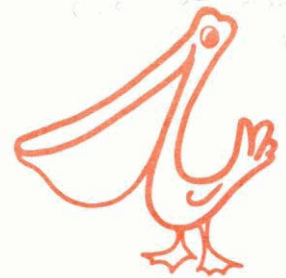


The Pelican

a newsletter for the F.I.T. family



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Ocean wastes topic of international effort

How can the wastes of modern civilization be put into the world's oceans without creating an environmental nightmare?

That complex question is squarely at the heart of an international research and publication project that is headquartered at F.I.T.

"We are looking at wastes globally," explains Dr. Iver W. Duedall, a primary editor for an ambitious and unique series of books, entitled "Wastes in the Ocean." He is head of Oceanography and Ocean Engineering.

With the support of the National Oceanic and Atmospheric Administration (NOAA), Duedall and other researchers have toiled since 1979 on a project that is envisioned as extending beyond the year 2000. NOAA sparked the international research effort, and is currently funding U.S.-based work at about \$160,000 per year.

The program includes international scientific meetings occurring on an 18-month cycle, which were begun in 1978 to allow scientists to exchange information.

The first two of six scheduled volumes of "Wastes in the Ocean" have just been published by Wiley-Interscience, New York City.

Volume one is entitled, "Industrial and Sewage Wastes in the Ocean." Volume two is called, "Dredged Material Disposal in the Ocean." Considerable international attention is focused on the topic of the third volume. To be published in July, it is entitled, "Radioactive Wastes in the Ocean." The next three volumes will deal with energy wastes, deep-sea disposal, and near-shore disposal.

Duedall shares the editing duties with P. Kilho Park of NOAA, Dana R. Kester of the University of Rhode Island, Wayne V. Burt of Oregon State University, and Judith M. Capuzzo of Woods Hole Oceanographic Institution in Massachusetts.

The books are characterized by "strategy" chapters in which the editors articulate ways of solving problems accompanying ocean disposal. "We work months on chapters like this," Duedall noted.

Summaries for the books are written so that the non-scientist can understand the scientific issues, Duedall said. That feature makes the work of interest to the social and political arena. ---

Duedall, who was on the faculty of State University of New York at Stony Brook when he began work on the project, earlier

this year joined F.I.T. "I brought the entire operation to F.I.T.," he explains of a shift in editorial offices for the publications.

The large scope of the project fits the size

of ocean disposal questions. "It is only through a long-term commitment that we will learn how the ocean system works," Duedall notes.

Editing continues

Dr. Iver Duedall (at right) is joined by co-editor Dr. Kilho Park (at left) and Jell Parker of State University of New York during a recent editorial session held at F.I.T. The task at hand was continuing work on a set of "Wastes in the Ocean" books that are pulling together knowledge of the international scientific community.



EPA grant for genetic tests

The federal Environmental Protection Agency (EPA) has asked an F.I.T. researcher to develop a test system to determine which chemical compounds are potentially hazardous to man.

Dr. John C. Hozier, director of F.I.T.'s new Medical Genetics Laboratory, has been awarded a \$245,000 EPA contract for the three-year study aimed at developing such a test system.

The research project is being conducted in collaboration with scientists at the EPA Health Effects Research Laboratory in North Carolina.

The development of a test system to screen for chemical compounds potentially hazardous to man is not new to Hozier. Last year the EPA awarded Hozier a \$270,000 contract to develop a different test system for a similar purpose.

"We have already developed a system for testing cells grown in the laboratory which were exposed to potentially cancer-causing chemical compounds," said Hozier.

"Unlike the previous test system, designed to test cells grown in the artificial environment of the laboratory, the present study will involve a system for testing cells in live animals," Hozier added.

The researcher explained that more than one such test system is needed to help make the results of animal studies more indicative

of the risk involved when humans are exposed to potentially hazardous chemicals in the environment. It is estimated that some 500 to 1,000 new chemicals are introduced into the environment each year.

Hozier said that the first stage of the new research project will involve a study of the way chromosomes replicate during the cell cycle.

Chromosomes are the microscopic rod-shaped bodies in a cell which carry the genes that determine hereditary characteristics. In humans there are 46 chromosomes.

During the first stage of the study, a test system will be created to measure the exchange of genetic material between different chromosomes. That process is believed by scientists to be an important indicator of agents which damage chromosomes and can result in human disorders such as cancer or birth defects.

During a second stage, the test system itself will be tested, by exposing animals to various compounds to determine how closely their response relates to increased cancer risk in humans from those compounds.

The researcher noted that about 70 percent of the grant money will go toward salary support of scientists and technicians involved in the development of the test system. The remaining grant money will be used for supplies and equipment.

Campus notes

Charlie **Vallance**, department head for F.I.T.'s Underwater Technology Program at Jensen Beach, has been appointed South Atlantic Branch Manager for the National Association of Underwater Instructors (NAUI).

His new duties will include overseeing dive instructor training courses in four states and the Bahamas, Virgin Islands and Puerto Rico.

Members of F.I.T.'s Underwater Board of Advisors attended the Association of Diving Contractors International Symposium in New Orleans. Those attending included Vallance, Doug **Soule**, **Joe** Kasper, Bob Evans and Dud **Crosson**. The group presentation dealt with programs in commercial diver training, diver medic training and non-destructive testing.

Librarians **Debbie Anderson-Mosby**, **Bruce Fleury** and **Annette Melnicove** attended an advance training seminar on Compendex and EI Meetings databases. These databases are machine readable equivalents of the printed source entitled **Engineering Index** and are available through the Computer Literature Search Service in the Library.

Librarians **Barbara Markham** and **Lisa Smith** attended the Acquisitions Overview Seminar in conjunction with the OCLC database held in Orlando.

Rosemary Kean, **Fleury** and **Melnicove** attended the recent Florida Library Association Conference in Orlando. **Fleury** was elected Chairman of the Reference Caucus for the 1983 conference.

Dr. John E. Miller reports: "The F.I.T. chapter of Beta Beta Beta, the national honorary society in biology, competed again against the chapters from the other colleges and universities in the Southeast for best undergraduate research project. For the second year, an F.I.T. biologist won the top prize, the Frank G. Brooks Award, which went to **Laurie Kuestner**, one of our biology seniors. In addition the chapter was picked as the best in the Southeast. I think this says something about quality."

Dr. Richard L. Turner of our Biological Sciences department has been on sabbatical leave at the Harbor Branch Foundation for the academic year, but will be returning to the Melbourne campus for the upcoming year.

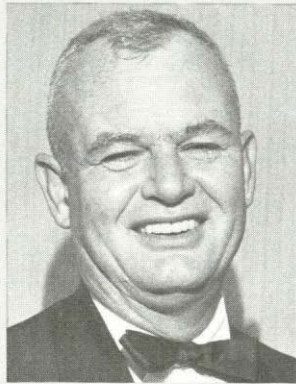
A new publication by Turner, D.W. **Hentooles** and S.E. **Stancyk** (University of South Carolina), "Ophiroid Dicks in Stingray Stomachs: Evasive **Autotomy** or Partial Consumption of Prey?" appears in the book **Echinoderms** (J.M. Lawrence, ec.) A.A. **Balkems** Publishers, Rotterdam (1982).

Frank L. Kinney of Public Affairs was recently appointed by the Melbourne City Council to serve on the Melbourne Downtown Redevelopment Committee. The committee serves as an advisory body to the city council regarding community redevelopment projects in the downtown area.

Dean **John L. Carkeet** of the School of Aeronautics has announced the appointment of **David Chaffee** as coordinator of the School's turbojet flight engineer and flight dispatcher training programs. The program prepares students to become licensed flight engineers and dispatchers.

Chaffee earned his bachelor's degree in air commerce from F.I.T. in 1977. He has held several positions with Towanda Aviation and American Airlines since then; including flight instructor, charter pilot, and flight engineer.

The School of Aeronautics' Aviation History class recently was addressed by **Hunt T. Dickinson Jr.**, an expert on airlines of Latin America.



Hunt T. Dickinson

Dickinson, who will continue to give lectures to the class, is currently authoring a book on the subject of his talk. He is president of H. T. D. Service Corporation in Boca Raton, and of Hunt Irrigation Corporation in Bakersfield, CA. Dickinson was formerly associated with VARIG Airlines and Braniff Airways.

Recent publications have carried several articles by Biological Sciences faculty members. The articles include those written by **Arunos E. Azelis**, Kevin M. **McMullen** and Dr. George C. Webster in "Mechanisms of Ageing and Development;" by Dr. **Kathe R. Jensen** in the "Journal of Conchology" and in the "Journal of Experimental Marine Biology and Ecology;" by Dr. **Richard L. Turner** in "Echinoderms: Proceedings of the International Conference, Tampa Bay;" by Dr. Haydee A. Hernandez in "**Revista Espanola de Micropaleontologia**;" and by **Jensen** and Dr. **Kerry B. Clark** in "The Nautilus." Clark also spent ten days in Belize, Central America, collecting certain marine molluscs in a relatively unstudied area of the Caribbean.

Several research reports have been presented recently by Biological Sciences faculty. They include Dr. **Kenneth L. Kasweck** at the annual meeting of the American Society of Microbiology in New Orleans, Dr. **John C. Hozier** and doctoral student **Jeff Sawyer** at the Environmental **Mutagenesis** Conference in San Antonio, Dr. **Gary N. Wells** at the American Society of Plant Physiologists Meeting in Knoxville, and Dr. **Glenn M. Cohen** and Dr. **Janie C. Park** at the annual meeting of the Association for Research in Otolaryngology in St. Petersburg.

Dr. Donald K. Stauble of Oceanography and Ocean Engineering presented a paper entitled "An Evaluation of Beach Fill Sediment Characteristics," at the Erosion Control Update '83 Conference held in **Gainesville**. Also attending the conference from F.I.T. were graduate students **Nancy Zeller** and **Wade Blake**.

Stauble also presented a poster display on coastal erosion research to participants of a Beach Stabilization **Workshop** held at Satellite Beach Civic Center. The research was conducted by members of Oceanography and Ocean Engineering. The workshop, sponsored by Florida Sea Grant Marine Advisory Program, included participants from Volusia, Brevard, Indian River and St. Lucie counties. Topics discussed included various alternatives to beach stabilization.

Dr. Walter Nelson of Oceanography and Ocean Engineering served as local arrangements chairman for the annual Benthic Ecology Meeting recently held at F.I.T. More than 300 benthic ecologists from the U.S. and Canada participated. The meeting was jointly sponsored by F.I.T. and Harbor Branch Foundation.

Dr. Gordon Patterson, associate professor of history for Humanities, attended a conference on "Science, Technology and Literature" at Long Island University. At the conference he delivered a paper entitled, "Science Fiction and Historical Consciousness: The Idea of History in the Work of Philip Dick."

Presentations by School of Psychology faculty members during the recent Southeastern Psychological Association meeting in Atlanta include papers on "Cognitive-behavioral coping strategies for pain control on pain patients, athletes, and non-athletes," by Dr. **Thomas Harrell** and F.I.T. graduate **William Siff**, and "Correlates of the freedom from distractibility factor of the **WISC-R**," by Dr. **Michael Honaker**, graduate student **Medea Arradondo**, and graduate **Warner Connick**. Harrell, Honaker and Dr. **Giles Rainwater** also held a workshop on 'Microcomputer applications in clinical psychology.'

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Mississippi research shows water improvement

The Mississippi River, given a break from pollution by federal regulations and a down-turn in the economy, is using the time to clean itself, an F.I.T. research team has found.

The speed with which the river is getting the job done is a pleasant surprise both to scientists and to proponents of environmental regulations that slowed the dumping of wastes into the massive snake of water. It drains nearly half of the country.

Work for the National Oceanic and Atmospheric Administration (NOAA) in the project, the team headed by Dr. John Trefry has just returned from the first of two 1983 research cruises to the Mississippi Delta area where the river feeds into the Gulf of Mexico.

NOAA awarded F.I.T. \$125,000 to support this second year of work. The project is called "P-PRIME," or "Pollutant-Particle Relationships in the Marine Environment."

Trefry, a chemical oceanographer and F.I.T. professor, determined in the mid-1970's that toxic pollutants in the river included nearly 8,000 metric tons of lead annually, and 200 metric tons of cadmium. That work was a prime reason he received a NOAA assignment to study Mississippi River pollution in the 1980's.

Today, the river is displaying an unexpected ability to recover from human use. Lead entering the river is down by about 2,500 tons annually, and cadmium is down by about half.

"It suggests that changes in natural systems are reversible in shorter time periods than we had believed," Trefry said.

A federally mandated reduction in lead in gasoline dramatically reduced lead entering the river. Trefry believes a lessening of industrial waste disposal due to a lower level of business activities has also cut the amount of lead and cadmium entering the river.

The F.I.T. research work has determined that the toxic metals are bonding to sediments carried by the river. These sediments are

Program approved

The American Chemical Society (ACS) recently accredited the bachelor's degree in chemistry.

"With more than 11,000 persons each year graduating with degrees in chemistry, there is stiff competition among chemists for jobs," said Dr. Richard D. Mounts, chairman of the program.

The accreditation places F.I.T. on the ACS list of approved schools and authorizes the school to award certified degrees.

"Currently fewer than half of the 1,200 U.S. colleges and universities which offer degrees in chemistry have approved programs," said Mounts.

He explained that chemistry is the only science with an accreditation program at the bachelor's degree level.

The ACS, a national organization of professional chemists and chemical engineers, is the largest one of its kind in the world.

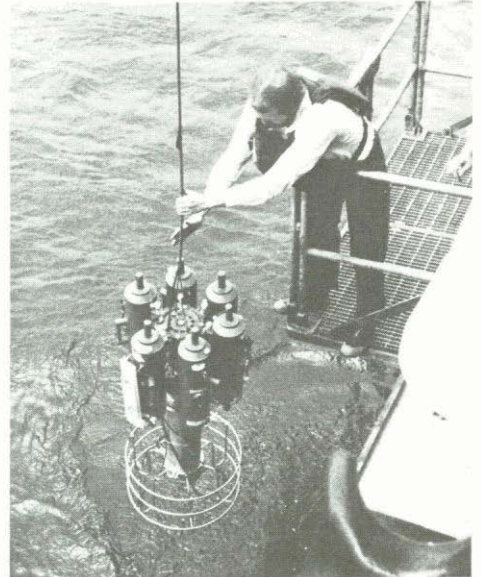
being deposited at the river's Delta, where the Mississippi meets the Gulf of Mexico.

Though the level of lead and cadmium in the river is still 50 percent above natural levels, Trefry said, the river is efficiently storing the wastes, apparently safely and permanently.



The research is also determining levels of toxic substances in plankton, organisms that begin the aquatic food chain, and in shrimp.

Working with Trefry on the project are research associates Robert P. Trocine and Simone Metz, along with graduate students Thomas W. Vetter and Roger B. Bewig.



Research cruise provides river data

Dr. John Trefry and research associate Simone Metz (at left) guide a sediment sampler to the surface of Mississippi Delta waters, while marine technician Mark Spears tends to an instrument package that provided a multitude of data for the F.I.T. project by way of remote scrutiny of the river.

Freshwater 'pollution' studied

The response of a salt-water estuary to millions of gallons of fresh water is being studied by an F.I.T. researcher.

The South Florida Water Management District awarded Dr. Ronnal Reichard of Oceanography and Ocean Engineering a \$9,000 contract to measure the salt content and speed of the current in the St. Lucie estuary located at the southern end of the Indian River.

"Our immediate goal is to determine the physical impact all that fresh water from Lake Okeechobee has had on the estuary," said Reichard.

The estuary has had millions of gallons of fresh water dumped into it daily from nearby Lake Okeechobee to prevent the lake from overflowing its banks due to excessive rainfall.

Reichard, assisted by a team of F.I.T. graduate students, measured salinity levels at six different locations in the estuary. The research team utilized the "Great Dane," — a 26-foot STAMAS boat donated to the university last year by James E. Mortensen of Clearwater.

"What we found is that the salt content in water was generally low all over the estuary," said Reichard who is currently analyzing the results of his field studies.

Reichard explained that estuary current speeds up to three knots made it difficult for the researchers to take water samples. "We measured about 70,000 gallons of fresh water per second moving through the upper part of the estuary," said Reichard.

Reichard said that low salt levels could

adversely impact shellfish. Unlike bass and other sport fish, the shellfish cannot simply swim away. They are trapped on the floor of the estuary," said Reichard.

Reichard said state officials will use data gathered from his study to develop a computer model of the estuary. "Hopefully, this model will help state officials make more informed decisions in the future on when and where to dump water from flood prone areas," said Reichard.

DEC visits campus

Engineers from Digital Equipment Corporation recently visited F.I.T.'s Interactive Computing Facility to produce a training film. The film will teach Digital employees how to use a new electronic device designed to prevent computer damage resulting from a power surge during an electrical storm.

Headquartered in Maynard, MA, Digital is the second largest computer manufacturer in the world with \$3 billion in annual sales.

The engineers demonstrated how the device is attached to a Digital-manufactured minicomputer in F.I.T.'s Interactive Computing Facility — the Virtual Address Extended (VAX) 11/780. The training film is expected to be viewed by several thousand of Digital's 66,000 employees.

Academy of Sciences convenes at F.I.T.

Some 500 scientists, engineers, students and representatives of state agencies gathered at F.I.T. for the 47th annual meeting of the Florida Academy of Sciences (FAS).

"As host university for the meeting, this was a most prestigious event for the school as a whole. It helped focus statewide attention on F.I.T.," said Dr. Edwin F. Strother, FAS president and professor for Physics and Space Sciences.

Strother explained that several of the research papers presented in the physical and social sciences dealt primarily with Florida problems.

"More than 300 scientific papers were presented at the meeting. About 30 percent of the papers presented were by F.I.T. researchers," said Dr. Glenn Cohen, arrangements chairman for the event and professor for Biological Sciences.

Topics of presentations ranged from the use of computers to automate the study of human genetic material to sociological implications of games, water quality, the survival of Florida's small farmers, and social



Dr. Edwin Strother (left), with Dr. Hans Mark

issues related to physiological changes in women.

Highlighting the academy meeting was an address by Dr. Hans Mark, Deputy Administrator of NASA, and the presentation of the 1983 FAS medal to Dr. Karen A. Steidinger, chief of the Bureau of Marine Research for the Florida Department of Natural Resources in St. Petersburg.

"FAS is the only society in the State of Florida which draws together all scholarly disciplines ranging from anthropology to computers and space sciences," said Cohen.

Cohen explained that the meeting gave F.I.T. professors and students a chance to discuss their research on both a formal and informal basis with prominent scientists from throughout the state.

"It also gave other scientists a chance to view first-hand F.I.T.'s research facilities and learn more about the university's research capabilities," Cohen added.

"I think the meeting was a tremendous success. We had the highest registration in the history of the academy. The meeting was well planned. And the sessions went smoothly with several F.I.T. faculty members serving as chairpersons," said Cohen.

Alumni help

When the School of Psychology recently turned to its alumni for financial support, the response was immediate and enthusiastic, reports Director of Development Ralph Johnson.

Johnson explained that funding was sought to support the Library's acquisition of microform versions of various psychological journals. The Edith Bush Charitable Foundation has already pledged money toward the project, but "matching" funds are required.

When Development dispatched solicitation letters to graduates from Dean Charles Corman, 24 former students welcomed the opportunity to participate. That made the response rate better than 10 percent, which Johnson noted is well above average for such projects.

"We are well along on meeting the \$135,000 (overall) goal for things to go into our Library, as we have pledges or gifts in hand amounting to \$79,000 — including the gifts from the School of Psychology alumni," Johnson said.



Party goers

Master-of-ceremonies Pat Murphy (at right) extends prizes to some of the many employees who gathered in the Gymnasium for the 25th Anniversary Awards Party and Dance. With him are (from left) Marlon Karchefski, Jack Thompson, Vera Coe, and Blake Jenkins. The event included the award of services pins, and dancing.

Bankers assist with grant

The Southeast Banking Corporation Foundation recently donated a \$1,000 "unrestricted grant to be used to purchase software for the university's new Evans Library.

"Our grants are awarded on the basis of merit, and we felt that F.I.T. had a most worthy cause," said C. William McQuagge, senior vice-president and area manager for Southeast Bank, N.A.

McQuagge explained that the Foundation awards grants only to non-profit organizations. Last year the Foundation awarded F.I.T. a \$1,000 grant to support a second elevator for the university's Craw-

ford Science Building.

The Foundation is funded by the Southeast Banking Corporation and the Southeast Banks, and makes contributions to further education, culture and the arts.

McQuagge explained that before the Foundation was established in 1980, grants were made by individual Brevard County Southeast Banks to non-profit organizations.

Since 1969, F.I.T. has received more than \$13,000 from the combined Brevard Southeast Banks. An unrestricted grant means that there are no stipulations by the grantor on how the money donated is to be spent.



'SAR' WARS?

When the Coast Guard wanted some help in determining the best tools and methods for search and rescue (SAR), it recruited F.I.T.'s Captain Jack Morton and the vessel R/V Jennie D that is normally utilized by Oceanography and Ocean Engineering. The dummy (pictured) toting Jennie D served as on-site command vessel, placing targets in the water for the trials involving helicopters and jets.