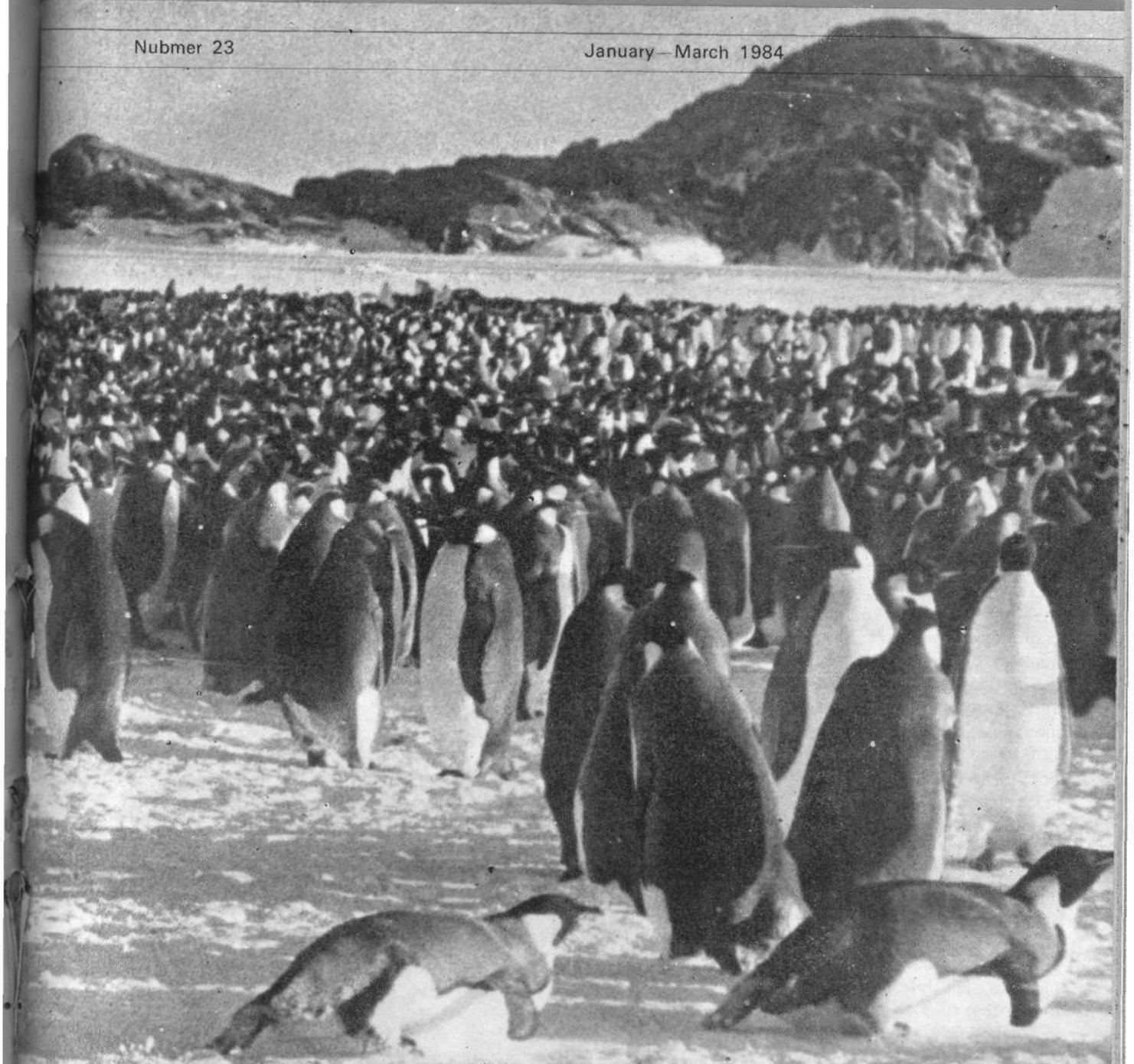
CMFRI newsletter

Nubmer 23 January—March 1984

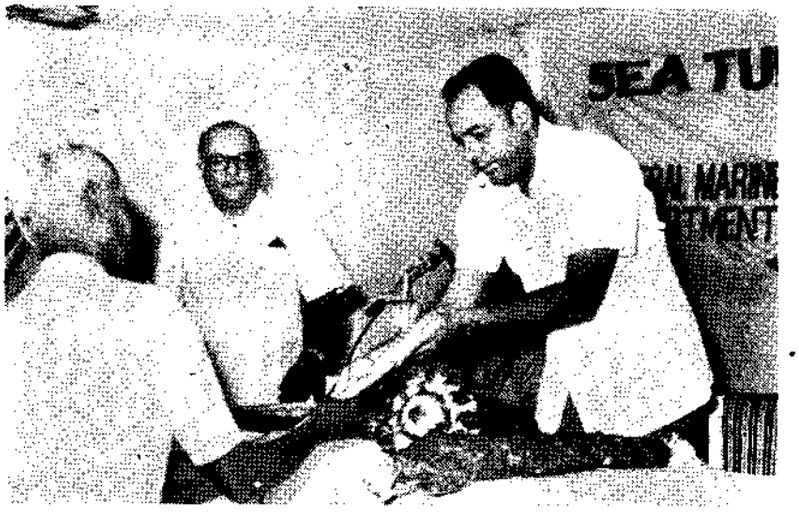


Glimpses of the Third Indian Antarctic Expedition

(Article on page 5)

Turtle Workshop Emphasises Coordinated Research

The three-day Workshop on Sea Turtle Research and Conservation which concluded on 29 February at Madras stressed the need for coordinated and co-operative research on various aspects of life and resources of sea turtles and their natural habitats. The Workshop identified five major areas, namely, habitat preservation, species preservation through recovery and hatchery programmes, legislation enforcement, research, education, training and extension for evolving effective strategies for conservation and management of sea turtle resources of India. The Workshop recommended the immediate initiation of a coordinated and centralised mark recovery programme for sea turtles by the government and non-government departments and universities with CMFRI as the nodal organization. The NMLRDC at CMFRI in association with the Wildlife Department and National Information Centre will facilitate collection, coalition and dissemination of information from scientific research and emperical knowledge. Surveys will be conducted to identify the nesting beaches, special habitats for monitoring feeding and nesting, investigation on beach erosion and accretion at the nesting beaches. There is a need to make intensive studies on the unique phenomenon of the mass nesting at Gahirmatha which is the largest in the world. The Workshop also recommended setting up of a



Shri S. A. Subramani releasing the CMFRI Bulletin number 35 on Sea Turtle Research and Conservation which is being received by Shri K. Shanmughanathan, Chief Conservator of Forests, Tamil Nadu

Plenary Session of the Workshop. L to R: Shri Romulus Whitaker, Dr J. Frazier, Dr E. G. Silas (Chairman) and Dr J. Sanjeevaraj

Research Committee for Sea Turtles in India by the Department of Environment to guide, advise and direct research and conservation programmes.

The workshop was inaugurated on 27 February by Shri S. A. Subramani, Secretary, Forest and Fisheries Department, Tamil Nadu. The Workshop which was organized by the Central Marine Fisheries Research Institute in cooperation with the Department of Environment, Government of India, the Marine Biological Association of India and the Madras Crocodile Bank was attended by 42 participants from various agencies interested in turtle conservation. Eminent personalities like Dr John Frazier of the Smithsonian Institution, Washington, Shri Romulus Whitaker of the Madras Snake Park, Shri Chandrasekhara Kar of the Marine Turtle Research and Conservation Centre, Gahirmatha, Dr J. C. Daniel of the Bombay Natural History Society and Dr Satish Basker of Wildlife Fund participated and chaired different sessions. The technical session on Future Research and Conservation Strategies for India—Recommendations was chaired by Dr E. G. Silas, Director, CMFRI. Dr Silas in his concluding remarks said that a serious consideration and immediate follow-up action on the recommendations are necessary and there is a need today for developing and strengthening effective coordination between forests and fisheries departments of various maritime states and the coast guard and interstate sharing of data. O

Symposium on Endangered Marine Animals and Marine Parks—upcoming

The Marine Biological Association of India will be holding a Symposium on Marine Animals and Marine Parks during 12–16 January, 1985. This Symposium will be a part of the Silver Jubilee celebrations of the Association.

The Symposium which is the seventh in the symposia series organized by the Marine Biological Association will be held at Cochin. The focal theme will be conservation, management and habitat protection in the form of biosphere reserves, national parks or sanctuaries for the endangered and vulnerable marine animals. The Symposium envisages to pool at a common forum the various R&D efforts by the national agencies and other countries in the Indian Ocean region to facilitate reviewing of the present status of the resources, conservation programmes launched, their implementation and constraints, management efforts aimed at the resources as well as the entire ecosystem and future strategies and national policies.

Narakkal Hatchery Distributes 1.5 Million Prawn Seed Within Three Months

The pilot-scale hatchery operations at the Narakkal Marine Prawn Hatchery Laboratory using simplified hatchery technique evolved at the Laboratory have resulted in the record production of 15,00,000 stockable size seed (15-20mm) of *P. indicus* within a period of three months (January-March). The larvae for rearing were obtained from farm-grown broodstock induced to mature in captivity by unilateral eyestalk ablation. The larvae were reared in grow out ponds using mixed phytoplankton culture and formula feed.

The seed were distributed free of cost to small and marginal farmers of Parur, Vypeen, Sherthalai and Tripunithura, to encourage scientific prawn farming. The farmers are expected to provide feed back information on the growth of the prawns.

On 15 February the Marine Products Export Development Authority lifted 1 lakh *P indicus* seed produced at Narakkal. The seed will be supplied to the local farmers under the Authority's development programme. Another consignment of 60,000 seed of *P. indicus* was lifted by MPEDA on 31 March.

Shri M. S. Muthu, Officer-in-Charge of the Laboratory distributing the seed

From the Skipjack

R. V. Skipjack performed three cruises during January-March in Alleppey-Goa, Off Alleppey and Quilon Bank. In the first cruise during 7-13 January a hydroacoustic survey was conducted to study the distribution and abundance of the pelagic fish resources of the shelf waters. The second one during 7-8 February was in connection with the pass over of MOMS over Cochin and Quilon, to make sea truth observations. The third cruise during 13-15 March surveyed the deepwater resources of the Quilon Bank. The bottom trawl cperations in Quilon Bank yielded good catches of deepwater fish, prawn and lobster. At present she is cruising in Mangalore-Bombay area for the assessment of the demersal resources of Mangalore-Bombay region in 50–400 m depth zone.

CMFRI to Co-ordinate Sagarasampada Programmes

CMFRI has been identified as the nodel organization to coordinate the cruise programmes of the new Fisheries and Oceanographic Research Vessel FORV Sagarasampada acquired by the Department of Ocean Development. Dr E. G. Silas, Director has been nominated as the Chairman of the Programme Committee. Dr K. Alagarswami Dr P. Parameswaran Pillai and Dr K. J. Mathew, Scientists at CMFRI have been nominated by the Chairman to a assist in the implementation of the programmes.

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PUBLICATION

Sea Turtle Research and Conservation

All the five species of sea turtles known from Indian seas have been declared endangered and protected under the Indian Wildlife Protection Act 1972. The Convention on International Trade in Endangered Species (CITES) prohibited trade in turtle products and placed this species in Appendix II of the Convention. There has been a global awareness on the sea turtle research and conservation around mid seventies and a World Conference in Biology and Conservation of Sea Turtles was held at Washington, which was also attended by Dr E. G. Silas, Director CMFRI. In the early seventies under the project on Investigations on Sea Turtles CMFRI carried out some studies particularly on the landings and utilization of turtles in the Gulf of Mannar region. During 1977-78 an active programme of recovery was taken up at Kovalam near Madras. Useful observations have since been made and data have been collected on the nesting, biology, feeding and health problems. These findings have been summarised and published as CMFRI Bulletin No 35, Sea Turtle Research and Conservation. The Turtle Research Group at CMFRI under the personal leadership of Dr E. G. Silas, Director made observations on the world's largest mass nesting ('arribada') at Gahirmatha coast during 1984, which are also presented in the Bulletin. The Bulletin brings together 10 research papers contributed by Dr E. G. Silas and S/Shri M. Rajagopalan, M Vijayakumaran, Bastin Fernando and S. S.Dan

The lead paper on research and conservations by Dr E. G. Silas focuses attention on some of the problem areas which need urgent consideration with review of the work done in the field. The conservation strategies suggested are intensification of basic research on biology, identification and genetic differences, development of hatchery, husbandary and sea-ranching programmes, minimising incidental catch and creating awareness through education, extension and training.

The dynamics and complex nature of the resource itself has made the investigations difficult and literature on various aspects of its life and biology is scanty. This Bulletin, a pioneering work, is a comprehensive document dealing with the present status of research and conservation and various aspects of biology, nesting, incubation, food intake growth, health problems and care and instances of turtle food poisoning in India.

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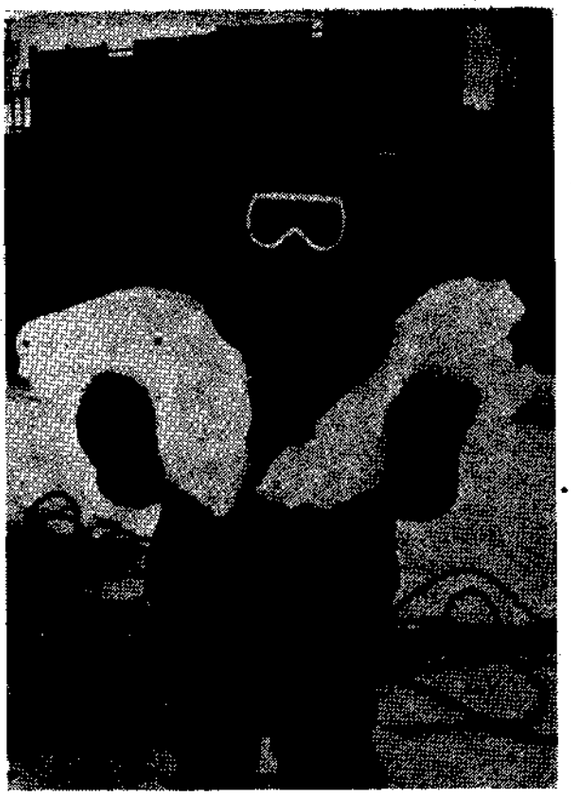
The Polar Experience

The Third Indian Antarctic Research Expedition was unique in all respects. The contigent of 81 was the biggest India had ever sent to the icy continent. The main task of the expedition was to build a permanent base station within the short Antarctican summer of about 60 days, a big challenge which no country has yet achieved. This was done against heavy odds, as the ferocious blizzards and unpredictable weather of the continent reduced the working days.

The Expedition returned to India on 29 March. The following article gives a few glimpses of the Expedition as reported by Dr K. J. Mathew, Scientist, CMFRI who was a member of the team.



With snow in hand is Dr Mathew. Note the special feather-filled Annapurna jacket worn by him which can resist extreme low temperatures

The 16-member scientific team besides its active participation in the building of the base, had programmes to carry out investigations in the continent and the ocean. The team included two marine biologists, one oil and natural gas expert three communication experts, and one amateur radio operator. Dr Mathew was to carry out investigations on krill (*Euphausia superba*), a protein and vitamin-rich crustacean which looks like tiny shrimp and grows to about 50 mm. Antarctic ocean has vast resources of this species with a circumpolar distribution.

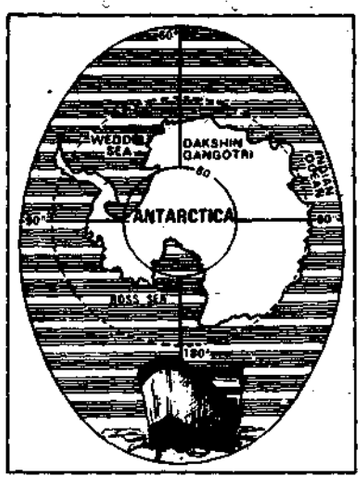
The Expedition was conducted on board the Finnish Vessel, FINNPOLARIS. This 159.22m ice-strengthened vessel, was specially built for navigation in the polar region. It could hit and smash sea ice of up to 0.75 m thickness. The Expedition had carried with it four helicopters (two large ones from the Indian Airforce and two smaller ones from the Indian Navy), four snow vehicles with the capacity of 10 tonnes each, snow scooters, 200 tonnes of building materials, 2, 000 barrels of fuel, snow-cutting vehicles, generators, boilers, large living containers and communication equipments in addition to the scientific equipments and huge quantities of food and beverages.

The Expedition left Goa on 3 December. The ship cruised through a calm sea, crossed the equator on 6 December, marked by a ceremony and reached Mauritius on 10 December. The roaring forties were passed without any major storm or rough sea, but the fifties were quite rough with storms, high swells and breaking waves. A sudden change in weather was noticed after crossing 40° S latitude with the temperature dropping from 22° C to 8° C in about 24 hours. The first ice berg was sighted on 23 December at 57° 26' S and 28° 25' E where the atmospheric temperature was 3° C, and then it was a voyage through the ice pack. As the ship sailed ahead the ice blocks on the sea surface became larger and thicker and at about 70 nauitcal miles away from the shelf the ship had to be stopped. One naval helicopter was sent out to find the way and a polynya (ice-free area in the sea)

for safe mooring of the ship. The helicopter guided the ship forward but the ship could not reach the real shelf as there were thick packs of ice ahead. On 27 December by 0130 hrs while the sun was still shining bright, the ship was moored at about 1 km away from the permanent ice shelf.

Soon started the offloading operations, heavy cargo such as the snow vehicles, sledges and living containers were unloaded first since they were required for immediate use in the base camp. These items could not be lifted by the helicopter. Offloading on the 1 meter thick sea ice was risky, but the need of the hour necessitated the action.

The site selected for base camp was about 15km away from the ship and about 10km away from the previous year's base camp. At first, tents for temporary accommodation were erected. The airforce helicopters were put into operations on the same day for lifting building materials. Every member of the Expedition was to associate with the construction work. The scientific team did most of the unloading from the ship. One had to work for eight to twelve hours a day helping in construction and attending to scientific work. The frequent blizzards and the crashing of a large helicopter on the second day of the arrival in Antarctica were enough to dampen the spirits of the members. But the thought that they were sent to work for a great national cause kept their morale up and gave them strength to work in the hostile conditions. The construction of base camp was completed in a record time of 58 days, though the blizzards interrupted the work by filling up the excavations made for laying foundation by drifting snow. The Expedition was caught in four blizzards during its stay in Antarctica. The severest one was at the end of February when the construction work was almost over.



The Antarctica

The wind speed rose up to 133 km per hour which was the maximum recorded during their stay.

The base camp consists of two double-storeyed blocks with a connecting passage. The Block A had the living rooms, communication facilities and general stores on the first floor and a lounge, kitchen, hospital, laboratory and an ice-melting plant on the ground floor. The Block-B housed three generators, electrical workshop and carpentry on the ground floor and some more workshops and stores on the first floor. The building with the area of 3600 sq. feet, centrally heated, was completely made of wood, asbestose and thermocol. This permanent Indian Station was named as *Dakshin Gangotri*.

The scientific investigations of the expedition was spread on the sea, ice shelf and the mountainous area, the *Dakshin Gangotri*. Dr Mathew was entrusted with work of carrying out investigations on certain marine biological aspects

The Krill of Antarctica

which were of interest to CMFRI. Some of his tasks were collection of plankton sample for the study of diurnal and seasonal variations in the abundance and of krill geographical distribution of and latitudinal distribution of euphausiids in general and observation of the brids of southern ocean.

The atmospheric temperature in Antarctica is below zero excepting a few days in summer when it may go up to 6° C. The lowest temperature ever recorded from the Antarctica was minus 88° C The lowest temperature experienced by this Expedition was minus 18° C at 0400 hours on 15 February, 1984.

The life forms in Antarctica are scarse. The plant kingdom is represented by mosses and lichens. The lower forms of animal life have been recorded in freshwater lakes in the rocky areas. The bird fauna is rich. The adelie penguins are abundant in the continent but the emperor penguins were rarely seen during the Expedition.

The rocky mountain, Schimarchar which was named as *Daskshin Gangotri* by the First Expedition is situated about 70 km away from the permanent Indian camp. This 15 km-stretch of mountains with width of 2½km and the highest peak of 212m remains free of ice during summer. Because of its steep elevations the snow cover on the rocks melts during summer and the water flows into the valleys forming fresh water lakes, pools and streams. Even water falls are seen during summer. Geological studies have been carried out by Indian scientists in these mountains.

The snow scooter 'Skidoo' used at construction site for moving from place to place. In the background are the temporary camps.

A view of the Base camp under construction with the satellite dome in between

The winter set in the frozen continent in the middle of February and the temparature dropped down to minus 10 to minus 18° C.

The sea surface started freezing and there were frequent gales and blizzards.

Dekshin-Gangotri—the ice free mountain

The Third Indian Expedition completed its task of constructing the permanent station and scientific investigation on 25 February. After leaving back the 12-member wintering team the Expedition boarded the vessel and stayed there for four more days to watch how the wintering team managed themselves in the South Pole.

On the afternoon of 1March the ship bade farewell to Antarctica and to the wintering team who will be brought back by the Fourth Indian Expedition.

Exhibition

CMFRI, Cochin along with the Central Tuber Crops Research Institute, Trivandrum, Central Institute of Fisheries Technology, Cochin and the Central Plantation Crops Research Institute, Kasaragod participated in the Cochin 984 All India Exhibition held at Marine Drive, Cochin from March—30April. Abqut 5 lakh people were estimated to have visited the ICAR Pavilion.

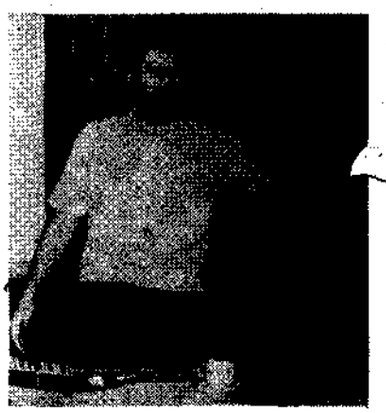
The ICAR Pavilion

(Left) Dr E. G. Silas, Director, CMFRI opens the Pavilion (Right) the Worshipful Mayor of Corporation of Cochin Sri K. Balachandran who was the chief guest for the Opening Ceremony is being taken around in the Pavilion by Dr E.G. Silas

Dr Sorgeloos Appreciates the 'Narakkal Solution'

Interview

Dr Patrick Sorgeloos, Artemia Coordinator, Artemia Reference Centre, State University of Ghent, Belgium gave expert consultancy at the CAS in Mariculture. The expert dealt with biology, ecology and distribution of *Artemia* and its culture and role in fish nutrition. Dr Sorgeloos held several seminars and a workshop on Culture of live food organisms with special reference to *Artemia* culture. Dr S Kulasekhara Pandyan, Scientist S-1 was counterpart to the consultant.



Dr Sorgeloos

His Impressions on the work at Narakkal

In an interview for the Newsletter, Dr Sorgeloos said "I had the opportunity of visiting Narakkal twice, first time in 1980, during the Symposium on Coastal Aquaculture. What gives me greatest pleasure is the fact that you have managed to arrive at 'Narakkal solution' for the problems in prawn culture and that you have developed your own technique which apparently, is based on the successful development of the compounded diet. I congratulate the researchers for making these developments and attaining the expertise. Now that you have the foundation for a very good technique, you can further work it out and perfect it. Further development, in my opinion, is in terms of profiling diet compositions for the later stages in the hatchery, because what you have developed is not just a 'diet' but a combined system of food plus fertilizer. The water samples from Narakkal show rich blooms of algae and copepods, that are also consumed by the shrimp larvae. Through this system you are creating a kind of biocoenosis with part of the feed directly consumed and part of the feed acting as fertilizer. I am sure, this is the reason for your success. This is a very good concept to work with and this concept works especially well for the hatchery stages. But from the post larval stage your system is open for improvement. The problem you face here is that since you have to increase the quantity of feed to fulfill the needs, you will create more and more problems in terms of water quality as I understand that in your nursery system right now, water quality is the main problem. You may improve your system by going in for extra live food or by maint taining the water quality by adding larger water-stable particles. But it is always the the matter of cost and benefit and a cheaper solution can be found in adding the live animals, either cultured *Artemia* or *Moina* or copepods. It is a matter of finding out through your research programmes the cheapest and most convenient live food organisms. It is not just being a solution in terms of water quality to maintain higher survival rates but it should provide an opportunity to bring in essential fatty acids which might be lacking or might be present right now in too small concentrations. The way you are preparing or treating the diet may be lacking in these polyunsaturated fatty acids. They might, however, come into culture system through the live products that are developed when the diet is used as fertilizer. The algae and copepods that are seen in your culture tanks are rich in polyunsaturated fatty acids. But at certain point of time, in the late mysis or postlarvae you will feed more particles than live organisms and might start lacking these essential products that will have very important contribution to the physiological status of the postlarvae when transferred to the ponds.

The western systems

The commercial shrimp farms in America and Europe are much more sophisticated, in the sense, that all the food items like algae, zooplankton in the form of *Artemia* and artificial diet are much more controlled. The different techniques cannot be simply compared because we have to consider the cost-benefit. It pays off in western countries to go for much more sophisticated systems because there it is of highest importance to guarantee that each production will be a success. A cheap technique similar to yours is being applied in Brazil for *P japonicus* culture where homogenized suspension of adult *Artemia* collected from salt ponds is being used as a combined feed/fertilizer in the shrimp hatchery. Your Narakkal technique is definitely the appropriate direction to pursue the development of

Consultant in Oyster Biology and Culture

Dr Sammy M Ray, Coordinator of Graduate Programme and Acting Dean, Moody College of Marine Technology, A & M University, Galveston, Texas, U S A has arrived at the Centre of Advanced Studies in Mariculture on 24 February as an Expert Consultant in Oyster Biology and Culture. Dr Sammy Ray who is here on a 12-week consultancy programme has held several group discussions, and seminars on the recent advances in the bionomics of oyster, oyster farming and shellfish quality. Dr Sammy Ray will also be conducting a workshop on Marine Toxins in Bivalve Molluscs and general consideration of shellfish sanitation.

Dr and Mrs Ray

commercial prawn farming in India.

On large-scale production of Artemia

One of the main goals of the work that we do at Belgium is to develop techniques for simple and cheap production of *Artemia* that can be adapted to local conditions in different countries. In Thailand, *Artemia* is produced on large-scale, (in tonnes) annually, by a very simple method. We are trying to work out proper transfer of technology. Even people who do not know much about the biology of Artemia manage to produce *Artemia*. India has great potential to develop *Artemia* production which should be something like the 'Indian way' and not a sophisticated way as being transferred from Belgium. I am sure, in a few years you will have better opportunities since you have an intensive aquaculture research that tries to focus its attention to such new developments and develop techniques that will make India independent of the costly imported forms. As long as you rely on these expensive imported ones, you better forget about using *Artemia* in your culture system. If you can take advantage of the interesting opportunities, in a few years time you will be able to produce cheap and high quality food from which fish and shrimp farmers will benefit.

Contributions of the Artemia Centre

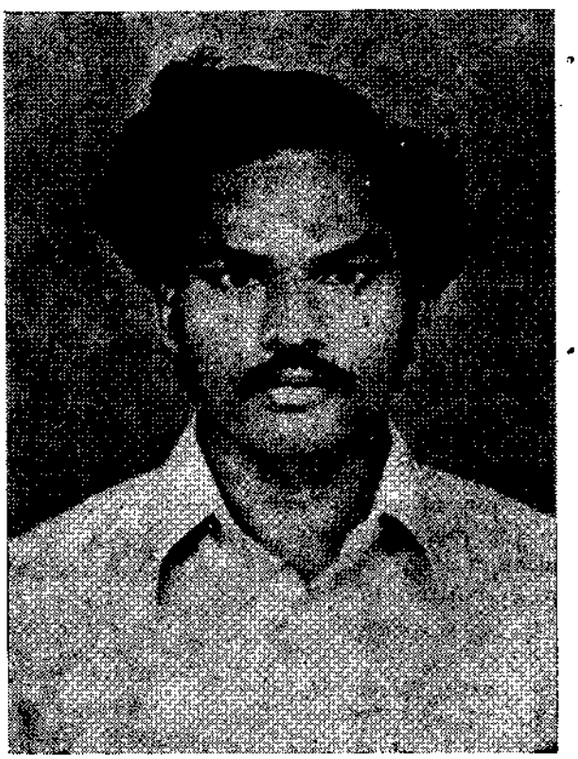
We had the opportunity to st[illegible] the *Artemia* in great de[illegible], the fundamental aspects related to its biology, ecology, culture properties etc. I am happy to say that we have been able to develop techniques that can be adopted to the local conditions. For example, in India you have interesting opportunities for integrating the production of *Artemia* and salt similar to the technique used in Thailand. You have thousands of hectares under salt production. This can also be viewed as an opportunity to improve the socio-economic conditions of the salt producing areas. So our struggle has been to develop standard techniques that can be verified and adopted to the local conditions. We think we can contribute to the advancement of aquaculture by cheap production of *Artemia* by further strain selection, strain characterisation and cross breeding, which will have better characteristics and provide better opportunities to produce in small-scale, strains with optimal characteristics in Belgium and make them available as seed for the development of large-scale production in other countries".

ARTEMIA REFERENCE CENTRE

Artemia Reference Centre is attached to the Laboratory for Mariculture in the State University of Ghent, Belgium. It is headed by Professor Dr Guido Persoone and its activities are coordinated by Dr Patrick Sorgeloos who is designated as Coordinator. The Centre is fully equipped to carry out research on biomass and cyst production under controlled conditions and to study the characteristic features of different strains. The Centre has published two bibliographies related to Artemia culture in 1976, "Artemia Conference Proceedings" in three volumes in 1980 and more than 70 scientific articles dealing with *Artemia* research in International journals since 1972.

Atchutha Rao ICAR Champion

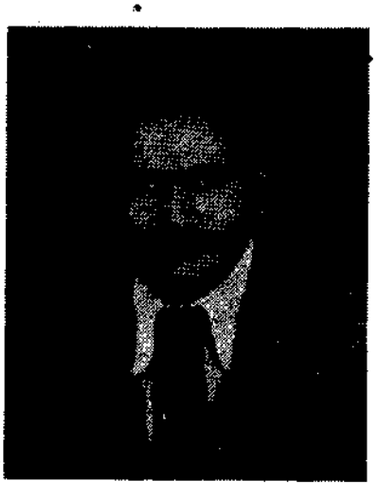
Shri V. Atchutha Rao of Palasa Field Centre, CMFRI bagged the individual championship award at the Third ICAR Inter-zonal Athletic Meet held at Sugarcane Breeding Institute, Coimbatore, from 28 to 31 January. His record-breaking performance in 100, 200 and 400 m sprints not only brought him the personal glory but also helped, to a large extent, the South Zone claiming the G. K. Kuriyan Memorial Rolling Trophy for the Champion Zone besides winning a permanent cup. The South Zone scored 32 points out of which 19 points were contributed by the CMFRI athletes and Shri Rao's share was 15 points. His rhythmic gallop and breathtaking finish was a treat to watch and naturally he was darling of the crowd. Calm and self effacing, Shri Rao did not gloat over his victory but told that he would strive hard to better his records. Surely, with this spirited attitude he would win more and more accolades.



Sri Atchutha Rao

Kudos to Shri A. Kumar (Pattukottai Field Centre), Shri M. Alfred (Tuticorin Research Centre) and Shri L. K. Suvarna (Karwar Research Centre) who brought credit not only to CMFRI but also to the South Zone. Shri Kumar scaled 1.55 m in high jump and won the second place. He lost the first place on technical grounds to Shri Sharma of CSWRI who also cleared the same height (1.55 m). Shri Alfred secured the third place in pole vault. Shri Suvarna, though did not win any prize in the 5km cyclerace, gave a spirited performance.

Shri Kumar



Shri Alfred

The Champion Institute award, to the institute which gets the maximum number of points of all items put together, was given to CIAE, Bhopal. Full credit should be given to the host institute SBI Coimbatore for the excellent and smooth conduct of the athletic meet and the athletes were quite happy and satisfied with arrangements made by the host. The Third Athletic Meet of ICAR was yet another memorable event.

Recreation

The Recreation club at the Madras Research Centre celebrated its annual day on 4 March. The members of the club and their families participated in music and sports competitions. A film produced by Federal Republic of Germany was also screened. Smt Meenakshisundaram gave away the prizes to the winners.

VISITORS

Dr Daniel E. Morse, Professor of Genetics and Biochemistry and Mrs Aileen Morse, Marine Sciences Institute, University of California visited CAS in Mariculture from 16-18 February. Dr and Mrs Morse conducted group discussions relating to induction of spawning, inducement and synchronous larval metamorphosis and settlement, promotion of growth by addition of vitamins and insulin, identification, characterization and purification of factors responsible for metamorphosis and application of genetic engineering in mariculture.

Dr and Mrs Morse

Professor Wallis H. Clark, Junior Director, Aquaculture Programme, University of California, USA visited CAS in Mariculture and gave a seminar on Crustacean Reproduction, 31 January.

Dr Gerald J. Bakus, Associate Professor (Biology), University of Southern California, visited CAS in Mariculture and gave a seminar on A Multidisciplinary Marine Fisheries Management for Developing Countries with comments on Indian Ocean, 31 January.

Dr K. Ranga Rao, Professor of Biology, University of West Florida, USA visited CAS and gave seminars on Endocrine Regulation of Crustacean Pigmentary Effectors and Physiological and Histopathological Evaluation of Pollutant Toxicity, 6-8 February.

Mrs Feyishola B Adesunloye Moore, National Accelerated Fish Production Project and Inshore and Artisanal Fishing Project, Lagos State, Nigeria, who was attached to the Integrated Fisheries Project, Cochin for training in fisheries extension and Welfare visited CMFRI, Cochin and Prawn Culture Laboratory, Narakkal, 4 February.

Dr D. Desiah, Associate Professor, Department of Neurology, University of Mississippi Medical Centre, USA visited CAS and gave a Seminar on Neurotoxicity Studies on Marine Organisms, 10 February.

The following also visited CMFRI during the period

Cochin

Extension officers on training with MPEDA.

Mr Antony Joseph, Ph. D. Scholar, Dept. of Bio-science, Saurashtra University.

Trainees from the Central Institute of Fisheries Education Loyola College, Madras

Professor Wallis H. Clark and Dr Bakus with Dr E.G. Silas Director, CMFRI.

Students on study tour

Fisheries College, Tuticorin

St. Jude's College, Thoothoor
Govt Arts College Karur,

Shivaji University, Kolhapur

Department of Marine Science, University of Quatar

Jamal Mohamed College, Tiruchirapalli

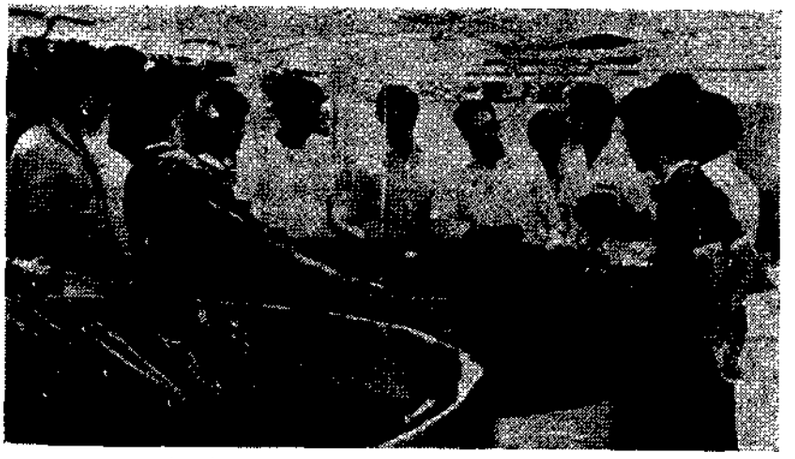
Govt. Arts College, Salem.

Tuticorin

The students on study tour from the following institutions visited the Centre.

Central Institute of Fisheries Education, Bombay.

Mr Michel Allan, Head of Aquaculture Programme, CNEXO, France and Shri Parveen K. Jethi, Resident Manager, Industrial Engineering (Pvt.) Ltd. Bombay visited CMFRI on 12 March to discuss the possible collaboration between CNEXO and India for Fisheries Research.



Students from University of Quatar at the Prawn Hatchery Laboratory

Officials of the Embassy

Fisheries Staff Training Institute, Madras.

College of Arts and Science, Osmania University, Kamareddy.

Indonesian Commercial Attache

Mr M. S. L. Lubis, commercial Attache, Mr. Abdul Hadi Adnan, Head of Economic Section, and Dr K. O. Nag, Consultant, Indonesian Embassy, New Delhi visited CMFRI Cochin on 20 March. The dignitaries were briefed about the capture and culture fisheries activities of the Institute and were shown the film, Mariculture. The officials showed interest in developing training programmes for their fisheries staff in India and in adopting Indian technologies for mariculture. Later the group visited CIFT and MPEDA.

St. Xaviers' College for Women, Alwaye.

Emarald Heights College, Udagamandalam.

T. K. Government Arts College, Viruthachalam.

Alphonsa College, Palai

Shri Ayyappa College, Chengarkadi.

Scott Christian College, Nagercoil.

Christ College, Irinjalakuda.

St Xavier's College, Palayam kottai.

G. N. College Erode.

St Thomas College, Ranni.

St John's College, Anchal.

B. M. College, Cochin.

Christian College, Chengannur.

St Peter's Higher Secondary School, Thanjavur.

Shri S. K. Sanyal, Boruala, Nagpur and D. P. Srivastava, Ministry of Labour, New Delhi.

Shri K. N. Gosh, Controller of Explosives, Sivakasi.

Shri Seerkazhi S. Govindarajan, Isai Illam, Madras.

Dr B. T. Antony Raja, Consultant, FAO's Bay of Bengal Programme, New Delhi.

Dr R Natarajan, Director and Professor, CAS in Marine Biology, Annamalai University.

Shi Mathivannan, Instructor, Fisheries Staff Training Institute Madras.

Kumari Sara John, Nicholson Syrian Girls High School, Thiruvalla.

Staff News

Engagements

Director, Dr E. G. Silas attended the following:

Meeting of the ICAR Fisheries Sub-groub for Seventh Plan Strategy at New Delhi, 18-19 January, 1984

International conference on Bilogy of Benthic Marine Organisms and chaired the session on Mariculture at Aurangabad, 24 January,

Meeting of the VII Plan Working Group on Agricultural Research and Education at New Delhi, 20-21 February

Meeting on Logistic Arrangements of New Fisheries and Oceanographic Research Vessel at New Delhi, 25 February,

The Workshop on Sea Turtle Conservation orgainsed by CMFRI in association with the Marine Biological Association of India, Department of Environment and Madras Crocodile Bank, 27-29 February

In response to the request from the Commissioner of Fisheries, Gujarat Shri K. Nagappan Nayar, Scientist S-3 visited Gujarat and reviewed the work done by the Gujarat Department of Fisheries on Culture of Edible Molluscs.

Dr K. Alagarswami, Scientist S-3 attended the International Conference on Bilogy of Benthic Marine Organisms at Aurangabad, 20-24 January.

Dr P. Parameswaran Pillai has been nominated as the Liaison Officer for India for the Indo-Pacific Tuna Programme of UNDP/FAO.

Appointments

Shri K. S. Scariah as Scientist S-1 on transfer from IASRI, New Delhi, 6 February.

Shri R. V. Singh as Field Officer (T-6), 4 February,

Shri V. Rangacharyalu as T. A. (T-II-3) on inter-institutional transfer, 14 December,

Shri Mangalsingh Zala as Field Assistant (T-1), 22 March,

The following Junior Technical Assistants (T-2) have been appointed as Technical Assistants (T-I-3) with effect from 1 July, '82

Shri L. Chidambaram
Smt Alli C. Gupta
Shri M. Selvaraj
Shri R. Thangavelu
Shri A. Srinivasan
Shri T. S. Balasubramanian
Shri V. Thanapathi
Shri N. Kathar Batcha
Shri S. Palanichamy
Smt. Uma S. Bhat
Shri S. Subramani
Shri A. Deivendra Gandhi
Shri M. R. Arputharaj
Shri Hameed Batcha
Shri M. Manickaraja

Shri P. V. Vijayan as Junior Stenographer, 9 January

Shri K. Thankappan as S. S. Grade-1 (Fieldman), 16 January

Shri S. Inbamani as S.S. Grade 1 (Watchman), 24 February,

Shri P. Dasan as S. S. Grade I (Fieldman), 9 March,

Shri B. Babu as S. S. Grade I (Safaiwala), 13 March

Shri V. Joseph Xavier as S. S. Grade I (Fieldman), 7 March

Shri S. Subramanian, Assistant as Superintendent, 6 January,

Shri S. Antony George Ratnam, Senior Clerk on ad-hoc basis as Senior Clerk on regular basis, 28 January,

Shri M. J. John, Assistant on ad-hoc basis as Assistant on regular basis, 4 February

Shri D. Gnanajebamani, Senior Clerk as Assistant, 3 February,

Shri M. R. Wadadekar, Senior Clerk on ad-hoc basis as Senior Clerk on regular basis, 4 February,

Shri A. P. Balakrishnan, Junior Clerk as Senior Clerk on ad-hoc basis, 7 February,

Shri K. Nagarajan, Senior Clerk as Assistant on ad-hoc basis 6 February

Shri R. Appa Rao, Senior Clerk as Assistant on ad-hoc basis, 10 February,

Shri V. Mohanan, Junior Clerk as Senior Clerk, 29 February

Shri Y. H. Gamanagatti, Junior Clerk as Senior Clerk, 9 March

Smt K. C. Karthiayini, Junior Clerk as Senior Clerk on ad-hoc basis, 15 February,

Shri R. Thankappan, Junior Clerk as Senior Clerk on ad-hoc basis, 6 February

Budget

CMFRI's Expenditure for the year 1983-84

Plan	—	Rs 1, 78, 45, 262
Non-Plan	—	Rs 1, 53, 74, 835
Total	—	Rs 3, 32, 20, 097

Shri M. Abdul Salam Sahib, Junior Clerk as Senior Clerk on ad-hoc basis, 13 February

Shri S. Suryanarayana Murty, Junior Clerk as Senior Clerk 10 February

Transfers

Shri V. A. Narayanankutty, Technical Assistant (T-I-3) from Goa to Cochin.

Shri S. Yadavaiah, Motor Driver (T-1) from Mangalore to Cochin.

Shri C. Johnson, Junior Clerk from Cochin to Vizhinjam

Shri S. Jayachandran, Senior Clerk from Cochin to Tuticorin

Shri N. K. Mohanan, Junior Clerk from Calicut to KVK, Narakkal

Shri R. Sreenivasan, Junior Clerk from KVK, Narakkal to Calicut

Reliefs

Shri V. Gopi, S. S. Grade I (Safaiwala) relieved on resignation

Shri C. P. Thomas, Senior Administrative Officer on transfer to CPCRI Kasargod, 16 April

Retirements

Shri K. Sankaran, S. S. Grade III (Lab Attendant) relieved on superannuation, 29 February.

Shri S. Abdulrahiman, S. S. Grade III (Lab Attendant) 29 February .

Shri K. K. Abdulrahim, S. S. Grade III (Lab Attendant) on voluntary retirement, 31 March 1984

Shri N. M. Naik, S. S. Grade III (Fieldman) on superannuation, 30 April

UNDP Fellowship

The following Scientists have been deputed for training abroad under the UNDP.

Dr N. Kaliaperumal, Scientist S-2 to Philippines for training in Euchuema culture, in the University of Philippines from 1 January

Shri R. Marichamy, Scientist S-2 to Japan for training in fish seed production at the Fisheries Research Station from 7 March

Shri V. Kunjukrishna Pillai, Scientist S-2 to USA for six months training in Water Quality Management at the Auburn University, Alabama from March 26, 1984.

Wedding

Kumari K C Karthiyani and Shri N Govindan, Senior Clerks at Cochin married at Guruvayoor Shri Krishna Temple, 5 March

Obituary

With profound sorrow CMFRI records the demise of Dr N Radhakrishnan, former Scientist of CMFRI, on 21 March at Calicut. Dr Radhakrishnan joined CMFRI in 1954 as a Research Assistant at Mandapam Camp. He took his Ph D and D Sc in fishery science from Aligar Muslim University and advanced training in fishery science at the Institute of Marine Research, Bergen, Norway. He served FAO/UNDP Pelagic Fisheries Project at Cochin as Biologist on deputation and later the Exploratory Fishery Project at Calcutta and Bombay. After taking voluntary retirement from CMFRI in 1981 Dr Radhakrishnan served the Consortium of Fishing Industries in Nigeria.

Dr Radhakrishnan leaves behind his wife and one daughter.

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PETS OF THE SNOW LAND

Courtesy: NOVOLAZAREVSKAYA (Russian Base Camp) Antarctica