

**March 1966**

The following article written by Professor Chapman is from New Zealand 'DIVE' magazine. It is reproduced here as a tribute to the Auckland University, not as criticism in any way of our local Universities - it would be nice though, wouldn't it?

### LEIGH MARINE LABORATORY

Since the appointment of Professor Morton in 1960 the Botany and Zoology Departments of Auckland University have had a common interest in marine biology. Actually the botany department had concentrated on marine biology for a longer period, and for some years not (now?) it has been running a programme of scientific research involving SCUBA diving. However, Auckland is not an ideal place in which to carry out certain aspects of marine studies because the waters are not pure, and there is much silt in the water.

The establishment of a marine laboratory was therefore an essential requirement if Auckland University biology students were to have the best opportunities for research. In 1960 the idea of a marine laboratory was proposed by Professor Morton in his inaugural lecture and a site was determined early in 1961.

It was important to find a place not too far from Auckland but where there was a wide range of marine habitats and where sea water quality would be excellent. This meant that it had virtually to be outside the Hauraki Gulf. The heavy seas of the west coast and its inhospitable nature ruled it out so that the search had to be for an east coast site. In the event a site at Goat Island beach, just north of Cape Rodney, was selected and obtained by the beginning of 1962. Plans had been prepared for a laboratory with an ablution block, kitchen and bunk room accommodation, but with the money available at the start it was only possible to build the laboratory and kitchen.

The building was virtually complete by the end of January, 1963, but the sea water circulation system provided some setbacks. With the generous assistance of Professor Mowbray of the School of Engineering

the difficulties were overcome and by the end of 1963 the system came into use and the laboratory was declared operational on April 1st, 1964.

during 1964 the University received a generous gift from Mr. J. Butland for the promotion of research in Marine Biology. Further University finance also became available and at present time a Butland Wing, composing the laboratory from the Butland Fellow and with a future instrument room and cold room adjacent is nearing completion, whilst the ablution block and bunk room wing is also being erected. When this has been done, probably around the end of July, the laboratory will be in existence more or less as it was originally conceived.

The University has also found funds for a resident biologist, and Dr. W. Ballantine has been appointed and is now the local biologist in charge. Since the laboratory was opened it has been in intensive use by students from both departments. M.Sc. and Ph.D. students have made continuous use of the laboratory and every vacation the botany department has had a group of final students working at Leigh.

The laboratory faces the Pacific Ocean and is clear of Gulf waters and this means that the seawater quality is first class, better indeed than that supplying many overseas marine laboratories. This will be very important in all research programmes, whether botanical or zoological.

The proximity of the fishing port of Leigh is also significant because, although research up to the present has mainly been concentrated around littoral animals and littoral and sublittoral seaweeds, it is fully intended in the future to study open water organisms as well as making use of the extremely interesting sublittoral area around Little Barrier Island. for this purpose use will have to be made of boats working from Leigh and one of the first users is expected to be the Butland Fellow.

The intended coast line provides a wide range of habitats within a few miles of the laboratory. The Goat Island beach is one of the exposed variety and east and west of the laboratory there is considerable variation in the type of rock formation. The shores of Goat Island provide a wide range and the sublittoral around the island also exhibits variety. One interesting feature is the relative paucity of the large brown 'leafy' seaweed, *Ecklonia radiata*, which is being studied at different depths by one of the botany M.Sc. students. Mangrove swamp, salt marsh and mud flats are all available in Whangateau Harbour and there are good dredging grounds just off-shore in Onaha Bay.

Goat Island beach is becoming increasingly favoured by skin-divers and this may ultimately lead to the same kind of problem that has been experienced by other marine laboratories. If research into individual animals or plants or communities is to continue and experimental areas require to be established it does mean that interference with associated animals should be reduced to a minimum. Skin diving and SCUBA diving is now a well-recognised sport and marine biologists would be the last to want to restrict it in any way. In other parts of the world it has been found necessary to set aside small areas adjacent to marine laboratories as nature reserves, and in one of two cases sublittoral areas have also been gazetted as such in order to ensure a small area in which fish can live without being attacked by man.

#### May be declared a Sanctuary

The Leigh Management Committee has already given some thought to this problem and feels that it may be necessary to ask for some restrictions over a small area, possibly around Goat Island and to the east, leaving the more accessible west open to all-comers. We feel that those who have a keen interest in skin diving will appreciate our point, but we would be glad to know what people feel about it, and whether they have any other ideas that would ensure that samples of the animal and plant communities will be left in a more or less undisturbed condition for study and investigation. This will be particularly important when we come to turn our attention to the inshore fisheries and the feeding and spawning habits of fish commonly found close inshore.

For those interested in the actual laboratory design there is one bench along the south side which is provided with seawater outlets whilst on the north side the bench is 'dry'. Provision is also made for an island bench which will be 'dry' and lack water supplies. At one end of the laboratory is the tank room with a large fibreglass trough with running seawater.

Tanks can be placed in this water to keep them cool or a battery of them can be placed on battens above the trough. When more money becomes available it is intended to install a series of separate aquarium tanks outside the laboratory, all of which would contain plants and animals of interest to visitors.

Whilst the principal function of the laboratory is to provide facilities for teaching and research for staff and students of the University, it is intended that from time to time week-end or short courses should be held for interested persons who are not currently at the University. We would like to think that groups of underwater divers would be sufficiently interested to spend a couple of days at the laboratory learning about some of the plants and animals that they must regularly encounter in their skin-diving expeditions.

#### Diving Groups Invited

When the dormitory block has been completed there will be accommodation for up to 18 persons, though, until we have money to buy bunks, visitors will have to bring sleeping bags and bunk down on the floor. If any group should be interested in a week-end school they should get in touch with Dr. J. Silpin-Brown, Zoology Department, Auckland University, who is Secretary of the Leigh Committee.

Leigh, of course, is not the only marine laboratory New Zealand now possesses, but we believe that its location and the facilities it will shortly possess, will make it an important station in the years to come.

--oOo--

## FRESH WATER DIVING AREAS

C.J. Lawler

Two deep pools of fairly clean water can be found close to Sydney. One, 'Bents Basin', several miles south of Wallacia is reached by a secondary road running down the western side of the Nepean River. Cars can be driven quite close to the water. Depths of up to 80' can be found near the centre of the pool. The group is considering organising a dive at this spot soon.

The second spot 'Norton's basin' also on the Nepean is situated about halfway between Wallacia and Warragamba Dam. A dirt road turns off to the right from the road to the dam, heads approximately north-west for about 1 mile ending in a small parking area. next comes a rough 1/4 to 1/2 mile descent into the gully on foot. The reward is a beautiful pool about 100 yards wide by 150 yards long surrounded by sandstone bluffs and eucalypts. There is very little reed growth at the edges of the pool, the most accessible side dropping off the rock edge to 50' - 60' depths. When I dived in this pool in mid January water temperatures were 80 degrees at the surface and 60 degrees on the bottom. Visibility was about 15'. No lead belt is needed with a full wet suit which is handy when time comes for the return up the gully which is definately not for the faint-hearted.

Some very small fish, a very large eel and some slimy fresh water algae was all the aquatic life encountered in the pool. nevertheless, it was an enjoyable experience, noticeable differences to the usual marine dive being the utter quiet, different colour (more green) and the no salt taste, and a point for the lazy diver - there is not any need to wash gear.

.....

## THERE'S A DIVER IN THE CHURCHYARD

For an unusual dive would you consider sinking beneath the quiet green lawns surrounding an historic English Cathedral? You might not, but this was done in the early years of this century by a lone English master diver shoring up the foundations of ancient Winchester Cathedral.

The huge Cathedral had been built during the 11th century by Norman Monks and had stood magnificently for many centuries to the present day. Additions had been made in the 13th century and late in the 19th century it was found that these additions had begun to subside. By 1905 a crypt had sunk 2 to 3 feet, cracks had fractured the vaulting and 10" cracks had been opened in the walls of the main Cathedral. An architect was called in and he discovered that the site had originally been a peat bog. Although parts of the building were reasonably well supported on chalk and flint infill, other parts had been constructed on an intricate raft of tree trunks that virtually floated on the water table. A partial drying out of the area due to drainage works carried out in later years had resulted in subsidence and rotting of this wooden foundation.

An engineer, Francis Fox, was consulted who found that the still substantial amount of ground water made all conventional approaches to underpinning the Cathedral impossible. He settled for an 'absurd' but only possible way of getting to the foundations. He contacted the diving firm of Siebe-Gorman who sent him their most skilled diver, 36 year old William Walker. A series of vertical pits up to 25' deep were dug into the lawns surrounding the walls of the Cathedral. Horizontal shafts were then driven down and under the walls where they quickly filled with water at their lowest depths.

At this point Walker, in his helmet diving dress weighing 200lb went into the pits and working in completely inky, foul water with absolutely no visibility began to remove, bucket by bucket, peat and rotted wood. He worked entirely by touch, wearing gloves to protect him from the water made septic by nearby graves in the Cathedral grounds. When he had completely removed all the unstable filling and was down to firm gravel base he then proceeded to build up layers of cement bags. This procedure was repeated day after day, week after week, in the many pits around the walls, all the time in danger from a possible wall collapse.

In all, it took him 4 1/2 years to complete the job, working single handedly and never missing a day off the job for illness or any other cause. William Walker had rebuilt the foundations of one of the world's largest Cathedrals with his own two hands. Less than 10 years later, this giant of a man was dead, a victim of the 1918 influenza epidemic

oooooooooooooooooooo

### NOTES FROM SHIPROCK

C.J. Lawler

The Angler fish that had been captured at Shiprock (see last month's Bulletin) on being placed in Ken Mullard's aquarium, almost immediately lured, seized and swallowed a blackfish at least half its length. After this voracious display he had no luck in trying to lure the other now wary fish within striking distance. By week's end the Angler fish was in a bad way, exhausted by his efforts to secure another fish meal. The following Sunday he was returned alive to the water at Shiprock, we hope, none the worse for his short confinement.

The Bryozoa 'zoobotryon pellucidus', also described in last month's Bulletin, has now completely disappeared from Shiprock. We now await next year's regrowth period to enable us to get a week by week photographic record of this short lived Bryozoan.

A second Butterfly Cod or Lion Fish 'Pterois volitans' has been captured and is now swimming happily with the previous;y caught one in Frank Davis's aquarium.

Another tropical species of sea urchin belonging to the same family as two caught in late January was collected last week end (6th March). The first two urchins were about 2 1/2" diameter having green with white tipped spines and red with white tipped spines respectively. These were identified by Miss E. Pope of the Australian Museum, as colour variations of 'Temnopleurus alexandri'. The third

urchin was more globular in shape, about 2 1/4" diameter, with slightly longer red and white banded spines. It has been tentatively identified as 'Salmacis belli'. Only a very small number of 'Salmacis belli' have been seen around Sydney mostly around the Watsons Bay - Camp Cove area.

-----

F. R. Davis, Hon. Editor  
167 Karimbla Road,  
MIRANDA

PH. 524 .2661