de batir*, eight of which were shipped in the capacious holds of the Levant ships. *Regazona* carried one; *San Juan de Sicilia* and *Juliana* two apiece; and *Trinidad Valencera* three, plus a Turkish piece of similar calibre. The *cañones* comprised two distinct batches from the royal arsenals. Some had been cast in 1538 by Gregorio Loeffler of Augsburg for the Emperor Charles V and bore his imperial escutcheon. The other rather shorter pieces were cast at Mechelen near



*Remigy de Halut's foundry at Mechelen. Though by the time this engraving was made in the nineteenth century the buildings had become part of an orphanage, the remains of a furnace survive at bottom left.*



Top: Gregorio Loeffler cañon (adapted after AGS MPyD V18). Bottom: one of the Remigy de Halut pieces from *Trinidad Valencera*.



The Valencera gun after recovery. The figures demonstrate the size of the gun.

Antwerp by Remigy de Halut for Philip II in 1556, the first year of his reign. On these guns the royal arms of Spain were quartered with those of England, because Philip's first wife, the English queen Mary Tudor, was still alive.<sup>11</sup>

Six more battery-cannons were divided between Oquendo's flagship *Santa Ana*, his vice-flagship *San Salvador*, and the Andalusian vice-flagship *San Francisco*. All fired 40-pound iron shot, of which 100 rounds were provided for each gun. The three Remigy pieces shipped on *Trinidad Valencera* have been recovered from her wreck, and each bears a four-digit weight mark matching those recorded in the ship's lading manifest. Their original field-carriages and limbers were more

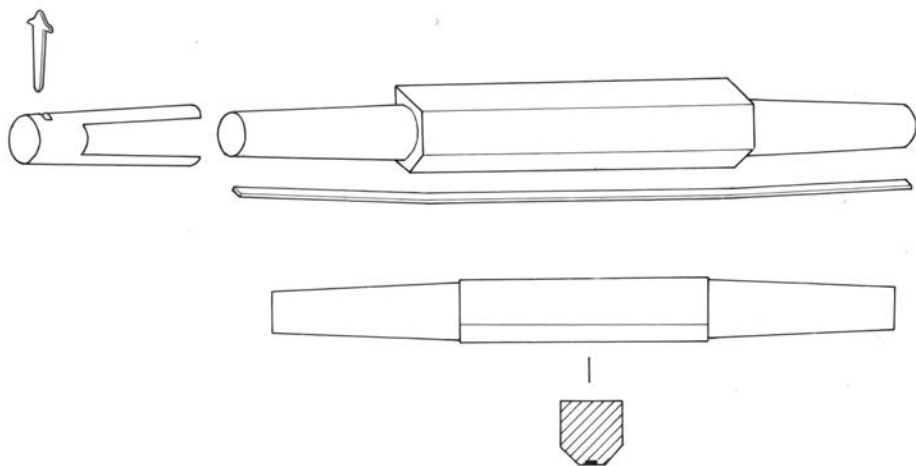




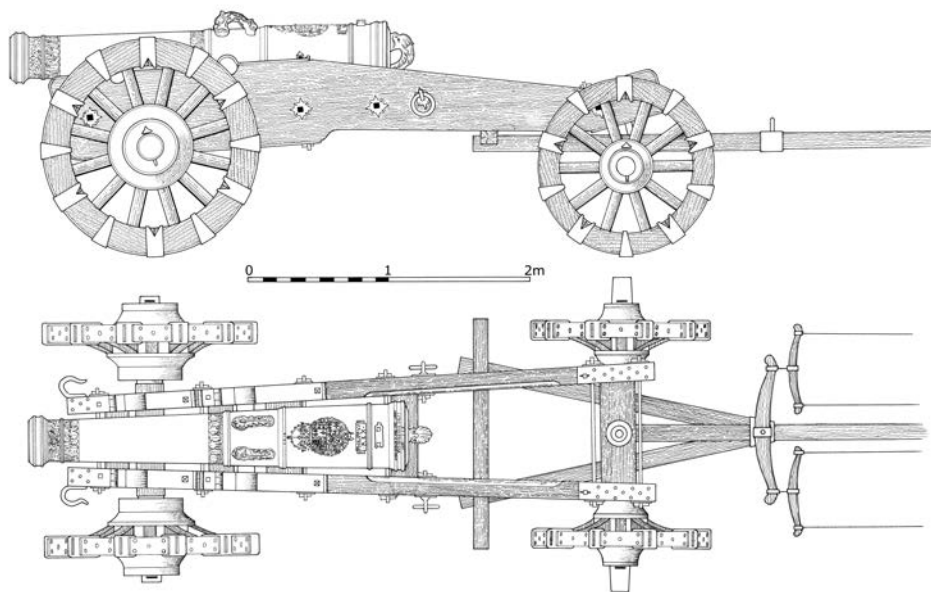
*The arms of Philip II, quartered with those of Mary Tudor.*

than three decades old, and of an outdated pattern, so it was decided to replace them. The breakage-prone wooden axles were redesigned with an iron counter-spring, which greatly strengthened them, though the improvement was negated somewhat by a lack of seasoned timber, and green wood had to be used. Further delay was occasioned by the wrecking of a ship carrying iron fittings for the new carriages.<sup>12</sup>

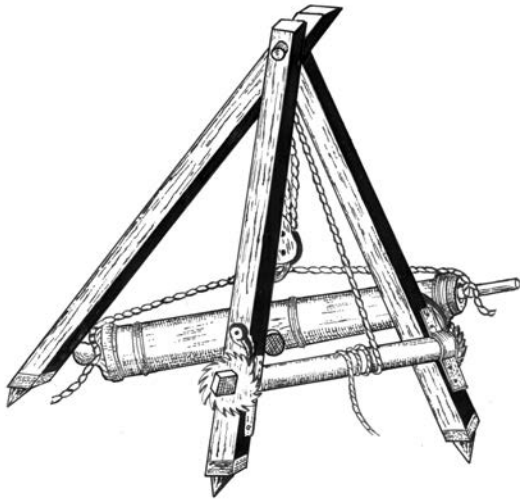
A siege-train was a complex organization which required a multiplicity of related equipment and tools, which must have taken up a lot of space on ships already overcrowded with men. This included tripod hoists for mounting the guns on their carriages, crowbars, levers and wedges; spare spokes, felloes, hubs and axles; jacks



*Reconstruction based on an underwater find of an axle showing hub reinforcement similar to that prescribed by Collado, 1592. A countersunk iron spring runs along its underside.*



*Gun mounted on a travelling carriage with limber, based on finds from Trinidad Valencera.*

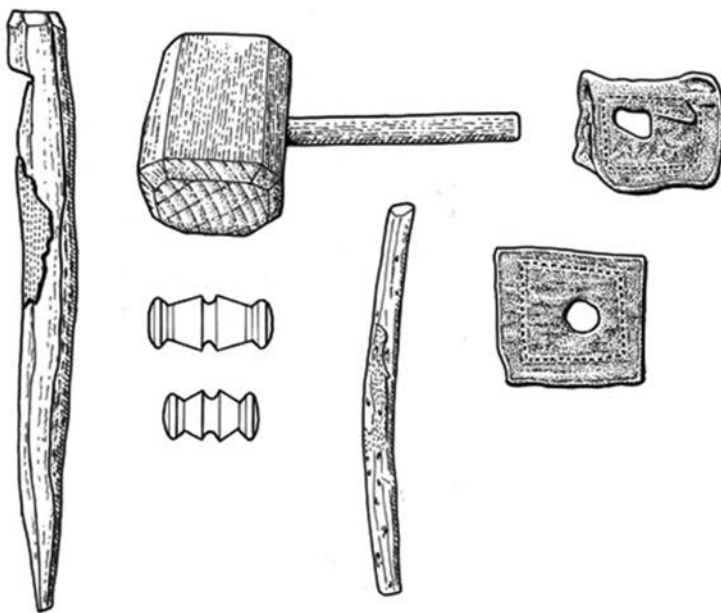


*Tripod hoist for mounting and dismounting guns.<sup>13</sup>*

for wheel changes; planks and beams for gun platforms; esparto matting; basket-work cylinders for filling with earth to make bulletproof gabions; and campaign tents – for the munitions, not the men. Hauling each gun on campaign needed up to ten pairs of draught animals. Several of the *urcas*, including *Gran Grifón*, were adapted to carry horses and mules. This was not a simple matter as the animals took up much space and required regular provision of fodder, bedding and water. Draught animals were also required for pulling ammunition and provision carts, and evacuating the wounded. Mounts were needed for senior officers.

Alonso de Céspedes commanded the field-artillery battery of ninety-five gunners who would no doubt have been reinforced by Parma's men once the guns were ashore. They were supported by specialist craftsmen – blacksmiths, farriers, carpenters and armourers. Constructing siegeworks and other field engineering required labour, and 700 *gastadores* (pioneers) were attached to the train. Each carried a backpack with tools including picks, shovels, hoes, axes and crowbars. Fir saplings with their branches lopped off were the sixteenth-century equivalent of barbed wire.





*Campaign tent (adapted from Schön, Siege of Münster [1534]) with tent-peg, mallet and accessories (from Trinidad Valencera, not all to same scale). The leather squares are for reinforcing the canvas where poles were inserted. The curved stick is a small 'Spanish windlass' used to tighten ropes by twisting them. Many were found on the wreck and were probably used as guy-rope tensioners.*



*Left: Trimmed fir sapling from Trinidad Valencera, with a detail (adapted from Schöen, Siege of Münster) showing its use as part of a defensive barrier. Right: Gabions (basketwork cylinders filled with earth to protect artillery). Remains of basketwork, possibly for gabions, were found on Trinidad Valencera.*

## 5. GUNPOWDER

Gunpowder is a 'low' explosive; that is, it does not detonate supersonically like modern propellants but burns very rapidly (deflagrates) to produce gases at subsonic speed. It is composed of oxygen-yielding potassium nitrate called saltpetre (the primary 'fuel'), charcoal (which stimulates deflagration) and sulphur (which lowers the ignition temperature and so increases the rate of gas production). Optimum proportions of the ingredients are regarded as 75 per cent saltpetre, 15 per cent charcoal, and 10 per cent sulphur. In the sixteenth century these proportions were adjusted quite flexibly. At the time of the Armada the recommended proportions of the mix were: for *cañones*, five parts saltpetre to one each of sulphur and charcoal; for hand-guns 6:1:1.<sup>14</sup>

The function of saltpetre is to provide oxygen for the rapid deflagration of the other ingredients. It is found wherever decaying organic matter (especially human and animal excreta) has been mixed with earth, such as in cesspits, byres, dovecotes, bat caves, burial grounds or even mortar and plaster from derelict buildings. In Spain religious establishments were prime sources, since their large clerical populations and constant throughput of visitors facilitated the disciplined accumulation of the raw material. The process involved maturing these nitrate-rich deposits in composting mounds before liquifying, filtering and crystallizing them. The cool dry cellars often associated with such establishments were ideal for storage. Much northern European saltpetre was produced in the Baltic States and distributed

via Hanseatic and Dutch ports. England had begun to organize the systematic processing and collection of saltpetre during Elizabeth's reign, though from more widespread secular sources. Supply was enhanced in 1581 when the queen, having made common cause with Sultan Ahmad al-Mansur of Morocco through their shared enmity with Spain, began to trade saltpetre for the shipbuilding timber the sultan required for his piratical activities.<sup>15</sup>

Spain had a ready source for another vital ingredient at 'Las Minas' fifty miles north-west of Cartagena, which in the sixteenth century was Europe's leading source of sulphur. It is significant that Philip II bought the complex in 1589 and made it a restricted mining area (*coto minero real*). Charcoal, the third ingredient, was always readily available: willow was regarded as best for heavy guns and hazel twigs for hand weapons.<sup>16</sup>

Gunpowder ingredients do not integrate chemically but remain separate. The process of grinding and mixing was tedious and dangerous, and the result was a fine-grained powder, known as serpentine, with the consistency of flour. Its density varied with shaking or compaction, so volumetric measurement could be misleading. The components must, however, be properly mixed and have enough space between individual grains to allow deflagration to progress at an optimum rate. In well-ground serpentine powder the closeness of the particles leaves little space for combustion to spread through the charge, especially if it is tamped too firmly.<sup>17</sup>

About 44 per cent of the powder is converted by ignition into propellant gases. Slow deflagration drives much unburned powder along the barrel, and although some may combust during its passage a high proportion will not contribute to the propulsive effect but dissipate as smoke and muzzle-flash, or is deposited inside the barrel. Regular descaling was essential to keep the bore clear and avoid the danger of shot jamming in the barrel, with disastrous consequences. And since powder burns at 2,138 degrees centigrade – hotter than the melting-points of bronze and iron – each discharge causes a tiny but progressive loss of metal from inside the bore and touch-hole. This was exacerbated by sulphuric acid in the impurities. Successive firing could, moreover, dangerously overheat a gun, yet another factor constraining the use of artillery in combat.

To improve mixing, the ingredients were formed into a stiff paste with urine. That of beer-drinkers was regarded as good, of wine-drinkers better, and of wine-drinking bishops best of all. The paste was then dried, worked through sieves to produce the desired grain-size, and finally glazed. Several advantages accrued from this process, known as 'corning'. First, each grain had fixed within it the correct proportions of the three ingredients, which could not be altered by shaking. Second, because of their near-round shapes the grains could not be packed too tightly or too loosely

and could be sized to ensure the correct amount of space between grains for an optimum rate of combustion (the gaps were not to provide oxygen, as sometimes supposed, but to allow the ignition wave to pass through). Finally, grain-size could be matched to barrel-diameter, gun profile and length to maximize the efficiency of particular classes of weapon. Properly graded corned powder was two to three times more powerful than serpentine.

Intended use determined the size of corning. *Gruesa* or coarse grade (*pólvora de cañon* or *de artilleria*, which approximated to peppercorns) created a moderate peak of pressure close to the breech before reducing sharply until it expired some fifteen calibres along the bore. This made it suitable for heavy artillery and explains why extending the barrel beyond this point achieves no gain in muzzle velocity. It also explains why these gun barrels are thick at the breech, where the pressure is highest, narrowing towards the muzzle. *Sutil* powder (*pólvora de arcabuz* or *fina*, approximating to coarse-ground pepper) for hand-guns had a different deflagration profile, with greater internal pressure developing at the breech to accelerate the small high-mass projectile to the required velocity along a small-bore barrel. Such barrels could withstand high pressure partly because they were made of high-grade steel – recycled hand-forged nails were good for the purpose – and because a small-bore tube has greater resistance to pressure than a wide one. It would appear that much of the powder supplied to Armada vessels was *pólvora de arcabuz*; which seems to have been a ‘one size fits all’ administrative compromise. Only the arquebusiers and musketeers would have been well served by it, though even they might have complained about the lack of a suitable fine-grained priming powder (similar to fine sand).

Still less can the gunners have welcomed *sutil* powder in place of a proper *gruesa* grade, because it would have put higher stresses on gun breeches than they were designed to bear. This may have been a factor in at least some of the gun failures recorded during the campaign (chapter 16). Finally, corned *sutil* powder would have been disastrously inappropriate for the wrought-iron pieces carried by the fleet, which were designed for the much weaker serpentine gunpowder with its low-pressure profile throughout the firing cycle. This is why the wrought-iron barrels of serpentine-era guns (often called serpentes) are long, thin-walled and parallel-sided. Fine powder would develop its pressure peak just where the imperfectly sealed chambers meet the thin-walled barrels – their weakest points. We must therefore wonder whether these guns were ever effectively used in action and whether the bureaucratic claim that all the fleet’s iron guns were of *hierro collado* (cast iron) was perhaps a subterfuge to cover a serious administrative blunder.<sup>18</sup>

English gunpowder production may have begun under Henry VIII, for in 1545 one Stephanus de Haschenpergk petitioned the king about his technique

for making saltpetre. Whether this came to anything is not known, but in 1550 a ‘General Surveyor of the victuals for the seas’ was appointed with responsibility for the dockyards and ordnance, and no doubt his duties included the provision of gunpowder. In 1561, three years after Elizabeth came to the throne, Gerrard Honrick was paid £300 for advice on ‘the true and perfect art of making saltpetre grow’. Little documentary or archaeological evidence of the industry – which was small-scale and widely scattered – survives, but there is a 1593 plan of a saltpetre works at Ipswich and the earthworks of another have been recorded at Ashurst in Hampshire.<sup>19</sup>

There are few natural sources of sulphur in England apart from a little which occurs as a by-product of copper mining. The main European sources were in Italy and Spain, and until the reign of Elizabeth supplies were readily available via the Low Countries, particularly through Amsterdam. Thereafter, since only small quantities were involved, adequate consignments were probably obtained through clandestine private trade. Charcoal was always freely available.

The Lisbon Muster records a total of 5,175 quintals of gunpowder, or about 250 tons. This was intended for all purposes: the ships’ guns, the soldiers’ firearms and the artillery train (600 quintals). According to another summary list, all the powder was *pólvora de arcabuz*.



*A powder-barrel from Trinidad Valencera, sectioned by erosion so that half survived intact. It was bound with three withy hoops at top and bottom, indicating it was a powder keg (iron hoops would risk sparks). Inside the cask were traces of charcoal, presumably the surviving residue of gunpowder. The reconstructed keg’s capacity is 25 litres, which would comfortably hold a quintal (100 Castilian libras, in which the Armada’s gunpowder was reckoned; the English pound was virtually identical, but the hundredweight of 112 pounds included a 12-lb allowance for the weight of the cask). Allowing for a 10 per cent underfill (a standard safety precaution) this gives the Trinidad Valencera keg a volume/weight value appropriate to arquebus powder.*



## 6. PROJECTILES

Projectiles were normally made of iron, stone or lead. Stone shot was expensive to produce, being a time-consuming and skilled process. Iron and lead shot of all calibres was cast in bipartite moulds which left a joint-line and casting-sprue, the latter being struck off (if iron) or cut (if lead), leaving a distinctive scar. Some lead balls have iron cores. Two pieces of iron shot from *Santa María de la Rosa* incorporate incuse moulded marks which presumably indicate their origins. One is a cross; the other an ornate 'P' (below). Neither has been identified although the latter was also found on a ball from *Gran Grifón*.

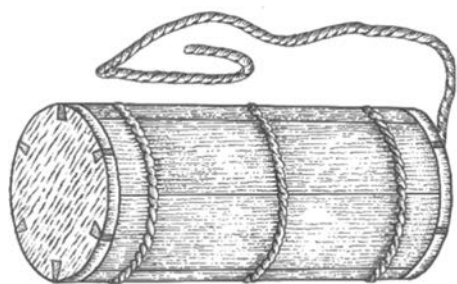
The quality of contemporary Spanish cast iron is questionable. What impact this may have had on the effectiveness of roundshot is uncertain, but it certainly had a lower specific mass than its English equivalent. Three identical *cañones de batir* shipped aboard *Trinidad Valencera* are described as 40-pounders. All have been recovered, and all have a bore of  $7\frac{1}{4}$  in which, allowing  $\frac{1}{4}$  in for windage, means that a 7-in sphere of Spanish iron weighing 40 lb would have a specific mass of 6.68, well below the 7.2 optimum for good-quality cast iron. For the same calibre of guns English sources specify a shot-weight of 50 lb, which comes close



*A selection of roundshot from Santa María de la Rosa. The iron balls range from 40-lb cañon de batir calibre through 18-lb culebrina to 5-lb sacre. The small iron balls are probably grape shot. The large stone ball is for a 16-lb pedrero, the smaller one perhaps for a stone-throwing breech-loader. Note the 'P' foundry-mark on the fourth ball from the left. A group of musket balls and a larger cache of arquebus ones lie top left.*

to the 7.2 standard. This calculation takes account of the slight difference between the Castilian and English pounds (460 and 454 g respectively).<sup>20</sup> The apparently simple process of issuing the right size of shot for each gun was therefore not straightforward (see Chapter 16 and Figure 118).

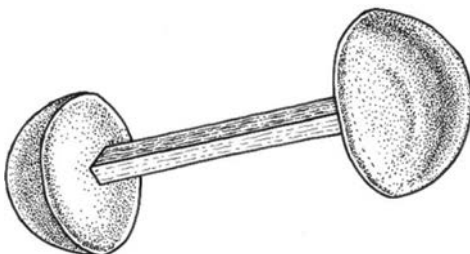
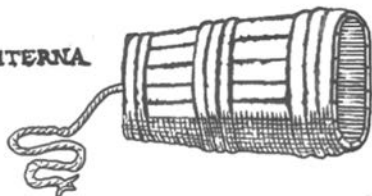
More specialized projectiles include chain and bar shot. *Gran Grifón* has yielded lead hemispheres of 3-inch calibre with square holes for an iron joining bar, now lost to corrosion. Shot linked by a bar or chain would rotate in flight, and was effective in bringing down rigging or scything through sails. A few musket-calibre lead balls from the same wreck have holes for wire links, now lost, but examples from a later wreck joined by a coil of wire are shown below. Such shot might be fired singly from a hand-weapon or discharged as case-shot from a large-bored gun. Grape shot has been recovered from *Trinidad Valencera*. It was contained in wooden cylinders whose light casing would disintegrate on firing, to create a devastating scatter at close range. Two forms of such projectiles are named by Collado *tonelete* (little barrel) and *lanterna* (lantern).



*Reconstructed canister shot from Trinidad Valencera. The container is made of six wooden staves dovetailed to circular end pieces. This example is of 4½-in calibre so would fit a media culebrina. Seven 1-in diameter iron balls, one placed in the centre with the other six ranged around it would fit neatly inside the cylinder, and eight such layers would comfortably fill its length. The 'rule of seven' is illustrated in a document of 1582.<sup>21</sup>*



**LANTERNA**



*Lead hemispheres linked by an iron bar or a length of chain rotated in flight and were designed to sever or tear rigging and sails.*



Among the many thousands of musket- and arquebus-calibre balls found on Gran Grifón some had small holes on one side, indicating that they had been linked by wire. No joined examples were found (perhaps the wire had been iron) but these examples linked by brass wire come from a wreck of 1664. Such projectiles would have been effective against rigging but would have been terrifying anti-personnel weapons too.

## NOTES

1. Lucar, *Appendix*, ch. 37; Collado, *Plática manual*, f. 70v; Biringuccio, *Pirotechnica*, 22.
2. Redrawn from a casting specification issued in 1587 by Juan de Acuña Vela, Captain-General of Artillery (AGS MPyD V-19). Only the dimensions were recorded: escutcheons and inscriptions are assumed.
3. Redrawn as above, AGS MPyD V-16, 25 July 1587. It was to be cast from 92 per cent Hungarian copper and 8 per cent English tin. In this instance the requisite decorative detail was recorded.
4. *Plática manual*, f. 34.
5. Blackmore, *Armouries of the Tower*, vol. 1, 266–80; Earle, *Revenge*, 144–5.
6. Laughton, II, 154–8, 190–2.
7. Guilmartin, *Gunpowder and galleys*, 277–83, contra Lewis, *Armada guns*, 16–38; Thompson, ‘Armada guns’.
8. Waters, *Elizabethan navy*, 12.
9. Lewis, ‘The guns of the *Jesus of Lubeck*’ and ‘Fresh light on San Juan de Ulúa’.
10. AGS CMC 2a/1012/5, transferred from *San Juan (de Sicilia?)* on 19 January 1588; AGS CS 2a.1496 and 1473.
11. BMO, IV(3), doc 5112, 355–9. For more detail see Martin, ‘16th-century siege train’.
12. AGS GA 202/129 and 131; Martin, ‘16th-century siege train’.
13. Sardi, *L’artiglieria*, bk. 3, 132, fig. 23.
14. BMO, V, 94.
15. Kelly, *Gunpowder*, 32; Cocroft, *Dangerous Energy*, 6–9; Bovill, ‘Queen Elizabeth’s gunpowder’, 184–6.



16. Cocroft, *Dangerous Energy*, 2.
17. Smith, 'Serpentine gunpowder'.
18. Simmons, 'Wrought-Iron ordnance'.
19. Cocroft, *Dangerous Energy*, 4.
20. AGS CS 2A 280/1461-2; Lewis, *Armada guns*, 208-11.
21. *BMO*, 1, 323; Collado, *Plática manual*, f. 52v.



## *Appendix 5. Note on Sources*



This book rests upon two distinct bodies of research: underwater archaeology and artefacts, and historical documents and images. The text always attempts to link the two, for example using the artefacts found on the wrecks of Armada ships to clarify the written lists of items embarked upon that particular ship before it left Spain. The Note that follows deals with each research corpus separately, archaeology first. The historical sources follow in subsections: first, general works for Spain and Portugal, Italy, the Spanish Netherlands, the Dutch Republic and the Tudor state, most of them divided into printed and manuscript materials. Next comes a note about the diplomatic correspondence we have used. Finally, we describe the additional materials used for individual chapters.

### **I. ARCHAEOLOGY**

In 1988 Laurence Flanagan, in *Ireland's Armada legacy*, provided a comprehensive summary of the finds from the Irish wrecks. Relatively little archaeological work has taken place on Armada wrecks since then except at Streedagh, where guns and other material exposed by storms on the *Juliana* site have been recovered and are being conserved. Several publications of material surveyed or excavated have appeared. Colin Martin published articles on 'A 16th-century siege train: the battery ordnance of the 1588 Spanish Armada'; 'Incendiary weapons from the Spanish Armada wreck *La Trinidad Valencera*, 1588'; 'Stowed or mounted: the Spanish Armada of 1588 and the strategic logistics of guns at sea'; 'Weapons and fighting potential of the 1588 Spanish Armada: the military component'; and on a wider topic, 'Departicularising the particular: approaches to the investigation of well-documented post-medieval

shipwrecks'. In 1999 the initial work at Streedagh was published: '*La Lavia, La Juliana* and the *Santa María de Visón*: three Spanish Armada transports lost off Streedagh Strand, Co. Sligo: an interim report'; and in 2011 Kelleher, '*La Trinidad Valencera*', summarized the results of investigations on that wreck between 2004 and 2006.

The published proceedings of two conferences that combined both archaeological and historical sources were both welcome and useful: Gallagher and Cruickshank's *God's obvious design* in 1990; and *La Armada Española de 1588 y la Contra Armada inglesa de 1589* in 2021. We have also consulted publications of comparative material, notably two volumes on *Mary Rose* (Hildred's *Weapons of Warre: The armaments of the Mary Rose* and Marsden's *Mary Rose: Your Noblest Shippe. Anatomy of a Tudor warship*); Grenier, *The underwater archaeology of Red Bay*; and Erikssen and Rönbnby, '*Mars (1564)*'.

## II. HISTORY

### (I) GENERAL

Razor, *The Spanish Armada of 1588*, reviewed printed works down to 1990: his survey of English material seems comprehensive, but he included few Spanish works, and virtually nothing in other languages. David Starkey reviewed some of the 100 books on the Armada published in English in 1988 in *The Times Literary Supplement*. García Hernán, 'El IV centenario', provided a useful overview of Armada publications in 1988, and reproduced the programmes of the conferences held that year in Corunna, El Escorial, Madrid and Cartagena. Rodríguez-Salgado, 'The Spanish story', provided a helpful overview of the publications by the 'Gran Armada' section of the Spanish Institute of Naval History and Culture (see ch. 20), and of Peter Pierson, *Commander of the Armada: The seventh duke of Medina Sidonia*, which not only provided a compelling biography of the man, based on previously inaccessible documents from the Medina Sidonia archives, but added much detail on the conduct of the Armada campaign.

Since then, several further studies on the Armada have appeared, but most rely disproportionately and sometimes entirely on either Spanish or English sources, rarely on both, and almost all omit the Low Countries. Honourable exceptions include Paula Martin, *Spanish Armada prisoners*, which looked at the experiences of survivors incarcerated in England, and in particular examined the capture and fate of *Nuestra Señora del Rosario*; and *La Armada Española de 1588 y la Contra Armada de 1589*, with contributions from Spanish, British, Irish, Portuguese, Scandinavian and Croatian scholars, originally presented at an international conference in Cartagena, Spain, in 2019.

## (II) SPAIN AND PORTUGAL

*Printed Sources*

All historians owe an enormous debt to Rear-Admiral José Ignacio González-Aller Hierro and his co-editors for *La batalla del Mar Océano, 1568–1604 (BMO)*: 10 vols published by the Spanish Navy's historical branch, containing transcripts of some 7,000 documents together with detailed commentaries. Vol. I (1988) printed documents from June 1568 to January 1586; Vol. II (1989) covered February 1586 to February 1587; Vol. III (1993), in three parts, covered March 1587 to February 1588. Each volume contained a useful introduction and a detailed index. Vol. IV (2014), in four parts, printed relevant documents between February 1588 and August 1631 (few after 1592), with a masterful introduction but no index. Fewer than half of these documents had previously appeared in print (mostly in the collections edited by Duro, Maura and Oria). Vol. V (2015) contained a series of technical annexes (gun-types; Channel tides in August 1588; and so on) as well as a 'biography' of each ship in the fleet. All volumes are currently available for download free of charge at <https://bibliotecavirtual.defensa.gob.es/BVMDefensa/ir8n/consulta/registro.cmd?id=59626>.

Few documents related to the Armada in Spain's state archives seem to have eluded the *BMO* researchers, and they also included material from many private collections, such as the archive of the marquis of Santa Cruz. They also included Spanish translations of many printed documents concerning England's response to the threat posed by Spain, and relevant items from some foreign archives (Florence, Rome, Vienna and Dubrovnik), and from the Medina Sidonia collection in the Karpeles Manuscript Library in California. The only significant omission of Spanish documents is material formerly in the Altamira archive and in the audited accounts of the fleet in AGS *CMC* (see below). *CSPSp* printed an English precis of many Spanish documents, most of them in Simancas.

Two other collections of printed sources deserve note. Tellechea Idígoras, *Otra cara de la Invencible: la participación vasca*, published many important documents, with linking commentary, about the Basques in the Armada, especially in the squadrons of Oquendo and Recalde. Parker, 'Anatomy of defeat', published an English translation of Recalde's 'Political Testament' – his ship's log and a part of his correspondence with Medina Sidonia, Don Francisco de Bobadilla and Don Alonso de Leyva during the campaign, which he forwarded to the king just before his death. *BMO*, IV, printed Parker's transcripts of the originals.

Several chronicles kept by clerics and laymen in 1588 have been printed, but most reflect the view from San Lorenzo de El Escorial: see sources for ch. 6 (below) for

details. One exception is the *History of the kings of Spain* compiled by Fray Juan de Vitoria, a Dominican from a notable Basque family, which drew upon both oral and written sources. His long chapter on 1588 is of special interest because it included contradictory opinions, some of which turned out to be false because Fray Juan wrote down what he read and what he heard at the time, often prefacing a statement with ‘Everyone says . . .’ or ‘I am ashamed to repeat what I heard . . .’. This portion of his manuscript (BNE *Ms.* 6557/565–622) has been printed twice: once in *CO.DO.IN*, LXXXI, 179–257, and again in Tellechea Idígoras, *Otra cara*, 133–218, together with a helpful commentary. See also three studies of the impact of the Armada on individual cities: Alonso Cortés, *Valladolid y la armada invencible*; López Mata, *La ciudad y el castillo de Burgos*, 193–206; and Lope Toledo, ‘Logroño en el desastre de la Armada’.

Finally, *Diccionario Biográfico Español*, available online at [dbe.rah.es](http://dbe.rah.es), includes entries on almost every Spanish protagonist and several foreign ones mentioned in this volume. Each entry ends with a list of sources.

### *Manuscripts*

The dossiers compiled by Spanish government auditors concerning each hired ship that sailed with Medina Sidonia fall into two broad categories, both of them in AGS:

- Five bundles (*legajos*) entitled ‘*Quantas fenecidas de las naos que sirvieron en el Armada que fue a Inglaterra*’ have survived largely intact in the series AGS *CMC* 2a época: legajos 942 and 1012 (‘libro segundo’); 772 (‘libro tercero’); 460 (‘libro cuarto’); 963 (‘libro quinto’); and 905 (‘libro sexto’). We have not located ‘libro primero’, but its contents – as well as some dossiers from the other libros – are scattered through other legajos in *CMC* 1a, 2a and 3a épocas. Some (e.g. AGS *CMC* 1a/1735 and 1736) have survived in good order; others have been fragmented. These legajos, many of them containing between 1,000 and 2,000 folios, consist of papers generated by the officials of the fleet itself (*contadores*, *pagadores* and *veedores*) during the period 1587–93.
- AGS *CS* 2a época 273–96, a series of legajos of papers concerning the men and ships who served in the ‘*Armada de Ynglaterra*’ between 1587 and 1595. Unlike the Armada papers in *CMC* the legajos in this series are largely intact and most retain a cover that displays the title and a painted image with the royal arms of Spain. They include papers generated by auditors appointed by the central government of Castile (the *Contadores Mayores*), who closed their

files in the 1650s. Most legajos contain between 1,000 and 2,000 folios, and *CMC 2a/280*, which contains the dossiers concerning many embargoed ships, contains 3,164 folios.

Because they were compiled by separate fiscal departments, the dossiers in the two series contain considerable duplication. For example, *AGS CS 2a/275* contains the file (*pliego*) of the government auditors for Don Pedro de Valdés, the only squadron commander to be captured: it shows that in 1624 his heirs received over 18,000 crowns in respect of his arrears – but they received them in government bonds (*juros*) that lacked funds. *AGS CS 2a/286/1074–81* contains another copy of the same pliego, but with more documents on his Armada career at ff. 248–50.

In addition, several *AGS CS* volumes include the pay-sheets (*pliegos de asiento*) of individual Spanish officers and officials who received their pay arrears in 1595, often arranged in alphabetical order by first name. Thus *CS 2a/275* starts with Maestre de Campo Don Alonso de Luzón, who received 462 escudos; then comes Lieutenant Alonso Vázquez, then serving in the Army of Flanders (he would later write its history); and so on through the alphabet. *CS 2a/286/1617–1768* contains the ‘*pliegos de asiento*’ with all the regular clergy who sailed on the Armada, arranged by Order. They include the pliego for the authors of two important campaign diaries: Father Gerónimo de la Torre, a Jesuit (f. 1731), and Father Bernardo de Góngora, a Dominican (f. 1761v).

It is harder to find detailed descriptions of the ordinary soldiers and sailors who sailed on the Armada, but we have found material in four series of documents:

- *ABB VC 1314*, ‘Lista para los officios de Su Magestad de los soldados y marineros españoles y otras naciones que se perdieron en la Real Armada’. A list of 494 Armada survivors (most of them soldiers) captured in England and Ireland and later ransomed and repatriated in 1590. Since the men came from almost all squadrons in the fleet, it offers an almost random sample of those aboard.<sup>1</sup>
- *KML MSP: Casa de la Contratación 8*, ‘Año de 1587. Cuentas de las armas, municiones y pertrechos de las [11] naos que de orden de Su Magestad se aprestó el Señor Duque Don Alonso . . . para ir a Lisboa’ (285 folios) recorded the name, age, birthplace, father and physical description of every crew member aboard 11 *urcas* at the time Medina Sidonia embargoed them, and again on 9 July 1587 just before they set sail for Lisbon. They would later join the squadron of Andalucía.
- *AGS CMC 2a/29, 31* and 47 contain (among many other dossiers) the personnel files of 133 soldiers who had served in the Armada, transferred to the Army of

Flanders and then mutinied. The files provide not only a meticulous record of service and remuneration but also a detailed description of each man.

- AGS CS 2a/273–96 also contain much unique information on individual participants. For example, CS 2a/273 contain lists of those aboard each of the four galleasses. We found full lists of those who sailed on *Napolitana* and *Zúñiga*, but details only of those aboard *San Lorenzo* and *Girona* who survived the campaign to claim their wages. AGS CS 2a/278/557–70 lists the soldiers on each galleass. AGS CS 2a/288 contains a folder that lists for every ship in the squadron of Castile the name, place of birth, career and pay of every soldier and sailor.

In addition, Tellechea Idígoras, *Otra cara*, 411–92, printed detailed lists of the sailors from Guipúzcoa who had perished on the Armada campaign, with details on how and where they died; and Porrás Arboledas, ‘La aportación’, used the petitions for compensation filed by the widows and heirs of sailors from Castro Urdiales (a major port in Cantabria) who sailed with the Armada but never returned. Gracia Rivas, *La sanidad*, studied the Armada’s medical personnel who embarked aboard the two hospital ships. Borja de Medina, ‘Jesuitas’, provided biographies of the 23 members of the Order who sailed with Medina Sidonia; and Lazcano González, ‘Agustinos’, provided rather less detail on the 38 members of that Order involved with the Armada.

In anticipation of the quincentenary (1992) of Columbus’s first voyage to America, the Spanish government began to digitize documents in public archives (starting with those related to Columbus) and in 2006 established the Portal de Archivos Españoles en Red (PARES). It currently provides public access to more than 5 million descriptions of sources and over 35 million images of digitized documents, photographs, art and maps that are located in 12 archives throughout Spain. Each one can be read and downloaded at any time, day or night, anywhere in the world, free of charge.<sup>2</sup>

### *The Altamira Collection*

In the seventeenth century the count-duke of Olivares (son of Philip II’s ambassador to the papacy and chief minister of Philip IV) received permission to remove documents from the state archive, and they eventually entered the archive of the counts of Altamira, which by the 1860s had become the most important private collection of manuscripts concerning the history of Habsburg Spain. The Altamira



Archive included the papers of the king's private secretaries between 1571 and 1605, who handled the tens of thousands of holograph *billetes* (memoranda) exchanged between Philip and his senior ministers. These documents reveal more about the king's strategic aims and priorities, including his plans to conquer England, than any other single source. The private secretaries also handled all correspondence addressed 'to the king in his own hand' (*al rey en su mano*), and in 1588 this included many letters from Medina Sidonia and others concerning the Armada.

Disaster struck the Altamira collection in the 1870s, when its bankrupt owner sold off its books and manuscripts. Some were lost, and the rest are now scattered between five principal collections: two in Madrid and one each in Geneva, London and New York. 'Scattered' does not perhaps do justice to the dispersion of the collection. Thus BZ *caja* 143, IVdeDJ *envío* 55, and BL *Additional Ms.* 28,700 all contain scores of *billetes* exchanged between Philip and his senior ministers in 1588, many of them about the Armada (with more elsewhere in each collection); and HSA *Altamira* 1/I contains several letters by Medina Sidonia trying to avoid his rendezvous with the Armada.<sup>3</sup>

### (III) ITALY AND DUBROVNIK (RAGUSA)

The kingdom of Naples contributed to the Armada four galleasses, three embargoed ships, several big guns and munitions, and a *tercio* of Spanish infantry, but the administrative papers they must have generated seem to have disappeared. The series ASN *Tesoreria generale: scrivania di razione* (payments on military matters) does not start until 1658; and the first busto of ASN *Sezione militare: Giunta dell'Arsenale* covers 1584–1727. A third series, ASN *Camera della Sommaria, Patrimonio, Documenti di contabilità ramo militare, Conti e cautele, 1453–1819*, contains some documents on 'galere', 1530–1805, but we failed to find material on the vessels from Naples which sailed with the Armada.<sup>4</sup> Many other papers about the Armada perished in 1943, when German soldiers burned down a property that housed (among other series) much of ASN *Sezione diplomatico-politico, Carte Farnesiane*, which included letters and papers of Alexander Farnese, prince (later duke) of Parma. Only a few documents from the 1580s escaped the flames, in whole or in part. Luckily, Léon van der Essen had already taken extensive notes on many items subsequently destroyed, and he included transcripts and extracts in his biography *Alexandre Farnèse, IV*. In addition, AGS *Estado Nápoles* contains the correspondence between Naples and Madrid about the Armada.

Many documents about the Armada once in ASP suffered a similar fate: damp, rodents and wartime bombs destroyed many originals in the 1940s, but excerpts

from many documents had already appeared in van der Essen, *Alexandre Farnèse*, IV; Strada, *De bello Belgico*, II (see below); and Fea, *Alessandro Farnese*.

The archives of Milan also suffered serious damage in World War II, this time from Allied bombing, so that the only other Italian archives which contain substantial documents on the Armada are those of former capitals whose rulers maintained a resident ambassador at the court of Spain: see section (vii) below. The Venetian archives also contain extensive documents concerning the embargo and subsequent litigation around three Venetian merchantmen that sailed with the Armada: *Trinidad Valencera* and *Lavia* (both wrecked off the coast of Ireland) and *Regazona* (wrecked off Ferrol shortly after her return to Spain). Beltrame, 'Three Venetian ships', made good use of these sources – although unfortunately he did not use the complementary material on each ship in AGS *CMC* and *CS*.

Controversy surrounds the number of vessels from Ragusa (now Dubrovnik) that served in the Armada. Ireland, 'Ragusa and the Spanish Armada', argued that there were eight, whereas Kostić, 'Ragusa and the Spanish Armada', claimed there were only three. Mihajlović and Ridelli, 'Notes on Ragusan ships', correctly identified five (and only five) and included maps to show their routes to Lisbon. AGS *CMC* 2a/1208 includes data on all five: *Anunciata*, *Santa María de Visón*, *San Nicolás Prodaneli*, *San Juan de Sicilia* and *Santa María de Montemayor*. Only the last survived the campaign. Unfortunately, the State Archives of Dubrovnik (Državni arhiv u Dubrovniku), which once contained much material on these ships, suffered serious damage in 1991 during the Yugoslav Civil War.

#### (IV) THE SPANISH NETHERLANDS

##### *Printed Sources*

*LCP*, 2e partie, III, provided a precis of the correspondence between the government of Philip II and the Netherlands in the 1580s compiled from originals in AGRB *Audience* (mostly in French) and copies of documents made in AGS in the nineteenth century and now in AGRB *Collectie Gachard* (mostly in Spanish).

Four printed accounts by eyewitnesses described and analysed Parma's role in the Armada campaign: Carlos Coloma, *Las guerras* (1624); Antonio Carnero, *Historia* (1625); Juan Bautista de Tassis, *Commentarii* (not published until the eighteenth century); and Alonso Vázquez, 'Los sucesos' (written c. 1616 but unpublished until the nineteenth century). Coloma and Vázquez were junior officers in 1588 and their accounts present the view of subalterns – and in the case of Vázquez, of a

subaltern who sailed on the Portuguese galleon *San Mateo* and only began to serve in the Army of Flanders after Parma ransomed him in 1589.<sup>5</sup> By contrast, Tassis, the Army's inspector-general from 1586 to 1591, and Carnero, its chief accountant for 12 years, reflected the views of Parma's inner circle. Later historians of the Low Countries Wars also wrote about the duke and the Armada, but only one appears to have drawn heavily on documentary evidence: the Jesuit Famiano Strada, commissioned in 1595 to write a history of Parma's heroic deeds by his son and successor, Ranuccio Farnese. Vol. 2 of *De bello Belgico*, covering the years 1578–92, deployed material from the duke's archives.<sup>6</sup>

### *Manuscripts: The Duke of Parma*

Few of Parma's papers remain in the Netherlands because after his death his secretary sent them all back to Ranuccio, but Philip insisted that all correspondence with Madrid be returned to him. The rest remained in the ducal archive until the eighteenth century, when much of it migrated to Naples, where it was later destroyed (see above).<sup>7</sup> The series AGRB *SEG*, which contains the Spanish correspondence of later governors-general, therefore preserves few documents from the sixteenth century, with the notable exception of the 'Registres aux ordres': copies of orders on military and naval matters issued by the Spanish secretary of state and war in Brussels. AGRB *SEG* 11 and 12 contain Parma's orders between July 1588 and July 1590 to military personnel, including many involved in the Armada campaign. In addition, AGRB *Secrétairerie d'État Allemande/Duitse Staatssecretarie* contains Parma's correspondence in German; AGRB *Papiers d'État et d'Audience/Audientie* contains his correspondence with Philip and others in French, with more in HHStA *Länderabteilungen: Belgien-Niederländisches Departement PA* and *PC* (mostly documents removed from AGRB in the eighteenth century and never returned). Parma's correspondence with Philip and his principal ministers also survives in AGS *Estado Flandes* (his correspondence in Spanish, often including copies of letters and papers received from others, including Medina Sidonia as the Armada approached) and *Secretarías provinciales* (his correspondence in French). Parker, *Guide*, 50–3, provided further details on Parma's surviving papers.

In 1599 Paolo Rinaldi, Parma's chamberlain, composed a detailed history of his master's life and deeds which survives in two copies, both in Italian: BRB *Ms.* II.1155, 'Liber relationum eorum quae gesta fuere in Belgio et alibi per serenissimum D. Ducem Alexandrum Farnesium'; and Biblioteca Nazionale Centrale, Florence, *Fondo Magliabechiano Ms.* II-I-235, 'Historia di Fiandra del tempo che comandò

l'armata il Duca Alessandro Farnese'. The latter may be the original, because it contains some additional details, but it is in worse condition. The BRB text contains a number of errors – for example, it states that the Armada had six galleasses instead of four (f. 214) – perhaps because the author created this fair copy in haste. Nevertheless, since Rinaldi served as Parma's 'mayordomo y factor' and observed his master's daily actions and reactions at close quarters, we have relied heavily on his account in reconstructing the duke's role in 1588.<sup>8</sup>

## (v) THE DUTCH REPUBLIC

### *Printed Sources*

The archives of the 'sovereign body' of the Dutch Republic, the States-General, have been extensively published. All their resolutions, and a considerable amount of supporting documentation, appeared in a series of chronological volumes (Japikse and others, *Resolutiëen der Staten Generaal*): vol. 4 covers 1583–4; vol. 5 covers 1585–7; vol. 6 covers 1588–9. In each volume, entries are arranged thematically (starting with 'War', then 'Foreign affairs', and so on) and then chronologically within each theme. All volumes have been digitized and are available at <http://resources.huygens.knaw.nl/besluitenstatengeneraal1576-1630>.

Nevertheless, many crucial decisions were taken by the institutions of the various provinces that made up the Republic: the States of Holland, also meeting in The Hague (whose resolutions have been published verbatim: *Resolutiëen van de Staten van Holland*); the States of Zeeland, meeting in Middelburg; and so on. Each province also had a governor (*stadhouder*), a post that in Holland, Zeeland and some other provinces was almost always held after 1572 by a member of the house of Nassau. Groen van Prinsterer, *Archives ou correspondance de la maison d'Orange-Nassau*, and Gachard, *Correspondance de Guillaume le Taciturne*, published many documents concerning Prince William of Orange, murdered in 1584 by a contract killer hired by the duke of Parma. More than 13,000 letters sent to and by the prince, from almost 200 archives and libraries, are now available online via <http://resources.huygens.knaw.nl/wvo> (Briefwisseling van Willem van Oranje).

After the governor, the most important officer of the Republic was the Pensionary of the States of Holland, and Haak, *Oldenbarnevelt*, published much of the correspondence of Johan van Oldenbarnevelt, pensionary from 1586 to 1619. Brugmans, *Correspondentie*, published many documents about Dutch preparations made by and for the earl of Leicester, who served as governor-general from 1585 to 1587.

### *Manuscripts*

The domestic and foreign correspondence of the States-General is held by ARA, with the letters for the 1580s filed in four series: England, France, Germany and 'ordinary' (for all other countries). ARA *te Afdeling: Regeringsarchief*, I.90D, I.90E and I.94, and ARA *Staten Generaal*, loketkas 12576.10, contain the original letters from Queen Elizabeth and her leading ministers to Dutch leaders in 1587–8, and ARA *Staten Generaal* 11,107 and 11,108 contain the routine correspondence between England and the Dutch between 1586 and 1589 – most of it filled with mutual reproaches and recrimination.

From 1581 the Council of State (*Raad van State*) oversaw the day-to-day conduct of the war with Spain, and its registers of deliberations – kept in French until 1587 (for the benefit first of Anjou and then of Leicester) and thereafter in Dutch – provide a wealth of information both on the Republic's military operations and on what it learned about the enemy. ARA *Raad van State* 6 and 7 record the discussions and decisions of the council concerning the defence of the Republic between June 1587 and December 1588. ARA *Staten Generaal* 12,561.3 nos. 1 and 2 list the size and armament of some Dutch warships in 1587.

Each province also possessed not only its own representative assembly (*Staten*) but also its own Audit Office (*Rekenkamer*), which supervised the raising and disbursement of local money; its own Admiralty (*Admiraliteit*), which handled the collection of tolls and escort taxes as well as coastal defence; and its own law courts. Some deal with the Armada. RAZ *Register van Acten en Brieven*, portefeuille 1625, contains the correspondence of the States of Zeeland about how to deal with the double threat posed by Parma and the Armada; RAZ *Notulen van de Staten van Zeeland 1587–1588* contains minutes of their correspondence, as well as a record of their deliberations. RAZ *Rekenkamer* C 2938, the account of Pieter Willemszoen, records the munitions salvaged from two wrecked Portuguese galleons, the *San Mateo* and *San Felipe*.

## (VI) ENGLAND

### *Printed Sources*

In 1798, alarmed at the prospect of another invasion, the British government commissioned James Bruce of the Foreign Office to compile a *Report on the arrangements which were made for the internal defence of these kingdoms when Spain, by its Armada,*

*projected the invasion and conquest of England*. It contained 97 pages, followed by 69 documentary appendices. A century later, Sir John Knox Laughton, Professor of History at King's College London, compiled *State papers relating to the defeat of the Spanish Armada, anno 1588*, containing hundreds of documents generated by the Tudor central government and preserved in TNA and BL (including those published by Bruce). Corbett, *Papers*, published a prequel; and Corbett, *Drake and the Tudor navy*, II, 412–21, 'Authorities for the Armada campaign', provided a helpful guide to surviving sources. Rodger, *The Armada in the Public Records*, published facsimiles of 17 documents from TNA, together with a transcript.

In addition, the various series of *Calendars of State Papers* offer a unique resource. *CSPD: 1581–91* summarized (often very briefly) every document received by the Secretary of State from correspondents in England and Wales, with more (with longer summaries) in *CSPD: Addenda 1580–1625*. Other series followed the lapidary injunction to editors that opened every volume: 'The entries should be so minute as to enable the reader to discover not only the general contents of the originals, but also what they do not contain.' A lengthy summary of virtually every document in the State Papers series (and some from other collections) concerning Ireland and Scotland appeared in *CSPI* and *CSPSc* respectively. Those received from English agents and well-wishers on the European continent are summarized (often with substantial verbatim extracts) in a single chronological sequence: *CSPF*.

The commercial venture *State Papers Online* (hereafter *SPO*), accessible only via institutional subscription, provides online access, via its 'Browse manuscript' feature, to all volumes in TNA *SP* and also to volumes in BL *Cotton Ms.* that once belonged to that series. They may be accessed through their archival signature (TNA *SP* 1/220; BL *Cotton Ms.* Galba B.VI; and so on). *SPO* almost always provides a link between the Calendar summary and the original document, but the two do not always match. Thus *SPO* used the original foliation for BL *Cotton Ms.*, not the current one, and so it is necessary to browse the scanned catalogue volume to locate the original document and its current call-number. Conversely, *SPO* personnel used 'a key available at the National Archives' to identify the original documents in each Calendar, some of which omitted a call number. Finally, the *SPO* scanned documents include a 'Browse Calendar' link that takes you directly to the printed precis – a fantastic resource.

In addition, British archivists and historians visited major continental archives and libraries to locate and transcribe documents relevant to British history, and later published precis in English of documents from Venice in *CSPV*, from Spain in *CSPSp*, and (in rather less detail) from Rome in *CSP Rome*. Unfortunately, no similar Calendars exist for France, Germany, the Netherlands or Scandinavia,



although unpublished longhand transcripts of the relevant documents exist in the series TNA PRO.

APC published a full transcript of the Registers of the Privy Council in TNA, but omitted the volume for June 1582–June 1583, which is currently BNE Ms. 3821. The Registers between July 1583 and February 1586 are currently missing. Adams, ‘The Armada correspondence’, printed 27 important documents from BL *Cotton Ms.*, most of them letters addressed to the earl of Leicester. Other important English government sources in print include the ‘Anthony Roll’, a visual review of the navy royal in 1546, published by C. S. Knighton and D. M. Loades. The Folger Shakespeare Library in Washington DC has compiled ‘Folgerpedia: the Elizabethan Court day-by-day’. Each year of the reign has its own file, some of them containing over 100 pages filled with details of relevant events and documents arranged chronologically, together with their source. The *Oxford Dictionary of National Biography (ODNB)*, available online by subscription, includes entries on almost every English protagonist and some foreign ones in this volume, each one written by experts and including a list of sources.

### *Manuscripts*

Two obstacles make manuscript research on England and the Armada difficult. First, some documents are extremely hard to read. In 1665 Samuel Pepys, Secretary of the Navy and diarist, examined some ‘ledgers’ compiled by the treasurer of the navy a century before, as well as ‘several letters of the old Lord of Leicester’s in Queen Elizabeth’s time – under the very handwriting of Queen Elizabeth and Queen Mary Queen of Scots and others, very venerable names. But Lord,’ Pepys complained, ‘how poorly methinks they wrote in those days.’<sup>9</sup> Palaeography also thwarted James Bruce as he compiled his *Report on the arrangements*: according to a note pasted into the copy presented to the Minister of War, a junior clerk ‘carried out the selection and transcription of the documents for the book, because John Bruce could not read the Elizabethan documents’. A century later Laughton deprecated these transcripts as ‘made by a very ignorant and careless man’, adding that ‘their value is extremely slight’; but that did not prevent him from using Bruce’s transcripts for documents which had later become illegible. Moreover, neither Bruce nor Laughton included some idiosyncrasies in the original manuscripts. For example, they both omitted emendations and underlined passages in two important holograph letters from Lord Admiral Howard to Lord Burghley in 1588, preserved in BL *Harleian* 6994, a volume entitled ‘Elizabethan miscellany’

filled with documents that reflect the Lord Treasurer's keen interest in the defence of the realm. Fortunately, scholars can now consult the originals via *SPO*.<sup>10</sup>

The second obstacle facing those who wish to read the English manuscript sources on the Armada campaign is dispersion and loss. For example, those two holograph letters from Howard to Burghley should be in TNA *SP*, or in Burghley's archive at Hatfield House, instead of in BL Harleian Manuscripts. Likewise the 'letters of the old Lord of Leicester' and the 'ledgers' of the Treasurer of the Navy consulted by Pepys in 1665 should also be in TNA; but instead the former are in the Pepys Library in Cambridge (*Ms.* 2502 and 2503), and the latter are now in the Bodleian Library in Oxford (*Rawlinson Ms.* A.200-4: removed by Richard Rawlinson from the Pepys Library and later acquired by the Bodleian.<sup>11</sup>

Some diligent scholars have succeeded in locating and linking fragmented collections, as Simon Adams has done for the papers of Robert Dudley, earl of Leicester: see, above all, *Leicester and the Court*. But there are limits: although Walsingham organized his papers very carefully, especially after he became secretary of state in 1573, most of his private papers have disappeared (though some of his indexes and reference books survive). Read, *Mr Secretary Walsingham*, made excellent use of the surviving sources; but the *ODNB* entry on him written by Adams pointed out the many gaps that remain.

British archivists have created some magnificent research tools to overcome the obstacles caused by dispersion. In 1869 a royal warrant created the Historical Manuscripts Commission (HMC) to document the location of records and papers in private hands and to provide printed guides to their contents. Between 1870 and 2003, HMC published over a hundred reports and calendars – albeit material in the earlier reports is sometimes hard to locate. For example, *HMC Fifteenth Report, Appendix*, part V, includes the 'Foljambe Book of Musters', an important collection of orders issued by the Privy Council for the defence of the realm, which may have been copied from a register compiled by Sir Francis Walsingham.<sup>12</sup> In addition the National Register of Archives, founded in 1945, serves as the central collecting point for information about archival material outside the public records and now incorporates some 50,000 lists of collections and much more information from other sources in its indexes. In 2003 HMC merged with TNA and its 'Discovery' platform now provides a single point of online access to catalogue and organizational data held in 'more than 2,500 archives' within the United Kingdom. See, for example, <https://discovery.nationalarchives.gov.uk/results/r?q=Sir+Francis+Drake&p=1500> and <https://discovery.nationalarchives.gov.uk/details/c/F68844> for all known documents by Sir Francis Drake and their current location, including the important series in Plymouth Archives, The Box (formerly known as the West Devon Record Office).



Far fewer personal papers survive for Drake's commander, Howard of Effingham. Until recently, it seems that the dukes of Northumberland held the largest collection of his papers, but several notable items have been sold at auction. These include Elizabeth's Instructions to Howard dated 21 December 1587 (sold in 1992); those dated 18 March 1596 (sold in 2011); and those dated 1 September 1570 (sold in 2014).<sup>13</sup> Even fewer personal papers seem to have survived for Hawkins, Winter and Frobisher – although their wills reveal a great deal about their considerable wealth and their families when they died (including, in Frobisher's case, donations to a mysterious 'Mary Masterson', whose name Frobisher himself inserted in several blank spaces left in the will, presumably so that 'my wife Dorothy' would not know about her until after his death). See TNA *PROB* 11/87/268 (Hawkins); TNA *PROB* 11/73/383 (Winter); and TNA *PROB* 1/30 (Frobisher).<sup>14</sup>

Some important government archives appear to have disappeared without trace, above all the records of the Ordnance Office for 1588. Those for other years, mostly preserved in TNA *WO* 55, tantalizingly called 'Ordnance Board Miscellaneous', recorded the issue of guns and munitions 'for the sea service', including the quantity 'spent at the sea', which revealed the powder and shot expended by each of the queen's ships in action. Thus the accounts for 1595–6 list the totals for each royal warship sent to the Caribbean and to Cadiz: TNA *WO* 55/1626–31 (see the tables compiled from them in Parker, 'Dreadnought revolution', 275–7). It is a tragedy that the accounts for the Armada year are missing. A list of munitions issued to Drake's Western squadron of 6 royal and 32 merchant ships between October 1587 and April 1588 have survived (Plymouth Archive, The Box, 2103/4, 'Powder and munitions delivered at Plymouth'), but it does not record quantities expended or returned.

## (VII) AMBASSADORIAL REPORTS

Virtually no diplomatic correspondence from Elizabeth's court survives from 1588. The queen expelled Don Bernardino de Mendoza, the last Spanish ambassador to Tudor England, in 1584, forcing Philip to rely thereafter on intelligence concerning his adversary gathered by spies. Some reported to Mendoza, who almost immediately began to serve as Spanish ambassador in France, others to the marquis of Santa Cruz in Lisbon. Both ministers passed on copies of the information they received to the central government, and they are now filed in Simancas: *Estado K* for Mendoza; *Estado Castilla* and *Portugal* for Santa Cruz. *BMO* printed transcripts of virtually all of them; *CSPSp*, IV, published English translations and summaries. James VI of Scotland withdrew his ambassador from London in protest against the

execution of his mother in 1587. That reduced the *corps diplomatique* at Elizabeth's court to one, the French ambassador, but Guillaume de l'Aubespine, baron of Châteauneuf, became involved in a conspiracy against the queen in 1587, and his correspondence after that has apparently disappeared.<sup>15</sup>

By contrast, 12 governments maintained embassies at the court of Spain: the emperor, the pope, Ferrara, Florence, France, Genoa, Lucca, Mantua, Parma, Savoy, Urbino and Venice. Two sets of relevant diplomatic correspondence have been published. Mousset, *Dépêches*, printed the letters of the French resident Longlée (1582–91). Mosconi, *La nunziatura*, published extracts from several letters to Rome written by Nuncio Cesare Speciano, bishop of Novara, between April 1586 and November 1588. Tellechea Idígoras, '*La Invencible*', published Armada-related dispatches from three papal agents (Speciano and Juan de Monte Picardo from Madrid; and the papal collector in Portugal, Muzio Buongiovanni, from Lisbon). Unfortunately, Tellechea misread some passages and omitted others concerning the Armada; and Mosconi published only extracts. Interested scholars must therefore consult the original dispatches about the Enterprise of England in ASV NS 19 and 32–6.

The correspondence of the other Italian ambassadors in Madrid remains in the Archivi di Stato of Florence (for Tuscany and Urbino), Genoa, Lucca, Mantua, Modena (for Ferrara), Parma, Turin (for Savoy) and the Vatican (for Urbino as well as the nuncios). *CSPV*, VIII, published English translations of the dispatches of all Venetian envoys abroad (as well as the deliberations of the Senate) that contained material relating to Elizabethan England. The originals are in ASVe SDS 18–22. Each Venetian ambassador delivered a closing 'Relation' to the Doge and Senate when he returned from a tour abroad and felt less constrained, and these also contained much useful material. Firpo, *Relazioni*, VIII, pp. 232–938, published the *Relazioni* by envoys to Philip's Court, 1557–98. Some cover a hundred printed pages.

The detailed 'Secret Diary' kept by the long-serving imperial ambassador in Spain, Hans Khevenhüller (1574–1606), has been printed both in German and in Spanish translation; but his dispatches remain unpublished.<sup>16</sup> This is a pity, because the count was an extremely shrewd observer and, thanks in part to his long residence in Spain, he gained access to a wide range of sources, including Philip's sister, Empress María, whom he regularly visited. In spring 1586 he passed on news about Armada preparations 'that the duke of Medina Sidonia told me within the last hour'.<sup>17</sup> He wrote to the emperor every two weeks and most of his original dispatches, written in a challenging mixture of German (in Black Letter) and Spanish (in *italics*) survive in HHStA, *Statenabteilung Spanien: diplomatische Korrespondenz* Konvolut neu 10 and 11, with some documents sent as enclosures in HHStA *Spanien Varia*. HHStA also has typed transcriptions of the dispatches

(but not the enclosures) made by the late Count Georg von Khevenhüller-Metsch, in the 1970s. OÖLA (Linz) KB IV (411 folios) is a register of all the ambassador's outgoing letters to the emperor between 1584 and 1589. The Briefbücher texts are superior in three respects: they include some letters missing from HHStA; they omit the ciphers used in many originals; and they include a few details and opinions omitted from the final version, as if the ambassador had second thoughts about them. On the other hand, the Linz registers omit the enclosures.<sup>18</sup>

### III. FURTHER SOURCES FOR INDIVIDUAL CHAPTERS

#### CHAPTER I. 'ARISE O LORD AND AVENGE THY CAUSE'

Details on the Lisbon parade of 25 April 1588 come from *BMO*, IV/2, 225–6, an anonymous 'Relación de la forma en que se entregó el estandarte real'. On the two leading participants, see the biographies of Caeiro, *O Archiduque Alberto*, and Pierson, *Commander*. On Recalde, see Fagel, 'Los Juan Martínez de Recalde'; on Recalde and Leyva, see Parker, 'Anatomy'; on Oquendo see Tellechea Idígoras, *Otra cara*; on Cuéllar, see Kelly, *Captain Francisco de Cuéllar*. Fórmica, *Doña María*, 65–7, and *FBD*, 501–4, provided some details on the prince of Ascoli. For many of the rest, see the entries in *dbe.rah.es*; and also the dossier of 'pruebas' compiled when the king nominated them for a knighthood in one of Spain's military orders (detailed references in the endnotes to the chapter).

The best description of the Grand Fleet appeared in the pamphlet published in Lisbon by Medina Sidonia's printer on 9 May 1588: *La Felicissima Armada que el rey don Felipe Nuestro Señor mandó juntar en el puerto de la ciudad de Lisboa*, with several reprints and translations into foreign languages. *BMO*, IV/2, 298–308, printed the original pamphlet, but the most interesting copy is BL 192.f.17 (1), which came into the hands of Lord Burghley who scrawled in its margins the news he received concerning the fate of each ship and officer named in the pamphlet – a practice he continued for at least two years.<sup>19</sup>

Fray Luis de Granada began his *Historia de Sor María* in 1583 and completed it five years later, just before her unmasking as a fraud: it remained in manuscript until 1962, when Huerga published it, together with a scholarly study. See also Robres and Ortolá, *La monja de Lisboa*, and ASV NS 17/183–4, Juan del Monte Pichardo to cardinal of Como, 1 April 1584 (much detail on Sor María). On Lucrecia de León and the other Plaza Prophets who predicted that the Armada would fail, see Kagan, *Lucrecia's dreams*, and Kagan, 'Politics, prophecy and the Inquisition'.

## CHAPTER 2. 'THE GREAT BOG OF EUROPE'

Our account of the Low Countries Wars rests mainly upon Parker, *The Dutch Revolt*, and idem., *Spain and the Netherlands*. Van der Essen, *Alexandre Farnèse*, remains the best biography of the man chosen by Philip to lead the invasion, supplemented by Romani, *Le corti farnesiane*, vol. 1 (on his finances); and Derks, 'The fruits of war' (on his legend). On the six 'nations' that comprised Parma's army, see Parker, *The Army of Flanders*; and for the Spanish units raised specifically for the invasion in England see O'Donnell y Duque de Estrada, *La fuerza de desembarco*, and Gracia Rivas, *Los tercios*. On the Italian troops, see the various essays in Bertini, *Militari italiani*. AGRB *Jésuites, Bruxelles* 1969, 'Ordinationes Missionis Castrensis Societas Jesu', contains patents and lists from 1 November 1587 onwards of those engaged in the *Missio Castrensis*, which was intended to accompany the invasion.

On English policy towards the Netherlands, both north and south, see Wernham, *The Making of Elizabethan foreign policy*; idem., *Before the Armada*; Wilson, *Queen Elizabeth*; Oosterhoff, *Leicester and the Netherlands*; and Adams, 'The decision'. On the intervention of France, see Holt, *The duke of Anjou*, ch. 5. Van der Woude, 'De crisis in de Opstand', and Hibben, *Gouda in revolt*, ch. 7, discuss the collapse of public authority in the Dutch Republic immediately after the murder of William of Orange.

## CHAPTER 3. 'A FLEET TO IMPEACH IT'

The standard account of Elizabeth's navy is now Rodger, *The safeguard of the sea*; but see also Loades, *The Tudor navy*; Reimer, 'Before Britannia ruled the waves'; and the vintage study of Oppenheim, *A history*. Tom Glasgow Jr produced a valuable series of articles (all with slightly different titles) on the navy under Mary and in the early years of Elizabeth in *MM*, LIII–LVI. Knighton and Loades, *The navy of Edward VI and Mary I* (despite the title) provided details on the ships and naval personnel serving Elizabeth in two appendixes: pp. 455–575.

We have learned much from personal examination of the *Mary Rose*, now exhibited at Portsmouth dockyard; from the five-volume set of final reports on the excavation of *Mary Rose*, published by the Mary Rose Trust; and from a close reading of Harte, *Gleanings from the Commonplace Book of John Hooker*, because Hooker got his information on naval operations in 1545 directly from Peter Carew, an eyewitness and also brother of George, commander of the doomed vessel.

On the English leaders, see Kenny, *Elizabeth's admiral* (on Howard); Kelsey, *Sir Francis Drake*; Kelsey, *Sir John Hawkins*; and McDermott, *Martin Frobisher*. On the rotation programme introduced by Hawkins, with a schedule of ships to be 'new built' down to 1597, see Adams, 'New light on the "Reformation" of Sir John Hawkins' (the schedule had to be modified after war broke out in 1585, but was an impressive example of forward government planning). On the development and performance of the race-built ships, see Parker, 'The *Dreadnought* revolution of Tudor England'.

The website 'Queenship Studies' has 65 pages of references to books, chapters, articles, theses, poems and other items in which Queen Elizabeth appears, arranged alphabetically from 'A.A.' to 'Zinck', down to 2018: <http://www.queenhipstudies.com/references.cfm?sortBy=authors&id=1295&strt=3201&show=50>. Jackson, *Devil-Land*, provides an important portrait of England as a 'failed state' from the execution of Mary Queen of Scots in 1587 to the deposition of her great-grandson James II a century later.

The queen herself is always worth reading: see Marcus, Mueller and Rose, *Elizabeth I: Collected works*. See also the 2014 edition of John Nichols, *The progresses and public processions of Queen Elizabeth*, in five volumes; and the fascinating studies of Cole, *The portable queen*; Hammer, 'Sex and the Virgin Queen'; and Olid Guerrero and Fernández, *The image of Elizabeth I in early modern Spain*. Finally, Elizabethan England rivalled Spain in eccentrics and prophets: see Walsham, "Frantick Hacket". Of those mentioned in this chapter, John White of Rayleigh (Essex), a shoemaker aged 25, compared himself with John the Baptist and advocated polygamy (TNA SP 12/194/87-9); and Ralph Durdan of Cambridge, a lapsed cleric, claimed to be the Prophet Elijah (BL *Lansdowne Ms.* 54/19-20).

#### CHAPTER 4. ARMED NEUTRALITY, 1558-80

On the marriage of Philip and Mary, see Samson, *Mary and Philip*; on their reign, see Loades, *Mary Tudor*; Kelsey, *Philip of Spain*; and Edwards, *Mary I*. By far the best of the many studies of Mary Queen of Scots is Guy, *My heart is my own*.

MacCaffrey, *The shaping of the Elizabethan regime*, provided the best account of the first decade of Elizabeth's reign, but see also Rodríguez-Salgado, *The changing face of empire*. On the troubled tenure of the last Tudor resident ambassador in Spain, see the ODNB entry 'John Man'. On one of Dr Man's pet peeves, Illescas's best-selling *Historia pontifical* and its censored first edition, see Kermele, 'Théorie

et pratique'. Philip's efforts to placate Elizabeth by suppressing the work were so effective that Kermele could not locate a single copy of the original edition.

On the confiscated treasure of 1568, see Read, 'Queen Elizabeth's seizure of the duke of Alba's pay-ships'; the account by Don Guerau de Spes in *BMO*, I, 71–2 (noting that two of the five 'pay-ships' managed to reach Antwerp); and the analysis of Ramsay, *The queen's merchants*, 90–III, and MacCaffrey, *Shaping*, 188–95. Kelsey, *Sir Francis Drake*, ch. 3, provided an excellent account of Drake's raids on the Spanish Main, with helpful maps; but see also the reconstructions of 'the Nombre de Dios that Drake knew' in <http://www.indrakeswake.co.uk/Society/Research/nombrededios.htm>. Essentially, Nombre de Dios resembled San Juan de Ulúa: a place worth plundering only when the transatlantic treasure fleets were present (in this case, the fleets with goods travelling to and from Peru and the isthmus). On the changing portrayal of Sir Francis in Spanish sources, see Wright, 'From Drake to Draque'.

Pope Pius V issued his bull against Elizabeth, known from its first words as *Regnans in excelsis*, on 25 February 1570, but he had planned the measure several months earlier. In November 1569 he told Don Juan de Zúñiga, the Spanish ambassador in Rome, that 'he was determined to declare the queen of England a heretic and deprive her of her kingdom, and that the process was almost complete. I pointed out to him the negative consequences that might ensue, and begged him to delay – but it had no effect': HSA HC 380/98, folder 44/1, Zúñiga to Alba, 5 November 1569, minute. The ambassador underestimated his eloquence: Pius delayed his declaration for three more months. For the later history of the bull, see Muller, 'Transmitting and translating', and *The excommunication of Elizabeth I*. Allen republished the Bull in his *Declaration* of 1588.

Our account of the Ridolfi Plot, which led directly to the irreparable breach between England and Spain, relies on Parker, 'The place of Tudor England'; Kelsey, *Sir Francis Drake*, chs 2–3; and Kelsey, *Sir John Hawkins*, chs 4–6. Since they were published, Geoffrey Parker discovered an important collection of documents from Zúñiga's archive about the plot: HSA HC 380/98, 'Cartas políticas y diplomáticas sobre el reinado de Elisabeth, el pleito de María Stuart y la situación de los católicos de Inglaterra y Scocia', contains 59 letters exchanged between Zúñiga and the duke of Alba, Spes and Philip about the plot. Alba, *Epistolario*, printed some of Alba's letters to Zúñiga from the minutes in AA, and AGS *Estado Roma* contains the originals of Zúñiga's letters to Philip; but the rest were previously unknown.

AHN OM 35II/4, 'Consideraciones de Don Guerau de Spes sobre la forma que podría tener para la Empresa de Inglaterra', London, 31 May 1569, marked the origin of both the term and the concept 'the Enterprise of England' (*CSPSp*, II, 157–8, printed a rather garbled partial translation). Despite his central role in the



Ridolfi Plot, we know little about Spes. He seems to have held no public office before his appointment as ambassador; no portrait of him has survived; and bandits murdered him on his way back to Spain (which, the duke of Alba claimed, saved him from a worse fate: 'If he had not died by the way coming to Spain he would have lost his head').<sup>20</sup> For an account of his troubled embassy, see Santamarta Lozano, 'Don Guerau de Spes'.

Philip and the pope continued to discuss ways of effecting 'the Enterprise of England' between 1572 and 1577, even though they did not act: see details in Kretzschmar, *Die Invasionsprojekte*, 47–109 and 194–212. Voci, 'L'impresa d'Inghilterra', documented the frequent abrupt changes of plan: should the target be England or Ireland? Should the launch-pad be Spain or Flanders? Should the expedition include the combined forces of Spain and the papacy or of just one?

On Philip's over-ambitious naval plans of 1574–5, see Pi Corrales, *España y las potencias nórdicas*, chs 5–10, supplemented by AGS *Estado* 2852, unfol., Menéndez to Juan Bautista de Tassis, 31 August 1574, and AGS *Estado* 2546/83, Requesens's Instructions to Tassis, 6 September 1574 (on where Menéndez might land). On 25 March 1575 the president of the council of finance informed Philip that he had spent 'More than half a million' ducats on the 'Armada de Santander' (IVdeDJ 24/103, 'Parecer de Juan de Ovando'; but see also AGS *Estado* 561/83, Zayas to Requesens, 25 June 1574, claiming the fleet had already cost 600,000).

The best monograph on the Smerwick venture remains O'Rahilly, *The massacre at Smerwick*; but see also the important material presented subsequently by Carey, 'Atrocity and history', and Orr, "Communis Hostis Omnium". Details on the English warships sent to destroy the Castello del Oro may be found in TNA *E* 351/2216 and 2217, accounts of the Treasurer of the Navy (copies at TNA *AO* 1/1684/15 and 16); *E* 351/2377, accounts of the Surveyor of Victuals (copy at TNA *AO* 1/1787/315); and *AO* 1/1787/316, a special account for naval victuals provided for 'land service in Ireland' in 1580–1. For Philip's involvement, see *Co.Do.In.*, XXXII, 507–10, Philip to Alba, 31 August 1580, detailing an attack on Ireland and requesting the duke's assessment; *ibid.*, 530–1, a summary of Alba's unfavourable response, 4 September 1580; and *ibid.*, 559–62, the recommendation for an invasion in the pope's name made by a special committee of royal ministers, 7 September 1580. *ASV NS* 24/612–65 contains original receipts signed by Bastien de San Giuseppe for supplies received from papal agents for the Smerwick operation.

At least three documents associated with the 'Enterprise of England' in 1582–3 have survived, entitled 'Razones que tratan de algunas cosas tocante al gran negocio de Inglaterra'. Lyell, 14–25, discussed them, but we reject his argument that they date from 1586–7: they must have been composed before July 1584 because William

of Orange is spoken of as still alive. The most plausible dates are 1582 or 1583. The best account of these invasion plans remains Kretzschmar, *Invasionsprojekte*, 64–109, based on manuscripts from the Vatican archives; but see also the similar contemporary documents in *BMO*, I, 372–416; *AHN OM* 3512/27–28; and *NMM Ms.* PHB 1B/432v–4v.

The Hakluyt Society has so far published four eyewitness accounts concerning the ill-fated South Atlantic expeditions in 1581–3: on the Spanish side, Markham, *Narratives of the voyages of Pedro Sarmiento*, and Phillips, *The struggle for the South Atlantic*; on the English side, Taylor, *The troublesome voyage of Captain Edward Fenton*, and Donno, *An Elizabethan in 1582*. Kelly, *Captain Francisco de Cuéllar*, presented fascinating new archival material on his subject's participation in the expedition. It is interesting that a member of Drake's crew who traversed the Strait in 1578 reported correctly that it was 'in some places but a league in breadth, in some places two, in some three and some four' (Vaux, *The world encompassed*, 217, 'Narrative' of John Cooke). One wonders how Sarmiento (the source of the '500 paces wide' claim) could have been so wrong – an error that caused the premature death of all but one of the settlers.

## CHAPTER 5. COLD WAR, 1581–5

The loss of important documents complicates the task of reconstructing the process by which Elizabeth went to war with Spain. Wernham, *Before the Armada*, and MacCaffrey, *Queen Elizabeth and the making of policy*, provided excellent accounts of English foreign policy, but both relied almost exclusively on English sources. See also the *ODNB* entries on Elizabeth (by Patrick Collinson), on Leicester and Walsingham (by Simon Adams) and on Burghley (by Wallace MacCaffrey).

The best account of Drake's 'Famous Voyage' around the world, based on the often contradictory surviving sources, is currently Kelsey, *Sir Francis Drake*, chs 5–7; but see also the original documents printed in Vaux, *The world encompassed*, and Nuttall, *New light on Drake*.

On Dom Antonio, see Durand-Lapié, 'Un roi détroné', and (less thorough) McBride, 'Elizabethan foreign policy'. On the struggle for the Azores in 1581–3, see Fernández Duro, *La conquista*; Freitas de Meneses, *Os Açores*; and Salgado, *Os navios*, 18–30. On the company of English defenders at Terceira, see Cerezo Martínez, 'La conquista', 19–23. Waters, *The Elizabethan navy and the Armada of Spain*, seems to have been the first to appreciate the impact of the São Miguel battle on naval tactics.



On French developments during this period, see Chevallier, *Henri III*, pt. III, ch. 6; Constant, *Les Guise*, ch. 7; and Jensen, *Diplomacy and dogmatism*. On the negotiations leading up to the treaty of Joinville, see Tassis, *Commentarii*, 445–57, and the important – and apparently unknown – cache of holograph letters, reports and instructions of Tassis while at Joinville in AGS *Estado* 2846/79 and 86–9. For a reconstruction of how Balthasar Gérard managed to assassinate Orange, see Jardine, *The awful end*; for the assassination contracts between Balthasar Gérard and Parma's agent, signed at Tournai on 21 March and 2 April 1584, see Gachard, *Correspondance de Guillaume*, VI, 111–20.

For recent accounts of the countdown to the war between Elizabeth and Philip, see Rodríguez-Salgado, 'The Anglo-Spanish war', and Adams, 'The outbreak'. For Drake's role, see Kelsey, *Sir Francis Drake*, ch. 9; and the documents in Keeler, *Sir Francis Drake's West Indian voyage*. On the crucial episode of *Primrose*, see the contemporary pamphlet by Mote, *The Primrose*, and the essay of Orrite Pinedo, 'La voz de alarma'. We accept the argument of Keeler, *op. cit.*, 283, that *Primrose* was owned by Hawkins and later took part in the Armada campaign.

## CHAPTER 6. THE GRAND DESIGN AND ITS ARCHITECT

Philip II left far more personal papers than any other early modern ruler, and the Spanish *Fundación Dialnet* lists almost 500 recent publications about him. Nevertheless, the king's personality remains elusive and we have drawn upon Parker's two biographies: *FBD*, and *Imprudent king*. Robert Watson, Principal of St Andrews University, wrote in his *History of the reign of Philip the second* in 1777 that 'No character was ever drawn by different historians in more opposite colours than that of Philip', so we have relied on the writings of five men who spent the summer of 1588 at the Escorial, and saw the king on an almost daily basis. Two were written by laymen: the *Passetemps* of his valet Jehan Lhermite, and the *Historia* of a minor official, Luis Cabrera de Córdoba (who claimed that he had warned Philip that the Grand Strategy was flawed). The other three authors were monks. Fray Juan de San Gerónimo kept an illustrated journal filled with detail, noting (for example) the painting of two Azores frescoes in the Hall of Battles at the Escorial in 1587 (*Memorias*, 427). He ended his account with news of the Armada's failure. Fray Juan de Sepúlveda's 'Historia de varios sucesos' portrayed Philip as more human than any other eyewitness: in his account, the king laughs, watches plays, hunts with his children, eats with the monks, and always shows 'remarkable curiosity' about people and things. Fray José de Sigüenza clearly had access to the accounts composed by his

two colleagues, whom he sometimes quoted verbatim (without acknowledgement), but as the king's relic-keeper he also saw a unique side of Philip. See *La fundación del Monasterio de El Escorial* (vol. III of his 'Historia del Orden de San Gerónimo', 1605).

The history of Philip's policies towards England and the Netherlands strikingly confirms Robert Jervis's observation that first-hand experiences can seriously distort the political choices made by statesmen (Jervis, *Perception and misperception*, 240–52). Nevertheless, the king did his best. Gonzalo Sánchez-Molero, *La Librería Rica*, 859–60, lists the books on England purchased for the king's collection in the 1550s. For an important later acquisition – a Latin edition of Saxton's *Atlas* – see Fernández Duro, *Noticia breve*, 164. For evidence that Philip studied accounts of previous invasions of England, see AHN OM 3511/4 and 3512/27–8.

BMO, I, 450–8, printed Santa Cruz's patent and instruction as Captain-General of the Ocean Sea, dated 23 June 1584. We have not found a copy of the Masterplan (the 'traza acordada') that Philip sent to Parma and Santa Cruz on 26 July 1586 (the latter carried to Brussels by Giovanni Battista Piatti), but numerous references in subsequent documents prove its existence. See, for example, BMO, II, 333, Philip to Parma, 1 September 1586 ('On 26 July, I replied at length and in detail to your letter, brought by Giovanni Battista Piatti'); *ibid.*, 387, Parma to Philip, 30 October 1586 (replying to 'your royal letter of 26 July which he [Piatti] brought me'); and BMO, IV/2, 105–6, Philip to Parma, 5 April 1588 ('Follow the arrangements set out in the letter that Giovanni Battista Piatti brought you, which I now confirm'). In the absence of the original, we have reconstructed the Masterplan from the following: BMO, II, 387–8, Parma to Philip, 30 October 1586; *ibid.*, 471–2, royal reply of 17 December 1586; *ibid.*, 535–6, Parma to Philip, 17 January 1587; *ibid.*, 624, Idiáquez to Medina Sidonia, 28 February 1587; and Casado Soto, *Discursos*, 157–64, 'Discurso' of Bernardino de Escalante, Seville, 3 April 1588. For more on its genesis see Parker, *Grand strategy*, 179–92, and Rodríguez-Salgado, 'The Anglo-Spanish war'.

On the insistence by Parma and other royal ministers in the Netherlands that complete secrecy was a vital precondition for a surprise attack, see O'Donnell y Duque de Estrada, 'The requirements'. On the Spanish troops sent to Flanders for the Enterprise in 1586 and 1587, see O'Donnell y Duque de Estrada, *La fuerza de desembarco*; on those sent to Lisbon, see Gracia Rivas, *Los tercios de la Gran Armada*. Maura, *El designio de Felipe II*, 145–59, charted Medina Sidonia's role in raising 6,000 troops to sail with Santa Cruz. The ships that would form the Biscay squadron were embargoed between 10 April and 7 May 1586 (AGS CMC 2a/1208), and Recalde was appointed to command them on 8 June (BMO, II, 179–80).

It is notable that at this stage several other 'experts' also advocated a junction between a fleet from Spain and an army from Flanders as the necessary prelude

to invading England: see, for example, BAV *UL* 854/286–8v, ‘Discorso sopra la guerra d’Inghilterra’ (in Spanish), and *BMO*, II, 438–9, Juan del Águila to Philip, 29 November 1586. No one seems to have appreciated the immense logistical challenges involved. Nevertheless, the difficulties experienced in shipping 47,772 Allied troops from Dunkirk to Margate over eight days in the summer of 1940 demonstrated that although the distance between the two ports might seem short when looking at a map, crossing it under enemy fire was time-consuming, terrifying and dangerous.

## CHAPTER 7. PHONEY WAR

Parker, *Grand strategy*, chs 5–6, offered an overview of Philip’s foreign policy during the 1580s. For more detail on related developments in France, see Dickerman, ‘A neglected aspect’; and Jensen, ‘Franco-Spanish diplomacy’. For the diplomatic contest in Istanbul, see Pears, ‘The Spanish Armada’; Rawlinson, ‘The embassy of William Harborne’; Skilliter, ‘The Hispano-Ottoman armistice’; and Jardine, ‘Gloriana’.

Guy, *My heart is my own*, ch. 29, provides the best account of Mary Stuart’s involvement in the plots against Elizabeth, especially after the ‘Ruthven raid’ in August 1582 delivered James VI into Protestant hands, and reinforced Mary’s belief that the death of Elizabeth offered her the best if not her only chance of escaping from prison. Bossy, *Under the molehill*, demonstrated that Walsingham managed to penetrate those plots by suborning Laurent Feron, a naturalized Frenchman long resident in London who worked as a clerk in the French embassy. At first sight it might seem that Orange and Throckmorton died on the same day, 10 July 1584: but the former died in Holland, which after January 1583 followed the Gregorian (New Style) Calendar, whereas the latter died in England, which followed the Julian (Old Style) Calendar. The conspirator therefore perished ten days after the prince.

On the plot that proved fatal to Mary, see the *ODNB* entry on Anthony Babington (by Penry Williams) and *BMO*, II, 305–7, Mendoza to Philip, 13 August 1586 (with a spectacularly inaccurate English precis in *CSPSp*, III, 607). The king liberally annotated the deciphered text of this letter, which contained Babington’s suggestion that the plotters should capture or kill not only Elizabeth but also four of her ministers, including Robert Beale. Taviner, ‘Robert Beale’, 50–4, demonstrated that Beale left England to escape persecution by Philip and Mary, and returned in 1560 or 1561 ‘a bigoted and fanatical Protestant, who was personally involved in the racking of Catholic missionaries and conspirators’ (*ibid.*, 18). For a meticulous account of the process that led to the execution of Mary Stuart, in which Beale

played an essential role, see chs 7 and 8 of Taviner's thesis. He also provides, in ch. 1, the current location of 95 surviving volumes of Beale's papers, rich in documents about the relations between the two queens: most of them are in the British Library (England), with the rest in Aberdeen University Library (Scotland) and Brigham Young University Library (Utah, US). See also the excellent account in Jackson, *Devil-Land*, ch. 1.

Meyer, *England and the Catholic Church*, 520–3, printed the treaty of 29 July 1587 from the copy in the Vatican archives. The majority of the correspondence in AGS *Estado* 946–9 concerns the Enterprise, and many incoming letters bear lengthy comments by the king. Printed texts of many letters appeared in strict chronological order in *BMO*. Tellechea Idígoras, *La Invencible*, printed extracts from 127 letters in the Vatican archives about the Armada sent from papal diplomats in Madrid and Lisbon: see above. Like other diplomats at the court of Spain, the nuncios reported many details omitted in the official correspondence.

On Philip and the Stuart claim, see Jensen, 'The phantom will of Mary Queen of Scots'; and Rodríguez-Salgado, 'The Anglo-Spanish war'. On Spain's leading Scottish supporter, who after 1583 actively sought foreign aid for his designs, see Brown, 'The making of a *politique*'. On the changing reaction of King James and his subjects to the regicide, see Doran, 'Revenge'.

No copy of Drake's Instructions for the Cadiz raid in 1587 seems to have survived, but their content can be deduced from other sources: Plymouth Archive, The Box, 277/15, royal letters patent to Sir Francis Drake, 15 March 1587 (committing to him the charge of the fleet about to set sail 'for the honour and safety of our Realms and Dominions' and authorizing him to punish sedition, disobedience and quarrelsomeness on the voyage); Corbett, *Papers*, 105–7 (Drake's contract with the 'merchant adventurers', 18 March 1587, and Walsingham's description of the original goals); Hopper, *Sir Francis Drake's memorable service*, 28–9 (the Privy Council to Drake, 9 April 1587, countermanding his original instructions); and TNA *SP* 77/1/284–7, Lord Burghley and Sir James Croft to Andreas de Loo, 14 June 1587 (copy). All dates OS.

Francis Bacon popularized the term by which the Cadiz raid is now known: 'I remember Drake, in the vaunting style of a soldier, would call this enterprise "The singeing of the king of Spain's beard"' (Bacon, *Considerations*, 40). TNA *SP* 12/204, nos. 60–1, gave the cost of Drake's fleet as £15,119 and the value of the 'chests and packets' aboard the captured carrack as £108,049. Folio 112 revealed the complex formula used to divide this prize – the sum of the tonnage of the ships and the number of men provided by each 'investor' – a formula that yielded 7,623 shares, of which Elizabeth contributed 3,120 (the largest, thanks to the size of her

warships), so she received a payment of £42,699 – more than half the entire cost of the Royal Navy that year.

Historians disagree on whether or not Drake intended from the outset to attack Cadiz, or just a port where preparations for the Armada were under way. Two of Drake's captains (Thomas Fenner and William Borough) later stated that Dutch ships intercepted by Drake on 26 April NS told him about the 'great provisions in Cadiz and thereabout, provided to come in to Lisbon' and that only then did he decide to attack the port, which he entered three days later (Adams, 'Armada', 47–8 and 55–6). Yet in messages dated 7 and 20 April 1587 two Spanish spies in England specified that Drake would attack Cadiz – so either they possessed remarkable gifts of prophecy or else the information from the Dutch ships merely confirmed a resolution Drake had already taken and served as an opportune occasion to reveal to his captains the fleet's secret destination: Parker, *Success is never final*, 87–8 and 317–18.

Kelsey, *Sir Francis Drake*, ch. 10, offers the best modern description and evaluation of the Cadiz raid, though see also the discussion of new Spanish sources in *BMO*, III, xxix–xlvi. A useful selection of documents, mostly English, appeared in Hopper, *Sir Francis Drake's memorable service*; Corbett, *Papers*, 97–206; and Adams, 'The Armada correspondence'. See also the two Italian accounts in Tantarri, 'La Incursión', 83–8, one by a Jesuit living in Cadiz and the other forwarded by the Tuscan ambassador in Madrid. TNA MPF 1/318, William Borough's chart of Cadiz Bay, showed the shore batteries and the damage they inflicted on his ship, *Lion*; TNA MPF 1/132, 'The Plotte of Cales', showed the position of the English fleet and the Spanish galleys in Cadiz Bay. Alzaga García, 'El barco genovés', described the excavation of the large Genoese merchantmen sunk by Drake shortly after his arrival in Cadiz harbour.

Several Spaniards continued to reside legally in England after Philip imposed his embargo: Alonso de Basurto (TNA HCA 13/26 ff. 168) and Iñigo de Valderrama (*ibid.*, f. 308v); and Francisco de Castrillo and Pedro de Santa Cruz, who both testified before the High Court of Admiralty in London on 18 July 1587 as 'factor for the king of Spain' (*ibid.*, ff. 315–v). At least one of them acted as a spy: Pedro de Santa Cruz sent a stream of intelligence from London to Mendoza in Paris and thus to Spain: *BMO*, IV, printed many of his dispatches.

On the queen's biggest security risk, her ambassador in France, Sir Edward Stafford, see Leimon and Parker, 'Treason and plot'; McCue, 'The ambassadorial career'; *ODNB* entries for Stafford (by James McDermott) and his wife Douglas, Lady Sheffield, née Howard (by Simon Adams); and Tu, 'The pursuit'. Tu astutely noted that the lack of both a Spanish embassy in London and an English embassy in Madrid after January 1584 burdened 'the English embassy in Paris with an extra

duty[:] to supply its home government with Spanish information' (106). It also gave Stafford a decisive advantage in purveying news from the continent to Elizabeth.

Jennifer Sims has suggested to us that Stafford may have been a 'dangle': an agent empowered by Elizabeth and her ministers (his 'handlers') to present himself to their enemies as someone who could be 'turned' and persuaded to betray his country. Sims points out that a successful 'dangle' needs to satisfy three requirements: he or she must secure the enemy's trust by creating a credible rationale for betrayal; he or she must supply the enemy with apparently high-grade intelligence; and he or she must acquire access to enemy decision-making at the highest level, and then pass it back to the handlers. Leicester's cavalier treatment of Lady Stafford, coupled with Walsingham's efforts to undermine the ambassador, fulfilled the first requirement; accurate intelligence on Drake's Cadiz raid, relayed just too late, fulfilled the second; but Stafford failed the third test. Although he had access to Spanish decision-making at the highest level, instead of passing it back to London the ambassador regularly relayed to them Spanish misinformation. We therefore stand by our verdict that he was indeed both a traitor to England and a spy for Spain.

## CHAPTER 8. THE ARMADA TAKES SHAPE

As noted in ch. 6, Philip II had considered all the invasion strategies anticipated by the queen, but later discarded them in favour of his 'Masterplan': see Jensen, 'The Spanish Armada', and Parker, *Grand strategy*, ch. 7.

AGS contains virtually no papers concerning Santa Cruz's tenure as Captain-General of the Ocean Sea (AGS *SP* libro 1579, his Order Book for 1580–7, contains few items of interest); and little of his correspondence with subordinate commanders has survived. ASC legajo 11 contains the correspondence of the marquis with the Court about dealing with Drake's raid in 1586, and legajo 48 contains letters from 1583 about the *Enterprise of England*; but little remains from 1587–8.

The archives of two of his subordinates have survived in part. The papers of Don Francisco de Bobadilla today form a section of the Archivo de los Condes de Puñonrostro in Carmona, Spain: see Signaturas 10-10 and 10-11 for his papers from 1585–8. Several papers of Martín de Bertendona are preserved in the Lilly Library, Bloomington, Indiana: see Boxer, 'The papers of Martín de Bertendona'; and <http://www.indiana.edu/~liblilly/lilly/mss/index.php?p=bertendo>.

Parma's reports from his friends and agents in Lisbon concerning the lamentable state of the Armada left no doubt that it could not put to sea at this time: see, for example, ASP *CF* 129, unfol., letters from Alonso Carnero to Parma. For evidence



that Parma, too, was bluffing when he claimed he could set sail in November 1587 see p. 202 of ch. 8.

## CHAPTER 9. MEDINA SIDONIA TAKES CHARGE

The papers of the seventh duke of Medina Sidonia are abundant but scattered. In the mid-nineteenth century, a bibliophile found a Madrid bookseller 'taking off the parchment covers from a large pile of old folios and throwing the insides into his cellar to sell by weight to the grocers'. One of the volumes he rescued contained a score of important documents concerning the Armada campaign, some evidently separated from the Medina Sidonia archive in Sanlúcar de Barrameda. In 1949 the National Maritime Museum at Greenwich, England, acquired it at auction: NMM Ms. PHB/1B. Naish, 'Documents', provided an admirable English translation of some of these Armada documents, reprinted in Waters, *The Elizabethan navy*, 53–67. Munby, *Phillipps studies*, IV, 13–14, and V, 7–8 and 109, skilfully established the volume's bizarre chain of provenance.

A register of the duke's household expenditure in 1588 was in the archive of the marquis of Miraflores in 1938, when extracts (quoted in this chapter) appeared in Saltillo, 'El duque'. We have been unable to locate it. At some point before 1956, Hans P. Kraus, a dealer in rare books and manuscripts based in New York, acquired more than 45,000 documents dated between 1568 and 1640 from the archive in Sanlúcar. His acquisitions included 23 volumes of the dukes' administrative papers as Captain-General of the coast of Andalusia; 4 volumes of their correspondence with Casa de Contratación in Seville; and 10 volumes of 'Royal Letters', including 434 letters signed by Philip II. In 1980, Kraus donated a selection of his acquisitions related to Drake, some of them from the Medina Sidonia archive, to the Library of Congress, where they became the 'Sir Francis Drake collection'. Scans of the collection, together with Kraus's helpful description and discussion of each item, are available at <http://international.loc.gov/intldl/drakehtml/rbdkoverview.html>.

In 1986 the Biblioteca Bartolomé March in Madrid purchased another selection of Kraus's Medina Sidonia collection, including patents and other official documents issued to the dukes (including his patents as Governor of Lombardy in March and May 1581). At about the same time the Karpeles Manuscript Library at Santa Barbara, California, acquired the rest. Maura, *El designio*, published many of the royal letters from 1587–8, probably using copies in the ducal archive at Sanlúcar. *BMO*, IV, republished many of them using the originals in the Karpeles Manuscript Library.

The ducal archive at Sanlúcar still contains more than 6,000 bundles of documents, including many that concern the Armada, both copies and originals, and in 2020 the Fundación Casa de Medina Sidonia began to digitize the collection. The results will be made available online via PARES. Pierson, *Commander of the Armada*, provided by far the best biography of the duke to date, based primarily on documents in Sanlúcar and KML.

The duke's expertise in getting fleets to sea is evident from his copious correspondence with the Casa in KML, Sanlúcar and AGI *Contratación*. Consider also his letter to Mateo Vázquez on 29 May 1580, which began: 'We have missed the best weather in the world for getting the fleet to sea, which has turned me into an Arab [*estoy hecho un moro*]' (HSA *Altamira* 7/1/11: so much for political correctness in early modern Spain).

We found only one opponent of Philip's decision to appoint Medina Sidonia to command the Armada: the nobleman who held the hereditary office of Admiral of Castile told Philip that he, rather than Medina Sidonia, had the right to command it (*BMO*, IV/1, 83, letter of 23 February 1588). The king replied with the ingenious argument that the admiral's right was limited to occasions when the king himself led a fleet: *ibid.*, 140. The duke himself suggested that Don Martín de Padilla, count of Santa Gadea, who had led the Andalusian fleet to Cadiz in July 1587, would make a far better commander. The king did indeed appoint Padilla to lead the armadas of 1596 and 1597 – but they failed, too.

No satisfactory account exists of the talks at Bourbourg, although the sources abound. For a convenient summary from the English perspective, see *CSPF*, XXII, 71–4; MacCaffrey, *Queen Elizabeth*, 392–9; and Read, *Lord Burghley*, 396–407. On Parma's policy of deception in the negotiations at Bourbourg, see the correspondence of the Spanish commissioners in HHStA *Belgien PC* 43/1–77; and the duke's letters to and from Philip printed in *BMO*. For further detail, see Fernández Segado, 'Alejandro Farnesio' (using just the Spanish sources). For the Dutch reaction, as reflected in the debates of the States-General, see Japikse, V, 501–4, 534–5, 565–7, 571–2, and VI, 56–100. See also the 'Diarie' of the English embassy, probably composed by Dr Valentine Dale, one of the commissioners (BL *Sloane Ms.* 262/41–86), and the fascinating letters written by Dale after his audience with Parma on 18 July 1588. These are currently in three collections: TNA *SP* 77/4/231–3, Dale to Elizabeth, 12 July 1588 OS; KML *Dr Valentine Dale: letters on talks with the duke of Parma*, #1 Dale to Leicester, #2 probably to Robert Beale, #3 to Burghley, #4 to Hatton; and LoC, *Sir Francis Drake Collection Ms.* #8 to Walsingham – all written on the same date, 25 July 1588 OS, and all holograph. It seems odd that all five are originals. H. P. Kraus acquired them at an auction of papers belonging to



Robert Beale, clerk of the Privy Council, so perhaps Dale sent them to Beale in a single package with orders to distribute them – but by the time they arrived, they were too embarrassing and so Beale retained them all.

Perhaps an Englishman at Bourbourg acquired two important pieces of Catholic propaganda and sent them home. The first was *Admonition to the nobility and people of England and Ireland, concerning the present wars made for the execution of his holiness' sentence, by the high and mighty King Catholic of Spain*. by Cardinal William Allen: a 60-page pamphlet printed in Antwerp, though signed 'from my lodgings in the Palace of St Peter in Rome this 28 of April 1588'. Burghley received a copy of this 'vile book' on 22 June. The second item was a broadsheet entitled *A declaration of the sentence and deposition of Elizabeth*, which included the bull issued by Pius V in 1570 (see above). Parma printed 12,000 copies in Antwerp in spring 1588. Burghley received a copy on 4 July, and immediately spotted that although it mostly summarized Allen's *Admonition*, it contained the vital information that Parma would lead the invasion, thus revealing beyond all doubt Spain's Grand Strategy for the conquest of England. (TNA SP 12/211/15 and 93, Burghley to Walsingham, 12 and 24 June 1588 OS).

Two coloured Portuguese manuscript maps of identical size almost certainly have Armada associations: Maritiem Museum Prins Hendrik, Rotterdam, *WAE* 899; and NMM Ms. G218:6/21. Both were based on charts printed in Wagenaer, *Pars prima*, published by the Leiden branch of the Plantin Press in 1586: the former from Wagenaer's map of the south coast between Poole (Dorset) and Dover; the latter from his map of the Narrow Seas, showing the continental coast between Dieppe and Nieuwpoort (Figure 62). In 1939 both were sold in London at the auction of a notable private map collection: <https://bibliotheque-numerique.inha.fr/collection/item/31970-catalogue-of-the-very-choice-and-important-collection-of-works-on-cartography-vente-du-27-juillet-1939>. *PMC*, III, 81, discussed the two maps; noted that 'both are folded down the middle, which suggests that they [once] belonged to an atlas'; and attributed them on stylistic grounds to Luis Teixeira, whereas our archival evidence suggests Ciprián Sánchez.

We believe both maps were captured when *Nuestra Señora del Rosario* surrendered for the following reasons:

- (i) Both Sánchez and Teixeira were 'royal cosmographers', and so almost certainly they prepared these manuscripts as part of an official, not a private, commission.
- (ii) These are the only known Portuguese charts of the period which included 'soundings' – something specified in Medina Sidonia's contract with Sánchez (AGS CS 2a/283, unfol., final payment to Sánchez 12 May 1588). They must

therefore have been composed after the publication of the Latin edition of Wagenaer's *Pars prima* in October 1586, the first to contain soundings – and exactly the same as those shown on the two charts.

- (iii) Sánchez delivered 85 charts (which may not have been all the same), whereas the Armada contained 130 ships. As a squadron flagship, *Rosario* would doubtless have carried the best charts available; and it surrendered while still intact.

We believe that Philip chose 'Margate Cape' (the North Foreland) as the landing zone because Wagenaer's chart showed it as the only safe anchorage at the mouth of the Thames (see Figure 61).

Wagenaer's *The Mariner's Mirrour* did not include any charts of the Scottish coast beyond Aberdeen despite the fact that Nicolay, *La navigation*, printed in Paris in 1583, included a map of the seas around Scotland on a scale of 21 miles to an inch, together with sailing directions: see the discussion in Moir, *The early maps*, 19–23. On the French circumnavigation of Scotland in 1548, see Bryce, 'Mary Stuart's voyage'.

Although the first detailed maps of Ireland's west coast did not appear until 1612, specially prepared for a Dutch fleet sent to clear those seas of pirates (Cannenburg, 'An unknown "pilot"'), at some point in 1588 an English or Scottish merchant living in Danzig copied a chart of the North Sea that included the northern coast of Ireland. This shows that some Baltic merchants possessed cartographic knowledge that would have helped the Armada get home: see Christie's, *Valuable travel*, lot 175; and Rodríguez-Salgado, 'Pilots, navigation and strategy', 171 n. 100.

## CHAPTER 10. ADVANCE TO CONTACT

The official account of the voyage of the Armada until 20 August 1588 is Medina Sidonia's *Diario*, printed in *BMO*, IV/3, 463–7 (noting important discrepancies between the two surviving manuscript copies). Clowes, *The Royal Navy*, I, 564–82, provided an English translation, juxtaposed with Howard's account of the campaign. It is important to remember, however, that the duke knew that the king and his ministers would read the *Diario* and so, although organized as a day-by-day narrative, he evidently revised it before sending two copies to Philip on 21 August 1588. It seems that the duke omitted some embarrassing incidents and put a favourable 'spin' on others. For example, in his first letter to Parma from before Calais, on 6 August, Medina claimed that 'the weather [*el tiempo*]' had forced him to drop anchor (*BMO*, IV/3, 320), but the *Diario* attributed his decision to the advice of his

pilots. The accounts composed by others on the Spanish side pinpointed further discrepancies.

Pierson, *Commander*, 267–8, provided a useful list of surviving first-hand sources known to historians when he published in 1989. These include one by Alonso Vanegas, gunnery captain on the *San Martín*, of which only one copy survives. Vanegas evidently wrote for a general audience because he justified omitting the fate of individuals ‘to avoid angering the reader with details of the outcomes and misfortunes that befell our Armada, causing so much pain throughout our Spain’. He concluded his account, which included events down to spring 1589, with the combative words: ‘I have often written “we found ourselves” and “we went”, because I was an eyewitness. I served on the flagship the whole time until we anchored in Santander, and I write about what I saw’ (*BMO*, IV/4, 228–9). Pedro Coco Calderón, the fleet’s chief accountant and also the senior officer aboard *San Salvador*, vice-flagship of the *urcas*, also chronicled what he saw and heard on the entire voyage in his ‘Relación de lo sucedido’. Unfortunately, the transcript in *BMO*, IV/4, 20–4, contains important omissions that we have rectified from the original: AGS GA 221/189–90. Duro, II, 273–8, printed another important Spanish account of the fighting: the ‘Relación’ of an officer from the squadron of Castile, probably Captain Alonso de Tauste of *Asunción*. We have used Duro’s transcription, rather than the one in *BMO*, IV/4, 31–2, because (like the account of Coco Calderón) the transcript there contains some omissions.

Several other eyewitness accounts have come to light since Pierson published *Commander*. The one written by the captain of one of the pinnaces attached to the flagship is of particular interest because on 31 July and 1 August 1588 Medina Sidonia sent him to rescue both *Rosario* and *San Salvador*: ASF MdP 4919/532–3, ‘Relazione cavata d’una lettera d’un Raguzeo che fu nel galeone del duca’ (Spanish translation in *BMO*, IV/3, 380–1). In 1989, Borja de Medina, ‘Jesuitas’, 30–4, published ‘Imformação do sobcesso da Armada que foi a Inglaterra o anno de 88’, written in October 1588 by a Jesuit aboard the Portuguese galleon *Santiago* (*BMO*, IV/4, 346–7, published a Spanish translation). In 1994, Geoffrey Parker identified a dossier sent to the king after the campaign by Juan Martínez de Recalde, expressly to condemn Medina Sidonia’s leadership. AHN OM 3511/38 and 41 contain (a) seven ‘billetes’ (memoranda) sent by Recalde to the flagship, and returned with comments by Medina Sidonia and Bobadilla (surely the earliest surviving communications between commanders during a fleet action: Figure 84); (b) the log (‘Diario’) of Recalde’s *San Juan de Portugal*, dictated by the admiral himself; (c) two holograph letters sent to Recalde by Don Alonso de Leyva in August; and (d) a cover note.

BMO, IV, printed the originals at the relevant dates; Parker, 'Anatomy', printed all of them in English translation.

In 2004, Don Luis Crespí de Valldaura, a noted bookseller, discovered (in a volume of seventeenth-century texts compiled in Seville) a 12-page manuscript entitled 'Relación de lo susedido a la armada de Su Magestad desde los veinte y dos de julio hasta veinte y uno de agosto del año de mill y quinientos y ochenta y ocho'. Internal evidence indicates that it was written (in somewhat capricious Castilian) by an English Catholic exile, William Stukeley ('Don Guillermo Estucley' in the document), who sailed with the Armada as a staff officer aboard *Nuestra Señora del Rosario* until 31 July when, just before the ship's surrender, he transferred to *San Martín*. From that point until 19 August, Stukeley's 'Relación' provides a fascinating record of what was said on, and seen from, the quarterdeck of the flagship. BNE Ms. 23,128/10-2IV is the only surviving copy, printed in modernized Spanish in BMO, IV/3, 468-70.<sup>21</sup>

Laughton, II, 323-42, reliably established the size of the English fleet which opposed the Armada, but considerable uncertainty surrounds the size of the fleet that Medina Sidonia led against England. The Lisbon Muster of 9 May 1588 listed 130 ships in squadrons, each one under a general, plus 10 caravels to reinforce the communications squadron, and 10 oared *falúas* (feluccas) constructed in Lisbon and hired primarily to carry messages and officers between the great ships: a total of 150 vessels. Several changes took place after that. A census of the fleet dated 13 July 1588, a week before the Armada left Corunna, noted that the *urca David* was too badly damaged to sail further; that another *urca*, *Casa de Paz Grande*, would also stay at Laredo; that only six feluccas remained; and that the *zabra Concepción* had already sailed to Flanders (with Captain Moresin). These losses were partly compensated by the addition of another armed merchantmen, *San Bautista de la Esperanza*, embargoed in Castro Urdiales in June; plus nine caravels (details in AGS CS 2a/280 fos. 3082-129). If all these vessels sailed with the rest of the fleet on 21 July, the duke would have commanded 151 vessels; and 10 days later, without the four galleys and Recalde's *Santa Ana*, there would still have been 146. Since few later sources mentioned the caravels, some of them may have stayed behind or turned back; so we have retained the traditional figure of 130 ships for the strength of the Armada when it first encountered the English fleet.

Another important change made at Corunna was the decision to transfer two senior officers to the flagship. The duke summoned Flores to advise him on 6 July, probably because the two had worked together both when the latter commanded transatlantic fleets and when he led the Strait expedition (BMO, IV/3, 68, Medina

Sidonia to Don Juan de Idiáquez, 6 July 1588). The duke initially refused to accept Bobadilla as his military adviser, despite Philip's express direction, but Secretary Andrés de Alva ensured his compliance (*BMO*, IV/3, 115, Medina Sidonia to Don Juan de Idiáquez, 11 July, and *ibid.*, 202–3, Alva to Philip, 19 July 1588).

*BMO*, V, 151–359, 'Resumen del historial de los navíos españoles que participaron en la jornada de Inglaterra de 1588', reconstructed the history of each Armada vessel that left Lisbon in May 1588 (but not of those embargoed later in the ports of northern Spain) from documents in earlier volumes in the series and in some other sources. See also the detailed records of the Spanish government auditors for almost of all the embargoed ships, whether or not they survived the campaign, in *AGS CS* 2a/280 and in the 'Libros de quantas fenescidas' of *CMC* 2a época.

Salgado, *Os navios*, examined the Portuguese warships between 1574 and 1592, including a reconstruction of the battle stations of the flagship, *San Martín*, as it sailed against England (pp. 96–8), and a comparison of the munitions carried by six of them at the beginning and end of the campaign of 1588 (pp. 123–4). For more on the galleys, see Gracia Rivas, 'El motín de la *Diana*', and González-Aller Hierro, 'Las galeras en la Gran Armada de 1588'. For the transatlantic guardships that became the squadron of Castile, see García de Palacio, *Instrucción náutica*; and Phillips, *Six galleons*. On the three Venetian ships – *Valencera*, *Lavia* and *Ragazona* – see Beltrame, 'Testimonium'. On the 16 *pataches* and *zabras* that left Castro Urdiales in Cantabria in 1586 with Recalde, 13 of which returned to Spain, see Porras Arboledas, 'La aportación', who printed depositions by crew members, or their legatees, that detailed the fate of the ships on which they sailed.

## CHAPTER II. BATTLE STATIONS

In a letter to Idiáquez on 7 May 1588, Medina Sidonia described 'the order I have established for action, badly sketched and in haste, as your lordship can see' (*BMO*, IV/2, 261–2). Although his sketch has apparently not survived, it formed the basis of two distinct drawings forwarded by the Tuscan ambassador to Florence, probably on 28 May: *ASF MdP*, 4919/340 and 5037/615. In addition, Filippo Pigafetta, evidently working from similar sources, gave further information about the fleet's formation in his *Discorso* published in Rome on 27 August 1588, accompanied by an illustration that has apparently now disappeared.

*KML MSP: CR* 5/142–3, 'La forma de cómo se avían de pelear con los galeones', a heavily corrected list of the positions that 70 of the Armada's ships would

assume in the line of battle, probably represents the duke's efforts to work out the most effective formation, settling on the Armada's famous crescent shape. *BMO*, IV/2, 276–7, printed a transcript of this document, but unfortunately it contains numerous errors. Thus the first entry in the 'batalla, derecho' does not read 'Santa Catalina' but 'Real' (meaning Medina Sidonia's flagship); the third entry does not read 'San Agustín/Portugal' (no such ship) but 'Don Agustín [de Mexia]', who commanded the galleon *San Luis*; the first entry in the 'Cuerno izquierdo' does not read 'San Francisco/Portugal' but 'Don Francisco [= de Bobadilla]', at this point sailing on the *San Marcos*; and so on. These are among the very few errors in this magnificent collection.

Where did the duke get the idea of a half-moon battle order? He could draw on two obvious precedents: this was the traditional formation for galleys in battle, from the battle of Salamis in 480 BC (Herodotus described the Athenian fleet as attacking in a semi-circle) to Lepanto in AD 1571; and the fleets sailing between Spain and America also normally crossed the Atlantic with transports at the centre protected by two 'wings' of warships. Most historians, starting with Pigafetta in 1588, considered only the Mediterranean parallel, but given Medina Sidonia's extensive experience in organizing convoys for the Atlantic fleets, and the acknowledged purpose of the Armada, it seems equally likely that he adopted the tactical formation whose worth had already amply proved its value on the Americas run. We are grateful to Richard E. Mitchell and Peter O. Pierson for discussing this problem with us.

Our account of the English Order of Battle is taken from BL *Sloane Ms.* 2177/15b, 'A discription in what order our ffeet shall keepe togeather in fight'. The document, a copy, ends: 'These departed to sea the 18th of this instant', with no month. Because of the names and the number of the ships, the document must date from 1588, and the entire English fleet 'departed to sea' with orders to fight an enemy on three occasions that year: 30 May, 23 June and 19 July (all OS). The last date seems the most likely. Perhaps the copyist put '18th' instead of '19th' because the original used the Roman form 'xviiiij'? McDermott, *England*, 221–2, also discussed this important document, but both our reading and our dating of the text differ from his.

William Stukeley and others aboard the Armada observed 'many fires lit ashore' as they sighted the English coast, and they speculated (correctly) that these were a warning sign. None of them seem to have realized that the 'many fires' formed a chain of beacons conveying news of the Armada's approach along the coast and up to London. Nevertheless, credible news of the first Armada fight only reached London on 2 August (*HMC Foljambe*, 48–9). The following day Elizabeth ordered her peace commissioners in Bourbourg to come home (*CSPF*, XXII, 81).



## CHAPTER 12. STALEMATE IN THE CHANNEL

Elizabeth never issued a formal declaration of war against Spain, but her *Declaration of causes* in the summer of 1589 wrote of ‘this heavy war entered into with the Spaniard . . . wherein the quarrel is not in her own behalf only, but for the safety of kings, kingdoms and dominions in Europe that profess the sincerity of true religion’ (see pp. 2, 17). She thus framed the conflict in just the same way as Philip: a war of religion. The important study of Katz, *Kriegslegitimation*, discussed this and other similar manifestos.

On Elizabeth’s mobilization in anticipation of invasion, see Pollitt, ‘Bureaucracy and the Armada’; Nolan, ‘The muster of 1588’ and *Sir John Norreys*, 108–24; Braddick, ‘“Uppon this instant extraordinarie occasion”’; Younger, ‘If the Armada had landed’; Gerson, ‘The English recusants and the Spanish Armada’; and the literature discussed in ch. 19.

Some historians have argued that Medina Sidonia convened his Council of War on 30 July to discuss a direct assault on Plymouth, but we accept the argument of Admiral Gonzalez-Aller Hierro that the duke consulted his advisers only after the English captives asserted that the whole English fleet was in Plymouth (*BMO*, IV/1, p. CXIII). We believe that Recalde advocated a pre-emptive attack at the council meeting because in a letter written on 29 July, the day before, he regretted that ‘we lack orders to engage the enemy in the port of Plymouth, which does not seem so difficult or foolish to those of us who know a little about it, at least to me’ (*BMO*, IV/3, 262, Recalde to Martín de Idiáquez, 29 July 1588). Then, in two angry messages to the flagship on 1 August, Recalde stated that the council had resolved to blockade Plymouth harbour and lamented the failure to put the resolution into effect. The duke replied: ‘This was discussed by the council, but nothing was decided; nor was it advisable’ (Parker, ‘Anatomy’, 324–5). A surgeon aboard *Rosario* later told his English captors that the council had ‘agreed that if they could pass the haven with twenty ships abreast they would follow that advice’ (TNA SP 12/214/51, interrogation of Dr Góngora). Our assessment of whether a direct attack on Plymouth might have succeeded rests on Brayshay, ‘Plymouth’s coastal defences’.

Mystery also surrounds ‘the Isle of Wight alternative’. Although the king repeatedly forbade the Armada to stop anywhere before ‘joining hands’ with Parma, on 29 July Medina Sidonia and his Council of War decided they would defy him, resolving to wait in the eastern Solent if they had still not heard from Parma by the time they arrived there (*BMO*, IV/3, 266, Medina Sidonia to Philip, 30 July 1588, with additions and corrections from the holograph minute in KML MSP: CR 5/369–70). The king was furious at this departure from his plan: see his comments

on the memorandum about it from Idiáquez dated 14 August 1588 (*BMO*, IV/3, 409–10). However, the duke's *Diario* does not mention any desire or attempt to force an entrance to the Solent; neither does any other Spanish source except Recalde's 'Diario' (Parker, 'Anatomy', 329). So what happened?

We can rule out the possibility that natural forces drove the Armada past Selsey Bill involuntarily. First, the tides off the Isle of Wight are complex (there is for example a double high tide in the Solent) but relatively weak: it is therefore unlikely that the tide swept the Armada eastward against its will, as many authorities have claimed. Second, by general admission, the crucial period saw a flat calm and then a light wind from the south. That, too, would hardly have driven the slow-moving fleet irresistibly eastwards. We therefore conclude that human factors drove the Armada past Selsey Bill: either the Spaniards took a positive decision to press on, or English pressure forced their hand, or both. We are most grateful to Alan Ereira for an illuminating discussion of these matters; and to Admiral González-Aller Hierro for pointing out that had the Armada gathered at Spithead, it would have been vulnerable to a fireship attack much like the one off Calais.

### CHAPTER 13. THE TEST OF BATTLE

The king had foreseen the importance of secure communications between Medina Sidonia and Parma during the campaign, and he devoted a paragraph to the subject in his 'Instructions' of April 1588, blandly stating that it would be possible either for a *zabra* to sail to Dunkirk, or a pinnace to row to 'some beach in Normandy'. He evidently failed to anticipate both the time that this might take, and the total disruption of the postal system in 1588. On the obstacles posed by distance throughout the sixteenth century, see Braudel, *The Mediterranean*, I, 354–94, and Parker, *Grand strategy*, 47–75. On the additional obstacles in the Armada year, see *CSPV*, 381; AGS *Estado K 1567/110*, Don Bernardino de Mendoza to the king, 20 August 1588; and many others. We are very grateful to Professor W. L. Warren for insights into this problem.

A year later, faced by rumours that he had failed to 'do his part' in the Enterprise, Parma sent Philip copies of all the letters exchanged with the Armada, together with other exculpatory documents: see the list in ASP *CF 129* (*Spagna 6*), folder 1, 'Memoria de los papeles que entrego oy 5 de junio 1589 al señor presidente Richardot'. Other sources confirm the chronology given by Parma: the brother of the grand duke of Tuscany reported that Don Rodrigo Tello de Guzmán arrived at Parma's headquarters in Bruges 'on the night of 1 August' bearing letters written by Medina



Sidonia dated 25 July (ASF *MdP* 5151/151–2v, Giovanni de' Medici to Grand Duke Ferdinand, Bruges, 5 August 1588). Letters announcing that the Armada was off Le Conquet in Brittany reached the duke of Urbino's agent in Antwerp on 5 August, and he only learned that the fleet had entered the Channel the following day: BAV *UL* 1056/403, Gratoso Gratosi to the duke of Urbino, Antwerp, 6 August 1588.

Confusion surrounds Parma's estimate of the time required to embark his troops. His first letter to Medina Sidonia on the subject has apparently disappeared but, according to Medina's reply of 7 August, it was written on 3 August (*BMO*, IV/3, 329). La Torre noted the attack on Parma's pinnace as it approached the Armada anchored off Calais, and claimed it brought a warning that the duke was not yet ready, being at Dunkirk 'seven leagues away, to which we could not go for fear of the sandbanks, and from which he could not come because he was not ready' (*BMO*, IV/4, 66–8). The phrase 'ready next Friday' appeared in both TNA *SP* 63/136/153–5v, Examination of Emanuel Fremoso, 12 September 1588 OS; and *BMO*, IV/3, 392–5, 'Cartas dos padres', entry for 7 August 1588. Writing some 30 years later, the Dutch historian Pieter Bor provided the most ingenious account of Parma's message to Medina Sidonia: Parma said he 'could not come out before Friday', but no one could be sure which Friday he meant (Bor, *Oorspronck*, bk. 25, fo. 9v).

Recalde's 'Diary' recorded the arrival at dawn on 7 August of a message sent by the duke's secretary Gerónimo de Arceo, at Dunkirk, stating that nothing had been embarked, and that the process would take 15 days (Parker, 'Anatomy', 330). Medina Sidonia's *Diario* recorded exactly the same information: Arceo asserted that neither Parma's men nor their munitions were yet embarked, 'and that it seemed to him impossible that everything could be done in less than fifteen days' (*BMO*, IV/3, 465–7). Arceo erred, however, because in the event Parma had embarked all his infantry (though not his cavalry) by Tuesday 10 August (ASF *MdP* 5151/162–3, Giovanni de' Medici to Grand Duke, Bruges, 12 August 1588).

For the naval operations of 6–9 August, we have relied for the Armada on the letters and 'Relaciones' printed in *BMO*, IV/3 and 4 (see the discussion of these sources in ch. 9); and for English operations on the accounts printed by Laughton and Adams. The revealing pamphlet *Breeder verclaringhe*, containing Pimentel's interrogation by his Dutch captors, was reprinted verbatim in Bor, *Oorspronck*, III, pt. 2, bk. 25, ff. 11–12; with abbreviated translations into English, Spanish and French (TNA *SP* 84/26/5–12). Laughton, II, 75–6, published an even more abridged English text.

We accept the calculations concerning the speed of tide and wind off Calais on the night of 7–8 August 1588 in *BMO*, IV/1, p. CXLIX, and *BMO*, V, 475–7, 'Calculo de mareas en el Mar Estrecho (canal de la Mancha) año 1588'. Part of the difficulty

in reconstructing the climactic battle on 8 August arises from the fact that neither side could identify any opposing vessels except for the flagships. In trying to link the sources, we have followed the brilliant insights in González-Aller Hierro's introduction to *BMO*, IV/1.

For Parma and the Army of Flanders, see Parker, *Grand strategy*, 229–50; Riaño Lozano, *Los medios navales*; the chronicles reprinted in Parente, *Los sucesos*; and Rinaldi's 'Liber relationum' (discussed above). Two additional sources provide independent reports on Parma's actions: ASF *MdP* 5151/151–68 (the dispatches of Giovanni de' Medici, a Tuscan prince at Parma's headquarters); and BAV *UL* 1056, 'Avvisi dell'anno 1588' (which include reports by Gratoso Gratosi, the duke of Urbino's agent in the Spanish Netherlands).

For the Dutch, Bor, *Oorspronck*, bk. 25, presented material gathered from interviews with survivors and from documents now lost. See also the studies of van Overeem, 'Justinus van Nassau'; Schokkenbroek, "Wherefore serveth Justinus?"; and the Dutch sources discussed on pp. 92–3 above.

Finally, considerable confusion surrounds the fate of the prince of Ascoli. He was the son of Doña Eufrasia de Guzmán, and many thought he was the king's illegitimate son (see ch. 1). In his 'Relación', Pedro Cocco Calderón asserted that Ascoli fled the flagship on the night of the fireship attack, 'taking a pinnace with three servants and a chaplain who brought his money'; and a survivor of *Santa María de la Rosa* claimed that he had been on board, but had drowned when the ship sank in Blasket Sound.<sup>22</sup> Both assertions were untrue. Medina Sidonia dispatched the prince, together with his chief pilot Marolín de Juan, in a felucca with orders to rally specific vessels and to summon the members of the Council of War to his flagship. As Ascoli himself stated, this was nothing new: the duke had sent both men out on earlier occasions to convey his orders to individual commanders and on the night of 7/8 August he sent out several 'feluccas bearing the men he trusted most' together with a list of the ships they must visit (*BMO*, IV/3, 387, Ascoli to Philip, Dunkirk, 12 August 1588). The prince therefore survived and returned to Spain: see ch. 18 for his turbulent career.

#### CHAPTERS 14 AND 15. 'GOD BLEW, AND THEY WERE SCATTERED'; FROM DISPERSAL TO DISASTER

Although some may marvel to read that on 9 August 1588 Medina Sidonia and his Council of War discussed surrender, five other surviving sources confirm the explicit statements by Leyva and Vanegas quoted in our text (*italics added*):

- BMO, IV/4, 66–8, Jerónimo de la Torre, S.J., to Alonso de Deza, 30 September 1588: ‘Someone aboard the flagship went so far as to *suggest to the duke that we should surrender to the enemy*, and some say he would have offered terms if a patache had been available; but no patache was available, which was a particular favour from God and, in any case, the duke did not want to follow this course, preferring to die like a knight.’
- BMO, IV/4, 106, Ordoño de Zamudio to Philip, 5 October 1588: ‘on the flagship *they discussed surrendering to the enemy*’.
- OÖLA KB IV/320, Ambassador Hans Khevenhüller to Emperor Rudolf II, 12 October 1588: Don Balthasar de Zúñiga told him that ‘as they pulled away from the enemy fleet, they stood in great danger of losing everything because of the sandbanks, and they thought *they could not avoid either surrender or destruction*’.
- BMO, IV/4, 373–4, Cristóbal Flores to Diego Flores de Valdés, 3 January 1589: ‘They say that you advocated handing over the royal standard to the enemy *and surrendering*.’
- BNE Ms. 3556/300, ‘Cartas dos Padres da Companhia de Jesús, desde ano 1580 até o de 1588’: ‘when the duke was in great danger of being lost, *some advised him to surrender*’.

For an attempt to reconstruct the discussion by the duke and his council of a possible surrender, extrapolating from these sources, see Parker, ‘August 9, 1588’.

For attempts to reconstruct the unseasonable weather in Atlantic Europe in 1588, see Douglas, Lamb and Loader, *A meteorological study*; and Daultrey, ‘The weather’. Neither survey made use of Recalde’s meticulous log, published in Parker, ‘Anatomy’, which recorded wind directions and changes each day. More seriously, neither survey took into account the fact that the wind directions recorded in all the Armada logs reflected the magnetic variation of 11 degrees east that prevailed in 1588. Four centuries later, magnetic variation is 7 degrees west, so all wind directions in the logs are one compass point ‘off’, which affects attempts to use this source to reconstruct climatic changes. Parker, ‘History and climate’, 122–3, presented evidence of major volcanic activity in 1588.

In documenting the fate of each Armada ship, we have incorporated the information in the ‘Historial’ for each ship in BMO, V: the sources that follow are mostly additions (see pp. 136–8 below for information about the excavated Armada wrecks):

- *Santa Ana*, the flagship of the Vizcaya squadron and the first fighting ship lost by the Armada; see the detailed account of its master: BMO, IV/4, 539

(petition of Captain Juan Pérez de Mutio to Philip, 23 May 1590); AGS *Estado* 594/130-2 (*Relaciones* of events that include transcripts of key letters about the ship); and AGRB *SEG* 11/19v and 29v (payments authorized by Parma to salvage the ship).

- On *Rosario* and *San Salvador*, see Martin, *Spanish Armada prisoners*.
- On the beached galleass *San Lorenzo*, see the description (probably by Valentine Dale) in BL *Sloane Ms.* 262/66v-7v; and BNF *Fonds français* 5045/152-6, M. de Gourdan's report to the French government, 10 August 1588 (copy in AGS *Estado* 693/31; Spanish translation in *BMO*, IV/3, 358).
- On *San Felipe* and *San Mateo*, see Laughton, II, 29-30, William Borlas (the senior officer) to Walsingham, 3 August 1588; and TNA *SP* 101/45/22, Richard Eshertone to Richard Saltonstall, 7 August 1588 (both dates OS). On the munitions salvaged from the two galleons in 1588 see RAZ *Rekenkamer* C 2938, account of Pieter Willemszoen, submitted 1591, and ARA *Resolutieen van de Admiraliteit van Zeeland*, 13-22 August 1588.
- On the Scottish ship captured 'in the sea of Norway' by *Concepción de Lastero*, see Porras Arboledas, 'La aportación', 70-2. On the Scotsmen abducted off Orkney, see AGS *CMC* 2a/1210, unnumbered folio concerning 'Robert Ler, escosés'; and TNA *SP* 63/163/143v and 156, Examination of John de Licorno, from *San Juan de Portugal*, 12 September 1588 (six of the seven Scots captured aboard a 50-ton vessel went aboard Recalde's ship, one of whom fell into English hands when he went ashore on Blasket Sound).
- On *Zúñiga*, see TNA *SP* 63/136/175-6v, examination of Pietro Baptista, its purser, 9 September 1588 OS; *BMO*, IV/4, 485-6, Pedro de Igueldo to Mendoza, Le Havre, 27 April 1589; and *ibid.*, 505, Pedro Centellas to Philip II, Corunna, 2 September 1589; and AGS *CS* 2a/273, unfol., 'Lista de la chusma que se halla en la galeaza Çúñiga', 4 October 1588.
- On *Rata*, see TNA *SP* 63/136/232-5, 'A discourse of the overthrow and shipwreck of the Spaniards on the coasts of Connaught' by Edward White; and *BMO*, IV/4, 455-7 (the only known testimony from a survivor).
- On *Gran Grín*, see KML *MSP: Casa de la Contratación* 8/1-21 (a detailed description of each of the 108 men aboard when the duke of Medina Sidonia embargoed the *urca* in June 1587), and ff. 171-4 (additional munitions loaded, including two *cañones*, three *sacres* and three *medios sacres*, all of bronze).
- On the ships that sheltered in Blasket Sound in September 1588, see TNA *SP* 63/136/182, James Traunt to Sir Edward Denny, 5 September 1588 OS, annotated by Burghley; and TNA *SP* 63/136/70, a defective copy of Recalde's letter asking for supplies. See also the examinations of four captured crew members

(Emanuel Fremoso, Emanuel Francisc, John de Licorno and Piet O’Carr), 10–12 September 1588 OS, in TNA *SP* 63/136/141–5 and 153–8, with an imperfect transcript (from the copy in TNA *SP* 12/216) in Laughton, II, 219–28. Burghley published the depositions (together with some others, rather more fanciful) in the second edition of *The copie of a letter*.

- The main source on Recalde’s odyssey in *San Juan* is his journal, translated by Parker, ‘Anatomy’, 327–36; supplemented by ‘Novas da infelicidade da Armada’, compiled by the ship’s master, printed by Pires de Lima, ‘Um documento português’, 100; and the ‘Relación’ by Marcos de Aramburu, aboard *San Juan Bautista* (Castile), who also spent time in Blasket Sound: *BMO*, IV/4, 189–91.
- Ødegaard, *Alonso de Olmos*, included facsimiles of several letters (with Norwegian translations) by and about the survivors of the *urca Santiago*, ‘the ship of the women’, wrecked near Bergen. In *Den spanske armada*, pt. II, Ødegaard argued that a wreck found in 1989 at Mosterhavn, near Bergen, is *Santiago*. See also Lundh and Sars, *Norske rigs-registranter*, III, 17–19, letters from Copenhagen to the authorities in Bergen, 28 October and 6 November 1588. We thank Knut Geelmuyden of the Statsarkiv, Bergen, for help in interpreting this material, and Paul Lockhart for making us aware of it.
- Robert Adams’s map of the 1588 campaign showed a second Armada wreck off Bergen; and on his return to Spain, Gómez de Medina affirmed that ‘the *urca Santiago*, in which the women travelled, landed in Norway *with another urca whose name he does not know*’ (*BMO*, IV/4, 463–4, letter to Medina Sidonia, Sanlúcar, 10 March 1589, italics added). A ‘Relación de cómo aportó a Noruega un navío perdido de los españoles’ prepared by Henrik Rantzau, a senior Danish official on 29 March 1589 OS, reported that a week earlier ‘a ship of extraordinary size but disintegrating and in very bad shape because it had been shipwrecked three times, carrying 200 Spaniards and many Spanish women from the Armada’ landed at Helsingor at the entrance to the Baltic. The number of survivors suggests they came from *two* Armada wrecks, not just from *Santiago*, but so far all attempts to identify the ship and to locate its remains have failed.<sup>23</sup>
- On the fate of *San Pedro Mayor*, the only ship to be wrecked on the coast of England, see *APC*, XVI, 328–9 (1 November), 347–8 (17 November) and 373–4 (8 December 1588, all dates OS); Laughton, II, 289–95, letters from George Carey and Anthony Ashley to the Privy Council, 5 and 12 November 1588; and *BMO*, IV/4, 441–2, ‘Relación’ by three officers, 18 February 1589. Coco Calderón named Flemish officers who jumped ship at Calais and claimed they came from *San Pedro Menor* (*BMO*, IV/4, 22); but *BMO*, V, 298–9, shows that they came from *San Pedro Mayor*. See also *BMO*, IV/4, 604–5, Gonzalo González

del Castillo to Philip, Blavet (Brittany), 9 March 1592 (English translation in Laughton, II, 371–5).

The loss of life on the Armada campaign is harder to document. Captain Vanegas estimated that 600 of his compatriots died at the battle of Gravelines on 8 August, with another 800 injured (compare this with 430 British killed and 1,260 injured at the battle of Trafalgar in 1805). More men died in the various actions of the previous week, and many more perished on the return journey – drowned, slain or starved – and more (like Recalde and Oquendo) soon followed after their return to Spain. A roll call of the 222 prisoners (*forzados*) aboard the galleass *Napolitana* in November 1588 showed that 35 had died during the campaign, but none of them died in battle: the first died on 30 August, off the Scottish coast, and 16 more before they returned to Spain on 22 September. Another 18 died between then and 25 November, when their commander appointed a special surgeon ‘because there are so many sick oarsmen, and the number is increasing every day because of the suffering they endured on the campaign’.<sup>24</sup> For a complete list of the 158 survivors from *San Pedro*, including ‘a negro’ who died shortly after coming ashore, see TNA SP 12/218/23–5 (partially printed in Laughton, II, 294–6).

Ransoming the Armada prisoners from England and Ireland, Scotland and the Dutch proved to be a complex and prolonged process. On 30 August 1588 a Spanish captain captured on *San Felipe* arrived at Parma’s headquarters on parole to negotiate the ransom of some 200 Armada prisoners in Dutch custody (AGRB SEG 11/24v, Order to pay Captain Martín Dávalos). On 2 October, Elizabeth’s Privy Council followed suit and authorized an offer to ransom her Armada prisoners (TNA SP 77/4/301, ‘Memorial for Richard Thompson sent to the duke of Parma’). Arrangements for their release can be followed in AGS *Estado* 596/9 and BMO, IV/4, 437, Parma to Philip, 13 January and 6 May 1589; AGRB SEG 11/82v–3, 131, 150 and 163v, Parma’s orders to pay ransoms, 29 December 1588 and 12 February, 6 and 17 March 1589; and BMO, IV/4, 535, ‘Relación’ of Spanish prisoners brought back to Corunna in February 1590. ABB VC 1214 gives the names and descriptions of almost 500 prisoners ransomed and repatriated from Dartmouth in January 1590, and the money and clothes issued to each man.

Quinn, ‘Spanish Armada prisoners’ escape’, published an account of the lucky escape of 30 Spaniards taken prisoner in Ireland. While being transported from Dublin to England aboard Captain Christopher Carleill’s pinnace *Swallow*, they overpowered the English crew and absconded with them and the boat. A later report confirmed that they reached Corunna safely (CSPI, IV, 277–8, Report of Luke Plunkett, 8 December 1589).



## CHAPTER 16. ANALYSIS OF FAILURE

Comparing the ships on each side is controversial. Almost all records of the period give the carrying capacity of each ship, not their displacement. Furthermore, the Spaniards and English used quite different formulae for calculating ship tonnages, and neither was intended to give a mathematically exact figure for the burden (let alone the displacement) of the ship. Such calculations were for administrative purposes only; upon them hire charges or port dues would be assessed – see Martin, ‘Spanish Armada tonnages’, and Casado Soto, *Los barcos*, 57–94. Jan Glete’s magnificent study, *Navies and nations*, II, 527–30, showed how to calculate displacement from the known length, beam and draught measurements of each ship – usually between 40 and 50 per cent larger than the ‘tons burthen’ recorded by the documents. We have retained the latter figures because almost all other sources do so, but readers should remember that not all ‘tons’ are alike.

The campaign provided directly comparable data for only one ship: an English assessment of the captured *San Salvador*, rated by the Spaniards as 958 tons, put her at only 600 tons. The latter figure may not, however, take into account a ‘war rating’ increment: one-fifth by the Spanish system, one-third by the English. The question must remain open, though it seems likely that the Spanish method tended to give somewhat higher tonnage figures.

Our account of guns and gunnery rests upon two separate bodies of evidence: archival and archaeological. Voluminous accounts exist for most of the embargoed ships in AGS *CS* 2a/280 and in the ‘Libros de quantas fenescidas’ of *CMC* 2a época (see above). Neither series includes vessels from the squadrons of Castile or Portugal. Those concerning the former are in AGI *Sección III* legajo 2934 and KML *Medina Sidonia Papers: Casa de la Contratación*, 8/30–41; the latter is covered by Salgado, *Os navios*.

We have taken most of our data on guns aboard the Armada vessels from AGS *GA* 347/218, ‘Las naves que fueron en esta última armada’; Thompson, ‘Armada guns’; and Salgado, *Os navios*; supplemented by the evidence of the four excavated Armada wrecks: *Girona*, *Gran Grifón*, *Trinidad Valencera* and *Santa María de la Rosa*. See Martin, *Full fathom five*; Martin, ‘The equipment and fighting potential of the Spanish Armada’; and various excavation reports published in the *International Journal of Nautical Archaeology*. The three wrecks located off Sligo – *Santa María de Visón*, *Juliana* and *Lavia* – await full excavation. For technical data on the external and internal ballistics of smooth-bore artillery we have drawn extensively on Guilmartin, *Gunpowder and galleys*. On the construction of Master Remigy’s siege guns, see the comprehensive account of Roosens, ‘Het Arsenal van Mechelen’.

For a convincing demonstration that even the English could not have fired a 'broadside' at this time, but only each gun on a side in sequence, see Rodger, 'The development of broadside gunnery'. On what they did manage to fire, see Parker, 'The *Dreadnought* revolution'.

The only specific references to damage inflicted by the Armada amount to some sails of the *Elizabeth Bonaventure* 'shot full of hooles' (f. 50); but a survey carried out three days later reported rather more damage, including the mainmast of *Revenge* 'decayed and perished with shot' (Laughton, II, 250–4 at 252). For some idea of the work required before the queen's ships set forth, see TNA SP 12/204/34–5, 'The present state of Her Majesty's navy', 12 October 1587. We thank Nicholas Rodger for help in interpreting these sources.

## CHAPTER 17. THE BITTERNESS OF DEFEAT

The exact fate of the ships which sailed against England in 1588 remains a matter of intense debate. Our starting point was *BMO*, IV/4, 195–8, 'Relación de los galeones . . . y otros navíos que salieron de la Coruña . . . y los que dellos han vuelto a España, por avisos que se han recibido en Madrid hasta 20 del mes de octubre, y en que puertos están, y los que no se sabe, y los que de cierto se han perdido'. A few more vessels would later return to Spain, and a few of those that returned were soon lost (including three squadron flagships: Oquendo's *Santa Ana*, Bertendona's *Regazona* and Recalde's *San Juan*), but this document revealed the Spanish government's understanding of the state of its fleet in late October 1588.

For further details on the fate of most individual ships (and much more), see Casado Soto, *Los barcos*, and the 'Historial' of each one in *BMO*, V, 151–359; but both omitted a few of the losses. For example, the accounts submitted by Vincenzo de Bune, responsible for rescuing the men and salvaging the gear from the flag galleass *San Lorenzo*, included the cost of five shrouds 'to bury the men who drowned in the felucca that capsized as it left Calais for Dunkirk'. This terse entry is their only monument.<sup>25</sup>

We will never know for sure the total number of men crowded aboard the Armada ships who died either before they returned to Spain or soon afterwards. Thus Vincenzo de Bune provided 24 shrouds to bury men killed in action aboard the flag galleass, and hired carts that made 15 journeys 'to carry the corpses that the sea washed onto the beach to the town' for burial in unmarked graves; and a Breton ship claimed to have seen 'the bodies of more than 300 people floating in the sea in the Channel'.<sup>26</sup> Tellechea Idígoras, *Otra cara*, 385–516, printed an official



inquiry in Guipúzcoa and extracts from a survey of 230 Armada dead from Vizcaya. Gracia Rivas, *La sanidad*, 370–9 and 423–42, printed extracts of the same inquiry and created a table based on the survey. Porrás Arboleda, ‘La aportación’, printed claims for both wages and compensation submitted by the heirs of those who died on the Armada from Castro Urdiales down to 1618.

By contrast, some men survived the campaign against all the odds. Some were officers, like Gómez de Medina, Luzón, Cuéllar and Olmos. Others were relatively obscure, like the Dominican friar Juan Guillén who somehow escaped from the wreck of the *urca Santa Bárbara* and got to Flanders, where in February 1589 he received a passport to ‘return to his convent’ in Spain (AGRB *SEG* 11/133v); and Diego López, a soldier aboard *Lavia* who survived the wreck and met Martin Frobisher on his way back to Spain, learning important details about the battle off Portland Bill on 2 August 1588 (*BMO*, IV/4, 521). Gracia Rivas, *Los tercios*, and idem., *La sanidad*, estimated that the overall loss certainly exceeded 10,000 (one-third of those aboard the fleet) and may have approached 15,000 (one-half).

The cost of the Enterprise of England is also a matter of intense debate. Álvarez Nogal, ‘El verdadero impacto’, argued that Philip exaggerated when he told the Cortes of Castile that the Armada had cost ‘more than 10 million ducats’, in an effort to persuade them to pay more taxes; but although he attempted to calculate the actual costs of the Enterprise he inexplicably omitted the money sent to Parma, which almost equalled the amount spent on the fleet.

## CHAPTER 18. THE COUNTER-ARMADA

England’s naval response to the Armada may be followed in Laughton; Whitehead, *Of brags and boasts*; and Lyell, 168–387. For the queen’s spending on the navy see Parker, ‘The *Dreadnought* revolution’, Appendix II; on Ireland, see Dietz, *English public finance*, 432–3; and on the Dutch see Shaw, *Report*, III, xlv. On Elizabeth’s unsuccessful efforts to escape from the Netherlands labyrinth, see Borman, ‘Untying the knot’.

What exactly Elizabeth said to her soldiers at Tilbury on the morning of 19 August 1588 remains a matter of intense debate. Smith, ‘Unlocking *Cabala*’, 223–46, discussed the various interpretations available in print and on screen. Burghley, who was present that day, described the scene in *The copie of a letter* and mentioned a royal speech, but omitted the text. Aske, *Elizabetha triumphans*, a poem printed in 1588, also described ‘the Amazonian queen’ surveying her troops at Tilbury ‘like to Mars, the God of fearful war’, but also omitted the speech. A painting

in St Faith's Church, Gaywood (Norfolk), included a text of Elizabeth's speech (Figure 129: Frye, 'The myth', printed the text); but we have preferred the version contained in a letter written by Dr Lionel Sharpe to the duke of Buckingham in 1623 or 1624, describing what 'I remember in 88, waiting upon the earl of Leicester at Tilbury Camp'. We reprint the text in Nichols, *The progresses*, III, 422–4, and we accept the argument of its editors about its provenance with one exception: they regarded the text in BL *Harleian Ms.* 6798/87–8 as the closest to the original, but the watermark on the paper indicates that it was made in the 1680s. That means this text cannot be in the hand of Sharpe himself, as the editors assert, because he died in 1631. This in turn means that the oldest extant text is the one in *Cabala*, pt. I, pp. 257–62, published in the autumn of 1653.

Now in 1623–4, as in 1653, many Englishmen clamoured for war with Spain, and so on both occasions printing Elizabeth's rousing words served their purpose; but that alone does not render the speech a fabrication, as some have argued. Three things are certain: Sharpe had been Leicester's chaplain at Tilbury in 1588; Elizabeth gave at least one rousing speech to her troops gathered there; and Leicester ordered 'repeaters' to declaim her speech to those who had not managed to hear her. We believe Sharpe's claim that he was one of the 'repeaters' who heard the speech, 'and was commanded to utter it to the whole army the next day'. We thank John Adamson for expert guidance on this matter.

Sharpe also told Buckingham about an 'interrogation' of Don Pedro de Valdés by the Privy Council that he claimed was read out at Tilbury to warn the English troops there what to expect if the Spaniards came ashore. Although we argue that the document was propaganda, and not a true interrogation, two contemporary sources corroborate Sharpe's account of what Valdés told the Privy Council. First, Drake claimed that he had found evidence during his 1587 raid that once Philip had conquered England he 'would not leave one alive of mankind above the age of seven years'. Since Drake delivered Valdés to the Privy Council for interrogation, perhaps he mentioned this anecdote to Burghley, who (as with *The copie of a letter*: see ch. 14) saw and exploited its propaganda value. The second source is 'An ephemeris or diarie' compiled by the English peace commissioners in Flanders, which asserted that a Spaniard who came ashore at Calais claimed the pope had ordered all inhabitants of England over the age of seven to be slain.<sup>27</sup>

On Dutch jubilation at the Armada's defeat, see Scheltema, *De uitrusting en ondergang*, 217–28. On the gloating in England and Ireland, see Cressy, 'The Spanish Armada', and Mears et al., *National prayers*. On the military impact of the Armada on Ireland, see O'Neill, *The Nine Years War*, and Kelly, 'The impact of the 1588 Armada campaign'. Gallagher and Cruickshank, 'The Armada of 1588', argued

that the failure of the Enterprise did not lead directly to *desengaño* in Spain, but they cited numerous texts that seem to prove the opposite.

On the 'Counter-Armada' of 1589, see Wernham, 'Queen Elizabeth'; Calderón Calderón, 'Memoria'; and the documents in Wernham, *The expedition*. For proof that many buildings adjoining Lisbon's western walls had not been demolished in 1589, and that work on modern fortifications did not start until after the English withdrew, see Pinto, 'A sixteenth-century draft plan'. We reject the argument of Gorrochategui Santos, *The English Armada*, based on documents printed by Wernham and some Spanish primary sources, that the 1589 campaign was 'the greatest naval disaster in English history', whereas the Spanish Armada the previous year was not a defeat but merely a frustrated initiative.

On the king's desire for a 'Visita' of the Spanish Jesuit Order, which ended abruptly in May 1589, see Astraín, *Historia*, III, chs 11 and 12. We feel that Astraín and others have not given sufficient recognition to the role of the English descent on Corunna in protecting the Jesuit Order in Spain from royal scrutiny.

On Bernardino de Mendoza, Jensen, *Diplomacy and dogmatism*, does not entirely replace the earlier research of Morel-Fatio, *Études*, 373–490. Laspéras, 'Los libros', transcribed the moveable property mentioned in Mendoza's will of 1604, including 79 books and a portrait of his former commander, the duke of Alba. *Co.Do.In*, XCI and XCII, published most of his dispatches to Philip from London, 1578–84.

## CHAPTER 19. IF THE ARMADA HAD LANDED

On the successful invasion and occupation of England in 1688, see Israel, 'The Dutch role'; Israel and Parker, 'Of Providence and Protestant winds'; the documents in *CSPD James II, 1687–1689*; Japikse, *Correspondentie*, 1st series, II, 597–661, 'Documente betreffende de voorbereiding van de expeditie van 1688 en deze zelf'; idem., III, 1–82, Bentinck's correspondence from 1688; and Jackson, *Devil-Land*, ch. 21.

For detailed accounts of the Dutch invasion and conquest of England by eyewitnesses, see Huygens, *Journaal* (the diary kept by William's private secretary); Burnet, *The expedition and Bishop Burnet's history* (with additional material in Foxcroft, *A supplement*); *HMC Seventh Report, Appendix*, 225–8, and Read and Waddington, *Mémoires inédits*, 211–29 (accounts by two French officers); Jones, 'Journal', and Cambridge, 'The march' (two parts of an account by another French officer); Whittle, *An exact diary*; and *HMC Eleventh Report, Appendix Part V*, 203, letter of Cron, a Brandenburg envoy aboard the Dutch flagship. For first-person accounts by their English opponents see Laughton, *Memoirs*, 18–32 (account of

George Byng); Taylor, *The entring book of Roger Morrice*, IV; and the correspondence of the commander of James's fleet, and related documents (including the Journal of Grenville Collins, master of Dartmouth's flagship) in *HMC Eleventh Report, Appendix Part V*, and *HMC Fifteenth Report, Appendix Part I*, 'The manuscripts of the earl of Dartmouth'.

For syntheses based on these sources, see Powley, *The English navy*; Jones, 'The Protestant wind'; Davies, 'James II'; and three articles by J. L. Anderson, 'Climatic change', 'Combined operations' and 'Prince William's descent'. The unjustly neglected volume of Campana de Cavelli, *Les derniers Stuarts*, II, printed extracts – often lengthy – of the dispatches of the Imperial, French and Italian ambassadors at the court of James II in 1688, revealing what King James knew, when he knew it and how he responded.

McConnel, 'The 1688 landing', devoted 32 pages to the proposition that William III and his army landed at Torbay on 4 November OS and that his supporters later changed it to 5 November so that it coincided with celebrations of the discovery of the Gunpowder Plot. Unfortunately, McConnel relied on a small selection of English sources: those who travelled with William unanimously contradicted his argument. For example, the entry for 14 November NS in the diary (in Dutch) of Huygens, who sailed with the prince on his flagship, stated that 'in the afternoon we discussed whether we should enter Dartmouth harbour or Torbay', and he began his entry for 15 November NS: 'This afternoon we finally arrived in Torbay' and described the subsequent landing.

For data on England's dilapidated fortifications in 1588 see Colvin, *The history of the king's works*, IV, 415–65 and 602–6; Bruce, *Report*; and Wilford, *A military discourse*. On the 'muster of 1588', see Thompson, *The Twysden Lieutenancy Papers*; Goring and Wake, *Northamptonshire Lieutenancy Papers*; and above 'Book of Musters' in *HMC Foljambe* (see above). Braddick, "Upon this instant extraordinarie occasion", used the register concerning the defence of the realm in 1588 kept by the earl of Huntingdon, entrusted with defending the north of England. Braddick also made helpful comparisons with the similarly pessimistic conclusions of McGurk, 'Armada preparations' for Kent, and other regional studies.

On the English Catholic exiles and the possibility of domestic support for a Spanish invasion, see Mattingly, 'William Allen'; Adams, 'Stanley, York and Elizabeth's Catholics'; Loomie, 'The Armadas and the Catholics of England'; and Wiener, 'The beleaguered isle'. On the arrangements for an interregnum if Elizabeth died, see Collinson, *Elizabethan essays*, 34–55. On the anti-Spanish propaganda produced in England in the years before the Armada, see Fagel, 'Gascoigne's *The spoyle of Antwerpe*', and Sánchez, 'Anti-Spanish sentiment'.

Nolan, 'The muster of 1588', and Younger, 'If the Armada had landed', took a more positive view of England's chances of defeating a Spanish invasion. Indeed, Younger offered a comprehensive critique of our argument in earlier versions of this book and demonstrated that English preparations to defeat an invading army in south-east England were somewhat 'better organized, more efficient and more willing than has been recognised'. We have amended our analysis to take account of his findings. Nevertheless, Younger's overall argument contains two major flaws. First, almost all England's preparations by land aimed to repel a landing in Essex, whereas Parma intended to land in Kent: however effective the defences in and around Tilbury, they could not have prevented an invasion army from coming ashore at Margate. Second, Younger accepted a contemporary estimate that Parma would need 'six days' to embark his forces after learning that the Armada had arrived; but in the event the duke's troops completed the operation in 48 hours. Had Medina Sidonia managed to remain anchored off Calais for two more days and then escorted Parma and his troop across the Channel, perhaps by using his galleasses as a protective shield, Philip's veterans could have begun their march on London before Elizabeth's 'preparations' in south-east England were complete. We therefore stand by our verdict that, in military terms, a Spanish invasion in 1588 would have succeeded in much the same way as the Dutch invasion a century later.

On the preparations made to defend south-east England from invasion in 1940 see the excellent unpublished theses of Newbold, 'British planning', and Esnouf, 'British government war aims'. See also Cookson, 'What if Napoleon had landed?', on the poor state of English defences in 1804, and on Napoleon's later admission that he had planned to land between Deal and Ramsgate and then march swiftly to capture London.

On the protocols, perils and possibilities of counterfactuals, see Tetlock and Belkin, *Counterfactual thought experiments*, and Tetlock, Lebow and Parker, *Unmaking the West* (especially the introduction and the chapters by Eire and Hassig). Keith Roberts provided a fine alternative history in his 1968 novel *Pavane*, which opened with the probable consequences of Elizabeth's assassination in July 1588 and then provided a reminder that success is never final.

## CHAPTER 20. THE ARMADA IN HISTORY AND LEGEND

On the illustrious post-Armada careers of Mexía, Pimentel and Zúñiga, see their respective entries in the *Diccionario Biográfico Español* published by the Real

Academia de la Historia of Madrid: <http://dbe.rah.es/biografias/12478/agustin-mejia>; <http://dbe.rah.es/biografias/14174/diego-portugal-y-pimentel>; and <http://dbe.rah.es/biografias/16014/baltasar-de-zuniga-y-velasco>. On the later career of Don Pedro de Valdés, see Martínez, *Cartas de Felipe II*. On the English protagonists, see the entries in *ODNB*.

On how the English used the defeat of the Armada as a rallying cry at critical moments down to 1740, see the remarkable thesis of Reimer, 'Before Britannia'. On the comparisons with 1588 drawn in 1688, see Israel and Parker, 'Of Providence'.

We have reconstructed the debates in 1887–8 over the tercentenary commemoration in Britain from entries in *The Times* and selected provincial newspapers, and from Rogers, '1688 and 1888'. For Spain, we consulted entries in the following Madrid newspapers for 1887–8: *La época*, *La correspondencia de España*, *El liberal*, *La unión católica*, *El imparcial*, *La Iberia*, *Diario oficial de avisos de Madrid*, *El siglo futuro*, *La Ilustración Española y Americana* and *Los Dominicales del Libre Pensamiento*.

The art of Elizabethan England has attracted immense interest, including items connected with the Armada. Hearn, 'Elizabeth', analysed the massive Armada painting now owned by the Society of Apothecaries of London (but note that Hearn confused OS and NS dates), as well as two miniatures (14 x 35 cm, 5½ x 13¾ in; and 13 x 38 cm, 5¼ x 14¾ in) made in the Netherlands, which show similar events and may come from the same studio as the Apothecaries' canvas. Mears, 'Walls speak', described seven Armada wall paintings, including those in Bratoft (Lincolnshire) and Gaywood (Norfolk): we thank Dr Mears for allowing us to cite her fascinating unpublished paper, and for commenting on this chapter. Belsey and Belsey, 'Icons of divinity', discussed the 'Armada portrait' (among others). On the Armada tapestries commissioned by Howard, see Jansson, 'Remembering'; Farrell, 'The Armada tapestries'; and <https://armada.parliament.uk/history.html>.

Lyell, 'A commentary', 232–3, remains the best analysis of the only contemporary English account of the Armada campaign, composed by Petruccio Ubaldini on the basis either of detailed notes provided by Howard or on BL *Cotton Ms. Julius F.X/95–101*, which Laughton entitled 'A relation of proceedings' (Laughton, I, 1–18). Ubaldini then made an Italian translation ('Commentario del successo dell'Armata Spagnola': BL *Royal Manuscript 14.A.X*), presented to Howard in April 1589, who in turn commissioned copies which he presented to his friends as a New Year's gift in January 1590. Howard also arranged for Ubaldini's account to be translated into English and published as *A discourse concerning the Spanishe fletee invading Englande in the yeare 1588*. The volume included engravings by Augustine Ryther of the 11 charts of the campaign commissioned by Howard from Robert



Adams. They also appeared in a Latin version: *Expeditionis hispanorum in Angliam vera descriptio, anno D.MDLXXXVIII* (London, 1590).

Mears et al., *National prayers*, 162–90, printed and discussed the instructions issued by the central government for special prayers and thanksgivings in England, Ireland and Scotland connected with the threat from Spain between 1586 and 1589. Edwards, *A collection*, 159–61, described endowments to fund Armada sermons made before 1640.

The quatercentenary of the Armada in 1988 generated more than 100 publications on the campaign and related topics, almost all in English or Spanish. Most of the new narrative accounts are straightforward reiterations of the old story, though many contain good illustrations and the best of them are told with panache. Of the few with fresh material to add, much the best is the National Maritime Museum's splendid *Armada 1588–1988* (London, 1988), edited by María José Rodríguez-Salgado: a lavish catalogue of its 1988 exhibition with linked commentaries by leading scholars.

The proceedings of two international conferences held in the quatercentenary year provided rich veins of new material. A conference held in Sligo resulted in the publication of Gallagher and Cruikshank, *God's obvious design*, which included important studies by Martin ('The ships of the Spanish Armada'); Thompson ('Spanish Armada gun policy'); O'Donnell y Duque de Estrada ('The requirements of the duke of Parma'); Schokkenbroek ('The role of the Dutch fleet'); and Daultrey ('The weather of north-west Europe'). In an appendix, Gallagher published a new transcription and translation of Francisco de Cuéllar's account of his adventures during and after the Armada campaign. Rodríguez-Salgado and Adams, *England, Spain, and the Gran Armada*, included 10 papers given at the Anglo-Spanish conferences in London and Madrid, several of them presenting English summaries of studies published in the important series sponsored by the Spanish Instituto de Historia y Cultura Naval: the individual volumes by Casado Soto, *Los barcos* (on the Armada's ships); Gómez-Centurión, *La Invencible y la empresa de Inglaterra* (an account of the aims of the expedition and the propaganda that surrounded it); O'Donnell y Duque de Estrada, *La fuerza de desembarco de la Gran Armada*; Parente, *Los sucesos de Flandes de 1588* (which reprinted in convenient form all histories of the 'Enterprise' written by Spanish contemporaries serving in the Netherlands); Riaño Lozano, *Los medios navales de Alejandro Farnesio*; and two volumes by Gracia Rivas, *Los tercios de la Gran Armada* (the history of each infantry formation that sailed on the fleet) and *La sanidad en la jornada de Inglaterra* (describing both the diseases that afflicted the men on the fleet and the measures, spiritual as well as medical, taken to cure them).

## CHAPTER 21. THE ARMADA SHIPWRECKS

For early salvage attempts we have used the ship biographies in *BMO*, V; Rowe, *A demonstration of the diving engine*; Sinclair, *The hydrostaticks*; and Earle, *Last fight of the Revenge*. Martin, *Full fathom five*, described the excavation of the principal Armada wrecks; and Ripoll and Oña Fernández, 'Aproximación', provided an overview of European museums that contain Armada artefacts (although with some omissions, such as the Shetland Museum, Lerwick, which contains items excavated from *Gran Grifón*). William Asheby, Elizabeth's agent in Edinburgh, collected and relayed much news about Armada ships wrecked in Scotland (*Gran Grifón* and *San Juan de Sicilia*) and the north of Ireland (*Trinidad Valencera* and *Girona*): see summaries of his letters in *CSPSc*, IX and X, supplemented where necessary by the originals in TNA *SP* 52/42–4 and BL *Cotton Ms.* Caligula D.I:

- On *San Juan de Sicilia*, see McLeay, *The Tobermory treasure*, and Brown and Whittaker, *A treasure lost*, augmented by *BMO*, IV/4, 533, petition in 1589 by Juan de Soranguen, a sailor who transferred from *María Juan* and survived the explosion in Tobermory Bay; and *ibid.*, 544–8, deposition by Vincenzo Martolossi of Ragusa, the ship's owner, 3 July 1590, which included the testimony of some other survivors. See also *HMC Sixth Report*, 606–33; Lang, 'The mystery'; and Kostić, 'Ragusa' (who among other things noted with exasperation that many people involved with the ship used several different names, inspissating the obscurity that surrounds the wreck: p. 211).
- We have relied on the work of Robert Sténuit for *Girona*, supplemented by the ship's 'pliego de asiento' in AGS *CS* 2a/273, which includes the dossiers of some survivors.
- On *Santa María de la Rosa*, see Martin, *Full fathom five*, pt. I, 'The Spanish Armada expedition 1968–70' and *La Santa María de la Rosa*. See also AGS *GA* 81/422, Service Record of Francisco Ruiz Matute (1567 to 1576): he fought in Granada and at Lepanto before joining the *tercio* of Naples as a soldier, rising through sergeant to *alférez* (lieutenant). Promoted to captain for the Armada campaign, he chose his brother Juan Ruiz Matute as *alférez* of his company. The two 'Matute plates' excavated from the wreck of *Santa María* might therefore have belonged to either brother because both of them drowned in Blasket Sound. AGS *CS* 2a/276/774–7 and *CS* 2a/279/313–15 contain the records of Matute's infantry company, most of whom also drowned when *Santa María*



went down. In 1968, Horace Beck recorded a story told by a *filé* (bardic storyteller) from Great Blasket about the sojourn of the Armada ships in the Sound, which included the name of *Santa María*, the escape of a ship's boy to tell the tale, and the burial of 'the prince of Spain' whose body was washed ashore. Beck left just before the arrival of Sydney Wignall and his team, including Colin Martin, whose careful excavation confirmed many of the details preserved for almost 400 years in local oral tradition: Beck, 'The prince of Spain'.

- On *Gran Grifón*, see Martin, *Full fathom five*, pt. II, augmented by *BMO*, IV/4, 461–4, Gómez de Medina to Medina Sidonia, 4 and 10 March 1589, and 500–1, Gómez de Medina to Philip, July 1589 (stylistic and internal evidence suggests that Gómez did not write the anonymous account of the ship's fate, printed at *BMO*, IV/4, 303–5). Two editions of the *Diary* kept by James Melville, the minister of Anstruther who met and succoured Gómez and his men, appeared in the nineteenth century, both transcribing the original Scots. We have cited the text published for the Bannatyne Club in 1829, with anglicized spelling.
- On the fate of *Valencera*, see Martin, *Full fathom five*, pt. III, and idem., '*La Trinidad Valencera*'; Beltrame, 'Three Venetian ships'; and the accounts of individual survivors in TNA *SP* 63/137/97–101 (Luzón, Balthasar López del Arbol and others, Drogheda, 13 October 1588 OS, with a partial transcription in Laughton, II, 271–6); *BMO*, IV/4, 388–90 (Antonio Martínez, the Portuguese pilot, and Juan de Lázaro, steersman, both on 10 January 1589); *ibid.*, 390 (Francisco Duarte to Andrés de Alva, Lisbon, 11 January 1589, reporting the testimony of an anonymous Venetian sailor); *ibid.*, 394–5 (testimony of Juan de Nova and Francisco de Borja, soldiers, Paris, 16 January 1589); *ibid.*, 444–5 (testimony of Benito Amador, soldier, [Paris] 20 February 1589); *ibid.*, 455–7 (Melchior de Sevilla, the ship's master, Ribadeo, February 1589); and *ibid.*, 502 (petition of Orazio Donaggio, the ship's captain, 22 August 1589).
- The present authors identified *Lavia*, *Santa María de Visón* and *Juliana*, wrecked on Streedagh Strand and rediscovered by underwater archaeologists in 1985. Their fate is best followed in the account by Captain Francisco de Cuéllar. Two manuscript texts of his 'letter' survive, both of them copies, and we have used the critical edition, with English translation (which we have followed with a few changes), printed in Gallagher and Cruickshank, *God's obvious design*, 193–247. On Cuéllar himself, see Kelly, *Captain Francisco de Cuéllar*, who surmises plausibly that the captain wrote in part to defend himself from the charge of cowardice for which Medina Sidonia had condemned him. On *Lavia* see also Beltrame, 'Testimonium'; and *BMO*, IV/4, 502–3, petitions by the captains of

*Lavia* and *Santa María de Visón* for payment of the hire of their ships, and their ransoms, 22 August 1589.

## EPILOGUE

Boxer, *Journal*, 12–13 and 33–49, printed several parallels drawn by contemporaries between the fate of the Spanish Armada in 1588 and of Oquendo's fleet in 1639 (and noted that the catastrophic defeat of the Downs occurred on 21 October, the same day as the equally catastrophic defeat of yet another Spanish Armada at Trafalgar in 1805). See also Boxer's introduction; de Boer, *Tromp*; and Fernández Duro, *Armada Española*, IV, on the course of the campaign.

Finally, to calm you down, you can listen to June Armstrong's 'The Girona suite: eight evocations for piano' at <https://archive.org/details/TheGironaSuite/01+Girona.mp3>.

## NOTES

1. Vermeir, 'The ransoming', described this fascinating document. Professor Vermeir graciously sent us scans of the original and a partial transcript.
2. For details on the number of images please click the Estadísticas tab on the PARES homepage, which is regularly updated.
3. Parker, 'The Altamira Collection', provides a brief history of the archive and its contents.
4. We thank Giovanni Muto for verifying this information in a letter to Geoffrey Parker, 8 April 1985; and for assisting Parker to locate the surviving Armada papers when he worked in ASN in 1995.
5. AGRB *SEG* 12/46v, Parma's warrant awarding Vázquez a pay supplement, 20 June 1589; and his service record to 1595 in AGS *CS* 2a/275, unfol., under 'A' for Alonso.
6. Hale, 'The production'.
7. Gachard, 'Les archives farnésiennes', 252–7, reconstructed in masterly fashion the fate of Parma's papers as governor in the Netherlands.
8. ASN *CF* 1804.I, 'Fiandra: giustificazzione di spese', contains Rinaldi's signature on numerous purchase orders for Parma's household throughout 1588. On this manuscript, see van der Essen, 'De auteur en de beteekenis'; and Derks, 'The fruits of war'.
9. Latham and Matthews, *The Diary of Samuel Pepys*, VI (1665), 307–8, entry for 24 November 1665 OS. Poor legibility did not prevent Pepys from collecting numerous manuscripts on the Elizabethan navy, and they are today in the Pepysian Library of Magdalene College, Cambridge.

10. O'Neil, 'The fortifications', 251, and Laughton, I, lxxi, noted Bruce's deficiencies; BL *Harleian Ms.* 6994/112 and 120, Howard to Burghley, 23 January and 13 April 1588 OS.
11. The 'ledgers' were among the 26 manuscript volumes concerning the Elizabethan navy removed by Richard Rawlinson and now in Bod *Rawlinson Mss.* 170–95.
12. The original is now in Nottinghamshire Archives, Nottingham, DD/FJ/10/15/5, 'Boke of Musters, containing all such directions as have been given for mustering and training of the forces of the Realme since the year 1583'.
13. Details on the 1587 Instructions in Parker, 'Queen Elizabeth's instructions'; for the other two, see Sotheby's e-catalogues for 2011 and 2014.
14. McDermott, *Martin Frobisher*, 404–5, noted the bequest to Mary Masterson, but because he worked from a copy (*ibid.*, 479 n. 50), McDermott overlooked the fact that Frobisher himself inserted her name in the blank spaces.
15. Paraque, *Elizabeth I*, 15; Teulet, *Relations politiques*, IV, published Châteauneuf's dispatches down to August 1587.
16. Khevenhüller-Metsch and Probst-Ohstorff, *Hans Khevenhüller*; Veronelli, *Diario*.
17. HHStA *Statenabteilung Spanien: Diplomatische Korrespondenz* neu 11, Konvolut 5/151–5, Khevenhüller to Rudolf, 26 April 1586.
18. This information and the comparison comes from a letter from Christiane Thomas, archivist at the HHStA, to Geoffrey Parker, 3 and 23 August 1989, and from Friedrich Edelmayer to Parker, 15 December 1989; and in emails from Annemarie Jordan to Parker in 2020.
19. The title page of the BL copy is annotated: 'Je suis à Jacques Goullain, fils de feu Guillaume, lequel fist l'achat de moy en la ville de Lissbonne. 1588'. But was Goullain a spy, or did he embark on one of the Armada vessels captured by the English? We know that the updates continued because on p. 10 a Spanish hand wrote beside the entry for the marques de Peñafiel 'Al presente, duque de Ossuna'—something that happened in September 1590. We thank Claire Sabel for securing a copy of this item for us.
20. PRO *SP* 70/143/29, Sir John Smythe to Walsingham, Madrid, 5 February 1577.
21. William Stukeley was the son of Thomas Stukeley, an Anglo-Irish exile. We know little about him, but one of the Spaniards shipwrecked in Ireland claimed that he was 'a man of a reasonable stature, bald, and very like Sir William Stanley' (the Anglo-Irish traitor who had betrayed Deventer to Parma in 1587): TNA *SP* 63/136/84, examination of 24 Spaniards taken at Tralee and then executed in September 1588.
22. BMO, IV/4, 20–4, 'Relación' of Coco Calderón; TNA *SP* 63/136/146–7, examination of Giovanni Antonio Manona. See also the legend of 'the prince of Spain', recorded in ch. 15.
23. RAH *Ms.* 9/0358 (formerly *Jesuitas* 105), ff. 322–3v. We thank Torbjørn Ødegaard for providing us with a scan of this document.
24. Gracia Rivas, *La sanidad*, 372; AGS *CS* 2a/273, order of Peruccio Morán, captain of the *Napolitana*, Santander, 25 November 1588.

25. AGS *CMC* 3a/1704, bundle 45, Cuentas of Bune, audited 1599. Of the seven feluccas that left Corunna with the Armada, only one returned: *BMO*, IV/4, 599–601, and V, 357–9.
26. AGS *CMC* 3a/1704, bundle 45, Cuentas of Bune; *BMO*, IV/3, 455, statement of Palomino Regedel, captain of the galley *Princesa*, 20 August 1588.
27. *Cabala, sive scrinia sacra*, 258–9, ‘Dr Leonell Sharpe to the duke of Buckingham, 1623’; Hopper, ‘Sir Francis Drake’s memorable service’, 19; BL *Sloane Ms.* 262/67.