

James A. Macintosh

“ROCKALL.”

The most isolated speck of Rock, surrounded by Water,
on the Surface of the Earth.

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THE MOST ISOLATED ROCK on the Surface of the Earth.

By Jas A. Macintosh.

Several years ago I read an article in a Geological or Geographical Journal which gave an account of the discovery of Rockall, and which interested me very much.

It was to the effect that in the year 1810 this country was at war with France. One of His Majesty's ships of war, the "Porcupine," under the command of Captain Basil Hall, was on patrol duty out in the Atlantic about 200 miles off the Hebrides, when one fine clear morning the look-out reported a sail ahead away on the horizon. There was great commotion on board as all hands were piped on deck, and soon with every sail set the "Porcupine" gave chase. They seemed to be rapidly overhauling the ship, but to their surprise, instead of trying to escape, she appeared to be making straight towards them, and as they neared one another they then saw that what they took to be an enemy ship trying to run the blockade was really a stack of rock rising from the surface of the ocean. Soundings were taken as they got nearer, and as the weather was favourable a boat was lowered and a landing on the rock was accomplished. Measurements taken showed that the rock was 70 feet in height above high water-mark and about 83 feet broad at the base, and a sample of the rock was found to be a kind of coarse granite.

Recently, in relating this story of the sea to the skipper of one of our trawlers who used to venture regularly out to the vicinity of Rockall where great catches of halibut are caught and all other kinds of fish abound, I learned that he had often wondered how the fishing banks out there had got the name of the "Porcupine Banks," and that the tale I had just told him had supplied the explanation—from the name of the ship, and that perhaps the name "Rockall" was from the name of her Commander, as the Englishman often drops the aspirate sound 'H.' According to this account Rockall was discovered only one hundred and thirty odd years ago, and is the most isolated speck of rock, surrounded by water, in the world.

Rockall is situated about 180 miles west of St. Kilda. St. Kilda is about 40 miles west of the Outer Hebrides. Being geographically so situated it is in Harris in the county of Inverness, and I now hereby lay claim to Rockall on behalf of that County, so that for reasons which I will explain later on its interests may be adequately safe-guarded.

This pinnacle of rock has no guiding light to indicate its position, and is therefore always a danger, however remote, to navigation, as has already been proved when over 40 years ago, on the 28th June, 1904, the Danish liner "Norge," crowded with emigrants proceeding on their way to America, the land of freedom and fortune, was driven off her course by stress of weather, encountered Rockall, with consequences as grave as when the "Titanic" struck an iceberg.

Over 600 lives were lost, and only a few survivors in life-boats were brought into Stornoway, and there everything possible was done successfully to nurse them back to life, excepting the few who were too far gone, and now rest in peace in Sandwick Cemetery.

A sister ship called the "Alabama" was sent out by the Shipping Company to try to recover something from the wreck, but she never reached Rockall, the wild Atlantic had swallowed up everything of the "Norge" anyway. The "Alabama" put into Stornoway with engine trouble and for coal and shelter and anchored in the bay till the weather would moderate, but another storm arose and she was driven on the rocks near the mouth of the river Creed, where she capsized in comparatively shallow water. After many attempts made to get her off had failed, she was ultimately broken up for scrap.

To avoid a recurrence of such a tragedy as happened to the "Norge," I would suggest that Rockall should be sprayed with white paint so that it could be seen and spotted easily in daytime, and that a bright light should be placed upon the summit during darkness to warn mariners on board ships at sea, and give pilots of air-ships in the sky their exact position. From there they could take bearings in any direction desired.

The following article appeared in the Glasgow *Daily Record* of 15th September, 1944, over the signature of their correspondent, James Hogg, to whom I am indebted for permission to add it to what I have already written, viz.:—"A Centenary occurring this week is that of Captain Basil Hall, son of an East Lothian Laird and himself a native of Edinburgh, who acquired a big reputation as a traveller and explorer in the Far East, South America, and other parts of the world. Originally an officer in the Navy, Hall wrote various books on his travels and explorations and was frequently the guest of Sir Walter Scott at Abbotsford."

As my curiosity was again aroused, I recently took the opportunity of consulting the index in the Mitchell Library, Glasgow, where I found that Captain Basil Hall's books were catalogued twice as B179551—2—3—4—5—6—1831, and B78773—I—II—III, and in Volume III of each he devotes Chapter VI to Rockall.

After reading his personal account, evidently written in his Diary at the time, and published in book form 20 years afterwards when he had finally retired from the sea, I found his narrative so interesting that I wrote it out with only a few abbreviations, although it differs very materially from what I have written.

Basil Hall joined the Navy as a midshipman in 1803. In 1810 he was an officer on board H.M.S. "Endymion," not the "Porcupine," and he certainly does not claim to be captain. Here is his own story:—

"On the 8th July, 1810, one fine morning a week after sailing from Lough Swilly to cruise off the North of Ireland, the lookout man at the fore-topmast-head reported a sail on the lee-beam. We bore up instantly, 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.

"These various opinions, however, presently settled into one—or nearly so—for there were still some of the high spyzers who had the honesty to confess they were puzzled.

"The general opinion was that it must be a brig with very white sails aloft, while those below were dark, as if the 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 to be found in the world.

"This mere speck on the surface of the waters—for it seems to float on the sea—is only 70 feet high and not more than a hundred yards in circumference. The smallest point of a pencil could scarcely give it a place on any map which should not exaggerate it in proportion to the rest of the islands in that stormy ocean.

"It lies at the distance of not fewer than 184 miles very nearly due west of St. Kilda, the remotest of the Hebrides, 290 miles from the nearest part of the main coast of Scotland and 260 miles from the North of Ireland.

"Its name is Rockall and it is well known to those Baltic traders which go north-about. The stone of which this curious peak is composed is a dark-coloured granite, but the top being covered by a coating as white as snow, from having been for ages the resting place of myriads of sea-fowl, it is constantly mistaken for a vessel under full sail. We were deceived by it several times during the same cruise, even after we had been put on our guard, and knew its place well. I remember boarding three ships in one day, each of which, in reckoning the number of vessels in sight, counted Rockall as one, without detecting their mistake till I pointed their glasses to the spot.

"As we had nothing better on our hands, it was resolved to make an exploring expedition to visit this little islet. Two boats were accordingly manned for the purpose; and while the ship stood down to leeward of it, the artists prepared their sketch books, and the geologists their hammers for a grand scientific field day.

"When we left the ship the sea appeared so unusually smooth that we anticipated no difficulty in landing, but on reaching the spot we found a swell rising and falling many feet, which made it an exceedingly troublesome matter to accomplish our purpose.

"One side of the rock was perpendicular and as smooth as a wall. The others, though steep and slippery, were sufficiently varied in their surface to admit of our crawling up when once out of the boat; but it required no small confidence in our footing, and a dash of that kind of faith which carries a hunter over a five-bar gate to render a leap at all secure. A false step or a faltering carriage, after the spring was resolved upon, might have sent the explorer to investigate the secrets of the deep, in those fathomless regions where the roots of this mysterious rock connect it with the solid earth. In time, however, we all got up, hammers, sketchbooks, and chronometers inclusive. As it was a point of some moment to determine not only the position but the size of the rock by actual observations made upon it, all hands were made busily to work—some to chip off specimens,—others to measure the girth by means of a cord,—while one of the boats was sent to make soundings in those directions where the bottom could be reached.

"After we had been employed for some time in this manner, we observed a current, sweeping past us, at a considerable rate, and we rather wondered that the ship, which was fast drifting away from us, did not fill and make a stretch, so as to preserve her distance; but as the day was quite clear, we cared less for this additional pull, and went on with our operations.

"I forget exactly at what hour a slight trace of haze first came across the field of view. This soon thickened into a fog, which felt like a drizzle and put some awkward apprehensions into our heads.

"It was immediately decided to get into the boats and return to the "Endymion," for by this time we had finished all our work, and were only amusing ourselves by scrambling about the rock.

"The swell had silently increased in the interval to such a height that the operation of returning to the boats was rendered twice as difficult as that of disembarking, and, what was a great deal worse, occupied twice as much time.

"It required the greater part of half an hour to tumble the whole party back again. This proceeding, difficult at any season I should suppose, was now reduced to a sort of somersault or flying leap; for the adventurer whose turn it was to spring, had to dash off the rock towards the boat trusting more to the chance of being caught by his companions than to any skill of his own. Some of our Dutch-buit gentry, known in the cock-pit by the name of heavy-sterned Christians, came floundering amongst the thwarts and oars with such a crash that we half expected they would make a clean breach through the boat's bottom.

"As none of these minor accidents occurred, we pushed off with our complement towards the ship, but to our astonishment and dismay, no 'Endymion' could now be seen. Some said, 'Only a minute ago she was there!' Others asserted as positively that they had seen her in a totally different direction. In short, no two of us agreed as to where the frigate had last been seen, though all unhappily were of one mind as to the disagreeable fact of her being now invisible. She had evidently drifted off to a considerable distance, and as the first thickening of the air had destroyed its transparency, we could see nothing in the slightest degree, even like what is called the loom of a vessel. The horizon was visible—indistinctly indeed—but it was certainly not the same horizon along which we had seen the ship sailing but half an hour before.

"The atmosphere had something of that troubled look which is given to a glass of water by dropping a little milk into it. So that, although there was no fog as yet, properly so called, there was quite enough of moisture to serve the unpleasant purpose of hiding the object of our search; and we remained quite at a loss what to do.

"We rowed to some distance from the rock supposing it possible that some condensation of vapour incident to the spot might have cast a veil over our eyes, but nothing was to be seen all round.

It then occurred to some of our philosophers that a dense air by its very definition (as they gravely put it) is heavier than light air, it might so happen that the humid vapour had settled down upon the surface of the sea, and that in fact we were groping about in a shallow stratum of untransparent matter. The top of the rock which was 70 feet higher, it was thought, might be in the clear region and the ship's mastsheads, if not her hull, be visible from thence.

"There was a sort of pedantic plausibility about the technology of these young savants, which induced the Commanding Officer of the party—a bit of a dabbler himself in these scientific mysteries—to decide upon trying the experiment. At all events he thought it might amuse and occupy the party.

"So one of the men was landed, the most alert of our number, who skipped up the rock like a goat. All eyes were now turned to our look-out man who, no sooner had he reached the summit than he was asked what he saw, and with an impatience that betrayed more anxiety on the part of the officers than they probably wished should be perceived by the boats' crews.

"I can see nothing all round," cried the man, "except something out thereabouts," pointing with his hand. "What does it look like?" "I am afraid, sir, it is a fogbank coming down upon us." And so it proved. The experienced eye of the sailor who in his youth had been a fisherman on the Banks of

Newfoundland, detected a strip of extended cloud, hanging along the verge of the horizon, like the first appearance of a low coast. This gradually swept down to leeward and at length enveloped rock, boats, and all in a mantle of fog, so dense that we could not see ten yards in any direction.

"Although our predicament may now be supposed as hopeless as need be, it was curious to observe the ebbs and flows in human thought as circumstances changed. Half an hour before, we had been provoked at our folly in not having left the rock sooner but it was now a matter of rejoicing that we possessed such a fixed point to stick by, in place of throwing ourselves adrift altogether. We reckoned with certainty upon the frigate manning sooner or later to regain the rock; and as that was the only mark at which she could aim, it was evidently best for us to keep near. We had been cruising off the North of Ireland for some time, during which we observed that these fogs sometimes lasted for a couple of days or even longer, and as we had not a drop of water in the boats nor a morsel of provisions, the most unpleasant forebodings began to beset us. The wind was gradually rising, and the waves when driven against the rock were divided into two parts, which after sweeping round the sides met again to leeward near the spot where we lay, and dashed themselves into such a bubble of sea that the boats were pitched about like bits of cork in a mill-lead. This motion was disagreeable enough, but our apprehension was that we should be dislodged altogether from our place of refuge, while the gulls and sea-mews, as if in contempt of our helpless condition or offended at our intrusion wheeled about, screaming close to us in notes most grating to our ears. Since there was evidently nothing for it now but to remain fast, we chatted away as merrily as we could—each one trying to conceal his anxiety from his neighbour—some with considerable success—others without any. Several of the party overdid this matter and talked so loud and so fast that it was easy to see what was sitting at their hearts. One young gentleman received a check for this from his Commanding Officer who said that he considered the case in the light of a piece of service in which it became every person's duty

to be as composed as if he were in the presence of an enemy. What was curious enough, this brief though trying occasion—like the agency of fire on metals—brought out qualities unsuspected before. Some of the men who had been held rather cheap on board in ordinary times, behaved so well during the few hours our present difficulties lasted, that they were looked upon ever afterwards with a totally different eye, and several of them rose from that day to higher and higher ratings on the ship's books. On the other hand, one or two of the number upon whose steadiness we should perhaps have reckoned with confidence in situations of danger or difficulty gave way, and shewed an unexpected degree of nervous irritability under this protracted detention.

"Persons in command would do well to bear constantly in mind that on such accidental occasions as this, they will often have opportunities of obtaining a correct knowledge of the merits as well as demerits of the people under them, and may learn how best to turn to account at moments of need, the talents, fortitude, courage or other qualities of their officers and crews. . . . But I am quite forgetting Rockall. While we were speculating upon one another's characters in the boats below, our faithful watchman perched on the peak of the rock suddenly called out, 'I see a ship.' This announcement was answered by a simultaneous shout from the two boats' crews which sent the flocks of gannets and sea-mews screeching to the right and left, far into the bosom of the fog.

"An opening or lane in the mist had occurred along which we could now see the frigate far off, but crowding all sail and evidently beating to windward. We lost as little time as possible in picking our shivering scout off the rock, an operation which cost nearly a quarter of an hour. This accomplished, away we rowed at the utmost stretch of our oars towards the ship. We had hardly proceeded a quarter of a mile before the fog began to close behind our track so as to shut out Rockall from our view. This we cared little about as we not only saw the ship still, but trusted from her movements that she likewise saw the boats. Just at the moment

that we had come to this satisfactory conclusion, however, she tacked, thereby proving that she had neither seen the boats or the rock, but was merely groping about in search of her lost sheep. Had she continued on the course she was steering when we first saw her, she might have picked us up long before the fog came on again, but when she went about this hope was destroyed. In a few minutes more, we, of course, lost sight of the frigate in the fog, and there we were in a pretty mess, with no ship to receive us, and no island to hang on by. It now became necessary to take an immediate part, and we decided at once to turn back in search of the rock. It was certainly a moment of bitter disappointment when we pulled round, and the interval between doing so and regaining a resting place was one of great anxiety. Nevertheless we made a good landfall and there was a wonderful degree of happiness attendant even upon this piece of success. Having again got hold of Rockall we determined to abide by our firm friend till circumstances should render our return to the ship certain. In the meantime we amused ourselves in forming plans for a future residence on this desolate abode in the event of the ship becoming blown away during the night. If the weather should become more stormy and that our position to leeward was rendered unsafe in consequence of the divided waves running round and meeting, it was resolved that we should abandon the heavier of the two boats, and drag the other up to the brow of the rock, so as to form when keel upwards, a sort of hurricane house. These and various other Robinson-Crusoe-like resources helped to occupy our thoughts, half in jest, and half in earnest, till by the increased gloom, we knew that the sun had gone down. It now had become indispensable to adopt some definite line of operations for the angry-looking night was setting in fast.

"Fortunately we were saved from further trials of patience or ingenuity, by the fog suddenly rising, as it is called—or dissipating itself in the air, so completely, that to our great joy we gained sight of the ship once more. It appeared afterwards that they had not seen our little island from the 'Endymion' nearly as soon as we discovered her, and she was in consequence standing almost directly away from us, evidently not knowing exactly whereabouts Rockall lay.

"This I think was the most anxious moment during the whole adventure, nor shall I soon forget the sensation caused by seeing the jib sheet let fly accompanied by other indications that the frigate was coming about.

"I need not spin out this story any longer. It was almost dark when we got aboard. Our first question was the reproachful one 'Why did you fire no guns to give us notice of your position?' 'Fire guns,' said they, 'Why, we have been doing nothing else but blaze away every ten minutes for these last five or six hours.' Yet, strange to say, we had not heard one single discharge"

In the Frontispiece of each of his volumes he had a black and white sketch, and in Vol. III the sketch is of Rockall, done by one of the artists of the landing party, perhaps himself.

This being Captain Basil Hall's own account of his participation in the "discovery" of Rockall it must be therefore correct and authentic. He tells that Rockall was well known to the Baltic traders even then, and as he also says that he boarded three ships in one day in the vicinity there must have been quite a considerable amount of traffic there at that period, and much more than now. He at anyrate was one of the very few human beings who have ever set foot on Rockall, and I question if it had ever been trod on before, or since.

I remember being on business in Stornoway 25 years ago the summer of 1921 when a French warship, the "Pourquoi Pas," put into the harbour. She was fully rigged, manned by naval cadets, and used as a training ship. I saw the leader of the expedition Dr. Charcot ashore, a tall, whiskered, handsome man. I learned that he had been often in Stornoway with the Navy during the war of 1914-18. I was told that one of the objectives of the cruise was to visit and land if possible on Rockall but whether or not that was successfully accomplished I do not know. She was lost with all hands unfortunately a few years later while on another similar cruise.

By his writings alone Captain Hall has put Rockall on the map and the chart.

Rockall has fascinated me since I first heard of it, and whenever I see a map of the world I always look for Rockall and St. Kilda. More often than not I turn away in disgust because of the omission to give them the place of honour which they so richly deserve and which could so easily be done in the otherwise empty spaces of the broad Atlantic. Who knows but that Rockall is all that remains above water of the lost continent of the Atlantis of mythical origin.

In the Gaelic Language, said to have been spoken in the Garden of Eden and still the speech of the native people of the Highlands and Western Islands of Scotland, Rockall was named by the ancient Gaels Roc-ail which means Rock-Rock or All-Rock. There is no letter "k" in the Gaelic alphabet. Roc is pronounced Rohk and All like "a" in cal or pal—Rochkál, hence Rockall in English is quite correct, but the date of the first discovery of its existence is lost in the "Mists of Antiquity." In my opinion Rockall was well known long before America was ever even thought of. Ails as in Ailsa Craig means Rock Rock, Rock of Craig. Al Cluid Dunbarton Rock means Rock of Clyde. Cluid, Clutha means the Clyde.

In the year 1716 Martin Martin, Esquire, who was himself a native of the Hebrides, wrote his famous book "A Description of the Western Islands of Scotland" from personal visits made to all the inhabited islands, and a reprint of it was made in 1884, but restricted to 250 copies. In both of these is inserted his own map of all the islands in the Inner and Outer Hebrides, from Arran and Ailsa Craig in the Firth of Clyde to North Rona and the Butt of Lewis. This map shows the St. Kilda group of islands, viz., Boreray, Stakarrin, Stackly, and Soa, and further west "Rokol"—note his spelling. This definitely proves that Rockall was known nearly three centuries ago.

In the year 1686 a ship was wrecked on Rockall, and a boat with survivors, who were Spaniards and Frenchmen, managed to reach St. Kilda. Those men reported afterwards that the natives of St. Kilda called Rockall—"Rocabarra." Rocabarra means a point or spur of rock. There is an old Gaelic prophesy:—

"Nuair a thig Rocabarra ris,
Is dual gun teid an Saoghal a sgrìos."

12

The above quotation appeared in an article on Rockall in the monthly magazine of An Comunn Gaidhealach, "An Gaidheal," in May, 1941, by the Editor, the late Rev. Malcolm Macleod, M.A., Manse of Balquhitter. The meaning of this prophesy is that this mysterious rock was seen on two occasions, and it was predicted that if it appeared for the third time the destruction of the World was near at hand.

I am indebted to an assistant librarian of the Mitchell Library for drawing my attention to an interesting article in the Scottish Geographical Magazine of 1898, Volume XIV, by Mr. Miller Christy, F.I.S., which gives many accounts of visits made by several of H.M. ships and other ships to Rockall, including the surveys made by H.M.S. "Porcupine" from June to August, 1862, and again in the summer of 1869. The Bank extends for about 60 x 100 miles, and has a depth of 60 to 100 fathoms, with about 20 to 30 fathoms close up to the rock. The exact position of the rock in the Chart is Latitude 57° 36' 41" N. and Longitude 13° 41' 25" W. The rock is highly magnetic. Magnetic disturbances exist Northward and North-East two to three miles off the island.

The rock specimens in existence do not enable geologists to state definitely their true mineralogical nature, and until further specimens are procured these go by the name of Rockallite.

The Skipper of the trawler called the banks the "Porcupine Banks." That is the name given to another Bank lying to the south of the Rockall Bank and due west of Ireland with very deep water between them, discovered and surveyed by Captain Hoskyn (commanding) H.M.S. "Porcupine".

Rockall has no beach or shore, but there is a reef lying 1½ miles E.N.E. of the rock called Helen's Reef because of the wreck of the ship "Helen" of Dundee with the loss of 16 lives, and there is another small rock called the Haselwood Rock about half a mile North-East of Rockall; both of them seem to be semi-submerged

13

and can only be seen at times by the breaking of the waves. No landings on the rock were reported, but the writer of the article in the magazine falls back on the account given by Captain Basil Hall, then a lieutenant on board H.M.S. "Endymion" in 1810, and like myself he gives lengthy extracts from Captain Hall's story.

He also made a strong appeal to Trinity House for a beacon light or lightship to warn mariners of their danger, but he acknowledges the hazards and difficulties attached to the landing of supplies and materials on such an exposed spot, and also the difficulty of procuring any individuals to man the lighthouse on a rock of such extreme isolation. I've no doubt, however, that there are many brave spirits who, for the sake of the novelty of the experience, would gladly volunteer for a spell of duty.

Why not? With modern up-to-date equipment and a period of favourable weather surely a start could be attempted to provide a safer landing place on the rock, and further progress could be made whenever weather conditions permitted. Or may I suggest that a better way to achieve this objective would be by dropping loads of expanding metal rings and bands and metal tubular standards on the top of the rock by means of a Helicopter type of aeroplane, also a few good workmen with the necessary tools and stores, and some planks of wood and bags of cement, etc.

The rings and bands would be securely fixed to the top of the rock and from there continued downwards by stages. All chips of rock would be collected with care and the deposit of guano on the top put into bags, and the top of the rock levelled out for the landing of further supplies by Helicopter. A cylindrical saloon hut for the accommodation of the workmen could be suspended over the side of the rock from the top circular rings so that the hut could be moved as required around the rock and thus be always on the sheltered side. Other huts would be required for stores, engine, etc.

When the tubular scaffolding reaches down to sea level, my idea is to build a circular wall round the rock of metal interlocking blocks of an aluminium alloy, about 250 feet in circumference, and 70 feet or thereby upwards to the level of the summit.

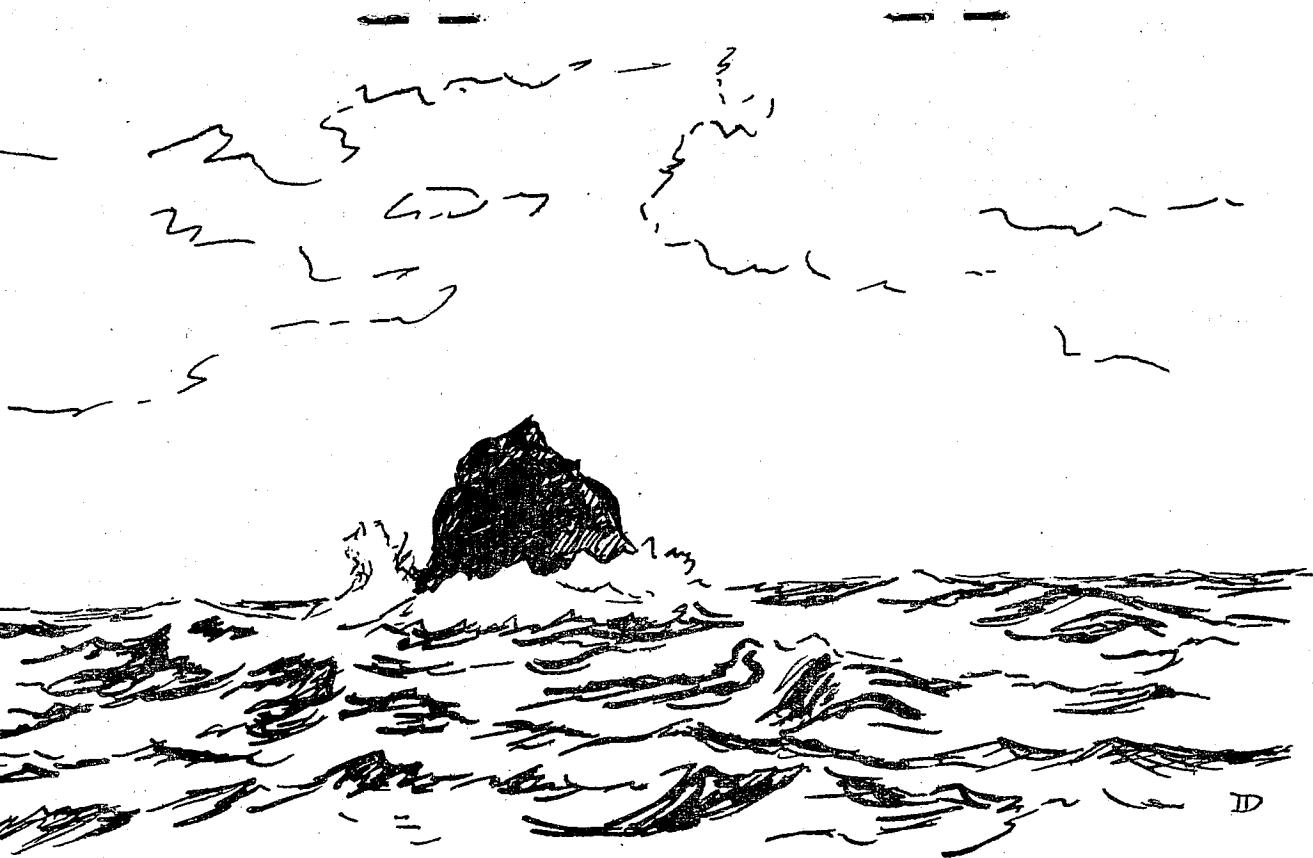
The tower would be built solid from the base of the rock to about halfway up, and then compartments would provide accommodation for all purposes, and the outside huts would no longer be required. The metal blocks, being deposited by plane on the summit and being of a standard size, would only need lowering into position and fixing. When this stage is reached the rock would have completely changed its appearance, and would now look something like a huge white Dunlop cheese floating on the sea. The birds would have all gone—fitted to some other sanctuary. Some say that the wild Atlantic waves could sweep clean over the rock, but I doubt it; in any case the building upwards to any desired height could easily be continued.

On reading Mr. Miller Christy's article, written nearly 50 years ago, I was struck by the similarity of many of his sentiments to what I have written now, and I am proud to follow in his footsteps by issuing this earnest appeal for a warning beacon on Scotland's most dangerous rock. I also endorse what he wrote with reference to a Meteorological Observatory, and I now appeal for an up-to-date Radiolocation station also. More accurate and more frequent weather forecasts are a vital necessity. Rockall would provide an ideal spot, and if Trinity House still will not undertake the job then St. Andrew's House must. The advent of Radiolocation may in the course of time supersede the lighthouse to a certain extent, but even that new invention will not be immune from accidental breakdowns, and so for additional safety to land, sea and air transport of the future, every safety device will be necessary. The elimination of the guiding lights of the lighthouses, and beacons, and warning notes of the foghorns, should never be sanctioned.

I hope at least that the warning light will brightly shine on Rockall, and, as an afterthought, I would suggest coloured lights at the four corners of the square to mark the four points of the compass—red for North, green for South, blue for East, and yellow for West, with the white central beam of light reaching upward to the stratosphere (and don't forget the white paint). It may be that Rockall has been the graveyard of many other proud ships before and after the "Norge," which have vanished in peacetime and wartime, and it is our duty now to do everything possible to ensure help and safety for future world transport which is bound to increase enormously as soon as the aftermath of war gradually gives way to peace.

I would venture to say further that, at the present time, comparatively few people in this country, except mariners of course, are aware of the existence of Rockall, and I hope that any readers of this booklet who may be teachers of geography in school or college will not take it amiss if I ask them to impart this knowledge to the pupils under their charge, as I believe this outpost of the British Isles, because of its position out in the North Atlantic Ocean, will become in a few years time a base of great national and international importance. I also claim that Rockall is the nearest part of the Continent of Europe to the Continent of North America.

I am told that the names H.M.S. "Porcupine" and "Endymion" are at present on the Admiralty List. If there is no "Hall" or "Basil Hall," perhaps this omission will soon be rectified, and so commemorate this gallant naval officer whose services to his country have never been adequately rewarded or appreciated. His book, in six volumes "Fragments of Voyages and Travels Including Anecdotes of a Naval Life," is well worth reading by young and old.



PART II.—

TIDAL ROCK RUNWAYS, ESTUARY BRIDGES
AND DOCKS.

Any small rock, surrounded by tidal water of sufficient depth and clear of obstructions will in the near future prove to be invaluable as a base for airborne traffic of all descriptions, by providing the safest possible Rotary Rock Runways and Aerodromes.

To name a few of such, there are:—

1. Rockall, situated about 200 miles off the Outer Hebrides.
2. Ailsa Craig, Firth of Clyde.
3. The Maiden Island, Firth of Lorn.
4. The Bass Rock, Firth of Forth.
5. The Bell Rock, Firth of Tay.
6. Glasellean, the small rock in Gairloch, Ross-shire, about a mile off the pier.
7. Boreray, one of the St. Kilda Isles.

There are, perhaps, others which conform to the above stipulations, or conditions.

One method by which a solid rock could be utilised as a base for airborne traffic would be to surround it with a circular steel or other hard metal cylinder from the base upwards to the required height, securely fixed to the rock so that, being immovable, it would act as a pivot around which would turn the "Ark" or Carrier. The Carrier would be built in sections, as long as possible, the first two of which, when towed out to the rock, would be welded or bolted to each other round the pivot, with ball and roller bearings so as to turn round easily and smoothly to face the wind and wave, and also to move up and down with the rise and fall of the tide. The further sections would be gradually joined up.

The fore part of the Carrier in front of the pivot would be shorter, and the after or stern, would be longer, so that the bow would always face the wind. This could be regulated by the officer in charge from the bridge as circumstances required, by means of a steering gear; and also the top or flight decks might swing independently of the lower decks. The left-hand, or port side of the deck of the Carrier would be the "ON," and the right-hand or starboard, the "OFF," for flying purposes, or vice versa.

A basin, opening from the stern, would provide shelter for seaplanes and dock accommodation for shipping, and beyond the basin, a dry dock for the largest size of liner or battleship.

The lower decks would be available for the thousands of workpeople and their families; for hotel for visitors; for community kitchens and dining rooms; and for laundry, school, hospital, church, theatre, cinema, sport and recreation rooms, bank, post office and municipal offices, bakery, food factory, distillery, shops, warehouses and stores, etc. Workshops, fuel storage and incinerators would be placed as far aft as possible. Escalators, elevators, travelling footways and roadways on every floor or deck, and every modern convenience would be provided. The rise and fall of the Carrier by the action of the tide would supply the power, heat and electric light for all purposes.

The dimensions of the "Ark" might be almost unlimited, and could be added to from time to time as required, but, for a start, say one to two miles in length and weighing one to two million tons. The power generated by this weight rising and falling twice every day, and transmitted by means of Archimedian Screws, or by tooth and pinion, would develop the electricity required, and more.

The tides vary considerably at different places but the average rise and fall is, I think, between 15 and 20 feet. Allowance must be made, of course, for exceptionally high tides, by extending the height of the pivot. The power house being on the rock, no vibration will be felt on the Carrier, which will be afloat and steady on the water, and the only sound will be like the musical hum which comes from a well-stocked, busy beehive on the heather.

At the Maiden Island the "Ark" might be, I think, circular, and not elongated, except for the runways. Being so near to the mainland the outer rim of the "Ark" could be made to skirt the very edge of the roadway, and so make a permanent connection with Oban, and thus enhance that town's already well-known reputation of being the "Charing Cross" of the Highlands.

Rockall, being 300 miles or so further west, has the advantage of being the nearest point to the North American Continent from the Continent of Europe. It could also be made a valuable radiolocation and meteorological station. But it may be the case that a sunken reef which lies to the north-east, may interfere with the turning motion of the carrier, unless the reef could be bridged over in some manner. This can only be ascertained by a further survey.

St. Kilda might be used as an aerodrome, and if Boreray, lying four miles off with its two small rocky islets close alongside, could be surrounded by a circular metal wall a mile in diameter, it would provide a sea-drome, if the difficulties of doing so could be surmounted.

Another great advantage of a Rock Rotary Runway on or about sea level is that the runway would be always steady and would not roll and pitch, and could be used whatever the direction of the wind. These also would provide half-a-dozen different and alternative locations, where a safer and surer landing could be made during fog and snowstorms.

As the Carrier would be elongated or ship-shaped, in fact, two twin carriers joined broadsides together, I would suggest the following names for Rockall, viz.:—for the left, port, or "ON" side—H.M.S. "Basil Hall"; and for the right, starboard, or "OFF" side—H.M.S. "Rockall." This would very suitably commemorate the official discovery of Rockall in the year 1810, in the reign of King George III, by Captain Basil Hall.

Glaislean, the small rock situated in Gairloch, Ross-shire, a mile or so off Gairloch Pier, would, I think, make an admirable site for a Pilot Plant. It is round and dome-shaped and is of hard Torridonian Red Sandstone formation, rising only a few feet above water. It is sheltered from the Minch and is easily accessible to and from the pier.

These undertakings herein mentioned would not clash in any way with the Water Power Concerns already in existence in the Highlands, or with the new Hydro-Electric Power Schemes, but would enhance their value more than ever, as the surplus power not required on the "Arks" could be passed on to the grid on the other islands and the mainland.

The North of Scotland Hydro Electric Board appointed to take charge, might also include in their agenda the water power of the tides—the greatest dormant prime mover on Earth awaiting to be harnessed.

The proposals suggested in the foregoing pages are put forward merely in the hope that the "powers that be" may in due course give them serious consideration, and that experienced and trained technicians may be put on the job of compiling plans and specifications in the light of all the new metallurgical and plastic substances discovered during recent years which have been awaiting the arrival of Peace on Earth and will now be utilised by the eagerly expectant peoples of this war-weary world.

The writer does not claim to be an engineer, but only a wee bit mechanically minded, and he leaves it to others more fully equipped in that respect to prove the feasibility or otherwise of these proposals.

The Crown Authorities must have the first say in any decisions made, and afterwards the International Airways Corporations will have their say, as being the most likely to be able to handle a job of this kind. We here in Scotland are favoured by nature in having these tiny rocks situated on our coasts, and it is to be hoped that similar rocks may be found in other parts of the world to link us together with a grand chain of airports where refuelling could be completed in the minimum of time and with the least interference by surrounding obstructions. With the very best sea and land aerodromes, both of which would be necessary adjuncts to the flying liners of the future, Scotland would take as prominent a place in aviation as she has taken in navigation.

I have discussed the question of tidal power with a few friends and have met the criticisms which are given below, together with my answer in each case, viz. :—

1. "It won't work, for if it did, it would have been made use of long ago."

Perhaps this is so, but maybe the experiment has never been tried and tested to prove it right or wrong.

2. "The rising and falling of the tides neutralise one another."

The rise of the tide when concentrated on a central screw turning the spindle or by tooth and pinion, on the upward movement of the Carrier till it reaches the top, only requires a change of gear to continue the turning when the tide begins to fall. When low water is reached the gear is again changed over, and the movement is thus continuous except for the pause while the tide is at its lowest and highest. The pause will, I think, last long enough to allow for about a foot of pressure upwards and the same downwards.

3. "The tides rise and fall so slowly that the power is used up by friction."

If a small weight of a few pounds falling a matter of a few feet is able to keep a wall clock going for a whole week, I would say that the enormous weight of the Carrier suggested, falling even 10 feet in six hours should be able to overcome any friction encountered.

4. "The waves and the swell of the ocean would wreck the Carriers and smash them to pieces on the rocks."

The smaller the vessel the more it is tossed about by the action of the waves, but even a vessel of 1,000 ft. in length is very steady in a rough sea. If and when you have one of 5,000 ft. or 10,000 ft. in length the motion will be almost negligible, and as it will be firmly held in position on the rock pivot, it will remain as steady as the rock—but to absorb any unusual strain on the pivot a rubber cushion would be sufficient protection and thus damage would be avoided. Also the design of the Carrier would be streamlined so as to resist the pressure of the wind, wave, swell and current as much as possible.

5. "The tidal waters cannot be harnessed; water cannot be controlled, as it will overlap or overflow outwards in all directions unless confined inside a given radius."

The flow of tidal waters, first in one direction and then in the opposite direction, cannot be controlled very effectively, I admit, but as regards the upward rise and downward fall of the tide I submit that it is a different proposition altogether.

My proposal is that the Carrier would be constructed around a central pivot, built round a solid rock foundation with deep water free from all obstructions all round, free to turn on the pivot and also to rise and fall with the tide.

Another method by which the power of the tide could be utilised would be by a foundation of upright pillars on both sides of a channel, opposite each other, with the carrier in the channel and the power houses on each side.

This now brings us to another aspect of the tidal problem. Up to now we have been discussing rock-islets as a central pivot in tidal waters: we will now consider tidal estuaries—Firths, Feries, Straits, Kyles, Sounds, Lochs and Channels.

At the present time we hear much about projected bridges being built over various parts of tidal waters, but before these projects go any further I would suggest that this aspect of the problem should be taken into consideration. These bridges could be constructed with solid rock foundations on both sides of an estuary, on which to erect twin power stations, with floating giant pontoons all the way across, on top of which the roadway and foot-paths would be laid—leaving ample room between the pontoons for vessels of all sizes to pass in and out, and sufficient head-room for ships to pass underneath, without their mastsheads carrying away the bridge.

This Utility Bridge could be built in two parts. The first part would be a fixture, viz., steel pillars on each side of the channel firmly fixed upright on a solid rock formation, and other pillars supporting each pontoon all the way across to prevent any sagging either way. The second part would consist of the giant pontoons, the number of which would depend on the width of the channel, and on top of the pontoons—raised to the required height above the water would run the roadway. The roadway and the pontoons would be a fixture and be securely attached and fitted to the pillars, so as to allow the floating pontoons to rise and fall with the tide. The longer the bridge the more electric power would be generated.

These pontoons could be made use of for many and varied purposes.

Utility Bridges of this description may in a few years time be found all round our coasts, and open up our country districts to transport, for where there is a bridge there will also be roads to connect up and develop traffic of all kinds. I can even envisage a Utility Bridge across the Channel to link up with the Continent—no tunnel for me, thank you!

This same principle could also be applied to any tidal harbour where ships could be tied up to floating docks or pontoons, which in turn are joined to the solid quays. The pontoons alone could always operate with the tides, and the shipping, while in port, would augment by their additional weight, the power developed by the perpendicular up and down motion of the tides. One other advantage of this system would be that the cargo could be loaded and unloaded with greater convenience as the ship and the pontoon would be practically on the same level all the time, thus saving time and labour.

Instead of pontoons perhaps something of the style of the Mulberry Dock could be adopted. These could be used as landing stages for disembarking and embarking passengers. Even without these pontoons, any ships lying alongside the quay or wharf could be made fast, fore and aft, to levers fixed to the top of the quay, so as to generate the tidal power developed as the ships rise and fall with the tides.

Except for the pause at the height of high water and at the foot of low water, the tides are the nearest natural approach to Perpetual Motion as long as the moon continues to revolve round the Earth.

New discoveries and improvements are being made every day, and that which is new to-day may be obsolete to-morrow. Long runways which are at present essential for heavy loaded 'planes to enable them to take off, may soon, with the advent of the jet-propelled engine and the helicopter 'plane, be rendered unnecessary. Or the catapult, or a rocket projector, or even a revolving disc by centrifugal force, may launch 'planes from quite a small runway space, but in the event of this happening the long runway could easily be divided into several small runways and alighting-ways. This would enable aerodromes to cope with much more traffic, but the problem of accommodation must arise as this extra flow of traffic continues to increase. The accommoda-

tion on the rock airports, being very much more extensive than that on land aerodromes—so many upper and lower decks and holds for hangars being available—will be able to provide, under cover and shelter, refuelling and all other necessary supplies to planes before proceeding further on their journeys. These facilities will prove to be indispensable in a few years' time, for no doubt land aerodromes will not be able to cope with the thousands queuing up for admission.

Soon there may be as many 'dromes as there are railway stations in this country, and as planes can only remain in the air for a limited period according to their fuel capacity, it won't do to keep them waiting, hovering about indefinitely. It will be essential that pilots before leaving on their last lap, should communicate with the control at the 'drome they want to reach, to enquire if they can be received, and if not, to wait till such time as that can be done, or go to another 'drome. This, of course, is a mere detail and can be attended to by safety regulations at the proper time.

At any rate, every aerodrome in existence at the present time everywhere, on mainland and islands, will have to be maintained in active service for both civil and military purposes although the war is ended, and would remain a very valuable asset to this country in the days of progress and prosperity that lie ahead.

One other great advantage of a rock aerodrome is that it would not encroach upon valuable agricultural land, or industrial and housing sites.

If and when Rockall becomes a Rock-drome, and being over 300 miles, at sea level, west of Prestwick and the other mainland aerodromes of Scotland, this would diminish the distance of the 'Hop' to and from North America by that extent and thereby reduce the load of petrol fuel and oil required. Moreover every ton of fuel saved would mean extra space for additional tons of valuable freight and increased accommodation for more passengers, on every plane crossing the North Atlantic Ocean.

Relatively few of the people of the world have as yet been up in an airplane, and I number myself with the many who have never been up, though for 40 years I have travelled 15,000 miles annually by sea and land "on the road," but I look forward soon to enjoy the thrill of flying, which is, I think, the crowning glory of all modes of transportation, and which will help all the more to make the life of man on Earth well worth living.

However, there is no great hurry till the aftermath of the war has run its course, and then, with all the latest improvements carefully studied, with patience and perseverance, and with our most modern and up-to-date factories, we would be well able to start off at scratch with the very latest models of all types of airships and seaplanes. It is no use at all beginning to build 'planes that are already out-of-date. Let us be in the van, and learning from what has already been accomplished, keep the lead.

As the immense increase of electric power, which I hope would be made available in due course at very cheap rates, would solve the problem of electrification of the railways throughout the country, perhaps the "Bennie Electric Mono Rail" would at last come into its own. Should these schemes be taken up by the Government, they would of course entail an enormous expenditure of capital to carry them out, but through time it would, I hope, prove to be a good investment for the country, and soon repay the expenditure involved by the benefit to agriculture, commerce and industry of all kinds and the economic employment of labour, with a great uplift in the standard of living.

With the railways and coastal shipping nationalised and run on electric power, the use of coal on the railways would be eliminated. The more general use of electric power would put an end to the wasteful misuse of raw coal for domestic and factory purposes which exists at present. It would also eliminate the use of paraffin oil and gas for lighting purposes. It may even do away with the steam engine altogether and may compete with petrol. It may in time abolish the use of the internal combustion engine for motor cars, and perhaps for airships as well. If so it would eliminate to a great extent the danger of fire, but though one danger is avoided, another may be created to take its place. Yet, if I had my choice between fire and an electric shock, I know which of the two I would choose.

PART III.—

“THYPOR.”

“In the beginning God created the heaven and the Earth . . .”
Likewise the powers and forces of gravity, electricity, magnetism, hydraulics, centrifugal force, and the natural elements, such as wind and water, in fact all the powers and forces that exist to-day, and also those still to be discovered.

Our early ancestors were hunters, armed with clubs, spears, swords, axes, slings, bows and arrows, etc., with which they hunted to enable them to exist and protect themselves from attacks by wild animals, and also from their enemies, for from the earliest days to the present time mankind all over the world has been at war without intermission in some or other parts of the earth.

Man's motive powers were obtained at first from very elementary sources, such as manual and animal labour; but as mankind progressed in knowledge, intelligence and inventiveness, he, slowly at first, but with increasing rapidity as time and mind developed, harnessed wind and water, then fire, coal, steam, gas, oil and petrol, chemicals, explosives, and electricity, separately or in conjunction with any others, till in due course of time and in gradual stages of development, and in conjunction with the science of metallurgy, chemistry and the production of rubber, those became the means by which the mechanical powers of the world were produced up to the present time. All these various means of motive power are still in daily use, and compete with one another on an economic basis for all specific and special purposes for which these are required, but now the world has been confronted with what is called “Atomic Energy,” which we are told puts all our past and present prime movers completely out of count.



With the discovery of gunpowder, wars became fiercer and deadlier than ever, and when high explosives arrived wars became even worse; then came the aeroplane bomber which rained bombs indiscriminately from the skies, succeeded by the jet-propelled rocket-bombs with all their accompanying horrors which our aggressor enemies were hurling at this country from across the Channel and the North Sea; but providentially we were saved by the overwhelming victory of all our Allies over our Nazi enemies, who after six years of savage total warfare had to submit to unconditional surrender. We and our Allies had still to conquer Japan. Japan had treacherously attacked this country while we were already fully engaged with the Nazis, and she also attacked the United States of America simultaneously, thus bringing the U.S.A. into the war on our side to our great mutual advantage. Japan having overcome all opposition had overrun most of the Pacific, but our united forces were rapidly regaining our lost territories, and had actually invaded Japan, when our scientists in this country and in America succeeded in producing the Atomic Bomb, and after due warning had been given two were dropped with dire consequences, and when we threatened that more would follow, Japan capitulated unconditionally. So, by this means, the greatest war the world has ever witnessed, and survived to tell the tale to generations to come, was brought to a sudden and victorious conclusion, thus saving the loss of further precious lives. May the Atomic Bomb also be the means of preventing ever again the outbreak of war, and establishing peace on earth for all eternity.

The defeated aggressor nations have been brought to book and their leaders tried before an International Court of Justice for their participation in the conduct of the war, and those found guilty have been suitably punished. But the stain on their characters by the dishonourable and treacherous means by which they tried to vanquish their peaceful neighbours will never be forgotten and will last for all time. It only lies with the future generations of these aggressor and guilty nations to try

to restore and to retrieve their lost honour as best they can by undertaking to occupy a useful place in the ranks of civilised nations, and make ample restitution for the damage they inflicted on the world. Had they succeeded in subjugating their neighbours by the dishonourable methods they adopted, their victories would be for ever tainted and could never redound to their credit, but would always be an everlasting disgrace and shame.

To lose a battle in fair fight is no disgrace,

To win or lose with honour lost

Is shame, dishonour, and disgrace.

However, my contention is that the vertical tidal-hydro-electric power, which I have now proposed, could generate at an economic price any quantity of electricity required according to the number of installations and in perfect safety, in competition with Atomic power, and would avoid the danger which may always attend the tampering with and splitting of the atom.

On the other hand, I think that the atomic bomb, or rather the atomic rocket should be developed and held in reserve, for the day may come, sooner or later, when the inhabitants of our adjacent planets may take aggressive action against our Earth, so that we would be prepared to repel such a contingency. I wonder if the scientists on other planets are as far advanced or further, than our scientists here on Earth, or maybe if by chance some of them have succeeded far beyond their utmost expectations, in achieving the complete destruction and disintegration of their planet—the fragments of which are constantly seen bombarding our atmosphere in the form of meteors, comets, and what are called "shooting stars," some of which often penetrate to the surface of the Earth. Let us pray and trust that such a fate will never overtake this beautiful world of ours.

In any case, I hope before that takes place, that vertical tidal-hydro-electric power—which I will name "Verthiyelpor" till a better name is found—may become an established fact. If so, "Thypor"—to give it even a shorter name, and all its implications would become a very interesting study and perhaps a solution to many of the problems confronting the world at the present time. Although I may have stressed the Airport and Aerodrome feature to begin with, which to many may seem to be a little "far-fetched," that is really after all but a secondary consideration. The main purpose is the power developed by the uplift of a floating vessel by the rise of the tide, and by the downward fall, by gravity, when the tide recedes. This power is limited only by the dimensions of the floating vessel and the extent of the tidal rise and fall. This is continuous and constant—therefore I say that Perpetual Motion is far from being an impossibility.

The cost of the power thereby generated after the initial cost of installation, would be almost negligible, and the power could be put to all kinds of purposes. "Thypor," on the remoter islets on the west coast could be utilised to further the development of Atomic energy, and would be safer and better situated than in the desert of Arizona.

The Tidal Power could be utilised perhaps for the development of electrical energy sufficient for the purpose of further advancing the potentialities of Atomic Power, in this New Era of Peace on Earth and for the benefit of all mankind.

Pray that Almighty God may forbid it would be otherwise.

I am convinced that research work of all descriptions should be encouraged to the utmost extent towards solving the great problems which confront us to-day. Scientists all over the world who have been groping more or less in the dark are now seeing before them a great future, opening up vistas which were closed to them as being impossibilities, and by uniting and pooling their independent discoveries, are slowly but surely piercing the obscurity of the past with the "Radar" of the present.