

faHe -2°7 PUERTO RICO NUCLEAR CENTER STAFF CURRICULUM VITAE US. A.E.C. Program Review December 9-10-11, 1973 OPERATED BY UNIVERSITY OF PUERTO RICO UNDER CONTRACT NO AT (40=1)-1833 FOR US ATOMIC ENERGY COMMISSION ---Page Break---
---Page Break--- PUERTO RICO NUCLEAR CENTER ORGANIZATION CHART Sauer 1, 1978
---Page Break--- TABLE OF CONTENTS 'Agard, Eugene T. 'Arce Quintero, Rafael Block, Arthur McBride Boseh, Antonio Brown, Raymond Allen Brown Campos, Richard 'Canoy, Michael John Castillon, Jose P. A. CCadeio Maldonado, Arturo Chiriboga, Jorge Clements, Richard G. Colén, José Antonio Colén, Julio I. 'Cuevas de Colén, Elvira Cuevas Ruiz, José de Lebn-Dancel, Delfin Deshpande, S.N. Dietrich Ormacha, René Drewry, George, E. Eberhardt, Manfred K. Estrada Pinto, Alejo Ferguson, Frederick F. Ferrer-Monge, Jost A. Gilead), Aviva E. Gileadi, Michael Gonzalo-Gonzalez, Julio A. Kay, Mortimer I. Kolehmainen, Seppo E. Koo, Francis K. 8. Medicat Physics Physical Sciences, Radiation Chemistry: Physical Sciences, Radioecology, Terrestrial Ecology Radiotherapy and Cancer. Medical Sciences and Radiobiology, Schistosomiasis. | Reactor. . e Radioecology, dobos Bay, Site Selection Study Physical Sciences. "Tropical Agro Sciences Medical Sciences and Radiobiology, Fesciolias - Radioecology, Terrestrial Ecology... . Radioecology, Terrestrial Ecology... Medical Sciences and Radiobiology, Virology Roadioecology, Terrestrial Ecology... Tropical Agro-Sciencos so... : 'Medical Sciences and Radiobiology, Fatcolisis. 'Tropical Agro-Sciences, Radiation Chemistry. Clinical Radioisotope Applications, Lung Study. Radiocology, Terrestrial Ecology. orn Physical Sciences, Health and Safety Radioecology, Terrestrial Ecology... Medical Scioces and Radiobiology 'Tropical Agro Sciences: Nuclear Engineering. Health & Safety, Joint Radiation Survey [Nuclear Science 'Nuclear Scienee, Neutron Ditrraction Rodioecology, Marine Biology. . Tropical Ago Sciences... nna ---Page Break--- Lanaro, Aldo E. Lee, Rupert A. Liard Bertin, Felix Lopez, Victor A.

Lowman, Frank 6. 'Magic, Rastko. Marcial, Victor A., Martin, F. Douglas, Martin, Stephen G., 'Mo, Helen, Mo, Tin 'Moussa, Mounir, Tawik Muñoz, Ribsdeneira, Fausto Nazario, Mata L. Pedersen, Knud Borge, Past, Les, Plaza, Heriberto, Ritchie, Lawrence B., Rushtord, Frederick E., Sasscer, Donald S., 'Simpson, George A., Vieonte, Vance P., Walker, David W., Wood, Elwyn, 'Youngbluth, Marsh J. Clinical Radioisotope Applications [Nuclear Science, Hot Atom & Radiation Chemistry, Medical Sciences and Radiobiology, Electron Microscopy, Medical Sciences and Radiobiology, Director's Office, Radioecology, Nuclear Science, Neutron Diffraction, Director's Office, Radiotherapy and Cancer, Radioecology, Jobos Bay, Radioscology, Jobos Bay, Radioecology, Jobos Bay, - to a Radioecology, Marine Biology, Jobos Bay |... Radioecology, Marine Biology, Jobos Bay, Radioecology, Marine Biology, Site Selection Study, Radioecology, Jobos Bay... Radioecology, Site Selection Study, Radioecology, Jobos Bay. 'Nuclear Engineering, Radioecology, Nuclear Engineering... Director's Office, Information and Education Services, 'Nuclear Engineering... Physical Sciences, Radiation Cherise, Med Pes. Health and Safety, Radioecology, Jobos Bay, Radioecology, Jobos Bay. Radioecology, Marine Biology, Jobos Bay, \$\$\$. Radioecology, Site Selection Study, geRgeggsees SBSSSsesseaaauseaaass ---Page Break---
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E. Kolehmainen Director, Marine Biology... ss. | oe F. Douglas Martin Jobs Bay =e Pees 'Stephen G. Martin Jobs Bay ee Helen Mo obos Bay : Fee e ee Tin Mo 'Marine Biology, Jobs Bay Mounir Tawtik Moussa Marine Biology, Jobs Bay... Fausto Muñoz Ribadeneira Marine Biology, Site Selection Study... 2... seegusegaessagegess Maria L. Nazario Jobs Bay 22... Gary P. Owen Site Selection Study dames D. Parrish Jobs Bay 2... Leslie Piastro Vance P. Vicente Jobs Bay Elwyn D. Wood Site Selection Study, Marine Biology, Jobs Bay. | | | 'Marsh J. Youngbluth Site Selection Study. 'Medical Sciences and Radiobiology Division FF. Ferguson Acting Head. 35 Raymond A. Brown Director, Schistosomiasis a 8 Jorge Chiriboga, M.D. Director, Fascioliasis . sees 16 Julio |. Colén, Director, Virology 20 Delfin de León-Dancel Fascioliasis : sees : 8 Félix Liard-Bertin Electron Microscopy. Senet eee oT Victor A. Lopez Microbiology . Feel Clinical Radioisotope Applications Division 'Aldo E. Lanaro, M.D. Head eee eanese 46 René Dietrich, M.D. Lung Study - 8 ---Page Break--- Radiotherapy and Cancer Division itor A. Marcial, M.D. Head Antonio Bosch, M.D. Radiotherapy Tropical Agro Sciences Division Francis K.S. Koo Head 'Arturo Cedeio Maldonado teehares José Cuevas-Ruiz Sees 'S.N. Deshpande Radiation Chemistry sosé A. Ferrer-Monge a David W. Walker Insect Sterility Medical Physics Program Eugene T. Agaed Head George A. Simpson Nuclear Science Division Julio A. Gonzalo-Gonzalez Head»... . . : 'Mortimer I. Kay Director, Neutron Diffraction Rupert A. Lee Director, Hot Atom and Radiation Chemistry Rastko C. Maglic Neutron Diffraction. Physical Sciences Division osé P.A. Castrilén Acting Head... : Rafael Arce Quintero Radiation Chemistry... Arthur MeB. Block . been Monfred K. Eberhardt Health & Safety... - 7 George A. Simpson 'Acting Director, Radiation Chemist "Nuclear Engineering Division Donald S. Sasser 'Aviva E. Gileadi Koud 8. Pederson Horiberto Plaza Reactor Division Richard Brown Campos Head Health and Safety Division Porfirio Toledo Rio

Piedras Operations Manfred Eberhardt Physical Sciences Division Michal Gileadi Joint Radiation Survey Information and Education Services Division Frederick E. Rushford Head See BR 82 Bas BRR ---Page Break--- DATE OF BIRTH: University of London (The Middlesex Hospital) University of Toronto PROFESSIONAL EXPERIENCE POSITION Teacher Assistant Physicist Lecturer (Assistant Professor) Scientist CURRICULUM VITAE, Eugene Theodore Agand August 15, 1952 PLACE OF BIRTH: Barbados Married NO. OF CHILDREN: Four (4) SUMMARY: B.Sc. (1st Class) Maths, Physics 1957 M. Sc. Physics 1998 Ph.D. Physics ago EDUCATION Harrison College (Barbados) Mass General Hospital (U.S.A.) University of M. T. (Tama) Puerto Rico Nuclear Center "On Fellowship Leave from October 1967 to September 1970. PUBLICATIONS ADDITIONAL DATA Approximately 10 to date. DATES Sept. 1952-Aug. 1954 Jan. 1959-Oct. 1965 Mar. 1965-June 1972* July 1972+ Present A. Ass. Theses: "Physical problems involved in the External Counting Cemetery Multimetric Located in a Scattering Medium." This work was done in the Department of Physics Applied to Medicine, at the Middlesex Hospital Medical School, London, England. ---Page Break--- Curriculum Vitae Dr. B. Agar ADDITIONAL DATA (Cont) B. D. Thesis: "In Vivo Neutron Activation Analysis and Associated Dosimetry." Most of the research work was done at the Toronto General Hospital. C. Membership in Professional Societies: 1. Health Physics Society 2. American Association of Physicists in Medicine. Consultant in Radiological Physics to Ministry of Health, etc. D. Staff Representative on University of The West Indies, [Stopover Tories Top] a area of etc. ---Page Break--- Name: Rafael Arce Quintero Age: 28 (July 21, 1944), Height 6'0", weight 175 pounds Marital status: Married, one child Address: 435 Mizar, Urb. Dos Pinos, Río Piedras, 00923, Educational Background: High School: University of Puerto Rico High School, Río Piedras, (1961) University of Puerto Rico, Río Piedras, Puerto Rico B.S. degree, (1965), Major: Chemistry;

Minor: Physics University of Wisconsin; Madison, Wisconsin Ph.D. degree (1971), Major: Physical

Chemistry; Minor: Physics. Ph.D. thesis and training: Photochemistry and Radiation Chemistry. Work Experience: Teaching Assistant for the laboratory course of undergraduate Physical Chemistry at the University of Wisconsin (1971-1973); Assistant Professor at the Department of Chemistry of the University of Puerto Rico, Rio Piedras. Courses taught: a) Chemistry 101-102 - general chemistry for sophomores; b) Chemistry 363-364 - Physical Chemistry; c) Chemistry 365-366 - Intermediate laboratory of Physical Chemistry. (1971-1973): Scientist I at the Puerto Rico Nuclear Center in the Gamma: Radiolysis project, research and teaching. Honors and Societies: Sigma Xi Scientific Society, American Chemical Society. Graduate studies entirely financed by the scholarship program of the Economic Development Administration of Puerto Rico. Honor registration at the University of Puerto Rico. ---Page Break--- Rafael Arce-Quintero (curriculum vitae) Publications: 1) R. Arce, Ph.D. Thesis, University Microfilms, Michigan. 2) R. Arce and John E. Willard, "Elementary Processes in the Photochlorination of Methylpentane Glass at 77-97%", J. Physical Chemistry, 76, 1600, 1972. 3) R. Arce and L. Ramirez, "Intermediate Species in the Photolysis of Heterocyclic Compounds at 77°", 7th Caribbean Chemical Conference, Mayaguez, Puerto Rico, January 1973. Interests: 1) Teaching at the college level, working with students; 2) active in sports (basketball, baseball); 3) rock and stamp collection; 4) Research interests: a) Photochemistry of heterocyclics at 77°K in rigid glasses. Purpose of identifying intermediate species, triplet state quantum yields, triplet-triplet extinction coefficients; b) Photochemistry of di-tert-butyl peroxide in alkanes, alcohols, alkyl halides at different temperatures; c) Photochemistry of halogens in organic glasses with interests in the halogen disappearance quantum yield, radical yield, radicals produced, products yields. Relationship between

liquid and gas phase photohalogenations and solid state photohalogenations 4) Diffusion controlled radical reactions; reactions of radicals produced by gamma irradiation with small molecules like oxygen, bromine, chlorine as a way to determine diffusion properties of these molecules in organic glasses.) Mercury photosensitization 3-26-1973 ---Page Break--- ARTHUR MCBRIDE BLOCK Social Security Number - 13-30-5543 Address - 1754 Pafos St., Venus Gardens, Rio Piedras, Puerto Rico Place and date of birth - Newark, W.J.; June 26, 1938 Education and degrees High School - Newark Academy, Newark, W.J.; Diploma 1956 College - Cornell University, Ithaca, N.Y.; A.B.; Major in Chemistry and Physics 1961 Postgraduate - Rutgers University, New Brunswick, W.J.; Ph.D. Major in Physical Chemistry 1957 Thesis - "Laser Light Scattering from Spheres in Water Suspension" Professional Experience 1962 - 67 Instructor, Analytical Chemistry and Basic (1st year) Chemistry, Rutgers University, New Brunswick, N.J. 1962 - 62 Chemist, Merck & Co., Inc., Rahway, N.J. (Analytical Research - Chemical Control Division). 1963 - 64 Chemist, Johnson and Johnson Co., Inc., New Brunswick, W.J. (Analytical Research - West Research). 1967 Lecturer, University of Puerto Rico, Rio Piedras, Puerto Rico. 1968 Assistant Professor, University of Puerto Rico, Rio Piedras, P.R. 1967 - 72 Scientist - Ad Honorem, Puerto Rico Nuclear Center, Caparra Heights St., San Juan, Puerto Rico. 1971 - Present Scientist I, Physical Sciences Division and Terrestrial Ecology Program, Puerto Rico Nuclear Center, Rio Piedras, Puerto Rico. Professional Associations and Societies Colgate-Palmolive Fellow, 1963-64 Sigma Xi Society, New Brunswick Chapter Associate Member - 1965 Member - San Juan Area Club Councilor - 1971 American Chemical Society, 1970 Optical Society of America, 1971 Association of Southeastern Biologists, 1973 ---Page Break--- Primary Teaching Interests: Experimental Sciences, Mathematical Sciences, History of Science. Primary Research Interests Applications

of Light-scattering in the characterization of bio-physical systems. Chemical analysis of eco-systems. Toxicity and Chemical treatment of non-biodegradable compounds. 'Theoretical description of ground state properties of biologically active molecules, Student Instruction Courses

taught: Basic Chemistry (1st year), Analytical Chemistry, Physics, Chemistry, Instrumental Analysis. Committees: Academic Affairs (Dept. of Chemistry, U.P.R.), Graduate Student Association (Chemistry Department Representative 1964-1966, Rutgers University). Graduate Admissions (Department of Chemistry, U.P.R.), proposals and Funding from Government and non-Government Sources (Quaternary Structure Studies of Glycogen, Phosphorylase Using Laser Light Scattering", Research Corporation grant: \$6,500, 1968, Westinghouse Gift Program: 1 XY Recorder, 1969. Department of Housing, Commonwealth of Puerto Rico: Electronic Components (Surplus) Estimated value: \$10-12,000, 1969. "Toxicity Incorporation and Amino Acid Content of Glycogen Phosphorylase Enzyme", Submitted to ABC. Approved, Unfunded 1905 C9, "Amino Acid Composition and Structure of Active and Allosteric Sites of Glycogen Phosphorylase Isolated from the Muggles and Blue Crab (*Callinectes sapidus*)*, HIB, Approved, Unfunded Tort" "Particles Size Distribution of Particulate Matter in Marine Areas Currently Considered Acceptable as Ocean Outfalls for Waste Disposal", Public Works: Commonwealth of Puerto Rico, Approved. Unfunded 1971" 'Equipment for a Photochemical Experiment in Intermediate Laboratory Course (Physical Chemistry). (University of Puerto Rico)". HEM, Approved, Approximately \$5,000 granted, 1972. Publications Approximately 15 to date. ---Page Break--- November 14, 1973 7 'CURRICULUM VITAE ANTONIO BOSCH, M.D. Born, Malaga, Spain ~ June 7, 1930- U.S. Citizen 1964 Field Radiotherapy and Cancer Education B.S. (premedical) Academia Hispano-Mexicana, México, D.F. 1948 M.D. Universidad Autonoma de México 1955 Certifications Diplomate American Board of Radiology (Radiotherapy) 1963

Puerto Rico Score of Medical Examin 1984 Specialty Training Ciba Laboratory Fellowship for Clinical Cancer Research 1955-56 Fellow in Gynecologic Cancer, Women's Hospital, Mexico City 1955-56 Internship, Elmhurst General Hospital, New York 1956-57 Resident in Malignant Diseases, American Oncologic Hospital, Philadelphia, PA 1957-59 Residency in Radiation Therapy, Roswell Park Memorial Institute, Buffalo, NY 1959-60 Residency in Radiation Therapy, I. González Martínez Oncologic Hospital, San Juan, Puerto Rico 1960-61 Research Assistant, Radiotherapy and Cancer Division, Puerto Rico Nuclear Center, San Juan, Puerto Rico 1961-63 Experience Junior Attending in Radiation Therapy, I. González Martínez Oncologic Hospital, San Juan, Puerto Rico 1961-63, Associate in Radiation Therapy, University of Puerto Rico School of Medicine, San Juan, Puerto Rico 1962-64 Assistant Professor in Radiation Therapy, University of Puerto Rico School of Medicine, San Juan, Puerto Rico 1964-68 Chief Scientist 1, Puerto Rico Nuclear Center, San Juan, Puerto Rico 1963 to date Attending in Radiotherapy, I. González Martínez Oncologic Hospital, San Juan, Puerto Rico 1963-72 Associate Professor in Radiology, University of Puerto Rico School of Medicine, San Juan, Puerto Rico 1968 ---Page Break---

---Page Break--- PERSONAL: EDUCATION: EXPERIENCE: CURRENT INTERESTS: PUBLICATIONS; CURRICULUM VITAE Raymond Allen Brown Pine Grove Condominium Apt. 45 Tela Verde, Puerto Rico Born, New York, December 27, 1919 Married, two children Wagner Lutheran College, Staten Island New York B.S. Chemistry, 1941 California Institute of Technology, Pasadena, California M.S. Physical Chemistry, 1947 Advisor = Prof. E.H. Swift Ph. D. Physical Chemistry of Proteins, 1949 Minor, Physics Advisor - Prof. J.G. Kirkwood Fellow, New York Academy of Science Member of Sigma Xi 1969-1971 NIH Postdoctoral, Protein Physical Chem., Cal. Tech, 1951-1957 Lederle Lab., Physical Biochem, research 1957, 1958 Venezuela Institute.

Visiting Scientist: 1958-1963 Wistar Institute, Philadelphia, Associate Member 1963-1968 (Dec. 31) Biological Division, Oak Ridge National Labs., Immunology 1968 to date Chief Scientist IT ~ PRNC Molecular Studies in Immunology & Physical Biochemistry Approximately 54 ---Page Break--- 10 'CURRICULUM VITAE Civil Status Home Address: Educational Background: Professional

Experience: Commonwealth Oil Refining Ponce Cement Corporation University of Puerto Rico, Mayaguez Puerto Rico Nuclear Center Research Activities Canna Ray Dosimetry Reactor Instrumentation Memberships: Colegio de Ingenieros, Arquitectos y Agrimensores de Richard Brown Campos Ponce, Puerto Rico, 10/26/30 Married Cruz Maria Street Bellas Lomas Mayaguez, Puerto Rico 00708 B.S. (Mechanical Engineering) University of Puerto Rico M.S. (Nuclear Technology) University of Puerto Rico Radioisotopes Techniques Course Oak Ridge TN Reactor Supervisor Training Course, Oak Ridge National Laboratories Nuclear Power Reactor Safety, Field Engineer Instructor, Department of Physics Research Assistant, Research Head, Reactor Division Sociedad de Ingenieros Mecanicos de PR Wealth Physics Society Licenses: Puerto Rico Licensed Engineer #2874 1953 1962 1987 1973 (Summer) 1955 1955 1955-58 1956 ---Page Break--- MICHAEL JOHN CANOY Curriculum Vitae Home Address: 195-F Esite Juanita Betas Tomas Kayuguary P.R. 0708 Work Address: Ecology Division Puerto Rico Nuclear Center Mayaguez, P.R. 00795 BIRTHPLACE: Ada, Oklahoma BIRTH DATE: August 5, 1939 Photo: 1960 September 1973 Name: Karsten (Christensen) Canoy. (Birthplace: Denmark) Children's Names and Ages: Eva Marie Canoy, 12 years Michele Jenee Canoy, 6 years EDUCATIONAL HISTORY (See attached list for details) Institution Location Degree Years Harding College Searcy, 1956-60 AB English Arkansas Psychology 1963-64 Zoology-Chemistry University of Denver 1960 Psychology Denver Colorado Harding College 1961-62 Marriage Counseling Education Michigan State East Lansing, 1962 Psychometrics University of Michigan University of

dustin, 1966-68 Zoology University of Chapel Hill, 1968-70 Doctorate zoology North Carolina 1972 Dissertation: DNA in Ecological Systems, (Supervisor Dr. is 7. odun' ---Page Break--- 2 VOCATIONAL EXPERIENCE: Date 1959-60 1960-61 1961-62 1962 1963 1965 1965-66 1966-67 1967-68 1968 1970 Title Freelance writer, Photographer Photo Lab Technician Psychometric Assistant Guidance Counselor Audio-visual Technician Teaching Assistant Laboratory Technician Consulting Psychologist Teaching Assistant Director, Job Project Reply self Searcy, Arkansas Denver, Colorado Workman Studio Denver, Colorado Harding College Searcy, Arkansas Albion Public Schools Albion, Michigan Harding College Searcy, Arkansas University of Texas Austin, Texas University of Texas Austin, Texas University of Texas Austin, Texas University of Texas Austin, Texas University of North Carolina Chapel Hill, NC Puerto Rico Nuclear Center Mayaguez, PR M. J. Conoy Description Writing copy and furnishing photos for news, adventures and historical articles. Commercial photo laboratory technician handling industrial, USDA and NASA accounts. Administration, scoring, and statistical analysis of college entrance and placement tests. Administer psychological tests and offer personal and career counseling to high school students. Operation of AV equipment, make or edit filmstrips, tapes, movies for educational purposes. Laboratory instruction in summer courses in Human Anatomy and Physiology. Biomedical engineering in experimental design for flash blindness studies with lasers. Developed 3G detection and analysis equipment, used computer of average transients, helium, argon, and ruby laser. Developed private fir for contract work with the Office of Economic Opportunity for the administration and analysis of multilingual and "culture free" psychological tests. Teaching laboratory sections of Human Anatomy and Physiology. Teach laboratory sections of Basic Zoology. Supervise a before-after environmental study of a bay where a power plant is under construction. ---Page Break---

VOCATIONAL EXPERIENCE (cont'd) Dave 1971 197-73, Time Employer Project Puerto Rico Director, Nuclear Center, Jobos Fd}. Mayaguez, Puerto Guayen:116 Project Project. Director, Jobos Project. Guayeniie Project Site Selection Survey Project Med. Canoy 43 Description Supervise a before-after environmental study of a bay where a power plant is under construction. Supervise an ecological study of a thermally altered bay. Environmental survey of potential power

plant site ---Page Break--- 4 EOE Name: José PA. Castrilién Citizenship: Argentine Date and Place of Birth: January 4, 1926, Buenos Aires, Argentina Marital status: married; 2 sons Social Security number: 583-07-012 Experience: 1950 = Th.D, University of Buenos Aires, Argentina Thesis title: "The alkaloids of Argentine cacti 'Srichocereus candicans and trichocereus terschekis" 1950-2 = Research Laboratories of Atonor S.A.M., Munro, Argentina 1963-5 = Research Laboratories of Squibb S.A., Argentina 1956-6 = Organic Chemistry Laboratory of the Argentine Atomic Energy Commission 1960-1 = Fellowship of the Argentine Council, University of Colorado under Professor Bert M. Tolbert 96 = Associate Scientist I, Puerto Rico Nuclear Center. 1967 = Associate Scientist II, Puerto Rico Nuclear Center, +411 present Professor of Radiochemistry (24 honors) of Puerto Rico. University agmi-2 = One year leave at the University of Ammon, Paraguay as Professor of Organic Chemistry on an Organization of the American States Program. aoe = Acting head, Physical Sciences Division, Publications Approximately 18 publications to date. ---Page Break--- 18 CURRICULUM VITAE Arturo CedeRo aldonada Scientist I, Tropical Agro-Sciences Division, PRIC Assistant Horticulturist, Agricultural Experiment Station, UPR Assistant Professor, Department of Horticulture, UPR Education and Experience 2962 - B.S, Agriculture, University of Puerto Rico, Mayaguez 1966 - M.S. (Plant Science) University of California, Riverside 2975 - Ph.D, (Plant Physiology) University of California, Riverside 1962-66 Research Assistant,

Agricultural Experiment Station, UPR, Mayaguez 1966 to present, Assistant Horticulturist, Agricultural Experiment Station (UPR), Mayaguez 1973 Scientist I, Puerto Rico Nuclear Center, Mayaguez 1973 Assistant Professor, UPR, Mayaguez Publications Four papers were published. ---Page Break--- 1 (CURRICULUM VITAE JORGE CHIRIBOGA M.D. Field - Biochemistry, Pathology Senior Scientist TT & Director of the Fasciola hepatica Program Degrees: 1925-1931 German School of Lima, Peru - Diploma 1931-1936 High School - Anglo Peruvian Schools, Lima, Peru - Diploma 1938-1941 University of San Marcos, School of Sciences, Lima, Peru 1945 University of San Marcos, School of Medicine - B.M. 1968 University of San Marcos, School of Medicine - M.D. Experience 1942-1945 Instructor in Pathology - School of Medicine, Lima, Peru 1945-1948 Research Associate Public Health Ministry, Lima, Peru 1949-1951 Fellowship of the Comisión de Cultura de la República, Argentina 1952-1953 Fellowship of Biochemical Institute (Professor Luis F. Lezot) Buenos Aires, Argentina 1956-1957 Head of the Department of Biochemistry - School of Agriculture, La Molina, Lima, Peru 1956-1957 Head of the graduate program - School of Agriculture, La Molina, Lima, Peru 1957-1959 Dean, School of Medicine, Arequipa, Peru 1957-1959 Head of the Department of Biochemistry, School of Medicine, Arequipa, Peru 1959-1966 Associate Professor - University of Tennessee Atomic Energy Commission Agricultural Research Laboratory, Oak Ridge, Tennessee, 1966-present Assistant Director for Scientific Programs, Puerto Rico Nuclear Center, and Professor of Biochemistry, School of Medicine, University of Puerto Rico, with about 100 publications. ---Page Break--- CURRICULUM VITAE Name: Richard C. Clemente Address: Santa Rosa St, #125, Urb. Roncalli, Rio Piedras, Puerto Rico DOB: April 28, 1991, Indianapolis, Indiana Height: 5'10", Weight: 255 lbs: Health, no defects Status: married, four children, military classification, 1A Position: Director, Terrestrial Ecology and Senior Scientist.

Puerto Rico Nuclear Center, San Juan, Puerto Rico. Purdue University Major: Agronomy, Minor: Botany, Chemistry, Geology Ph.D. University of Georgia Major: Agronomy, Minor: Zoology, Biochemistry Experience: 1956 - 1958 Soil Scientist, Department of Tropical Research, Standard Fruit Company, La Ceiba, Honduras. Erection of soil fertility and plant-water relationship studies with Dianne, 1958 - 1961 Quality Control Head, Quality Control Department, Honduras Division of Standard Fruit & Steamship Co., La Ceiba, Honduras, supervision of Division handling procedures

from harvesting through loading operations at the Port. Development: 1962 - 1963 Vegetable oil for Fabrica de Platanos y Jaden, S.A. & Standard Fruit & Steamship Co. Project of experimental research program dealing with the introduction of Hawaiian varieties, planting, fertilization and growth hormone studies, 1963 - 1966 Research Assistant, Department of Agronomy, University of Georgia, Studies of the impact of fertilization, clipping on the soil temperature regime under the direction of Dr. 1966 - 1968 Research Associate, Institute of Ecology, University of Georgia. Coordinator of the Terrestrial Ecology Program in Panama in conjunction with the Interoceanic Canal Studies. ---Page Break--- 1968 - 1969 Research Associate, Institute of Ecology. Project Coordinator and one of Principal Investigators of a NSF Grant to study the Productivity and Mineral Cycling on Natural and Manipulated Watersheds at Coweeta, North Carolina. 1969 Director, Terrestrial Ecology and Senior Scientist, Puerto Rico Nuclear Center, San Juan, Puerto Rico. Professor of Biology, Ad honorem, University of Puerto Rico, San Juan, P.R. Ad Hoc Committees 1. Interagency Committee on Water Resources, Department of Public Works, Commonwealth, 1972. 2. Member of Oceanographic Project Control Board, Area of Natural Resources, Department of Public Works, Commonwealth, 1971 - 1972. 3. Advisory Committee

to the President of the University of Puerto Rico on Environmental Studies 1972 - 1973. 4, Committee on Caribbean National Forest Land and Resources Management. U.S. Department of Agriculture, Forest Service, Institute of Tropical Forestry 1973. 5. Advisory Committee of the Environmental Quality Board, Commonwealth, 1973. 3. Offices Treasurer, Sigma Xi Club, University of Puerto Rico, Rio Piedras, P.R. 1973. President, Sigma Xi Club, University of Puerto Rico, Rio Piedras, P.R. 1973. Submissions Approximately 15 ---Page Break --- CURRICULUM VITAE NAME: José Antonio Colón RESIDENCE ADDRESS: EL Verde Field Station, Terrestrial Ecology Program: Puerto Rico Nuclear Center, Route 18, Km. 19.3 Rio Grande, Puerto Rico. PLACE AND DATE OF BIRTH: June 10, 29th, Ato Rey, Puerto Rico CIVIL STATUS: Married RESENT POSITION: Research Associate I, Terrestrial Ecology Program Puerto Rico Nuclear Center, Rio Piedras, P.R. DEGREES: Bachelor in Science with Major in Biology, 1968. 1968 to present - Research Assistant and Research Associate at the Terrestrial Ecology Program, Puerto Rico Nuclear Center. PUBLICATIONS: 1970 - A Versatile Stenflow Collector for Interception Studies, With B.G. Clements, P.RAC, Terr. Ecol., Ann. Rep. 1973 - Distribution of 137Cs in Soil and Vegetation on the Island of Puerto Rico, Health Physics, Pergamon Press. 2s 69-475. ---Page Break --- CURRICULUM VITAE Julte T. Colon, Ph.D. January 1969 Present Assignment: Associate Professor in Virology, School of Medicine Chairman Graduate Committee School of Medicine Education: a, Primary School- Eugenio María de Hostos, Coamo, P.R. 1943 b, High School- Florencio Santiago High School, Coamo, P.R. 1964 c, College- University of Puerto Rico, Rio Piedras, Puerto Rico, B.S. (Chemistry) - 1950 d, University of Chicago, Chicago, Illinois Ph.D., Microbiology- 1959 Military Assignments: U.S. Army Tropical Research Medical Laboratory - 1951-53 Civilian Assignments: High School Teacher, Puerto Rico - 1950-51 Research Assistant, University of Chicago - 1953-59 Microbiologist,

Fort Detrick, Frederick, Maryland - 1960-63, Chief, Microbiology Division, v. 8. A. Tr: San Juan, Puerto Rico ~ 1963-65 cal Research, Academic Appointments: Associate Professor in Virology, University of Puerto Rico 1964 0 date Lecturer in Biochemistry, University of Puerto Rico 1964-65 National Academy of Science, National Res. Council, Post Doctoral Fellowship - 1959-60 Research Assistant, University of Chicago ~ 1954-59 Memberships in Societies, Professional Groups, and Organizations: Sigma Xi Society - 1958 (Honor Society) American Society for Microbiologists - 1958 Biophysical Society - 1963, Tissue Culture Association - 1966 ---Page Break--- 2 Teaching Agreement Participate in the teaching of the following courses: a. Medical Microbiology Laboratory

and lectures b. Graduate Course in Virology Laboratory and Lecture c. Graduate Course in Tissue Culture Laboratory and Lecture Problems of Investigation a. Radiation activation of Latent virus in Wile Arthropods and Vertebrates. b. Effect of Radiation on Interferon Production in Animals and Tissue Culture 'The Microbiology of Infantile Diarrhea. Miscellaneous studies 1. Changes Produced in the Intestinal Mucosa due to Viral and Bacterial Infection in Pigs. Research Grant United States Atomic Energy Commission Medical Sciences & Radiobiology Division \$40,000 Special Travel 2. The 68th Annual Meeting of the American Society for Microbiology Detroit, Michigan May 5-9, 1968, b. 11th Central American Congress for Microbiology Panama City, Panama Dec 1-7, 1958 Special Conferences 4. Chairman of a session Bacteriology and Mycology. 11th Central American Congress Panama City, Panama >, Invited to participate in the Roundtable "Ecology of the Intestinal Flora", in which the following work was presented: "The Viral Etiology of Infantile Diarrhea in Puerto Rico." ---Page Break--- c. Effect of Radiation on Coxsackie Virus Infection. Seminar Presented at the University of Puerto Rico, Department of Biology 4. Effect of Radiation on Viral Latency, seminar presented at the Nuclear Center, San

Juan, Puerto Rico Research Interests: Intermediate metabolite biochemistry and genetics of psittacosis- lymphogranuloma group of microorganisms; mechanism of action of chemotherapeutic agents. Origin and source of infection mycelial acid. Biochemistry and genetics of the arthropod-borne viruses. Pathogenicity of enteric viruses. Publications: Approximately 32 ---Page Break--- CURRICULUM VITAE: Elvira Cueres de Colén ADDRESS: El Verde Field Station, Terrestrial Ecology Program, Puerto Rico Nuclear Center, Route #186, Km. 19.3, Bo. Grande, Puerto Rico, PLACE AND DATE OF BIRTH: August 20, 1950, Santurce, Puerto Rico CURRENT STATUS: Married PRESENT POSITION: Graduate Research Assistant, Terrestrial Ecology Program, Puerto Rico Nuclear Center, Rio Piedras, Puerto Rico. DEGREES: Bachelor in Science with Major in Biology, 1971. EXPERIENCE: 2 years Teaching Assistant at University of Puerto Rico, Department of Psychology, Rio Piedras, Puerto Rico (1970-72) • Summer 1972, Div. of Solid Waste, Environmental Quality Board Santurce, Puerto Rico. July 1972 until present - Graduate Research Assistant, Puerto Rico Nuclear Center, Terrestrial Ecology Program, Rio Piedras, Puerto Rico, ---Page Break--- CURRICULUM VITAE José Cuevas-Senior Associate, Tropical Agrosiences Division, PRIC Assistant Professor (ad honorem), Horticulture Department, University of Puerto Rico, Mayaguez Education and Experience 1961 B.S. Agriculture, University of Puerto Rico, Mayaguez 1966 M.S. Biology, University of Puerto Rico, Mayaguez 1961-67 Research Assistant, Agricultural Biosciences Division, PRNC 1967-71 Research Associate, Agricultural Biosciences Division, PRC 1968 to present, Assistant Professor (ad honorem), Horticulture Department, UPR, Mayaguez 1971 to present, Senior Associate, Tropical Agrosiences Division, PAIC 1967-68 Lecturer and Visiting Scientist during "Atoms in Action" Exhibit at El Salvador and Guatemala Publications Fifteen scientific papers were published, Professional and Honorary Societies Memberships 1. American Society of

Agricultural Sentences 21 Caribbean Food Crops Society 4, Institute of Food Technologists 8. Gamma Sigma Delta 3. Colegio de Agrónomos de Puerto Rico ---Page Break--- 8 'CURRICULUM VITAE Delfin de León-Dancel I. Personal Statistics Place and Date of Birth: Mantla, Philippines, April 8, 193% National Filipino Religion: Protestant (Baptist) Civil Status: Married Wife: Aide Luz Jiménez Children: Marfa Aidelle, José Ricardo, and Juan Carlos Address: Calle Pegaso 749, Venus Gardens, Río Piedras, P.R. Age: 39 years Height: 5' 11" II. Education Background 1. Elementary School - F. G. Calderón, Manila, April 1968 2. High School - José Abad Santos High (8th honors), Mantla-April 1952 3. College - College of Veterinary Medicine, University of the Philippines, April 1957 4. Post-graduate - Texas A & M College System, August 30, 1960 - M. Sc. =

Harvard School of Public Health, 1964-65 (Special Student) III. Employment History 1. Instructor and Veterinarian, U.P. College of Agriculture (December 15, 1957 to October 33, 1962) 2. Assistant Parasitologist, University of Hawaii (November 15, 1962 to August 16, 1963) 3. Post-Doctoral Fellow, School of Tropical Medicine, University of Puerto Rico (September 1, 1963 to August 31, 1964) 4. Instructor, U.P. College of Veterinary Medicine, Diliman, Quezon City (August 26, 1965 to June 30, 1967) ---Page Break--- IV. Background in Professional Societies 1. Membership in Professional Societies 4. Gamma Sigma Delta (Honor Society of Agriculture), Phi Sigma, Alpha Chi Chapter American Society of Veterinary Parasitologists 4. American Veterinary Medical Association V. Languages Spoken 1. Filipino (Tagalog) 2. English 3. Spanish VI. Publications Approximately 25 ---Page Break--- CURRICULUM VITAE 8. N. Deshpande Scientist I, Puerto Rico Nuclear Center Associate Professor of Chemistry, University of Puerto Rico, Mayaguez Education and Experience 1962 M.S. in Food Technology (with biochemistry and bacteriology as supporting fields), Purdue University 1964 Ph.D. in Food Technology (with

Chemistry and nucleotides as 'supporting fields), Purdue University 1964-66 Assistant Professor and Head of the Teotope Technology Department, Tuskegee Institute, Alabama 1965 Summer research participant at PRYC, sponsored by the Oak Ridge Institute of Nuclear Studies 1966-68 Associate Scientist 1, PRC 1967-68 Assistant Professor of Chemistry (ad honorem), UPR, Mayaguez 1968-69 Assistant Professor of Chemistry, UPR, Mayaguez 1968 to present, Scientist 1, PIAC 1969 Research participation at the Max Planck Institute of Biochemistry, Munich, West Germany 1969 to present, Associate Professor of Chemistry, UPR, Mayaguez 1965-7. Scientific Consultant, T.C.A.1.7.1., Guatemala. Sponsored by the Organization of American States, Washington, D.C. Publications Sixteen scientific papers were published. ---Page Break--- ory Home ADDRESS activity education School University Degree POST GRADUATE EXPERIENCE CURRICULUM VITAE René Dietrich Ormachea, M.D. La Paz, Bolivia - March 29, 1940 Tolosa 296, College Park, Rio Piedras, P. R. C0921 Nuclear Medicine Mariscal Braun, La Paz, Bolivia 1947-1949 Sagrado Corazón, Sucre, Bolivia 1949-1952 Sagrado Corazón, Sucre, Bolivia 1953-1957 San Calixto, La Paz, Bolivia, 1957-1958 Universidad Mayor de San Andrés: Facultad de Medicina y Cirugía Bolivia, 1959-1965 La Paz, Physician-Surgeon, May 196 Digestive system diseases course, La Paz, Bolivia, 1966 Cinte Endocrinology Course, La Paz, Bolivia, 1966 Basic Course of Radioisotopes Clinical Applications, La Paz, Bolivia, 1966 Pediatrics actualization course, Jujuy, Argentina, 1967 Clinic Radiodiagnostic course, La Paz, Bolivia, 1968 XIT Course of Methodology and Medical Applications of Radioisotopes (Institute of Atomic Energy and Hospital of Clinics, São Paulo, Brazil) 1990 under Atomic Energy Institute of Brazil sponsorship to Radiostotope Techniques Course and Clinical Applications of Radioisotopes Courses, Puerto Rico Nuclear Center, San Juan, Puerto Rico under the International Atomic Energy Commission, Vienna, Austria sponsorship, 1971 lang

Scanning Course, Puerto Rico Nuclear Center, San Juan, Puerto Rico, 1972 Pediatrics Nuclear Medicine Symposium, The Johns Hopkins Medical Institutions, Baltimore, Maryland, U.S.A., 1972 E.C.P.T.G: Certificate, February, 1972 Muerto Rico Board of Medical Examiners, Commonwealth of Puerto Rico License, September 1973 Nuclear Cardiology Course, The Johns Hopkins Medical Institute, Baltimore, Maryland, U.S.A, 1973, Nuclear Medicine Assistant Medical Officer in the Nuclear Medicine Center, La Paz, Bolivia, February 1970 - May 1970 ---Page Break--- Curriculum Vitae, René Dietrich Ormachea, M.D., page #2 PRESENTATIONS AT SCIENTIFIC MEETINGS MEDICAL SOCIETIES MEMBERSHIP Special Training in Nuclear Medicine at the Hospital of Clinics and the Atomic Energy Institute, San Pablo, Brazil, August - December, 1970 Special Training in Nuclear Medicine at the Puerto Rico Nuclear Center, April 1971 to June 1972 Scientist

II, Clinical Applications Division, Puerto Rico Nuclear Center, July 1972-present Other Experience
General Staff of the Armed Forces, La Paz, Bolivia, from February 1961 to June 1962 Department
Assistant in Physiopathology at the Universidad Mayor de San Andrés, from March 1963 to
November 1965, Resident Physician in Yacimientos Petrolíferos Fiscales Bolivianos, from July
1966 to January 1970, Two up to date Nuclear Medicine Society Puerto Rican Nuclear Medicine
Society Puerto Rico Chapter, American Heart Association ---Page Break--- mm m. w, November
1973, (CURRICULUM VITAE George E. Drewry GENERAL, Home: George B. Drewry Present:
Position: Puerto Rico Nuclear Center Place and Date of Birth Nashville, Tennessee February 10,
1935 Marital Status: Wife: Jutta R. Drewry Children: Steven Drewry - born 1961 Richard Kirk - 1964
Office Address: Biomedical Suite Puerto Rico Nuclear Center Ceparra Heights Station San Juan,
Puerto Rico 00935 Phone: Area Code 304-767-0350 ext. 251 Home Address: Box 907 Rio Grande,
PR, 00745 No Phone Specification B.S., June 1958, George Peabody College for Teachers,
Nashville, Tennessee,

(anor=Biology, minor-Physical Sciences). Mok. August 1262, 'The University of Texas, Austin,
Texas, (major-Zoology, minor-Botany, Clark Pubs, major professor). Ph.D. in progress, the
University of Texas, Austin, Texas, (major-Zoology, minor-Botany, Clark pubs, major professor).
AWARDS, HONORS, AND SCHOLARSHIPS Honorable Mention-cetinghouse Science Talent
Search, 1953 'Five Undergraduate Scholarships for Tuition and Fees, 1959-1957 Beta Beta Beta,
195% BEF Cooperative Graduate Fellowship, 1959-1960 wo ISP Predoctoral Fellowships
1060-1262 PROFESSIONAL SOCIETIES Tennessee Academy of Science - Junior Member Texas
Herpetological Society Southwestern Association of Naturalists ---Page Break--- vr vir. at American
Society of Ichthyologists and Herpetologists Biological Society of America Association for Tropical
Biology The Society for the Study of Evolution (CHRONOLOGICAL LISTING OF POSITIONS
Teaching Assistant in freshman biology Laboratory, University of Texas, 1957 - 1959 NSF
Cooperative Fellow, University of Texas, 1959 - 1960 IGF Predoctoral Fellow, University of Texas,
1960 - 1962 Teaching Assistant in advanced mammalian physiology, 1962 - 1963 Technical
Assistant in Radio Television, University of Texas, 153 Research Associate, Puerto Rico Nuclear
Center, 1963 - 1964 Associate Scientist I, Puerto Rico Nuclear Center 1964 - 1969 Scientist II,
Puerto Rico Nuclear Center, 1969 to date 'TEACHING EXPERIENCE Instructor in nature study,
Peabody Demonstration School (7th grade), 2955. Student teacher, in high school biology,
Madison High, 19%. Instructor (SP-H and SP-5) in numerous short courses, U.S. Army Reserves,
including first aid, signal corps practice, and principles of operation and maintenance of single
engine aircraft, 1055 - 1362. 'Two years teaching assistant (laboratory instructor) in freshman
biology at the University of Texas, 1957 - 1959. One year teaching assistant (laboratory instructor)
in advanced mammalian Physiology, University of Texas, 1962 - 1963. 'PUBLICATIONS
Approximately 19 to date, ---Page

Break--- cunRTOUUM VERA Mage: itentnod K sbedhanst Flase of Bs single Buerto Feo Muclesr
Center, Blowesien? Building ara Weights Station San Jus, Pierto Rc0, 00935 Ehuicationat
baskgnund: Wanita eteue: Present siivecs Mane snd location ears ajor cteta Universitat Tbingen
2950-57 ongante chemistry Gereany) aweneisor University Weincen 1985457 oes Hy Heimann
University of Chews 1997-59 be. W.C. Brom Univerieity of Akanens 1959-60 Dre Ae Pry
Payetteviie, Ak. University of notre Dane Notre Dave, Iniians 190462 Dr, Sst hel Wetton Institut
1962-64 Independent PLitebargh, Pa. Recearen Techntcche Yooh 1965467 Independent sede,
thinish Besearen Puerto "eo Miclesr 1967 Independent, center, san Becearch and Perta' Rico
'Teacnin : Hotdenhein/Brenz, Cemeny. Date of Birth: Dec. sth., 1930 Minor elds Degree ani date
Aiystes, Pe.0. 1957 Doshen! ery, beta, zoology Fieta of roseset, Mannfch reset sons, synthe

Orem chemietey Maalation chentstry leotore effect stuites, Teotope tracer vork Free radical reactions, teotone work, confomational slylyesc Raliation chenictry, rhovochentetry, free radical reactions Raliation chemistry Ratiation chentstry, free relied resotione, qunatun cheatstry ---Page Break--- Curriculum vitae (M.K. Eberhardt) Page 2 Honorary appointments University of Puerto Rico, Dept. of Chemistry - Ad honorem professor = 1971 University of Puerto Rico, School of Medicine - M honore professor = 1972 Teaching expentence: "introduction to Radiation Chenistzy" ant "Introduction to Molecular orbital Theory" Bublication Approximately 17publications to date, 2/25/73 ---Page Break--- (CURRICULIM VITAE WWE: Alejo Estrada Pinto PRESENT ADDRHSS: Calle Julfo Millén #3-11, Vi2iee ée Rio Grante, Rio Grande, Puerto Rico. PLAGE AND DATE OF BIRTH: July 2, 1936, Rio Grande, Puerto Rico, IVEL starve Marrfea PRESENT FOSTTION: Research Acaietent TZ, Terrestria? Zoology Program, Puerto Rico clear Center, Rio Meéras, Puerto Rico. EXPERIENCE: 1955 - 1963 Pleid worker in the U.S. Forest Service 1963 to present : Terrestrial Zoology Program,

Puerto Rico Nuclear Center. PUBLICATIONS: 1970 ~ Phenological Studies of Trees at El Verde, Chapter D-2b in A Tropical Rain Forest, #.7. Odum, Editor, AEC Div. of Technical Information. A910 - Forest Recovery Following Gamma Irradiation, with George E. Drewry, Puerto Rico Nuclear Center, Terrestrial Ecology Programs. Ann. Rep. ---Page Break--- Born Educated: Teaching Service Positions Research, awards Chairmanships —: Publications Consultations: [Ad Honorem CURRICULUM VITAE E + Ferguson July 7, 1908-Knoxville, Tennessee University Tennessee-B.A. 1932; M.S. 1934 University of Virginia; Ph.D. 1938-University of Virginia Biology and Parasitology-College of William and Mary, 1961-64; Univ. Washington 1948-50, U.S. Public Health Commissioned Officer for 30 years Scientist Category -Rank 0-6, Captain (Ret.) Research Staff, Center for Disease Control, Ecological Investigations Program; Chief, Tropical Disease Laboratory 1954-71; Special Assistant to Director, EP 1972, Acting Head, Medical Sciences & Radiobiology, PRNC, 1973 Ecology and taxonomy of platyhelminths and Planorbidae; Insecticides for control of arthropod disease vectors; Biocontrol of bilharzia snail vectors Du Pont Scholarship in Biology; Lease Counselor Martinez; Silver Beaver (ISA) Executive Secretary, P.R. Committee for Bilharzia Control; Caribbean Committee for Bilharzia Research Approximately 150 from 1934-73 Foreign governments and international agencies Git, 42D, Smithsonian Inst.) on biology and control of Schistosomiasis Department of Medical Zoology; Department of Public Health, University of Puerto Rico ---Page Break--- CURRICULUM VITAE Joud A. Perverctionse Senior Scientist, Tropical Agro-sciences Division, Professor of Biology, University of Puerto Rico in Mayaguez Education and Experience 1975 B.S. (Agriculture) University of Puerto Rico, Mayaguez 1977 Assistant Plant Geneticist, Agriculture, Mayaguez Institute of Tropical 1989 M.S. (Genetics), Missouri University 1994 Assistant Professor, Biology Department, UPR, Mayaguez 1999 -Research Assistant,

Missouri University 1955-57 Assistant Professor, Biology Department, UPR, Mayagüez 1957 Radioisotope Techniques Institute, ORINS. Tennessee 2998 Phot. (Genetics), Louisiana State University 1968-59 Health Physics Training. ORNL, Tennessee 299965 Chief Scientist and Head, Health Physics Division, Puerto Rico Nuclear Center, Mayagüez 3959 to present, Professor, Biology Department, UPR, Mayagüez 1965 to present, Senior Scientist, Tropical Agro-Sciences Division, RIC, Mayagüez 1965 to present Member Advisory Committee to the Puerto Rico Radiation Protection Board. Publications: ten scientific papers were published, ---Page Break--- Name Date of Birth Academic rank Degrees Service on Faculty Other experience Consulting work 2" Gileasl, Aviva €. 25 November 1917 Full Professor, Full Time Ph. D. Physics, 1941 = "Péamany Péter" Univ. Budapest, Hungary Seu Nuc. Eng. Dept. 1960 = Univ. of Michigan, Ann Arbor, Michigan 9 years September 1952 = October 1955, Teacher of Mathematics, Physics and

Chemistry ~ Givath Hoshlosa High School, Givath Haslosna, Israel. September 1959 September 1961, Graduate Student Nuclear Engineering Department, University of Michigan, Ann Arbor, Michigan October 1955 - November 1963, Senior Lecturer, Technion Israel Institute of Technology, Haifa Israel November 1963 = December 1964, Reactor Physicist Puerto Rico Water Resources Authority, Rincon. December 1964 ~ June 1967, Associate Professor, University of Puerto Rico, Mayagüez Campus, Mayagüez. P. R. Department of Civil Engineering, Chief Scientist, Puerto Rico Nuclear Center June 1967 = Present, Professor, Nuc. Eng. Department, Univ. of Puerto Rico, Mayagüez Director of N. E. Dept. Raye Chief scientist, Puerto Rico Nuclear Engineering Division, Deputy Division Head Summer 1968 = Visiting Scientist, Brookhaven National Laboratory, Office of Theoretical Reactor Physics. January 1 = June 30, 1970, Visiting Scientist Current Institute of Mathematical Sciences, New York University, July 1970 = June 1971, Acting Head Nuclear Dept. UPR ---Page Break ---

States in which registered Membership in scientific and professional societies Honors Awards Subjects of courses taught this year Other assigned duties Programs participated in, to Improve competence as teacher Publications ANS, American H. P. Society None in 9 621 Reactor Theory 3 credits 9 699 Research 53 Grad. Students Comité de Asuntos Académicos, College of Comité de Ascensos, Engineering Visiting Scientist: Brookhaven National Lab 1968 Summer Visiting Scientist: Courant Institute of Mathematical Sciences until Jun 30, 1970 Selected as Participant in Kautequa Type Short Course Dec. 23-30, 1973. Approximately 15 to 4 ---Page Break--- Name: Michael Gilat Place and Date of Birth: Poland, May 22, 1911, civil status: Married, two children Home Address: P.O. Box 3242, Mayaguez, PR 00708 Educational Background: Completed the College of X-Ray Technicians at Beilinson Hospital, Petach Tiqua, Israel, 195; B.A, Humanities, 1967, University of Puerto Rico, Mayaguez Campus, M.Sc. Sanitary Sciences, 1969, University of Puerto Rico, School of Public Health, San Juan, P.R. Professional Experiences: Institution 1948-1959 X-Ray Technician, Dept. of Neurosurgery Petach Tiqua, Israel 1960-1961 X-Ray Technician, University of Michigan, Medical Center X-Ray Dept, Ann Arbor, Michigan 1961-1963 Chief X-Ray Technician Clinic of General Sick Fund, Waifa, Israel 1964-present Scientist 1; Head of Joint Radiation Survey Project Puerto Rico Nuclear Center, Societies Health Physics Society of Puerto Rico Health Physics Society (National) American Public Health Association World Association of Consumer Research Activities Evaluation of health hazards Associated with X-Ray Diagnosis in Puerto Rico, Phantom and in vivo dosimetry. Publications: 18 publications ---Page Break--- NAME ADDRESS DATE OF BIRTH MARITAL STATUS CITIZENSHIP ELEMENTARY SCHOOL SECONDARY SCHOOL UNIVERSITY POSTGRADUATE COURSES EXPERIENCE Julio A. Gonzalez-Consiñex Box 5051, College Station Mayaguez, Puerto Rico Lure, Spain Faculty I.

Almazan, "Madrid, Spain graduated - June 1947 Institute Technological S, Sierre, Madrid, Spain Graduated - June 1958 University of Maçrse, Faculty of Physical Sciences Licentiateure, (Theoretical Physics) - September, 1959, Ph.D., High Honors, (Solid State) = January, 1962 "Winter Institute in Quantum Chemistry and Solid State Physics", University Of Gainesville, Fla. - December 1962, January 1963, 4 one-semester course on "Solid State Physics" by Dr. Cy Frazer, Senior Scientist in the Neutron Diffraction Program in Brookhaven National Laboratory. Mayaguez-January-May 1963. September 20. Assistant professor (Part-time) in the University of San Simonca, Salasnes, Spain ---Page Break--- PROFESSIONAL SOCIETIES PUBLICATIONS: a Research Collaborator, Neutron Diffraction Group, Brookhaven National Laboratory (1969-64), Assistant Professor (1962-65), Associate Professor (1965), Physics Department, University of Puerto Rico, Mayaguez, P.R. Research Associate (1962-65), Associate Scientist (1965-67), Scientist (1967-68), Senior Scientist (1969- Puerto Rico Nuclear Center (U.S. Atomic Energy

Commission) Mayaguez, Puerto Rico Acting Head (1966-68), Head (1968-) Nuclear Science Division American Physical Society Asociación de Maestros de Ciencia de Puerto Rico. Asociación Nacional de Físicos de España. Approximately 23, ---Page Break--- Curriculum Vitae MORTIMER I. KAY Born - August 27, 1930 - Brooklyn, New York Status - Married - 1 child University Education - B.A. (Chemistry) Brooklyn College, New York - 1952 M.S. (Phys. Chem.) Purdue University - 1953 Ph.D. (Phys. Chem.) University of Connecticut - 1957 Experience Grad. Assistant, Purdue University (1952-53) Grad. Assistant, University of Connecticut (1953-56) Research Assistant in Crystallography, University of Connecticut (1956-57) Research Associate and Visiting Associate Physicist, Penn. State University and Brookhaven National Lab (1957-59) Post-Doctoral Fellow, Royal Norwegian Council for Scientific and Industrial Research, Institute for Atomenergi, Keller, Norway

(1959-60) Solid State Physicist (Crystallographer), NASA, (1960-62). Research Associate Professor of Chemistry, Engineering Experiment Station, Georgia Institute of Technology (1962-64) Head, Neutron Diffraction Program, Puerto Rico Nuclear Center (1966 to date) Societies American Crystallographic Association, American Physical Society, American Chemical Society, Sigma Xi, American Association for the Advancement of Science Publications About 50 publications. ---Page Break--- Curriculum Vitae Seppo E. Kolehmainen Ecologist Scientist TL, Head of Marine Biology Program: Puerto Rico Nuclear Center Born February 28, 1939, Espoo, Finland Nationality: Citizen of Finland, permanent resident in U.S.A. EDUCATIONAL BACKGROUND: B.S. University of Helsinki, Helsinki, Finland, 1963 Major: Zoology M.S. University of Helsinki, Helsinki, Finland, 1966 Majors: Zoology and Limnology Ph. Lic. University of Helsinki, Helsinki, Finland, 1967 Major: Ecology Ph.D. University of Tennessee, 1969 Major: Ecology, POSTDOCTORAL RESEARCH participant in the Department of Radiochemistry at the University of Helsinki, 1964. Predoctoral Research Fellow of the Finnish Atomic Energy Authority in the Department of Radiochemistry at the University of Helsinki, 1964-67. Predoctoral Research Fellow of the Finnish AEC in Radiation Ecology Section at Oak Ridge National Laboratory and the University of Tennessee, Research Assistant in the Department of Zoology at the University of Tennessee, 1968-69, at Puerto Rico Nuclear Scientist II in Jobos Bay Program at Puerto Rico Nuclear Center, 1972 ---Page Break--- PROFESSIONAL ORGANIZATIONS: Research Board of Canada, Health Physics Society, National Geographic Society LABORATORIES VISITED: Radioecological and Oceanographic Laboratories in the U.S., Canada, France, Finland, Germany, Monaco, and Sweden, PARTICIPATIONS SPECIAL PROGRAMS: Scientific cruises: From California to Puerto Rico in April, May, 1971. Collected fish and plankton samples for trace element analysis. From Hawaii to Bikini Atoll, Marshall Islands in

September = November, 1972. In charge of the sampling of biological samples for transuranium analyses. Saturation diving: Participated in the Puerto Rico International Undersea Laboratory in Puerto Rico, December 1972. Spent two weeks at 35' studying populations of ascidians on a reef and collecting sediment and plankton samples for trace element analyses. PUBLICATION 'Approximately 25 to date. ---Page Break--- (CURRICULUM VITAE Francis K. B. Koo Senior Scientist and Head, Tropical Agro-Sciences Division, Puerto Rico Nuclear Center Professor of Biology (Ad Honorem) Professor of Agronomy, University of Puerto Rico Education and Experience 1950 Ph.D. in Plant Genetics, University of Minnesota 1950-51 Research Assistant, Department of Agronomy and Plant University of Minnesota, 1951-53 Research Fellow, University of Minnesota, 1953-61 Project Leader, Oats and Rye Improvement, University of Minnesota. (Breeder of two oat varieties, Minlané and Minhafer, released in Minnesota) A%1-67 Associate Scientist II, Agricultural Biosciences Division, Puerto Rico Nuclear Center 1961 to present, Professor of Biology, (Ad

Honorem), University of Puerto Rico 1966 ations! Visiting Professor, National Taiwan University, Taiwan 1967-68 Chief Scientist, Agricultural Biosciences Division, Puerto Rico Nuclear Center 1968 to present, Senior Scientist and Lead, Tropical Agro-Sciences Division, Puerto Rico Nuclear Center 1972 to present, Professor of Agronomy, University of Puerto Rico Publications Some 30 scientific papers and over two dozen abstracts, short notes, reports, etc. in the field of genetics, cytogenetics, radiobiology, etc. were published. Professional Society Memberships 1. Genetic Society of America 2. Radiation Research Society 3. Honorary Society Kappa Delta Pi 4. Sigma Xi Society 5. Gamma Sigma Delta 6. American Association for the Advancement of Science ---Page Break--- ALDO E. LANARO, M.D. BORN current address HOME ADDRESS TELEPHONE activity EDUCATION Licensures CURRICULUM VITAE Director, Clinical Applications Division Chief

Seinessr 1, Puerto Rico Nuclear Center Buenos Aires, Argentina = January 29, 1920 Naturalized U. S. citizen condoninto Palma Real Mateid 2, wiranar, apt. & wnturce, Puerto Rico 00507 722-6158 Nuclear Medicine - Endocrinology Teacher, Normal Course, 1937 Bachelor Degree (Equivalent to High School), 1938 Normal Professor in Sciences, 1940 Physician, School of Medicine, University of Buenos Aires, Argentina, 1949 Medicine Doctor, University of Buenos Aires, 1950 Argentine School of Medicine, University of Buenos Aires, Lic. \$11,300 ~ 1948 Puerto Rico Board of Medical Examiners, Commonwealth of Puerto Rico, Lic. #3744. - 1972 American Board of Nuclear Medicine - March 25, 1972 post-graduate courses, Argentina: at the University of Buenos Aires Endocrinology, 1951-52 Gynecological Therapeutics, 1950 Practical Gynecology, 1981 Preparatory Course on College Teaching, 1952-53, Advanced course on Endocrinology, 1952 Course on Pediatric Endocrinology, 1953 Advanced course on Endocrinology, 1953 Treatise and Practical Course on Diagnosis and Treatment of Suprarenal Diseases, 1953 Diagnostic in Gynecology, 1954 Graduate training in Biophysics Teaching Psychoanalysis Course, 1956 Basic Course on Clinical Applications of Radioisotopes, Argentine Atomic Energy Commission, 1957 Basic Radioisotope Techniques Course, and Basic Clinical Applications of Radioisotopes Course, Puerto Rico Nuclear Center, 1959, under World Health Organization Sponsorship. 1956-56 ---Page Break--- Curriculum Vitae, Aldo E. Lanaro, M.D., page #2 a Visit to several nuclear facilities in the USA, 1959, as part of the World Health Organization training program. EXPERIENCE Nuclear Medicine In charge of the Radioisotopes Department of the Research Medical Center at the Tornado Hospital, Buenos Aires, Argentina, 1954-60 Director of the Radioisotopes Department of the Endocrinology and Metabolism Hospital, 1957-63 in charge of the Radioisotopes Department at the Argentinian Institute of Diagnosis and Treatment, 1959-61 Associate Scientist II,

Clinical Applications Division, Puerto Rico Nuclear Center, 1963-67 Courtesy Mosber, Nuclear Medicine, San Martinez Oneslogie Hospital, 2. consatex 969 Chief Scientist I and Deputy Director, Clinical Applications of Radioisotopes Division, Puerto Rico Nuclear Center, 1967-69 Chief Scientist I and Acting Director, Clinical Applications of Radioisotopes Division, Puerto Rico Nuclear Center, 1969-71 Chief Scientist I and Director, Clinical Applications Division, Puerto Rico Nuclear Center, 1971-present Courtesy Mosber in Nuclear Medicine, Hospital Meléndez, Bayamón, Puerto Rico, 1972 Courtesy Member in Radiology, Auxilio Mutuo Hospital, 1972, Other Professional Experience Endocrinologist at the Endocrinology and Metabolism Hospital, 1937-63, Buenos Aires, Argentina Medical Practitioner at the Hospital Las Heras, Buenos Aires, Argentina, 1947-50 Attending Doctor at the Italian Hospital, Buenos Aires, Argentina, 1949-52 Attending in Medicine, Argentine Air Force Health Department, 1950-60 Assistant Doctor at the National Endocrinology Institute, Buenos Aires, Argentina, 1952-57 ---Page Break--- Curriculum Vitae, Aldo E. Lanaro, M.D. PUBLICATIONS [PRESENTATIONS AT SCIENTIFIC MEETINGS Medical Societies MEMBERSHIP, page #9 Associate Clinical in Medicine (Ad Honorem) Medical Department of the

School of Medicine, University of Puerto Rico, 1966 Assistant, University Hospital, 1968 Clinical Assistant Professor of Medicine, Medicine Department, School of Medicine (Ad Honorem) University of Puerto Rico, 1973 Secretary-editor of the "Endocrinology and Metabolism Hospital" Bulletin, 1962-63 Member of the Organizing Committee of the Argentinian Society of Nuclear Medicine, 1963 Honorary President of the Argentinian Society of Nuclear Medicine, 1953 Society Honorary Member of the Peruvian Society of Biology and Nuclear Medicine, 1966 Chairman, Nuclear Medicine Committee, X Inter-American Congress of Radiology, 1971 Member of the Organizing Committee of the Nuclear Medicine Society of Puerto Rico, 1972 President, Nuclear Medicine

Society, Puerto Rico, 1971 Sub-Treasurer of the ALASHIMGI (Asociación Latino-Americana de Sociedades de Biología y Medicina Nuclear) November 24, 197? Member of the Editorial Consulting Board, Revista de Biología y Medicina Nuclear (Asociación Latino-Americana de Sociedades de Biología y Medicina Nuclear Publication), 1972 Approximately 14 to date Approximately 27 to date Argentine Medical Association, Argentinian Society of Endocrinology and Metabolism, Argentinian Society of Biology and Nuclear Medicine, Puerto Rico Chapter Health Physics Society, Puerto Rican Society of Nuclear Medicine, AMS Health Physics Society, Peruvian Society of Biology and Nuclear Medicine (Honorary Member), Society of Nuclear Medicine, American Board.

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CURRICULUM VITAE Rupert A. Lee January 21, 1932 Pin. Diamond, Demerara, Guyana High School Education Central High School, Guyana (1944-47) Queen's College, Guyana (1947-1951) Present Status U.S. Citizen and Married. Degrees B.Sc. 2nd class Hons, University of the West Indies, 1954 M.Sc. Chemistry, University College, London, 1959 Ph.D. Chemistry, University of London, 1967 Academic Experience Science Master, Queen's College, 1954-1957 and 1959-1961. Graduate Student, University of London, 1957-1959 Graduate Teaching Assistant, University of Alberta, 1961-1962. National Research Council of Canada studentship, 1962-1963. Chemistry Master, Trinity College, 1963-1965. Part-time Lecturer in Chemistry, University of the West Indies, Trinidad, 1964-1965 Research Associate PRNC and Assistant Professor of Chemistry, UPR, 1965-1967. Scientist PRNC and Associate Professor of Chemistry, 1967 to date Research Experience Worked in the field of gas kinetics on the "Pyrolysis of Ethyl Iodide" under the supervision of Prof. Allan Maccoll, University College, London, (1957-1959). Also in the field of Radiation Chemistry on the "Radiolysis of Hydrogen Halides" under Prof. D. B. Armstrong, University of Calgary, (1961-1963). Spent 3 summers at Sloan Kettering.

Institute for Cancer Research working on *Radiation Protective Studies Using £52," with Dr. Ive Puttman (1969). ---Page Break--- Spent © summer at University Chemical Laboratory Cambridge, England with Prof. Jack Lewis (study the radiation effects on some transition metal carbonyls). Present interests are (1) Radiation Chemistry of Gaseous Organic Fluorides, (2) Radiolysis of Organic Sulfur Compounds in Aqueous Solutions, (3) Radiation Protection Studies Using ESR. Society American & British Chemical Societies Foreign Language Read French, German and Spanish ications Approximately 14 ---Page Break--- 51 'CURRICULUM VITAE Felix Liard-Bertta 1, Born: October 14, 1937 - Rio Piedras, Puerto Rico 2 Scientist Associate I, Puerto Rico Nuclear Center, Rio Piedras, P. R. 3. Degrees 1942-1955 Elementary, Junior, High School ~ Rio Piedras Public school 1955-1959 Bachelor in General Sciences, University of Puerto Rico 1959 Commission of Second Lieutenant - R. O. T. C, University of Puerto Rico 1959-1963 School of

Medicine, University of Puerto Rico No degree was obtained. 1964 Course in Radioisotopes techniques, Puerto Rico Nuclear Center 1970 Graduate School, School of Medicine, University of Puerto Rico & AF present completing the requirements for a Ph.D. in Medical Zoology. 1973 Tutorial Course in Electron Microscopy = University of Chicago 4. Experience: 1968- Present professor of General Biology, Department of Biology, College of Natural Sciences, University of Puerto Rico. 1973 Present, Lectures in Medical Zoology at the School of Medicine, University of Puerto Rico. Lectures in Medical Zoology and Electron Microscopy at the Puerto Rico Nuclear Center. Publications: Approximately 5 ---Page Break--- (CURRICULUM VITAE Victor Lopez Education: San Germán Polytechnic Institute, 2 years, no degree. Specialized courses in aerobiology at Communicable Disease Center, Atlanta, Ga., National Institutes of Health and Armed Forces Institute of Pathology. Experience Administration of dental services, PRNC 1967, Schistosomiasis

Project, PRNC-1971 to date. T. Crush Project PRNC, 1966 to 1971. Chief Bacteriologist - U.S.A. Tropical Research Medical Laboratory, Juan, P. R., 1959-66, Microbiologist, U.S.A. Experimental Medicine, Fort Detrick, Md. Received award for meritorious service to the Army Research Program in defensive aspects of biological warfare, 1954-1959, Microbiologist, U.S.A. Tropical Research Medical Laboratory, San Juan, P. R., 1947-54, Chief Laboratory Technician, U.S.A. Hospital, San Juan, P. R., 1906-47. Laboratory Technician, U.S.A. Hospital, San Juan, P. R., 1941-44, [As co-author - approximately 10 Presentations = as Co-author - approximately 25 as author - approximately 6 ---Page Break--- (CURRICULUM VITAE Name: Frank George Lowman Education and Experience 1956 - Ph.D. - University of Washington, Seattle. 1948-1954 - Research Assistant Laboratory of Radiation Biology, University of Washington 1954-1959 - Research Assistant Professor, Laboratory of Radiation Biology, University of Washington 1959-1961 - Research Associate Professor, Electron microscopy, X-Ray diffraction, and terrestrial and marine radiation biology, University of Washington. 1961-1965 - Chief Scientist II, Puerto Rico Nuclear Center, Professor of Biology, ANH, Mayaguez, Puerto Rico. 1965-1973 - Head, Radioecology Division, PRNC, Mayaguez, P. R. 1971 to present - Associate Director for Environmental Sciences, PRNC, Mayaguez 1973 to present - Associate Director, Puerto Rico Nuclear Center Publications: About 40 publications. ---Page Break--- Curriculum Vitae RASTKO A. MAGLTC Born: 7 January 1933, Sombor, Yugoslavia Marriage Status: Married, two children University Education: Ing. = degree (E.E.) University of Belgrade, Yugoslavia (1958). M.Sc. in Physics, University of Belgrade, Yugoslavia. Ph.D. in Physics, Research in Neutron Physics, Institute for Nuclear Sciences, Belgrade, Yugoslavia (1958-9). Group leader, Neutron Time-of-Flight Spectroscopy Institute for Nuclear Sciences, Belgrade (1959-63), Assistant Professor in E.B., Belgrade, (1960-63). Graduate

Assistant, Physics Dept., M.I.T. (1963-69). Post-Doctoral Fellow in Material Science Division, Argonne National Laboratory, Argonne, Ill. (1969-72). Assistant Professor in Physics, U.P.R., Mayaguez and part-time research at P.R.N.C., Mayaguez (1972-3). 363). T., Cambridge, Massachusetts, Society American Physical Society American Association of Physicists, Publications: 'About fifteen publications, ---Page Break--- November 14, 1973, 6 (CURRICULUM VITAE VICTOR A. MARCIAL, M.D. Born Field Education Specialty Training Experience: Other: Publications: San Juan, Puerto Rico = February 24, 1924 Radiotherapy and Cancer S. University of Puerto Rico, Ro Piedras, Puerto Rico, May 1944 M.D. Harvard Medical School, Harvard University, Boston, Mass June 1949. Passed National Board of Medical Examiners, July 1950 Passed Puerto Rico Board of Medical Examiners, September 1954 Certified by American Board of Radiology (Radiation Therapy), May 1955. Internship ~ San Juan District Hospital, San Juan, Puerto Rico, 1949-50 Resident in Radiation Therapy ~ Penrose Cancer Hospital, 1951-53, Fellow (American Cancer Society) in Radiation Therapy, July 1953 to August 1954 at European institutions (Curie

Foundation, Paris; Christie Hospital, Manchester; Radiumhemmet, Stockholm; Radium Station, Copenhagen; Royal Marsden, London). Resident in Radiation Therapy~1954-55 (Surgical Pathology - 6 months at Washington University, St. Louis; and Radiation Therapy ~ 6 months at Tumor Institute, Seattle, Washington) - Attending in Radiation Therapy, Dr. Gonzalez Martinez Hospital, October 1955 to June 1973. Chief, Radiation Therapy Department, Dr. Gonzalez Martinez Hospital, November 1958 to September 1971, Director, Radiotherapy and Cancer Division, Puerto Rico Nuclear Center, July 1958 to date. Associate Director for Medical Programs, Puerto Rico Nuclear Center, January 1967 to date. Director, Cancer Control Program, Puerto Rico Department of Health, October 1955 to June 1965. Professor and Chief of Division of Radiation Therapy, Universidad de Puerto Rico School of

Medicine, 1958 to date Member, Committee for Radiation Therapy Studies, 1963-69 Member, Cancer Commission, American College of Radiology President Elect, Tenth Inter-American Congress of Radiology Former President, Radiological Society of Puerto Rico Secretary for the Americas of the International Club of Radiotherapists Counselor for Puerto Rico of the Radiological Society of North America President-Elect of the American Radium Society City of Approximately 34 to date ---Page Break --- Curriculum Vitae T. A. Martin Date of Birth: 1947 Place: Idabel, Oklahoma 2 Varied Experiences (Hempstead) Group: 1, Area II School: Gonzales High School, Gonzales, TX 1964 Louisiana State University, Baton Rouge Major: Zoology Minor: Chemistry The University of Texas, Austin Zoology Minor: Botany Thesis: Osmotic shock survival in certain cyprinodont fishes (1968) The University of Texas, Austin Major: Zoology Minor: Botany Dissertation: Some factors influencing penetration into rivers by fishes of the subfamily Cyprininae Job Experience: 1963 Chemical analyst, Olin-Revere Metals Corp., Burnside, LA 1964 Field assistant, Dr. Dark Subba, The University of Texas 1966-68 Teaching assistant, Comparative Anatomy, Freshman Biology, Vertebrate Zoology The University of Texas 1968-71 Assistant Professor, Assistant Director of the Aquatic Research University, Bloomington Teaching: Introductory Biology - non-majors, 1 semester; Ichthyology - graduate level, 2 semesters, 1 summer; Wetlands and the Environment - a junior level course in ecology for non-majors 1971-Present: Nuclear Scientist of Biological Research Unit: Indiana University, Bloomington; Radiology, Puerto Rico Publications: Approximately 17 to date, ---Page Break --- CURRICULUM VITAE - STEIN G. IEE Statement: Married. Three children. Born: September 2, 1940, Othello, Washington, USA EDUCATION Second Degree: Doctorate University of Washington, Ph.D., 1983 University of Washington, M.S., 1965 University of Washington, B.S., 1963 Thesis title: "Environmental factors influencing"

the migration of Chinook salmon (*Oncorhynchus tshawytscha*) to the home estuary of the Viroment, (H.S.), and "An analysis of the histopathologic offer of Gi Senger, sultave of the Atlantic framework class, Carcinidae fictites Jouter", (Ph.D.). Dr. Allert K. Sperka and Dr. Kenneth E. Come, major professors. HOW Stera Xt Associate, 1964 Federal Water Quality Administration, Research traineeship, 1968 wagon research leaders invertebrate aquaculture, microchemical impact studies, Pathology RESEARCH AND PROFESSIONAL ROTATION Year Title and Description 1973 Scientist 1, Puerto Rico Nuclear Center, Mayaguez, Puerto Rico. Duties: Benthic invertebrate survey of potential power plant sites; thriogrove oyster studies related to Oboe Bay project, involving population stabilization and heat tolerance studies with adults and larvae, 1962-1965 Shellfish biologist, Seattle Trites Organization of Western Washington, Inc., Federal Way, Washington; Research involving the establishment of shellfish aquaculture programs in reservation intertidal areas, Exec. Dir. Les Rey 8. Groves. Consultant for above organization, involving an aquaculture feasibility study of selected Indian-owned intertidal land in Puget Sound, Washington, ---Page Break--- Jer ast 1961-10 1966-67 1965-66 1963-65 Title and Description Consultant for

Boise-Cascade Properties, Inc., involving an extensive intertidal survey of the predominant macrobenthic fauna. Chief consultant: Dr. Kenneth Ke Chev. Research associate, University of Washington, College of Fisheries; Federal Water Quality Administration Training Grant; Water Use Ecology; Advisor: Dr. George W. Brow, Research biologist, ITM-Rayonter, Inc., Brvtraamect Coastal Division, Shelton, Washington. Duties involved: 1) Supervision of oceanographic field surveys concerned with evaluating biological, chemical, and physical parameters of estuaries receiving pulping effluent and 2) conducting toxicity assays with various effluent types to determine their degree of toxicity to indigenous species and certain invertebrates.

Research we effectively design (to assist company management in formulating policy decisions). Co-lead investigator: Mr. Roper Ollefasn, Research assistant, University of Washington, Department of Civil Engineering, Clean Lake Water Quality. Supervisor: Dr. Fey T. Delaney, Research assistant, University of Washington, College of Fisheries; Gelactive Genoa breeding program. Supervisor: Drs. Hx Hate.

TEACHING EXPERIENCE

1962-70

Taught classroom and laboratory lectures in histology, pathology, and parasitology for College of Fisheries, University of Washington, Fish and Shellfish Diseases course, Classroom and laboratory lectures in the following fish fries courses, College of Fisheries, University of Washington: Invertebrate pathology, Research techniques in shellfish biology, Stress Management and Pollution. Mentored student groups from several Washington state colleges and community colleges related to Indian fish and shellfish aquaculture programs.

SOCIETY MEMBERSHIPS

Society of Invertebrate Pathology
American Society of Limnology and Oceanography
National Shellfish Association
American Fisheries Society
Pacific Fisheries Biologists
Sport Fishing Institute

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REFERENCES

1. Raul Certified, underwater photography, Professional typist K. Sparks, Director, National Marine Fisheries Service, Gulf Coast Fisheries Center, 4700 Avenue U, Galveston, Texas 77550.
2. Dr. Michael C. Mix, Department of General Biology, Oregon State University, Corvallis, Oregon.
3. Dr. David DesVotgne, Environmental Affairs Department, Port of Seattle, Seattle, Washington, 98111.
4. Dr. Kenneth K. Chev, College of Fisheries, University of Washington, Seattle, Washington, 98195.
5. Mr. Deoes Fraser, Head, Fisheries Research Department, Sal Tribes Organization of Western Washington, Inc., 33304 Pacific Highway South, Federal Way, Washington, 98003.
6. Dr. George W. Brom, Jr., College of Fisheries, University of Washington, Seattle, Washington, 98195.

ADDRESS

Puerto Rico Nuclear Center
College Station
Mayaguez, Puerto Rico 00708

PUBLTOWTTONS. Approximately 6 to date, ---Page Break--- HELEN 40 Master Degree in Biology specializing in Bacteria (1970) Previous work experience: Lipid Biochemistry lab research work in Dept. of Biochemistry & Biophysics, Texas A & M University, College Station, Texas 1971 ~ 1972. Microbiology lab teaching assistant in Dept. of Biology, Sam Houston State University, Huntsville, Texas 1968 - 1969. General Zoology lab teaching assistant in Dept. of Biology, Sam Houston State University, Huntsville, Texas 1967 ~ 1968. ---Page Break--- a Manes Des Tin Ho Date of Birth: August 2, 1938 Country of Birth: Burma Country of Permanent Residence: Ske Marital Status: Married, one child Education: Ph.D. Chemistry (Radiochemistry and Chemical Oceanography), Texas A&M University 1971, M.S. Chemistry (Nuclear and Radiochemistry), University of Arkansas 1963, B.S. Chemistry, Rangoon University 1960. M.S. Thesis: Yields of Zirconium Isotopes from Spontaneous and Thermal Neutron Induced Fission of Uranium. Ph.D. Dissertation: Uranium Concentrations in Marine Sediments. Experience: Scientist, Radioecology Division, Puerto Rico Nuclear Center, Mayaguez, Puerto Rico (October 1972 to the present) Duties: (a) 50% of working time spent in research on developing a nondestructive method of determining concentrations of heavy metal pollutants in airborne particulates by the neutron activation analysis technique, and in helping to organize and initiate a research program on marine pollution in Puerto Rico, Goto's Bay Project sponsored by the Power Authority of Puerto Rico; (b) the other half of working time spent in collaborating in research on the marine radioecology and the fate and budget of transuranic elements in the Bikini Atoll nuclear testing area (U.S.A.B.C. sponsored Marine Biology Project). Postdoctoral Research Fellow, Chemical Oceanography Department, Texas A&M University, College Station, Texas (Summer 1972) Carry out research on water pollution by industrial waste effluents and on the effect of shell dredging on the ecosystem around.

---Page Break--- San Antonio, Texas. Responsible for conducting research on estuarine sampling of biological specimens by performing measurements of pH, temperature of samples, analysis of polluting heavy metals like mercury, lead, cadmium, and arsenic. Major cations by atomic absorption spectrometry, chlorinity and titrations of the column water and interstitial waters of the marine sediments. Chemistry Department, Texas A&M University College Station, Texas (Spring 1972) Duties: Research in Hot Atom Chemistry. Study of recoil tritium reactions on bromine halides irradiated with nuclear reactor neutrons. Radiochemical chromatographic analysis of the reaction products. An above study helped develop a vacuum system for transferring radioactive and hazardous materials. Chemistry Department, Texas A&M University College Station, Texas (Fall 1966-Fall 1972) Note: Responsible for research and development of instrumentation for non-destructive analysis of trace amounts of uranium in marine sediments. Neutron activation and delayed neutron counting analysis. Measurement of uranium concentrations in marine sediments from major economic rivers, estuaries, and from chemically reducing waters. Analyzed and managed samples to study the spatial distribution, mode of deposition, enrichment, and removal of uranium in the marine environment. Worked with a reputable chemical oceanographer on this project. Research resulted in two publications and two major geochemical journals. Supervised three undergraduate research fellows in radiochemistry research. Taught one and one-half courses teaching of undergraduate chemistry labs, graded lab reports, quizzes. Graduate Research Assistant, Chemistry Department, University of Arkansas Fayetteville, Arkansas (Spring 1963-Fall 1966) Duties included radiochemical separation of fission products, fallout debris in rainwater, air filter samples, and research in radioactive isotopes. Research in nuclear fission by radiochemical

methods. Processed natural

Uranium ores and extraction of uranium. Separation, purification, detection, and identification of fission-produced radionuclides at all levels of activity. Nuclear instruments of type handled and operated. Interpretation of data. Urine and various data of metals? Fashion. Publications: Approximately 8 to date, ---Page Break--- Born June 22, 1922, Sacramento 1950-60, assistant age. Address: O-7 Calle Lirto, P.O. Devenaventura, Mayaguez, Puerto Rico 00708. Office (609) 602-8244. Home (079) 32-1262. 255 pounds marked, one cat brought up in Cairo, UALR, where I attended public schools. Graduated with a B.S. in geology and chemistry from Cairo University. Came to the United States in 1960, received a Ph.D. in geology from the University of Utah in 1969. Became a permanent resident (green card) of the United States in 1965. Married in 1965; wife is an American citizen from the University of Utah, Salt Lake City, Utah. (1965) M.S. in Geology with a minor in Mineralogy. Thesis: Geology of the older Summit quadrangle near Cairo University, Cairo, UALR. Work leading to M.S. degree in geology. Thesis: Surface and subsurface geology of Chasse Viripe. Most act completed because of leaving to the United States at Cairo University, Cairo, U.A.K. B.Sc. in geology and chemistry (January 1958). Awarded 60 semester credit hours in geology and 38 in chemistry. Received Saraka's senior prize in 1958. Awarded to a student with the highest cumulative grade in geology in the final year. Associate Professor of Geology (1963). Acting Chairman, Department of Geology (1970-73). Assistant Professor of Geology at the University of Puerto Rico, Mayaguez, Puerto Rico. Scientist—part-time research work on recent marine sediments in relation to investigations of the mechanism of dispersal and distribution of trace elements in the marine environment. Also study of sediments in connection with geological activities. ---Page Break --- Summer 707 1959-60 986 Summer 1957 Summer 1956. LIBRARY PUBLICATIONS. Lectures in Geology, Queens College of the City University of...

New York, Flushing, N-Y. I helped in teaching the summer field course in Puerto Department of Geology, University of Utah. Assistant Research Worker, Department of Geology: Desert Institute, National Research Center, Ph.D. Research work on "Surface and subsurface geology of the Gaza Strip" in connection with water resource developments. Demonstrator (part-time), Department of Geoscience, University. Teaching consisted of laboratory instruction in "fossils of Egypt," and "Interpretation and construction of geological maps." Chemist (Analyst), Société Égyptienne des Industries Chimiques, Suez, Egypt. Assistant Geologist, Abu Zabal Basalt Quarries. Otr-Security Mining Co., Cairo, USA. [A training program at the laboratories of the Société Égyptienne des Industries Chimiques, Suez.] Geological Society of America (Member, 1963); American Association of Petroleum Geologists (Junior, 1961); Active Member, (1967); Society of Economic Paleontologists and Mineralogists (Active Member, 1963); Geological Society of Puerto Rico (Active Member, 1965); Chairman (1967-68); 1. The Society of the Sigma Xi; 2. Higea Gana. Approximately 15 to date. ---Page Break--- Wufloz Ribadeneira, Fausto J. Radicecology Division, Scientist 1 Assistant Professor, Dept. of Public Health, UPR School of Medicine. EDUCATION: Chemical-Nuclear Engineering, Escuela Politécnica Nacional, Quito, Ecuador 1955; University of Madrid 1952; North Carolina State College 1959. Argonne National Laboratory, Argonne, Illinois, 1959; MS, Nuclear Engineering, University of Puerto Rico 1966. Radiochemistry in Industry, Kansas State University, Summer 1961; Nuclear Explosives, PRNC Summer 1967; Dosimetry in Radiotherapy, PRUC, November 1970. EXPERIENCE: Assistant Lecturer in Chemical Engineering, Escuela Politécnica Nacional, Quito, Ecuador 1952-1954; Chemical Engineer "Cementos \$1 Cairo", Medellín, Colombia 1959; Engineer Production Supervisor, "Cementos Chinchero S.A.", Riobamba, Ecuador 1956-57.

Chemical Engineer (VIEIVOR), (Division de Materiales, Spanish Council of Atomic Energy (e-B--), Madrid, Spain {1956}. Research Associate, Engineering Division Argonne National Laboratory: October 1962; Research Associate, Nuclear Science Division, PRC, 1960-64; Head, International Nuclear Exhibit Program, PRNC, 1964-1967; Principal Investigator Nuclear Explosives in Mining Program, Nuclear Engineering Division 1968-1972, Scientist I Radiation Ecology Division, 1973 to present. Assistant Professor, Department of Public Health, PR School of Medicine, (Part-Time) 1969 to present. PUBLICATIONS: 20. Covering the following fields: radiation chemistry, hydrometallurgy and research activities at the NE International Exhibit Program. Papers presented at international meetings: 7; covering fields of hydrometallurgy and radiation chemistry. PRESENT FIELD OF ACTIVITIES: Air pollution. ---Page Break--- Curriculum Vitae Name: Marfa L. Nazario Bachelor of Science: University of Puerto Rico Mayaguez Campus Major: Biology Master of Science: To be completed by November 1973, University of Puerto Rico Mayaguez Campus Major: Biology-Entomology Memberships 1) Entomological Society of America 2) Sigma Xi Alpha Chapter Work Experience 1) Research Assistant: Campus. 2) Insect dict preparation assistant at the Entomology Laboratory, UPR, Mayaguez and rearing. 3) Lab maintenance and organization. 4) Behavior-morphology studies. 5) Research work on the reproductive system of *Diatraea saccharalis* (P). (Lepidoptera: Crambidae). Morphological and histological work for the Master thesis. Publications 1971, New Stygobionts (Arachnida: Stygobidae) from Puerto Rico. J. Agr. Univ. Puerto Rico. 55(4): 508-12 Submitted: 1973, Miskinen, G. K., and M. L. Nazario, Histological techniques for the preparation of insect tissues and whole mounts. Ann. Entomol. Soc. America. 4 pages. 1973, Miskinen, G. W., and M. L. Nazario. Use of the microtome cryostat as a tool in insect histology. Stain Technology 2 pages. ---Page Break--- Supercurriculum vitae NAME: Cary P. Owen DATE and

PLACE OF BIRTH: 1A March 1944, Monticello, California PH.D. Zoology California State University at Long Beach M.S. Marine Biology Scripps Institute of Oceanography University of California at San Diego ACADEMIC AWARDS National Science Foundation Predoctoral Traineeship (1967-1980) National Science Foundation Research Assistantship (1969-1972) PROFESSIONAL EXPERIENCE Research Associate: 1978 to date - Assisting on plankton research - Puerto Rico Nuclear Center (1) Guayanilla Bay Project (2) Johns Bay Project (3) Site Selection Survey Project Co-Chief Scientist: Sept. '72 - Jan. '78 - Directing the field portion of a study on distribution of inshore zooplankton populations on the eastern South American coast. 1968 - 1972 - Food Chain Research Group - Scripps Institute of Oceanography - Research on the lower end of the marine food web. Specifically, assisting in studies on the weakness and importance of the Pico-zooplankton. 1965 - 1966 - California State University at Long Beach - Research on the effects of sewage effluent on marine invertebrates Chief Biologist: 1966 Office of Naval Research - Directing biological sampling during the U.S. Coast Guard's circumnavigation attempt of the Arctic Ocean. ---Page Break--- Gary P. Owen page 2 1964 University of Southern California - Running the University of Southern California research program for T-3 Fletcher's Island, Arctic Ocean Stations RESEARCH AND INTERESTS: 1969 - 1972 - Southern California coast, Studying the energetics and population dynamics of marine ciliates in coastal environments. 1965 - 1966 - Southern California coast. Looking for evidence of environmental stress brought about by domestic sewage contamination in polychaete worms using biochemical parameters. EXPERIENCE: Sept. '72 - Jan. '73, R/V Melville, Cato Legs 6-8, East and West Coasts South America. Nov. '70 - Jan. '71, R/V T. Washington, Aries Legs 452; South Pacific Gyre. July '67 - Sept. '67, East Wind, Arctic Circum-navigating Cruise, North Atlantic and Arctic Ocean, Minor: 1979 - 72,

Coastal Cruises California, Pt. Conception, California to Southern Baja, California area, Total

duration per year averaged one month. ---Page Break--- CURRICULUM VITAE for Janee D. Parrish PERSONAL Present address Puerto Rico Nuclear Center College Station Mayaguez, Puerto Rico 00708 Telephone: Area Code 05 + 832-1424 X32 office 832-2756 Social Security Height: 6' Weight: 185 lb, Race: Caucasian Health Excellent born: 16 Dec 35 Birthplace: Bennettsville, South Carolina, U.S. Citizenship: U.S. Family: wife and 2 sons EDUCATIONAL Present affiliation: Puerto Rico Nuclear Center College Station Bayamon, P.R. OOTOE Status: Scientist 1 Graduate Study: Institution Curriculum Date Degree Rensselaer Polytechnic Institute, Engineering 1964-1967 None Science (part time) University of Rhode Island, Oceanography 1967-1972 PhD Kingston, Rhode Island Full-time work at Rensselaer constituted a transition from an engineering background toward marine science, with courses in mathematics and basic courses in oceanography, wave theory, physical chemistry, physical geology, and biology. Full-time graduate study at Univ. of Rhode Island has consisted of a basic general education in oceanography with specialization in marine animal ecology. There has been a strong personal emphasis on ecology of fishes and on the tropical reef environment, largely implemented through seminars, individual study courses, and personal study. Interest in quantitative, analytical approaches to populations and interspecific relationships has been implemented through available coursework and personal study. Some basic computer and statistics techniques were acquired as useful in research. ---Page Break--- Graduate Program Committee Name Affiliation and Addr: Specialty Dr. S. A. Saila Graduate School of Oceanography Fisher (major University of Rhode Island biology professor) Kingston, Rhode Island, 02681 Dr. N.W. Harshell . . . "Productivity, Dr. W. H. Krueger Zoology Dept., 306 Ranger Hall, ecology University of Rhode Island

Tenthology Kingston, Rhode Island, 02661
Undergraduate Study: Institution Curriculum Dates Degree
Furman University, Engineering 1952-1954 None
Greenville, South Carolina (transferred)
University of South Carolina Mechanical
Columbia, South Carolina Engineering 1954-1956 BS.

Work at these two institutions comprised a conventional 4-year undergraduate program in basic mechanical engineering with emphasis on thermodynamics and power. An overall "grade point average" of 3.0 on a scale of 0 to 4.0 was earned.

Academic Honors and Awards:

- 1) First honor graduate, Univ. of South Carolina, 1956
- 2) Phi Beta Kappa
- 3) Tau Beta Pi (a Society of American Military Engineers award, Univ. of South Carolina, 1956
- 4) Westinghouse Electric Corp. scholarships, Univ. of South Carolina
- 5) National Science Foundation traineeship, Univ. of Rhode Island, 1957-1970
- 6) National Science Foundation Fellowship, 1970-1972 (declined)
- 7) National Institute of Health Fellowship, 1970-1972
- 8) Sigma Xi

PREVIOUS PROFESSIONAL EXPERIENCE

Employed actively by General Electric Company from 1956 to 1967 as an engineer. Field engineering work on turbine-generator equipment and research in fluid mechanics at the company research center. Lead instructor of company graduate-level advanced engineering course. Aircraft maintenance officer with U.S. Air Force 1956 to 1959. Leave of absence for military service.

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MAJOR RESEARCH INTERESTS

The general field of research interest is the ecology of marine animals, particularly the ecology of communities. Interactions between species is of major interest, including competitive and particularly predatory interactions. I would like to study all aspects of predation from the behavioral to the quantitative effects on populations and communities. A number of interesting aspects of various real and theoretical trophic webs should be explored. The environments of major interest are near-shore marine; I have particular interest in tropical environments, especially coral reefs, and would like to

Study reef animal communities primarily from a trophic point of view. The animal group of particular interest is the fishes, both from the standpoint of their general ecology and their community interactions and behaviors. Research methods should include observational and experimental as well as purely analytical approaches. Most of my ecological training and research has emphasized theory and analysis; however, I enjoy field work, consider it important, and would expect to incorporate it strongly into future professional research activities. Thesis research is an analysis of theoretical interactions between species and the resulting population effects.

PUBLICATIONS

Marshall, Ney J., Parrish, and Ay L. Gall. 1972. A technique for collecting particulate organic matter in situ. *Marine Biology* 12: 196-198. Parrish, J.D. 1972. A study of predation on littoral tropical holothurians at Discovery Bay, Jamaica. (Abstr) In: *Marine Studies of the North Coast of Jamaica*. Baillie, G. J. (ed.) *Atoll Research Bulletin* 152: 16. Parrish, J.D. and S. A. Saile. 1970. Interspecific competition, predation and species diversity. *Theoretical Biology* 27: 207-220. Saile, S. J., and J. D. Parrish. 1972. Exploitation effects upon interspecific relationships in marine ecosystems. *Fishery Bulletin* 70: 383-393.

TRAVEL & LANGUAGE

Lived extensively in Japan (U.S. Air Force), Korea (U.S. Air Force), Argentina (engineering work), Puerto Rico (scientific research). Lived briefly in: Dominican Republic (underwater reef research), Venezuela (engineering work), Quebec.

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Travel and shorter stays in: Bahamas (reef research), Greater Antilles (reef exploration), Japan (marine research), St. Thomas, Chile, Uruguay. Fair spoken and read Spanish, with difficulty; not fluent.

VOCATIONAL

Avocational interests are primarily of an outdoor sporting nature, principally aquatic and trail activities. I have used SCUBA extensively recreationally as well as in shallow water research, and have PADI certification.

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Nowe Date of birth

Academic rank

Degrees Service on Faculty Other experience Consulting work States In which registered: "ree 26 November, 1932 Associate Professor B.S. Mech Eng. 1958, Iowa State College M.S. Nu. Eng.

1964, Iowa State University Ph.D. Mic. Eng. 1967, Iowa State University by Vice President, Parents: Campus School, Inter American University, San German, Puerto Rico, 1968-65. Chairman, School Board, Campus School, Inter American University, San German, Puerto Rico 1963-70 Member, President's Council of Inter American University, San German, 1970-71 Outboard Marine Corporation. Development of outboard motors. July 1958 - July 1960. AEC Laboratory, Junior Engines on mechanical properties of materials 1960-64, Research August Puerto Rico Nuclear Center, Division of Nuclear Engineering. Scientist II, July 1967 - present. Instructor of Nuclear Engineering, Iowa State University, August 1964 - June 1967. Assistant Professor of Nuclear Engineering, Iowa State University, June 1967 - July 1967. None ---Page Break--- % Membership in scientific and professional societies Honors and Awards Subjects or courses taught this year Other assigned duty Programs participated in, to improve competence as teacher Phi Eta Sigma Pi Tau Sigma Tau Beta Pi American Nuclear Society American Society for Engineering Education Listed in American Men and Women of Science Dictionary of International Biography International Scholarly Directory None - On Sabbatical Leave Chairman, Reactor Audit Group, PANC Visiting Scientist, Oak Ridge National Laboratory for the USAEC, Analysis Group, September 1973, Approximately 7 to date, ---Page Break--- 75 Lesite Piastre Research Assistant, Department of Marine Science Puerto Rico, Mayaguez, Puerto Rico, 00708, + University of Date and place of birth January 29, 18, Burlington, Vermont, Yorol Education New York State University Colt S., New York State Teaching Certificate, 1970, (Secondary Biology), University of Puerto Rico, H. 6. 1973, Marine Science, Technology). Master Theater 'The Behavioral Ecology of the Lizardfish,

Syrodous intermedium, ovenent and feeding periodicity, feeding Rablees systematical Preference, reproductive biology, Experience and Activities Research Assistant, Department of Marine Science, University of Puerto Rico, June 1971 ~ June 1973, Cruise on A/V Crawford to the islands of Anegada, St. Croix, Mona, and Desecheo for fish collection, survey, and photography, Autata 40 preliminary baseline study prior to thermal siesta installations. Assisted in collecting, classifying, and storing fish for ichthyology museum, UPR. Aquatic Laboratory experience, Other positions and experiences include advanced AIDA SCUBA certification, 89 open water SCUBA hours, High School Biology teacher (student teaching), Liverpool High School, Liverpool, N.Y. January 1970 ~ June 1970. Residence assistant in dormitory, New York State University College at Oswego, N.Y., September 1968 ~ December 1969, Day camp counselor, Central Queens YHA, Jamaica, L.I., 1968 ~ August 1968. Reports: Attraction- avoidance Reactions of Fish to a Deterrent, 1971, (to Department of Marine Science). The Ecology and Behavior of Synodus intermedium, 1971, (to Department of Marine Science).

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Name: Heriberto

Date of birth: 13 August 1937

Academic rank: Associate Professor

Degrees: BSEE, Univ. of Puerto Rico, 1961; HSNT, Univ. of Puerto Rico, 1963; Ph.D, Texas A&M University, 1966

Service on Faculty: 5 years Electrical Engineer, Puerto Rico Water Resources Authority, July 1961 ~ January 1962. Assistant Instructor, Physics Department, Univ. of Puerto Rico, January 1963 ~ May 1963. Supervisor, Bonus Power Plant, Puerto Rico Water Resources Authority, June 1963 ~ September 1963. Operator, Gamma Facility, Texas A&M Univ., November 1965 ~ July 1966. Nuclear Engineer, U.S. Army Engineer Reactor Group, Fort Belvoir, Virginia, March 1966 ~

December 1968.

Other experience: None.

Consulting work: None.

States in which registered: "Absolute Flux Measurements Using the Activity Ratio Technique" Conference on Research and Training Reactor.

Utilization, ANS Transactions, Supplement number | to volume 15, 1972. "Applied Nuclear Power Engineering for Practicing Engineers", Barnes & Noble. PECDS Series, 1972. "Experimental Verification of the Asymmetric Source Method in Reactivity Measurements" (with Rafael Nicala) PRNC Report (to be published) 1970. "Experiments Interaction" (with Dua) (to be published) 1971. Investigation of Neutron Detector Calibration, PANE Report ---Page Break--- te and professional societies Honors and awards Subjects of courses taught this year Other assigned duties Programs participated in, to improve competence 3 teacher in "Experimental Verification of a Theoretical Model for Evaluating Thermal Neutron Diffusion Lengths in Hydrogenous Materials Using (n, γ) Reactions" (with Juan Aleman) PANE Report (to be published) 1972. "Activity Ratio Technique for Measuring Thermal Neutron Flux Using Activation Detectors" (with Rafael Sardina) PRNC Report (to be published) 1971 Tau Beta Pi, Phi Kappa Phi Nu £9 603, mu eg 626 Research Committee of the Faculty of Engineering None ---Page Break--- (CURRICULUM VITAE Name: Ritchie, Lawrence J. Title: Director, Puerto Rico Nuclear Center Place of Birth: Glenvil, Nebraska, U.S.A. December 9, 1906. Grant Island, Nebraska, —A3, 1928 Parasitology, Northwestern University, Evanston, Illinois, M.S. 1930 Parasitology, Northwestern University, Evanston, Illinois, Ph.D. 1935 Parasitology Honor: Achievements and Commendations: July 1955 = Certificate of achievement for meritorious service by the 16th Medical General Laboratory, July 1966 = Letter of Commendation of the 16th Medical General Laboratory. Letter of appreciation from the Governor of Yamanashi Prefecture, Japan for efforts in study and control of schistosomiasis, 1958 = Member of symposium on schistosomiasis for meeting of the American Society of Tropical Medicine and Hygiene. 1964 = Recipient of the Teresa Gonzalez-Martinez Award, Puerto Rican Committee for Schistosomiasis Control, Sept. 1964 - Invited to present a paper at the first International Conference of

Parasitologists, Rowe. 1968 = Member of Cornell Medical College Schistosomiasis Team to the Philippines. = Recipient of "Medal of Merit," presidential award, Philippine Islands, Major Research or Professional interest: Parasitology, Malacology. Military Assignments: 27th Medical Laboratory - Leyte, Philippines (18 months) 2915-K6 > ETH Medical Laboratory - Yokohama, Japan (5 months) 2916 = 8th Medical Laboratory - Yokohama, Japan (8 months) 3006 = Health Medical General Laboratory - Tokyo, Japan (4 months) Chinese Assignment: 2947-56 ___~ 6th Medical General Laboratory - Tokyo, Japan, 1961-66 = UGA Tropical Research Medical Laboratory - Puerto Rico, 1962-68 > Walter Reed Army Institute of Research = Washington, D.C. ---Page Break--- Christian Statements (Contact): 3963-12 + Senior Scientist 1, Puerto Rico Nuclear Center, 29M-Te — Meeting Head, Medical Sciences and Radiobiology Division, No LETS |x Head, Division of Medical Sciences and Radiobiology, Pac AV/AT/T3 to 9/21/T3 * Acting Director, Puerto Rico Nuclear Center: Appointment Assignments 2932-3 = Part-time Instructor ~ Northwestern University, Assistant Professor, Beloit = Woman's College, 1936-40 + University of North Carolina, 1955-56 = Special Lecturer in Parasitology ~ University of Puerto Rico Medical School, 1967 ~ Professor (of honor), Department of Biology, University of Puerto Rico. Consultant Department of Public Health, St. Lucia, British West Indies World Health Organization, 1962,63; 1964; 1967, Professional Societies: American Society of Parasitology - 1937, American Society of Tropical Medicine and Hygiene = 1947, Royal Society of Tropical Medicine and Hygiene = 1960, Puerto Rico Committee for Schistosomiasis Control, Caribbean Committee for Control of Bilharzia. Bibliography

Approximately 100, Editorial appointments: Review Editor of the Journal of Parasitology by reviewing manuscripts in his fields of specialty. Chairman of committee, delegated to prepare chapter 10 'Chemical Control of Gastropods', of a manual entitled "Hygiene and Control of"

Biharviaeia™: ---Page Break--- (CURRICULUM VITAE) Prepared: April 15, 1973 WME: Frederick Bavard Rushford DATE OF BIRTH: April 13, 1929 PLACE OF BIRTH: Springfield, Massachusetts CIVIL STATUS: Married to Maria Teresa Faaii2e Children: Catherine Teresa Rushford (2) Frederick Eugene Rushford (29) PRESENT ADDRESS: 162 Vintani2 Street San Juan, Puerto Rico 00207 Telephone: 723-6826 EDUCATION: Secondary: Bulkeley High School, Hartford, Connecticut Graduated 2 136 Undergraduate: B.S. degree - General Science - 1950 Trinity College, Hartford, Connecticut Graduate: 202 credits in Education, Recreational Administration, and Biology University of Puerto Rico, Rio Piedras, Puerto Rico - 195k to present SPECIAL TRAINING: ISP Summer Institutes for Secondary Teachers, 1958-1961 University of Puerto Rico, Rio Piedras, Traveling Science Teacher Training, Summer 1959 Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee Basic Radioisotope Techniques Course, 1953, Puerto Rico Nuclear Center PROFESSIONAL DIPLOMAS: License, Secondary School Science Teacher, Government of Puerto Rico License, Secondary School Principal, Government of Puerto Rico PROFESSIONAL SOCIETIES: Member - American Nuclear Society Member - Puerto Rico Teachers Association Member - Councilman, Puerto Rico Chapter of the Health Physics Society ---Page Break--- FB, Rushford April 15, 1973 MILITARY SERVICE: P. S. Army, May 25, 1952 to May 8, 1953; active duty Medical Laboratory Technician Rank: Private E-2 1950-51 ~ Civilian Clerk, U.S. Army Corps of Engineers 1951-53 ~ Active Military Service - Medical Laboratory Technician, Fort Sguer Army Hospital 1955-59 ~ Secondary School Teacher of Mathematics, Biology, Chemistry, and Physics - Antilles Consolidated Schools, D.S. Tent Station, San Juan, Puerto Rico 1959-60 - Traveling Science Teacher - Oak Ridge Institute of Nuclear Studies, signed to U.S. Atomic Energy Commission activities in Buenos Aires, Argentina 1960-62 - Mathematics and Science Teacher,

Antilles High School, US S, Naval Station, San Juan, Puerto Rico June 1962 to July 1970 Technical Assistant to the Director, Nuclear Research Center (ERNG), Caparra Heights Station, San Juan, Puerto Rico January 1970 to present. - Lead Information and Education Services Division, Puerto Rico Nuclear Center August 1970 to present. - Use 1972 to present. - Coordinator for Nuclear Programs, University of Puerto Rico, Office of the President. - Joint Appointments 336 UM and 67% Educational Officer, Puerto Rico Nuclear Center Publications: 1. Evaluation Study of Summer Institute in Radiation Biology (FUG 66) 2. Articles: Puerto Rico Studies, Vitae 1 November 1965 3. The Puerto Rico Nuclear Center: Its Principal Irradiation Facilities and Scientific Program, Isotopes and Radiation Technology, published by Isotopes Information Service GRE Blanca, February 1967.

---Page Break--- Date of birth Academic rank Degrees Service on Faculty Other experience Consulting work Sasscer, Donald S. 30 January 1929 Professor, full-time SHE, University of Utah, 1953 SNE, Iowa State University, 1959 Ph.D. Iowa State University, 1964 9 years Douglas Aircraft Corp. - Power Plant Analyzation Section, June-December, 1963 Hebonell Aircraft Corp. - Engine Components Design Summer, 1956. Instructor of Theoretical and Applied Mechanics, Iowa State University, 1956-1959. Assistant Professor of Nuclear Engineering, Iowa State University, 1961-1964. Research Scientist, Division of Nuclear Engineering, Ames Laboratory of the USAEC, Ames, Iowa, 1961-1964. Lecturer, AECWASEE Summer Institute in Nuclear Engineering, Iowa State University, Summer 1962. Lecturer, AECOASEE Summer Institute in Nuclear Metallurgy, Iowa State University, Summer, 1963. Co-Director and Lecturer, OCO-ASEE Summer Institute in Fallout Shelters, Summer 1967. Director and Lecturer, PRWRA (Puerto Rico Water Resources

Authority) Special Reactor Operator Training Program, Summer 1970. Director PRWRA Special Reactor Supervisor Training Program, Summer 1972. Director and Lecturer ALC Summer.

Institute on Electrical Power Generation in Puerto Rico, Summer 1973. Chief Scientist 1, Division of Nuclear Engineering of the Puerto Rico Nuclear Center, 1965 ~ Presents Commonwealth Oil Refining Company, (CORCO) part-time 1955-59. ---Page Break--- States in which membership in scientific professional societies, Teachers and Honors and Awards Subjects or courses taught this year Other assigned duties Programs participated in, to improve competence as teacher Publications include American Nuclear Society (ANS) Health Physics Society (HPS) American Society for Engineering Education (ASEE) National Honor Society of Phi Kappa Phi -S- Atomic Energy Commission Special Fellow 1959-1961 Listed in "American Men and Women of Science" Guest Lecturer, USAEC Atoms in Action Program, Univ. of Guatemala, Guatemala City, December, Guest Lecturer, USAEC Atoms in Action Program, Univ. of Panama, Panama City, Feb. 1967 Elements of Nuclear Engineering Introduction to Nuclear Engineering Research Chairman Dept. of Nuclear Engineering UPRRUK (extra compensation) Head Division of Nuclear Engineering Puerto Rico Nuclear Center USAEC-UPR Visiting Scientist, Div. of Theoretical Reactor Physics, Brookhaven National Laboratory (USAEC) Summer 1969 Visiting Scientist, Center for Educational Affairs and Radiological Physics Division Argonne National Laboratory (USAEC) July 1970 - July 1971 Approximately 13 to date ---Page Break--- Date and Place of Birth: July 16, 1935; Washington, D.C. Education: The Catholic University of America, Washington, D.C. Ph.D., Chemistry University of Notre Dame, South Bend, Indiana Professional Experience Sept. 1965 - 1969 = 1966 - 1969 1968 - 1969 Oct. 1969 - June 1970 Sept. 1970 - April 1972 July 1972 to date Publications: Associate Scientist 1, Puerto Rico Nuclear Center, Research in gamma radiolysis and photolysis of heterocyclics at low temperatures Assistant Professor, Department of Physics, University of Puerto Rico, Graduate Research Program advisor. Lecturer, Department of Chemistry, U.P.R. Course given in "Chemical Kinetics", and Radiation.

chemistry and Photochemistry. State Scientist, Research Laboratory, Princeton, New Jersey. Research on reactions of neutral and ionic species in high-temperature areas, Research Scientist, Energy Conversion Devices, Inc., Troy, Michigan. Research on photographic aspects of amorphous semiconductors, Puerto Rico Nuclear Center and University of Puerto Rico, Chemistry Department, Rio Piedras, Puerto Rico. Research in gamma radiolysis and photolysis of heterocyclic compounds, and in chemiluminescence of cyclic peroxides, and possible intermediate dioluminescent systems, approximately 5 publications to date. ---Page Break--- Ricardo Lee is 18 & + Porfirio A. Toledo Charneco Date of Birth + November 20, 1946 Place of Birth + Arecibo, Puerto Rico Marital Status: Married, no children Education Institution Degree Subject Month/year University of P.R. RUM B.S. Mathematics & Physics May 70 University of P.R.- Medical Science Campus R.P. M.S. Radiological Health July 72 Professional Experience Position Institution Research Associate Puerto Rico Nuclear Center Sept. 70-July 71 Mayaguez, Radioecology Div. Associate Scientist II Puerto Rico Nuclear Center Health and Safety Division Sept. 72-July 1973 Rio Piedras, PR. Associate Scientist III Puerto Rico Nuclear Center (508) Aug. 1973 to Present. Health and Safety Division Rio Piedras, P.R. Instructor University of P.R., Medical Science Campus, R.P. (508) Aug. 1973 to present Additional Data Health Physics Society Member ---Page Break--- Curriculum Vitae Name: Vance P. Vicente Bachelor of Science: University of Puerto Rico, Rio Piedras Campus. Concentration in Biology, 1970, Master of Science: University of Puerto Rico, Mayaguez Degree in Marine Sciences, Spec. Microbiology, 1975. Certifications and Memberships 1) National Association of Underwater Instructors Certificate. 2) Member of the International Oceanographic Foundation. Previous Experience 1) Taxonomy of the benthic samples of St. Thomas for the Earth

Resource Technology Satellite Program under PRIMUL. 2) Qualitative

and Quantitative determination of the plankton in St. Thomas for E.R.T.S, under PRIMUL. 3) Design of a microbiological study within the undersea laboratory "La Chalupa", PRINUL. 4) Assistant Science Program Coordinator for the Puerto Rico International Undersea. Publications in Progress 1974 Vicente Vance P, and Dr. Luis R. Almodóvar. Some aspects of the feeding habits of *Chaetodon capistratus* and the zooxanthellae. Vicente Vance P. The shallow water sponges (Demospongiae) of the North Coast of Puerto Rico, ---Page Break--- " CUNRECULN VERA David Y, waiver Zenlor Scientist, Tropical Agroecologies Division, Associate Professor, Biology Department, University of Puerto Rico Education University of Washington, B.S., 1950 Washington State University, M.S., 1952 Washington State University, Ph.D., 1989 Academic Experience Teaching: Introductory Biology, Introductory Zoology, Systematic Entomology, Biological Control, Veterinary Parasitology, General Biology, Invertebrate Zoology, Insect Structure, "The Nature of Insects" (Entomology). Research: Montane ecology and control of insects in stored grains; Pecan weevil timber insects; gametogenic sterility of lepidopteran and other holometabolous organisms; translocation, capability, population change and distribution of malaria vectors; growth inhibition of aquatic microorganisms to vigeante. Research Grants: ABC 1982 to present for work on insect sterility; Skimagro Corporation 1962-63 for work with vegetable insect control by insecticides; American Cyanamid Corporation 1955-58 for work with insecticides; Union Carbide Corporation 1958-58 for insecticide studies; USDA 1955-59 for work with grain insects; USDA 1966 to present for work on insect sterility. Administrative Experience: Director, Induced Sterility in Insects Program, Puerto Rico Nuclear Center 1963 to present; Project Leader, Stored Product Insects Investigations, Washington State University; Senior Director, Malaria Control Program for the Philippines for the U.S. Agency for International Development (AID) 1950-52; Chief of Staff.

sone ental Sanitation Program for United Nations Belle? for Palestinian Refugees Programs data, Baypt 2519-50, 19\T As. Laboratory Technician, Department of Public Health and Preventive Medicine, University of Jacksonville, chose oe Nodtelne; 2940.50, Chief Sanitarian and Malaria Control Technicians United Nations activities for Palestinian hetero, Commission, Gaza, 'xt, UAR; 1951-33, Entomologist, ts, Public Health Service, Malaria control Program, government 2s Philippines; 1953-55, Santor Entomologist and host assistant Biologist, agricultural experiment: Sutton, hasnneen sete ---Page Break--- Curriculum Vitae (Davia Walker) University; 1963 to present, Associate Scientist, chief Scientist, and Scientist TT, and ad honores professor in Biology, Puerto Rico Nuclear Center, UPR; 1968-69, Radiation Entomologist, International Atomic Energy Agency, assigned to the Atomic Bureau Commission of Thailand as director of work on insect sterility. Overseas Experience and Travel ABD Atons for Peace Program, lectures on peaceful applications of atomic energy presented in Spanish in Guatemala, El Salvador, Nicaragua, Costa Rica, Venezuela, and Ecuador. Lectures given at National Universities and Research Centers, 1565-67. Foreign travel has included the Middle East, 2949-505, Far East, middle east and Europe, 1960-69; Central and South 1965-66. Approximately 35 to date. ---Page Break--- PERSONAL, NTCGRAPHY unm p, wooo Oceanographer Scientist II Puerto Rico Nuclear Center Birth: September 15, 1934 BA. Chemistry, Western Washington State College, 1964 BAA! Vacation, Western Washington State College, 196% M.S, Oceanography, University of Washington, 1966 PhD, Oceanography, University of Alaska as Oceanographer, 1966-67, University of Washington NORDIN Fellow, 1969-70, Battelle-for-the-West Scientist I, 1970-73, Puerto Rico Richens Center Scientist II, 1973-present, Puerto Rico Nuclear Center American Chemical Society American Geophysical Union American Society of Limnology and Oceanography International Oceanographic Foundation The Geochemical

Society: Hongroteastonat Areratt Omera and Pilots Association Talon Oponrephie Society National Rifle Association Reverse: Professor University of Washington, Research and Teaching Assistantships, 1964-66 University of Washington, Oceanographer, in charge of Marine Routine Chemistry Laboratory, 1966-67 University of Alaska, Research Assistantships, 1967-69 Battelle Northwest, Pacific Northwest Laboratories, HORUS Research Fellow, 1969-70 Puerto Rico Nuclear Center, Oceanographer, 1970-73 Puerto Rico Nuclear Center, Head, Site Selection Survey, 1973-present Komprofessional Alaskan Fishing Industry, one season, engineer; twelve seasons, captain of fishing vessels and tenders Approximately 12 to date ---Page Break--- Curriculum Vitae: James J. Youngbirth Date and place of birth: 25 September 1940, Portland, Oregon Education: B.S. Biology, 1963, Portland State University M.S., Zoology, 1966, University of Nevada Ph.D. Biology, 1972, Stanford University Academic Awards National Science Foundation Research Assistantship (1971-1972) National Science Foundation Dissertation Grant (1971) Society of the Sigma Xi Research Grant (1972) California State Nutrition Scholarship (1969-1970) National Science Foundation Predoctoral Traineeship (1967-1971) Professional Experience: Research Scientist: Director, plankton research program at Puerto Rico Nuclear Center, 1970-1972, studying coastal zooplankton communities in polluted and unpolluted regions to assess major components and to determine seasonal fluctuations in their abundance and diversity. 2) Examining in detail the magnitude of variability associated with nocturnal vertical migration and aggregated distribution patterns. Cater Scientist: 1970-1972 Responsible for directing and conducting research programs on RY Proteus for periods ranging from one day to two weeks. Instructor: 1970, 1972 (summer-sully), Hopkins Marine Station of Stanford University Subject: Biological Oceanography (co-instructor) 1968 (February, July-August), University of California Rice (under auspices (Organization for

Tropical Studies) Subject: Marine Biology (co-instructor) 'Teaching Assistant: 1967-1968 Stanford University Subjects: Biological Oceanography, Marine Biology 1965-1967 University of Hawaii Subjects: General Zoology, Invertebrate Zoology, Marine Ecology, Animal Behavior' Laboratory worker: 1966 (June-September), Enewetak Marine Biological Laboratory (under auspices of the Atomic Energy Commission and University of Hawaii) ---Page Break--- Marsh J. Youngblat, a Research Assistant 446 (June-September), Enewetak Marine Biological Laboratory Assisted with several research projects, e.g., located nuclear dichotomous polymers from rock samples, collected organisms for taxonomic and geographic studies, gathered ecological and ethological data on coconut crab populations, tested the relative behavior of lagoon sharks toward plastic bag models, observed the effect of atomic radiation on indigenous fish populations. 1966 (January, April), Johnston Island (under auspices of Hawaii Institute of Marine Biology) Participated in a fin toxin (ciguatera) research program; duties included mapping subtidal coral reef study areas, underwater photography of these habitats, and collection of top carnivores for biochemical analysis. Research Experience 1969-1972 University of California, Central and Northern California Current, Tropical Eastern South Pacific Ocean, Studied the vertical distribution, diel migration, and community structure of euphausiids, 1968, 1970 Eastern Tropical Pacific, Enewetak Marine Biological Laboratory. Studied crustacean assemblages symbiotic with coral-reef species, Habitat to explore mechanisms responsible for the maintenance of species diversity. Attempted to determine with a time-dependent sampling program if the phaeopigment/chlorophyll ratio could be employed to evaluate grazing pressure at sesospecies depths. 1967, 1969, 1970 Enewetak Marine Biological Laboratory. Studied ecological and ethological aspects of cleaning symbiosis—a relationship in which small reef fish remove ectoparasites from

other traesice) November-December, 1970, RV 7, WASHINGTON, Tropical Eastern South Pacific Gyre July-August, 1970, RV PROTEUS, Central and Northern California current. April-June, 1968, RV TE VEGA, Peru to Baja California June-September, 1967, RV TE VEGA, out of California Minor: 1969-1972, 1-8 days, RV PROTEUS, Central California current 1969, two weeks, RV PROTEUS, Gulf of California, 1966, 1-8 days, RV TERITU, RV GALEM, Southwestern waters ---Page Break --- Maren J. Youngbluth Omni Societies Membership in Profe: American Institution of Biological Sciences American Society of Naturalists American Society of Limnology and Oceanography The Association for Tropical Biology The Society of the Sigma Xt Publications: Youngbluth, Maren J. 1965. Aspects of the ecology and ethology of the cleaning fish *Labroides phthirophagus* Randall. *Z. Therpsychol.*, 2 915-92. Youngbluth, M. 1967. Some marine fauna at Playa del Coco, Costa Rica, Organization for Tropical Studies. Mimeographed, Guanacaste, Costa Rica. 10 pp. Youngbluth, M. 1966. Some aspects of the ecology of the cleaning fish, *Labroides phthirophagus* Randall. *Amer. Zool.*, 6 (bs): 532-533: prospective Publications A, Vertical distribution, diel migration, and community structure of euphausiids in marine environments I. Tropical oceanic waters (East Tropical South Pacific) II. Temperate, offshore waters (Central California Current) III. Temperate, nearshore waters (Monterey Bay, California) IV. Recurrent groups of euphausiids in stable and transitional water 2. Diurnal changes in the faunal components of sonic scattering layers in Monterey Bay, California 3. Energy transfer by populations of vertically migrating euphausiids. 4. Seasonal variation in the zooplankton community of Monterey Bay, California. 5. Accuracy and precision of methods used to subsample zooplankton, ---Page Break --- ---Page Break ---