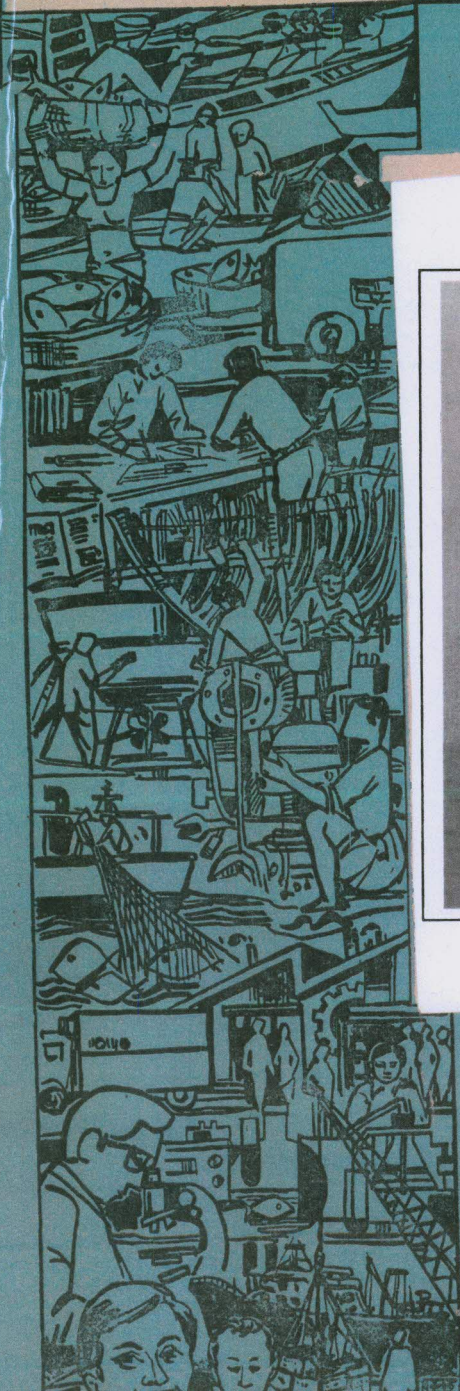




Fish technology newsletter

Vol. III No. II JANUARY-MARCH 1984



'ORV Sagar Kanya' — the 100 m. research vessel
with NIO, Goa. (Page 13)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

Foreword

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Abbreviation: Fishtech News

Fish Technology Newsletter is a quarterly intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

deep sea fishing trawlers

Ministry of Shipping and Transport, Govt. of India, has constituted a Standing Committee with Government representatives, builders and end-users besides three Task Force Groups[(a)Design of Fishing Vessels,(b)Development of Ancillaries(c) Assessment of the local yards for their capability and removal of delays in Govt. procedures]for formulating a new project programme.

The following project plan for the construction of indigenous Deep Sea Fishing Vessels was considered recently.

i) The requirements of trawlers suitable for Indian conditions may be identified and furnished to the technical authorities for translating them into standard specifications.

ii) An assessment may be made of the registered trawler builders to determine the types of trawlers and their number which can be built advantageously by them within the required delivery period.

iii) The individual shipyards may also be allowed to import designs and drawings from foreign countries for offering them to the prospective users and getting the orders from them for such trawlers.

iv) The technological upgradation of a few selected trawler

builders may be brought about by allowing them to engage foreign technicians.

v) Standardisation of trawlers suitable for Indian conditions based on equipments etc. available in the country may be done for the purpose of shortening the delivery period.

vi) A few trawlers of proven designs may be got manufactured in Indian Shipyards by the State Fisheries Corporations and offered to prospective operators on chartering basis.

vii) A system of after-sales-service appraisal and maintenance of the trawlers supplied by Indian Shipyards may be organised so as to carry out the desired improvements in the trawlers and to provide customer's satisfaction about the performance of such trawlers.

Two meetings were held, one on 3-1-1984 at New Delhi and the other on 10-2-1984 at Bombay. C. I. F. T. was represented by Shri R. Balasubramanyan, Senior Scientist and Head of the Craft Division who made valuable contributions during the above meetings. Merits and de-merits of the existing Deep Sea Fishing Vessels operating in India are to be monitored on priority basis which suggestion has been accepted by the Committee. □



Shri M. K. Kandoran, Scientist, CIFT, welcomes the gathering

extraction of fish oils

A major part of the fish oils produced at present in India is by crude traditional methods leading to considerable loss both in quantity and quality of oil produced. There is lot of scope for improving the trade on scientific lines. Malpe, in S. Kanara, is an important centre for the commercial production of shark liver oil

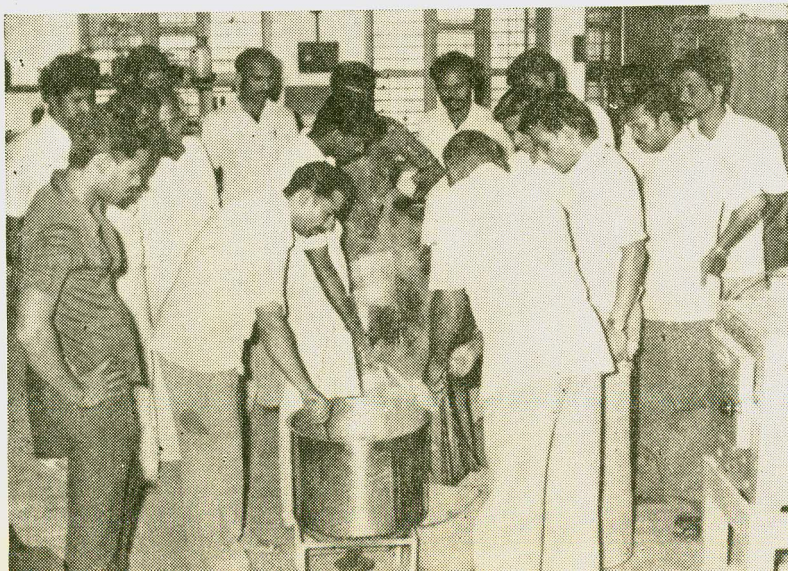
and sardine oil.

At the request of the State Dept. of Fisheries, Karnataka, a training course on processing shark liver oil and sardine oil was conducted by CIFT at Malpe from 7—9 February 1984. Twenty candidates representing the industry, including women, attended this programme.

The drawbacks of the present method of extraction of the oils were brought to the notice of the trainees and the improved methods of both preserving the shark liver and sardine and extraction of the oil demonstrated and explained in detail.

(Continued on page 6)

Extraction of body oil from sardines





FISH HANDLING AND PRESERVATION

A demonstration programme on 'Fish handling and fish preservation by ice on board fishing vessels' was held at Veraval during 16-22 January 1984. The programme was organised by the Marine Products Export Development Authority and the Central Institute of Fisheries

Technology, in association with the Fisheries Training Institute (Govt. of Gujarat) and Shree Kharva Samyukta Machimar Boat Association, Veraval. The Scientists and technical staff of Veraval Research Centre of CIFT actively participated in the conduct of this programme.

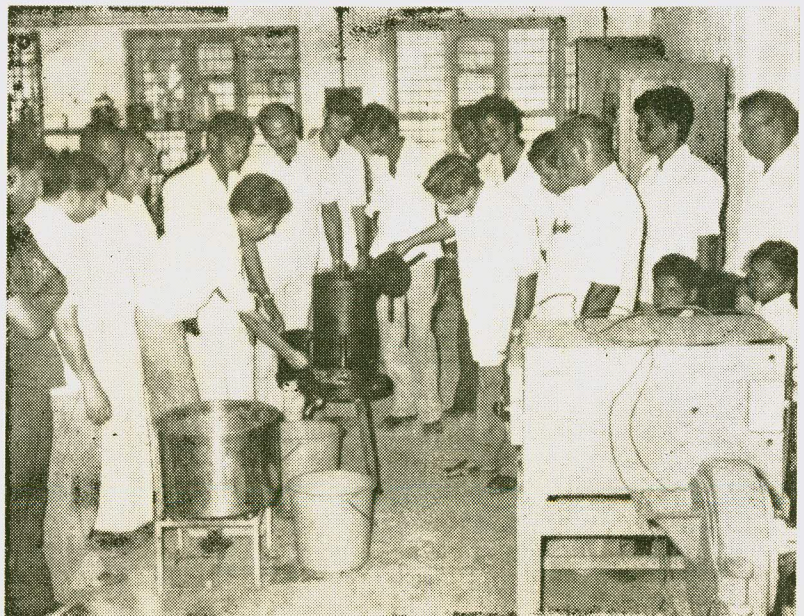
Four principal points as outlined below were covered step by step for the benefit of the fishermen trainees.

1. Hygiene in fish handling: Fish, being a highly perishable commodity, must be handled hygienically and carefully during all stages of preparation.

(Continued from page 5)

Shri Shanmugha, Dy. Director of Fisheries, Mangalore, inaugurated the training course which was presided over by Shri P. V. Prabhu, Scientist S-3 of CIFT. Shri M. K. Kandoran Scientist S-2, CIFT, welcomed the gathering and Shri Gopal Reddy, Asst. Director of Fisheries (Tech.) Malpe, proposed the vote of thanks. □

Extraction of shark liver oil

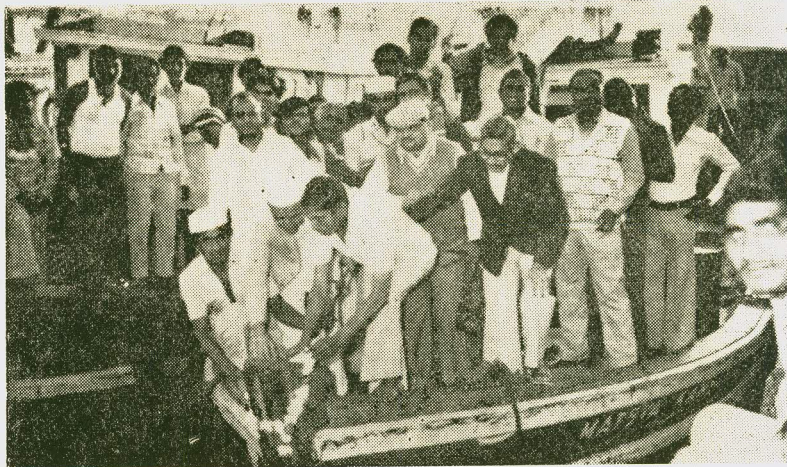


2. Fish spoilage: Spoilage begins as soon as fish dies. The main causative factors are bacteria and the digestive enzymes. In high ambient temperatures, fish spoils within 12-20 hours depending on the species and method of capture

3. Fish preservation: Preservation methods should aim at keeping the fish in a fresh state so that changes in texture, taste, appearance etc. are minimised.

4. Storage equipments: Storage devices such as fish holds, ice-boxes, trays, baskets etc. play a very important role in preserving the freshness of the fish.

The programme covered theoretical aspects on personal hygiene, fish spoilage, fish handling, fish preservation by ice in clean containers, cleaning of deck area, fish holds/insulated fish boxes, utensils and fishing gear with water and detergents and finally rinsing them in chlorinated sea water of 100ppm concentration before commencement of fishing. These aspects were covered by lectures as well as through extension pamphlets.



Shri Dhanjibhai Chhaganbhai Khapandi, Kharwa Patel of Veraval, inaugurates the training programme.

Demonstrations were held on board fishing vessel on proper emptying of hauls, segregation and grading of catch, gutting fish where necessary, beheading of prawns, washing with clean sea water and chlorinated sea water, preserving the catch in insulated fish boxes with crushed ice and cleaning the deck and utensils with detergent and chlorinated sea water after the entire operation is over.

Films depicting these aspects were also screened on the final day of the programme.

The programme was inaugurated by Shri Dhanjibhai Chhaganbhai Khapandi, Kharvapatel of Veraval on 16-1-84. The function was attended by officers and staff of CIFT, the FTI, State Fisheries Dept.,

MPEDA and leading fishermen/boat owners of Veraval and Bhidia.

In the valedictory function held on 22-1-'84, Shri Dhanjibhai-Chhaganbhai Khapandi presided while Shri B H Dave, Administrator, Veraval-Patan Municipality delivered the valedictory address. Certificates were also distributed to the participants of the training programme. About 230 fishermen participated. The programme concluded with a film show by the MPEDA.

This programme was well appreciated by the local fishermen, exporters / processors, World Bank Experts and the Dept. of Fisheries, Gujarat. The large scale participation is itself indicative of the necessity to conduct such programmes in other landing centres also. □

HANDLING PRACTICES OF FISH AND SHELL FISH

'Fresh fish-good dish'-so goes the saying. If the fish that is bought from the market is fresh, the end product leaves a feeling of satisfaction and delight to the gourmet. But, on the other hand, if the fish is spoiled, one curls one's nose in distaste. A consumer always equates the quality of fish in terms of its freshness. Whether fresh or processed, he seeks a product which must have the flavour, taste and texture of a real fresh fish.

Fish is a highly perishable food commodity. At ordinary room temperature, fish becomes susceptible to rapid spoilage and becomes unsuitable for consumption in 8-10 hours. Great care must therefore be taken in handling the fish from the time it is caught till it reaches the consumer.

The water used in the seafood industry has to be of a certain standard quality. The surfaces as well as the perso-

nnel coming in contact with the fish also have to maintain a high standard of hygiene and sanitation. It is with a view to educating the persons actually engaged in the work in the proper method of pre-process handling and storage of the raw material through all stages of processing that the MPEDA and CIFT jointly organised a training programme on "Handling Practices of Shrimp and Fishes at Pre-processing Stages" at Cochin from 21 February to 16 March 1984.

The programme was held in three batches, from 21-25 February, 5-9 March and 12-16 March 1984. In all, 44 candidates attended the course. All the candidates selected were persons who were either owners or workers in the peeling sheds in Kerala.

The trainees were given theory classes by experts in CIFT and practical classes were conducted regularly on the sensory evaluation techniques in assessing the quality of the freshness of fish.

The programme was inaugurated by Shri S. N. Rao, Director, MPEDA and presided over by Dr. C. C. Panduranga Rao, Director CIFT. Dr. K. Gopakumar, Scientist-in-Charge, Processing and Packaging Division gave the welcome address and Smt. Veena, Asst. Director, MPEDA proposed the vote of thanks. □



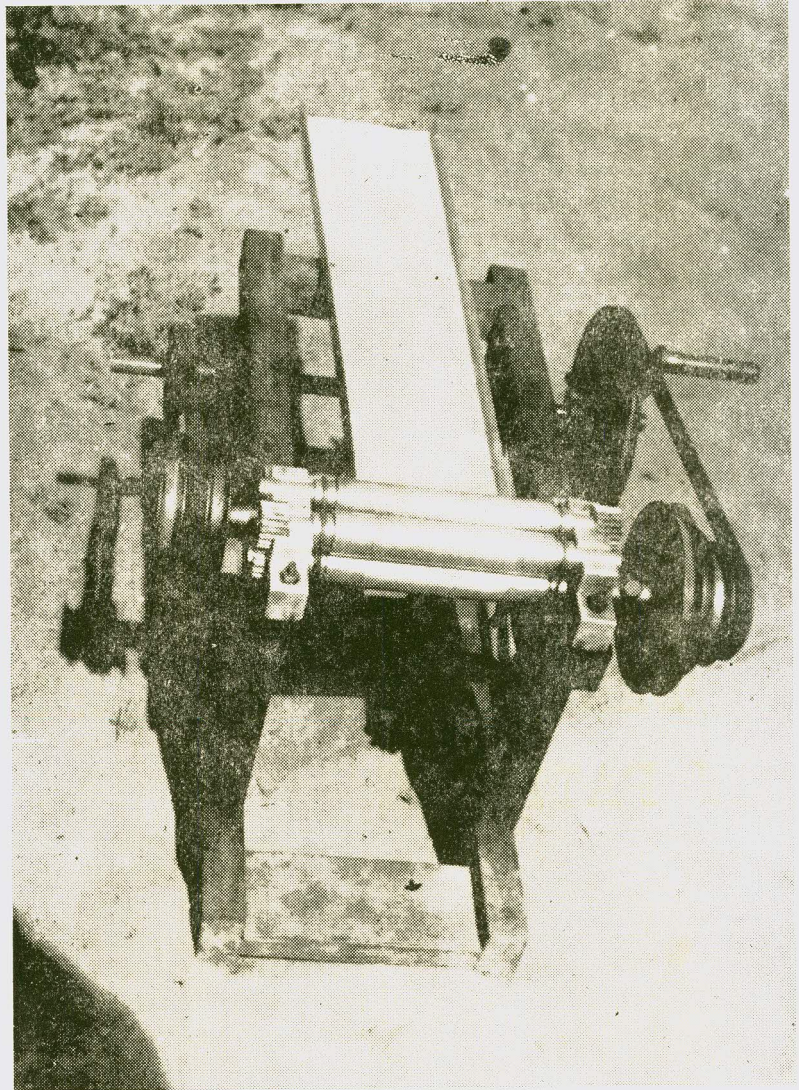
Peeling in progress

Isinglass is carefully washed and dried fish air bladder made into special forms by mechanical means. The air bladder consists of several tunics, the outer layer of which is thick and fibrous containing collagen. Isinglass is used as clarifying agent for beverages such as cider, wine, beer and vinegar. It is also used in glass and pottery industry, in confectionery products and as an adhesive base. At present, the dried air bladder is exported as fish maws. A low cost hand press has now been developed at the Kakinada Research Centre of the Central Institute of Fisheries Technology for the production of isinglass. The cost of the machine will be about Rs. 1,500/-.

LOW COST HAND PRESS FOR ISINGLASS INDUSTRY

Device description and principle of operation:

The device consists of two pairs of stainless steel rollers hand driven at different speeds by wheel and pulley arrangement connected by V-belts. Each pair of rollers rotates at the same speed in opposite directions (i. e. towards each other) in such a manner that the material fed to it is pulled through the pair of rollers. The first pair of rollers feeds the material to the second pair of rollers which rotates in the same fashion as the first pair but at a faster speed. The speed of the rollers can be adjusted according to need. Generally, the pair of rollers with faster speed rotates at about 30 rpm.



The speed ratio between first and second pair of rollers is 1:2.5. However, this speed ratio can also be adjusted using a different belt with the pulley. The diameter and length of all the rollers are 3 cm and 15 cm, respectively. Thus the material passed through the two pairs of rollers is pressed and stretched to a thin sheet. In each pair of rollers, one roller is connected to the drive by belt, while the other roller rotates at the same speed but in opposite direction by a gear arrangement. The pressure between the pair of rollers can be adjusted by means of a spring and screw attachment. The rollers are hollow. By means of screw-button arrangement, chilled water is filled in the hollow rollers to cool them.

Processing of air bladder and operation of the machine:

Dried eel (*Muraenesox* spp.) air bladders are washed thoroughly to make them free from sand and dirt, cut into half and then soaked in water for 24-60 hrs, depending upon the size and thickness of the air bladder. Water should be changed at least once in 6 hours to avoid development of foul odour. When sufficiently soft, they are split open, washed in cold water to remove blood, membranes and any other adhering extraneous matter. They are then kept immersed in cold water (2-3°C) for at least 15 minutes. Ice cold water is filled in the hollow rollers by removing the screw buttons on the rollers. After filling the hollow rollers, the buttons are screwed tightly. Before starting, the rollers are also cooled externally by placing ice cubes on the rollers and

rotating them very slowly. Proper cooling of the rollers is essential to prepare very thin (of the order of 0.1 to 0.2 mm-thick) isinglass; otherwise the air bladder will stick to the rollers and thickness cannot be reduced to the desired level. The chilled air bladder is then passed through the cooled rollers, keeping the outer surface of the air bladder facing top. In the case of thin air bladder, the desired thickness can be achieved by passing the chilled air bladder twice through the pair of rollers while for thick air bladder the desired thickness is achieved by passing the chilled air bladder three times through the rollers. These are then spread on enamel trays and dried under sun. In this way, isinglass having thickness between 0.1 mm and 0.2 mm is obtained. The dried product is then packed in 200 gauge polyethylene bags. □

Subrata Basu & D. Imam Khasim, Kakinada Research Centre of Central Institute of Fisheries Technology.

DEMONSTRATION CAMPS IN PATTAMBI

Demonstration camps were held on preparation of fish pickles and fish wafers on 23rd and 24th January at Pullasseri Mahilasamajam and Thiruvegappura Mahilasamajam in Pattambi, respectively. These demonstrations were jointly organised by the CIFT and the Krishi Vigyan Kendra of the Regional Agricultural Research Station at Pattambi.

The different means of processing fish, principles underlying preparation of fish pickles, various steps involved in preparation of the pickles and fish wafers etc. were explained in detail besides demonstrating the preparation of the products. Forty seven participants in all attended these camps, twenty six at Pullasseri Mahilasamajam and twenty one at Thiruvegappura Mahilasamajam. Many of the participants evinced keen interest in starting production of the products, especially wafers, on a commercial scale. □

Dr. Thain at CIFT

Dr. E.M. Thain Director, Tropical Development and Research Institute (TDRI), London, visited the CIFT on 15 March 1984. He was received by Dr. C.C. Panduranga Rao, Director and Dr. K. Gopakumar, Scientist-in-Charge, Processing and Packaging Division.

Dr. Thain was taken around the various Divisions of the Institute and discussions were held with the concerned Scientists on the various scientific problems on which the Institute is now undertaking research. He later addressed the Scientists when he briefed them on the genesis of TDRI and the different collaborative research work currently being carried out by it with other countries in the tropics.



In the Processing Laboratory

The TDRI which started its history as the Imperial Institute in 1894, is under the administrative control of Overseas Development Administration (ODA), U. K. The CIFT and the TDRI have a bilateral agreement for collaborative research in fish processing, with special emphasis on investigating problems associated with processing of fish in the tropics. The bilateral project started functioning in November 1983 and it was as part of this programme that Dr. C. D. Wood,

Project Co-ordinator for TDRI visited the Institute in Nov-Dec '83. Under this, Scientists from both CIFT and the TDRI will be undertaking exchange visits to both countries. Dr. K. Gopakumar, Scientist S3, is the Project Co-ordinator of this project at CIFT.

Before leaving Cochin, Dr. Thain visited various places of historic importance in the city like the Church where Vasco-de-Gama was buried, the Dutch Palace & fishing grounds in Fort Cochin. □

MARINE CARGO MOVEMENT AND PACKAGING DIVISION COUNCIL (MCPDC)

The MCPDC was reconstituted at its 9th Meeting held on 9th Jan. 1984 at the Conference Hall of the Indian Standard Institution, New Delhi.

The Council elected Shri N. Chakraborty, Chief Surveyor

of the Government of India, Directorate General of Shipping, Bombay as the Chairman of MCPDC.

Capt. K.K. Lohana, Director General, Naval Design, Naval Headquarters, New Delhi

was elected as Vice-Chairman of the MCPDC for the marine group.

The Council placed on record its deep appreciation to the involvement and directions given by Shri S. Paramandhan who chaired the Council for several years.

Dr. K. Ravindran, Scientist of the Fishing Craft Division of the Institute, who attended the 9th meeting, was nominated as a member of the MCPDC for a period of three years. □

Following the overwhelming success of the First Indian Conference in Ocean Engineering held at Madras in 1981, the Second Conference was hosted by the Central Water and Power Research Station from 14-16 Dec. 1983 at Pune with the following principal objectives as applicable to Ocean Engineering and associated fields:

- To keep abreast with the latest technological developments and to assess the country's future needs.

- To provide a sound and modern platform for developing appropriate interdisciplinary activities.

- To stimulate communication and information exchange.

- To evolve nationally co-ordinated planning of projects and thus avoid duplication of efforts.

The Conference was co-sponsored by 37 Institutions in the country including the Central Institute of Fisheries Technology (ICAR). A total of 93 scientific papers were contributed by 337 delegates from India, Canada, U. S. A. Federal Republic of Germany, U.K., Kuwait and Singapore under 11 themes which ranged from the hydrodynamics of oceans to futuristic areas of ocean energy.

The Scientists working on Ocean Engineering activities at CIFT presented the following papers:

IIInd INDIAN CONFERENCE IN OCEAN ENGINEERING

1. Polymer impregnated ferr-o-cement in tension: Analysis of stress-strain response and cracking characteristics - P. N. Joshi and K. Ravindran.

2. An integrated system design for acquisition of environmental data - T. K. Sivasdas

3. An electronic speed and distance log - T. K. Sivasdas, K. Ramakrishnan and K. Vijayarathi

4. Corrosion behaviour of structural metals and alloys in seawater-A. G. Gopalakrishna Pillai and K. Ravindran

The CIFT was represented by Dr. C. C. Panduranga Rao Director, Shri T. K. Sivasdas, Dr. K. Ravindran and Shri P.N. Joshi, Scientists. Shri T.K. Sivasdas, Scientist-in-Charge of the Electronics and Instrumentation Division also served as a member of the organising Committee of the Conference. As a part of the Conference, a tree-planting ceremony was organised, at which Dr. C. C. Panduranga Rao, Director, planted a tropical tree at the premises of the CWPRS.

Rapid advances which registered in the major fields of marine activities have parallel

applications in fisheries engineering as well. Fostering a close liaison with those agencies which are active in ocean engineering programmes aids in identifying newer technologies which are applicable to fisheries.

After the three day deliberations, the Conference urged the need for closer collaboration for self-generation of innovative research and development for attaining fruitful engineering economy in the new area of ocean engineering.

Shri Ram Niwas Mirdha, Honourable Union Minister for Irrigation, in his valedictory address, announced that the Ministry of Irrigation has already agreed to the setting up of a National Ship Hydrodynamics Centre at the CWPRS, Pune, which would fill a longstanding need of the ship-building industry which today has virtually all of its major designs tested abroad. The Honourable Minister stressed the role science and technology must play in a developing economy and emphasised that our investment in science must find rapid return in real economic terms that are meaningful to the population. □

'SAGAR KANYA'

an oceanographic research vessel

Government of India, through the Department of Ocean Development has acquired a new Oceanographic Research Vessel recently. 'ORV Sagar Kanya' is a National facility and its management has been entrusted to N.I.O. of CSIR, Goa. She has accommodation for 24 Scientists, 8 Technicians and 59 members of the crew

The new vessel with a length of 100 m, a breadth of 16.3 m, a draught of 5.6 m and 4500 registered tons will be one of the largest vessels in the world. The diesel electric drive with engines of 1230 KW each will enable the vessel to reach a cruising speed of 14.5 knots and voyages up to a distance of 15000 km lasting for 45 days are expected. The vessel is also provided with stabilizers which will improve her behaviour in rough seas. In addition to twin-screws, two fin rudders and one bow thruster give the vessel an excellent manoeuvring capacity.

Sophisticated equipments and modern instruments on board the vessel will facilitate studies on geophysics, meteorology, physical oceanography, chemical oceanography and biological oceanography with further support from scientific echo-sounding equipment, computer aided navigation system and data logging and processing system.

Immediately on arrival at Goa, the vessel has been pressed into service for carrying out monsoon experiments, to study the upwelling, environmental parameters and marine geological aspects of the Arabian Sea under cruise No. I programme. When 'Sagar Kanya' called at Cochin Port sometime back, Scientists belonging to various organisations were taken round on board for familiarisation.

'Sagar Kanya' will now hunt for the ocean wealth and join her sistership 'Gaveshini' which has a very good record of work in the exclusive economic zone (EEZ) of 320 km. of India.



Based on the recommendations of the Fishing Vessels Sectional Committee, MCPD 21 of the Indian Standards Institution, the following new standards have been released;

1. General requirements and testing of trawl winches: IS: 10227 - 1982
2. Guide-lines for selection of fish-hold insulation : IS: 10530 - 1983

Copies are available with I. S. I. Head office at New Delhi and their regional offices. □



ICAR SPORTS

The 3rd Inter Zonal ICAR Sports Meet (Team Events) was hosted by the Indian Institute of Horticultural Research in the Garden city of Bangalore during 2-5 February 1984. More than 300 sportsmen representing twenty-four ICAR institutions participated in this Meet.

The Central Institute of Fisheries Technology participated in football, badminton singles and team events having qualified for the same (for the third time in succession) in the Zonal tournaments held at Bangalore in October 1983.

Shri A. Vasant Shenoy won the Badminton Singles title. In team events, the CIFT Team comprising S/ Shri A. V. Shenoy, M. K. Kandoran, Jose Kalathil and P. A. Uthup finished second. □

PURIFICATION OF LIVE CLAMS FOR PROCESSING

Until recently, utilization of clam meat for edible purposes was very much limited and was confined to the areas adjoining centres of clam fishing. Clam meat found favour only among the poorer sections of population. Processing of clam meat into stable products practically did not exist. As a result, major portion of the meat did go as waste.

A process involving low cost technology for processing clam meat into pickles was developed and demonstrated extensively under the 'Lab-to-Land' programme of the Central Institute of Fisheries Technology. Processes are already available from CIFT for canning and freezing clam meat. Different research, development and promotional

activities of CIFT could create an awareness of the importance of clam meat as a protein rich food as also its potential for processing into different stable products. Consequent to these, clam meat processed into different styles-pickles, canned and frozen-has emerged even as export items.

Clams are sedentary 'filter-feeders' thriving on muddy/sandy bottom. Their stomach will always contain sand or other gritty matter besides heavy loads of bacteria depending upon the environmental conditions. If not properly cleansed, the sand will impart grittiness to the processed product besides rendering the meat unacceptable from the bacteriological point of view. Hence, cleaning the live

clams to render them free of grittiness as also to improve the bacteriological quality is a pre-requisite to its processing.

It has been proved that cleansing can be achieved only by a biological method of starving live clams in water. Studies carried out using different systems for starvation like water from natural habitat, potable water, salt solution adjusted to the strength of environmental water as well as all those chlorinated at 5 ppm level showed that the best results could be achieved by starvation in environmental water for a period of about 18 hours. This conclusion was arrived at after taking into consideration the extent of mortality, expulsion of sand as also the improvement in bacterial quality. It has also been shown that the bacterial quality could be further improved by chlorinating the system at the end at 5 ppm level and holding the clams for a further period of 2 hours in it.

The operation consists of the following steps: Clean the surface of clams free of mud using lake water. Keep the clams well covered with clean lake water, drawn from the area of collection of clams, in a cement tank provided with a false bottom. After 18 hours chlorinate the water at 5 ppm level and hold the clams for a further 2 hours. □

The Recreation Club of Central Institute of Fisheries Technology heralded in the New Year with a colourful and lively programme for the young and old alike. The programme which extended from 10 a. m. to 8 p. m. opened with a welcome



Dr. C. C. Panduranga Rao, Director, inaugurates the function.

CIFT CELEBRATES NEW YEAR DAY

speech by the President of the Club, Shri M. George Joseph, followed by the inaugural address by Dr. C. C. Panduranga Rao, Director of the Institute. Felicitations were made by S/Shri M. R. Nair and R. Balasubramanyan, Scientists S3. This was followed by the distribution of the New Year cake to all those who attended the programme.

Sports and competitions were organised for the staff and their families. It proved an opportunity for the children to exhibit their hidden talents. There were races, frog jumping for the tiny tots,



They too ran.

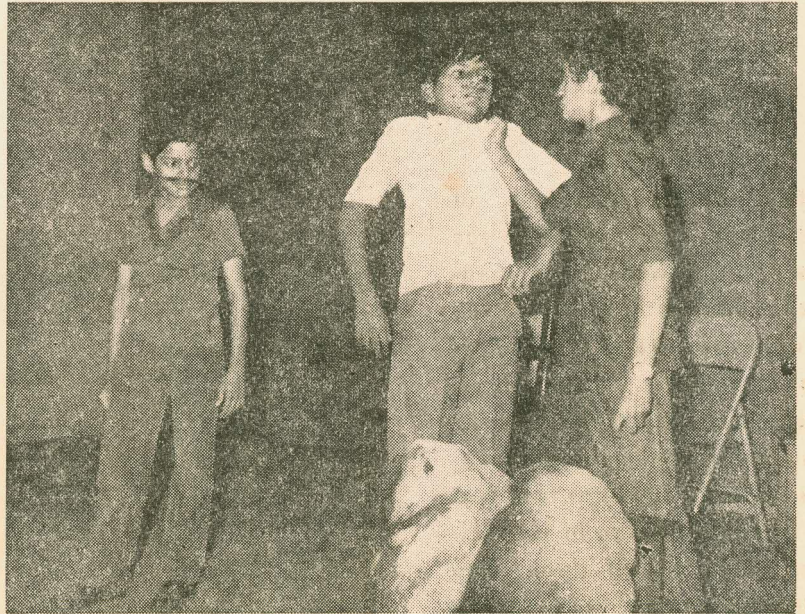


The men try their luck passing the hat

The Reception Day of the Board of Education of the District of Columbia was held in the school building on the 15th of the month with a program of interesting and enjoyable activities. The day was a success in every respect and the children were very happy to participate in the various games and contests. The program was well planned and the children enjoyed every minute of it. The day was a very successful one and the children were very happy to participate in the various games and contests. The program was well planned and the children enjoyed every minute of it.

YEAR DAY

A tense scene from the skit staged by the children



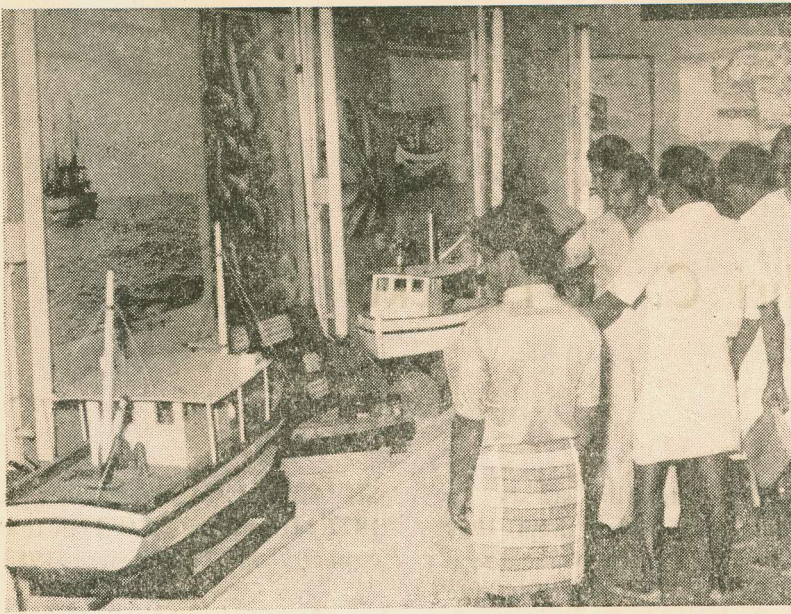
elocution competition and quiz competition. The ladies could try their luck in the musical chair and the needle and thread race while the men entertained the on lookers

with their skill in passing the hat.

There was also a melodious 'Ganamela'. The children of the staff staged a short

skit 'Paschatapam' much to the delight of their parents.

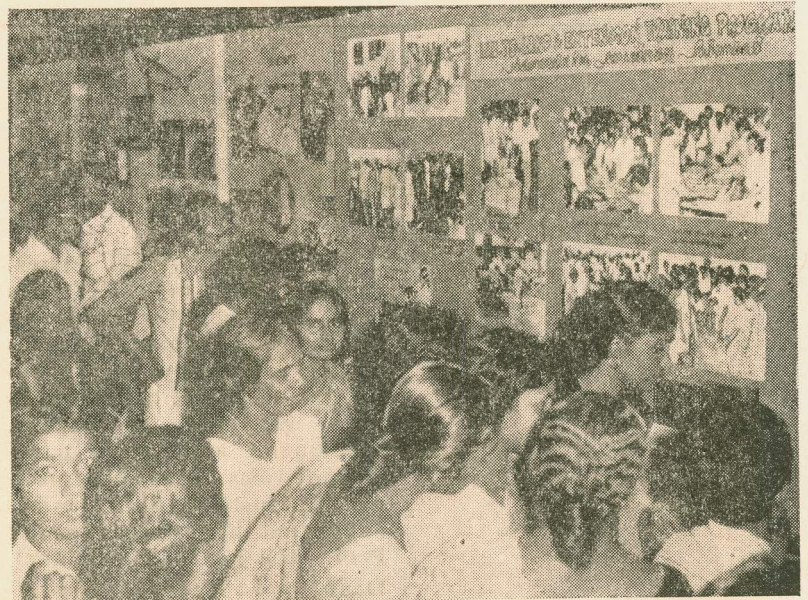
The day's programme came to a close with a film show which included the 'Asian Games'. □



Visitors to the stall clarify certain points regarding CIFT designed fishing vessels

EXHIBITION AT VARKALA

The Institute participated in the Industrial, Cultural, Educational, Agricultural and Science Technological exhibition at Sivagiri, Varkala, from 1st December 1983 to 4th January 1984. A joint ICAR Pavilion was set up with the Central Marine Fisheries Research Institute, Central Plantation Crops Research Institute and Central Tuber Crops Research Institute.



Products prepared as part of the Lab-to-Land programmes catch the attention of a few.



Shri C. G. Panicker Retires

Shri Chorath Gangadhara Panicker, Senior Administrative Officer, CIFT, retired from service on 31-1-'84. Shri Panicker joined the Imperial Dairy Institute, Bangalore, which later became the National Dairy Research Institute. Shri Panicker served this organisation in various capacities at different places. His sincere and steady work

served as stepping stones to success and in November 1969 he joined the Central Sheep and Wool Research Institute (CSWRI), Avikanagar in Rajasthan as Administrative Officer. He also served for a short spell in the Sugarcane Breeding Institute, Coimbatore, but again returned to CSWRI where he was promoted as

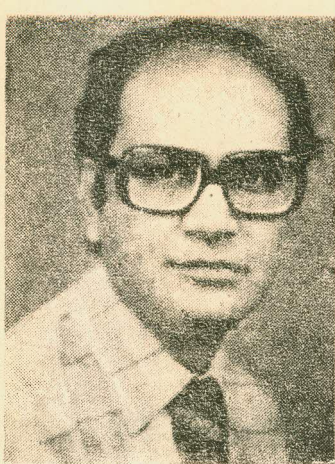
Sr. Administrative Officer in 1977. He joined CIFT in that capacity in November 1983.

Although Shri Panicker's stay at Cochin was very short, his amicable and pleasing behaviour earned him the respect of the staff and their co-operation. A warm send-off was given to him on the eve of his retirement. □

DOCTORATE AWARDED

Shri M. Arul James, Scientist S-2 of CIFT has been awarded the Ph.D in the Faculty of Marine Sciences by the University of Cochin for his thesis entitled 'Studies on microbial pathogens, Salmonella and Vibrio parahaemolyticus, in selected marine products'. Shri James conducted his studies under Prof. (Dr.) C. T. Samuel, Dean and Head of Department of Industrial Fisheries, Faculty of Marine Sciences, University of Cochin.





Shri C. V. N. Rao, Scientist S 2, is now working in the Processing & Packaging Division of C. I. F. T., Cochin. After taking his M.Sc. Degree in Applied Physics (Electronics) from Andhra University in 1957, he worked as a lecturer in Physics at Rajasthan Women's College, Udaipur for one year during 1958 and as Senior Scientific Assistant at Defence Metallurgical Research Laboratory, Ishapore (West Bengal) for 2 years during 1959-61. Joining CIFT Cochin, in December 1961 as Asst. Research Officer (Thermodynamics), Shri. Rao was subsequently promoted as Junior Fishery Scientist in 1974 and Scientist S2 in 1976.

Shri Rao's research investigations include. heat distribution studies in canned prawns, field studies on temperature fluctuations in iced/frozen fish during transport, heat losses in fish holds of CIFT designed boats, development of insulation boards from coconut wastes, thermal properties of fishery products, design of portable instruments for the fishery industry viz. thermistor thermo-

Meet Our Scientists - 27

C. V. N. RAO

meter, brineometer etc. and development of functional packages for fish trade.

He was on duputation as Asst. Director (Research & Development) with the Indian Institute of Packaging, Bombay (1972-74) and with Small Industry Development Organization, Ministry of Industry, New Delhi as Deputy Director (Packaging) (1976-82). During his stay with SIDO, he served as a Co-ordinator in the National Project on the 'Development of Small Scale Packaging Industry', jointly undertaken by SIDO & IIP, Bombay.

Shri. Rao was trained in Fishery Technology (Instrumentation) at Torry Research Station, Aberdeen (U. K.) du-

ring 1966 and in Packaging Engineering at Japan Packaging Institute, Tokyo, Japan during 1979.

Shri Rao was nominated as a Member of the 1st National Committee in India for International Institute of Refrigeration, Paris (1969-72); Paper & Flexible Packaging Sectional Committee (I.S.I.), Marine Cargo Movement & Packaging Divisional Council (I.S.I.), Standing Working Committee on Packaging (I.S.I.), Food Packaging Materials Sub-Committee of Central Committee for Food Standards (Ministry of Health) (1976-82). He was elected as a Member of Institute of Packaging (U.K.) during 1976-80. Shri Rao has over 30 scientific papers to his credit. □

CIFT Appointments, Promotions etc.

Promotion

Shri A. B. Rodrigues, Jr. Clerk was promoted as Sr. Clerk at Goa Research Centre.

Appointment

The following appointments were made at the Institute's Headquarters at Cochin and its Research Centres.

Headquarters, Cochin

Shri V. S. Ambasuthan, SSG I as Jr. Clerk.

Shri A. P. Gopalan, SSG II as Jr. Clerk

Kum. T. D. Usheem as Jr. Clerk

Shri P. C. Chacko as SSG I

Shri V. C. George, Scientist S2 as Scientist S3

Shri C. R. Gokulan, Jr. Clerk as T-1 (Jr. Lab. Asst)

Shri Raman Nampoothiri P. S. as T-1 (Jr. Lab. Asst.)

Burla Research Centre

Shri Rabinarayana Sahoo as T-1 Driver (Launch)

Shri Jatindrakumar Mishra as Assistant.

Veraval Research Centre

Shri G. M. Vaghela, T-1 reverted to SSG. II

Kakinada Research Centre

Smt. Satyanarayanamma as Jr. Stenographer.

Calicut Research Centre

Smt. V. S. Aleyamma as Jr. Clerk.

Relief

Shri T. Veerabhadra Rao, Jr. Clerk

Shri S. M. S. Abuthahir Ali, Scientist S1

Resignation

Shri V. V. Bhasi, Carpenter
Smt. Florence Joseph T-1 (Jr. Lab. Asst.)

Retirement

Shri C. G. Panicker, Senior Administrative Officer. □

CIFT is at your Service

It transfers Fishery Technology by way of:

- ◆ Demonstrations of Fishing and Fish Processing techniques evolved by it
- ◆ Answering Technical queries
- ◆ Supplying project reports and design drawings
- ◆ Conducting Training courses in fishing and fish processing

Please contact:

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Matsyapuri P. O.,
Cochin - 682 029

