

POSTER SESSIONS

for 24 hours once a week over a 4 week period. Fish were then held in tap water and were sub-sampled at two month intervals over a ten month period. Livers were removed, fixed in glutaraldehyde, post fixed in osmium tetroxide, and imbedded in Spurr imbedding medium. Livers were then serially sectioned at 5 microns and viewed via light microscopy. Periodic thin sections were taken for electron microscopy. Comparisons were made both to controls, and to livers of brown bullhead (*Ictalurus nebulosus*) taken from the Black River in Lorain, Ohio. The Black River receives carcinogens (polynuclear aromatic hydrocarbons) in industrial waste. Known histopathological changes from such exposures include hepatocellular carcinoma, adenofibrosis, increased lipid deposition, and alteration of subcellular organization. These alterations were found in Black River bullhead and their time of onset after exposure will be investigated in the laboratory study.

BOARD A
@
3:00 pm

FLUORIDE INGESTION IN RATS: EFFECTS ON NEONATAL BONE. Larry J. Ream, Paula B. Pendergrass and Jane N. Scott, Department of Anatomy, Wright State University, School of Medicine, Dayton, Ohio 45435.

Fluoride crosses the placenta and mammary gland of the rat and deposits in fetal calcified tissues. Information concerning the possibility of a morphological effect of fluoride on bone in successive litters is lacking. Rats at 3 weeks of age from the third pregnancy litters of dams given 150 ppm fluoride in the drinking water were examined for physical and morphological changes in the femur. Bone length and fresh weight were not significantly different from those of control rats from dams given distilled drinking water. Moreover, examination by light and scanning electron microscopy revealed no pathological changes in the femurs as a result of maternal ingestion of fluoride. These results indicate that the amount of fluoride crossing the placenta and mammary gland is insufficient to produce morphological changes in the bones of 3 week old rats.

BOARD B
@
3:00 pm

DESIGN OF A DIGITAL PID CONTROLLER FOR AC GENERATOR EXCITATION AND GOVERNOR CONTROL SYSTEM. A. Ghandakly, Domingo Uy, Dept. of Electrical Engineering, The University of Toledo, Toledo, Ohio 43606.

This paper presents a method for designing a PID digital controllers for power generator excitation and governor control systems. The design method uses the continuous time and S-domains. This approach is justified as long as the sampling period is very small, or much smaller than the system's smallest time constant. The basic idea of the method extends the graphical method of JACQUES. This method assumes that a pair of dominant poles dominates the system's time-response. By fixing a pair of dominant poles in the S-plane and by setting the ramp error constant, the integral parameter is found. Then, by using the characteristic equation and employing complex arithmetic, the other two parameters are solved for. A simplified A.C. generator-excitation system is considered. The system is inherently unstable, and the PID controller is designed to stabilize it. Also, a simplified model of the governor speed control system is considered. The dynamic response of this system is poor, and the PID controller is designed to improve the response. The design parameters together with the digital controller are simulated using the CSMP. The results obtained show that the method is quite successful in designing the digital PID controllers for both exciter and governor systems.

BOARD C
@
3:00 pm

INHERITED VIRUS-SUSCEPTIBILITY: A NEW LOOK AT THE GENETICS OF DISEASE. Lowell L. Williams, M.D. 2]4 Ross Hall, Children's Hospital. Columbus, Ohio, 43205

A genetically-determined susceptibility to a particular virus results in a predictable spectrum of disease manifestations when the susceptible animal strains are infected. The dose of the virus and the age of the animal control the symptomatic response, in addition. In contrast, genetically-resistant strains of the same animal species are able to eliminate the infection entirely despite similar virus doses. The mechanism of this resistance appears to lie in the portion of the immune system designated as cell-mediated. Macrophage action, *in vivo*, controlled by histocompatibility antigen recognition, determines a part of this resistance. However, the exact functioning of this interaction is not yet clear, since *in vitro* studies often negate specific action of cells. Herpesviruses exhibit a prime example of inherited viral susceptibility in several species, including birds, mice and man. In Marek's Disease of fowl, Marek Herpes Virus produces acute lymphoma and neuropathy with recurrent viremia in susceptible strains, while the resistant chicken strains recover completely. Similarly, Herpes simplex infection in mice has been found to be controlled by their H2 histocompatibility complex. In man, recurrent herpes labialis in some individuals is an obvious example. However, the concept may be important in many more human disease which have a genetic or familial aspect. A discussion of the possible connection between cellular surface markers and infective particles will be given with the implications of this concept for the treatment of human disease.