

## South African lighthouses Chance Brothers and the rest

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The tables below summarize the pertinent details for most of the lighthouses built in South Africa between 1824 and 1988. The first table indicates the date when the Chance apparatus was installed, even though the original lighthouse might be older, while the second table follows the chronological order of lighthouses built without a Chance apparatus. More information is provided in some cases than others, mainly where it offers some historical interest. Before the 1860s the apparatus was acquired from Henri Lepaute of Paris and Messrs Wilkins of London, but after Robben Island was installed with a Chance lens in 1863 most new lighthouses were also so equipped. It is interesting to note the mention of the name William Stokes several times. As one of Chance Brothers' chief commissioning engineers, he was responsible for ensuring the apparatus was installed correctly, following the tradition established by James Chance at the time of the 1861 Royal Commission. When the Slangkop light was lit in 1919 it was one of Chance Brothers' turnkey installations that can now be found in most parts of the world, the company supplying practically the entire lighthouse – tower, burner, lens, revolving pedestal and lantern. After 1915 many of the older Chance optics were replaced by AGA apparatus, but from 1960 Stone–Chance optics began to pull back some of the ground lost to AGA.

Place	Date when a Chance apparatus was installed	Description
Robben Island, Cape Town, Western Cape	1863	First-order Chance Brothers fixed (drum) lens with upper and lower refracting prisms and a four-wick Trinity House burner. Total initial cost £7,127 8s 2d including the tower. The burner was replaced in 1912 with a 3mm x 35mm burner and in 1921 by a Chance Brothers 110mm petroleum-vapour burner. In 1925 a Chance Brothers diaphone fog signal was installed. (This vicinity has about the same number of days of fog as the English Channel, i.e. 430 hours per year on average.) Chance Brothers upgraded this to a 216mm diaphone in 1938, which was replaced by an AGA electric fog signal in 1979. The shutter system was replaced in 1979 with a 1,500 Watt flashing incandescent light. This lighthouse is the only one on the South African coast which has an occulting character. A red sector covers the notorious Whale Rock.
Green Point, Cape Town, Western Cape	1864	The original reflector apparatus was supplied by Lepaute of Paris in 1824 and replaced with a Chance Brothers third-order optic in 1864 and a two-wick Trinity House burner

		producing 8,500 candle power. Due to wear and tear the optic was replaced in 1922 with a third-order, three-panel AGA lens, which is still in use today.
The Bluff, Durban Natal	1866	The original Chance Brothers lens was replaced in 1922 by a third-order Chance lens mounted on a mercury-bath pedestal with clockwork drive. The light was demolished in 1941 to make way for an artillery installation, but Chance Brothers supplied two new automatic lights, one to replace the old Bluff light (Cooper Lighthouse) while the other went to Umhlanga Rocks about 15 miles north on the other side of Durban, which was installed in 1953.
Cape St Francis, Eastern Cape	1878	Second-order Chance Brothers lens and lantern, the lens comprising eight panels with upper and lower refracting prisms, lit with a three-wick Trinity House burner producing 15,000 candlepower. This was increased to 2,750,000 candlepower in 1931 with the installation of a 4kw electric lamp. A 400-Watt metal halide lamp is presently in use.
Green Point, KwaZulu-Natal	1892	Second-order Chance Brothers lens and cast-iron tower.
Bird Island, Eastern Cape	1893	First-order Chance Brothers lens with a Trinity House Douglass burner producing 47,000 candlepower. In 1967 the lens and pedestal were replaced with an AGA 250mm catadioptric four-panel lens and pedestal producing 1,465,000 candlepower.
Dassen Island, Western Cape	1891	A first-order Chance Brothers lens was installed in a 80ft cast-iron tower along with a 12ft lantern, spares, stores etc at a cost of £6,700. William Stokes of Chance Bros installed it. Its six-wick Trinity House Douglass burner produced 47,000 candle power, and was replaced in 1906 with an incandescent petroleum 180,000-candlepower vapour burner, and in 1940 by 4kw electric lamp producing three million candlepower. The optic was replaced in 1974 with an AGA 250mm catadioptric pedestal.
Hood Point, East London, Eastern Cape	1895	First-order Chance Brothers quadruple group flashing lens with four dioptric panels with a totally reflecting prismatic mirror of 180 degrees, rotating on a mercury bath powered by a 3 cwt clockwork weight.
Danger Point, Walker Bay, Western Cape	1895	First-order Chance Brothers lens with a six-wick Trinity House burner giving out a triple flashing white light. The lens had 12 panels and weighed three tons, housed in a lantern room supplied by Chance Brothers and commissioned by William Stokes. The optic was replaced in 1970 by a 250mm AGA lens and pedestal, and the original restored optic is soon to be displayed at a new exhibit at the lighthouse.
Cape St Blaize, Mossel Bay, Western Cape	1897	Fourth-order Chance Brothers lens installed, replacing the original bought in 1862 from W Wilkins & Co of London. The first South African light to be rotated on ball bearings.
Great Fish Point, Eastern Cape	1898	First-order Chance Brothers lens, the identical twin of the lens supplied for Cape Leeuwin in Western Australia. One of the first so-called bi-valve or clam-shaped, first-order lenses

		built by Chance Brothers.
Cape Hermes, Transkei, Eastern Cape	1904	The original fourth-order Chance Brothers lens and petroleum-vapour burner was replaced in 1935 with an 800mm AGA dioptric drum lens.
Green Point, Port Shepstone, Natal	1905	Second-order Chance Brothers lens floating on a mercury pedestal producing 240,000 candlepower. The Green Point Lighthouse has a red sector covering the Aliwal Shoal, with two racons positioned at Scottburgh and Widenham, which mark the extremities of the Aliwal Shoal.
The Hill, Port Elizabeth, Eastern Cape	1906	Chance Brothers vapour burner. Optic supplied by Messrs J Pintsch of Germany in 1903. This lighthouse was discontinued in 1973.
Cape St Lucia, KwaZulu-Natal	1906	Chance Brothers cast-iron tower and lens, replaced by an AGA optic in 1915. AGA had to manufacture a special cast-iron ring so that the new glass section could be mated to the tower. The optic in turn was replaced in 1964 by a Chance Brothers fourth-order lens on an optical pedestal equipped with an automatic lamp exchanger and duplicated lens motor drives, producing 600,000 candelas from the 1,500 Watt incandescent electric lamp. A 400-Watt metal halide lamp is presently in use.
Port Nolloth, Northern Cape	1909	Probable Chance Brothers fifth-order light with petroleum-vapour burner, replaced in the 1970s with an AGA beacon. A VEGA VRB 25 beacon is presently in use.
Cape Agulhas, Western Cape	1910	A Henri Lepaute lens was originally installed in 1849 and replaced by a first-order Chance Brothers lens in 1910 producing 470,000 candlepower, and a Chance Brothers petroleum-vapour burner in 1921. It was electrified in 1936 increasing the power to 12 million candela. In 1968 the limestone tower fell into disrepair and was replaced with a 75.5ft (23m) aluminium tower supporting a 300mm Stone-Chance four-panel catadioptric lens giving a white flash every five seconds at 1,069,000 candlepower. Local preservationists intervened and in 1988 the original tower and light were recommissioned. The aluminium tower was used to replace the old cast-iron tower at Quoin point (between Agulhas and Danger Point) while the Stone-Chance optic was installed at the Groenriviermond light in Namaqualand north of Cape Town. Cape Agulhas now serves as the official lighthouse museum of South Africa.
Cape Point, Cape of Good Hope, Western Cape	1919	The original light was first lit in 1860 using a first order French lens which only produced 2,000 candlepower. Situated too high and often shrouded in fog, it was dismantled and a new light equipped with a Chance Brothers first-order lens was installed lower down the cliff in 1919 – the most powerful lens in South Africa to this day. A 400-Watt metal halide lamp is presently in use producing an intensity of approximately 10,million candela.
Slangkoppunt, Kommetjie, Western Cape	1919	A first-order lens was installed in a 98ft (30m) cast-iron tower, both supplied by Chance Brothers along with a 3mm x 35mm incandescent petroleum-vapour burner. The group

		flashing lens exhibited four white flashes every 20 seconds.
Cape Columbine, Paternoster, Western Cape	1936	Third-order Chance Brothers lens. The first lens system in South Africa designed for use with a 4kw incandescent electric lamp. A 100mm incandescent petroleum-vapour burner was installed as a back up. The lens carriage is supported on a mercury-float pedestal, rotated by means of a weight-driven clockwork machine. A duplicated gearbox and electric-drive motors are presently in use to rotate the lens. The lantern is a standard Chance Brothers 3.3m lantern with 24 curved, polished, plate-glass panels 9.5mm thick. A twin 216mm Chance Brothers diaphone was also installed. A Pharos Marine nautophone is presently in use and the diaphone is on display in its original position. This is where the first Marconi type radio beacon was installed on the South African coast. It was the last manned lighthouse to be built in South Africa and is among the 15 stations still manned.
Cooper Light, Durban, KwaZulu-Natal	1953	An automated Chance Brothers lens was originally supplied in 1942 but only installed 11 years later. The lighthouse is named after South Africa's first Lighthouse Engineer H C Cooper, who supervised all the South African lighthouses built between 1902 and 1941. The apparatus comprises a 187.5mm sixth-order dioptric two-panel system producing a flash of 1 million candlepower. The intensity was increased to 1.3 million candela when a 1,500-Watt lamp was later introduced. A 400-Watt metal halide lamp is presently in use.
Umhlanga Rocks, Durban, KwaZulu-Natal	1953	A fully automated, three-panel, sixth-order Chance Brothers lens producing 600,000 candlepower.
Milnerton, Cape Town, Western Cape	1960	Stone-Chance fourth-order catadioptric revolving lens.
Doringbaai, West Coast, Western Cape	1963	The original optic was a Stone-Chance catadioptric lens – the first automatic lighthouse erected in South Africa to have an aluminium lattice structure. During a violent wind storm in 1991 the lattice structure, lantern and optic were destroyed. A Pharos Marine PRB 21 sealed beam lamp array type optic was installed when the replacement concrete structure was commissioned in 1993.
Cape Morgan, Eastern Cape	1964	Stone-Chance 250mm catadioptric lens.
Ystervarkpunt, Western Cape	1964	Stone-Chance 250mm catadioptric revolving lens.
North Sand Bluff, Port Edward, KwaZulu-Natal	1968	Stone-Chance 250mm catadioptric revolving lens.
North Head, Saldanha Bay, Western Cape	1969	Stone-Chance 250mm catadioptric group flashing three-panel lens.
South Head, Saldanha Bay, Western Cape	1969	Stone-Chance 250mm catadioptric group flashing four-panel lens.
Tugela, North Coast, KwaZulu-Natal	1969	Stone-Chance 250mm catadioptric group flashing four-panel lens.
Cape St Martin, West	1977	The original optic comprised a 500mm AGA acetylene gas

Coast, Western Cape		lantern with an open flame AGA gas flasher and sun valve. A VEGA VLB-44, four-tier LED lantern is currently in use and will be replaced with a VRB 25 rotating beacon soon.
South Sand Bluff, Eastern Cape	1982	500mm AGA lens originally installed in 1931, replaced in 1982 by an electrically operated revolving Stone-Chance Beam Beacon – the first lighthouse installation in South Africa to employ solar cells as a source of electric power. A VEGA VRB 25 beacon is presently in use.
Ifafa, South Coast, KwaZulu-Natal	1985	A Stone-Chance rotating beacon replaced the original AGA PRB42 sealed beam unit.
Cape Seal, Robberg, Western Cape	1986	A Stone-Chance power beacon was installed to replace the original 1950 AGA 500mm group flashing lens with acetylene burner.
Groenriviermond, Northern Cape	1988	Stone-Chance 250mm four-panel catadioptric lens, previously used in the Cape Agulhas lighthouse between 1968 and 1988.

#### Lighthouses where a Chance lens has never been installed

Cape Recife, Port Elizabeth, Eastern Cape	1851	The original first order Henri Lepaute lens is still in use today. The lens comprises two sections, a revolving portion and a fixed drum portion, consisting of upper and lower refracting prisms, almost identical to the lens exhibited by Chance Brothers at the Great Exhibition in the same year. The revolving portion comprises eight panels of dioptric lenses, rotating on a set of six vertical steel rollers and guided by two sets of six horizontal brass rollers. This apparatus is unique as it provides a low-candlepower, fixed light, over which is superimposed a high-intensity flashing light. In 1930 a Chance Brothers 110mm burner was installed, but a 400-Watt metal halide lamp is presently in use. During 1988 the character was changed from one flash every 60 seconds to one flash every 30 seconds when complaints were received about the long eclipse. On 18 August 1998, in a deliberate act of vandalism, the bull's eye and a few prisms of one of the lens panels were smashed when a bullet was fired at the lighthouse. After numerous attempts the conclusion was that the damaged lens panel could not be repaired and the character had to be permanently changed to a group flash (3) every 117 seconds during November 2000. This is the only large optic left in South Africa that is supported by rollers – all the others had been replaced with smaller optics as too much wear and tear occurred on the rollers. In 1938 an 8.5in Chance Brothers diaphone was introduced with a Pharos Marine nauphone, both presently in use.
Roman Rock, Simonstown, Western Cape	1867	Original lens of unknown origin, replaced by an AGA PRB24 rotating beacon in 1992.
Durnford, Richards Bay, Natal	1916	The original installation comprised an 800mm AGA drum lens with an AGA open-flame acetylene-gas flasher. A VEGA

		VRB 25 beacon is presently in use.
M'Bashe, Eastern Cape	1926	AGA six panel, third-order, 500mm focal distance lens system.
Quoin Point, Western Cape	1955	The original optic comprised a 500mm AGA acetylene-gas lantern with an open-flame AGA gas flasher and sun valve. A VEGA VRB 25 beacon is presently in use.
Hondeklipbaai, Western Cape	1956	The original optic comprised a 500mm AGA acetylene gas lantern with an open-flame acetylene group gas flasher and sun valve. An AGA PRB 46 rotating beacon was in use for some time and was subsequently replaced by a VEGA VRB 25 rotating beacon.
Cape Hangklip, Western Cape	1960	AGA PR-240, 250mm catadioptric, three-panel optic 500-Watt incandescent lamp. A 1500-Watt incandescent lamp was later introduced and a 400-Watt metal halide lamp is presently in use.
Deal Light, Port Elizabeth, Eastern Cape	1973	AGA PRB 21 automatic gearless pedestal and sealed beam lamp array type optic.
Cape Infanta, Western Cape	1979	AGA PRB 21 automatic gearless pedestal and sealed beam lamp array type optic.
Richards Bay, KwaZulu-Natal	1979	AGA PRB 21 automatic gearless pedestal and sealed beam lamp array type optic.
Cape Vidal, North Coast, KwaZulu-Natal	1985	AGA PRB 21 automatic gearless pedestal and sealed beam lamp array type optic.
Jesser Point, Sodwana Bay, KwaZulu-Natal	1986	AGA PRB 21 automatic gearless pedestal and sealed beam lamp array type optic.