

NESS INFORMATION SERVICE
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As I closed NIS103 I referred to news of a new research Programme which many of you will have seen in the news, 'Project Urquhart'. I know a few members have managed to get full information about this Project, for the rest I think the best thing is to pass on the Press release in full.

PROJECT URQUHART
FIRST COMPLETE ECOLOGICAL STUDY OF LOCH NESS

Thursday 18th July 1991

Loch Ness, Britain's largest and most famous body of fresh water, is to be fully and scientifically explored for the first time, it was announced today at The Natural History Museum, London.

PROJECT URQUHART is an investigation of the complete ecology of Loch Ness, including its biology and hydrography. It is a long-term initiative to understand the loch authoritatively and definitively.

The Project, which will be funded by commercial sponsorship, is supported by a consortium of the UK's major scientific institutions. They are led by the Freshwater Biological Association of Windermere and The Natural History Museum in London. The Project also has the full and formal support of The Royal Scottish Geographical Society and the National Museums of Scotland in Edinburgh, and Highlands and Islands Enterprise in Inverness.

Dr Neil Chambers, Director of The Natural History Museum, said today: 'Loch Ness is one of Britain's most precious freshwater habitats. And yet, remarkably, we know very little about it. The Natural History Museum feels it is time there was a comprehensive, scientific survey of Loch Ness, to help us understand and protect it.'

Professor Gwynfryn Jones, Director of the Freshwater Biological Association and a member of the Council of Management of Project Urquhart, said: 'To explore and understand Loch Ness is a great challenge. It is potentially one of the most exciting such studies to be undertaken in Britain in recent years. We believe it could yield important new information.'

One of the primary objectives of Project Urquhart will be to establish what species inhabit the loch and how they live.

Scientists from the Freshwater Biological Association and the Natural History Museum will be playing a central role in Project Urquhart's fieldwork. They will undertake detailed studies of aspects of the loch's environment, including its biology, its chemistry, its algae, plankton, nematode worms and crustaceans, as well as a detailed study of the loch's fish population.

Professor Colin Curds, Keeper of Zoology at The Natural History Museum and a member of the Council of Management of Project Urquhart, said: 'The Natural History Museum believes there is a great deal of good science to be done at Loch Ness. We do not even have a complete list of the animals and plants that occur there, let alone information relating to its ecology, limnology and hydrography.'

The Project will mount a comprehensive hydrographic survey of the loch using sonar. This will reveal the loch's underwater contours and its true depth.

Sonar will also be used for biological studies and to establish patterns of underwater activity in the loch. Project Urquhart is working with some

of the world leaders in sonar technology.

A co-founder of Project Urquhart is the broadcaster Nicholas Mitchell, who has been intrigued by the loch for more than twenty years. Explaining details of the Project's plans at the Natural History Museum in London today, Mr Mitchell said: 'It is time Loch Ness was fully explored, not by publicity-seekers but by scientists. It is time the stigma was removed from research at Loch Ness. We go there with the Freshwater Biological Association and The Natural History Museum with open and enquiring minds, not knowing what new information we may find.'

Mr Mitchell said that any reference to Loch Ness inevitably raised the question of 'Nessie'. He said the Project would confront the Loch Ness mystery openly and objectively. 'I emphasise that Project Urquhart does NOT think there is a 'Monster' in Loch Ness, but there do appear to be several interesting observations that have yet to be explained. No proper scientific study can totally ignore the anecdotal evidence of unidentified creatures. But we make no assumptions about the cause or nature of these observations. We will investigate Loch Ness as a whole.'

Project Urquhart intends to begin work in the summer of 1992. It is planning a three- to four-year research programme. It will be properly funded by commercial sponsorship. Funding is expected to be excess of £2 million.

'Loch Ness is the most famous freshwater lake in the world', said Mr Mitchell, 'and Project Urquhart will stimulate a wide range of high-profile activities that we believe will appeal to commercial sponsors who are interested in scientific discovery and who are attracted by a prestige project.'

Project Urquhart has been established as a private company limited by guarantee, without share capital. It cannot distribute its profits. The company has made an application for charitable status.

In conclusion Dr Neil Chalmers, Director of The Natural History Museum, stressed the Museum's full support for Project Urquhart and said: 'The Museum believes the only way fully to understand Loch Ness is to explore its ecology as one integral environment.'

Dr Chalmers went on: 'The Museum believes there is important work to be done at Loch Ness.'

Nicholas Mitchell said he believed Project Urquhart was the scientific investigation for which Loch Ness had been waiting for generations. 'The Project will be serious and scientific in intent, and patient, painstaking and authoritative in application,' he said.

'Loch Ness is very big, very deep and very dark. Its exploration is a huge task - the Everest of the Nineties perhaps. But we believe the way to understand more about its mysteries is to understand more about its entire environment.'

'It is time scientists with open minds went to Loch Ness to explore.'

BACKGROUND DOCUMENT

Along with the Press Release came the background document of nearly forty pages, so I will just extract some. The opening remarks by the chairman, Nicholas Mitchell, at the inaugural meeting on Tuesday 26th March 1991

'So far as I can tell, the last time there was a meeting here at the Royal Geographical Society devoted to the subject of Loch Ness was on 18th January... 1904. Eighty-seven years ago. And yet Loch Ness is the largest (by volume) freshwater lake in the United Kingdom. Despite its size and

importance, I respectfully suggest we know very, very little about it as a body of water.

The Purpose of Project Urquhart - very simply - is scientifically to explore this, the largest lake in the country; and to understand better the aspects of it which pose a challenge. Some basic facts for us to ponder.

First, Loch Ness has not been totally surveyed since the first decade of this century. We are now in the last decade. Some 85 years ago, that last full survey was carried out by two men in a boat. One of them was Sir John Murray, a founding father of British oceanography. But the only equipment they had was a weight, a long piece of piano wire, and a large bicycle wheel which was wound up and down by hand. And yet - as I say - this is the largest freshwater lake in the United Kingdom and one of the most famous in the world. It is, I suggest, time we had a proper, hydrographic survey of Loch Ness. Such a project - to discover its detailed underwater profile, depth and composition - will be one of the first and most important things Project Urquhart intends to undertake.

Similarly, the biological record is also very incomplete. If I may quote first Iain Bishop, Deputy Keeper of Zoology at The Natural History Museum. During a visit to the loch last October he said: 'There is an awful lot we do not know about what is in it'. And secondly, if I may quote Gwyn Jones, Director of the Freshwater Biological Association who said, when Terry Bartram and I met him for the first time last October: 'A proper study of Loch Ness would be one of the most important limnological studies in Britain since the end of the war.' And thirdly and finally, may I quote to you one of this country's most distinguished limnologists - Dr John Lund, Fellow of the Royal Society - said to us when we met him last autumn: 'It is time we did know more about Loch Ness. Science should be prepared to investigate.'

So, we have the biggest lake in Britain. It has never been surveyed by modern hydrographical techniques. It has never been the subject of a comprehensive biological study. In layman's terms: the canvas is largely blank. Loch Ness is, I suggest, a rich seam of unmined scientific knowledge, of both a general environmental importance, and of a specific significance to individual disciplines.

Project Urquhart believes it is time that the scientists, the geographers, biologists, the engineers and others - were given an opportunity to start work in Loch Ness, to extract that knowledge and help us finally to understand it. We believe the best way to realise that opportunity, and make that activity possible, is to take advantage of Loch Ness's popular fame - rather than pretending it does not exist. To put that another way: the plan can be turned into action precisely because this IS Loch Ness.

The very fact that is the location of a world-famous phenomenon makes it possible, we believe, to secure the funding to mount the comprehensive scientific study that the loch surely requires. Our purpose is to try to bring together scientists and businessmen. To identify where interests coincide; to make good, wide-ranging research possible, and to ensure that neither side is compromised or embarrassed by what some may regard as the sensitivities of working at Loch Ness.

That said, it is important to add that we are not going to hide the fact that an important part of Project Urquhart is a sonar survey to determine what targets there are in the loch. We have to do that: a) because we believe it's an intrinsically worthwhile exercise which will help us to understand the place, and b) because it is a survey such as this which, we believe, will help to attract the sponsorship which is what will enable Project Urquhart to finance a full programme of exploration of the loch's geography, biology and so on.

Just as I should state very clearly that a sonar survey IS a part of PU's Purpose, so I should also state very clearly that PU's Purpose is NOT to gain financial reward for any individual.

Project Urquhart has been incorporated today as a company limited by guarantee. In other words, it is a non-profit making company which is now seeking charitable status. In conclusion, may I say that I feel a great diffidence - as a non-scientist - in addressing any remarks to a distinguished group of scientists such as yourselves, but I do believe that what PU is attempting IS worthwhile, exciting and long overdue.

We should understand this place, the largest lake in the country.

We should explore, and find out more about its geography and its biology.

We should find out more about what lives IN it, and what is happening TO it.

The Prize is greater knowledge and, possibly some important discoveries.

THE CHALLENGE

The world still has environments that have never been properly explored or understood. Planet earth still offers exciting challenges to both scientist and explorer. Not all the earth's unexplored environments are in distant regions. The challenges do not necessarily have to be high mountains, remote rain forests or deep oceans. One environment that poses one of planet earth's most exciting scientific challenges lies on the mainland of the United Kingdom, just over 500 miles from London, a comfortable seven-hour train journey from the capital. Yet this environment poses great challenges to the scientist, to the environmentalist and to the explorer. It also represents a challenge which our modern technologies have yet to master. The environment is Loch Ness - Britain's largest body of fresh water. Loch Ness has never been properly explored. It is, simply, one of the world's last great unexplored natural habitats. But it is much more than that. Loch Ness remains, in the last decade of the twentieth century, an extraordinary enigma that defiantly mocks this high-technology age. In the nineties Loch Ness is as provocative a problem - and as great a challenge - as Everest in the fifties.

THE EVEREST OF THE NINETIES

It is, arguably, the most famous freshwater lake in the world. It enjoys extraordinarily high awareness ratings throughout the world's major markets. It is one of Scotland's major tourist attractions, second only to Edinburgh in pulling power, and drawing two million visitors a year from all over the world. These visitors are estimated to be worth some £25 million to the local economy and to account for 2500 jobs. With a length of twentytwo and a half miles (36 kilometres), a maximum depth of at least 750 feet (229m) and a width of some one and a half miles (2.4 kilometres) at its widest, it holds some 263 billion cubic feet (7.5 billion cubic metres) of water and has a surface area of 14000 acres (5700 hectares). It is the largest body of freshwater in the United Kingdom and one of the largest in Europe, for such a large and important body of freshwater, surprisingly little is known about Loch Ness. It has never been thoroughly explored scientifically. Its ecology and its ecosystems are not properly understood. Its animal population has never been completely analysed. It is only in recent years that it has been established that a large number of arctic charr live at considerable depths. Some have been netted at over 700 feet (213 m). Only recently has a limited study of the plankton in the loch been started. Demonstrating that new species can be found in the loch, the latest discovery is of an amphipod, never before recorded in a Scottish loch. A species of flatworm, not previously known

outside North America, has also been discovered recently. Indeed very little is known about the bed of the loch and its composition and biology. No long-term systematic coring of the loch bed has been carried out.

The ecosystem of the loch is old and primitive, and still relatively undamaged. However, the effects of pollution - from fish farming, from tourism and recreation, from acid rain or from Chernobyl - have never been properly studied. The only survey of the loch was carried out in the early years of the century by hand-cast lead line at wide intervals, and the available charts are extremely small in scale, 1:75000, no complete information is available on the texture of the bottom of the loch, nor the profile of the loch's steep sides. Even the maximum depth of the loch is disputed. For many years the depth was believed to be 754 feet (230mt). However in 1969 a miniature submarine was reported to have gone down to 820 feet (250mt), and recorded 975 feet (297mt) on its depth sounder, however, such a reading has never been repeated. The water of the loch is clouded by suspended peat particles. At 50 feet (15mt) the water is opaque, while lower down the black, turbid water makes any sort of exploration or filming extremely problematic. The very great depths of the loch compound an already difficult problem. Loch Ness is oligotrophic; that is low in nutrients with a low productivity of organic matter. Studies of deep oligotrophic lakes such as Loch Ness are extremely rare.

ENIGMA

Any proper scientific study of the biology of Loch Ness must, sooner or later, address the question of the enigma of the loch. Some of the world's most widely respected zoologists, limnologists and naturalists have stated their belief that further research should be carried out in the loch. (These statements are Appendix B of the document, RIP). Project Urquhart makes no assumptions about the cause or nature of the enigma. However, having objectively studied the mass of available evidence, it does believe that there is a very strong case for further, properly funded, scientific research. For this reason, a scientific investigation into the loch's phenomena will be an important part of Project Urquhart's work.

PHILOSOPHY AND BACKGROUND

1/ Project Urquhart is a major initiative to investigate scientifically Britain's largest body of fresh water, Loch Ness.

2/ P.U. will study the complete ecology of the loch, including its biology and hydrography.

3/ P.U. has the full and formal backing of the freshwater Biological Association. The Association's scientists and those of the Institute of Freshwater Ecology will carry out a large part of the research schedule. The Director of the FBA is a member of the Council of Management of Project Urquhart. He will also act as Scientific Director of Project Urquhart, one of the Institute's Principal Scientific Officers will act as one of the Project's field directors.

4/ P.U. has the formal support of the Natural History Museum in London. Museum scientists will be participating in the Project's research, collaborating closely with the FBA, the Keeper of Zoology at The Natural History Museum is a member of the Council of Management of Project Urquhart.

5/ P.U. has the formal support of both the Royal Scottish Geographical Society and the National Museums of Scotland in Edinburgh.

6/ P.U. also has the support of Highlands and Islands Enterprise in Inverness.

7/ P.U. is seeking the support of the Royal Geographical Society, London.

8/ P.U. believes that the only way properly to understand Loch Ness is scientifically to evaluate the ecology of the loch as one complete integral environment.

9/ A primary objective of Project Urquhart is to establish -conclusively and authoritatively- what species inhabit the loch and how

they live.

10/ P.U. will not follow the Pattern of Previous expeditions to Loch Ness. Most of these have actively sought Publicity; many have had little or no scientific backing; most have grossly underestimated the scale of the task and misunderstood the necessity for a multi-disciplined, integrated Programme of research into the loch as a whole.

11/ Project Urquhart's watchwords are quiet, lengthy, and authoritative.

12/ Considerable trouble will be taken to ensure that Project Urquhart is clearly seen to be serious and scientific in intent, and thorough, painstaking and authoritative in application. Project Urquhart is well aware that its results must unequivocally satisfy the scientific establishment.

13/ For all these reasons, Project Urquhart recognises that the calibre of its scientific advisors and its executive managers must be of the highest available.

14/ The whole research Programme will be properly funded by commercial sponsorship, as well as by the sale of broadcasting, publishing and merchandising rights. Funding is expected to be well into seven figures.

15/ P.U. believes it is possible to raise this sort of funding without compromising the integrity of the research.

16/ However, it should be noted that it would primarily be the rights to the results of the expedition that would be marketed; publicity about the Project would be limited and closely controlled until the results were announced or published.

17/ Excessive media attention will be discouraged and -if possible- avoided, until the Project can announce its findings.

18/ P.U. will proactively seek to involve young people in its activities, as well as to use the Project's findings for educational and training purposes.

OBJECTIVES

Research and Exploration

To establish what species inhabit the loch. And, as far as possible, the behaviour patterns of these species.

To survey the loch: A/ to study and establish the underwater contours and depth of the loch. B/ To examine the composition of the bed of the loch.

To investigate the extent and nature of environmental pollution in the loch.

To examine the biology, physics and chemistry of the loch, including the algae, plankton and fish.

Youth, Education and Training

To publish for educational purposes: a. A map and wall chart of the loch illustrating its ecology, fauna and possibly history. b. A Geographic Information System (GIS), ideally on videodisc, illustrating the loch's complete ecology and fauna.

To capitalise on the loch's appeal to youth and educationalists, and to exploit its value as an educational and training tool. To this end to involve appropriate youth training and education charities and organisations.

Protection

To make recommendations as to how the loch, its ecology and fauna should be best protected.

Commercial exploitation and Protection

To make recommendations as to how the loch should be best developed for minimum-impact tourism. Also on the commercial value of arctic charr and, if appropriate, on their possible minimum-impact exploitation.

Marketing

To market and promote the by-products of Project Urquhart. These are likely to include: publishing rights (news papers, magazines, books);

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broadcasting rights (television, radio and video); exhibition rights; merchandising rights.

LIMNOLOGY OF LOCH NESS

Professor Gwyn Jones, Director of the Freshwater Biological Association, writes:

1/ An integrated ecosystem study is required from the physics of the water body through to the animal populations. The rarity of such studies should be stressed, particularly on deep, oligotrophic water bodies such as Loch Ness.

2/ We are proposing to conduct this examination on one of the deepest lakes in the UK, which is considered to be a pristine site. The ecology will be strongly limited by nutrient supply, but it is also physically variable, with major opportunities for following external energy inputs to a large water mass, and the way the variability feeds through the biological chain. For this reason, we should also determine how a large body of water reacts to atmospheric/solar heat exchanges as a model for the sea (the major arbiter in global warming, yet still unmodelled).

3/ The Programme would therefore examine:
the interactions of water physics and chemistry
the impact of these interactions on the productivity of algae
the population dynamics of the zooplankton that graze the algae
the population ecology of the fish and other higher animals and the relationship between their apparent and potential productivity
the balancing decomposition processes in the sediments should also be considered.

4/ The sediments also hold the key to the history of the loch. The Caledonian trough may have contained water before the Great Glaciations. No comparable North European water has been investigated for preglacial deposits.

5/ The Loch Ness community is simple and very valuable in conservation terms, because of its pristine nature (including the lack of extensive commercial fisheries and the lack of damage caused by introductions). The arctic charr is a glacial relic and deserves examination on these grounds, not only from the point of view of the sustainable population, but also its genetics.

UNDERWATER EXPLORATION

Sonar will be a primary tool of the underwater research Programme in Loch Ness. It will be used in a variety of ways for a number of different purposes. Sonar will be used to carry out the hydrographic survey and to map the loch. It will be an important component in the study of the fish population, while it will also be used to establish the existence and frequency of any large contacts or unusual activity and to identify any patterns or consistency.

Project Urquhart is working closely with companies such as Oceanscan of Aberdeen and Simrad of Norway. Simrad (which also has a base in the UK) is one of the world leaders in sonar technology for fishery, offshore and defence purposes. Project Urquhart in collaboration with Oceanscan and Simrad, is developing detailed plans for a series of sonar 'curtains' to be positioned across the loch to monitor underwater movements. These sonar gates will provide an unprecedented picture of activity from the loch's surface to some of its deepest areas. The sonar arrays and triggering devices will, in many cases, be specially developed for Project Urquhart.

Dependent on the results obtained by sonar in the first stages of the Project, the later stages may involve photography and videography, using state-of-the-art photogrammetry, SIT and other low-light techniques. Project Urquhart is in touch with some of the leading companies in these fields and is also advised by Marty Klein, founder of Klein Associates, who is one of the world's foremost authorities on sonar development and

application.

COMMENT

There other Paragraphs in the document giving details of the Management and Corporate Structure etc. of Project Urquhart. But for the time being that is about all the relevant information I have. I will Pass on anything else as it comes to hand, courtesy of Nick Wittchell. I am sure we will hear much more about Project Urquhart over the coming months. We must not expect an answer to the mystery overnight, as it were. P.U. are Prepared for a long careful examination of the loch, and its inhabitants. Also much of the Proposed Programme of work is reliant on gaining sponsorship. They have people on the team who are experienced, and very skilled, in such matters; but they have a tremendous task to fulfill before the real work on the water can commence.

I hope that P.U. are going to work closely with Adrian Shine's Loch Ness Project, or at least seek, and accept advice. Which I trust Adrian will be willing to provide. In among all the fanfares of the launch of Project Urquhart, we should not lose sight of the years of sound work that Adrian and the Project have put in. P.U. are adopting a similar outlook to Adrian's. Promoting the case that Loch Ness is an ideal and interesting place to undertake serious scientific work. While stressing that they are not looking for a monster, in fact they do not really believe in a 'monster'. Remember the sharp intake of breath during Operation Deepscan, when Adrian told the Press that, of course they were not looking for 'a Jurassic Reptile'. After all that was the reason most of the Press were there. Over the seasons Adrian has done much to establish the case for sound scientific study at Loch Ness. I hope to bring you further details of his new Plans for next Year. They sounded very impressive when we meet and talked while I was on holiday. It was Adrian who first got Simrad into the loch, they must have found enough of interest to bring them back as part of Project Urquhart. The P.U.'s Plans contain sonar surveys of various types, once again Adrian has amassed experience with sonar over the seasons, and has found that it is not as straight-forward to use and interpret as many think. I am not saying that P.U. will not be able to produce good results, but pointing out that they will face similar problems, and we should not be disappointed if it takes time for them to sort things out. I am pleased to see that Marty Klein is to be involved with P.U. I have happy memories of meeting and working with Marty when he came to the loch as part of team with the Academy of Applied Sciences. I know some have cast doubt on the quality of the Academy's work, but that cannot detract from Marty's expertise with sonar.

Without a doubt Project Urquhart is a major initiative in the Loch Ness saga, one we shall watch with great interest, and I am sure we all wish them every success in achieving their aims of a well surveyed and documented loch. Also perhaps in obtaining proof of something large and unusual in the loch. In the meanwhile please remember your news and views are always welcome and needed. My address is still:- R.R.Heppe, 7 Huntshieldsford, St Johns Chapel, Bishop Auckland, Co Durham, DL13 1RQ. tel: 0388 537359. Subscriptions U.K. £2.75. North America \$9.00

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