

# International Ocean Institute



The Royal University of Malta  
Msida - Malta

(TEL. 36450)



Pacem in Maribus

11th February, 1975.

Mrs E. Mann Borgese,  
The Center for the Study of  
Democratic Institutions,  
Box 4068,  
Santa Barbara,  
California 93103.

Dear Elisabeth,

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You will see from my letter to Laing enclosed I am in a little quandary. The quandary is even bigger than my letter implies. Once the data are specified more precisely and the location, it should not be too difficult to get hold of the best existing synopsis. I am quite puzzled however about the whole system. You told me the idea was to harness wave energy. That also is what the draft minutes of the Board of Trustees say. Edwin however says the idea is more as spelt out in the first paragraphs of my letter to Laing. That would be in accord with all the papers about Laing and his work that we have. These are the profile from the 'New Scientist', a paper in German which I can follow more or less from the diagrams and a document in French which I have read quite closely. None of these documents refer specifically to an ocean energy system. They are however all quite clear about Laing's interest in the trapping of solar energy through super-absorbing surfaces and maintaining temperature differences between these surfaces and some cooler sink. I therefore presumed, as seems to me much more likely, that this is the nature of the Solarmarine lagoon proposal. However I am quite unclear as to where this thing would be sited. As things are at present it would have to be in an area under Maltese jurisdiction now or in the future, preferably now, but I am not clear whether the thing can be sited in water less than 200 metres deep or not. I am also not very clear about its proposed size although from what Edwin says it would be huge. It seems to me therefore that it would not legally be covered by the term 'data acquisition system'. In any case it clearly is not only a data acquisition system. The relevant law might be that will be applied to the deep water terminals projected by the United States up to 30 miles off shore although the scale would appear to be enormously larger. The deep water terminals are also surface installations with bottom anchoring but nothing much in between except wires. In this case it appears we have a huge installation from surface down far in the water column as well as a necessary anchoring or other

position stabilizing system. I am not the one to advise him about the legal situation nor is Edwin. Hence I am copying this letter and the correspondence with Laing to Arvid. It is quite clear however that the proposal will open up legal problems which have barely been envisaged by the Law of the Sea Conference except of course by Arvid and his friends. I would like to follow-up this whole idea. As you know I was very sceptical when you told me it had to do with wave energy but this is another matter. I now realize that Laing is the man who put forward the idea last year of drawing energy by Trans-Mediterranean pipeline from Africa to Germany and other parts of Western Europe by transmission of hot water. The political implications of this new imperialism are staggering and were not unnoticed in the technical, economic and political press at the time.

If we get eventually some consultant money from the Iran grant and if I get a full reply from Laing I shall write some letters but would get more I suspect by following these up by visiting the data centre in Paris, WMO Headquarters and Woodshole where this information mostly lies. In this connection I took note of Peccei's comments in the Board of Trustees meeting that I should follow-up Planning Council projects more actively and wish I had had a chance of explaining that cannot be done either by sitting in Malta and writing letters or by hopping from one project proposal to another. In the energy case we clearly have to take these things seriously and the first thing is to find out from Laing exactly what the proposal is. I wait his project description therefore with great expectation but when I have it I will follow-up as best and actively and urgently as I can.

Best wishes,

Yours sincerely,



for (Sidney J. Holt)

c.c. Dr. A. Pardo



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Pacem in Maribus

11th February, 1975.

Dr. N. Laing,  
Entwicklungsinstitut Laing,  
7141 Aldingen B.,  
Stuttgart.

Dear Dr. Laing,

Professor Borg Costanzi has shown me your undated letter received here on 21st January. I wish to help bring together available information concerning your three questions related to the Solarmarine lagoon. This will be difficult before I receive the description of the project which you mention is being translated and will be sent here. I have discussed briefly with Professor Borg Costanzi and with Mrs Borgese your intervention in our Board of Trustees session which most unfortunately I could not attend. I would very much have liked the opportunity of discussing some of these matters with you. At present I am a little in the dark as to exactly where it is suggested the energy system should be located and as to its principles although I understand your idea is basically to utilize temperature differences in the water column and to maintain these differences by trapping solar energy at the surface.

You first ask about the vertical temperature distribution, the concentration of detritus and of nitrites in deep sea water below 900 metres. Presumably you are referring to the area for location of the 'lagoon'. I can get these data from two or three possible sources but since it will involve a considerable amount of trouble and even expense to those who hold the data I would like to be quite sure what I am asking for. My first problem is that there is only one place in the sea between Malta and Tunes where the depth reaches 900 metres. This is to the West North-West of Malta about centrally in the triangle between Malta, the southern coast of Sicily and the eastern coast of Tunisia. South-East of the island of Pantelleria there is a very limited area where the water reaches just over 1,000 metres. Elsewhere it is much shallower because most of the area between Malta and Tunisia is continental shelf. Of course if one goes into the open sea east of Malta one quickly comes into very deep water as much even as 4,000 metres but that is another matter. Is it really intended that the energy system would be located in the small deep water area between Sicily, Tunis and Malta and are you really only interested in this temperature and other properties in depths greater than 900 metres or perhaps I have mis-read your letter?

If by 'in depths below 900 metres' you mean depths up to 900 metres then we are talking about the entire area of the Central Mediterranean (with the above-mentioned exception) between Italy, Tunis and Libya. You presumably would want in this case the temperature distribution from surface to bottom and on a seasonal basis because they change very much seasonally. I doubt if there are synoptic data on nitrites and detritus but I can try to find out. Are you simply asking for the concentration of the nitrite ion? You are not interested in nitrites? Are you only interested in organic detritus or also the possible presence of mineral suspensions? Concerning the insolation: again our sources of data are limited and will depend on whether you are asking about the larger deep area or the whole Central Mediterranean? Routine insolation measurements are of course only taken on land and the deep water area is far from land. There will be measurements available from Malta itself (but insolation here is affected very much by the presence of the Island in the midst of a large open sea area) and I think the Italians probably maintain a meteorological station of some kind on Pantelleria which is the nearest land to the deep water area. Insolation measurements over the sea have rarely been made and they are not included in synoptic data charts. I could try to get a compilation from the Inter-Governmental Oceanographic Commission in UNESCO, Paris or alternatively from the World Meteorological Organization in Geneva but this will take some time by mail and I need to formulate the questions rather precisely if we are to get useful responses.

Your third question related to the anchorage of the power plant and the laws of the various countries. There is at present no law pertaining to the identity of power plants in the open ocean. There are rules for oceanographic data stations such as large automated instrumented buoys but the legal status even of these is a matter of great controversy. There is a draft treaty which was formulated during my tenure of office as the Secretary of the Inter-Governmental Oceanographic Commission until two years' ago. That treaty is in abeyance pending the outcome of the United Nations Law of the Sea Conference. If the power plant is to be located in the deep water area it will be about equi-distant from the three countries although nearest to Italian territory, i.e. the island of Pantelleria. It would be in what is now the high seas and beyond the continental shelf as legally defined at 200 metres. However if the present Law of the Sea Conference adopts as it seems almost certain some 200-mile exclusive economic zone concept it will come within that concept and therefore under the jurisdiction of one or other of the surrounding states. If the EEZ concept is applied to inhabited islands, the deep water area would be clearly within the jurisdiction of Pantelleria, i.e. Italy. If however the plant is to be put in shallower water it could be within the Maltese exclusive economic zone. For example, it could be under 700 metres only a few miles west of Gozo. All these things however are highly speculative and depend not only on the outcome of the Law of the Sea Conference but subsequently on the multi-lateral negotiations between the three countries for the drawing of the median line to separate the several national jurisdictions.

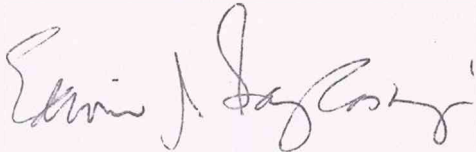


Now the energy system as I understand it would have to be anchored directly to the bottom. Largely anchoring is covered by the Continental Shelf Convention of 1958 and its provisions will, if anything, be maintained or extended under new law. However the system itself will have a surface aspect and will be constituted within the water column. As things are at present it would come under other jurisdictions of which the most important seem to be a provision for a surrounding safety zone as in the case of oil exploration and extraction platforms. Also the provisions against pollution from industrial platforms are covered by international treaties which Malta may or may not accede to.

Perhaps more important than all this, or at least more easy to specify the nature of the problem, is the technical question of how to anchor such a system especially in deep water. The people who are developing large automated ocean data systems (mainly big American Corporations) are having great difficulty in developing suitable anchorage systems. It is very likely that these problems will be solved by dynamic positioning as is done for the extreme deep water drilling ships rather than an anchoring system especially if such a system has to be installed at depths beyond the capability of diving. The technical problems of starting and maintaining bottom installations including anchorages in depths over 200 metres are extremely high and almost certainly a dynamic positioning system of some sort will be the solution. One of the factors involved in any bottom anchoring system if you go into shallower water, say up to 200 metres, is the nature of the bottom currents and of the sea-bed in the area. I do not know of any bottom current measurements yet made in the shallow water nearer to Malta but I will try to find out. The sea-bed movements here are quite considerable. The sediments are unstable and the sea-bed itself undergoes seismic disturbances at times and in certain places. I will not however look into all these problems even superficially until I have a better idea of exactly what the environmental requirements of your system would be. I therefore look forward very much to hearing more details from you.

With very best wishes,

Yours sincerely,



(Sidney J. Holt)

c.c. Mrs E. Mann Borgese ✓  
Dr. A. Pardo

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# PHYSIKALISCH-TECHNISCHES ENTWICKLUNGSGESAMTINSTITUT LAING

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ABLEGEWORT LAING

IHRE ZEICHEN

IHRE NACHRICHT/AUFTRAG VOM

UNSERE ZEICHEN

Dear Professor,

First of all I wish to thank you for your kind invitation at the occasion of the Oceanographic Session held in your University and I regret very much that you were unable to participate in the evening talk in Medina and that I could not attend your meeting on Saturday with Mrs. Borgese.

I would be very obliged to you if you could make available to me some information with regard to the Solarmarine lagoon which should be operated between Malta and Tunesia according to the suggestions of Mrs. Borgese.

The main question is directed to the vertical temperature distribution and to the distribution of concentration of detritus and especially the contents of nitrite compounds in the deep sea water (in depths below 900 m).

Another question is concerned with the number of hours of solar insolation per year for the area in question.

What would be furthermore of interest to me is, how has the anchorage of the power plant on the open ocean to be judged according to the laws of your country and to the laws of the European and African neighbour countries.

At present the description of the project I disclosed to you in Malta is being translated. I shall send you a copy of this translation as soon as it is available.

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ZUM SCHREIBEN AN Professor E.J. Borg Costanzi

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I thank you once more for your invitation and would like to invite you to visit my institute.

Please accept my best wishes for the new year,

Yours faithfully,

A handwritten signature in cursive script, appearing to read "W. L. Loring". The signature is written in dark ink and is positioned below the typed text "Yours faithfully,".