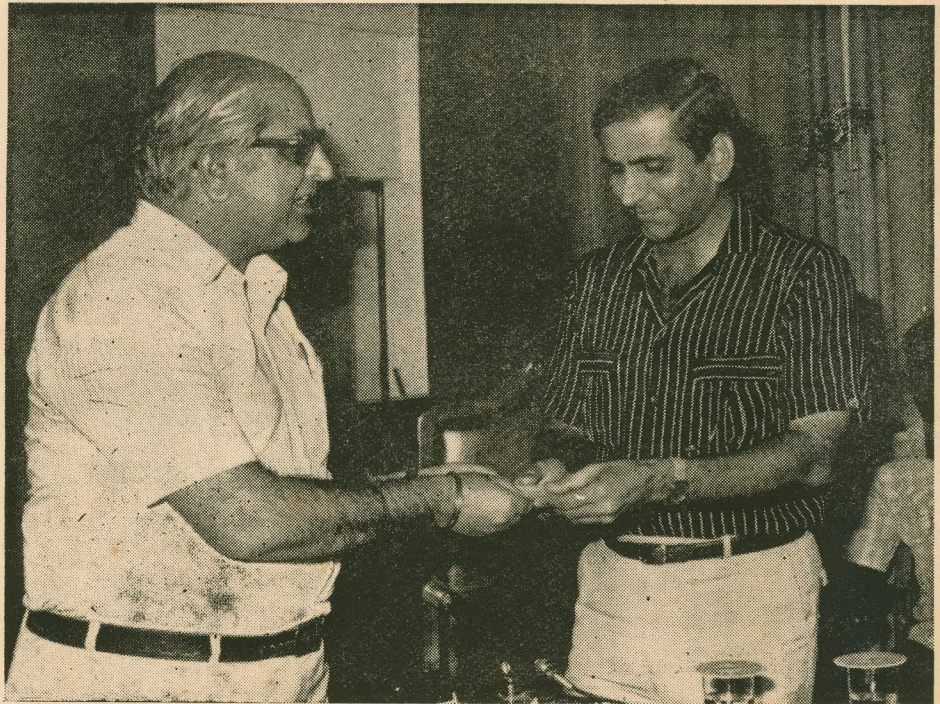
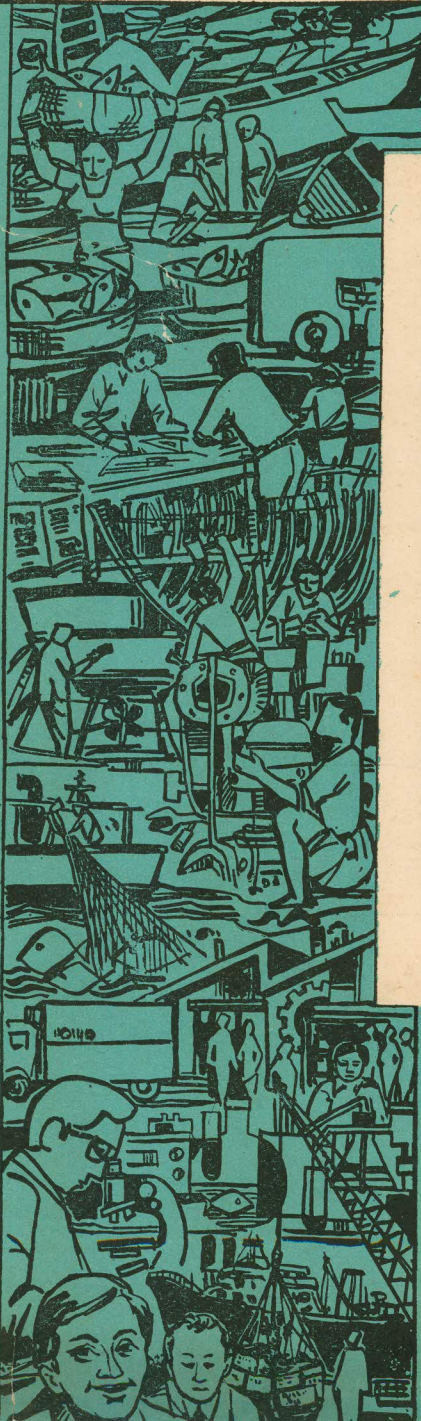




Fish Technology newsletter

3/3/86

Vol. IV No. 1 JULY-SEPTEMBER 1984



Releasing the Chlorine Level indicator paper — Shri. A. R. M. Kasim. receives the paper from Shri. Om. P. Dhamija (Report on page 8)

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

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FOREWORD

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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 source of all such contributions will be acknowledged.

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

ELECTRO - THERMAL SMOKE KILN

Smoking of fish has been an accepted method of fish preservation all over the world especially in western countries. Apart from the preservative effect of smoke, smoked fish is popular because of its characteristic flavour.

In the conventional method of smoking now followed, the fish is hung in a room or Kiln and smoke generated by burning wood on the floor. Considerable modification was effected to this method by the Torry Research Station, Aberdeen, U. K. In the machine employed in this technique, named Torry Smoke Kiln, burning and generation of smoke is controlled by regulating the air supply.



Contd →

F. R. P. BOAT



M/s Fibro-Granite Thazhuppu, Parayakad P. O. Alleppey District, Kerala, has brought out 2 new designs of FRP boats measuring 14.5 feet and 8.5 feet fitted with high speed out-board motors. The firm claims to have adopted a cheaper method of constructing moulds even for a single FRP craft at one-tenth cost of the standard conventional mould.

The above firm has offered to supply a 14.5 feet FRP boat (without out-board motor) at Rs. 14,000/-

Further enquiries may be made directly with the firm.

Improved Chemical Preservative Treatment for Traditional Fishing Craft

Canoes, Kattumaram and other traditional fishing craft are built exclusively out of a variety of timbers. The traditional craft in operation in India, number over one lakh and the amount invested is about Rs. 60 crores. The traditional fisheries being the backbone of Indian fisheries, it is hardly necessary to emphasise the need for protection of the craft against deterioration and facilitate a longer trouble-free service life.

CAUSES OF DESTRUCTION OF WOOD

The principal causes for destruction of wooden boats are:

- i) Mechanical wear
- ii) Fungal attack
- iii) Insect attack
- iv) Wood borers
- v) Decomposition due to heating (Hot sun and wind)



Application of toxic wood preservative on a Thanguvallam (Cochin)

- vi) Chemical decomposition

For the traditional craft which are brought to shore after the day's fishing, the major causes which shorten the

life of the craft are mechanical wear, decomposition due to heating and fungal infection.

The mechanical wear and tear can be minimised to a

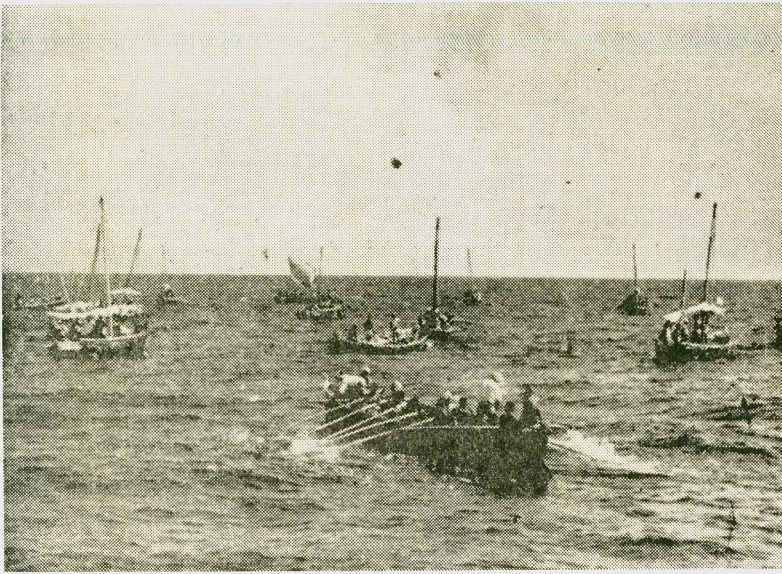


The CIFT has now developed an electro-thermal smoke kiln based on a new concept that chemical smoke (i.e. chemical constituents of wood responsible for fish preservation and flavour) can be generated more efficiently without burning of wood in presence of oxygen. The technique involved is thermal decomposition (pyrolysis) of wood in an electrically heated furnace

where smoke can be generated without direct burning of wood, and therefore, independent of air or oxygen supply. Generation of smoke can be controlled by regulating furnace temperature.

This equipment has got several advantages over the conventional system. The important ones are 1) that there is no loss of valuable

wood chemicals during burning, 2) there is no deposit of soot or flying ash on the fish surface and therefore very good quality product is obtained, 3) the same Kiln can be adopted for both hot and cold smoking of fish by controlling the various parameters and 4) the time required for smoking is very short and there is substantial saving in fuel (saw dust) consumption. □



Tuticorin Canoes

large extent by choosing only hard heart-wood free from natural defects at the time of construction and by careful handling of the craft while hauling and launching by using heavy wooden rollers. Fishing craft that are not put to day-to-day use have to be provided with some covering as a measure of protection against weathering. Periodical application of wood preservatives should be given to boats which are thoroughly dry and clean.

After the application of preservatives they should be allowed to dry before the crafts are put to use.

FUNGUS INFECTION IN WOOD.

What are fungi?

Several species of fungi are known to grow on wood. They belong to a lower class of plant kingdom and they all depend on wood for their sustenance.

They propagate rapidly through spore formation and infect fresh wood from time to time. The wood destroying fungi need moisture but only very small amount of air for further growth. The high humidity at the coast and warm climate are favourable factors for their growth. Once the timber is infected by fungi, very little

can be done to arrest their growth. The best way, therefore is to cut off the infected parts and destroy the fungal spores by burning the decayed wood.

HOW TO DETECT FUNGAL ATTACK IN WOOD ?

The important symptoms of fungal decay are:

- i) Change of colour:- Usually dark brown colouration can be seen.
- ii) Softening : The wood becomes soft and spongy and tend to absorb more water.
- iii) Change in density. The wood becomes extremely light and sometimes brittle.
- iv) Change in odour : The infected wood often emits a mushroomy or mouldy smell.



Malabar Canoes

AREAS SUSCEPTIBLE TO FUNGAL ATTACK

Almost all parts of the boat may be attacked by fungi. However, the attack will be more pronounced in areas which are subjected to wetting. Dead air-space and poor ventilation also favour the attack. Alternate wetting and partial drying provide an ideal situation for fungal attack, while craft which are all the time in sea water will not experience much problems. All cut ends such as frame ends and beam ends are particularly susceptible to attack. The sap wood and unseasoned wood also will

be easily attacked and therefore, such wood should not be used. As water entry is facilitated through the holes around the metal fastenings, it is a good practice to cover such areas with "putty" so as to make it water-tight.

HOW TO PROTECT THE CRAFT

The fishermen by their own experience have evolved a number of methods of preserving their craft. These are generally based on the application of sardine oil, cashew nut shell liquid or crude shark liver oil, with or without ad-

mixture of carbon powder, lime etc. These preservatives make the craft water repellent and thereby afford some protection to the craft. However, the traditional indigenous preservatives and their methods of application are not fully satisfactory.

To prolong the service life of the craft by arresting fungal attack and minimizing the mechanical wear and decomposition, improved chemical preservatives which are toxic to lower organisms have been developed at the CIFT.

(i) COPPER CREOSOTE/ARSENICAL CREOSOTE:

These are oil-borne wood preservatives for application on all parts of the boat. These are light penetrating types which do not form a film on drying.

ii) CREOSCOR:- An oil borne wood preservative to be used especially as a second coat over copper creosoted timbers. This preservative being more viscous, its penetration into wood is less. It forms a smooth film on drying, This is specially recommended as a surface coating on the hull of the boat.

These preservatives are to be applied on dry boats by painting brush or by coir brush. For better results, the coatings are to be repeated twice. The craft is to be allowed to dry for a day before operation. About 10-20 litres of the preservative would be needed depending on the size of the craft. The ideal methods would however be to use well



East Coast Kattumaran

TRAINING UNDER FAO PROGRAMME AT CIFT

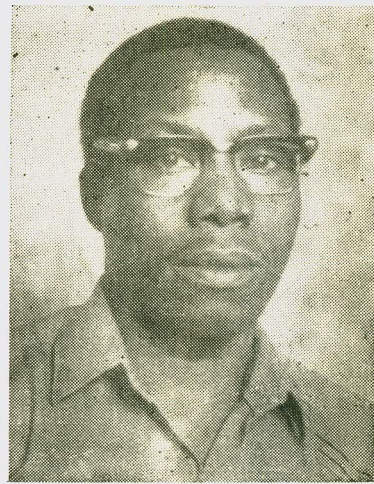
Two Namibian scholars, Mr. Martin Philipus Kamboye and Mr. Mathews Nampunya Shanyenge underwent a one



Mr. Martin Philipus Kamboye

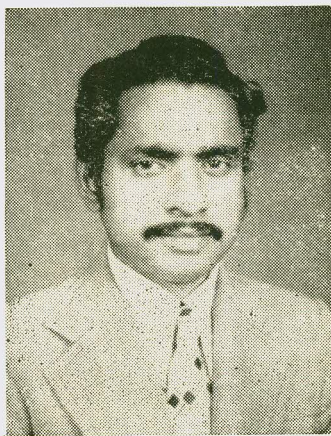
year training course at CIFT on fish processing technology with effect from 8 September 1983. The training, sponsored by the Food and Agriculture Organisation (FAO), Rome, was with special reference to handling, packing, preservation, freezing, canning, curing, dehydration and quality control of fish and shell fish, by products from fish and biochemistry and microbiology of fish. During the training course they also visited important fishing and fish processing establishments and held discussions with officers of State and Central Departments dealing with fisheries.

Having completed the course, the trainees left Cochin for Delhi on 23 Sept. '84 en route to Zambia. □



Mr. Mathews Nampunya Shanyenge

Doctorate Awarded



Shri T. K. Sivadas, Scientist S-2 has been awarded the Ph.D. by the University of Cochin for his research work on the Development of a composite equipment for coastal fishery hydrographic investigations. Shri Sivadas carried out his work under the guidance of Dr. C. T. Samuel, Dean, Industrial Fisheries Dept. of University of Cochin.

SEMINAR

The Department of Industrial Fisheries and the Industrial Fisheries Association of University of Cochin jointly organised a seminar on "Fisheries in Kerala-Review and Future" on 6th and 7th July 1984 at Cochin.

The following Scientists

from CIFT presented papers and actively participated in the deliberations.

1. Dr. K. Gopakumar S3: Fish Processing & Curing in Kerala.
2. Dr. K. Ravindran S3: Fishing Craft in Kerala.
3. Shri V. C. George S3: Fishing Gear in Kerala.

Topics on Fisheries Re-

sources of Kerala, Status of Fisheries in Kerala, Fisheries Management, Fisheries Education, Research and Extension and Perspectives in Fisheries Planning presented by various other participants were also discussed.

At the concluding session, constructive recommendations were made. □

SOME MORE 'FRP' BOAT BUILDERS

Conventional boat building timbers becoming scarce and costlier, Fibre Glass Reinforced Plastic fishing crafts and boats are now making a big headway in their extensive usage by the coastal fishermen.

Light and long-lasting FRP boats with lower horsepower engines (either outboard or inboard) and modified fishing gear and techniques are paying very encouraging dividends.

The Gujarat Fisheries Development Corporation have recently introduced FRP canoes of 32 feet OAL with outboard motor installation and

35 feet OAL boats with inboard engine both of which are reported to be performing well in the field.

Gear Transmissions Pvt. Ltd. have introduced 25 feet OAL, 24 feet OAL and 18 feet OAL FRP fishing boats, a number of which are operating successfully and some more orders are under different stages of construction at their yard.

For further detailed information, contact directly,

1. The Gujarat Fisheries Development Corporation Ltd., Patel Building, Opp. M. J. Library, Ellisbridge, AHMEDABAD-380 006

Phone: 78297-98
Gram: AGROMARINE
TELEX: 0121-470

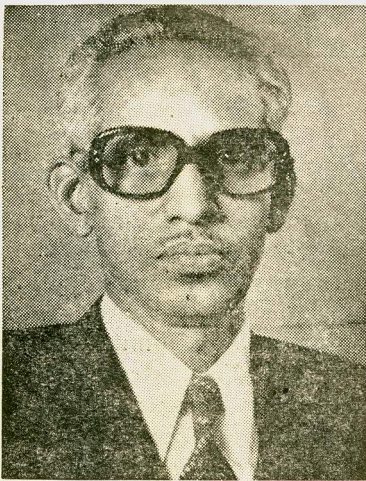
2. Gear Transmissions Pvt. Ltd.;
31 Rameswaram Road,
T. Nagar,
Madras-600 017
Phone: 446116
Gram: BEVELDRIVE

OR

Gear Transmissions Pvt. Ltd.,
B-52, Pipdic Industrial Estate, Mettupalayam, Pondicherry-605 010

(Ref: Fish Technology Newsletter July - Sept. 1980 for more addresses)

Shri. M. R. NAIR, Director of CIFT



Shri. M. R. Nair, Scientist S3 and Project Co-ordinator, assumed charge as Director

of the Central Institute of Fisheries Technology with effect from 12th Sept. 1984.

Born in Trivandrum on 11th June 1931, Mr. Nair had a brilliant academic career, passing out with high first classes. A rank holder and a gold medallist in his degree examination, he joined Central Marine Fisheries Research Institute in 1954 as Research Assistant after a short spell of teaching. He formed part of the nucleus of a research cell on fish processing technology at CMFRI which was transplanted into the newly

organised Central Institute of Fisheries Technology, Cochin, in December, 1958, the donee, readily and gracefully accepting the donated cell and rapidly nourishing it into a flourishing Division of its own.

Working on various aspects of handling, preservation and processing of fish, Mr. Nair was promoted as Research Officer / Junior Fishery Scientist in November 1962. He was deputed for training in Fish Processing under the Colombo Plan Programme in 1971 at the Torry Research Station, Aberdeen, U. K., wh-

NEWS IN BRIEF

FERRO-CEMENT FISHING BOAT 'KONKAN VIJAY'

The Development Corporation of Konkan Ltd, a Government of Maharashtra undertaking, has recently constructed a new ferrocement fishing boat at Satpati fishing village, Palghar Taluk, Thane District of Bombay.

M. F. V. "KONKAN VIJAY" was launched on 13th March 1984 at Satpati by the Governor of Maharashtra, His Excellency Air Marshal I. H. Latif, PVSM.

Main dimensions

L.O. A.	12.5 M
L.W.L.	11.0 M
Beam	4.0 M
Draft	1.0 M
Displacement	17 tonns
Engine	66 BHP
Sail area	43 M ²
Speed	7-8 knots
Endurance	30-35 hours
Fish/ice hold capacity	7.5 M ³

The boat is basically a gill netter provided with facilities for trawling also.

Mr. Jeremy Turner and Mr. Dick Riley of M/s Jeremy Turner and Co (U.K) helped design and construction of the DCK's maiden ferrocement boat M. F. V. KONKAN VIJAY.

WORLD FISHERIES CONFERENCE: FAO

353 delegates from 121 countries and 30 International organisations attended the technical phase of the FAO World Conference on Fisheries Management and Development which was held in Rome from 10th to 19th October, 1983.

FAO Director General, Edo uard Saouma, told the Conference that the world must double its fish production over

the next 17 years to keep up with present increases in demand for fish products. FAO expects that population growth and other forces will drive demand for fish to 110 million tons by the end of this century.

Noting that the world fish catch is now about 75 million tons per year (55 million tons for food and the rest for animal feed), the Director General pointed out that the world catch is increasing currently only at one percent per year and so will not meet the demand target at its present rate of growth. The Director General further observed that "many of the basic premises on which fisheries policies and projections were based are now obsolete. We need to rethink, replan and restructure the use and management of all fishery resources. The

ere he acquainted himself with the latest techniques in protein and enzyme chemistry.

On returning to India, Mr. Nair was promoted as Fishery Scientist (Processing) and given charge of the Processing Division He was also made Project Co-ordinator (Scientist S3) of the All India Co-ordinated Research Project on Transportation of Fresh Fish and Utilization of Trash Fish in October 1975, in which

capacity he co-ordinated the work on the project going on at the headquarters and various Research Centres of the Institute and other Centres. He held this assignment till March 31, 1979, when the Project was terminated.

Mr. Nair is a Founder Member of the Society of Fisheries Technologists (India) and served as Treasurer and member of the Executive Committee for several years.

He has also been serving several Committees in various capacities, some of them being AFDC-27, Fish and Fish Products Sectional Committee, AFDC-36:9, Metallic Contaminants Sub-Committee (both of ISI), Fish, Meat and their Products Sub-Committee (of Directorate General of Health Services), Society of Biological Chemists (India) and Forum of Fishery Professionals. He has about fifty scientific publications to his credit.

challenge before us is not just to find an extra 20 million tons of fish but to bring this vital food to market at prices that the poor can afford and which still offer a reasonable return to those who harvest it".

ARTISANAL FISHERIES

Thirty four countries were represented at the International Conference of Fishworkers and their supporters (ICFWS) which met in Rome from July 4th to 8th, 1984.

FAO has estimated that about 18 million tonnes of the world fish catch of 75 million tonnes is caught by artisanal fishermen throughout the world, more especially in South America, Asia and Africa.

"Participants were surprised to find that many of their local problems were being experienced in different parts of the world".

"One of the most significant common problems is

the disastrous effect on artisanal fisheries caused by the introduction of large-scale industrial fishing in third world coastal waters"

"Artisanal fishermen feel they have a strong claim for their fishing grounds to be adequately protected"

"There was an unanimous plea from the Conference for a narrow coastal zone to be reserved exclusively for small scale fishermen".

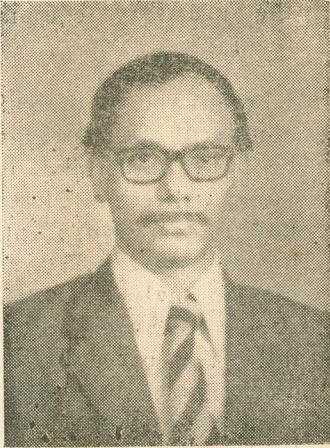
DUTIES OF RESEARCHERS

1. To show initiative in proposing and preparing research projects in his field.
2. To undertake the solution of problems suggested to him by his superiors, extension Officers or farmers.
3. To co-operate in research teams in which his professional competence is needed.
4. To train inexperienced research workers or assistants.

5. To keep abreast of professional literature in his field and maintain interest in scientific subjects of wider interest.
6. To develop methods and to design or help design the necessary equipment for his research.
7. To plan and to design the course of the experiments he has to undertake, including collecting background information, identifying and controlling variables, to analyse the results, decide on their significance draw the necessary conclusion and present the whole without undue delay in the form of a report or a paper fit for publication.
8. To communicate, to the best of his ability, the results of his research to other scientists, to extension workers and to farmers by the most appropriate media in each case.

(R. Balasubramanyan, Chairman, Editorial Committee from "Techniques for Efficient Research" Chemical Publication Company, New York

M. ARUL JAMES



Dr. M. Arul James, Scientist S-2, is now Scientist-in-Charge of the Bombay Research Centre of C.I.F.T. Born at Madras in 1935, he had his early education in St. Xavier's College High School in Palayamcottai, Tirunelveli District, south of Madras. After Post-graduation in Chemistry from Madras University in 1958 he joined Loyola College, Madras and served as Lecturer in Chemistry for a short period. He then joined Madras State Fisheries in 1959 as Research Assistant in the Fisheries Technological Station, at Tuticorin. Later, he joined the Central Institute of Fisheries Technology in 1962 through U.P.S.C. selection as Assistant Research Officer and subsequently opted for Agricultural Research Service (ARS) formed by the Indian Council of Agricultural Research (ICAR) in 1975.

He obtained a Post-graduate Diploma in Food Technology with specialization in Fish Microbiology in 1977 from the College of Technology, Grimsby, U.K. and also had training in Quality Control of Processing Shrimps in Tropical Products Institute, London and College of Technology, Grimsby. In 1983 he was awarded Ph. D. by the Cochin University for his thesis entitled 'Studies on Microbial Pathogens: Salmonella and Vibrio parahaemolyticus in selected marine products'.

Dr. James was the Honorary Lecturer and External Examiner of the Onicut University for the B Tech. Fisheries Course. He was also an Honorary Lecturer and conducted practicals in Microbiology for the M.Sc. (Industrial Fisheries) Course in Cochin University.

He has been closely associated with early development of Microbiology Division in C.I.F.T. He was responsible for setting up the microbiological assay section in the Division. He has done considerable research work on the development of fish processing and its microbiological aspects. Among his notable contributions, mention may be made of the utilization of uneconomical varieties of fish for conversion into fish ensilage and nutritional studies of the important food fishes

with special reference to their amino acids and vitamins. He was also actively associated with the work of laying down microbial quality standards for frozen, canned and dried fishes and shell fishes, besides studying the survival mechanism of pathogens, Salmonella and Vibrio parahaemolyticus in fish and fishery products. At present he is actively engaged in rapid detection of Salmonella organisms, by using Fluorescent Antibody Technique in fish and fishery products and has used the technique successfully for the first time in India, in fishery products.

Dr. James has about 30 scientific / technical publications to his credit on subjects related to his work on specialization of microbiology and processing. He is a founder member of Society of Fisheries Technologists (India) and served as member of the Institute Management Committee during 1979-82. He is also member of the I.P.Q.C. and M.I.P.Q.C. scheme, Panel Expert in Export Inspection Agency, member of State Level Committee for the co-ordination of work on marine fisheries, Maharashtra and Central Advisory Committee of the Exploratory Fisheries Project. He has attended several National and International Symposia and presented papers. He is now actively engaged in his field of research and takes part in rendering technical services to the export fishery industry in Bombay.

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:

Director,
C. I. F. T.,
Matsyapuri P. O.,
Cochin - 682 029

