

Rockall

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I have no reason against the publication of this study in accordance with act no. 121/2000 Sb.,
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In Brno on

.....

Ondřej Daněk

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This study was completed with the help of my consultant, Mgr. Jan Vybíral and with a lot advice from RNDr. Petr Daněk, PhD., who also provided me with valuable maps and data. I am really grateful for correspondence with Andy Strangeway, who sent me some information and photos and who helped me with the verification of items mentioned in the study. And I am glad to have contacted Dr. Fraser MacDonald, whose work I was allowed to use in few sections.

Annotation

This study was written in order to gather information about Rockall, a speck of rock towering from the stormy Atlantic approximately 450 km due west from the seashore of Scotland. The work deals with the rock's history on one hand and on the other hand with geological development and characteristics of its surroundings, the submarine Rockall Plateau. Also, it describes the political issue between the four states in the vicinity caused by the discovery of oil under the Plateau.

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Shortcuts and comments

Shortcuts

cmph ... centimetres per hour	SW ... southwest
Denmark ... The Kingdom of Denmark	UN ... The United Nations Organisation
i.e. ... id est = that is	u. s. l. (m u. s. l.) – (metres) under the sea-level
EU ... The European Union	United Kingdom – The United Kingdom of Great Britain and Northern Ireland
Island ... The Republic of Island	USA ... The United States of America
NATO ... The North Atlantic Treaty Organisation	
NE ... northeast	

Units

All the units mentioned in the information sources were converted to the basic units:

1 ft (foot) ... 0,3 m

1 yard (yard) ... 0,9 m

1 fm (fathom) ... 1,83 m

1 cable ... 1/10 nm ... 185 m

1 mi (mile) ... 1,6 km

1 nm (nautical mile) ... 1,85 km

1 league ... 5,5 km (distance, which a man can walk in one hour)

Also, there's a unit Ma (Megaannum) used in the text. It means 'one million years ago'.

Links

Every link to other section is written in brackets – as a number. For example [see section 2.1] means that the part of the text where it is written relates with the part number 2.1.

In case of a picture attachment there's number of the picture in brackets.

The use of the *italic* font

All concrete names which don't refer to the section mentioned in are written with the italic font. If the italic font is used in the section's title, this name will not be written in the italic font in this section again. Also, infrequent original and Latin names are in the italic font.

The comments in courier

Few month after I had ended my work one scientist from the British Geological Survey (<http://www.bgs.ac.uk>), Mr Ken Hitchen, was so kind and wrote many comments on it, especially from the geological point of view. I modified them little bit and put them in the work as they were – in courier. So now You can see some information corrected. The rest is, I hope, right.

Thank You, Ken!

Introduction

Rockall. Hardly anyone can make an association with this word and hardly anyone even guess what Rockall is. That is the assumption on which I do base this study, written on the purpose of making the issue of Rockall available for anyone, who is interested. There is just few information about Rockall and none is complex. Thus I wanted to make a comprehensive overview of the information about Rockall and put them in one complex study.

This study will be available on the internet both as one file and as a web presentation. I consider this issue really as an interesting one and I think it could be used for example as an educational material for universities.

From the beginning of the work I explain the Rockall basically, to any potential reader who read the following text to know what it is about. After that introduction there is the article itself, which is divided into four sections: Sections 1 and 2 (split just for lucidity) refers to Rockall and his surroundings from the view of physical-geography (for example geology, geomorphology, hydrology, biosphere), section 3 deals with the sociological (cultural) point of view (meanly history), and in section 4 I analyse the determination of the influence (both arose and rising) on the area of the states, it is from the political-economic point of view. At the end there is the summary of the work and then list of sources and supplements.

Rockall is an uninhabited speck of a rock with overage of the base about 25 m towering from the stormy Atlantic to the height of 20 m. It is a summit of an extinct volcano, located circa 300 km due west of the nearest land – *St Kilda*, archipelago laying few tens of kilometres west of the Scottish mainland. It is a monolithic granite mass with no source of fresh water or soil. The only, temporary inhabitants are the seabirds which take advantage of the rock as a refuge and a place for rest. Constantly, it is rehashed by the ocean water; the waves (especially in the winter) reach highest size than the rock itself [see fig 1-6].

Rockall is one of the summits of a submerged reef called *Helen's Reef* (extinct volcano), the only one always above the sea-level. This submarine mountain projects from the *Rockall Bank* (submerged area with depth less than 200 m), which is divided both from the European Shelf and Faeroe Shelf. The *Rockall Bank* is a part of the *Rockall Plateau*, elevated undersea plateau (depth less than 1500 m), divided from the Europe by the *Rockall Trough* (depth up to 3000 m).

Rockall Island, Hasselwood Rock and Helen's Reef are all part of the former very large Rockall volcano. Rockall Island is about 18m high, Hasselwood Rock is about 1m above sea level, Helen's Reef just about reaches up to sea level.

1. **Rockall Plateau** (natural conditions)

Rockall Plateau is an undersea plateau located approximately in one third of the distance between Europe and North America. It rises from the ocean floor to height more than 1500 m u. s. l. It consists among others of a couple of elevated banks (for example *Rockall Bank* with depth less than 200 m).

1.1. **Location**

Rockall Plateau spreads in the half of the distance (east-west) between Great Britain and the Reykjanes (Middle-Atlantic) Ridge (the line of division of the North American and Euro-Asian tectonic plates). It has an area of about 450×600 km. From the European Shelf it is dividend by the *Rockall Trough*, which reaches the depth of approximately 300 m and width (crosswise, west-east) 200 to 250 km.

Rockall Trough is an elongated flatbed through orientated from NE to SW. On the NE it starts with the *Wyville-Thomson Ridge*, which divides it from the *Faeroe Shelf*. Its floor slopes down south-westward from the ridge (from about 1000 m to 4000 m of depth). It joins the Atlantic Ocean floor west of Ireland (nearby the *Porcupine Bank* – in the *Porcupine Abyssal Plain*). The *Wyville-Thomson Ridge* divides the *Rockall Trough* from the *Faeroe Bank Channel*.

Line of division between the *Rockall Plateau* (east edge) and the *Rockall Trough* is relatively steep – the *Feni Ridge*. The plateau is surrounded by the Atlantic Ocean floor from the south and east. It gradually slopes down to the floor. Northway from the plateau there is the plateau connected with the *Faeroe Bank* by the undersea low-level. In view of this the two plateaus are named as the *Faeroe-Rockall Plateau*. (Stoker, 1998) [see fig. 7]

The *Feni Ridge* is a long linear ridge formed by sediments deposited from deep sea currents flowing parallel to the eastern margin of *Rockall Bank*. It is not the actual edge of *Rockall Bank* which is a steep slope often with bare rock exposed at the sea bed.

1.2. **Climate**

The *Rockall* area (especially the *Rockall Bank*) is known for really bad weather and quick changes among the fishers. (Blacker, 1982) The serene probability is just 10% throughout the year, while the overcast probability is 70% to 80%.

The rainfalls are quite plentiful – averagely 1150 mm per year. The most of it falls in the winter and in August. At the same time the wind reaches the maximal speed. Average speed of the wind moves between 7 and 11 m/s within the year. The wind blows mostly Atlanticward: in spring mostly from south-southwest, in summer from SW and in autumn and winter from west.

The dampness of the air is about 80%, its temperature close to the sea-level between 6°C to 12°C throughout the year. The daily variation is up to 6°C. The water's temperature close to the sea-level moves from 9°C to 13°C within the year, its daily variation is up to 5°C. With increasing depth the temperature decreases: in 200 m u. s. l. it is 9°C, in 1000 m u. s. l. it is 6°C. (Atlas okeanov, 1977) Oceanic climate in the area (caused by absolute circumambience

of Rockall by the ocean) is partly influenced by the Gulf Stream. The Gulf Stream divides the SW slope of the Rockall Plateau to two fragments – one continuing to the North America and second to the north of Europe. (Atlas okeanov, 1977) [see fig. 8-9]

1.3. Hydrosphere (ocean water)

The water of the Rockall Plateau and its surroundings consists of several components with different origin. The most important water is the cold (-0,5°C) bottom water from the Norwegian Sea which flows south-westward. It enters the *Rockall Trough* from the north over the western part of the *Wyville-Thomson Ridge*, and flows with the speed between 40 and 100 cmph. In the middle depths of the *Rockall Trough* it mixes with the Atlantic and Labrador Sea waters. As it descends to the deeper parts, it turns to the west around the Rockall Plateau (finally flows northward along the *Hatton Bank*). In the south-western parts of the *Rockall Trough* the speed measured was between 27 and 39 cmph (south-westward), while in the western edge of the *Hatton Bank* the water flows with the speed between 12 and 23 cmph, northward. (Stoker, 1998) [see fig. 11]

On the contrary to the deep water, which flows through the *Rockall Trough* southward and turns clockwise around whole the Rockall Plateau, the shallow (surface) water (up to 600 m of the depth) flows through the *Rockall Trough* from the south to the north and in the north it turns counter clockwise around the *Rockall Bank*. It flows along the western slopes of the *Rockall Bank* southward, and in the end of the *Hatton-Rockall Basin* it turns clockwise again and flows northward along the eastern edge of the *Hatton Bank*. In the depth between 800 and 1200 m there is the core of the Gibraltar water noticeable. (Blacker, 1982) [see fig. 10-12]

1.4. Biosphere

The *Rockall Trough* is the area of one of the most biodiversity of the ocean floor throughout the world – even more than the coral-reefs (in 5 m³ of the soil there were found 325 species of worms). (the Fat Badgers server) Rockall Plateau is not that advanced. But coral, for example, occurs on the floor of the *Rockall Bank*. (Blacker, 1982) [see fig. 19] Cold water corals have been found in the *Rockall Trough* and in many locations on Rockall Bank and Hatton Bank. See this for examples:
<http://www.jncc.gov.uk/page-4950>

Since long ago, the fishermen have been going there for fishing. In the area of the *Rockall Bank* and its slopes they noticed more than 80 species of fish. The shallow-water (it means 50 to 100 fathoms – waters of the *Rockall Bank*) fauna is much the same as the fauna of the waters of the same depth west from Hebrides: the most common fish are cod, haddock, herring and ling. The area of the fishable waters (fishable by the trawler – depth up to 200m, without the rocks) is about 10 000km². (Blacker, 1982)

It is supposed that beneath whole the Rockall Plateau there is a rich source of oil, as many of researches from the 70s have showed. Currently, it is not exploited. But for the future the possibility of exploiting there may originate a dispute over the area – a dispute between the four states around the Rockall Plateau (United Kingdom, Ireland, Island and Denmark).

No researchers have shown there is oil beneath the Rockall Plateau. It is only a possibility.

1.5. Geological development

About 100 million years ago, in the beginning of the Tertiary (the Tertiary began at 65 million years ago), when the supercontinent of Laurasia was being splitting, and North America separated from Europe, between Greenland and British Islands (or then features) there created a new sea – current Atlantic. Rockall Plateau was at the time – as a dry land – a part of the Greenland massif. It separated during the period of seismic activity about 60 Ma. (Moore, 1997) [see fig. 13-14]

The Rockall Plateau split from UK between 135 and 95 Ma, Rockall Plateau began to split from Greenland and North America about 55 Ma.

According to few indicia as visible signs of the glaciations on the surface of the plateau or the effects of erosion (not just water; valleys, mountains), the scientists think that the Rockall Plateau was a land – microcontinent – between then Europe and Greenland at the end of the Mesozoic era. [see fig. 14] At least the highest parts of the plateau were developing in aerial conditions. For example according to the last scientific researches of the ocean floor there are valleys with depth of 50 - 75m, width of 1 - 1,5km and length of 2 - 12km on the *George Bligh Bank*. (Jacobs, 2007)

At the end of the Mesozoic (65 Ma), the area was probably sea. Large parts of the Rockall Plateau may have become land during the Paleocene (65 to 55 Ma) due to the thermal uplift caused by the widespread volcanism.

At the same time as the continents were splitting the level of the Rockall Plateau was getting low (phenomena caused by receding of the tectonic plates) – it got under the sea-level (on the contrary of the Greenland, which was elevated). Consecutively, it descended to the recent level. Settling of sediments runs from Eocene till today.

This theory is proved among others also by the fact, that basalts of SW of the Rockall Plateau is much the same as basalts of the east coast of the Greenland. (Macdougall, 1988; Ellis, 1992)

1.6. Geomorphology

The Rockall Plateau consists of the central *Hatton-Rockall Basin* with depth less than 1500 m. As well as the *Rockall Trough*, it descends south-westward. This basin is surrounded by several mostly higher-located banks.

On the east, the *Hatton-Rockall Basin* verges to the *Rockall Bank*, the highest part of the Rockall Plateau. The eastern edge of the *Rockall Bank* is margined (for about 700 km) by the *Feni Ridge*, [see note above in 1.1] a steep western slope of the *Rockall Trough*. On the south, the *Hatton-Rockall Basin* passes to the floor of the ambient Atlantic. Here there are banks peripheral banks named after the Tolkien's realm of the Middle Earth – for example *Lorien Bank*, *Fangorn Bank*, *Edoras Bank*, etc.

West from the *Hatton-Rockall Basin* there spread another high-situated bank, *Hatton Bank*. Further to the west, it gradually descends to the floor of the Atlantic. From north-east there is the *Hatton-Rockall Basin* bordered by the *George Bligh Bank* (700 – 900 m u.s.l.), which is not a straight prolongation of the central bank. Further to the north-east, the Rockall Plateau gently permeates to the *Faeroe Bank*. Northerly from the *George Bligh Bank* there is the Rockall Plateau ended by a west-easterly orientated trough with depth of about 1000 m. It

divides the Rockall Plateau from other banks further to the north (for example *Lousy Bank* or *Bill Bailey's Bank*). Consequently, this trough connects the *Rockall Trough* with the *Iceland Basin* (the sea-floor of the Atlantic Ocean located southerly from the Iceland and north-westerly from the Rockall Plateau).

[the division of the Rockall Plateau is visible on fig. 14]

1.6.1. *Rockall Bank*

The Rockall Bank occupies an area 50 km northward and 150 km south-westward and Rockall itself is located 40 km from the eastern edge of the Rockall Bank. In the widest part the Rockall bank measures almost 100 km (west-easterly). It is the highest bank of the Rockall Plateau, located westerly from the central *Hatton-Rockall Basin*. The depth of the bank is about 200 m u.s.l. On the north-eastern edge of the Rockall Bank there protrudes the submerged mountain of *Helen's Reef* [see section 2]. Its summit – Rockall – is the only outcrop of whole Rockall Plateau (not just of the Rockall Bank) which is permanently above the sea-level.

Except from the *Helen's Reef* the highest part of the Rockall Bank is so called *Bryony Bank*, located about 65 km south-westerly from Rockall. The lowest depth of the *Bryony Bank* is 102 m. Further south-south-westward from the Rockall Bank (about 200 km from Rockall) there is the *Empress of Britain Bank*, which reaches up to 146 m u.s.l.

On the seabed of the Rockall Bank there is mostly calcareous sand (originally from the coldwater coral *Lophelia Pertusa* colonies). Also, here and there basalt stones occur. (Blacker, 1982) [see fig. 15-19]

On various parts of Rockall Bank, the sea bed is bare rock, gravel, boulders and sand.

2. *Helen's Reef* (natural conditions)

Helen's Reef is an undersea mountain protruding out of the *Rockall Bank* on its northern edge up above the sea level [the summits of the Helen's Reef are described in sections 2.2]. The mountain is of igneous origin, it is composed mostly of granite, and there are parts from basalt as well. One, partly separated summit of the Helen's Reef, called *Helen's Reef* as well, is composed among other grounds of diabase (a variety of gabbro). It is supposed that this peak is about 10 million years older than the rest of the reef. (Stoker, 1998)

Helen's Reef is not really a mountain – it is just an irregular shallower bit of Rockall Bank. Helen's Reef is mainly gabbro (with some dolerite), not granite. No reliable age for the rocks of Helen's Reef has been obtained.

The Reef was called after the brigantine *Helen*, which wrecked on one of peaks nearby – *Hasselwood Rock* – in 1824. *Hasselwood Rock* is not part of Helen's Reef, it is a small pinnacle 100m north of Rockall Island.

2.1. Geological development

The Helen's Reef is an undersea mountain of igneous origin, recently almost fully submerged, which however developed above the sea level, in aerial conditions. It was during the time when the *Rockall Plateau* (and mainly its part of the *Rockall Bank*) was above the ocean as a microcontinent [see section 1.5]. It is supposed that this volcano grew about 55 millions years ago (during the Cretaceous Period, which ended at 65 Ma) [see section 2.2.3]. The volcanicity (and the creation of the reef) was caused by the movement of the Euro-Asian and Northern-American tectonic plates, between which there arose a pressure by the friction – there reached the outburst of the magma (lava). It gave rise to the Helen's Reef. (Stoker, 1998; Moores, 1997)

However afterwards both the tectonic plates began to separate again (nowadays the speed is measured in cm per year). It caused that originally volcano Helen's Reef got away from the break, and began to be inactive (today it is considered as extinct). The same movement caused the submersion of the volcano. (Moores, 1997)

2.2. Geomorphology

Rockall is the highest peak of the mentioned submerged Rockall volcano, but it is not the only one. There are the *Hasselwood Rock* and *Helen's Reef* as known summits and many others as well, but none of them has been described as well as Rockall.

Around the rock of Rockall, lying in the place of the highest parts of the Helen's Reef, there is a very low depth: close to the rock between 35 and 55 m. This low depth extends hundreds metres from Rockall, on the north even 800 m. Similar shallows are also few tens of metres around the *Helen's Reef*. (Macintosh, 1946)

2.2.1. Rockall

2.2.1.1. Location

Rockall is located on coordinates of 57° 35' 48'' north latitude and 13° 41' 19'' of west longitude. It is 301.4 km west from the nearest land – the uninhabited archipelago of St Kilda; 367 km from the nearest settlement of *Air an Runair* on the island of North Uist in archipelago of Outer Hebrides; 461.5 km from the nearest point of the Great Britain (*Ardnamunchan Point* in Scotland); and 424 km northwest from the nearest point of Ireland (*Bloody Foreland* in the shire of *Donegal*). [See fig. 6]

According to the Island of Rockall Act [see sections 3.4/1972 and 4] is Rockall administratively part of the island of Harris. It is part of the Scottish Inverness-shire. It means that it is formally annexed to the United Kingdom of Great Britain and Northern Ireland. Although this is not acknowledged by any other international authority.

2.2.1.2. Biosphere

The first tries to get to know and describe the wildlife of Rockall are dated to the beginning of the 19th century. The most detailed description was done by the scientist James Fisher, who was on the island in 1955 as one of four men formally establishing Rockall as a British territory.

Considering the size and extremely unfavourable conditions, there is quite a lot of wildlife on Rockall: a fluke worm (*Trematode*), the rough periwinkle (*Littorina rudis*), a common amphipod (*Hyale nilssoni*), an orange rotifer (*Rotifer*), common mites (*Hyadesia fusca*, *Ameronothrus*). (Heines) There have been seen few species of birds on Rockall: fulmar (*Fulmarus glaciaris*), gannet (*Sula bassana*), kittiwake (*Larus atricilla*) or guillemot (*Plotus*), who use the rock for a rest during their way across the Atlantic. Gannet and guillemot have been seen trying to breed. (Goudman, 2006) [See fig. 2-5]

Along the sea-level there is a layer of the sea-weed (mostly brown) *Alaria esculenta*, some species (needing less water) occurs almost up to the top. The brown sea-weed are visible up to one third of the height of the rock, about one half there are found species of blue-green colour; above them there are situated weeds of orange-brown colour. (Holland, 1975)

2.2.1.3. Geology

The first samples of minerals and grounds were taken during the 19th century, but the first detailed petrologic and chemical descriptions were accomplished by J. W. Judd in 1897 and by H. S. Washington in 1914. About the geological development of the island P. A. Sabine gives an account in 1960; R. K. Harrison, who took a part in expeditions to Rockall in 1971 and 1972, describes the issue as well.

Rockall is one of two places of the British Tertiary Volcanic Province, where occurs an alkali granite. Here the range is unusual made up of minerals such as *elpidite*, *leucofosfid* or Ba-Zr mineral called *bazirite*. The last one was discovered during the expedition in 1975 and its chemical figure is BaZrSi₃O₉. (Ellis, 1992)

Rockall is composed of moderately coarse alkali granite with a relatively bigger content of sodium and potassium. Sporadically, the granite is finer (prealkaline granite and *xenolite*) and darker (*aegirine*, *riebeckite*). Content of the minerals in the granite of Rockall: 22% quartz, 53% feldspar, 23% ferromagnesian minerals and 2% of others. Part of the granite with the biggest content of ferromagnesian minerals (up to 68%) which occurs on Rockall was called *rockallite* (or *rockellite*). This ground does not occur at any other place throughout the world (quite similar ground was found just on Madagascar – *fasibilikite*). In the mass of the granite there range cavities also lined with variants of minerals as *elpidite*, *leukofosfide* or *bazirite* (mentioned above). In *elpidite* and *apatite* there can be also an incorporated *monazite*. (Ellis, 1992)

The origin of the granite was dated to the era of circa 52 million years ago (Ellis, 1992). Moores (1997) mentions age of the ground as 60 ± 10 Ma [see section 1.5]. The granite could originate as underground smelt on the edge of a bigger eruption field in the era of recession of the volcanic activity. It is comparable with granite on some of islands of Scotland and on east coast of Greenland.

The surface of the rock some more above the sea-level is covered by guano (from the birds' excrements), which has been depositing during a long-time era, when birds used the rock as a shelter [see section 2.2.1.2]. Expressively white layer of concretized guano is about 1 mm thick; it is not a continuous layer – somewhere it is stronger than 1 mm and on the contrary somewhere it is missing at all. But it seems to be declining. The probable cause of this phenomenon is that Rockall was a peak of a bigger island many years ago and there were much more birds than today – so the layer was formed bigger. The current number of birds

does not allow the renewal of the layer. Nevertheless, this crust still considerably protects the rock from the erosion. (Holland, 1975) [the guano is visible on fig. 4-5]

It's known about Rockall that from 3 to 5 km around it (especially to the north and northeast) there is a noticeable magnetic radiation and thus it's hard to determine the exact orientation of the rock in accordance to the world's magnetic poles. Macintosh (1946) alleges that the area of the radiation is even 10 miles. These anomalies are probably caused by the mineral *troctolite* occurring in the geological structure of the Helen's Reef. (Holland, 197; Blacker, 1982)

2.2.1.4. Geomorphology

The islet by itself is about the shape of pyramid. The eastern side with the length by water-level of 31 m is almost vertical, same as the north side with water-level-length of 25 m. There's almost a right-angle between them. The south-eastern side is slightly softer (with slant of about 45°) and nearby the water-level it has the shape of bow, which connects both the mentioned sides. The whole area of the rock's basis (by the water-level) is just 624 m². About 5 m below the summit of the rock there is so called *Hall's Ledge* (called in 1955 after the discoverer of the islet [see section 3.4/1810]). It is proportionately 3.5 m by 1,3 m and it is almost horizontal – the only horizontal place on the rock. (Holland, 1975) [this description is visible on fig. 1-5]

Basil Hall was the first man to land on Rockall in 1811, he did not discover it.

The rock's height, measured from the water-level is really hard to determine (or impossible), because even in the calmness, the water vary in metres. The original height was set as 21,4 m (70 feet; but it depends on the various measurements). In October of 1971, at the same time with the blast of the summit, the height was lowered to 19,2 m (63 feet). Since then, the height is set in this value.

By the cut off, another horizontal plateau originated on the formal place of the summit, on which was a fixed navigational beacon light a year after the cut off. [see fig. 26]. Another navigational light might have been installed there in 1959 but it was swept down not long after its installation. The source of energy of the beacon was batteries, which had to be replaced twice a year. (Holland, 1975) In 1997, when the rock was temporarily occupied by the Greenpeace volunteers, they fastened a solar source to the beacon and a year after that they replaced the whole beacon with a solar one (as an alternative source of energy). [see fig. 34] In 2005 it was broken down.

2.2.2. *Hasselwood Rock*

Hasselwood Rock is a rock with the platform f less than half size of Rockall. It reaches just up to 1 m above the sea-level (during the calm weather). It is located about 160 m north from Rockall. (Blacker, 1982; Holland, 1975; Macintosh, 1946; Blunt, 1868)

2.2.3. *Helen's Reef*

Helen's Reef is a submerged summit of the volcano Helen's Reef, called most probably (by mistake) after a brigantine *Helen*, wrecked in 1824 on *Hasselwood Rock*. No, see above. It is all the time below the water-level (around 1.8 m – depends on the weather), it is noticeable by the surf in worse weather. It lies about 3.2 km east from Rockall. (Blacker, 1982; Holland, 1975; Macintosh, 1946; Blunt, 1868)

It is interesting that on the contrary to the rest of the mass (of the submerged mountain of Helen's Reef) which consists of granite and basalt, this projection consists mostly of diabas. In addition, Helen's Reef (this projection) is much older than the rest of the mountain; its origin is dated to 81 Ma. This age is unreliable. (Stoker, 1998)

Rockall Island is granite, Helen's Reef is mainly gabbro, the rock type of *Hasselwood Rock* is unknown.

It is probable that from 80 to 100 m south of Rockall lies another unspecified undersea reef. (Holland, 1975) About 1100 m south and 950 m north from Rockall there are ridges with depth less than 75 m. According to the Royal Navy (1974; Blacker, 1982) there are lots of peaks in the zone, which is 11 km westerly and 14,5 km north-north-easterly from the islet. The width of the zone is 130 m and the peak reach height between 65 and 110 m u.s.l.

3. **Rockall** (cultural viewpoint)

3.1. **Etymology**

Rockall configures firstly on a Portuguese map from 1550, where is mentioned as 'Rochol'. (Holland, 1975) But Holland (1975) considers this reference as uncertain. For sure, Rockall is shown on a map from 1606 as 'Rocol'. Other early versions of the name are 'Rokel', 'Rookol', 'Rokele'. In 1698 it is mentioned as 'Rokol'. (Holland, 1975; Macintosh, 1946) The inhabitants of St Kilda, some other islands of Hebrides and perhaps also of a part of Scotland know it as 'Rokabarra' or 'Rockabarraig' (difference just in pronunciation). (Macintosh, 1946; Martin, 1698)

On the Norwegian map it is noted *Friesland*. In Norwegian it means landes or shallows, and there is some probability that it really means the Rockall and the shallows around. (Macintosh, 1946; Greenpeace UK)

The phantom island of *Frislandt* appears on some charts of 16th and 17th century, but considerably northerly than the Norwegian *Friesland*; it is located south from Iceland or somewhere else on the north of the Atlantic and it is quite extensive. It is improbable that this island should have noted Rockall, but it is pretty possible that it is influenced by the existence of Rockall (most probably it was transformed from the *Friesland*).

The first written mention of Rockall is by Martin, native from Hebrides, in his book of *Late Voyage To St Kilda* (1698), where he writes: '...and from it lies Rokol, a small rock sixty leagues to the westward of St. Kilda; the inhabitants of this place call it Rokabarra;'. Also, Rockall is shown on the map attached to the book. Similar information was mention in his other book – *A Description of the Western Islands of Scotland* (1703), which includes a section about the voyage to St Kilda. (Martin, 1698)

The origin of the name is unknown. But it is believed that it is derived from Gaelic word *Sgeir Rocail*, meaning something like roaring rock. The word *Rocail* can also mean tearing or ripping. (The Wikipedia server)

The folk name *Rocabarraigh* originated most probably from two words – *roca* from Gaelic *rocail* (above) and *barraigh* (*bar-ey*), which is in the old Gaelic used as a part of the local names. (Macintosh, 1946)

The name *Rockall* was first used in 1811, when there was the first expedition, recorded by Basil Hall, led on the rock. Since then, this version has been used. According to few theories, this name is derived from the word *rock*, and *all* from the name of the expedition-leader Hall, as the Englishmen like to omit the sound ‘H’. But these presumptions are evidently wrong, according to much older origin of the word. (Holland, 1975; Macintosh, 1946)

3.2. Mythology

According to the mythology, Rockall is the only remnant of the Kingdom of Brazil (not to be confused by the current state), which was a Gaelic Western land of the eternal youth. (Goudman, 2006) In some maps (of 16th and 17th century) there is noted a phantom island of *Brazil*, and thus it is possible, that these two islands are originally the same in the mythology (i.e. this myths attributes the features of *Brazil* to Rockall). In fact, no island like that does exist. It can be supposed that rather this phantom island was influenced by the myths and ‘unclear existence’ of any islet in these parts of the Atlantic (i.e. by the existence of Rockall). On many maps from this period there are noted many other phantom islands (as *Buss*, *Verde*, or *St. Brendan’s Island* [see section 3.4/530] and many others) in that area. [see fig. 37]

According to the Irish mythology, Rockall originated as follows: One of the national heroes, Fionn mac Cumhaill, grabbed a piece of the ground and threw it against the enemy. But he missed and the clump became the Isle of Man and the pebble became Rockall. (McCarthy, the Wikipedia server)

In the Scottish (Gaelic) mythology *Rocabarraigh* figures as a mythical rock, which is supposed to appear only three times, lastly at the end of the times: ‘*Nuair a thig Rocabarra ris, is dual gun tèid an Saoghal a sgrìos*’ – When *Rocabarraigh* returns, the world will likely be destroyed. (Macintosh, 1946) The name *Rocabarraigh* does not need to mean Rockall, but it is probable that it originated from any unclear information about Rockall.

3.3. Consciousness and fishery

The local people (inhabitants of the west coast of Scotland and north-west coast of Ireland) have known the presence of Rockall long away. It is proved by the mention of it in mythologies, same as for example the fact, that an Irish monk St. Brendan visited it in the 6th century. (Symmons, 1998; Schippke; Ireland Information Guide)

Exactly when Rockall Bank first fished was unknown, but it is clear that the Shetlanders used to fish there since the beginning of the 19th century and the Dutch even before them. The discoverer Basil Hall mentions that in the days he was around Rockall (1810) there was quite busy traffic, and that the islet was well-known to the Baltic traders. Seasonally, these waters were fished since May to mid August, when the ships left it for Island. The hand-fishing reached the peak about 1870. (Blacker, 1982)

The original sails with trawlers have been changed by the steamers. The first two steamers sailed around Rockall in 1889. In the end of the 19th century, the smacks gave up the virtual fight with steamed trawlers. The absolute peak of the English fisheries in the area (we don't have data of the Scottish) was reached in 1936, when 530 landings was recorded with total catch of 10 076 tonnes of fish (of which 6 502 tonnes was haddock). (Blacker, 1982)

3.4. History

(The years in brackets describes the events which did not happen on Rockall itself, but are somehow connected):

(530 (?)) – According to two sources (Schippke, Ireland Information Guide), in the 6th century there was a travelled by Irish monk Saint Brendan nearby the islet, and described it as ‘the Rocoll Rock, a 20 meter high rock in the Atlantic Ocean’. He should as well have mentioned that Rockall was known even before. He must have seen it (eventually visit) on his famous seven-year voyage on the seas and their wonders. During the journey, as specialists believe, he could have gone even to the North America. As a prove of this possibility, an adventurer Tim Severin undertook a similar journey to Ireland – Hebrides – Faeroe Islands – Iceland – Newfoundland in a reconstruction of a period ship. He described the journey very similar as is written in the book *Navigatio Sancti Brendani Abbatis*, which describes Brendan's journey.

This book was dated to the 8th century; nevertheless neither there nor in the Brendan's life there is any mention of the Rocoll Island (he didn't write any book by himself). It is possible that Brendan did go nearby Rockall, but he does not mention it. The note of the St. Brendan's Island [see section 3.2] west from Ireland on the maps of 16th and 17th century probably suppose that the island was discovered by Brendan during his journey. In *Navigatio Sancti Brendani Abbatis* there is described lot of islands, but too unclearly to localize them. (Anonym in the translation by O'Donoughe, 1893; Black, 2005)

(1550) – The first, uncertain note on Rockall in a map (Portuguese) (Holland, 1975; Goudman, 2006)

(1606) – The first certain note on Rockall in a chart – Amsterdam's Atlas; as Rocal. The rock was shown 87 miles from its actual position. (Holland, 1975; Greenpeace UK)

(1607) – Rockall was shown on a British chart (*Admiralty of London*) for the first time; same as in the Amsterdam's Atlas about 87 from its actual position. (Schippke)

1686 (22nd August) – First noted shipwreck, of a trading ship with the Frenchmen and Spaniards (probably on a way to America) About 250 passengers and seamen died, but a few of them managed to embark on a lifeboat and got to the St Kilda Archipelago. Here they were plentifully supplied with barley-bread, butter, cheese, solan geese, eggs, etc. (Martin, 1698)

(1771) – Rockall appears on a map by the French sailor and discoverer Yves-Joseph de Kerguelen-Trémarec. He had gone nearby the island in 1767. It is unknown if he had seen Rockall, but he had had good information – he put it just about 16 miles northerly from its position. Also, he had had to know about the Helen's Reef [see section 2.2.3]: ‘East of Rokol, 1 league away, there is a submerged rock over which the water breaks.’ (the Wikipedia server) [see fig. 20]

1810 (8th August) – Rockall was discovered during a patrol duty of *HMS* (His Majesty's Ship) *Endymion* and *HMS Princess Charlotte*. They were conducted by Captain Thomas Bladen

Capel. Master of *Endymion* was T. Harvey, who noted the position of the rock: 57° 39' 32" of northern latitude a 13° 31' 16" of western longitude; about 7 miles north-west from the rock's position. The only note on the discovery of the island by Lieutenant Basil Hall. His description of this event is included in his book *Fragments of Voyages and Travels*, published in 1831, in section no. VI. [see text 1 in attachments and fig. 22] According to few theories, the name of Rockall is derived from the name Hall. [see section 3.1] (Hall, 1831; Macintosh, 1946; the Wikipedia server)

1810 (8th August) – During the sounding of *Rockall Bank* [see section 1.6.1] there had been an arrangement of the first noted expedition on the island. It was under the command of the First Lieutenant R. I. Alleyne and from the same ship *HMS Endymion*. It was conducted by Cpt. Sir William Bolton. The expedition is described in the above mentioned book by Basil Hall, a participant of the expedition. (Hall, 1831; Macintosh, 1946; Holland, 1975) [see fig. 21]

1812 – A survey vessel called *Leonidas* rode on the *Helen's Reef* [see section 2.2.3], the crew died. (Goudman, 2006)

1824 – Brigantine *Helen* of Dundee going to Quebec wrecked on the *Hasselwood Rock* [see section 2.2.2]. Number of passengers is unknown. The report of this event says: 'the crew left most of the passengers to drown, including seven women and six children.' After this event, the *Helen's Reef* is probably named. (Goudman, 2006; Greenpeace UK)

1831 – A researcher from the Royal Admiralty Captain A. T. E. Vidal noted the location of Rockall for the first time. It was done during sounding of the surroundings from *HMS Pike*: 57° 36' 20'' of northern latitude and 13° 42' 30'' of western longitude (in the chart of the Navy noted as 13° 41' 32''). This coordinates are not absolutely precise, according to that they are measured in accordance to the church in Bunchara (County of Donegal, Ireland). The coordinates of the church were changed and thus made the Vidal's coordinates to 13° 41' 27'' of western longitude. (Holland, 1975)

1862 – During the summer (June to August; and during summer 1869) there was being a research of the ocean floor on the purpose of laying the transatlantic telegraph cable. It was being done from *HMS Porcupine*. One of the men from the ship managed to get to Rockall, but apparently didn't reach the summit. (Macintosh, 1946; Goudman, 2006)

1888 – Probably successful attempt of reaching the peak of Rockall from a fishing smack of Grimsby. (McCarthy)

1896 – Miller Christie led a scientific expedition on Rockall on a steamer *Granuaile* set out from the port of Killybegs in south-western part of Donegal, Ireland. He took advantage of financial sources from the Royal Irish Academy, which sponsored the research of fauna and flora at that time. Robert Lloyd Praeger and his colleagues also took a part in this expedition. Nevertheless not even after a fortnight of circling around the island they didn't manage to land (two attempts were made). They made only outer observations. (Goudman, 2006; Greenpeace UK)

1904 (28th June) – An accident of Danish steamer *Norge*, which was built in 1881 in Glasgow, Scotland. It left Kopenhagen, Denmark on 22nd June 1904, two days later stopped in Oslo, Norway and at the end in Kristiansand, Norway, which left on 25th June for New York. There were 727 people on board, including 223 children under age of twelve. [see fig. 24]

Captain Valdemar Johannes Gundel decided, to avoid the bad weather, for an unusual way south from Rockall (after sailing between Shetlands and Orkneys). The steamer should have sailed in sight of Rockall in the time of breakfast. When the captain was sure that the ship is south enough, he changed the heading to the west. Fifteen minutes later, in the morning of 28th June, the steamer struck the *Helen's Reef* [see section 2.2.3]. The tragedy was caused among others things by the high tide (full moon), thick fog and the sea-flows which was underestimated by the crew.

During the confusion on the board after the collision, five of eight lifeboats were lowered. They were filled pretty quickly, some of them, in addition, were tooling people on board even after the sinking of the ship. In total, only 170 people were saved, mostly men. Among them was the captain, who sank with *Norge* but then was grabbed from the water and was taken to a boat. The lifeboats were found during the following week by other ships and the shipwrecked people were taken on land. But few of them died on aftermaths (lack of food, drink, heat, ...) (Davidsen).

1921 (29th June) – Two marines of a French ship *Pourquoi-Pas?* from the port of St. Malo managed to get on the rock. The expedition was arranged by the French Ministry of Navy in the view of clarifying the mystery of *rockallite* [see section 2.2.1.3], which a French professor Alfred Lacroix dealt with since 1915. The marines, under the command of Jean-Baptiste Charcot, learned that *rockallite* is such a dike in the rest of the granite mass of the island. (Blot, 1985) [see fig. 25]

1948 – A person (not known) reached the island from a float from a trawler of *Bulby*, set on the sea from the port of Fleetwood. (Greenpeace UK)

1955 – During the Cold War, United Kingdom was given its first guided missile, *Corporal Type II*, from USA; and it was needed to be tested. There were strict rules to determine the right place for firing the missile. One of the islands of Outer Hebrides, *South Uist*, suited this rules. But Rockall, as an independent area, was too close to the testing place and thus it would have been easy to spy the test from here. In April 1955, the Secretary of the Admiralty was told that: ‘as the firing limits of this range increase, the Island of Rockall, situated some 200miles due West of the Hebrides, might well be used by an unfriendly state as a vantage point for the observation of activities upon the range’. Thus, Rockall had to be annexed by the United Kingdom before the intention of testing the missile will be given to publicity.

At a meeting of the newly promoted Minister of Defence, Harold Macmillan, and Prime minister Sir Anthony Eden, it was decided that the annexation of Rockall will be designed according to older acts. That it would be accomplished by an official proclamation of Rockall as a British territory, and by four people. At the same time, it was decided that the expedition should be of service to the science as well. For this purpose, a British naturalist James Fisher was chosen. The three other members of the Royal Navy: Sergeant Brien Peel, Corporal A. A. Fraser and First Lieutenant Desmond P. D. Scott, led the expedition.

On this occasion, *HMS Vidal* was chosen; coincidentally named after the first surveyor in the area of Rockall. It was the first ship with a helicopter (*Dragonfly* type) on the board. It reached the island on 17th September 1955, but the ceremony was delayed for one day because of the weather. On 18th September the weather was better and the four men were lowered on the *Hall's Ledge* [see section 2.2.1.4] from the helicopter together with the equipment. Quickly, they fasten a tripod as a flagstaff to the rock and they cemented a brass plaque on the *Hall's Ledge*: ‘By authority of Her Majesty Queen Elizabeth II, by the Grace of

God of the United Kingdom of Great Britain and Northern Ireland and of her other realms and territories Queen, Head of the Commonwealth, Defender of the Faith, and in accordance with Her Majesty's instructions dated the 14th day of September, 1955, a landing was effected this day upon this island of Rockall from HMS Vidal. The Union flag was hoisted and possession of the island was taken in the name of Her Majesty. [Signed] R H Connell, Captain, HMS Vidal, 18 September 1955.'

The ceremonial duties were finished on 18th September 1955 at 10:16 precisely. After radioing the *HMS Vidal* the four men came to attention. The commander Scot, obligated by Her Majesty, hoisted the flag and declared: 'In the name of her Majesty Queen Elizabeth the Second, I hereby take possession of this island of Rockall'. During this ceremony, a volley of 21 shots was provided from *Vidal*.

After collecting geological and biological samples, the four were taken back to the ship. It returned to Britain on 21st September. At the same time the event (i.e. the annexation of Rockall) was officially announced and noted by the Royal Navy. The geological samples were therefore handed over to the Museum of Geology in London and to the Royal Scottish museum in Edinburgh.

Some other reasons for the annexation of Rockall could have been among others the fixation of the political position of the United Kingdom. Rockall was the only area in the Northern Hemisphere which could have been annexed. Another could have been the simplicity of the act. Not the least the reason could have been setting up of a kind of area for the ocean research as well.

After the announcement that Rockall was the British territory, J. Abrach Mackay, from the Mackay Clan, submitted a protest on 7th November. This 84-years-old councillor of the County of Highlands announced: 'My old father, God rest his soul, claimed that island for the Clan of Mackay in 1846 and I now demand that the Admiralty hand it back. It's no' theirs'. Another member of the committee said to the journalists: 'it wouldn't surprise me to see a battleship appearing off Rockall any day. You can't afford to underestimate the Mackays'. Whereas the British Government ignored the protests, Mackay gave them up pretty soon. (Goudman, 2006; Greenpeace UK)

1959 – Unknown number of people landed on Rockall from a destroyer *HMS Cavendish*. They learned that the brass plaque from 1955 had disappeared and that only one leg from the tripod had lasted. Apparently, they fastened a beacon light to the rock and they cemented a plaque proving their stay on the island. (Holland, 1975; Goudman, 2006; Greenpeace UK)

1967 – The currently determined coordinates were measured according to the European Datum: 57° 35' 50'' of northern latitude and 13° 41' 13'' of western longitude; provided by a radar Loran-C from *HMS Hecla*. The corresponding values in accordance to the Ordnance Survey Datum: 57° 35' 48'' of northern latitude and 13° 41' 19'' of western longitude. (Holland, 1975)

1969 (17th April) – A couple of British marines landed on Rockall from *HMS Hecla*. They hoisted the Union Flag on the top and according to *The Mail* they said: 'this fortress built by nature for herself is still as British as the River Thames'. In accordance to the words of Lieutenant John Stafferson, this expedition passed on 25th March 1969, for the purpose of ornithological survey. (Holland, 1975; Greenpeace UK)

1971 (June) – 39th Regiment of Royal Engineers blasted off the top of the rock; it was done in the view of fastening a navigational beacon afterwards. At the same time there was installed a brass plaque to the rock, which proved this event. (Holland, 1975) [see fig. 26]

According to findings of a potential oil-field close to Rockall, in early 70s the possession of Rockall was given a new extent. For this reason (by the initiation of the British Government) the Island of Rockall Act was designed by Lord Campbell of Croy. It should have incorporated Rockall even administratively to the United Kingdom. (Goudman, 2006)

1972 (June) – Delayed installation of the beacon light was done by the Department of Trade and Industry. The action lasted 15 days, although the crew of the ship *Engadine* had two helicopters (from 816 Squadron) at their disposal. (Holland, 1975; Greenpeace UK)

(1972, 10th February) – The Island of Rockall Act passed through the Parliament and was given the Royal Assent. Since then, Rockall has been administratively a part of the Island of Harris, which is a part of Inverness-shire, Scotland.

1974 – According to previous events, the British Government sent another expedition to Rockall, from *HMS Tartar*. On that occasion, a sentry-box with two marines in full ceremonial uniform was built on the *Hall's Ledge* and the Union Flag was hoisted. Everything was photographed. But the photo was published ten years afterwards, as a reminder that Rockall is British, on 31st May 1985. (Goudman, 2006; Greenpeace UK) [see fig. 27]

On that occasion, the United Kingdom declared 50-mile exclusive zone around Rockall.

1985 – From 26th May till 4th July (i.e. for 40 days) there lived a survival expert and former SAS (Special Air Service) member Tom McClean in a security pod on the rock. The first night he should have spent under a tilt; afterwards, he most probably made a wooden shelter, which he fastened to the rock with a wind-turbine-powered drill. He, reputedly, spent his time by reading and painting the Union Jack on the top of the rock.

The action was most probably initiated by the British Government in the view of elimination of doubts that Rockall is a British territory. Because a year later, there was an unsuccessful attempt to land on the island, hoist the Irish tri-colour and declare Rockall as Irish, done by a couple of Irishmen. Further, the action could be arranged for the purpose of declaring the inhabitability, which is quite important in accordance to scale of the efficiency of the law of the sea [see section 4] around the island. (Goudman, 2006)

Nevertheless, McClean said that the action had no political subtext. He was sponsored by an South-England company *Milbury Homes*. The permission he was done by the councillor of the Western Islands, Comhairle Nan Eilean. (Greenpeace UK). The same act should have been done by an English rower John Ridgeway (the Geocities server), but other sources do not mention this information.

1987 – Six fishermen landed on the island and reached its peak.

1992 – Five divers managed to reach the summit including the second woman to land Rockall. At 19 she was also the youngest person to land Rockall.

1997 – From 10th June till 27th July (for 48 days), there dwelt a couple of ecological activists from Greenpeace (Al Baker, Meike Huelsman, Peter Morris, Eric Hejselaar, and Thomas Neuman). They took turns; mostly, there were three of them on the island. The action was

arranged in the view of protesting against the oil research (and pertinent exploitation of the oil) in the surroundings of the island. They lived in a solar-pod, which protected them from the bad weather. [see fig 28-33]

These activists declared a new public global state of Waveland. Anyone could (through the internet, etc.) apply for being a citizen. During the first couple of months hundreds of passports were wanted. At the same time the activists said: 'By seizing Rockall we claim her seas for the planet and all its peoples. No one has the right to unleash this oil into our threatened climate.'

Activists, together with the equipment, were lowered on the rock by a helicopter from one of three ships of Greenpeace – *MV (Motor Vessel) Greenpeace*. Before leaving, on 27th July, first all four flags of the states which were concerned with the potential exploitation of the oil around Rockall (i.e. the United Kingdom, Ireland, Iceland and Denmark) were lowered. And then, there was the hoisted of the flag of Waveland. On 26th July they also managed to repair the old broken navigational beacon and made it solar-powered. (Goudman, 2006; Greenpeace UK; the Geocities server)

The Waveland project lasted just till 1999, when the sponsoring company went bankrupt. All of these protest actions were ignored by the British Government.

1998 – During July of this year the activists of Greenpeace replaced the navigational beacon with a new solar-powered one. But currently, as the information from 2005 says, it does not work again. [see fig. 34]

2005 May – Ben Fogle tried to land on the rock for the purpose of declaring his new state Benland. At once, he wanted to proclaim himself as a king. Nevertheless he didn't managed that and according to his own words he at best touched the rock. (Fogle)

(16. June) – Six people from the journalistic organisation *Rockall Times* managed to reach the island (after an unsuccessful attempt from 2003) including a couple of radio hams managed to land on the island and 'activated' it. They found out that the navigational beacon (from 1998) had been destroyed.. They declared the People's Republic, with no response. (McCarthy)

2008 – An expedition by *Island Man Adventures* led by Andy Strangeway reached the island and six people managed to land it and three of them Mark Lumsden, Innes Smith and Ian Stephen reached the summit; the rest: Charles A. Veley, Martyn Simpson and David Langan) did not reach the summit. They all got to the rock in the same wet suit one after another . Andy Strangeway didn't get on the island. (Maciver, 2008) [fig. 2-5 were made during this expedition]

4. The dispute over *Rockall Plateau* (economical sphere)

The position of the undersea *Rockall Plateau* among four states (Denmark in accordance to Faeroe Is., Iceland, Ireland and the United Kingdom) and its potential exploitation (of oil) cause a political dispute between the states. It has gradually originated since the World War Two, when states extended their fishery (or other-named) zones around their shores. These zones by the states considered as theirs and ships from other states are not allowed to enter them.

Another dispute arose in early 70s. Then it was found out that under the Plateau there are (most probably) rich oil-fields. And all four states are concerned with the exploitation of its sources. Each of them has the right to exploit a part of the Plateau (according to the UN Convention on the Continental Shelf, 1958, and the UN Convention on the Law of the sea, 1985). But they tend to claim also the rest of the Plateau (according to some criteria as well), and individual claims partly overlap.

It is all about two different disputes: a dispute of the sea as a water column (fisheries), and a dispute of the seabed and its subsoil (exploitation of the mineral resources). Most of the sea above Rockall Plateau is beyond 200 nm from the shore of any state and thus it is not part of an Exclusive Economic Zone of any of them. It is a High Sea [see the paragraph ‘High Sea’ in the text 2.2 of attachment]. The dispute origins only where the 200-nm-zones of two or more states stretch; and it is necessary to declare a border between the zones. Mostly, it has been done. Another disputed area is the 200-nm-zone around Rockall, which is not recognized by any state except of the United Kingdom.

Nevertheless both disputes – of the sea and of its bed – are mutually connected and partly dependent. Although both above mentioned Conventions say that the Exclusive Economic (Fishery) Zone and the Continental Shelf are two different things.

4.1. United Kingdom’s claims

On 18th September 1955 at 10:16 GMT precisely Rockall was annexed by the United Kingdom and declared as its territory; it was done according to the Admiralty’s words: ‘to eliminate the possibility of embarrassing counter-claims once the Hebridean guided missiles project was underway.’ [see section 3.4/1955]. This event was not confirmed nor remarked by any other state (no need). (MacDonald, 2006)

Nevertheless the political claim on Rockall could come to a new meaning in the early 70s, when there was found a potential oil-field under the Rockall Plateau. Most probably (among others) on this account the Island of Rockall Act [see section 3.4/1972] passed through the British Parliament in 1972. It incorporates Rockall absolutely (even administratively) in Scotland and thus the island is necessarily part of the United Kingdom. The rock’s surroundings (*Hasselwood Rock, Helen’s Reef*) are part of the territorial waters of Rockall in accordance with the Act. This step was not confirmed by any of other states and it was still doubted about the incorporation of the island in the United Kingdom. (Goudman, 2006)

4.2. UN Convention on the Continental Shelf

After the World War Two the states began to claim more space of the sea. It initiated the first conference of the UN about the Law of the Sea, held in Geneva in 1956. The outcome of the

conference was four Conventions, passed on 29th April 1958: Convention on the Territorial Sea and Contiguous zone, Convention on the Continental Shelf, Convention on the High Sea and Convention on the Fishing and Conservation of Living Resources of the High Sea. These Conventions design the rules of making use of the sea. The Convention on the Continental Shelf came into force on 10th June 1964. [the definition of the Continental Shelf according to this Convention – text 2.1 of attachment]

It says that every single coastal state has an exclusive right to the research and exploitation of the continental shelf around its coast. Therefore the United Kingdom could claim to exploit whole the Rockall Plateau. And it is caused by the fact that Rockall, as the only part of the Rockall Plateau above the sea-level, is British. Nevertheless no other state has confirmed the British claim and thus no state considers the Rockall Plateau as British; because Britain lies on a different shelf than Rockall [see section 1.1]. The other three states claim the Plateau as well.

4.3. Cod Wars

In the second half of the 20th century passed the three so called Cod Wars (as a paraphrase to the Cold War) between the United Kingdom and Iceland; presumably with no victims. They were about the area, where the British ships are allowed to fish. They consisted in cutting of the net-ropes of the British trawlers by the Iceland's Coast Guard and in ploughing of the Iceland's ships by the British Naval ones.

The first Cod War lasted from September till November 1958. It was provoked by extending of the fishery zone around Iceland, which cannot be entered by the British ships, from 4 to 12 nm. It led to a bilateral treaty, that further disputes will be resolved in the International Court of Justice (in Haag).

The second one lasted from September till November 1972 and was provoked by extending the fishery zone around Iceland to 50 nm. According to that Iceland threatened that will leave the NATO, it led to limitation of the British fishery in some parts of the 50-nm-zone. Consequently, the weight of the fish of the British fishers was limited to 130,000 tonnes a year.

Three years afterwards, when this treaty had run out, the third Cod War, the 'cruellest one', began. It lasted from November 1975 till June 1976 and was provoked by extending the exclusive zone around Iceland to 200 nm. By the same reason as the second war ended, it led to the confirmation of that zone by the United Kingdom (the Wikipedia server)

4.4. British claims in 70s and 80s

In 1974 the United Kingdom set a sentry-box with two guards in the full ceremonial dress on Rockall. [see section 3.4/1974; fig. 27] The goal of this action was the demonstration of the British claim of the island. Nevertheless it was not internationally confirmed.

Simultaneously, the United Kingdom announced that the shelf around Rockall (about 130,000 square km) belongs to it. It was not specified whether by the existence of Rockall on this shelf and its 'Britishness' or by any other connection. Most probably by the proximity the Scotland Lord Advocate announced that the United Kingdom partly relies on Rockall in task of the claim on the Rockall Plateau on 22nd January 1975.

At the same time, the United Kingdom declared the 50-nm-fishery-zone around the island, in which no foreign ship should have been allowed to enter. The United Kingdom did so perhaps as a reaction on the declaration of the 50-nmi-zone around the Iceland a one year before. This was not called back until the ratification of the UN Convention on the Law of the Sea about twenty years later. No other state did follow the rule. (Symmons, 1998; Goudman, 2006)

Two years after declaring the 50-nm-zone, the United Kingdom even extended it – to 200 nm, in accordance with the Fishery Limits Act, 1976, which prolonged whole the zone of the British sea. This action was probably done as a response to declaring the same zone around Iceland a year before.

Neither Denmark nor Iceland do not dispute the belonging of Rockall to the United Kingdom and do not disclaim its Territorial Waters (12 nm). Nevertheless they didn't confirm its fishery zone. It overlaps with the fishery zones of the states.

On the contrary Ireland, which does not admitted the British claims on the rock, refuses the territorial waters around it. Ireland was one of the biggest protagonists of adding the article 121(3) about the uninhabitable island to the UN Convention on the Law of the Sea [see paragraph Island in the text 2.2 of the attachment]. Thus it designated the fishery zone around Rockall as unenforceable. Same as any kind of British claims on the continental shelf around the Rockall. (Symmons, 1998)

When it comes to the United Kingdom's claim to Rockall, another try to prove the 'Britishness' of the island was arranged in 1985. Then there should be a dispatched of the survival expert Tom McClean on the rock by the British Government. He lived there in some kind of a security-pod for forty days [see section 3.4/1985]. Probably, he should have demonstrated the political belonging of the island. Another reason why he was there could have been the definition of an island in then originated UN Convention on the Law of the sea, which says that 'rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.' By this action, the United Kingdom could have tried to prove the inhabitability of the island and thus to predicate these rights to it.

4.5. Delimitation of claims to the Rockall Plateau

On 7th November 1988, when the UN Convention on the Law of the Sea had been ratified by no of the four, the United Kingdom signed the Continental Shelf Agreement (Agreement between the Government of Ireland and the Government of the United Kingdom concerning the Delimitation of Areas of the Continental Shelf between the Two Countries) with Ireland. It designed borders between the two states on the seabed. It ignored the existence of Rockall. The island (?) was not impeached – rather might have been not considered as an island. According to the Irish party, it was designed regarding the new UN Convention, which declared Rockall as an 'uninhabitable island' and thus having no right to own its continental shelf. The Continental Shelf Agreement also designed the borders between the United Kingdom and Ireland on the Rockall Plateau.

Denmark declared its claims on the Rockal Plateau on 7th May 1985. Iceland did so three days later, on 10th May 1985. Both United Kingdom and Ireland designed it sooner, but now (1988) they described it as common (or divided) claims on the Rockall Plateau. [see fig. 35]

The claims of the Denmark and Iceland overlapped by almost whole area same as with the claims of the United Kingdom and Ireland. The Iceland's claim is quite more expansive than the Danish; it reaches even to the border of the 200-nm-zone of Ireland and the United Kingdom and even southern then is the British southernmost point. (Symmons, 1998)

In the March 1994 the British ship *HMS Orkney* (or *Norna*) withheld the ship *Rex* owned by Iceland, because it fished in the British fishery zone around Rockall. Afterwards it turned out that the ship is under the flag of Cyprus (what quite confused the Cyprian offices), and the captain, Elrand Olson from the Faeroe Islands, was fined with the amount of £12,500. Other ship withheld in the Rockall water was *Atlantic Hope*, under the flag of Belize. Whole catch was seized. (Greenpeace UK)

4.6. UN Convention on the Law of the Sea

The first UN conference on the Law of the Sea did not resolve every matter. The best way, was to arranged a new one in Geneva in 1960; but with no results. In 1973, a third one was organized, with participation of 160 states, originally in New York and afterwards in other cities (as Caracas, etc.). It ended up in 1982, when the United Nations Convention on the Law of the Sea was passed; 130 votes with, 4 against, and 17 abstentions. The Convention came into force after ratifying by the 60th state, on 16th November 1994. [some definitions from the Convention are in text 2.2 of attachment]

This treaty was ratified by all four states interested in the dispute over the Rockall Plateau – Iceland as the first on 26th January 1985, Ireland on 21st January 1996, the United Kingdom on 25th July and finally Denmark in 16th November 2004. Thus it is a common standpoint, which could help with the solution of the dispute.

This Convention defines the Continental shelf pretty more certainly than the previous one. It says that the state could have the right to the Continental Shelf with delimitation that 'it either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobaths, which is a line connecting the depth of 2,500 metres. But there it does not say that it has to be the same mass of shelf as on which a state lies. Each state of the four does reach the Rockall Plateau by the 200-nm-zone and thus they can exploit it. So the dispute is not solved out again.

In the above mentioned Convention it is also said that the situation of claim of more states in one area will be solved by an agreement between the states. If not, it will be done by the United Nations Commission on the Limits of the Continental Shelf, Hamburg, established in 1996.

4.7. Greenpeace and UNCLOS ratification by the United Kingdom

In 1997, three activists from Greenpeace occupied the rock to remit the weakness of the British claim of Rockall. [see fig 28-33] They required an announcement by the United Kingdom that it would not consider the Plateau surrounding Rockall as its own. They partly managed, because on 25th July 1997 the United Kingdom ratified the UN Convention on the Law of the sea [see section 4.6]. Thus, it forewent the 200-nm-zone around Rockall and also exploitation of the Rockall Plateau in accordance to Rockall. Two days after the ratification the Greenpeace left the rock. It is hard to say how much the ratification was influenced by the action of Greenpeace, because else the protests were pretty ignored. Nevertheless the goal was

reached – the Plateau was not confirmed as British, even by the United Kingdom. So it was clear that the further events on the Plateau (and of the oil below) would have to be decided by a negotiation. (Goudman, 2006; the Geocities server)

According to these circumstances the British Government did not want to ratify the Convention. It did so when the Labour Party was elected in 1997 (before there were the Conservatives). On 21st July 1997 it was announced that ‘later in this month’ the Convention would be ratified. It followed the foregoing of the Exclusive Economic Zone around of Rockall, and thus it was necessary to change the *Fishery Limits Act*, 1976. A day later (on 22nd July 1997) the *Fishery Limits Order*, 1997, were released for this purpose. There is the 200 nm measured from St Kilda. The Order came into force simultaneously with the ratification of the Convention by the United Kingdom, on 25th July 1997. (Symmons, 1998) [see fig. 36]

Rockall is according to the *Fishery Limits Order* still a part of the British waters (it reaches even 36 nm more west). But the United Kingdom forewent about 200,000 square km, which were more than 200 nm from St Kilda but less than 200 nm from Rockall. But also EU forewent these waters, according to planning of the common fishery zone within EU. Indeed the catches in these waters made only 0.13% of the Scottish catches by weight and 0.15% by their prize. (Symmons, 1998)

Although extensive cuts of the Exclusive Economical Zone of the United Kingdom have been made, there are still some disputes between it and Ireland about the delimitation of the border between the states. It is improbable that these borders would be the same as the borders of their continental shelf according to the *Continental Shelf Agreement*, 1988. Among others by the reason that the border of their shelves is located closer than 200 nm to St Kilda and the United Kingdom has the right to enforce it further, beyond the shelf-border. So still, there are some disputes among all the four states. (Symmons, 1998)

4.8. Negotiations

The first meeting of delegates from all the four states interested in the Rockall Plateau was held in Reykjavík in 2001. Next one followed in Copenhagen in the November 2007. In January 2008 another one should have started in Dublin, but it was delayed for May 2009 (on the 13th May all countries that had ratified the UNCLOS before the same day in 1999 had to submit their sea-claims). Till this time the states should have had to define their claims and come up with a solution.

There was no conference in Dublin in May 2009, there was one in Thorshavn (Faeroe is.) in June 2009 instead. Its point was to discuss issues relating to the continental shelf in the Hatton Rockall area of the north-east Atlantic. The officials agreed to meet again in Dublin in the first half of 2010.

These are not any official conferences but just informal meetings between the four states.

Summary

For approximately one year and a half I have been interested in Rockall. I have gradually learned that although it's just a dot on the maps (if even at all), it provides lots of interesting things and sometimes even bizarre information. I have tried to put them all together in this work as complexly as possible to give an opportunity for everyone, to learn about Rockall as well. I am of the opinion that this information can be used (among others) during the geography education at the universities as an interesting example – position of Rockall according to the international law and according to the UN Convention on the Law of the Sea; Rockall as an inspiring micro-continent, etc. Beside this version, I am going to put a shorter one on my website about Rockall.

Some facts described in this work haven't been closed yet and they will further be developed. That is the reason why I'm going to actualize them (by the website); at least until the dispute over the *Rockall Plateau* is closed – what closes up the third of the sections of this work, about the economical sphere. The final decision on the division of the Rockall Plateau between Denmark, Iceland, Ireland and the United Kingdom should be said in May 2009 at the conference in Dublin. The historical development will follow as well, but I do not expect any big changes. I hope that the work will be useful for anyone who is interested in Rockall or for reference purposes.

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fig. 1

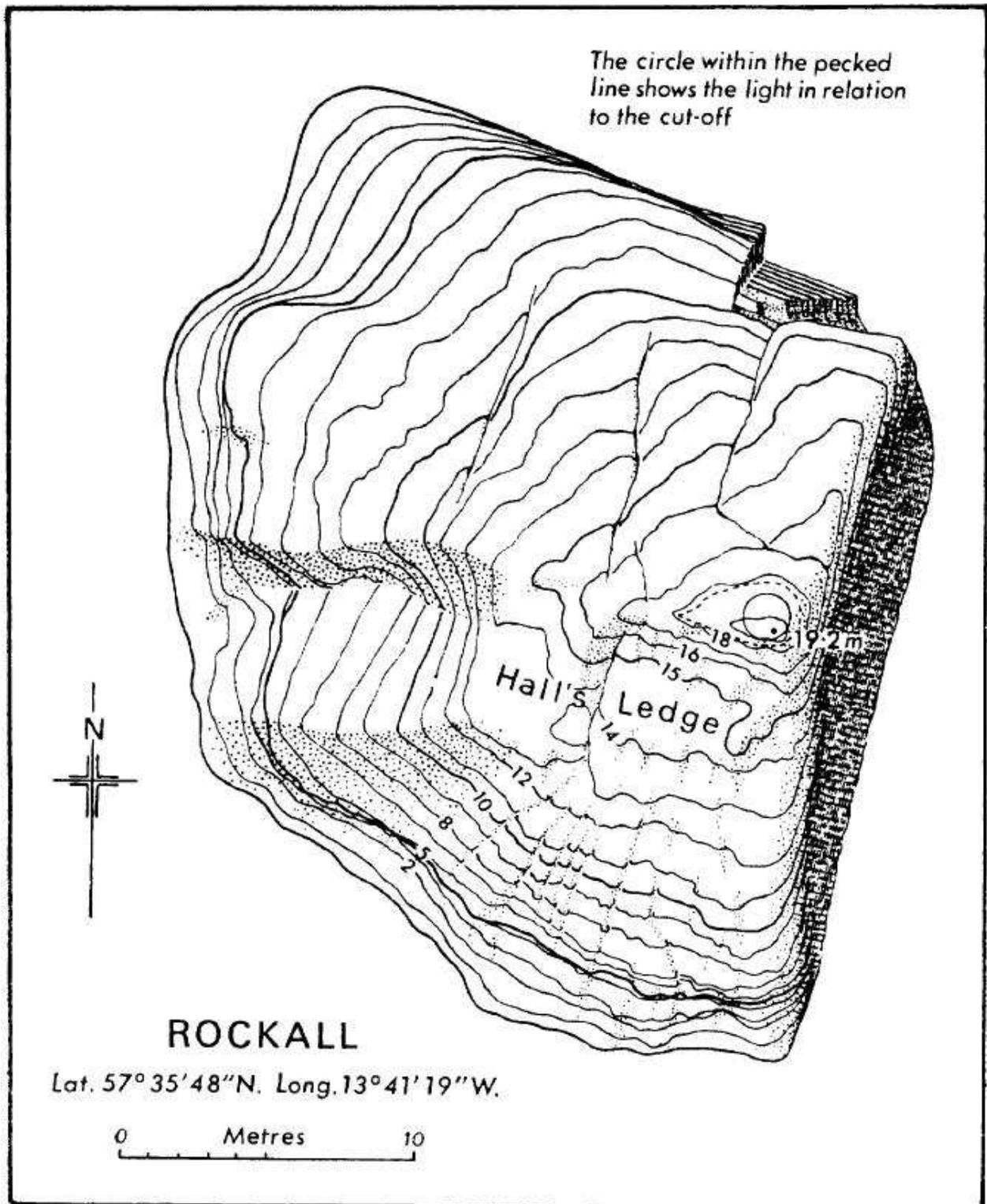


fig. 1 – the first map of Rockall Publisher in the 141st number of The Geographical Journal), March 1975; set by G. S. Holland and R. A. Gardiner according to the aerial photos by the Royal Air Force from the year 1970 (according to the authors it is not much precise; its orientation also not because of the magnetic anomalies).

On the following two pages (fig. 2 – 5) there are four horizontal views of Rockall, from the four wards (according to the little map) – from the east, the north, the west and the south. On the fig. 4 there is visible Hall's Ledge, on fig. 4-5 there is the broken navigational beacon. On fig. 2-5 there are showed colonies of birds and sea-weed. Notice the guano-layer. Author of the photos is Andy Strangeway.

fig. 2

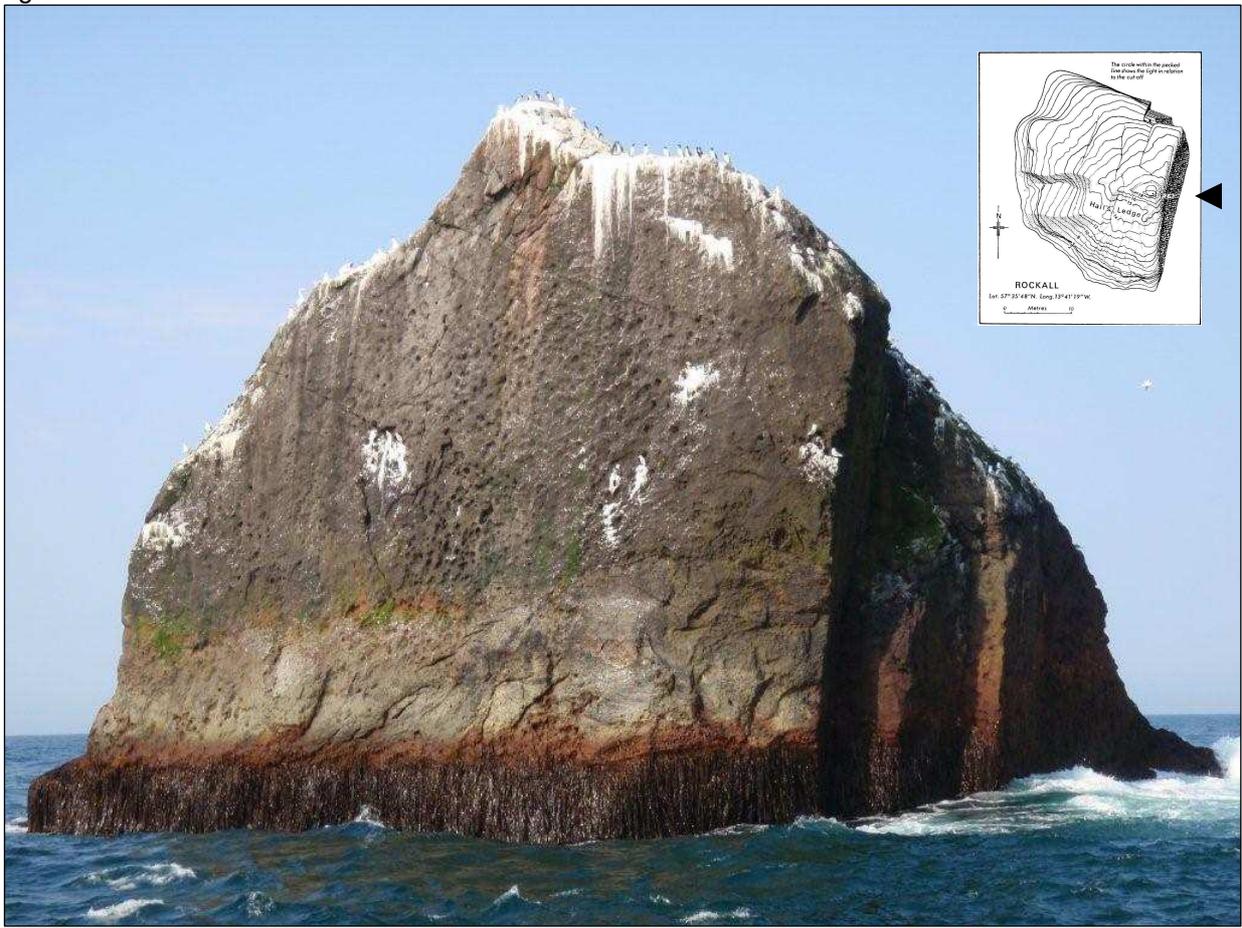


fig. 3

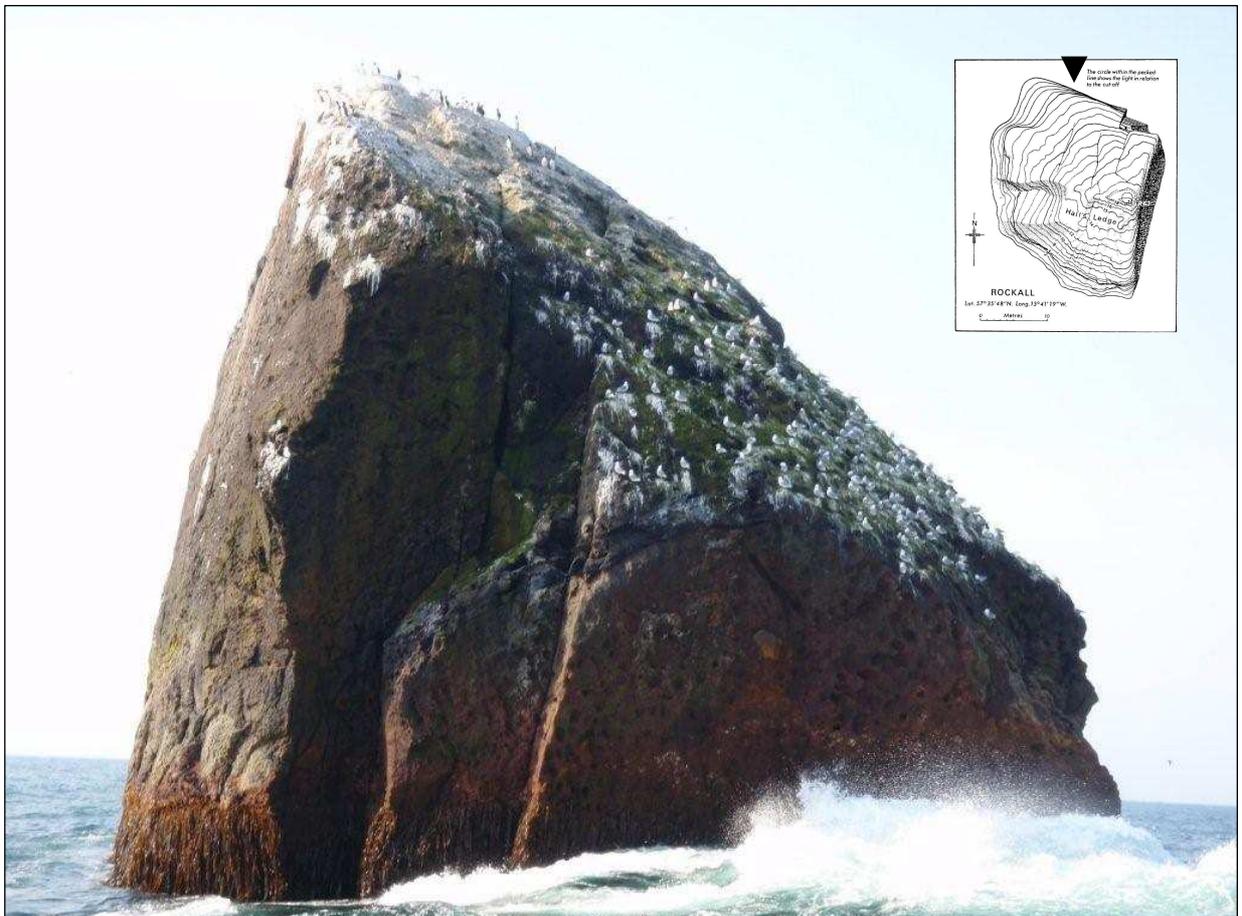


fig. 4

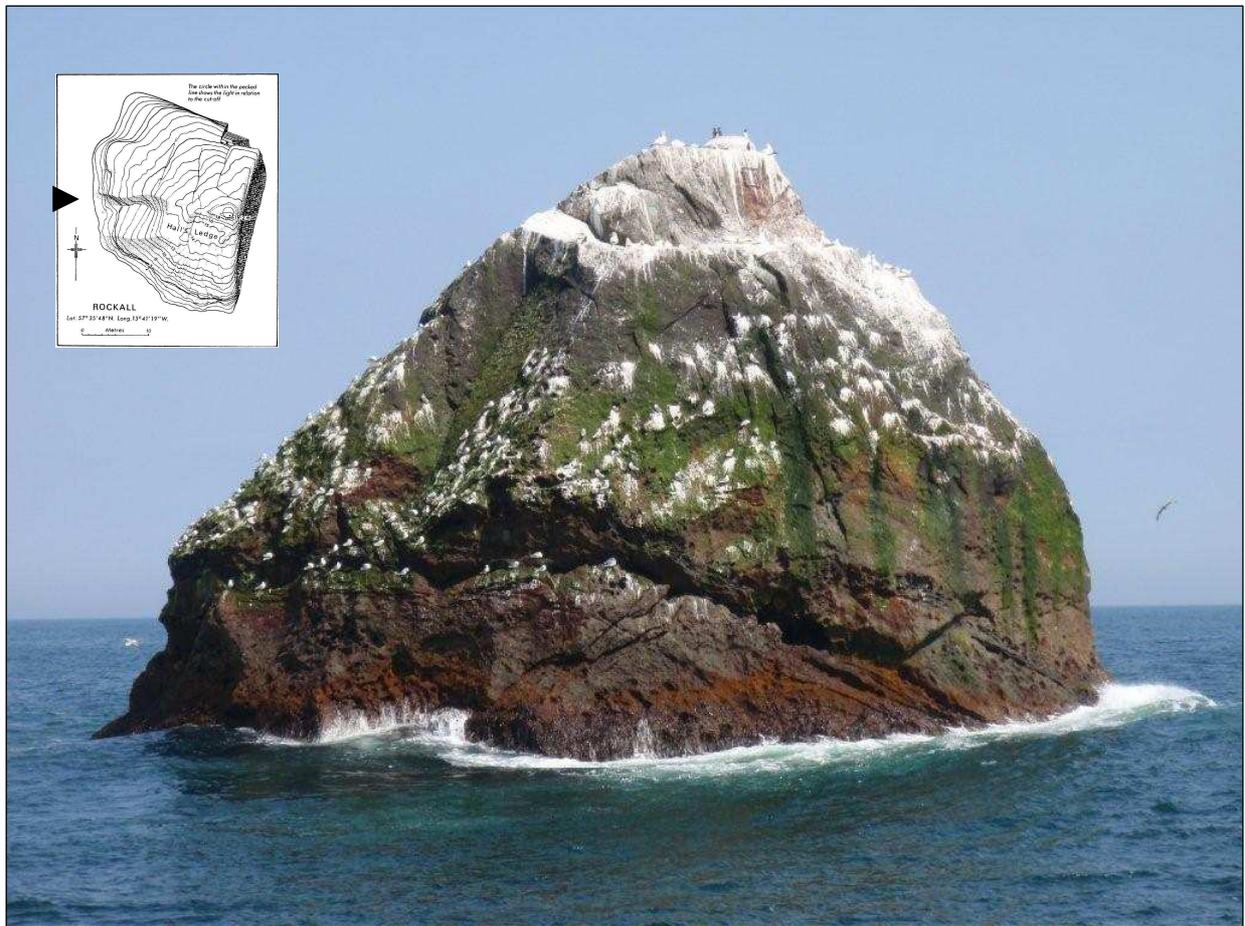


fig. 5

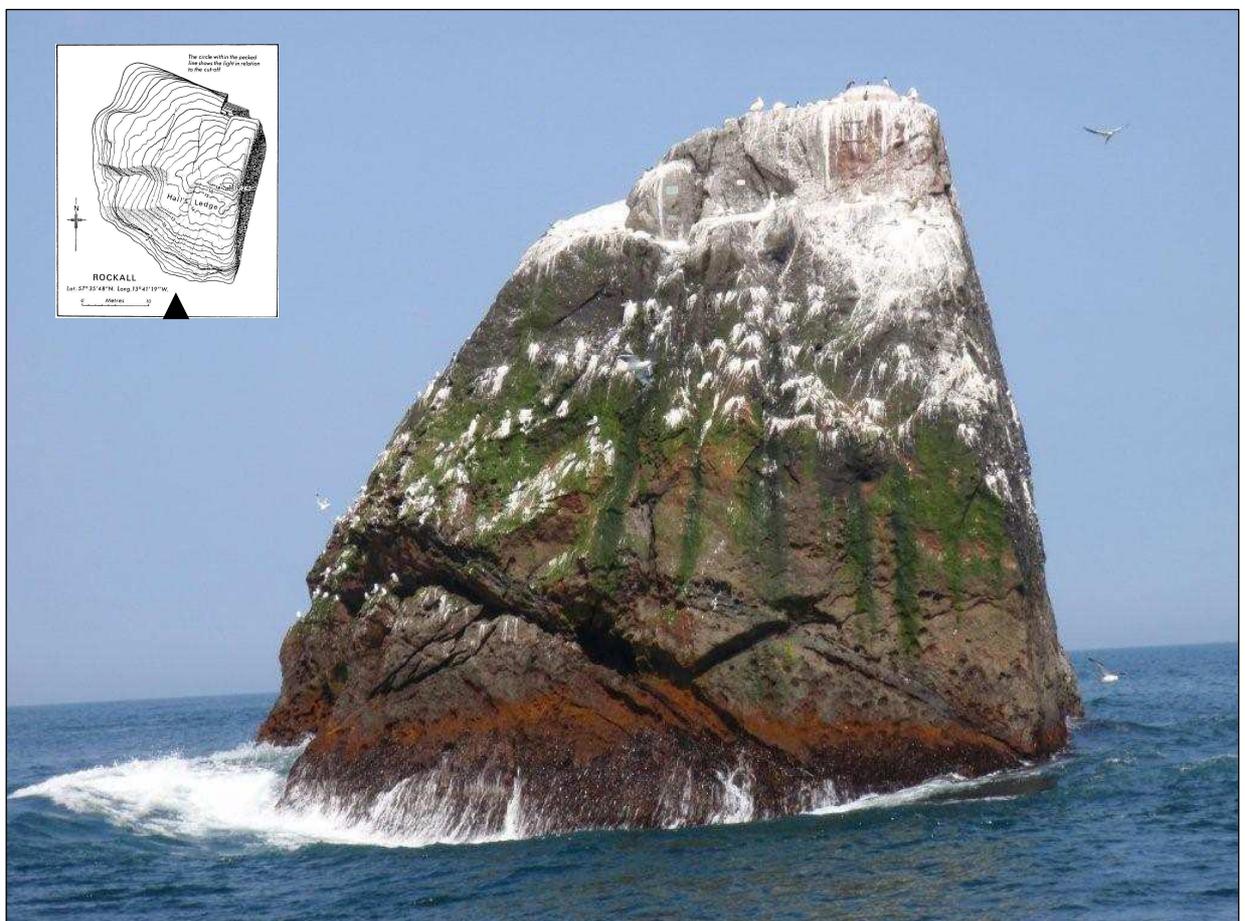


fig. 6

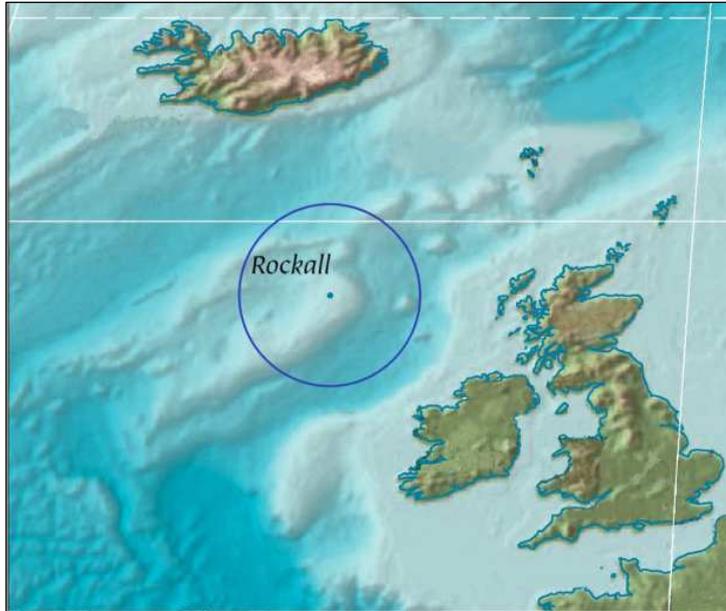


fig. 6 – approximate location of Rockall

fig. 7 – plastic scheme of the *Rockall Plateau* and *Rockall Through* with the map: In the south-east corner there is a part of Ireland; RB = *Rockall Bank*, FD = *Feni Drift (Ridge)*, RT = *Rockall Trough*, FI = *Faeroe Islands*, HRB = *Hatton-Rockall Basin*, HB = *Hatton Bank* (according to the Ocean Drilling Program)

fig. 7

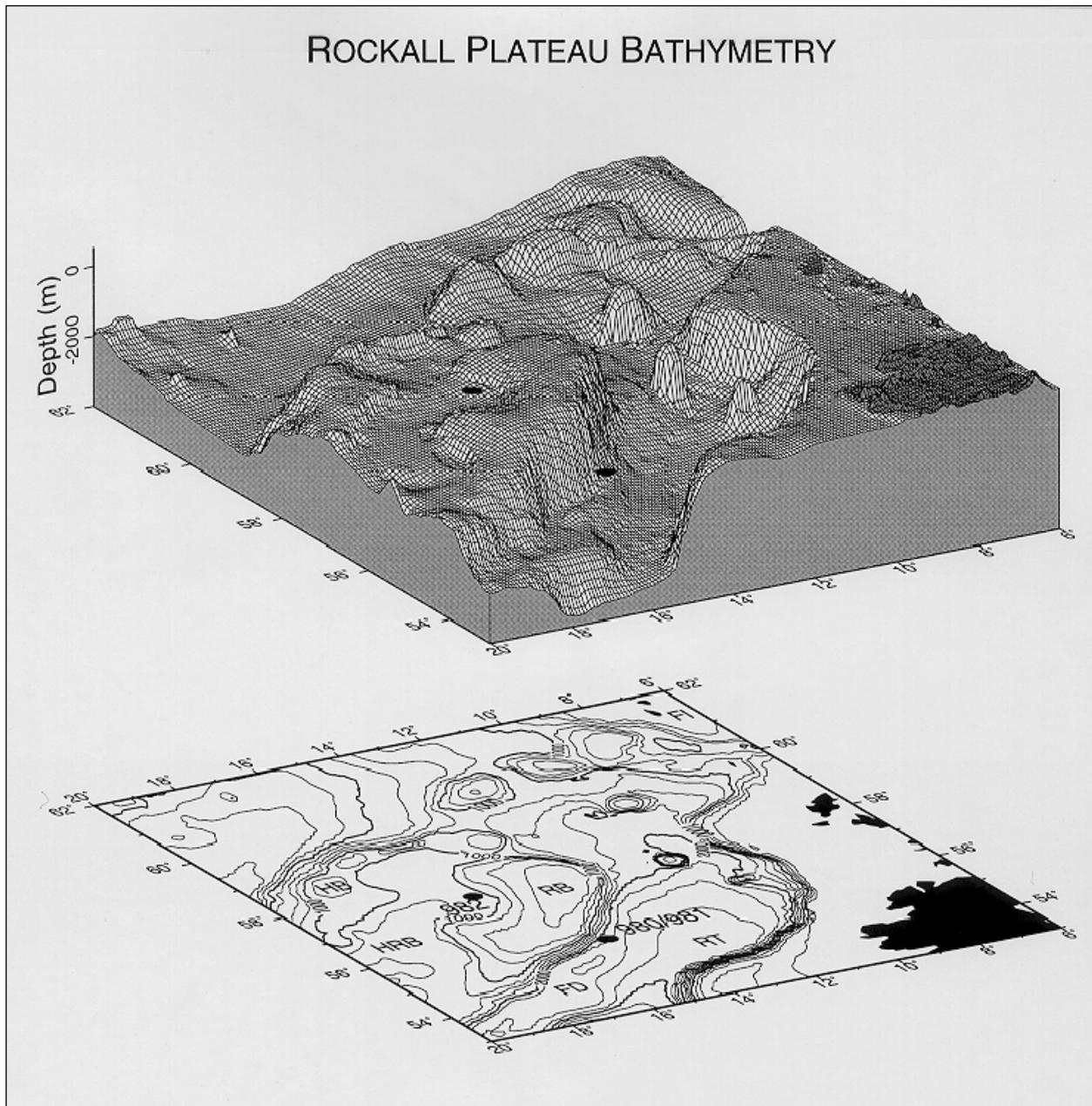


fig. 8

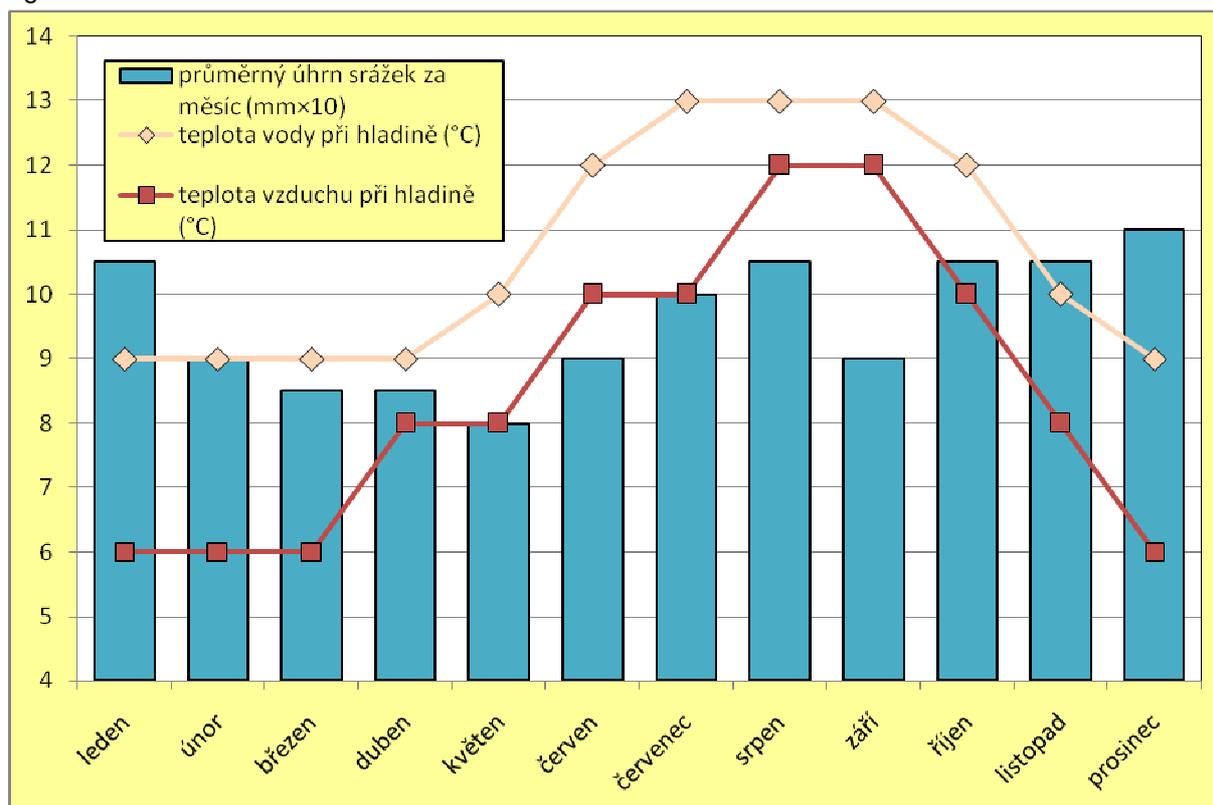
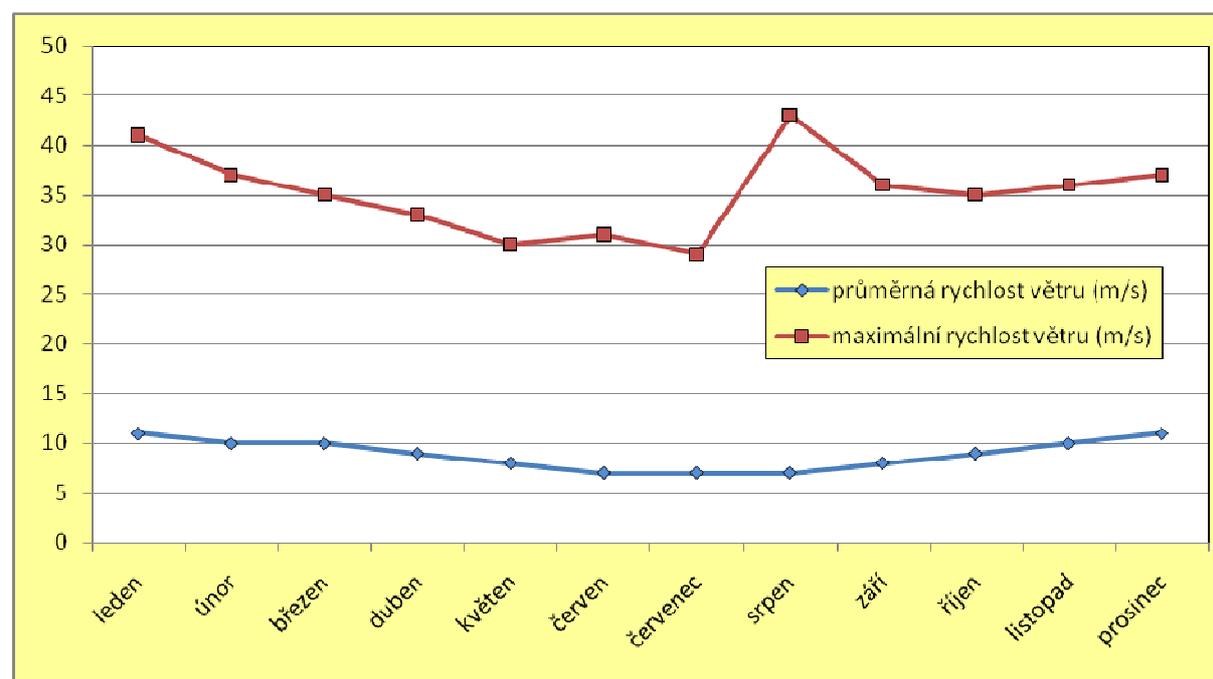


fig. 9



Months are listed chronologically from left to right (January to December).

fig. 8 – graph of the precipitations and temperature in the area of Rockall: blue column shows the average quantity of the precipitations in 10s mm per month; the orange line shows the temperature of the water by the sea-level in °C; the red line shows the temperature of the wind by the sea-level in °C (according to Atlas okeanov, 1977)

fig. 9 – graph of the wind-speed in the area of Rockall: red line shows the maximum (m per second); the blue line shows the average (according to Atlas okeanov, 1977)

fig. 10

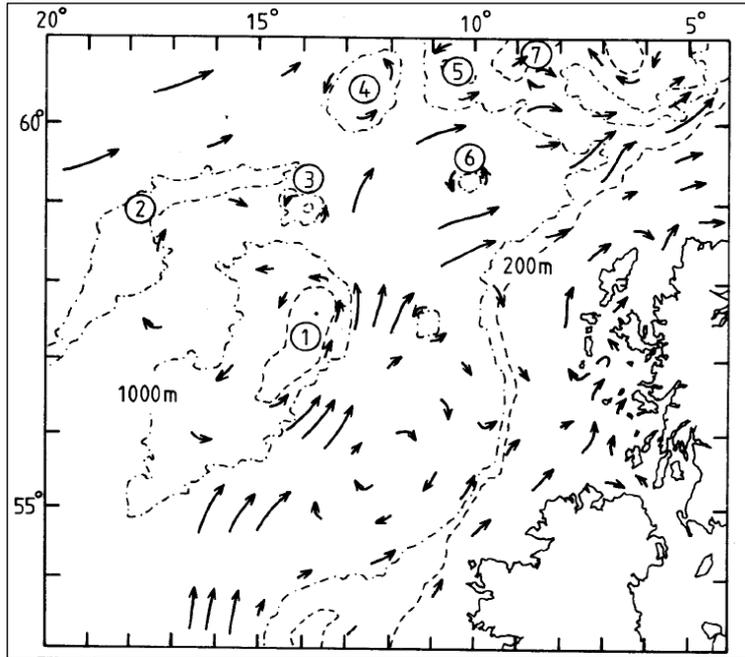


fig. 11

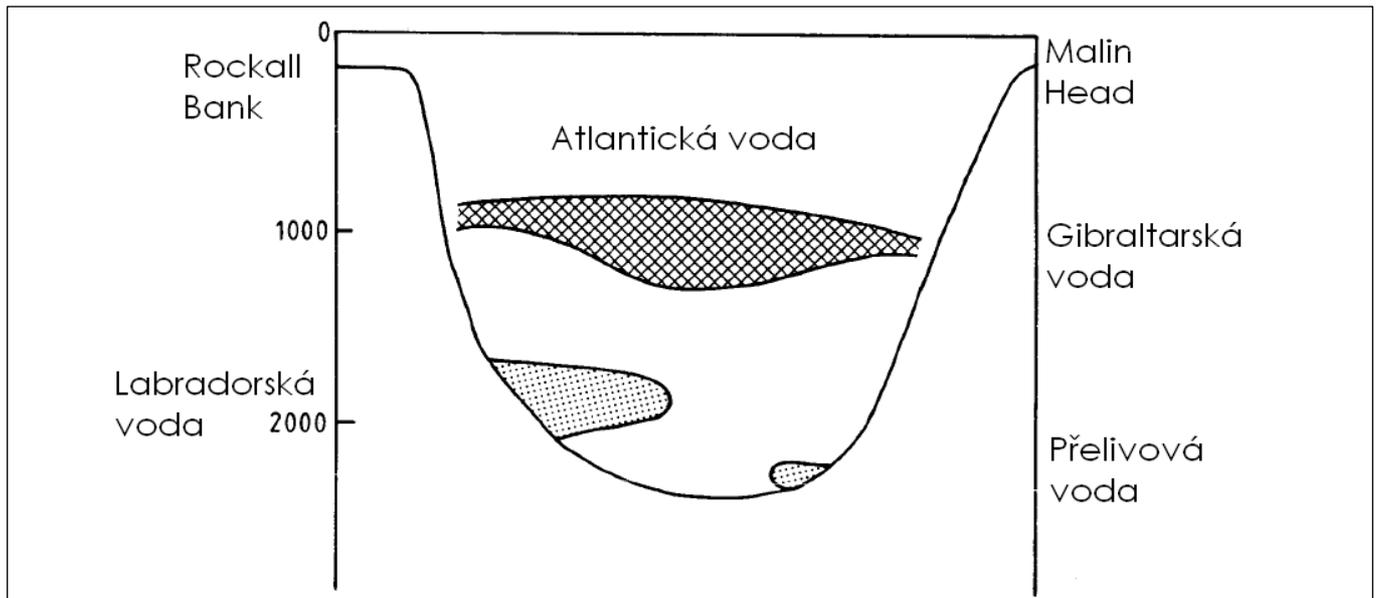
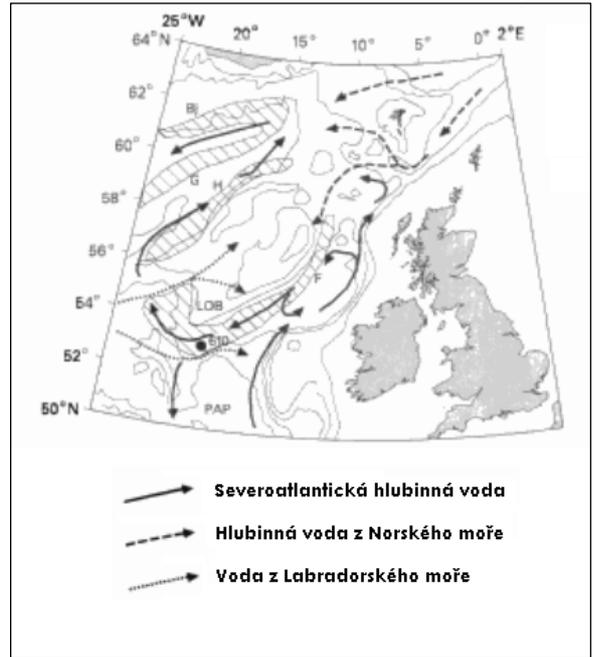


fig. 12

fig. 10 – the surface-water currents nearby the Great Britain (1 – Rockall Bank; 2 – Hatton Bank; 3 – George Bligh Bank; 4 – Lousy Bank; 5 – Bill Bailey’s Bank; 6 – Rosemary Bank; 7 – Faeroe Bank; Blacker, 1982)

fig. 11 – the deep-water currents of the *Rockall Through* and the *Rockall Plateau* with the origin: strong black line shows the North Atlantic deep-water, dashed line the Norwegian deep-water, the solid line shows the water from the Labrador Sea (LOB – Lorien Bank; PAP – Porcupine Abyssal Plain; Stroker, 1998)

fig. 12 – the scheme of the origin of the water in the *Rockall Through*: dotted area on the left-bottom is the Labradorean water, the dotted area on the right-bottom is the overflow water, the crossed area is the Gibraltar water and the rest is the Atlantic water (east-west; Blacker, 1982)

fig. 13

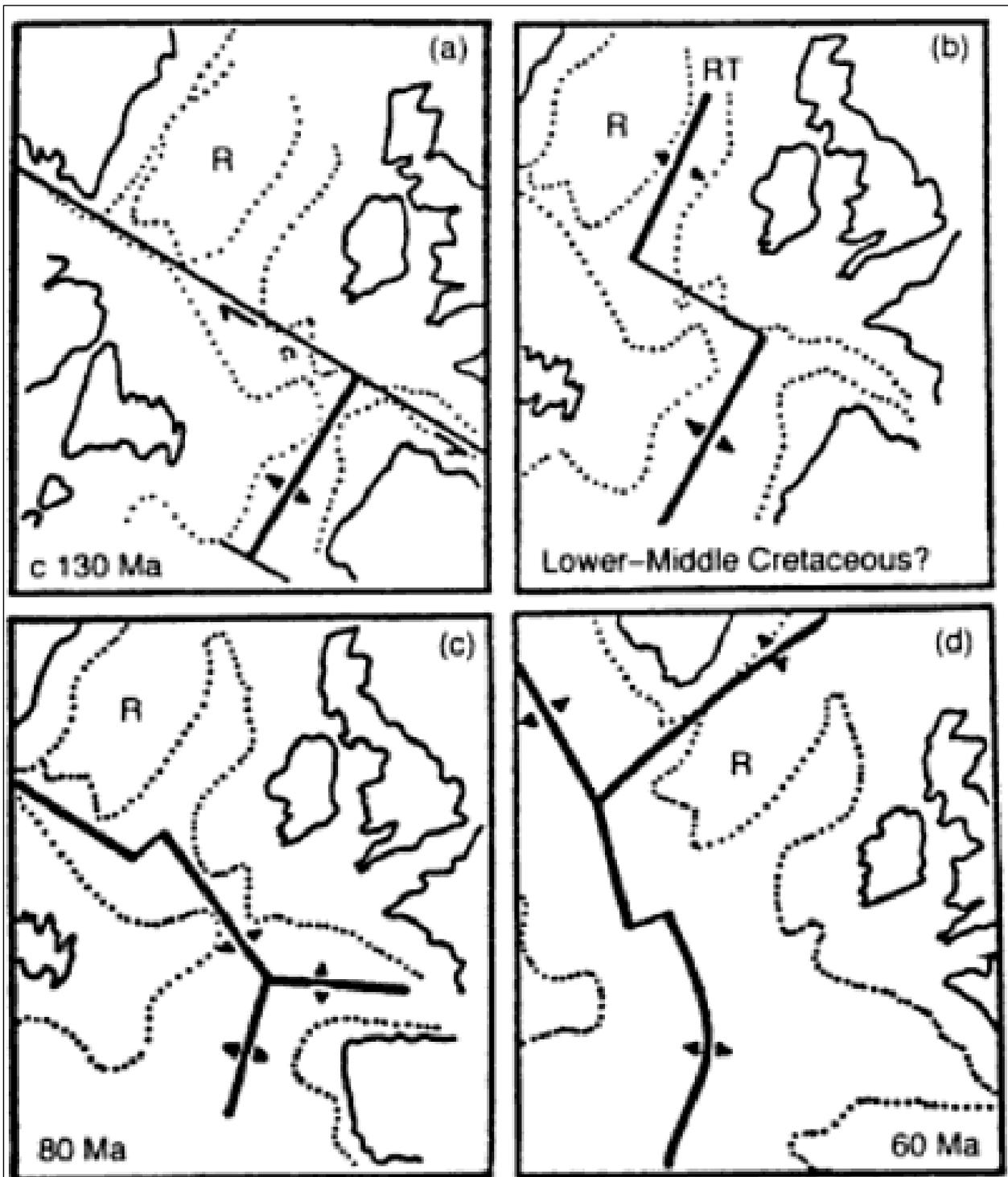
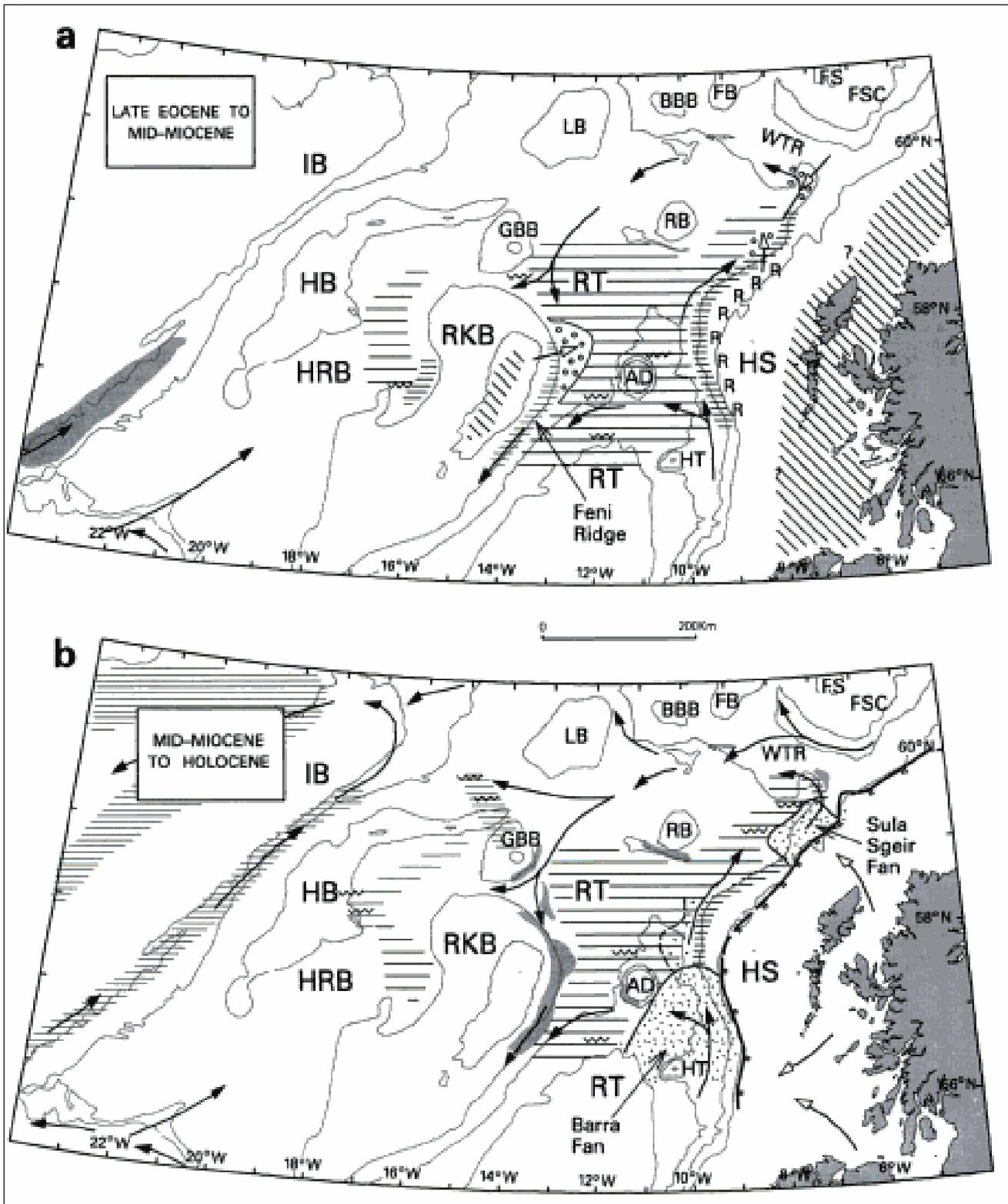


fig. 13 – simplified sketches of sea-floor spreading of the British Isles since the end of the Jurassic (a) At the end of the Jurassic, an emerged Precambrian crustal area (the Rockall, R, microcontinent) lay between Ireland and Greenland, Sea-floor spreading began between Iberia and Newfoundland, developing a fracture zone from the Pyrenees to the Labrador Sea. (b) Early to mid-Cretaceous sea-floor spreading separated Rockall from the British shelf but was aborted, leaving the Rockall Through (RT). (c) A triple junction appears off the Bay of Biscay in the early Senonian (80Ma), and Spain begins to rotate. (d) In the Paleocene (60-65 Ma) a new spreading center begins to separate the Rockall microcontinent from Greenland. (cited from Moores, 1997)

fig. 14



- | | | | |
|--|---|--|----|
| | 1 | | 7 |
| | 2 | | 8 |
| | 3 | | 9 |
| | 4 | | 10 |
| | 5 | | 11 |
| | 6 | | 12 |

fig. 14 – Gross depositional environment maps summarizing the main depositional systems existing during the development of the mid- to late Cenozoic megasequences. Key to symbols: 1, mounded, elongate sediment drift; 2, sheeted sediment drift; 3, sediment waves; 4, bottom-current circulation, inferred in (a), present-day in (b); 5, late Eocene–earliest Oligocene lowstand fan; 6, early Oligocene reef; 7, mid-Miocene to Holocene fans; 8, interbedded drift and downslope deposits; 9, sediment-source areas; 10, Inferred land areas; 11, areas of extensive bottom-current erosion; 12, maximum extent of mid- to late Pleistocene ice-sheets. Abbreviations: HS – Hebridean shelf; RT – Rockall Through; IB – Iceland Basin; HB – Hatton Bank; HRB – Hatton-Rockall Basin; RKB – Rockall Bank; GBB – George Bligh Bank; LB – Lousy Bank; AD – undersea mountain Anton-Dohrn; BBB – Bill Bailey’s Bank; FB – Faeroe Bank, FS – Faeroe Shelf; WTR – Wyville-Thomson Ridge; RB – Rosemary Bank; a - Eocene/Oligocene, b – Miocene/Holocene (cited from Stroker, 1998)

fig. 15

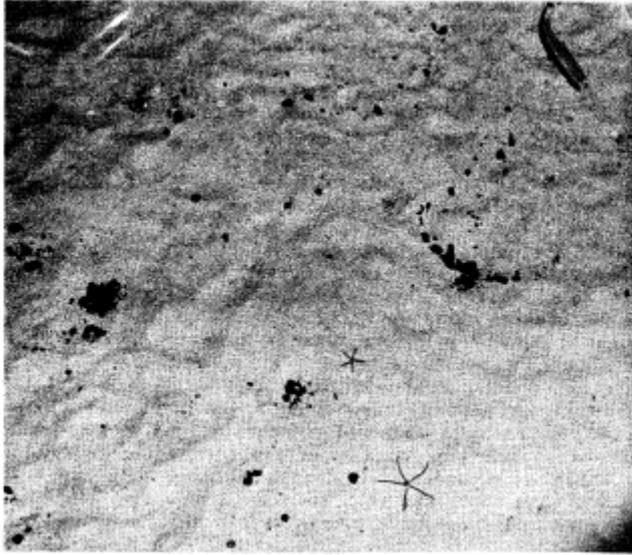


fig. 16

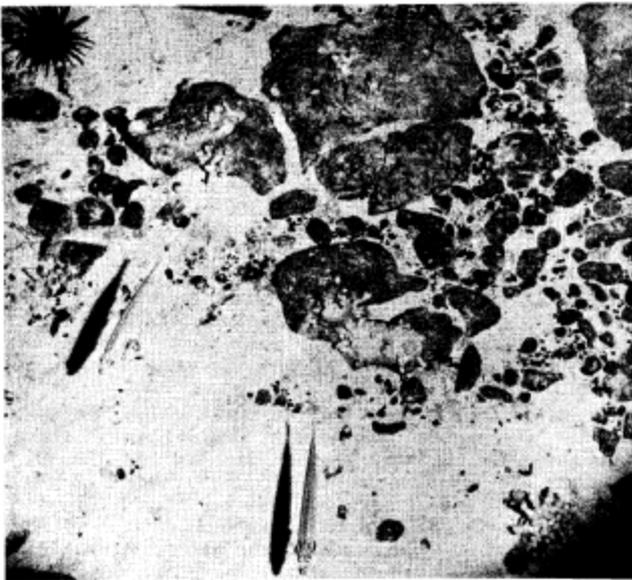


fig. 17

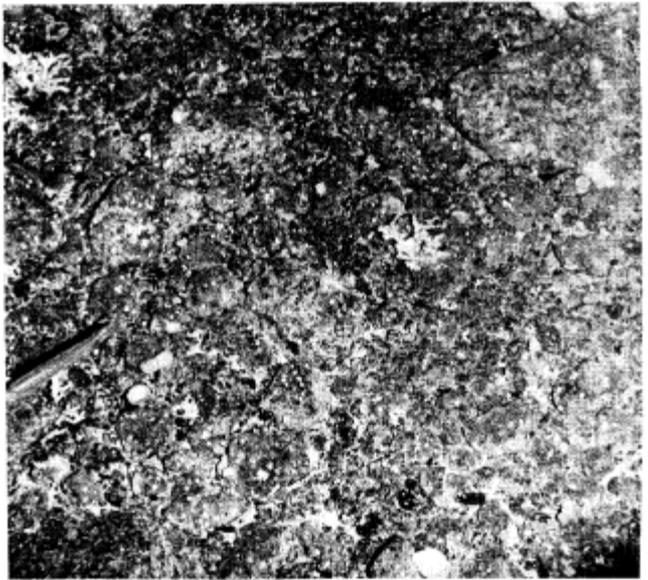


fig. 18

Photograph of the sea bed on Rockall Bank between 135 and 165 m depth. The picture area is about 1 square metre, and all the fish are lesser silver smelts (*argentina sphyraena*). (Blacker, 1982)

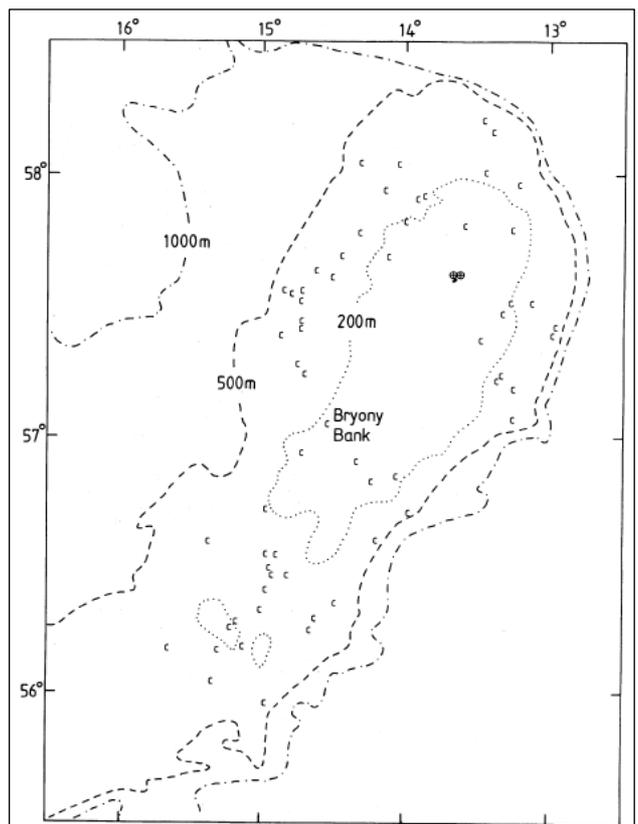
fig. 15 – Fine coral sand with a few small pebbles. Two Brittle-stars (*ophiuroid*) can be seen;

fig. 16 – Fine coral sand and pebbles;

fig. 17 – Sand and stones. The stones support a fauna of sponges and other animals;

fig. 18 – Rock and stones. Small colonies of coral and sponges are growing on the rocks.

fig. 19 – Rockall Bank showing the distribution of the coral, *Lophelia pertusa* (c) (Blacker, 1982)



obr. 19

fig. 20

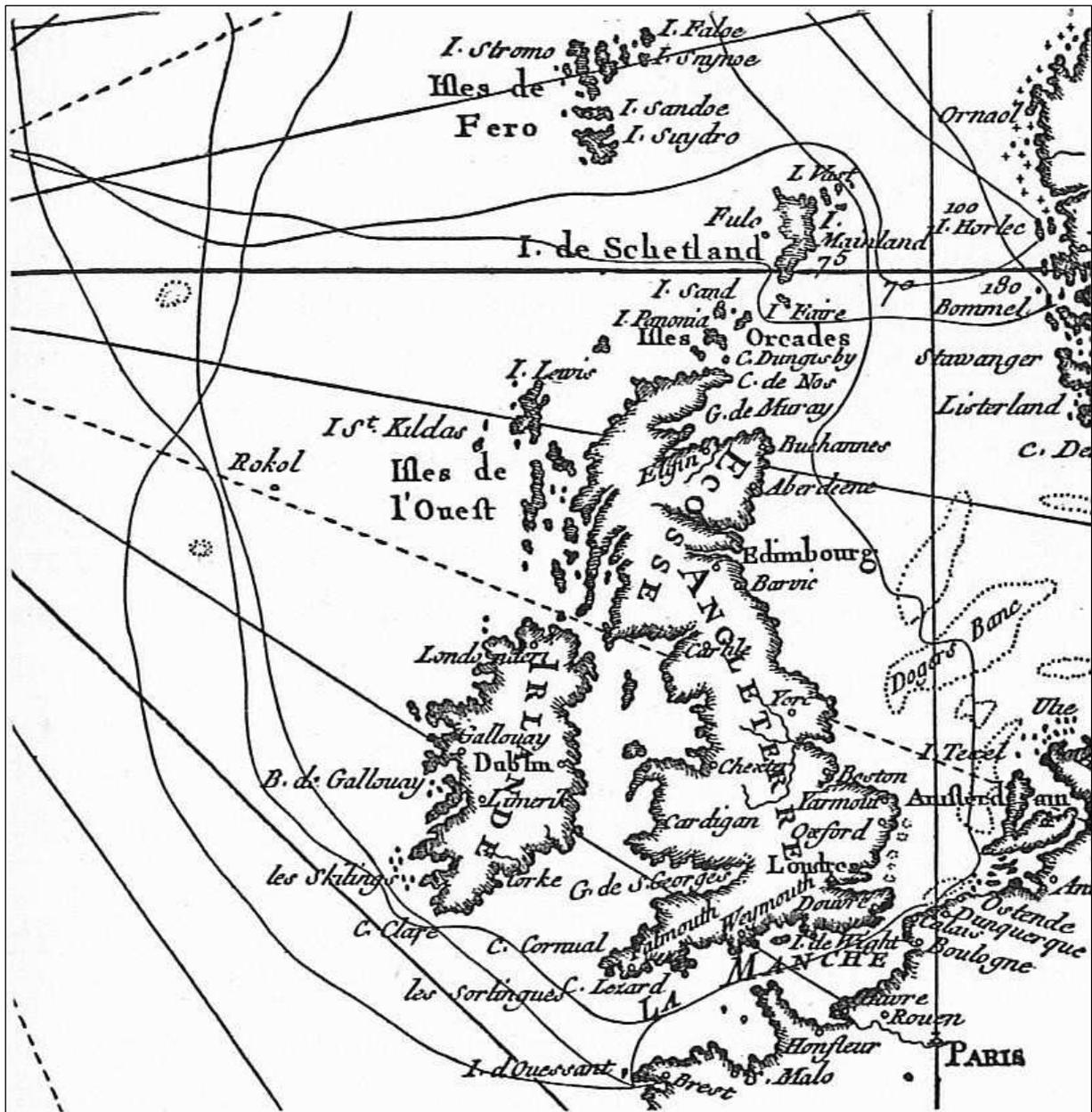


fig. 20 – map of Britain from 1771 by French sailor Kerguelen

text 1 – Extract from the Fragments of Voyages and Travels by the Captain Basil Hall, published in 1831; passage from the chapter VI. – Rockall, in which there is also written about the first expedition on Rockall. (During that expedition a thick fog came and thus the ship (*HMS Endymion*) could not be seen from the boats sent to the rock. When the boats managed, at twilight, to reach the ship and when they asked why it was not shot from the board to localize it, the crew answered: ‘Why, we have been doing nothing else but blaze away every ten minutes for these last five or six hours.’):

In a fine autumnal morning, just a week after we had sailed from Lough Swilly, to cruise off the north of Ireland, a sail was reported on the leebeam. We bore up constantly, but no one could make out what the chase was, nor which way was she standing – at least, no two of the knowing ones could be found to agree upon these matters. Here various opinions, however, presently settled into one, or nearly so – for there were still some of the high-spyers who had the honesty to confess they were puzzled.

The general opinion was, that it must be a brig with very white sail aloft, while those below were quite dark – as if these royals were made of cotton, and the courses of tarpaulin, – a strange anomaly in seamanship, it is true, but still the best theory we could form to explain the appearances. A short time served to dispel these fancies; for we discovered, on running close to our mysterious vessel, that we had been actually chasing a rock – not a ship of oak and iron, but a solid block of granite, growing, as it were, out of the sea, at a greater distance from the mainland than, I believe, any other island, or islet, or rock of the same diminutive size, is to be found in the world.

fig. 21

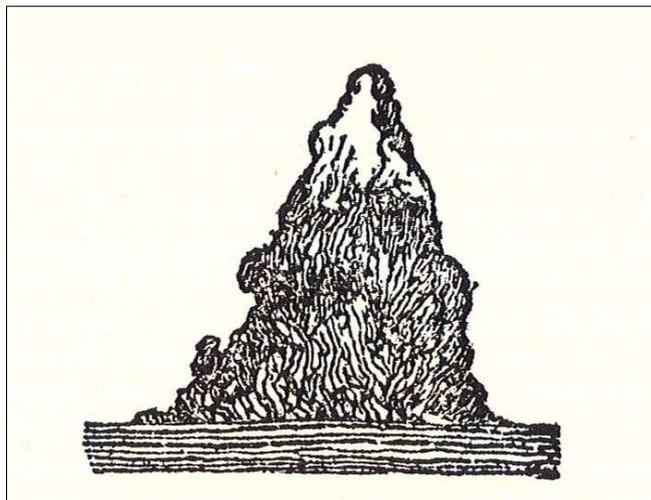
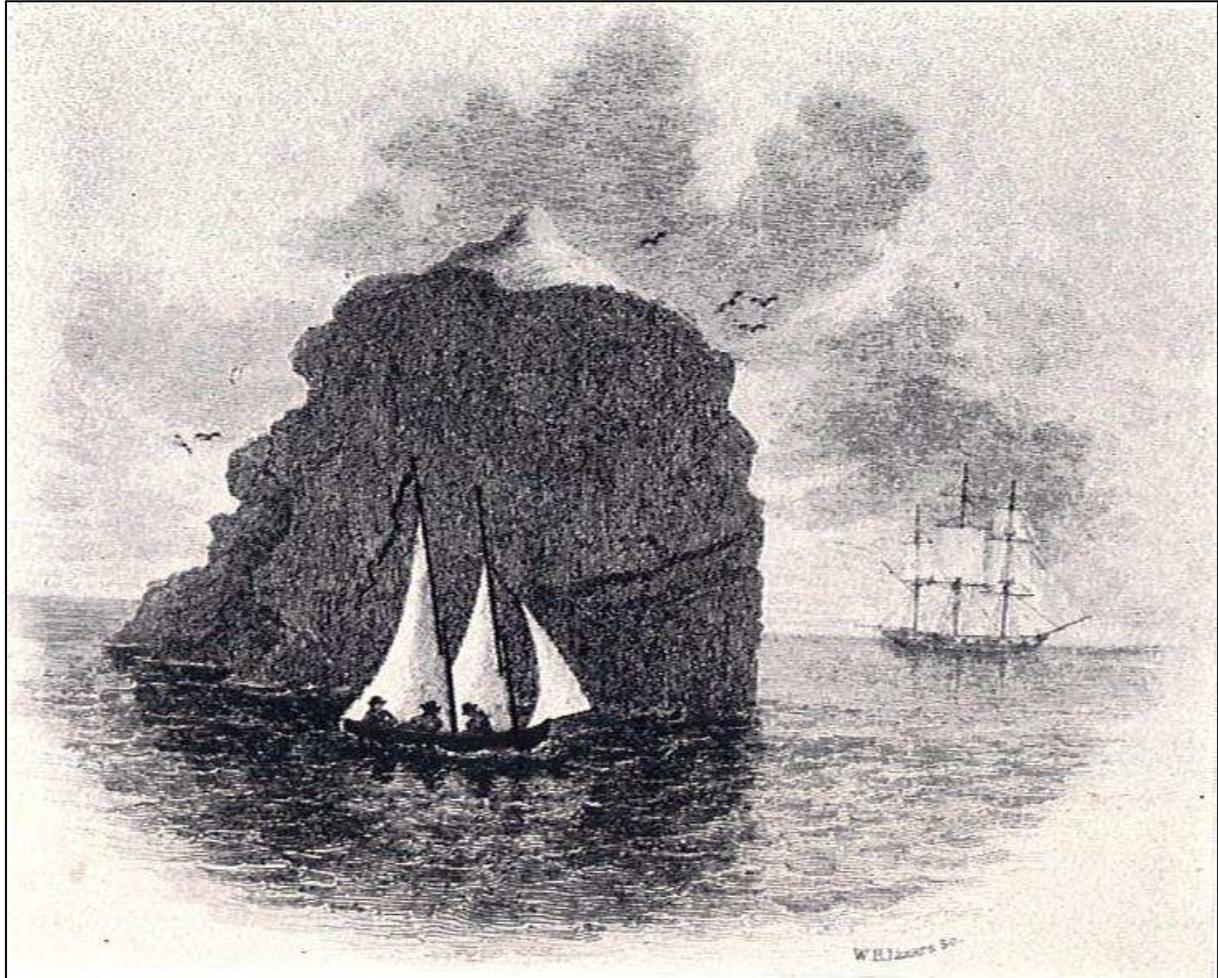


fig. 22

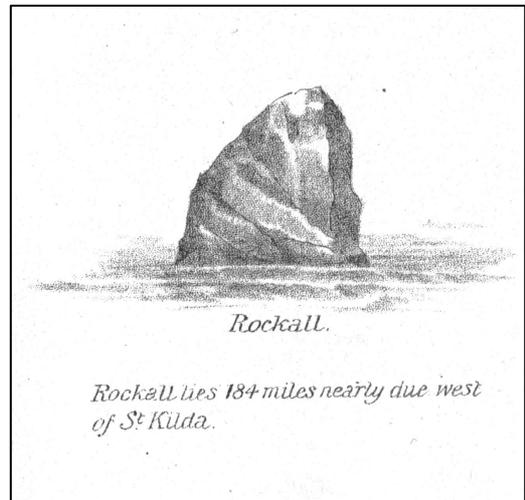


fig. 23

fig. 21 – sketch showing the first landing on Rockall in 1811

fig. 22 – sketch by T. Harvey, Captain of *HMS Enymion*, showing Rockall during the discovery in 1810

fig. 23 – sketch of Rockall on the 81st page in the book *A Vertebrate Fauna of the Outer Hebrides* (J. A. Harvey-Brown & T. E. Buckley, 1889)

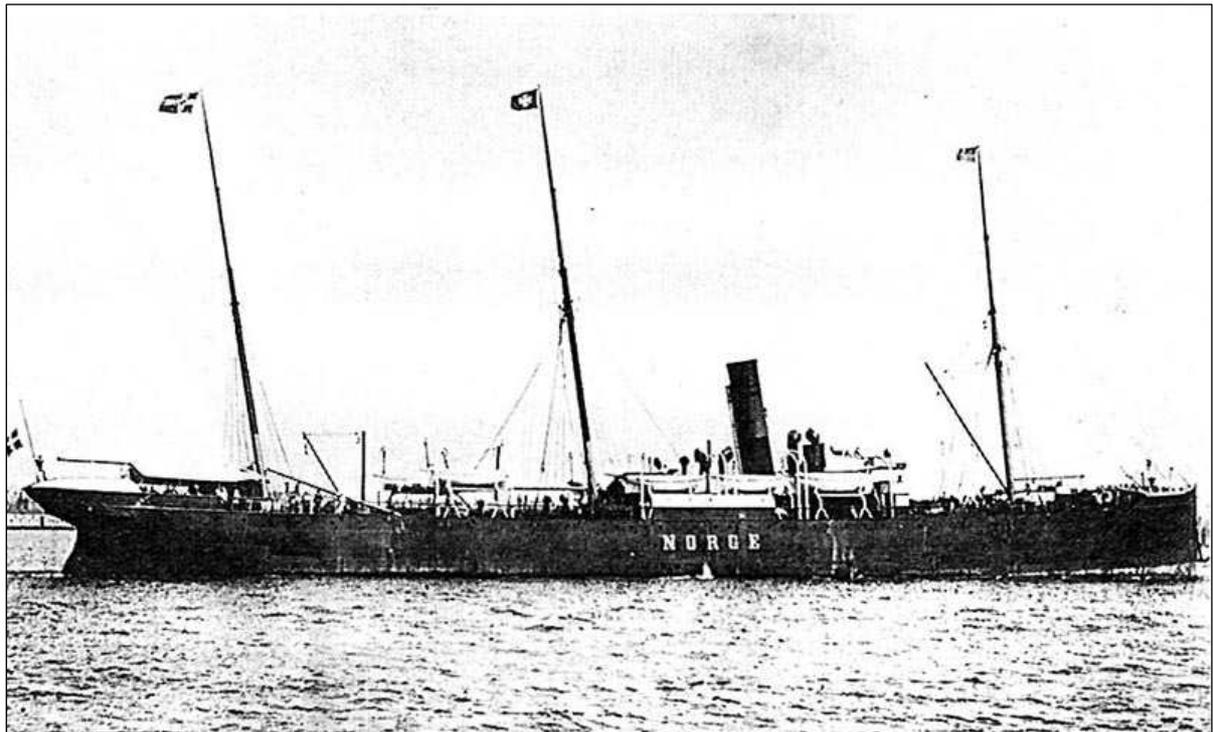


fig. 24

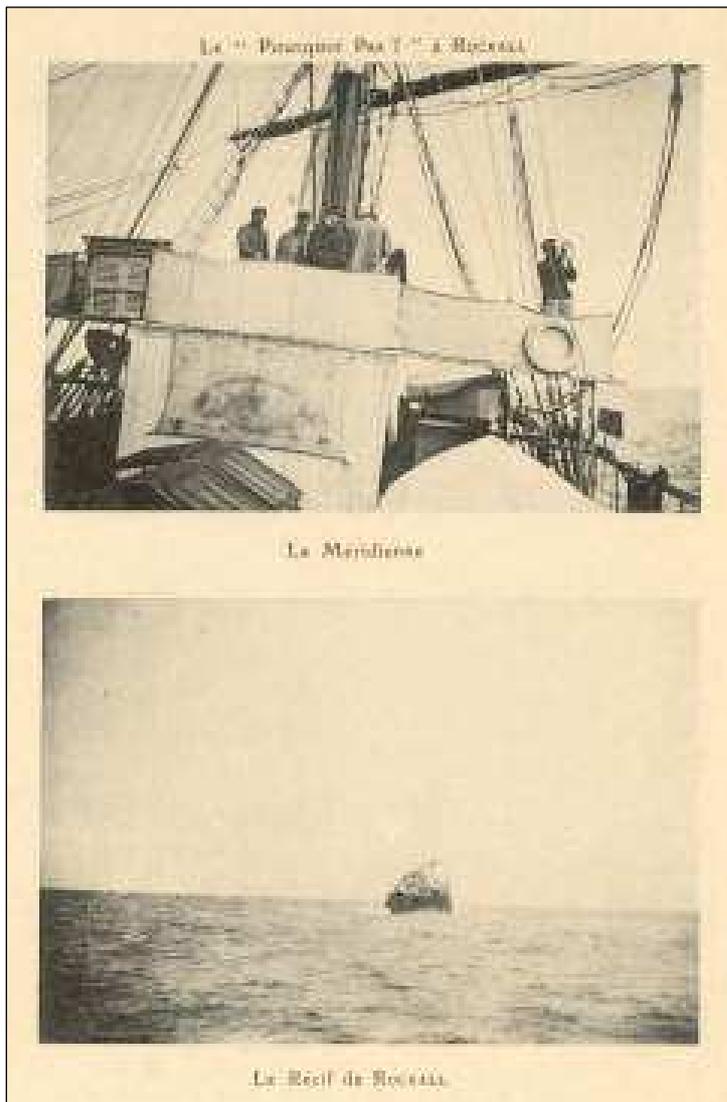


fig. 25

fig. 24 – Danish steamer *Norge*, which wrecked on the *Helen's Reef* in 1904 – 635 lives perished

fig. 25 – postcard from the expedition on Rockall of French ship *Pourquoi-Pas?* sponsored by the French Ministry for Navy in 1921

(following page):

fig. 26 – plaque fastened to the rock during the installation of a navigational beacon:

*Site of United Kingdom
Light Beacon
June 1971*

fig. 27 – security pod with the flag of the Royal Navy and with two marines in full ceremonial dress; a navigational beacon above them

fig. 26



fig. 27

fig. 28



fig. 29

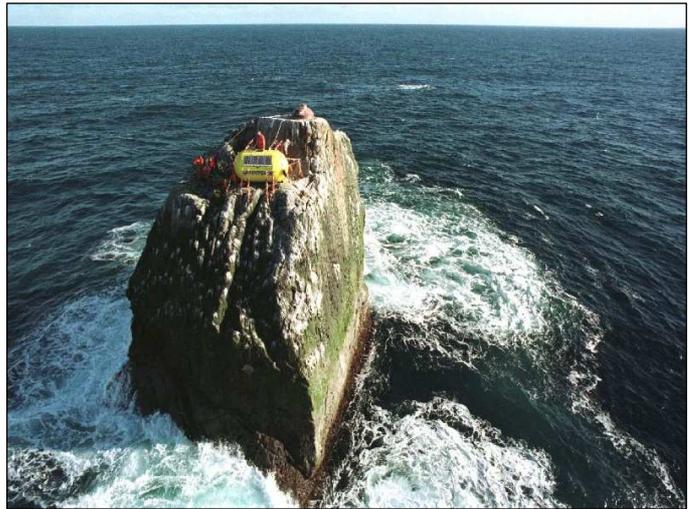
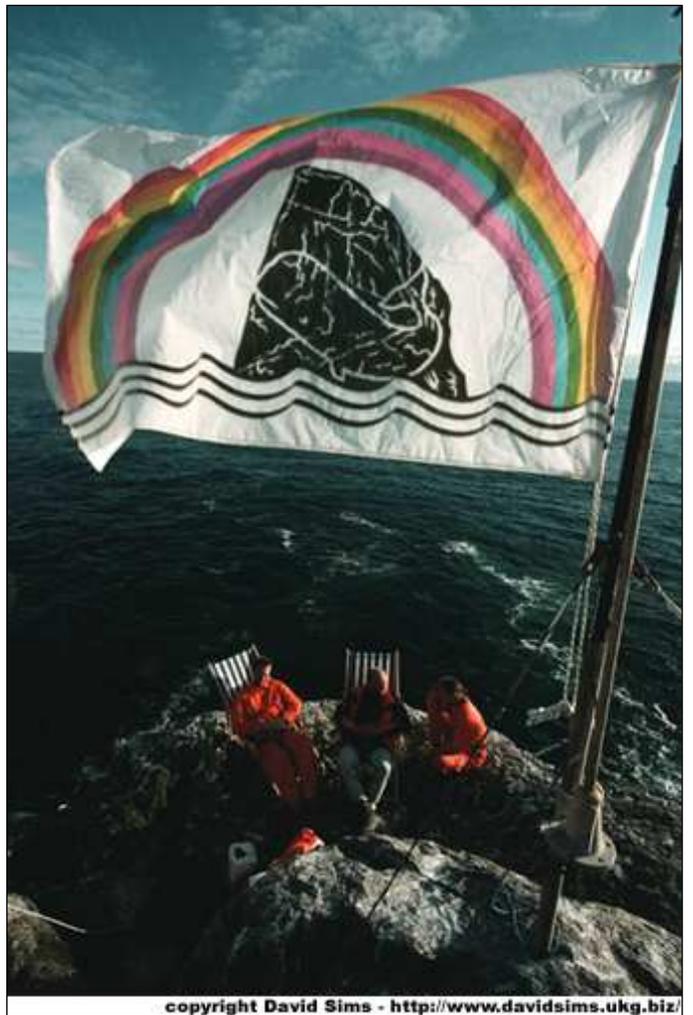


fig. 30



fig. 31



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fig. 32



fig. 33

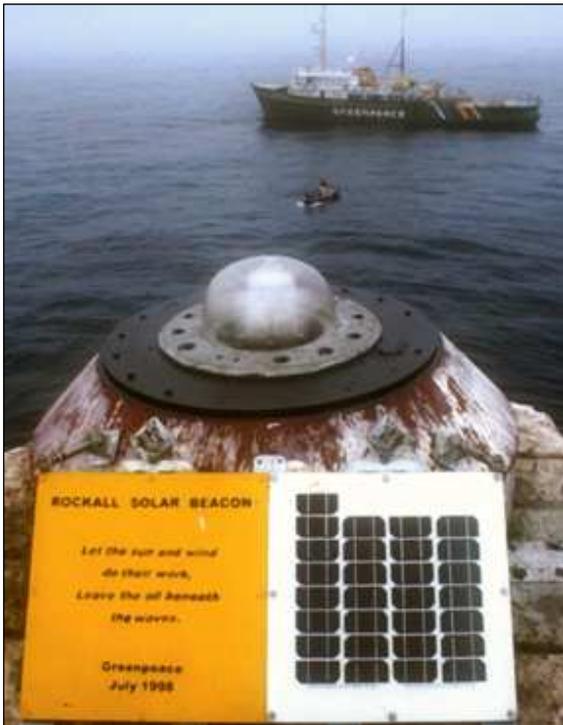


fig. 34

fig. 33 – four activists from Greenpeace (from left: Al Baker, David Sims, Peter (?) and Meike Huelsman) before embarking

fig. 34 – solar-powered navigational beacon fastened on the rock by the Greenpeace in 1998 after another one, repaired by Greenpeace during the 26th and 27th June; the sign:

Rockall Solar Beacon

*Let the sun and wind
do their work
Leave the oil beneath
the waves*

*Greenpeace
July 1998*

(previous page):

fig. 28 – the view of the rock during the stage of four volunteers from Greenpeace – sign ‘United Nations No new oil’; above the sign their solar pod; above that there is the flag of Waveland and the beacon

fig. 29 – bird’s eye view

fig. 30 – two activists inside the pod

fig. 31 – the security pod and its fixation to the rock (by twelve six-tonnes straps), with the three of volunteers

fig. 32 – flag of Waveland hoisted on Rockall, during the times of good weather

text 2: **The Law of the Sea** (extract from the United Nations Conventions; some definitions)

(2.1.): according to the *United Nations Convention on the Continental Shelf*, written in 1958:

Continental Shelf

- sea-bed (and its subsoil) of the undersea areas adjacent to the shore of the state (but beyond the territorial waters), up to 200 m of depth or to the depth (beyond the limit) which allows exploitation of its resources
- every coastal state has exclusive right on the research, exploitation of the natural resources on the sea-floor and its subsoil

(2.2.): according to the *United Nations Convention on the Law of the Sea*, written in 1982:

Territorial Sea

- every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles

Contiguous Zone

- the contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured

Exclusive Economic Zone

- the exclusive economic zone is an area beyond and adjacent to the territorial sea; the exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.
- The coastal state has sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil,

Continental Shelf

- the continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance
- outer limits of the continental shelf on the seabed either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath
- the coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources
- the rights of the coastal state do not affect the Exclusive Economic Zone
- the coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes.

High Sea

- the area of water not included in none of above mentioned waters is international in the sense of the rights; none of the state have to right to include it into any of its own zones

Island

- an island is a naturally formed area of land, surrounded by water, which is above water at high tide
- except as provided for in next paragraph, the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf of an island are determined in accordance with the provisions of this Convention
- applicable to other land territory.
- rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf

fig. 35

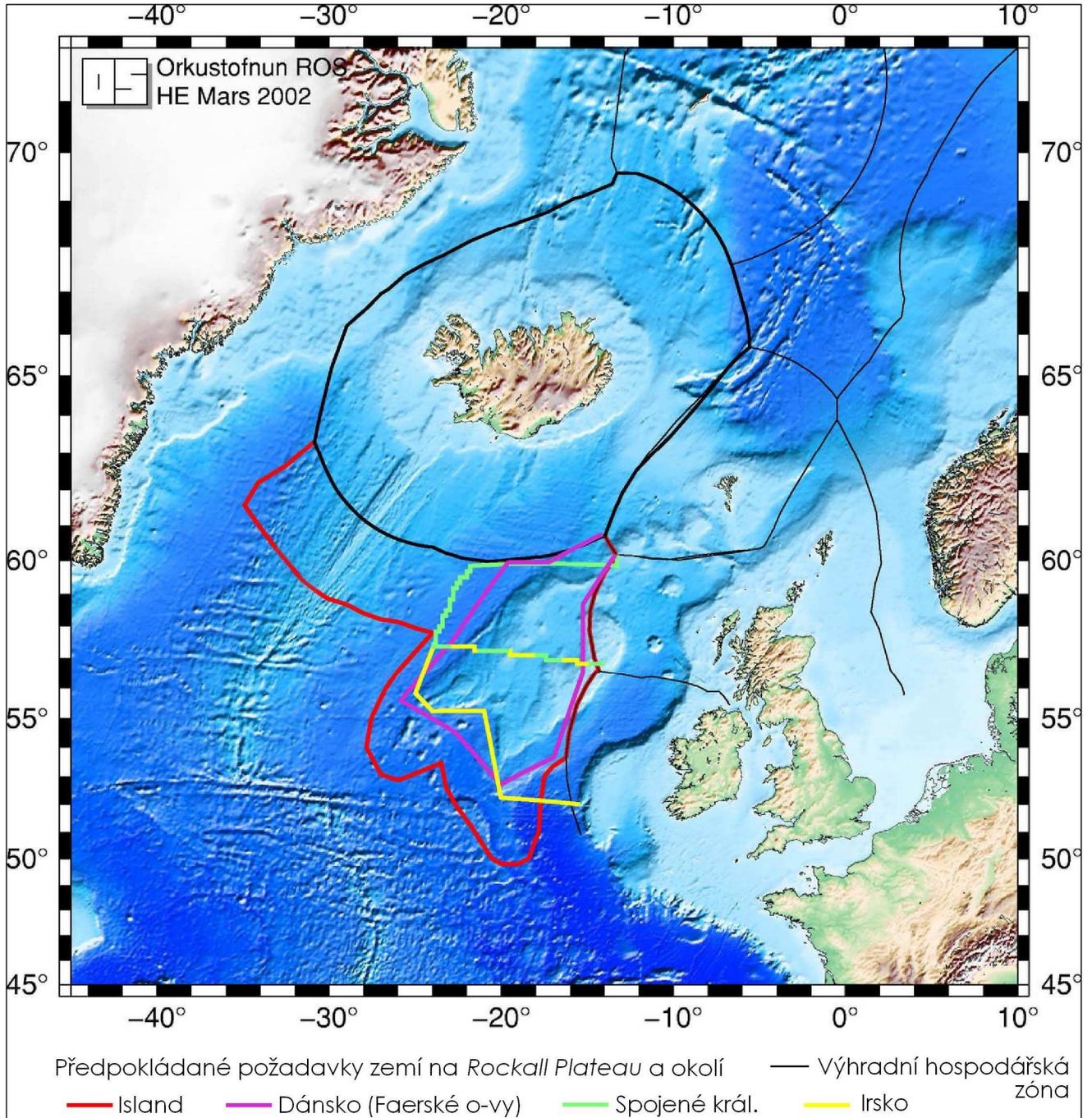


fig. 36

fig. 35 – simplified sketch of the claims on the Continental Shelf of the Rockall Plateau by the United Kingdom (green), Ireland (yellow), Iceland (red) and Denmark (for Faeroes; purple). In 1988, the United Kingdom signed the *Continental Shelf Agreement* with Ireland, and their common boundaries of the shelf are delimited – the yellow-green ‘staircase’ line (according to the Icelandic serer Utanríkisráðuneytið)

fig. 36 – the cut-down of the Exclusive Economic Zone of the United Kingdom in the relation to the ratification of the United Nations Convention on the Law of the Sea in 1997; the solid line is the original line, the dashed is the current one (Symmons, 1998)



fig. 37

fig. 37 – cut of the map by Mercator Published in Amsterdam in 1618. There are showed (as well as Rockall) also some phantom islands as *Brazil*, *Flandria* and *Frislandt* (by the northern edge)