

IMPERIAL COLLEGE EXPLORATION BOARD
in conjunction with MARTINI INTERNATIONAL CLUB
MALTA EXPEDITION

1961

Preliminary Report

A team of eight aqualung divers from the Imperial College spent the months of July and August in Malta developing new techniques applicable to marine archaeology. The possibility of prolonged serious work at depths in excess of two hundred feet was investigated during survey work on a Roman wreck at the foot of Xlendi Reef in Gozo. A collection of Mollusca from known depths was made for the British Museum.

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Imperial College,
London.

November 1961

Introduction

During the 1959 Azores Expedition tentative arrangements were made for a low-cost geological expedition in 1960, to be followed by a major diving project in 1961 with, at that stage, no object definitely agreed. Plans for these two expeditions proceeded in parallel through the 1959/60 College year, and six members spent the month of July diving off the North coast of Cornwall in search of indications of submarine mineralisation. It was this 1960 Cornwall expedition that finally decided the true objectives of the 1961 work.

Using the aqualung as the basic tool, two College expeditions had succeeded in carrying out much novel work in zoology; botany and geology; it is not surprising that these projects (in which only the simplest apparatus was used) proved rather wasteful of manpower; time and cash. By 1960 we felt that the time was ripe for more ambitious steps to be taken in diving techniques, and in particular it was felt that we should take advantage of the many technical facilities available at the Imperial College.

We decided to attack the problems encountered during the previous two years along two broad fronts. Our first aim was to provide the diver with means of recording freely his observations without the need to memorise them for later dictation in the diving boat; we had found the serious limitations of this method during our geological work the previous year. Our earlier work had also suggested that there would be little point in attempting to carry out any serious work at depths greater than 150 ft. and that a more realistic working limit would be 100 ft. when using standard 80 cu. f.t aqualungs. Our second objective was to double this limit, and to correspondingly increase both quality and quantity of the results from shallower dives.

These ideas were discussed at some length with Miss DuPlat-Taylor of the University of London Institute of Archaeology, and it was decided that members of the Imperial College Underwater Club should form a team to study and develop new methods along the lines mentioned above, and to

spend two months using them to help in an archaeological programme in the Mediterranean.

By the end of 1960 we had decided to spend these two months in the Maltese islands, where a few recent finds had suggested a large store of archaeological remains under the coastal waters. The local conditions provided warm, clear water with a variety of sites ranging from large, shallow, sandy bays to steep cliffs dropping sheer down to depths in excess of a hundred feet. The presence of British military bases and the local use of the English language were further incentives.

In addition to our archaeological programme, the biologists on our team prepared a programme of marine zoology and botany to be carried out if sufficient time could be found.

The expedition members

1. D.W. Albery, B.Sc. (Eng), A.C.G.I.
Postgraduate in the Department of Aeronautical Engineering.
Equipment Officer.
2. F.G. Irving, M.Eng., D.I.C., A.F.R.Ae.S.
Senior Lecturer in the Department of Aeronautical Engineering.
Transport officer.
3. O. Lloyd.
Undergraduate in the Department of Physics.
Camp manager.
4. J.B. Matthews, B.Sc., A.R.C.S.
Postgraduate in the Department of Physics.
Diving officer.
5. P. Redfearn.
Undergraduate in the Department of Zoology.
Zoologist and assistant equipment officer.
6. A.W. Smith, B.Sc.(Eng), A.R.S.M.
Postgraduate in the Department of Mining Geology.
Surveyor.

7. C. Wilkinson, B.Sc., F.Z.S.
Undergraduate in the Department of Zoology.
Zoologist
8. J.D. Woods, B.Sc., A.R.C.S.
Postgraduate in the Department of Physics.
Expedition leader.

In addition to the above team, for five weeks:-

A.W. Larkum, B.Sc., A.R.C.S.,
Formerly undergraduate in the Department of Botany
Botanist.

Mrs. M. Lloyd (the wife of O. Lloyd) accompanied the expedition to supervise the catering.

The decision to take a basic team of eight divers appears to be a direct rejection of the conclusions of both the Azores and Cornwall expeditions, which strongly recommended a party of six. However, we found that the extra personnel permitted a rotation of divers with frequent rest days, allowing us to keep a full team of six working every day that weather permitted diving. An important factor in taking this decision was that the cost of the expedition was independent of the number of personnel (fares and food could be written off against each member's personal contribution). The result was most satisfactory.

The expedition

The land-rover left South Kensington at 0400 on 29th June with Messrs. Albery, Irving, Redfearn & Woods and towing a trailer containing the diving equipment. This party travelled via Dover, Paris, Geneva, Rome and Naples to Syracuse using standard tourist roads and the car ferries at Dover-Boulogne, and Reggio-Messina. Excellent accommodation was arranged at all stopping places by Messrs. Martini & Rossi. The journey to Malta was completed overnight on the S.S. "Star of Malta" which arrived in Grand Harbour 0730 on July 7th. The remaining expedition members flew from London by Vanguard to arrive 0920 the same day.

The work of the expedition can conveniently be divided into three parts:- archaeological work at (a) Marsaxlokk & (b) Xlendi, and (c) archaeological and biological work elsewhere.

Marsaxlokk - 7th July to 7th August

Both Professor Evans (I. of A., London) and Dr. Trump (Nat. Mus., Valletta) had suggested that a survey of this large bay situated (as its name suggests) to the South-East of Malta might well bring to light evidence of the Turkish invasion of 1565, and even of suspected Roman use of the bay as a port. We, therefore, spent the first month investigating the two square mile bay and the reefs that guard its entrance. During this period we gained much valuable experience of search techniques using the aquaplane, and developed a satisfactory method of minimizing the chance of missing any object on the bottom. Finding nothing in the bay or on the reefs using this technique we then proceeded to investigate the foot of the Benghisa Reef (the larger of the two), but this was foiled by an unpredictable, and particularly strong current that made the danger of sending down free divers, even with the electric tug, unacceptable.

So, despite various false alarms, nothing of archaeological interest was found at Marsaxlokk. The month spent there was not wasted, however, for, besides making an excellent opportunity for the team to reach peak performance before the difficult work ahead, we were able to carry out a series of equipment and technique assessments, in ideal conditions.

During this month we received the most generous hospitality of the Marine Craft Unit, R.A.F. No. 1151, Marsaxlokk, who supplied us with an excellent camp site and many other facilities. We also had the use of a Government Fisheries Dept. store, which proved invaluable as a laboratory and workshop.

Xlendi - 7th to 29th August

While at Marsaxlokk we had heard about the discovery in Gozo of a quantity of classical pottery, and had on three occasions joined parties of Royal Naval divers to inspect the site. There was every indication that

the material retrieved was part of the cargo of an early wreck that was presumably resting at the foot of Xlendi reef (Gozo) in 200 ft of water. The R.N. divers were hindered by a rule that (in theory at least) prohibited them from diving beyond 120 ft., so it was agreed that we should spend the rest of our stay investigating this site and recovering parts of the wreck if this should become possible.

We therefore moved to a more suitable base at Mgarr (Malta), from where we crossed to Xlendi each day. During these three weeks spent exploring Xlendi reef we produced new dive tables allowing us to work twenty minutes a day at 65 metres using our standard 80 cu. ft. aqua-lungs, and using these made an accurate survey of the reef dimensions. We also took the opportunity to raise some twenty odd whole amphorae from one localized site at the foot of the reef (and therefore presumably from a single wreck), and anchor stocks from nearby points. These are now cleaned and deposited in the Victoria Museum, Gozo.

Other work (i) archaeological

The advantage of having a diving boat capable of reaching any point of the island group fairly quickly was particularly noticeable when the weather forced us to cancel a day's programme and shift our working site to a more sheltered part of the island. Both Benghisa and Xlendi were vulnerable to a westerly wind and on the various occasions that diving had to be cancelled on these sites we took the boat to Salina Bay on the East side of Malta. Here we found evidence of submerged buildings associated, in several cases with Roman pottery. Diving in the shallow Salina Bay presented no technical difficulties, and we were able to hand this site over to the R.A.F. diving club, as soon as the weather improved. The bay certainly deserves a thorough investigation, and since our return to England further interesting deposits from the Roman era have been recovered from it.

(ii) biological

The opportunities for the zoologists and botanist of our team were unlimited, and luckily much work could be tackled without interruption of the archaeological programme. In fact only five days were devoted to this work in their entirety, but odd moments during countless others were used to collect specimens, particularly during the decompression delays. The technique first developed in the Azores (1959) was used to collect a representative sample of algae at known depths ranging between the spray zone, and 160 ft. A very full collection of marine mollusca from recorded depths was made for the British Museum - the first of its kind. The Fisheries Dept. store at Marsaxlokk proved particularly useful for preliminary sorting of the microscopic specimens, and various items of equipment were lent for this purpose by the Royal University in Valletta.

The return

The last day of diving was on 29th August at Xlendi, and at a final party that evening in the Villa at Mgarr we said our farewell to the many friends we had made on the island. Packing and driving the air party to Luqa airport occupied the next day, and on the evening of Friday, September 1st, the landrover party left Grand Harbour on board the Star of Malta, for Syracuse and the overland journey home. The landrover finally arrived at the college union at 1215 on Friday 8th September.

Conclusion

During the Autumn of 1960, when in the midst of planning this expedition, the magnitude of the task we had undertaken gradually dawned. The impossibility of tackling all the problems that required solving, became very apparent and thoughts even then turned to extending the programme over two years, possibly more. The problem was whether to restrict the aims of the 1961 project to a few more urgent topics, or to keep up our original aim of making a sweeping investigation into the whole field, and accept the inevitable lack of depth. The compromise chosen tended towards the latter alternative, making for more flexibility

while in Malta.

In addition to the positive results, of which the most striking is the demonstration that regular shift work may be contemplated at twice the depth previously regarded possible, the many other, less intensive, investigations have shown what needs doing for their improvements. Amongst these can be included our brief look at diver-surface telephones, and high performance towed vehicles, both of which are being further developed in college laboratories for more searching tests next summer. The production of a three dimensional block diagram of Xlendi Reef, a task not contemplated before our arrival in Malta, shows the advantage of a programme allowing flexibility and improvisation.

The unexpectedly productive archaeological aspect of our expedition proved most fascinating. Our photographs of the material raised from the foot of Xlendi Reef have identified it as coming from the 3rd to 2nd century B.C., with a wide geographical scatter. It is hardly surprising that a trading vessel should be carrying a cargo from places as far apart as Spain and Rhodes, Rome and Carthage, during this era of transition, between Alexander's conquest of Asia and Hannibal's defeat by the Romans. It is interesting to speculate whether the wreck occurred before Rome gained Malta from Carthage in 216 B.C., and to which of these powers the ship owed allegiance. Further work on this site may bring to light some item, perhaps a coin, that would give a precise date to the ship.

The local press publicity to our project has caused a most pleasing interest in the marine archaeology of this neglected island group. Just before we left England we received a letter from a senior officer of the R.N. divers strongly recommending that we should not waste our time on an area "completely devoid of any archaeological interest", but today there is a museum in Gozo overflowing with Greek and Roman amphorae, and two Service groups are actively engaged in exploring new sites around the coast. In London a group has been formed by the Institute of Archaeology and the Imperial College to

investigate in detail ideas for marine archaeological work, and meets regularly. This is a most pleasing outcome of our association with the Institute, whose encouragement was vital to the success of our plans.

The expedition provided some interesting diving, and was, perhaps, the catalyst for new developments in Malta and in England; but, most important of all, it provided an experience for nine members of the Imperial College in a field that was completely new to them all.

List of equipment used

5 S.G. Twin aqualungs (80 cu. ft.)
2 Normalair - ditto -
1 Avon "Redshank" 12 ft. inflatable boat
1 Atco 5½ h.p. Boatimpellor
1 Heinke "Nautilus" electric tug
3 Sets Varley nonspill batteries for above
1 Marine Electronics' echo sounder
2 Spirotechnique depth guages.
8 Smith's watches
8 Wet suits
Aquaplane & aquaboard
8 Beaufort lifejackets
300 yds Sisal rope
200 ft Dexion
50 yds X 12 ft 500 guage polythene (Visqueen)

To this list must be added a large quantity of the usual diving accessories and spare parts. Also medical supplies and an ocean of sunburn cream.

EXPEDITION FINANCE - A SUMMARY

Income

Messrs. Martini & Rosfi, Ltd.	600 - 0 - 0
I.C. Exploration Board	215 -18 - 0
The British Petroleum Co. Ltd.	100 - 0 - 0
The Royal Geographical Society	100 - 0 - 0
The D.J. Yapp Charitable Trust	100 - 0 - 0
	£1115 -18 - 0

Expenditure

Transport - including hire of boat	531 - 6 - 6
In England - equipment etc.	416 - 4 - 7
In Malta - living expenses, etc.	488 - 6 -11
	£1435 -18 - 0

The eight members of the expedition
each made a £40 contribution . 8 x £40 = £320

∴ Total income = £1435 -18 - 0

Acknowledgements

The members of the expedition would like to thank:

The Imperial College Exploration Board

Messrs. Martini & Rossi, Ltd.

The British Petroleum Co. Ltd.

The Royal Geographical Society

The W.J. Yapp Charitable Trust

for financial support without which the expedition could not have taken place.

We would also like to thank the following for their individual attention to our well-being both in England and Malta:

Mr. P. Taylor & Mr. F.G. Annas of the I.C. Exploration Board

Miss J. DuPlat-Taylor of the Institute of Archaeology, London

Dr. D. Trump of the National Museum, Valletta

Capt. O.F. Gollcher

Mr. I. Horner

Sq. Leader Turner, Flt. Lt. M. Edmonds, & Flt. Lt. P. Hills of
R.A.F. Malta

Messrs. Zammit Cutajar of Valletta

Mr. J. Forthmeyer.

Among the many organisations and companies that helped us with advice and price reductions we would particularly like to thank the following:-

Acto Ltd.

Avon Rubber Co. Ltd.

Beaufort (Air-sea) Equipment, Ltd.

Boots Pure Drug Co. Ltd.

Bostik Ltd.

British Drug Houses, Ltd.

British Ropes Ltd.

British Visqueen Ltd.

Dexion Ltd.

Ficord Ltd. (& L.C.A. distributing Co. Ltd.)

Lillywhites Ltd.

Normalair Ltd.

Polarizers (U.K.) Ltd.

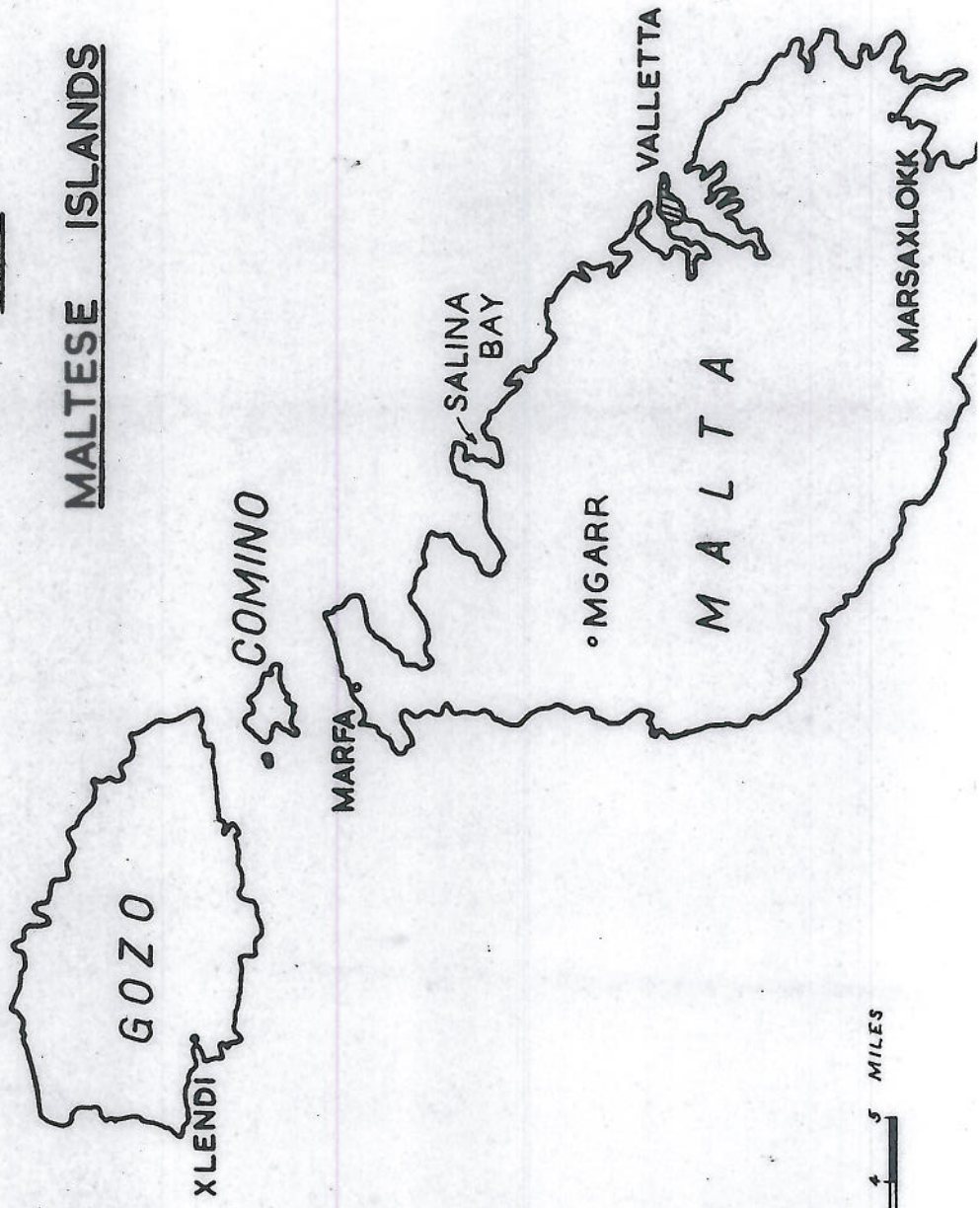
Smiths Watches Ltd.

Varley (batteries) Ltd.

The four members who made the overland journey to Malta would like to express their thanks to the organisers and agents of the Martini International Club for their hospitality in France, Switzerland and Italy.

14° 32' E

THE MALTESE ISLANDS



35° 54' N

N



35° 54' N

SCALE:



Submarine archaeology expedition for Malta

LONDON, Monday— The Imperial College Submarine Archaeological Group is to send an expedition to Malta to work in the Marsaxlokk Bay area during July and August.

In addition to a large-scale intensive survey of the Bay and associated coast to a depth of 150 to 200 feet, a small group will also circumnavigate the Island group to make accurate measurements of raised and sunken beaches.

Accurate records will be made of all finds of archaeological interest, and further investigation of any particular finds may be carried out after consultation with Dr. Trump of the Malta Museum, an experienced archaeologist who will be available to provide supervision and technical guidance.

In view of the nature of the coastline, diving will be carried out at much greater depths than previously anticipated, and to enable the divers to carry on working at these depths new methods of communication, note-taking and locomotion will be used.

The area of Malta selected was an important port during Roman times, and was also used to land the famous army which besieged Valletta in 1565. The hinterland is covered with remains from the early Bronze Age, through Roman and Crusader times to the present-day R.A.F. base. For the marine archaeologist it is the most promising site on the island.

Costs of the expedition are being borne principally by the Martini International Club—already well-known for its interest in promoting sporting and cultural events throughout Europe and America—and also by the Imperial College Exploration Board, the Royal Geographical Society and the British Petroleum Company.

A party of four will leave London on June 29 in a long wheel base Land Rover with a trailer specially constructed to carry compressed air cylinders and other equipment; the remainder of the expedition will travel by air on July 6.

The first attempt to carry out a serious and thorough submarine excavation was made in Turkey last year when, during a ten-week expedition, a Bronze Age wreck was thoroughly investigated by a group of American, French and British experts.

This new expedition to Malta has been carefully planned, and should contribute substantially to the technique and training of future submarine exploration teams.