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NEWS AND ANNOUNCEMENTS

NEW CENTER FOR APPLIED COASTAL RESEARCH

A new Center for Applied Coastal Research to study problems of the nation's shorelines has been established at the University of Delaware in Newark.

The center will be housed in the ocean engineering laboratory of the Department of Civil Engineering, which has had an ocean engineering program for more than 20 years. Dr. Robert A. Dalrymple, professor of civil engineering, will be the center's first director.

Research at the center will focus on the effectiveness of shoreline protection measures, the propagation of waves from offshore locations to coastal sites, the determination of currents caused by waves near the shoreline, the analysis of sediment transport and erosion potential of these currents and the study of the behavior and stability of breakwaters. Much of this research is currently underway, funded by the federal Sea Grant Program, the National Science Foundation, the Office of Naval Research and the U.S. Army Corps of Engineers.

"The center's purpose is to focus national attention on the University's research efforts in coastal processes to attract new funding for our research efforts, while continuing our existing funding and research commitments," Dr. Dalrymple said.

One of the first goals of the center will be to establish an industrial partnership program with companies interested in coastal research. A parallel governmental partnership program also will be created to foster cooperation with federal and state agencies responsible for coastal programs. These agencies will have access to the center's technical expertise. In addition, Dr. Dalrymple will seek private foundation funding to support both undergraduate and graduate students.

"We expect to use outside funding to provide summer jobs for students to allow them to see if they are interested in the field," he said.

The center will be governed by a University advisory committee consisting of Dr. Dalrymple, Dr. Ib A. Svendsen, chairperson of the Department of Civil Engineering, and Drs. Nobuhisa Kobayashi and James T. Kirby, both associate professors of civil engineering.

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OCEAN INSTITUTE FORMED

Washington, April 7—Officials of the Marine Technology Society and the American Society of Mechanical Engineers announced April 5 plans to establish the Ocean Institute, a broad-based coalition to address technology and the seas.

This new organization, an interdisciplinary group of researchers and engineers, will involve the considerable technical expertise of the two founding organizations and others in order to address the incredibly broad technology challenges involved.

Motivated by the environmental tragedy in Alaska, the organizers are determined to bridge the technological gap between theory and technical practice in the seas.

The organizers also noted the lamentable state of commercializing ocean enterprises since the 1983 Exclusive Economic Zone Declaration added underwater territory 70 percent greater than the dry land mass of the United States to our borders. They plan extensive activity and programs for protection and enhancement of the environment. The Institute will encourage economic activity in the underwater territory to the extent that it does not unreasonably degrade this sensitive environment.

Individuals or organizations interested in the Institute should write The Ocean Institute, Organizing Committee, 1825 K Street, NW, Suite 203, Washington, DC, 20006-1202 or call (202) 775-5966.

MAP OF SHORELINE EROSION RATES

The U.S. Geological Survey has recently published a 1:7,500,000 scale color map of the patterns of erosion and accretion of the United States shorelines. This map, one of the *National Atlas* series, was compiled by Robert Dolan (University of Virginia), Suzette May, and Fred Anders. The rates of erosion were calculated from data from a combination of maps, charts and aerial photography. The back of the map includes an explanation of the processes responsible for shoreline erosion.

As expected, the map shows that the Atlantic Coast is receding, with 79% of the shoreline showing some measure of erosion. Some places, like Virginia's barrier islands, are eroding as much as 5 m/yr.

As an outgrowth of the *National Atlas* Coastal Erosion map, the USGS will publish a new series of more detailed maps (1:2,000,000) focusing on eleven coastal regions of the United States. The first three maps will include the Mid-Atlantic Coast, Florida and Gulf Coast, and the Great Lakes.

The 1:7,500,000 scale map is now available at a modest cost from the USGS, Denver, Colorado, or MAP SALES, the National Center, Reston, Virginia. The first of the 1:2,000,000 map series will be available in early 1990.

MASTER OF MARINE AFFAIRS

1989-92 Graduate Study at the University of Rhode Island

The Graduate Program in Marine Affairs, which offers two master's degree programs, was established in 1969 for individuals interested in the study of the complex issues of marine management. It focuses upon marine policy in four functional areas: fisheries law and policy, coastal zone management, ports and shipping, and international law and policy of the oceans. Policy problems at the local, state, regional, national, and international levels are examined. Subjects studied have included management of living and non-living resources in the exclusive economic zone and in polar regions, environmental protection in the coastal zone, the interplay of marine science and public policy in areas such as ocean waste disposal, the impacts of technological advances on the shipping and port industries, developments in international organizations in marine affairs. To date, students have been attracted from over 40 states and 35 foreign countries.

Master of Marine Affairs (M.M.A.)—Applicants for this program must have either a graduate degree in a field useful in ocean management, such as the behavioral sciences, ocean science or engineering, resource economics, law, political science, or public administration, or have at least five years' experience in some ocean-related activity.

In this program, students acquire basic knowledge and analytical skills through required and elective courses. The core courses are: Marine Science and Ocean Uses, Marine Geography, Economics of Marine Resources, International Ocean Law, and the Marine Affairs Seminar. Except for the seminar, each is a three-credit course. Students also take 12 credit hours of electives in marine affairs and in other fields such as community planning, fisheries technology, organizational management, geography, geology, oceanography, ocean engineering, political science, and resource economics.

Substantial independent effort is required in research projects and written work. The 30 non-thesis credits required for the degree may be earned in nine months of intensive, full-time resident study.

The seminar is offered as Marine Affairs 651 (3 credits) in the fall and Marine Affairs 652 (3 credits) in the spring, to be undertaken in sequence. It is the focus of the interdisciplinary exchange. The seminar relies heavily on outside speakers and resident faculty members and requires student presentations on specific selected problems. A major research paper is assigned early in the fall to be submitted toward the end of the spring semester.

The Master of Marine Affairs degree (M.M.A.) program does not offer intensified specialization. It is intended to give an overall familiarity with the subject and to fill in the gaps left by narrow specialization.

Master of Arts in Marine Affairs (M.A.M.A.)—Potential applicants who do not have a prior graduate degree or the requisite marine experience to qualify for study toward the M.M.A. degree may make application for the degree of Master of Arts in Marine Affairs. This academic degree, counterpart to the professional M.M.A. degree, is a two-year, 45-credit thesis program. Candidates for the M.A. in Marine Affairs take the 24 required course credits of the Master of Marine Affairs Program and 15 elective credits. This combination ena-

bles a student to specialize in a given area and still receive the multidisciplinary influence of the M.M.A. program. A six-credit master's thesis of an interdisciplinary nature completes the program of study.

Fees and Assistance—Tuition for full-time graduate study in 1988-89 is $1,856 for the academic year for Rhode Island residents, $2,320 for residents of other New England states who qualify under the New England Regional Student Program. Out-of-state students pay tuition of $4,168 for the academic year. Tuition and the auxiliary fees are subject to change without notice.

Marine Affairs assistantships are available to outstanding candidates. Remission of tuition may be granted in special cases.

Applications—Write to the Dean of the Graduate School. The University of Rhode Island, Kingston, RI 02881, for application forms and catalogs. Applications for financial aid should be received by February 15. Admission decisions will be made about April 15, and grants will be awarded as soon thereafter as feasible. Address inquiries about the Marine Affairs Program to Coordinator, Marine Affairs Program, Washburn Hall, The University of Rhode Island, Kingston, RI 02881-0817. Telephone (401) 792-2147.

IN MEMORIAM
Edmund Dwen Gill
1908-1986

One of the oldest and devoted members of the INQUA Shorelines Commission, our dear friend Edmund Gill died peacefully at his home near Melbourne, Australia, on July 13, 1986. After his retirement in 1979 he was honored by the Royal Society of Victoria with a "Gill Symposium" when Sam Warren Carey of the University of Tasmania said of Edmund Gill: "we appreciate your benevolence, we thank you for your selfless service, we respect your researches, and we honor you as a gentleman."

Edmund was born in Auckland, New Zealand, on Dec. 11, 1908 and came to Australia as a young man. Inspired by his science teacher, he took up paleontology as a hobby while studying for the Baptist ministry, which he served a while as a lay preacher. He started at Melbourne University in 1928 and by then convinced of the truth of the theory of evolution, maintained body and soul together for a long time as a youth worker, keeping up with his fossils and geology part time, until 1948 when he was appointed Paleontologist at the National Museum of Victoria in Melbourne, which he served devotedly for a quarter century, eventually becoming Deputy Director.

In 1947 we published a joint paper in the *Australian Journal of Science* (v. 10, 63-67), outlining a set of guidelines for studies of coastal change, and organized suggestions for datum-level selection. I was still in uniform (R.A.A.F.) at the end of WWII when Edmund took me out to Warrnambool in western Victoria (sacrificing his precious rations of gasoline) and showed me the unequivocable evidence of two separate wave-cut horizons at 2-4m above mean low tide, separated by a veneer of last-glacial calcareous eolianite, which established their ages respectively as last interglacial ("Tyrrhenian" or "Barbados") and mid-Holocene (*c.* 5000yr BP). Curt Teicheret and I, soon after, discovered exactly the same thing in southwestern Australia.

In the Gill Symposium proceedings (1981), his bibliography to date listed 352 papers; the last list he sent me included 382 items. They ranged from Siluro-Devonian stratigraphy and fossils, to shorelines and eustasy, Cenozoic volcanism (particularly in the Quaternary of Victoria), the pre-history of Australian aborigenes, Quaternary paleogeography and paleoclimatology. He also served at times as a consultant for geological engineering projects. He pioneered the collection of material for radiocarbon dating. He was a life-long member and inspiration at the Royal Society of Victoria, serving as President 1969-70 and becoming life member *honoris causa* in 1972. After his retirement he became a "Principal Research Secretary" at the C.S.I.R.O. in Waverley, Victoria. With the Shorelines Commission, at INQUA congresses and in other connections he travelled widely and was a visiting lecturer at Harvard, Caltec, UCLA, Berkeley and University of Oregon, as well as other centers around the world.

I would like to print here selections from some of his letters that may be of general interest: One letter (to R.W.F., dated Sept 12, 1983) runs like this:

"Your sense of *scale* is much appreciated. Much comment is made on hydroisostasy, for example, without the authors seemingly having any idea of the scale. Calculations of the loading of the Australian continental shelf shows that the wide NW shelf has a loading four times as much as the narrow shelf in the SE, but all round the continent the Last Interglacial peak is at about 7m. Because there is no significant

change in the area loaded, the land is depressed about the same amount on each transgression. Our son Adrian was here from Cambridge recently (probably you saw his book Ocean Atmosphere Dynamics-Academic Press), and we discussed the numerous variations of ocean level that occur. He agreed that the eustatic changes are many orders of magnitude greater than these. If we continue our quantification, we should be able to draw a world eustatic curve. People give up too easily.

I have found no place in the world more stable that the Warrnambool area where the Port Campbell Limestone (shelf calcisiltite) is horizontal for c. 100 km, with a surface seaward slope about 1.5m/km. A PhD on the foram zones show how remarkably level it is. As you know there are some very small river valley basalt flows (the area is apparently still under tension) and K/Ar dates of these date the low sea levels. Three higher sea levels are present at c. 400,000, 125,000 and 6000yr. Oscillations in the Last Interglacial are 7m 125,000yr, 4m 110,000yr and -3m 90,000yr; for the Holocene 2m 6000yr, 1m 4000yr, 0.5 m 2800yr and smaller changes thereafter. I am now picking up a slightly higher Viking period and a slightly lower Little Ice Age with the sea rising since. The more I sort out the sequence, the more similar it becomes to the 0-16/0-18 palaeotemperature curve. Some of the lower sea levels are picked up by strewnfields that reached the position of the present coast."

One more (to R.W.F., dated May 3, 1984):

"My delineation of sea level changes at Warrnambool looks more and more like the oxygen isotope palaeotemperature curve. The trickle basalts give the ages of the lower sea levels. The main basalt outpourings were in Older Basaltic times. The Newer Basalts have about half the extent, and only a fraction of the volume. K/Ar shows that most of the Newer Basalts are Pliocene, since when there have been only minor flows. I find that the high peaks of sea level that fell a little short of present sea level can be picked up form windblown sand spreads that mantle older aeolinanites."

Another letter (to Orson van de Plassche, dated July 12, 1984):

"It is not true that I have not considered the geoid and hydroisostasy. You will recall that I recommended to the Birmingham congress of INQUA that the subject be studied, and for my pains was given the job of organizing a committee to do so. Dr. Colin Barton (of my section in CSIRO) and I, using an image analyzer and computer, worked out the load of water on the continental shelf of Australia. Where the shelf is very wide the difference between the peak of the Last Interglacial and that of the Flandrian Transgression are the same as where the shelf is narrow, apparently because the loads were very similar for the peaks of the two transgressions. I have discussed hydroisostasy elsewhere . . . I believe there is no great effect on platforms in unglaciated areas. In my opinion, the issue has been a bit overdone in the initial enthusiasm.

This great stability in a part of the world free of glaciation provides an exceptional opportunity of studying the effects of sea level change on platform evolution. The variables are admirably simplified. Also the presence of two contrasing lithologies (siltstone and greywacke) on the Otway coast permits the conclusive checking of the effects of a common environment on two very different rock types. Thus it was possible to make a positive contribution to the question whether flat supratidal platforms and low ramps graded to low water level are the result of different processes or are but two stages in the one evolutionary processes."

To close, I list some of Edmund's recent papers on coastal topics:

353 GILL, E.D., Segnit, E.R. and HUNT, I., 1980 Pleistocene submerged cliff off the Otway coast of Victoria, Australia. *Proc. R. Soc. Vict.* 91: 43-51.

359 GILL, E.D., 1981. Radiacarbon dating of estuarine shells in the River Yarra, Royal Botanic Gardens, Melbourne, Victoria. *Vict. Naturalist* 98: 156-158.

360 GILL, E.D., 1981. The separation of progradation due to fall of sea level from progradation due to sand over-supply. *Oceanis* 7(4): 367-371.

362 GILL, E.D., 1981. Rapid honeycomb weathering (tafoni formation) in greywacke, S.E. Australia. *Earth Surface Processes and Landforms* 6: 81-83.

363 REECKMANN, S.A. and GILL, E.D., 1981. Progressive carbonate diagenesis in Quaternary dune and shallow calcarenites, Warrnambool District, Victoria, Australia. *Sedim. Geol.* 30: 157-172.

366 GILL, E.D. and LANG, J.G., 1982. The peak of the Flandrian Transgression in Victoria, S.E. Australia—faunas and sea level changes. With appendix by S.W. Boyd. *Proc. R. Soc. Vict.* 94: 23-34.

367 GILL, E.D., 1982 Those keys again. *Investigator* 17(4): 141-145.

371 GILL, E.D. and SEGNIT, E.R. 1982.

Strata of carbonate loess in S.E. Australia. *Loess Letter* October 1982, pp. 3-4.

372 GILL, E.D. and ALSOP, P.F.B., 1983. Radiocarbon dating of coastal sand at Thirteenth Beach, west of Barwon Heads, Victoria. *Vict. Naturalist* 100: 76-79.

374 GILL, E.D., 1983. Shore Platforms. In *The Encyclopedia of Beaches and Coastal Environments*, ed. M. L. Schwartz, Hutchinson Ross, Stroudsburg, pp. 755.

375 GILL, E.D. and LANG, J.C., 1983. Microerosion meter measurements of rock wear on the Otway coast of southeast Australia. *Mar. Geology*. 52: 141-156.

378 GILL, E.D., 1983. Australian sea levels in the past 15000 years—Victoria, S.E. Australia. In "*Australian Sea Levels in the Past 15000 Years: A Review*" ed. D. Hopley. Occasional Paper 3, Monograph Series, Geography Dept., James Cook University of N. Queensland, pp. 59-63.

380 GILL, E.D. and COLLINS, A.C., 1983. Ancient seaway between Geelong Harbour and Bass Strait, Victoria. *Vict. Naturalist* 100: 76-79.

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