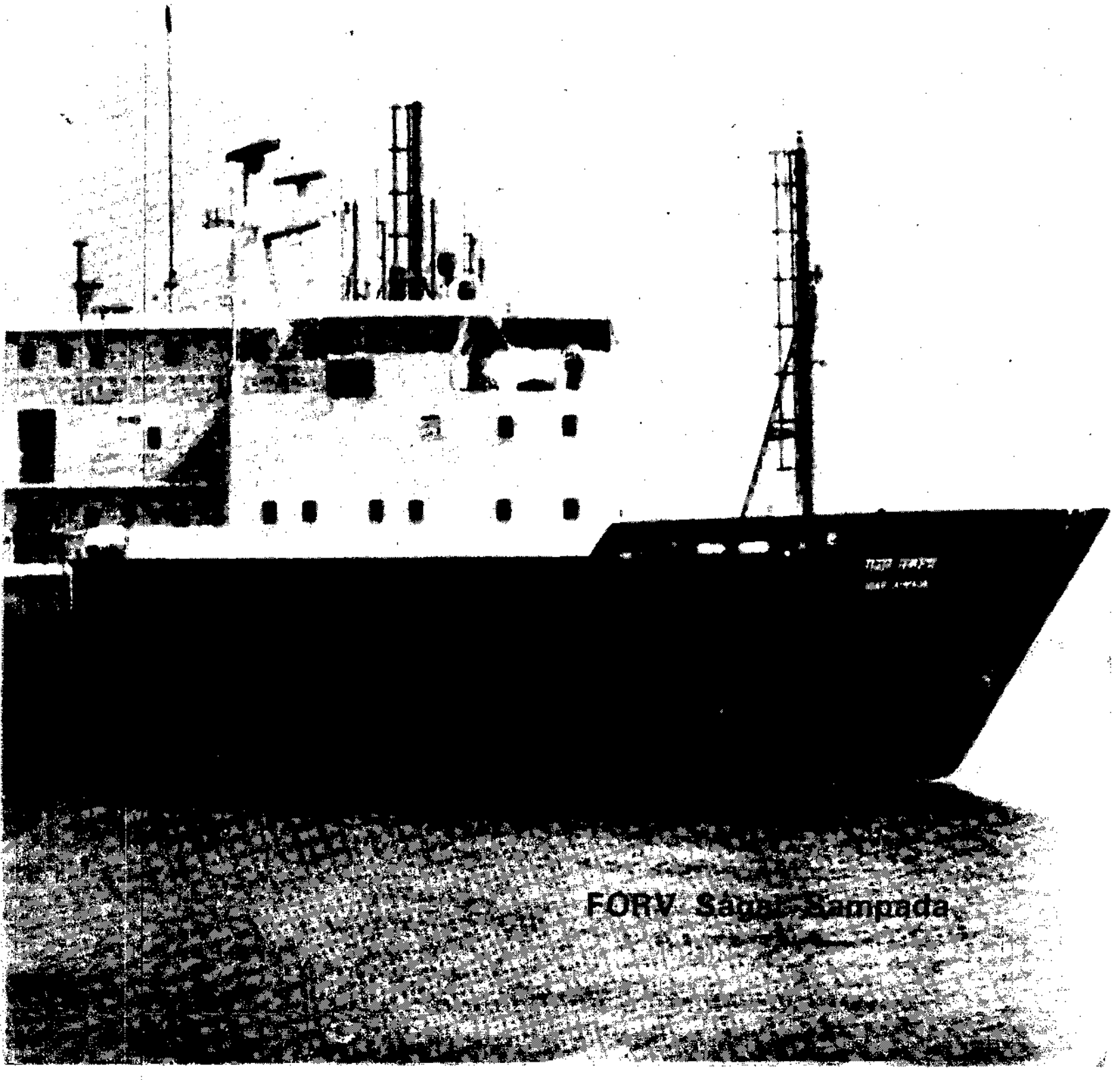
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

CMFRI newsletter

Number 26 October-December 1984



FORV Sagar Sampada

"We are the only country with the privilege of having an ocean named after us. We have a long coast and our maritime tradition goes back to ancient times. The ocean has hardly been explored by those who live around it. In the EEZ area we have the exclusive right to utilise living and non-living resources. India has now been recognized as a 'pioneer investor' in ocean mining giving it the exclusive right to operate in an area of up to 150,000 square kilometers in the high seas for processing of polymetallic nodules. This is a direct result of our past oceanographic research. The bounty of food in the ocean is rich in protein. A mere dozen or so countries, which have extensive technological capabilities to locate marine living resources and to understand physical, chemical and biological oceanography, monopolize more than three quarters of the total global harvest of fish and operate major fishing fleets with storage facilities at great distances. Last year our first scientific expedition set foot on Antarctica. It reminded us that India has not lost its daring and competence and that it is capable of understanding systematic work on the southern ocean and Antarctica.

Our scientists must think of somehow introducing the most advanced means into the villages, bring professionalism into traditional system of information. India has always respected qualities of mind, yet alongside there has run a stream of insight and intuition whose value is getting greater recognition in today's Western science. Unlike West our philosophy has flexibility, our myths provide parallel for practically every situation and modern idea. How can we make for loss of time unless we now begin to create technology for 21st century?"

From the inaugural address by Late Prime Minister Smt Indira Gandhi at the 70th session of the Indian Science Congress—Man and the Ocean, Resources and Development-1983

FORV Sagar Sampada, the multipurpose Fisheries and Oceanographic Research Vessel acquired by the Department of Ocean Development (DOD) arrived at Cochin on 30 December marking a very important phase in India's ocean development programme. The vessel which was taken over by DOD on 6 November at Denmark arrived at Cochin after completing the maiden and test cruises. A function was arranged on 30 December to receive her at Cochin, her home port. Dr S. Z. Qasim, Secretary to the Department of Ocean Development, Dr P.S.B.R. James, Assistant Director-General (Fisheries), ICAR, and Dr V. V. R. Varadachari, Director, National Institute of Oceanography were among the distinguished officials present at the function.

Speaking at the meeting held in this connection Dr Qasim said, "The vessel is a tribute to our Late Prime Minister Smt Indira Gandhi who named it. This indicates her tremendous involvement in ocean development which saw the birth of the Department". The vessel which has come to India under Danish aid programme on a soft loan of 150 million Danish Kroners was constructed at the Dannebrog Shipyard Ltd, Denmark. An aid of 10 million Danish Kroners in the form of equipment has also been given by the Danish International Development Agency (DANIDA). The possibility of building the vessel in Denmark was discussed in 1981 and the agreement was signed in 1983. The vessel was designed by the consulting firm, Dwinger Marineconsult A/S, Denmark in close collaboration with Indian specialists.

Dr P.S.B.R James, Assistant Director-General (ICAR) welcoming the gathering. Seated are (from left) Dr V. V. R. Varadachari, Director, NIO, Dr S. Z. Qasim, Secretary, DOD, Dr E. G. Silas, Director, CMFRI, Dr M. R. Nair, Director, CIFT and Dr K. Alagarswami, Scientist, CMFRI

Explaining the objectives of this sophisticated fishery oceanographic research vessel, Dr Qasim stated that the Oceanographic Research Vessel Sagar Kanya earlier acquired by the Department was intended mainly for investigating the non-living resources such as the polymetallic manganese nodules occurring in the ocean bed, whereas Sagar Sampada has been designed for investigations on living resources of the Indian Ocean. The vessel is also ice-strengthened to

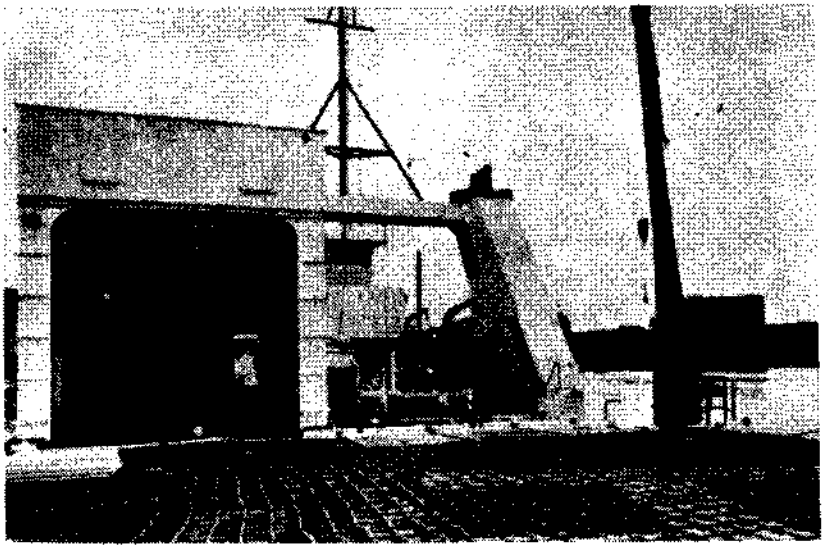
A view of the gathering

give support to scientific programmes to Antarctica. He stated that the marine fisheries resources research coupled with fisheries oceanography and relevant meteorological investigations would be the main function of the vessel.

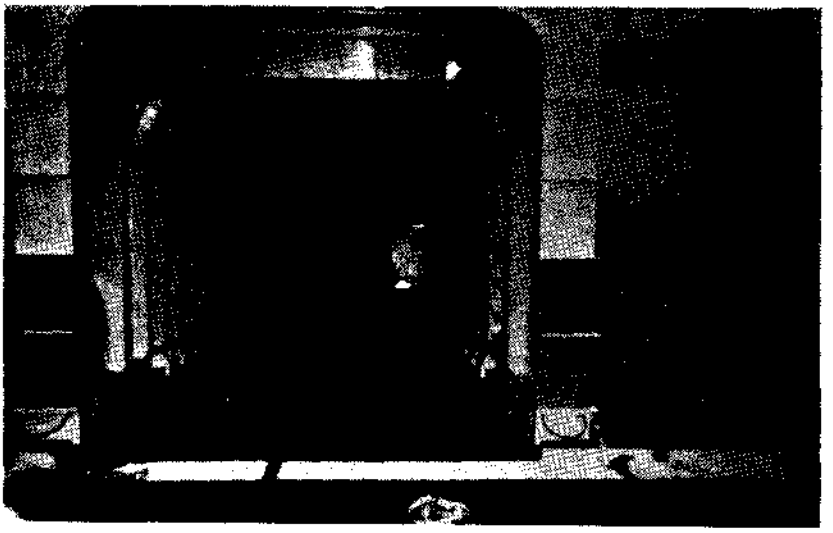
Versatalities and capabilities of the vessel

FORV Sagar Sampada has an overall length of 71 5m, with 16.4m moulded breadth, 5.6m draught and 2,661 gross tonnage. She has a cruising range of 18,000 nautical miles and has been cleared to go up to 60° south. The vessel can accommodate 59 persons including the crew and 12 scientists. The vessel is provided with various types of fishing gears and deck machinery for carrying out different types of trawling operations and longline fishing. The equipment include number of instruments to aid the resources survey and fishing operations. The various laboratories on board the vessel are equipped with latest range of analytical instruments and computer software which would facilitate various types of onboard investigations, and collection and processing of data. A helicopter deck with a helipad and a hangar is one of the special features of the ship. It has storage facilities of 50 and 100 tonnes of frozen krill.

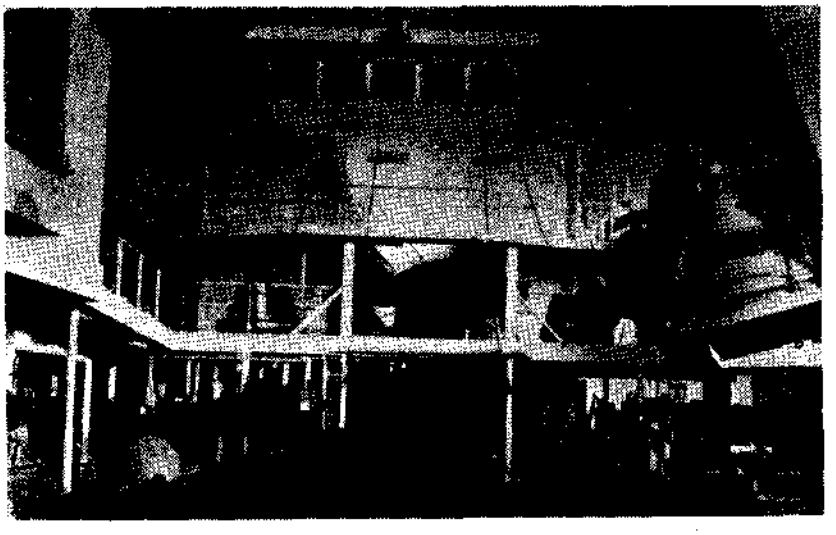
Regarding the utilization of the vessel, Dr Qasim stated that the Indian Council of Agricultural Research will be the major user of this national facility. The Central Marine Fisheries Research Institute has been identified as the nodal Institute for planning, organiz-



Helicopter deck with helipad



Helicopter hangar



Fishing deck with fishing bridge and wadi buoy

ing and implementing cruise programmes in which large number of other organizations including universities will participate The Shipping Corporation of India will look after the operations of the vessel.

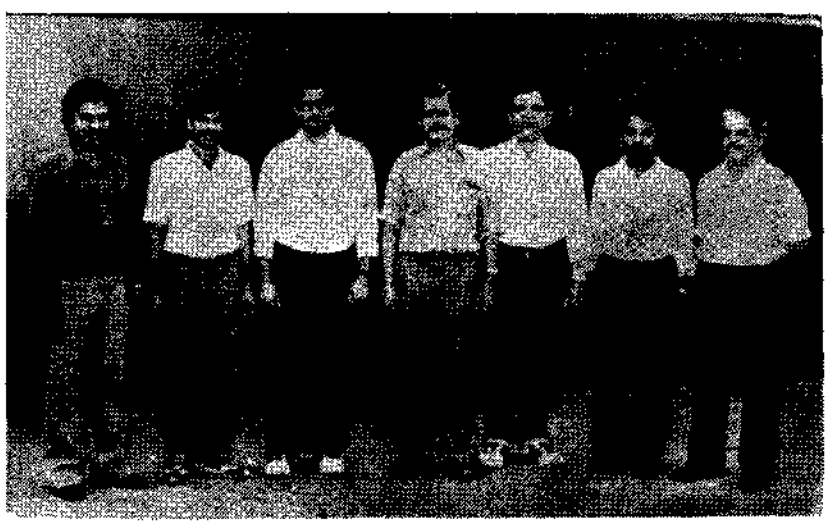
Dr E. G. Silas, Director, CMFRI who presided over the meeting said that the vessel has been handed over to ICAR by the goodwill of the Department of Ocean Development. He said that there was an urgent need to study the resources beyond 50 metres and a facility of a platform capable of working in southern seas was lacking. Dr Silas said that this was the first time, in this part of the world, that we were getting a facility to cruise up to 1000 m. The major programmes envisaged for this vessel would cover the pelagic fishery resources of the outer continental shelf and oceanic regions of the EEZ, demersal resources of the outer continental shelf and continental slope up to a depth of 1000 m; bathypelagic and mesopelagic resources; oceanic fishery resources such as tunas and related species including sea turtles, sea birds and marine mammals; krill resources of the Antarctic region, marine biochemistry, microbiology, physiology and behaviour of marine organisms along with the information on meteorology and marine environment. Gear research, harvest and post-harvest technology, acoustic applications as related to fishery resources and collaborative programmes using remote sensing will also form an important component of the programme.

The valuable data and information collected from these investigations would help towards a better understanding of the role of environmental parameters on the resources and to unfold our ocean's potential in food production and supplies, exploitable fishery resources, technology of fishing and utilization of harvested resource.

Sample collection with Rosette sampler

Welcoming the gathering, earlier, Dr P.S.B.R.James, Assistant Director-General (Fisheries), ICAR indicated the importance of Sagar Sampada in the future programme on marine resources research. Dr V. V. R. Varadachari, Director, National Institute of Oceanography gave the felicitation address. Dr K. Alagarswami, Chief Scientist who led the cruise on board the Sagar Sampada narrated some of the highlights of the cruise from Denmark to India. Dr M. R. Nair, Director, CIFT proposed the vote of thanks.

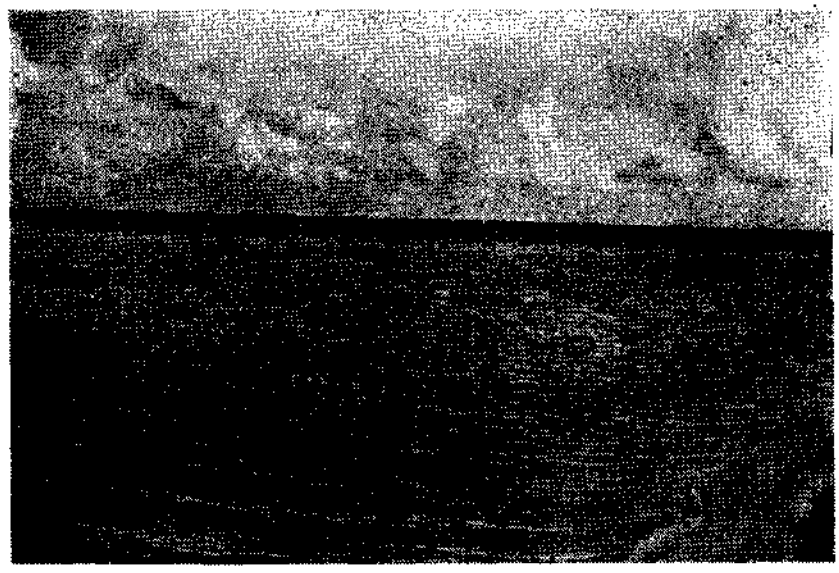
(See also page 8)



George Augustine (CMFRI), Arvind Ghosh (NIO), Madan Mohan (CMFRI), Alagarswami (CMFRI), P. D. Bari (CIFE), P. N. Joshi (CIFT), K. S. Nambudiri (CIFT) - participants in the maiden cruise

Milk Fish Culture in Saline Lagoons

A large-scale culture of milk fish in pens is being attempted at Mandapam Regional Centre of CMFRI. An area of 2.25 ha in Pillaimadam lagoon has been enclosed with nylon and HDPE webbings, for this purpose. The enclosed area has been divided into five pens and have been stocked with fingerling of *Chanos* numbering about 36,500 collected from the lagoon. This experiment is designed to demonstrate the feasibility of utilizing the saline lagoons for culture of valuable species of fish.



The lagoon area enclosed with nylon webbing

Cuttle Fish Hatched in the Laboratory

The eggs of cuttle fish (*Sepia aculeata*) were hatched out and reared in the laboratory at the Mandapam Regional Centre. The eggs collected in July hatched out in 5-10 days and the young ones were reared up to 67 mm (mantle length) Larvae were fed *mysis* during the first month and larval fishes during the later stages. It is proposed to intensify the hatchery operations during the next spawning season.

Cuttle fish hovering in midwater

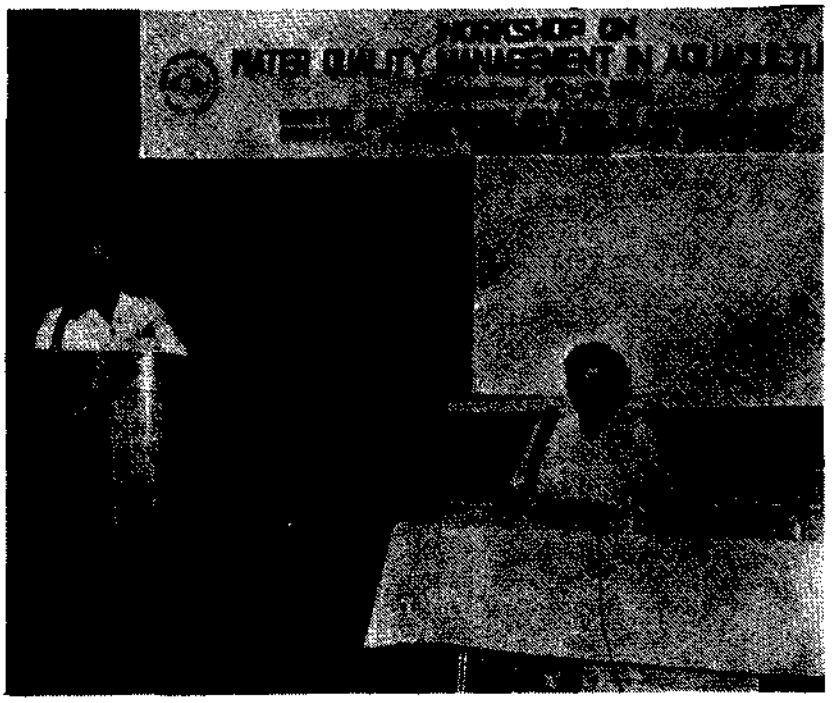
Training Programme in Pearl Culture

A four-week training programme in pearl culture was held at Tuticorin Research Centre of CMFRI from 8 October to 2 November. Three candidates, Shri M. I. Patel, Research Officer, Gujarat Fisheries and Aquatic Research Institute, Department of Fisheries, Gujarat, Shri R. Soundararajan, Scientist, Fisheries Division of Central Agricultural Research Institute, Port Blair and Kumari Mini Thomas, Senior Research Fellow, CAS in Mariculture, CMFRI were trained in this programme. The training was organized under the leadership of Dr K. Alagarswami, Head of the Molluscan Fisheries Division. This is the third short-term training organized by CMFRI in pearl culture for the benefit of the maritime states and union territories. A publication entitled 'Manual on Pearl Culture Techniques (CMFRI Special Publication Number 20) was brought out in this connection.

WATER QUALITY MANAGEMENT IN AQUACULTURE

Water quality management forms an integral aspect of aquaculture. An understanding of the complex interaction continuously taking place between the ecosystem and the stocked organism and appropriate manipulation of environment is essential to enhance the survival and production.

Dr Claude E Boyd, Professor of Water Quality and Hydrology, Department of Fisheries and Allied Aquacultures, Auburn University, Alabama, USA gave expert consultancy in water quality management in fish culture at CAS in Mariculture. Water quality management forms an integral aspect of aquaculture. An understanding of the complex interaction continuously taking place between the ecosystem and the stocked organism and appropriate manipulation of the environment is essential to enhance the survival and production. Aquaculture in grow-out ponds as practised in developing countries depends almost entirely on natural inflow of water and water quality management become more complex compared to the highly sophisticated operations pratised in devleoped countries where most of the factors are under control. The seminars, group disscussion and workshop conducted by Dr Boyd, during his consultancy gave an opportunity to understand the most advanced techniques in the methodology and instrumentation and present trends in the field. Dr Boyd was at Cochin during 2-19 December. Shri V. Kunjukrishna Pillai, Scientist S-2 was counterpart to the consultant. Shri Pillai had already undergone six months training in water quality management at Dr Boyd's laboratory.



Dr E. G. Silas, Director, CMFRI speaking at the valedictory meeting. Seated is Dr Boyd

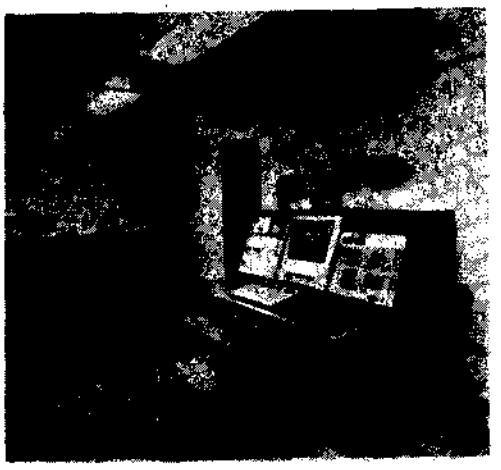
In an interview with the Newsletter, Dr Boyd said that he had worked primarily in two areas, namely, improvement of techniques for liming and fertilizing the fish ponds and maintaining water quality in intensive pond fish culture. Pond fertilization had centred on the use of liquid fertilizers. According to Dr Boyd this has proved superior to granular fertilizers. For the determination of liming rate Dr Boyd has developed a technique of mud analysis. This procedure is being widely used in USA. The research on water quality for intensive culture has centred on the influence of feeding rates, oxygen dynamics, aeration and off-flavour in fish flesh.

Explaining the term water quality Dr Boyd said, "It refers to those characteristics of water that influence its use for particular purpose. In fish culture water quality pertains to those properties of water that influence the survival, growth, yield and quality of fish. The most important water quality variables in fish culture are temperature, nutrients (especially phosphorus and nitrogen), salinity, plankton abundance, dissolved oxygen, carbondioxide, nitrate, hydrogen sulphide, pH and turbidity. Water quality management is developing methods for maintaining and improving water quality to increase fish production.

(continued on page 10)

FORV Sagar Sampada — laboratories and other facilities

Wet fish lab



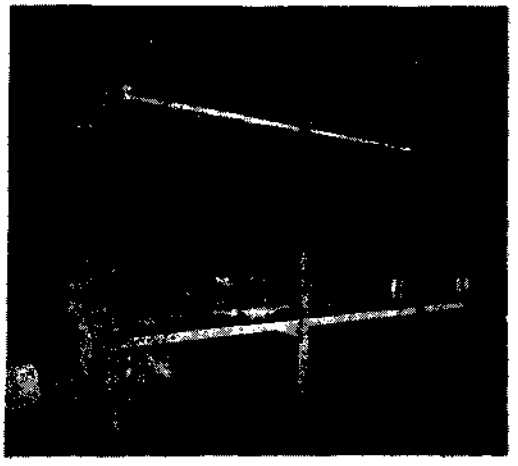
Dry chemical lab with computer

Acoustics lab

Oceanographic lab

Plankton lab

C-14 lab

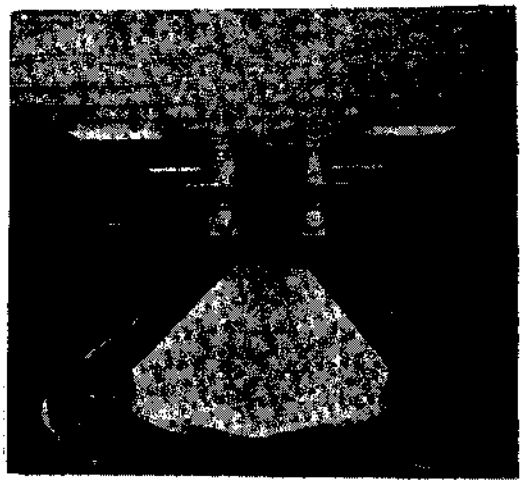


Experimental aquarium

Working space on deck-3with pulley-block for moving heavy stores

Chief scientist's cabin

Scientists' cabin



Library-cum- conference hall

Hospital

(continued from page 7)

For example, application of lime to neutralize acidic water and improve conditions for fish growth is a common water quality management procedure. Likewise, fertilization to foster more abundant plankton which, in turn, would result in more fish production, is another method

Asked to suggest an ideal management system for Indian waters Dr Boyd said, "due to heterogenity of water masses in India the management procedure would differ from place to place. However, some areas have acid-sulphate soils and liming might be employed to correct the situation. There is also hydrogen sulphide problem that must be remedied. The use of fertilizer should be investigated as it would increase yields. In Indian fish culture, the facility to flush water through ponds by tidal flow is a great asset. This flushing could eliminate many water quality problems that might develop at times in intensive prawn or fish culture The waters around Cochin are highly productive and this definitely is an asset". Dr Boyd recommended moderate levels of fish stocking density so that aeration will not be required. In future more intensive culture may develop. The systems currently used are well adopted to local conditions, but research to improve and fine-tune production schemes are always in order. Besides soil and fertility problems the areas which needed investigation, according to him, were best water exchange schedule for ponds, feeding and monitoring of water quality to establish the knowledge about the local conditions. He said that the manpower available at the Institute was well qualified to take up the work "Culture of prawn in seawater is relatively a new endeavour. As the production is intensified water quality problems will be encountered. Most research in water quality in ponds has been in fresh water fish culture. Some of this information can be applied directly to mariculture, but much trial and error and experimentation will be necessary". Commending the work of the scientists and students of the CAS, Dr Boyd said that he was quite impressed with the standard of work being carried out by them. He said that they worked very hard and had made good contributions. "I feel that CAS in Mariculture would develop as a world leader in aquaculture", Dr Boyd added.

In Indian fish culture the facility to flush water through ponds by tidal flow is a great asset. This flushing could eliminate many water quality problems that might develop at times in intensive prawn or fish culture.

VISITORS

Cochin

Dr Pastor Torres, Director, Training and Extension, SEAFDEC Aquaculture Department, Iloilo, Philippines.

Dr A. V. Raman, Dept. of Zoology, Andhra University, Waltair.

Dr A. G. Statwal, Course Director, 2nd UNDP/UNESCO Training Course on Mangrove Ecosystem.

Shri K. Thayaparan, Director, Inland Fisheries, Ministry of Fisheries, Sri Lanka.

Dr S. D. Raj, Zonal Coordinator, Lab-to-Land Programme Zone VIII, Bangalore.

Tuticorin

Shri A Sambandamoorthy, Rural Development Officer, Tuticorin.

Shri S. A. Gani, Superintending Engineer, Tamil Nadu Electricity Board, Tirunelveli.

Ms Tessa Sabright, Herley-on-Thames, U. K.

Mr Daird Huggins, J & B Company, Glasgow, Scotland.

Shri K. K. E. Menon, Tata Oil Mills Ltd., Coimbatore.

Shri Sathyamoorthy, Assistant Director of Fisheries, Madras.

Shri V. Ramamoorthy, Assistant Director of Fisheries, Staff Training Institute, Madras.

Mangalore

Shri N. V. Sripathy, Project Coordinator, CFTRI Fish Tech-

nology Experiment Station, Mangalore.

Shri P. Sulochanan, Joint Director, (Fisheries), Fishery Survey of India, Bombay.

Shri S. K. Bhandhary, Director, Fishery Survey of India, Bombay.

Students on study tour from the following institutions visited CMFRI Headquarters/ Research Centres

Department of Zoology, Andhra University, Waltair

Govt. College, Kasaragode

N.S.S. College, Pandalam

Bhavan's New Science College, Narayanaguda

Christian College, Chengannur.

M. Wadia College, Pune

S. N. College, Sivagiri

S. N. College, Chempazhanthy

St. Berchmain College, Chengannacherry

Alphonsa College, Palai

Department of Industrial Fisheries, Cochin.

Franciscan Missionaries Mary (Indian, Malaysian, & Spanish), St Joseph's Leprosy Hospital, Tuticorin.

Holy Cross College, Trichy

D. B. College, Sasthankottah

Nirmala College, Movattupuzha

Fisheries Staff Training Institute, Madras.

STAFF NEWS

Engagements

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

ICAR Directors' Conference, 26-27 October.

Meeting on establishment of Brackishwater Fisheries Research Institute and National Centre for Coldwater Fisheries Research, at New Delhi, 14 November.

Meeting convened by the Secretary, Department of Agriculture regarding permitting pair trawling operation in EEZ by chartered foreign vessels and the feasibility of conducting bull trawling operations, at New Delhi, 27 November.

Meeting of the ICAR Scientific Panel for Fisheries, at New Delhi, 12 December.

Meeting of the Committee to suggest specific narrow disciplines on fisheries for inclusion in the Agricultural Research Service disciplines, at New Delhi, 13 November.

Dr E. G. Silas, Director to serve as

Member of the Scientific Advisory Committee of Bombay Natural History Society.

Member of the Committee for Development of National Marine Park.

Convener of Standing Committee on Local Level Fishery Resources Survey constituted by the Department of Agriculture and Co-operation.

Member of the Cruise Planning and Programme Priorities committee for ORV Sagar Kanya and FORV Sagar Sampada.

Member of the Research and Advisory Council of National Institute of Oceanography, Goa.

Member of the Senate of University of Cochin.

Govt. of Tamil Nadu has appointed Dr K. Alagarswami, as Member, Board of Directors of the Tamil Nadu Pearls (Pvt) Ltd, as nominated by Director, CMFRI.

Committee to Suggest ARS Disciplines

The present scientific structure of Agricultural Research Service in the field of fisheries is overwhelmingly spread over a single discipline, viz. fish and fishery science and as a result difficulty is being experienced in maintaining balance of manpower in the fields on which work has been undertaken by the Council. With a view to minimising the chances of occurrence of this imbalance, the Director-General, ICAR has approved the constitution of a Committee comprising the following members to consider this matter and suggest specific narrow disciplines on fisheries for inclusion in Agricultural Research Service.

Chairman

Chairman, Agricultural Scientists Recruitment Board.

Members

Deputy Director-General (Animal Science), ICAR

Director, CMFRI

Director, CIFT

Director of Instruction, Fisheries College, Mangalore.

Dean, Fisheries College, Ratnagiri.

Convener

Assistant Director-General (Fisheries) ICAR.

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Dr K. Satyanarayana Rao, Scientist S-3 participated in the Workshop Organized by ICAR on Operational Research Projects at the National Academy of Agricultural Research Management, Hyderabad, 29-31 October.

Dr S. Ramamurthy, Scientist S-3 attended the Meeting of Fishery Survey of India, Headquarters Consultative Group at Bombay, 10, October.

Dr Ramamurthy also convened the meeting of the State Level Committee for Coordination of Marine Fisheries Work in Maharashtra, 21 December.

Deputation abroad

Dr A G Ponniah, Scientist S-1 has been deputed to undergo fellowship training in Marine Fish Genetics at Fisheries Laboratory, Lowestoft, England for six months from 10 October.

Dr K. Alagarswami, Scientist S-3 was the Chief Scientist of the cruise of FORV Sagar Sampada from Denmark to India for one month from 8 November.

Shri Madan Mohan on board Dunish vessel Dana during her survey near Bornholm Island

Shri Madan Mohan, Scientist S-1 was deputed to undergo Fishery Biologists' Training Course under FORV Sagar Sampada programme at the Danish Institute of Fisheries and Marine Research, Denmark for two months from 1 October.

Shri T. E. George Augustine, Bosun (T-II-3) was deputed to undergo training in Master Fishermen Course under FORV Sagar Sampada programme at the Danish Institute of Fisheries and Marine Research, Denmark for two months from 1 October.

APPOINTMENTS

Assessment

The following Scientists have been promoted based on Five-yearly assessment.

S-2 - S-3 (with effect from 1 January, 1983)

Shri S. K. Dharmaraja

Dr K. Alagaraja

S-1 - S-2

(with effect from 1 January, 1983)

Shri N. S. Radhakrishnan
Shri J. C. Gnanamuttu
Shri K. Narayana Kurup

(with effect from 1 July, 1983)
Shri Syed Ahmadali

S - S-1

Shri G. M. Kulkarni July 1982

(with effect from 1 January, 1983)

Smt. K. Vijayalakshmi

Smt. T. S Naomi

(with effect from 1 July, 1983)

Shri M. Aravindakshan

Shri C. V. Mathew

The following have been granted advance increments.

S-3

Shri T. Jacob, (one increment from 1 January, 1983).

S-1

Shri K Balan (one increment 1 July 1982, two increments from 1 January, 1983).

Shri S. Muthuswamy (one increment from 1 July 1982).

The following have been promoted to the next grade.

Shri J M. Vaz, Assistant on ad-hoc basis as Assistant on regular basis, 24 September.

Shri S. Abdulla, Senior Clerk as Assistant on ad-hoc basis, 15 September.

Shri I. Parameswaran, Senior Clerk as Assistant on ad-hoc basis, 6 November.

Smt T. Madhavi, Senior Clerk as Assistant on ad-hoc basis, 6 November.

Smt. P. K. Sreedevi, Junior Clerk as Senior Clerk on ad-hoc basis, 8 October.

Smt. G. Abitha, Junior Clerk as Senior Clerk on ad-hoc basis, 15 October.

Smt. Rosy Jochim, Junior Stenographer on regular basis, 30 October.

Shri Erishikesan, Junior Clerk as Senior Clerk on ad hoc basis, 3 December.

The following Supporting Staff has been promoted with effect from the date as indicated against each

Grade III - Grade IV

Shri R. Vellayan, Lab. Attendant, 16 November.

Grade I - II

Shri Mohan, S. Puthran, Oil Man, 6 November.

Shri G. Sampathkumar Watchman, 6 November.

Shri G. Vijayarengan, Safaiwala, 5 November.

Shri N. Burrayya, Watchman, 5 November.

Shri U. B. Sadashiva, Lascar, 6 November.

Shri R. V. S Subramanyam, Watchman, 5 November.

Smt. Mary Rayalamma, Safaiwala, 5 November.

Shri M. R. Bharathan, Lascar, 6 November.

Shri K. Sasidharan Pillai, Watchman, 31 October.

Shri B. Zainudheen, Watchman, 31 October.

Shri B. Thangaraj, Lascar, 7 November.

Shri L. K. Suverna, Watchman, 6 November.

Shri M. R. Kotharkar, Watchman, 6 November.

Shri M. E Durgekar, Lascar, 6 November.

Shri K. Thangaraja, Watchman, 12 November.

Shri B. G. Kalbate, Messenger, 7 November.

Smt. R. Devalakshmi, Messenger, 31 October.

Shri A Gopinathan, Messenger, 12 November.

Shri V. Demudu, Messenger, 6 November.

Shri R. Kanakaraju, Watchman, 6 November.

Shri R. Appaya Naik, Watchman, 26 November.

Shri C H. Vamana Naik, Watchman, 26 November.

Shri K G. Tawade, Watchman, 12 November.

Shri P. I Koya, Watchman, 23 November.

Shri O. Ismail, Watchman, 26 November.

Shri N. Pookoya, Watchman, 23 November.

Shri M. Athimoolam, Cook, 15 November.

Shri G. Ankaiah, Safaiwala, 15 November

Shri R. Sonaimuthu, Safaiwala, 15 November

Smt. J. Kondamma, Safaiwala, 15 November.

Transfers

Dr M. D. K. Kuthalingam, Scientist S-3 from Cochin to Madras

Shri C. V Mathew, Scientist S-1 from Calicut to Minicoy

Shri M. Subbiah, Superintendent from Cochin to Tuticorin

Shri M. Mohideen Abdul Kader, Driver (Boat) (T-1) from Tuticorin to Mandapam Camp.

Shri P. Feroz Khan, Bosun (T-II-3) from Mandapam Camp to Tuticorin.

Shri T. B. Harikantra, Field Assistant (T-1) from Mangalore to Karwar.

Shri K. Chandran, Junior Technical Assistant (T-2) from Karwar to Mangalore.

Shri S. Erishikesan, Junior Clerk from Cochin to Vizhinjam.

Shri R. Perumal, SS Grade III from Tuticorin to Mandapam Camp.

Reliefs

Shri M. Alagar, Mechanic (T-2) to take up the post of

Mechanic (T-II-3) at Central Agricultural Research Institute, Port Blair, 20 October.

Shri R. G. Kamulkar, Field Assistant (T-1) on resignation, 7 November

Shri E. K. Raveendran, Senior Technical Assistant (T-4) on resignation, 16 June.

Smt. S. Lalitha, Junior Stenographer on resignation, 28 August

Retirements

Shri A. Pathrose, Driver (Boat) (T-I-3), on superannuation, 31 October.

Shri G. Dorairaj, SS Grade III (Lab. Attendant) on superannuation, 31 October

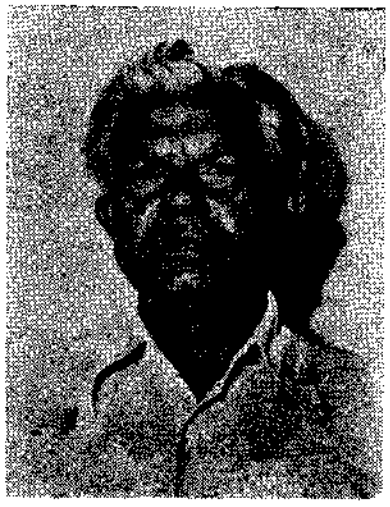
Shri P. Alagarswamy, SS Grade III (Lab. Attendant) on superannuation 31 October

Shri G Krishnan Kutty Nair, SS Grade II (Watchman) on superannuation, 31 December.

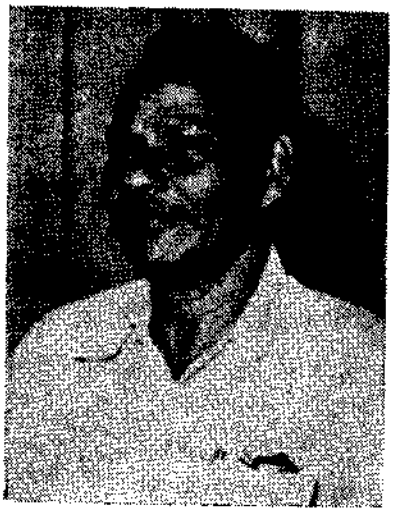
Recreation

The Staff Recreation Club of the Calicut Research Centre celebrated the Club Day on 17 November with sports and variety entertainments. The function was inaugurated by Shri K. T. Mohamed, the veteran dramatist and the former Chairman of the Kerala State Films Development Corporation. The function was presided over by Shri M. K maran, Officer-in-Charge of the Research Centre. Dr M. K. Nair, Joint Director, Central Plantation Crops Research Institute gave away the prizes to the winners of sports and games Shri K Soman, Secretary of the Club welcomed the gathering and Shri C V. Mathew proposed vote of thanks.

Shri Dorairaj



Shri Pathrose



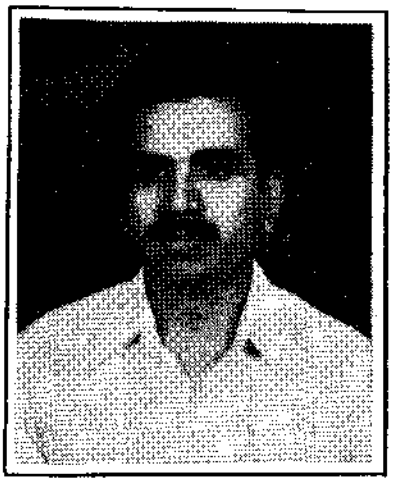
Shri G. Krishnan Kutty Nair

Shri Alagarswamy

Left: A Scene from the drama 'office'. Right: Sri K. T. Mohamed inaugurating the function

Degree Awarded

Shri B. S. Ajitha Kumar, Senior Research Fellow at the Centre of Advanced Studies in Mariculture, CMFRI has been awarded Ph D by the University of Cochin for his thesis on Reproductive physiology of Indian species of the genus *Perna* (family Mytilidae). Shri Ajitha Kumar worked under the supervision of Dr K. Alagarswami, Scientist S-3, CMFRI.



Shri A. Nandakumar, Field Assistant at Cochin has been awarded M Sc (by research) in Oceanography by the Cochin University. His research topic was 'A study of the hydrological features of the shelf waters along the west coast of India with an attempt to explain their influence upon the living resources of the region'. Shri Nandakumar worked under the supervision of Dr A. V. S Murty, Scientist S-3, CMFRI.

Shri Varughese Philipose, Senior Technical Assistant at Cochin has been awarded Master's degree in Economics by the University of Madras.

Weddings

Shri D. Gangadhara Gowda, SS Grade I at Mangalore married Kumari Rupavathi, 28 October.

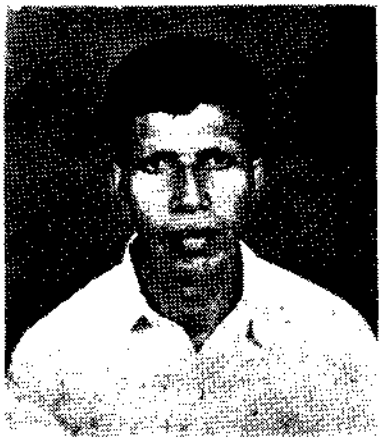
Shri A. P. Lipton, Scientist S-1 at Bombay married Kumari Serene Vanthana at Nagercoil, 7 November.

Shri M. Ramachandran, Punch Card Operator at Cochin married Kumari Prasannakumari at Kayamkulam, 10 November.

Shri K. Sadanandan, Junior Clerk at Cochin married Kumari Usha at Purameri, 11 November.

Shri A Sivadasan, S S Grade I (Watchman) at Calicut married Kumari Anjali at Nadakkavu.

Obituary



With profound sorrow CMFRI records the death of Shri M. Mohamed Kasim, S S Grade III (Fieldman) at Mandapam on 3 December.

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