

# THE SWIRE MARINE LABORATORY

## ANNUAL REPORT FOR 1992



Prof. E. Sunderland, Principal, University of Wales, Bangor, U.K., Prof. Wang Gungwu, Vice-Chancellor, The University of Hong Kong and Prof. Sun Yuke, Director, South China Sea Institute of Oceanology, Academia Sinica, Guangzhou, China, sign an Agreement linking each Institute in an exchange programme in Marine Science.



The University of Hong Kong

# The Swire Marine Laboratory Annual Report for 1992



Officially opened on the 3 November 1990, The Swire Marine Laboratory has now completed its second year of research activity and development.

This Annual Report covers the period from 3 November 1991 to 2 November 1992.

Enquiries about the facilities and activities of the laboratory should be addressed to:

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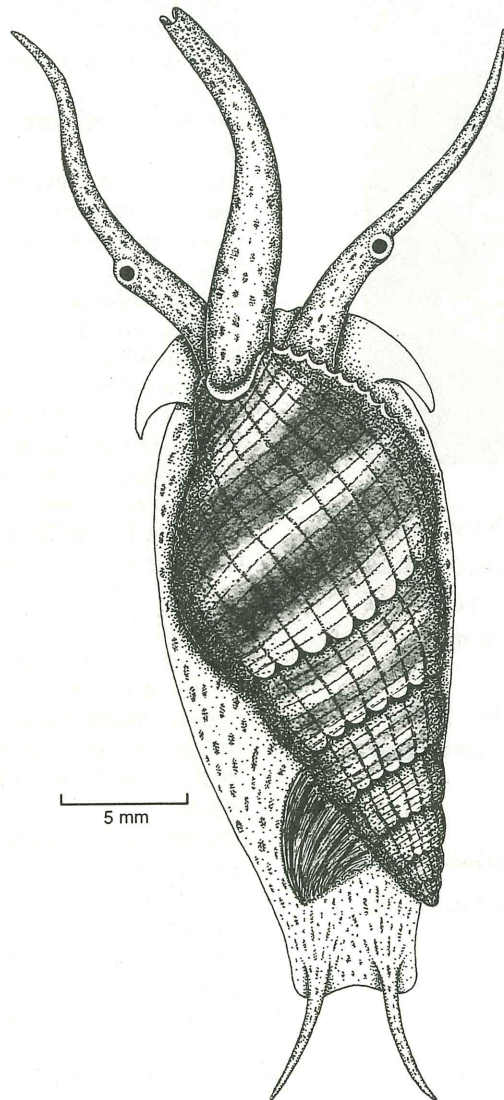
### Other activities

- New exchange agreed
- Hoi Ha Wan film
- Update: 'Hong Kong's Whale'
- Update: An artificial reef
- World Wide Fund for Nature Hong Kong
- The Marine Biological Association of Hong Kong
- The Hong Kong Marine Conservation Society
- Cape d'Aguilar as Hong Kong's first Marine Reserve
- Hong Kong's 4th Underwater Shootout

How can I undertake research at The Swire Marine Laboratory?

Publications by staff and students (1991-1992)

Acknowledgements



*Nassarius siquijorensis*

## THE LABORATORY

The Swire Marine Laboratory is a facility of The University of Hong Kong and was built with a grant of HK\$12.5 million from The Swire Group of Companies. The laboratory was officially opened on the 3 November 1990 by Sir John Swire CBE.

Located on the tip of the Cape d'Aguilar peninsula, Hong Kong Island, the laboratory allows easy access to a wide range of shore types experiencing various degrees of exposure to wave action. The surrounding waters are probably the cleanest in Hong Kong and the shores are geologically interesting and biologically diverse.

The laboratory provides facilities and equipment for a wide range of both laboratory and field oriented studies and is the most modern and best equipped marine facility in Hong Kong.

Visitors to the laboratory can stay in comfortably furnished rooms at The Residence. Capable of accommodating up to 20 people in either single or double rooms, The Residence also has a lounge/dining room, kitchen, sun balcony and spectacular views to the east.

The laboratory has two vehicles, a five seater field truck and a seven seater van. There are also two six and ten man "Zodiac" inflatables.

### STAFF

Staff of the laboratory include:

Professor Brian Morton, Director  
Dr. S.Y. Lee, Resident scientist  
Dr. Gray A. Williams, Resident scientist  
Miss Diana K.F. Ip, Secretary  
Mr. James C.T. Hui, Technician  
Mr. Terry W.F. Fung, Driver/Boatman  
Mr. Patrick P.C. Chan, Leading  
Artisan/Caretaker  
Ms. Maggie M.K. Yiu, Cleaner/Caretaker

### THE FUTURE

In its second year of operation, the laboratory has solved many of its initial teething problems and the ability of its resident staff and students to do research has grown apace. The laboratory and its staff look forward to 1993 with confidence.

The ecological research begun in 1991 of the surrounding shores will continue, largely under the supervision of Dr. G.A. Williams. Additional emphasis is now, however, being placed on the subtidal, in particular the corals that grow in the adjoining Lobster Bay and rock pools. Dr. S.Y. Lee and his students will continue to work with WWFHK on various aspects of mangrove ecology at the Mai Po Marshes Nature Reserve and Prof. B. Morton and his students will also work with WWFHK at Hoi Ha Wan, proposed as Hong Kong's first marine park. Ms. Alice L.C. Chan has begun a pioneer study of the zooplankton of Hong Kong's southern waters, while Dr. R.G. Ong-Che is completing studies of the benthos, also of Tai Tam Bay.

The sea and shores around the laboratory were designated a Site of Special Scientific Interest in 1991 and we hope that they will soon achieve Marine Reserve status allowing us to control public access to the bay, thereby minimizing disturbance and further allowing us to better understand natural versus unnatural changes in water quality and shore ecology. Plans to build an experimental artificial reef near the laboratory to assess its potential for replenishing depleted fish stocks and revitalizing coral reefs are now advanced and are probably to be funded by a grant from the Hong Kong Electric Company Ltd.

A study of the laboratory's sewage treatment plant is nearing completion by Mr. Lewis W.K. Wong (Department of Botany, The University of Hong Kong) for award of an M.Phil. degree of The University of Hong Kong. This will help us understand the system better with a long-term view of recycling the effluent water.

## RECENT DEVELOPMENTS

Window shutters have been installed to protect the laboratory against typhoons and the dive store has been enclosed and a dehumidifier installed.

A fume cupboard and an extractor fan and hood for the drying ovens have been installed at the south end of the main laboratory.

The south end of the Workshop was also modified in 1992 to house temporarily the infant Reference Collection and provide two extra, albeit small, research benches.

A new display cabinet for our reference collection of Hong Kong corals has been built in the Entrance Hall.

A 7-seater van was generously donated to the laboratory in 1992 by Cathay Pacific to solve some of our pressing transport problems.

With the establishment of the Reference Collection, all workers at the laboratory are now required to lodge voucher specimens in it to ensure conformity of identification and to build up our knowledge of the local marine flora and fauna.

## PROBLEMS

Our biggest problem is still fresh water (or, rather, the lack of it). The desalinators cannot provide sufficient quantities for all our uses and we continued to run out of water occasionally in 1992.

Despite chemical neutralization of the desalinated water used for domestic purposes, corrosion of the inner surface of the main pipeline still causes severe rusting of the water. Filters installed along trunk pipelines have given temporary respite from the problem, but their high rate of replacement (and thus cost) and only limited success in coping with the large quantities of rust argues for the replacement of the pipe by a non-metalliferous one, as soon as possible.

Heavy rainfall, virtually year round in 1992, has shown how a small collecting area (the roof of the desalination plant) can provide

potable water to reduce dependence on the desalinators. Replacement of the main pipeline and replumbing to collect more rain water would go a long way to solve most, if not all, of the potable water problems of the laboratory and is being investigated.

Numerous other minor problems with the laboratory have been identified, including wall cracks and condensation from pipes.

The Hong Kong Government has gazetted marine areas close to Cape d'Aguilar, for dredging of marine sand for the Port and Airport Development Strategy. This may threaten the integrity of the laboratory. The first gazetted area to the east around the Ninepin Islands has destroyed the subtidal benthos, both of the sea bed itself and also the hard surface corals. On the basis of the Ninepins experience, second and third gazetted areas, east and west of Po Toi Island and thus just south of the laboratory pose a real hazard, not only to the shores around the laboratory already gazetted as a Site of Special Scientific Interest (SSSI) and proposed as Hong Kong's first Marine Reserve, but also to the sea water intake upon which the work of the laboratory is dependent. We are also dependent upon the sea water for desalinated potable water.



The "research vessel" used by participants in the Third International Workshop on the Malacofauna of Hong Kong and southern China, April 1992.

An objection to the dredging at Po Toi was lodged with the Government, but has been rejected. A claim for an *ex gratia* payment to protect the sea water system so that the dredging does not halt the work of the laboratory has not been proceeded with by the University, the Government's Civil Engineering Department assuring us that the dredging contractors will themselves monitor their work and if suspended sediment levels become too high, operations will be halted.

## PLANNED DEVELOPMENTS

To solve the problem of rusty water, replacement of the main pipelines with non-metal pipes has been agreed to and put out to tender. It is hoped that this problem will be solved by the end of 1992. There are also plans in hand to collect rainwater from The Residence. It is hoped that the provision of a much larger storage tank to hold the rain water will ease our current water shortage problems.

Eventually, we hope to recycle the treated effluent from the sewage treatment plant, either for toilet flushing or for experimental purposes, or both.

## FUTURE PLANS

The Director, in co-operation with the Estates Officer, has prepared plans for expansion to the physical structure of the Laboratory and The Residence. This has been necessitated by the demand for research and accommodation space such that two years post-opening, the laboratory is fully occupied. At the time of writing, a request for further funds to effect the expansion plans is currently being considered by The Swire Group of Companies.

The plans include, for the laboratory, an addition of four research bench spaces to the research laboratory with enhanced diving facilities beneath; a doubling of the size of the library/seminar room and the construction of new offices, research laboratory and a Reference Museum on the deck above the existing research laboratory. At The Residence, a new building is planned to provide an additional eight bedrooms for resident students and visitors.

## THE LIBRARY

The Library Committee of The University of Hong Kong made an allocation of HK\$15,000 to the laboratory in 1991/1992 to allow us to purchase marine titles which will be shelved here. For 1992/1993, the allocation was

increased to HK\$40,000. The laboratory is still, however, far from fulfilling a basic aim of providing a comprehensive marine library for staff, students and visitors. Upon his retirement from the Chair of Zoology, Professor B. Lofts generously donated runs of a number of important journals to the laboratory. We also benefit from lodgement at the laboratory of the library of The Marine Biological Association of Hong Kong which has been built up through exchange of its journal *Asian Marine Biology*. We now shelve 110 journals through this exchange and have back runs of most Chinese marine journals.



Experimental 'cages' set up on the shores of Lobster Bay in front of the marine laboratory.

## HEALTH AND SAFETY

The Laboratory has developed a Health and Safety Policy which is clearly spelt out in a Health and Safety Manual that is issued to everyone working at the laboratory. Mr. P.P.C. Chan is the First Aid Officer and Mr. J.C.T. Hui is the Laboratory's Safety Officer.

A fire drill was held by the Safety Office on the 15 October with a demonstration of fire appliance use.

## EVENTS

10 October 1991

Mr. Richard Brock, BBC film producer, London: to discuss a proposed film about Hong Kong's marine life. (Filming by Mr. M. Pitts began in 1992)

11 October 1991

Mr. B. Roberts and Mr. F. Cheng from Hongkong Electric and Dr. P.M.S. Mak and Mr. A.W.Y. Leung from the Agriculture & Fisheries Department of the Hong Kong Government: to discuss the installation of an experimental artificial reef offshore from the laboratory.

26 October 1991

15 students from the Science Society, The University of Hong Kong Student Union: to tour the laboratory and clean up the beach.

6 December 1991

Dr. K.M. Lam and 14 students from the Department of Civil and Structural Engineering, The University of Hong Kong: to tour the laboratory and study the sewage treatment facility.

23 December 1991

Staff of the Department of Botany and the Science Faculty Office of The University of Hong Kong: to tour the laboratory and hold a Christmas party.

11 January 1992

26 members of The Hong Kong Marine Conservation Society: to photograph marine life and to practice survey diving.

23 January 1992

Professor Wang Gungwu, Vice-Chancellor, The University of Hong Kong: to hold an informal discussion with the staff and students.

28 January 1992

35 students from The Science Society, Biology Year One Class Association, The University of Hong Kong Student Union: to tour the laboratory and clean up the beach.

12 February 1992

1 teacher and 13 students from the Scienmatics Club of Wah Yan College, Kowloon: to tour the laboratory.

9 March 1992

41 students from the Departments of Zoology and Botany of The University of Hong Kong: to participate in a seminar on their Coastal Ecology Mini Projects.

13 April - 1 May 1992

3 local and 12 overseas scientists from 6 countries: to participate in The Third International Workshop on the Malacofauna of Hong Kong and southern China.

14 April 1992

Mr. J. Elphinstone, Worldwide Television News producer, Hong Kong: to shoot a documentary of the laboratory's facilities and its work.

27 June 1992

Mr. M.G. Spooner, Registrar, The University of Hong Kong and Prof. T. Biscoe, Deputy Vice-Chancellor Designate, The University of Hong Kong: to tour the laboratory.

24 July 1992

19 young people from Baptist Oi Kwan Social Service's Society: to tour the laboratory and clean up the beach.

25 July 1992

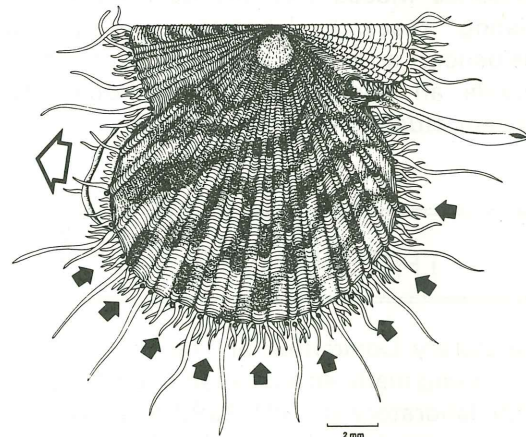
8 persons from the Hong Kong Underwater Club: to dive.

10 October 1992

12 persons from the Kowloon Rotary Club: to tour the laboratory.

1 November 1992

20 students from the Science Society of The University of Hong Kong Students Union: to collect marine specimens for the University's Open Days.



*Leptopecten latiauratus* (from California)

## OFFICIAL VISITORS

Sir John Swire CBE, Mr. Barnaby Swire and his wife Camilla: to tour the laboratory.

Mr. G.W. Roper, Regional Commander Hong Kong Island; Ms. Felicia Wong, District Commander, Eastern District and Mr. Kenny Y.W. Chow, Divisional Commander, Chaiwan District, Royal Hong Kong Police: to tour the laboratory.

Dr. C. Martin, Deputy Director General, WWF International: to tour the laboratory.

Prof. Qi Sang, Institute of Aquatic-Ecology, Jinan University; Prof. Zou Jingzhong, Institute of Oceanology, Academia Sinica, Qingdao; Prof. Lu Zhongkang, Department of Life Sciences, National Natural Science Foundation of China, Mr. Hong Jun Chao, Chief Senior Engineer, East China Sea Monitoring Centre, State Oceanic Administration and Mr. W.K. Young, General Manager, Beijing-Hong Kong Academic Exchange Centre: to tour the laboratory and have discussions.

Professor C.N. Reid, Dean of Science, Mr. S.K. Chan and Dr. M. Robertshaw, the Open Learning Institute of Hong Kong: to have discussions on the use of the laboratory for teaching practical classes for the Institute.

Mrs. Mouq Swire, Swire House, Hong Kong and Mrs. Mirabel Ward, Sydney, Australia: to tour the laboratory.

Dr. P. Ashton, Laboratory Services Branch, Australia; Dr. B. Richardson, Deakin University, Victoria, Australia; Dr. J.C. Bell, Computer Applications Consulting, Washington, U.S.A.; and Dr. R.M. Bierbaum, Oceans and Environment Program, Washington, U.S.A.: to tour the laboratory.

Ms. W. Broadgate, University of East Anglia, and Ms. M. Broadgate, University of Edinburgh: to tour the laboratory.

Mr. N. French, Secretary-General to the University and Polytechnic Grants Committee: to tour the laboratory and have discussions.

Dr. Huasheng Hong, Xiamen University, China: to tour the laboratory and have discussions.

Professor E. Sunderland, University of Wales, Bangor; Professor Sun Yuke, Professor Zou Ren Lin and Professor Pang Jinpei, South China Sea Institute of Oceanology, Academia Sinica, Guangzhou, China: to tour the laboratory on the occasion of the signing of an Agreement between the three Institutions.

Dr. and Mrs. K. Robinson, former Vice-Chancellor of The University of Hong Kong: to tour the laboratory.

Dr. M. Barnes, Dunstaffnage Marine Laboratory, The Scottish Marine Biological Association: to tour the laboratory.

Dr. B. Green, Matilda Hospital, Hong Kong and Professor B. Loman, University College, Oxford: to tour the laboratory

Mr. N. French, Secretary-General to the University and Polytechnic Grants Committee came with seven members of the Research Grants Council: to tour the laboratory and have discussions.

Mr. G. Docherty and Mr. J. Dale from The Swire Group of Companies: to tour the laboratory and have discussions on the proposed expansion plans.

Mr. S.K. Chan, Mr. K.C. Li and Mr. K.C. Ho, Open Learning Institute of Hong Kong and Prof. A. Manning, the University of Edinburgh: to tour the laboratory.

Mr. P. D.A. Sutch, Chairman, The Swire Group of Companies: to tour the laboratory and have discussions on the proposed expansion plans.

Mr. Glen Swire, John Swire and Sons Ltd.: to tour the laboratory and have discussions on the proposed expansion plans.

Mr. B. Roberts and Mr. F. Cheng, Hong Kong Electric Co.Ltd.; Mr. D. Hall, Environmental Protection Department, the Hong Kong Government; Mr. J. Yasuhara and Mr. T. Hayashi, Nishimatsu Construction Co.Ltd.: to discuss the proposed experimental artificial reef in Lobster Bay.

Mr. P. Cheung and Mr. N. Woods, Geotechnical Engineering Office, the Hong Kong Government: to tour the laboratory and have discussions on the Po toi dredging operations.



## RESEARCH VISITORS

Professor Cai Ying-ya and Mr. Li Xuanhai, Zhanjiang Fisheries College, Guangdong, China. To undertake research on the Chinese Bivalvia with Prof. B. Morton.

Professor Wu Baoling and Mr. Huang Feng Peng, First Institute of Oceanography, State Oceanic Administration, Qingdao, China. To undertake research on Hong Kong's Polychaeta.

Mr. Jason Hall-Spencer from the University Marine Biology Station, Millport, U.K. To undertake research on non-geniculate coralline algae and urchin grazing with Dr. G.A. Williams.

Ms. Huang Qin, Fujian Normal University, Fujian, China. To undertake research on *Corbicula* karyology with Prof. B. Morton.

Professor D.M. Dexter, Department of Biology, San Diego State University. To undertake research on the ecology of sandy beaches and community structure across exposure and latitude.

Dr. Ian Lucas, School of Ocean Sciences, University of Wales, Bangor, U.K. To undertake research on Hong Kong's phytoplankton.

Ms. Liza McDonald, School of Ocean Sciences, University of Wales, Bangor, U.K. To undertake research on crab predation of oysters with Dr. S.Y. Lee and Prof. B. Morton.

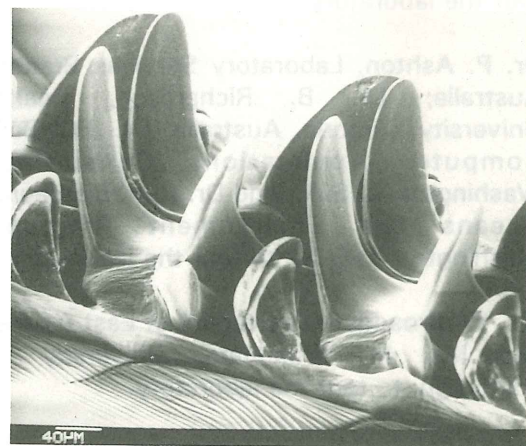


An S.E.M. of the scratchmarks made by the radula teeth of a limpet.

## THE SHORT-TERM VISITORSHIP SCHEME

The laboratory's Short-Term Visitorship Scheme is financed through profits made from the sale of souvenir items and marine biological books published by Hong Kong University Press.

Funded by a loan of HK\$81,695 from The University of Hong Kong, the sale of souvenir items up until 30 September 1992 amounted to HK\$59,600; proceeds from the sale of books was HK\$74,485. This year, the scheme has funded 5 short-term visitors from China to the laboratory; others are expected.



Top: Dr. Williams examines his experimental cages; Middle: the limpets *Siphonaria sirius* and *Patelloida saccharina*; Bottom: An S.E.M. of the radula teeth of *Patelloida saccharina*.

## VISITOR STATISTICS

In addition to providing research facilities for local academics, students and visitors, the laboratory also entertains educational visits by public groups and welcomes volunteers to help with beach clean ups and other activities. The laboratory also provides a conference venue for University personnel and organizations with an interest in marine biology. Local diving clubs also make use of the laboratory's diving facilities and are helping staff with their research projects.

-1  
Visitor days.month

Date	Postgraduates and postdoctoral fellows	Undergraduates	Local, non H.K.U., visitors	Overseas visitors	Total
<b>Average: October 1990 - September 1991</b>					
	109	19	4	20	153
October 1991	199	10	7	11	227
November	185	9	6	6	206
December	192	22	0	45	259
January 1992	257	26	38	2	323
February	202	23	23	28	276
March	261	11	16	10	298
April	233	4	34	228	499
May	209	5	16	5	235
June	225	23	1	2	251
July	218	59	19	8	304
August	197	22	0	5	224
September	230	15	1	1	247
<b>Average: October 1991 - September 1992</b>					
	217	19	13	29	279

At present there are 2 postdoctoral fellows and 18 postgraduate students undertaking research at the Laboratory; of these 10 reside in the Residence.

## THE RESIDENCE STATISTICS

Over the past year, The Residence has well served its purpose of providing good residential accommodation for scientists and students to stay and work at the laboratory. The Residence, comprising ten bedrooms, of which four have *en suite* shower and toilets, is a self-contained facility. With its own lounge, cooking and washing facilities and a sun balcony with magnificent views, The Residence is popular with local and visiting scientists.

Date	Residence nights.month <sup>-1</sup>				Total	%	%
	Post-graduate Students	HKU Staff	Local, non- H.K.U., visitors	Overseas researchers/ Visitors			
<b>Average: October 1990 - September 1991</b>							
	128	1	7	21	158	26	(53)
October 1991	207	0	1	13	221	37	(74)
November	181	0	1	2	184	31	(61)
December	181	0	0	54	235	39	(78)
January 1992	204	0	0	0	204	34	(68)
February	203	0	6	56	265	44	(88)
March	210	0	0	13	223	37	(74)
April	150	0	0	247	397	66	(132)
May	210	0	0	0	210	35	(70)
June	240	0	0	0	240	40	(80)
July	270	0	0	8	278	46	(93)
August	222	0	0	10	232	39	(77)
September	288	0	0	0	288	48	(96)
<b>Average: October 1991- September 1992</b>							
	214	0	1	34	248	41	(83)

Note: The % figures represent the proportion of the total available bed spaces, i.e., 20 bed spaces x 30 nights.month<sup>-1</sup> = a total of 600 residence nights. Since, however, most students and visitors require a room to themselves, occupancy rates based on 10 bed spaces x 30 nights.month<sup>-1</sup> = a total of 300 residence nights are also given in brackets.



## ACADEMIC ACTIVITIES

### STAFF

Professor B. Morton

- (i) Predation upon *Isognomon* (with Dr. L. Harper).
- (ii) Predation by *Rapana bezoar*.
- (iii) Scavenging by Nassariidae.

Dr. S.Y. Lee

- (i) Ecology of Mai Po Marshes Nature Reserve.
- (ii) Predation by shore crabs.

Dr. G.A. Williams

- (i) Algae-herbivore interactions on the Cape d'Aguilar shores.
- (ii) The behaviour and physiology of high shore limpets.

### POST-DOCTORAL FELLOWS

Dr. Rosita G. Ong-Che (with Prof. B. Morton)

1. Seasonal and spatial variations in the subtidal benthos of Tai Tam Bay.
2. Community structure and dynamics of an intertidal sand flat at Tai Tam.

Dr. Liu Jianhua

1. Thermal tolerances of intertidal mussels and barnacles (with Prof. B. Morton).
2. Scavenging by *Nassarius siquijorensis* (with Prof. B. Morton).
3. Growth bands of limpets (with Dr. C.A. Richardson, Bangor).

### HONORARY RESEARCH ASSOCIATES

The following persons have been appointed as Honorary Research Associates at The Swire Marine Laboratory by the Faculty of Science of The University of Hong Kong.

Dr. M.W.M. Yipp, B.Sc., M.Phil., Ph.D. (Hong Kong), Senior Lecturer, Department of Applied Science and Chemical Technology, Hong Kong Polytechnic.

Dr. S.F. Leung, B.Sc., Ph.D. (Hong Kong), Fisheries Officer, Agriculture and Fisheries Department, The Hong Kong Government.

### HIGHER DEGREE STUDENTS

Ms. Deborah Cha Mei Wah (Ph.D)

Impacts of pollution and predation upon the population dynamics of *Tapes philippinarum*.

Mr. Chiu King Tung (Ph.D) (John Swire Scholar)

Pollution of the Mai Po Marshes Nature Reserve.

Ms. Carmen Anderson (Ph.D)

The productivity of the Mai Po mangrove.

Mr. Llewellyn Young (Ph.D)

Seasonal habitat use by the Chinese Pond Herons at the Mai Po Marshes Nature Reserve.

Mr. Albert W.Y. Leung (Ph.D) (Fisheries Officer, Agriculture and Fisheries Department).

Fish community structure in Lobster Bay, Cape d'Aguilar.

Ms. Winnie P.W. Kwok (Ph.D.)

Interactions between mangroves and grapsid crabs at the Mai Po Marshes Nature Reserve.

Ms. Alice L.C. Chan (Ph.D.)

The zooplankton of Tai Tam Bay.

Mr. Sven Kaehler (Ph.D.)

The ecology of epilithic crustose algae on Hong Kong shores.

Miss Kate D. Harper (M.Phil.)

The ecology of *Liolophura japonica* on Hong Kong's exposed rocky shores.

Mr. Sanjay Nagarkar (Ph.D.)

The ecology of intertidal, epilithic, cyanobacteria.

Mr. Peter Collinson (Ph.D.)

The ecology, growth and reproduction of Hong Kong corals.

## NEW ARRIVALS

Mr. Y.M. Mak, arrived in August to begin research leading to award of the degree of a Ph.D. in the field of tufted geniculate coralline algae under the supervision of Dr. G.A. Williams. Dr. R. Seed from the University of Wales, Bangor, also collaborates in this project.

Mr. Robin Kennish, B.Sc. Liverpool University, arrived in September to begin research leading to award of the degree of Ph.D. in the field of crab herbivory under the supervision of Dr. G.A. Williams and Dr. S.Y. Lee.

Ms. Qin Huang, B.Sc. Fujian, arrived in September to begin research leading to award of the degree of Ph.D. in the field of enzyme polymorphism under the supervision of Prof. B. Morton.

Mr. W.L. Chan, arrived in September to begin research leading to award of the degree of M.Phil. in the field of retention and depuration of heavy metals by commercial bivalves under the supervision of Dr. S.Y. Lee and Prof. B. Morton.

Miss W.C. Sze, arrived in September to begin research leading to award of the degree of M.Phil. in the field of pollution tolerance by marine mussels under the supervision of Dr. S.Y. Lee.

Miss K.Y. Yang, arrived in September to begin research leading to award of the degree of M.Phil. in the field of ecology of the mudskipper *Boleophthalmus pectinirostris* at the Mai Po Marshes Nature Reserve under the supervision of Dr. G.A. Williams and Dr. S.Y. Lee.

Mr. C.S. Lai, arrived in September to begin research leading to award of the degree of M.Phil. in the field of feeding by species of the crab *Thalamita* under the supervision of Dr. S.Y. Lee.

Ms. Susan Hawkins, B.Sc. Newcastle-upon-Tyne, arrived in October to begin research leading to award of the degree of Ph.D. in the field of coral recolonization of depauperated reefs under the supervision of Prof. B. Morton.

## UNDERGRADUATES

During 1991-1992 the following final year students undertook research projects at the laboratory.

Mr. H.K. Kwok worked in the field of removal of epiphytes on *Ralfsia* by herbivores under the supervision of Dr. G.A. Williams.

Mr. M.Y. Ming investigated the effect of tin pollution on dog whelk populations in Hong Kong under the supervision of Dr. G.A. Williams.

Mr. M.L. Tsui researched mussel physiology under the supervision of Dr. S.Y. Lee.

During 1992-1993, the following final year students commenced work on their research projects at the laboratory:

Miss B.Y. Lam: shell utilization by hermit crabs under the supervision of Dr. S.Y. Lee.

Miss K.Y. Lam: escape responses of intertidal gastropods to predators under the supervision of Dr. G.A. Williams.

## SUMMER STUDENTS

The following two students undertook on-job training at the laboratory during the summer.

Mr. Ngai Chi Ming and Mr. Choy Boon Sin  
Department of Applied Biology and Chemical  
Technology, Hong Kong Polytechnic.

## STAFF TRAINING

Mr. James C.T. Hui  
St. John's Ambulance Association: first  
aid training.

Mr. Terry W.F. Fung  
Vehicle maintenance course.

Mr. Patrick P.C. Chan  
Certificate Course in Electricity organized  
by the Electrical and Mechanical Services  
Department, the Hong Kong Government.

## STAFF ACTIVITIES

Prof. B. Morton

Member: Executive Council, Executive Committee and Trustee of WWF Hong Kong.

Chairman: WWF Hong Kong Education Committee.

Chairman: WWF Hong Kong, Hoi Ha Wan Committee.

Member: WWF Hong Kong, Mai Po Management and Development Committee.

Member: WWF Hong Kong, Island House Management and Development Committee.

Member: WWF Hong Kong, Projects Committee.

Chairman: The Dumping at Sea Act 1974 Appeal Board.

Member: Water Pollution Control Ordinance (Cap 358) Appeal Board.

Member: Endangered Species Advisory Committee, Hong Kong Government.

Member: Agriculture and Fisheries Advisory Committee (Aquaculture sub-Committee), Hong Kong Government.

Chairman: The Marine Biological Association of Hong Kong.

Member: Mollusc Specialist Group, Species Survival Commission of IUCN.

Member: United Nations Environment Programme: United Kingdom Committee.

Member: Academic Commission for the First Term of the Marine Biology Research Station at Daya Bay, South China Sea Institute of Oceanology, Academia Sinica, China.

Editor: *Asian Marine Biology*.

Regional Editor: *Marine Pollution Bulletin*.

Editorial Board: *American Malacological Bulletin*.

Editorial Board: *Tropic Oceanology*.

Editorial Board: *Raffles Bulletin of Zoology, Singapore*.

Editorial Board: *Malacological Review*.

Dr. S.Y. Lee

Member: the Hong Kong Government Working Group on Marine Parks and Marine Reserves.

Member: WWF Hong Kong: Mai Po Management and Development Committee.

Membership Secretary: The Marine Biological Association of Hong Kong.

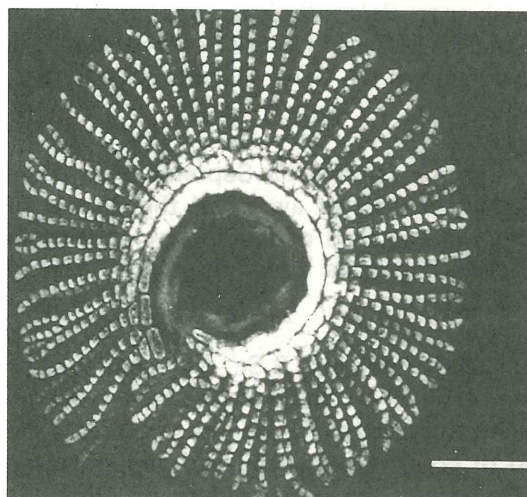
Member: WWF Hong Kong, Hoi Ha Wan Committee.

Member: Standing Committee on Mangrove Ecological Research, Ecological Society of China.

Dr. G.A. Williams

Member: WWF Hong Kong: Hoi Ha Wan Committee.

Member: The Council of The Hong Kong Marine Conservation Society.



A section through the encrusting rocky shore red alga, *Petrocelis* sp.

## CONFERENCES & WORKSHOPS

From 3-7 November 1991, Mr. Albert W.Y. Leung attended a conference on "Aquatic Habitat Enhancement" at Long Beach, California, U.S.A.

From 2-6 December 1991, Dr. Liu Jianhua attended the IOC-WESTPAC Symposium Scientific Contributions to the Effective Management of the Marine Environment in the Western Pacific" at Penang, Malaysia.

The Annual Scientific Meeting of The Marine Biological Association of Hong Kong took place on the 21 December 1991. The following students presented papers at the meeting.

Ms. Carmen Anderson. "Defoliation of *Avicennia marina*: cause and consequences".

Ms. Alice L.C. Chan. "Marine zooplankton in Tolo Harbour".

Mr. Albert W.Y. Leung. "Recent advances in artificial reef and fish aggregating technology".

Ms. Deborah M.W. Cha. "Factors affecting the distribution of *Tapes philippinarum* at Starfish Bay.

Mr. Llewellyn Young. Seasonal patterns of predation by pond herons on mudskippers at the Mai Po Marshes.

From 12-18 February 1992, Ms. Carmen Anderson participated in, as a teacher, a Waterbird identification and mangrove ecology training course at Dong Zhaigong Nature Reserve, Hainan, China.

From 28 June to 14 July, Professor B. Morton participated in The University of the Azores scientific expedition to Sao Jorge and Topo, Azores, where he undertook research on the lagoon clam, *Tapes decussata*.

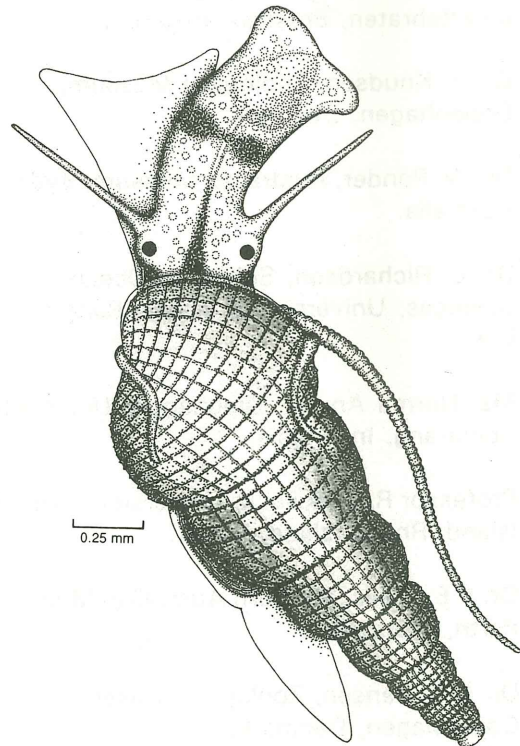
From July-September 1992, Dr. S.Y. Lee was appointed as a Visiting Scientist at the University of Georgia Marine Institute, Sapelo Island, Georgia, U.S.A.

In July, Dr. G.A. Williams visited and gave a seminar entitled "Hong Kong - tropical rocky shores?" at the Leigh Marine Laboratory, Auckland, New Zealand.

During September, Dr. G.A. Williams collaborated with colleagues at the University of Bristol in an expedition to Lough Hyne, Ireland, to conduct research on limpets.

From 7-12 September 1992, Dr. S.Y. Lee participated in the Workshop on Mexican mangroves, Laguna de Terminos, Yucatan, Mexico. This preceded the IV Intecol Wetlands Conference held at Ohio State University from the 13-17 September 1992. At the Conference, Dr. Lee presented a paper entitled "Post-1975 mangrove research: what do we still need to know about mangrove ecosystems?"

From 7-12 September 1992, Ms. Carmen Anderson participated in the Workshop on the Mexican mangroves, Laguna de Terminos, Yucatan, Mexico. This preceded the IV Intecol Wetlands Conference held at Ohio State University from 13-17 September 1992. At the Conference, Ms. Anderson presented a paper entitled "Primary productivity of *Kandelia candel* in Hong Kong: a comparison of methods".



*Finella pupoides* from Tai Tam Bay.



THIRD INTERNATIONAL  
WORKSHOP ON THE  
MALACOFUNA OF HONG KONG  
AND SOUTHERN CHINA

Previous research workshops have been convened in 1977, 1980, 1983, 1986 and 1989. The 1980, 1986 and 1989 Workshops researched broader aspects of the marine flora and fauna of the inshore waters of Hong Kong and the South China Sea.

The original 1977 and, subsequently, the 1983 Workshop researched the molluscan fauna of Hong Kong waters as representative of a major marine ecological group. The 1992 Workshop, convened at The Swire Marine Laboratory from 13 April to 1 May, attracted 12 overseas scientists and local participants from the laboratory, the City Polytechnic and the Agriculture and Fisheries Department, as follows:

Dr. J.D. Taylor, The Natural History Museum, London, U.K.

Dr. T. Backeljau, Afdeling Recente Invertebraten, Brussels, Belgium.

Dr. J. Knudsen, Zoological Museum, Copenhagen, Denmark.

Dr. W. Ponder, Australian Museum, Sydney, Australia.

Dr. C. Richardson, School of Ocean Sciences, University of Wales, Bangor, U.K.

Ms. Norma Anwar, Diponegoro University, Semarang, Indonesia.

Professor R.C. Bullock, University of Rhode Island, Rhode Island, U.S.A.

Dr. F.E. Wells, Western Australian Museum, Perth, Australia.

Dr. K.R. Jensen, Zoological Museum, Copenhagen, Denmark.

Dr. R. Seed, School of Ocean Sciences, University of Wales, Bangor, U.K.

Mr. Paul Scott, Santa Barbara Museum of Natural History, Santa Barbara, U.S.A.

Dr. E. Harper, University of Cambridge, Cambridge, U.K.

Dr. S.G. Cheung, City Polytechnic, Kowloon, Hong Kong.

Mr. A.W.Y. Leung, Agriculture & Fisheries Department, Hong Kong Government.

Dr. S.F. Leung, Agriculture & Fisheries Department, Hong Kong Government.

The following members of staff and students of The Swire Marine Laboratory also participated in the Workshop:

Prof. B. Morton  
Dr. S.Y. Lee  
Dr. G.A. Williams  
Dr. Liu Jianhua  
Dr. Rosita Ong Che  
Miss Deborah M.W. Cha  
Ms. Alice L.C. Chan  
Miss Kate Harper  
Mr. Peter Collinson  
Mr. Sven Kaehler

The primary aims of the Workshop were:

1. To survey and undertake research on an important marine group of animals (the Mollusca) with the particular objective of determining community structure prior to the extensive inshore dredging for marine sand that will take place in the waters around the laboratory for the Port and Airport Development Strategy.
2. To promote international co-operation in the field of marine malacology.
3. To provide local research students with an opportunity to work with distinguished overseas scientists in the field of marine malacology.

The original research papers that will emanate from the Workshop will be published as a Proceedings volume in the same series as the previous Workshops by Hong Kong University Press. Publication is scheduled for the end of 1993.

## STUDENT SUCCESSES

Dr. L.K.Y. Tong (B.Sc., M.Phil., Hong Kong, Ph.D., Sydney): completed an 18 month post-doctoral fellowship at the Laboratory supported by The Croucher Foundation and has moved to the United Kingdom where she is currently working at The Department of Zoology, National Museum of Wales, Cardiff, U.K.

Dr. Liu Jianhua (B.Sc., Qingdao): completed the requirements for a Ph.D. of The University of Hong Kong with a thesis entitled 'The Ecology of Hong Kong Limpets' and is staying on at the laboratory to undertake post-doctoral research supported by the Department of Botany, The University of Hong Kong.

Dr. S.F. Leung (B.Sc., Hong Kong): completed the requirements for a Ph.D. of The University of Hong Kong with a thesis entitled 'The population dynamics of *Metapenaeus ensis* (Penaeidae) and *Exopalaemon styliferus* (Palaemonidae) in a traditional tidal shrimp pond at the Mai Po Marshes Nature Reserve, Hong Kong.', and is now employed as a Fisheries Officer with the Agriculture and Fisheries Department of the Hong Kong Government.

## TRIPARTITE EXCHANGE SCHEME

Established in 1992 with the support of The Swire Group and British Council, the exchange scheme has forged academic links between The Swire Marine Laboratory, The University of Hong Kong; the School of Ocean Sciences, University of Wales, Bangor; and the South China Sea Institute of Oceanology, Academia Sinica, Guangzhou, China.

The Agreement signed on the 24 February 1992 by the Vice-Chancellor of The University of Hong Kong, Professor Wang Gungwu, the Principal of The University of Wales, Bangor, Professor E. Sunderland, and the Director the South China Sea Institute of Oceanology, Guangzhou, Professor Sun Yuke, is for 3 years and facilitates exchange of staff and students between the three institutions.

In 1992, the following exchanges were approved:

From Hong Kong

Dr. Liu Jianhua: to visit Bangor for two months to undertake joint research with Dr. C.A. Richardson and Dr. R. Seed on limpet growth and behaviour.

Ms. Alice L.C. Chan: to visit Bangor for two months to learn techniques for identifying barnacle larvae with Dr. G.A. Walker.

Mr. Peter Collinson: to visit Guangzhou for two weeks to undertake joint research on coral identification with Professor Zou Renlin.

Ms. Kate Harper: to visit Guangzhou and to give a seminar.

From Bangor

Dr. Ian Lucas: to visit Hong Kong for one month to undertake research with Dr. I.J. Hodgkiss on red tides. Also, to visit Guangzhou and to give seminars.

Ms. Liza McDonald, M.Sc. student: to visit Hong Kong for one month and work with Dr. S.Y. Lee and Prof. B. Morton on crab predation of oysters. Also, to visit Guangzhou and to give seminars.

Proposals for visits under the exchange scheme for 1993 are invited and should, in the first instance, be made to the Chairmen of the Co-ordinating Committees in Hong Kong (Professor B. Morton), Bangor (Dr. R. Seed) and Guangzhou (Professor Zou Renlin).

## LAURENCE CAPLIN SCHOLARSHIP IN MARINE BIOLOGY

In memory of Laurence Caplin (7 November 1914 - 30 April 1991), his widow, Mrs. E. Caplin, and daughter, Mrs. J. Woodford, of England, have donated the sum of HK\$150,000 to be invested and the interest from which is to be used to bring to The Swire Marine Laboratory young people to undertake research in Marine Biology with resident staff and students. Applications for the scholarship are now invited.

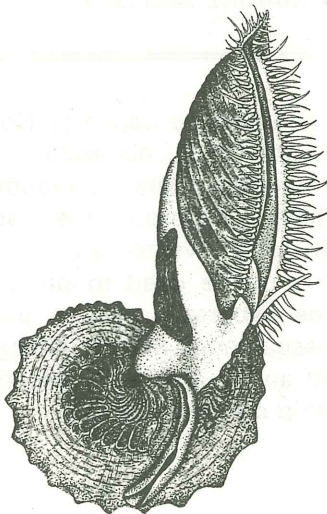
## OTHER ACTIVITIES

### NEW EXCHANGE AGREED

From 8-11 May, Professor B. Morton, Dr. S.Y. Lee and Dr. G.A. Williams visited the Third Institute of Oceanography, State Oceanic Administration, Xiamen, China, where they held discussions on the feasibility of establishing an exchange agreement between The Swire Marine Laboratory and the Third Institute. The staff members toured the facilities of the Institute and visited Xiamen University, held discussions with staff and concluded an Agreement that is due to be signed on the 7 November 1992 in Hong Kong, on the occasion of the second Anniversary of The Swire Marine Laboratory.

### HOI HA WAN FILM

During 1992, Mr. Michael Pitts, used the laboratory's aquarium facilities to film a 30 minute educational documentary about Hoi Ha Wan. The film was commissioned by WWF Hong Kong and sponsored by Bulgari and Wo Kee Hong Ltd. It was shown at a gala premier at the Grand Hyatt Hotel on 2 October 1992 in the presence of the Governor of Hong Kong, His Excellency the Hon. C. Patton.



*Rapana bezoar* consumes a scallop, *Pecten pyxidatus*.



Participants in the Third International Workshop on the Malacofauna of Hong Kong and southern China convened at The Swire Marine Laboratory in April 1992.



Trawl samples are sorted by participants in The Third International Workshop on the Malacofauna of Hong Kong and southern China.

### UPDATE: 'HONG KONG'S WHALE'

The skeleton of Hong Kong's whale on display at the laboratory attracts much public interest. During 1992, heavy rains caused damage to the structure by hydration of hitherto dried ligaments and soft tissues remaining from the original curing process. The forelimbs have now been recast in plastic and the ribs have been reimpregnated with Araldite. The head has been further protected using marine fibreglass and the whole structure repainted using paints once again provided through the generosity of Winsome Paints Ltd. Mr. Tony Bentham (Dentistry) and Mr. John Bradford (Architecture) have, once again, assumed responsibility for undertaking these necessary repairs.

#### UPDATE: AN ARTIFICIAL REEF

The laboratory has begun a co-operative research programme with the Fisheries Conservation Branch of The Agriculture and Fisheries Department of the Hong Kong Government to design and install an experimental reef just offshore from the laboratory. Mr. Albert W.Y. Leung (Fisheries Officer, Agriculture and Fisheries Department, the Hong Kong Government) has registered for a Ph.D. degree at The University of Hong Kong to initiate this project.

The Hong Kong Electric Co. Ltd. will join the laboratory in this project since we anticipate the reef will be made of power station fuel ash blocks.

#### WORLD WIDE FUND FOR NATURE HONG KONG

Staff of the laboratory sit on various committees of WWFHK to help promote environmental awareness in Hong Kong.

In particular, our researches provide information on and management procedures for The Mai Po Marshes Nature Reserve, the Hoi Ha Wan SSSI and educational material produced by the Island House Conservation and Field Studies Centre.

#### THE MARINE BIOLOGICAL ASSOCIATION OF HONG KONG

Founded in 1982, The Marine Biological Association of Hong Kong has some 160 members and holds regular meetings and other events, some of which are held at The Swire Marine Laboratory. The Association produces its own international journal, *Asian Marine Biology*. The Association's library is housed at The Swire Marine Laboratory. Prof. B. Morton is Chairman of the Association and Dr. S.Y. Lee is the Membership Secretary.

#### THE HONG KONG MARINE CONSERVATION SOCIETY

Founded in June 1991, The Hong Kong Marine Conservation Society has some 260 members and holds regular meetings and other events. It also produces a marine conservation Newsletter.

Dr. G.A. Williams is a member of the Council of the Society.

#### CAPE D'AGUILAR AS HONG KONG'S FIRST MARINE RESERVE

The inshore sea areas around the laboratory, already designated a Site of Special Scientific Interest, have been recommended by a Country Parks Board Working Group as of sufficient importance to constitute Hong Kong's first Marine Reserve.

Dr. S.Y. Lee is a member of the Working Group.

#### HONG KONG'S 4TH UNDERWATER SHOOTOUT

On the 18 October, a diving team of Mr. Peter Collinson and Ms. Kate Harper, research students at the laboratory, participated in the 1992 Underwater photographic shootout to raise funds for Hoi Ha Wan. This coral-fringed bay in the north-eastern New Territories has been proposed as Hong Kong's first Marine Park. Sponsored by WWFHK and The Marine Biological Association of Hong Kong, the annual shootout raises public awareness and funds to publish educational material about the bay and Hong Kong's marine life.

## HOW CAN I UNDERTAKE RESEARCH AT THE SWIRE MARINE LABORATORY?

### FUNDING OPPORTUNITIES<sup>+</sup>

- A. If you have a good honours degree from a recognized tertiary institution, you will be eligible for award of a studentship by the University of Hong Kong which will allow you to undertake research for either an M.Phil or a Ph.D degree at The Swire Marine Laboratory. Application forms are available from The Registrar, The University of Hong Kong, Hong Kong.
- B. Overseas students and scientists can apply to the laboratory for award of a Short-Term Visitorship which offers free residence at the laboratory and a modest *per diem* allowance. Such visits are normally for less than one month.
- C. Postgraduate students who are members of The Marine Biological Association of Hong Kong can apply for award of a research grant that would help them either undertake research at the laboratory or attend local and overseas conferences.\*
- D. The Director can, at his discretion, make a single annual award from an "Intertidal Trust Fund" to a post-doctoral overseas applicant who writes with details of a research project that would enhance understanding of Hong Kong's intertidal ecology by using the facilities of The Swire Marine Laboratory.
- E. Established in 1992, the Laurence Caplin Scholarship in Marine Biology, offers a grant which allows young overseas scientists to undertake research at The Swire Marine Laboratory for periods of up to 3 months.



The Residence

+ Details of all such funding possibilities can be obtained from The Director, The Swire Marine Laboratory, The University of Hong Kong, Hong Kong.

\* Details of this grant can be obtained from: The Secretary, The Marine Biological Association of Hong Kong, c/o The Swire Marine Laboratory, The University of Hong Kong, Hong Kong.

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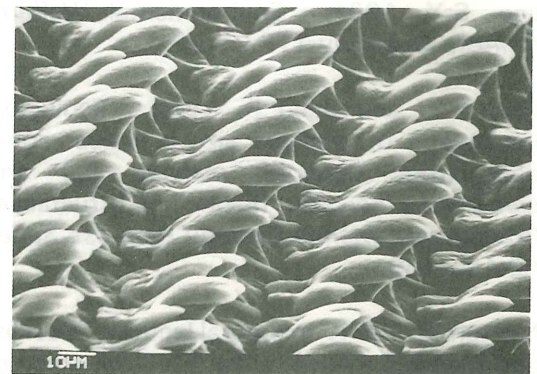
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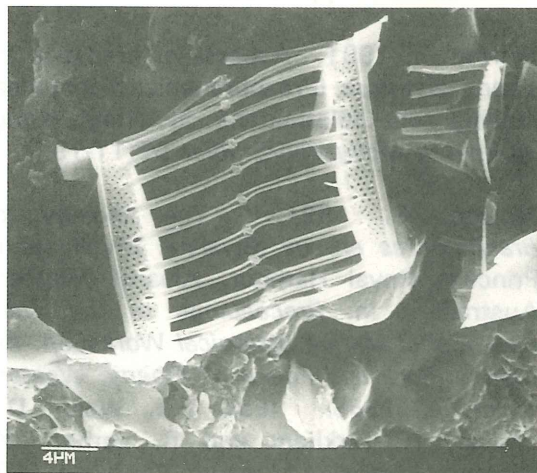
High-zoned rocky shore algae are bleached by the heat of summer.



Periwinkles (*Nodilittorina radiata*) crowd upper levels of the rocky shores at Cape d'Aguiar.



An S.E.M. of the radula teeth of *Siphonaria sirius*.



An S.E.M. of a rocky shore diatom.

## ACKNOWLEDGEMENTS

The Director and staff of the Laboratory wish to thank the following for their support over the last year.

Sir John Swire CBE and the Board of Directors and staff of The Swire Group of Companies.

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Dr. I.J. Hodgkiss, Dean, Faculty of Science, The University of Hong Kong.

Professor D.K.O. Chan, Head of the Department of Zoology, The University of Hong Kong.

Professor D.A. Griffiths, Head of the Department of Botany, The University of Hong Kong.

Mr. M. McGraw, and staff of the Estates Office, The University of Hong Kong.

Mr. P.B.L. Lam and staff of the Finance Office, The University of Hong Kong.

Mr. I.E. Hart and staff of the Centre for Media Resources, The University of Hong Kong.

Dr. D.J. Mabbott and staff of the Safety Office, The University of Hong Kong.

Mr. J.W. Bradford, Department of Architecture, The University of Hong Kong.

Mr. A.J. Bentham, Dental Technology Unit, Prince Philip Dental Hospital, The University of Hong Kong.

The Council of The Marine Biological Association of Hong Kong.

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Mr. Tommy Y.J. Pan,  
Winsome Paints Co.Ltd.

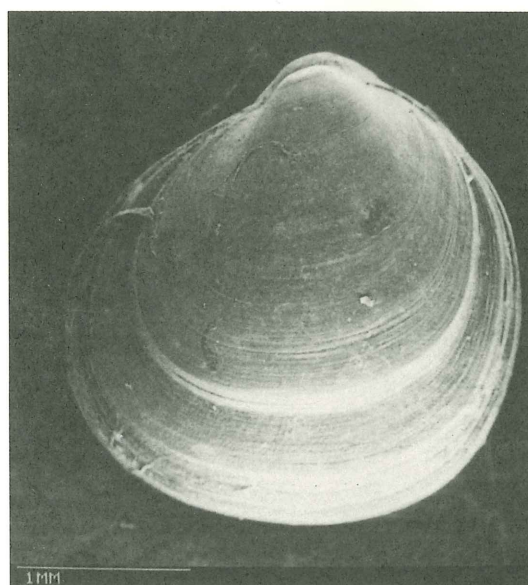
Dr. Lawrence H.Y. Lee, Director, Agriculture and Fisheries Department, Hong Kong Government.

Staff of Hong Kong Telecom, Head Office and Cape d'Aguilar Station.

Dr. S.B. Reed, Director, Environmental Protection Department, Hong Kong Government.

The British Council, Hong Kong.

Mr. Sham Pak, Director, The Royal Observatory, Hong Kong.



A scanning electron micrograph of *Lasaea nipponica* from rocky shore mussel beds at Cape d'Aguilar.