BIOLOGY

Susan West reports from Gatlinburg, Tenn., at a meeting sponsored by the Council for the Advancement of Science Writing

Hepatitis update

The path to understanding and treating viral hepatitis has been a tortuous one, but progress is being made. Robert Purcell of the National Institute of Allergy and Infectious Diseases outlined that progress.

Recent research has identified three populations of hepatitis B virus, the virus responsible for noninfectious hepatitis that is transmitted mostly by blood products. The three may differ in the amounts of DNA polymerase (an enzyme that links nucleic acids) and nucleic acid. Researchers have speculated that the virus with the least amount of nucleic acid, called a defective interfering particle, is unable to reproduce and may enlist the aid of more able forms in order to replicate. In doing so, it may promote the multiplication of the independent forms and, in cases where the patient is recovering and the virus population has declined, it could be responsible for recurring bouts of the disease, Purcell says.

The search for an appropriate vaccine for hepatitis B depends on the identification of viral antigens, the agents that stimulate production of antibodies. So far, Purcell says, three hepatitis B antigens have been found, and one of these is available in sufficient amounts from hepatitis B carriers for the development of a vaccine. In the case of infectious hepatitis A, however, no ready source of the antigen exists. The hope for a vaccine to hepatitis A may require isolation of the virus or, in the far distant future, the use of recombinant techniques to clone the viral antigens in large quantities, Purcell says.

Mapping genes for DNA repair

Hybrid cells, created by fusing mouse and human cells in culture, have been useful in studies of gene mapping. The mouse and human chromosomes exist independently in the hybrid cells and, by identifying "markers" — genes that code for specific enzymes — certain chromosomes, as well as certain genes, can be isolated for study.

Peter Lalley of Oak Ridge National Laboratory described how he and James D. Regan are using the technique to identify the number, interaction and location of genes involved in DNA repair. They examined somatic cell hybrids for their ability to repair DNA damage caused by ultraviolet light and found that three particular chromosomes must be present for repair to occur. Further isolation of these chromosomes will show whether the genes responsible for repair are on one chromosome or divided among the three. Eventually, Lalley says, this work may help geneticists grapple with diseases such as xeroderma pigmentosum, a condition in which the inability to repair DNA leads to increased susceptibility to skin cancer.

Baboon baby booms

"The next step in human reproduction will involve the transfer of an embryo from one human to another," says Duane C. Kraemer of Texas A & M. Kraemer's work on embryo transfer led to the first birth (SN: 1/3/76, p. 5) of a primate (baboon) from an embryo conceived in one animal and surgically transferred to another. Now Kraemer reports that eight months ago his team successfully transferred and implanted a baboon embryo without surgery. The successful pregnancy, though it lasted only 45 days, shows the technology is ready, he says. "Now it is more an ethical and legal question than a technical and biological one."

Kraemer also reported the birth of an offspring from the natural mating of a baboon and a rhesus monkey. Cardiovascular researchers hope the animal will show both the human-like atherosclerotic lesions of the baboon and the high serum cholesterol level of the rhesus.

SCIENCE & SOCIETY

Directory of handicapped scientists

First-hand information on the problems and coping strategies of disabled scientists has been made more accessible. The first *Resource Directory of Handicapped Scientists,* compiled by the American Association for the Advancement of Science under National Science Foundation funding, lists more than 550 scientists who have agreed to help individuals and institutions break down physical and social barriers to the handicapped. Individuals are listed by name, by geographical region, by handicap and by scientific field. All have offered to consult, give speeches or coordinate programs concerning such issues as restructuring jobs and interpreting legislation on rights of the disabled.

"We expect — and hope — however, that the most obvious use ... will be by school administrators [and others] who will capitalize on the experiences of these accomplished scientists to assist them in opening up science education and opportunities to the handicapped," says the AAAS. "We hope that they will be energetically sought out and used as advisors, counsellors and role models."

Persons requesting copies or who wish inclusion in the AAAS's Resource Group of Handicapped Scientists should write: Office of Opportunities in Science, AAAS, 1776 Massachusetts Ave., NW, Washington, DC 20036.

Free listings to transfer technology

Sharing inventive ideas with those who can profit from them is what successful technology transfer is all about. Control Data Corporation's TECHNOTEC (SN: 9/3/77, p. 152) is a computer-based marketplace for those wishing to buy or sell technologies and ideas. But innovators in solar energy, agriculture and food processing stand to benefit from a new bargain. Control Data is offering 1,000 free, one-year listings in the international TECHNOTEC system for inventors with patents in those three critical areas. And although some of the system's 18,000 entries already come from Eastern European and Soviet-bloc countries, their numbers are expected to climb as a result of a new license which will permit installation of an access terminal in the Soviet Union, probably Moscow. Formerly, Eastern users had to travel to Brussels to use the system.

Physics institute loses tax appeal

The American Institute of Physics, a federation of nine physics societies, lost the first appeal to retain its tax-exempt status. It will file a new appeal with the Internal Revenue Service by December 7. According to the Chronicle of Higher Education, the latest ruling results in part from the Institute having allegedly catered to the private interests of members by offering them special services and publishing technical journals. The IRS ruled in another case — one concerning the American Society of Mechanical Engineers — that publishing journals too technical for the general public may give society members a type of benefit forbidden tax-exempt organizations by law, according to the Chronicle.

Great expectations

The United States and Japan have "agreed upon a framework of cooperation" for an estimated $1 billion in energy research — both basic and applied — over the next 10 years. The program will initially focus on magnetic-confinement fusion and coal liquefaction, moving later into areas of solar energy and photosynthesis, geothermal power and high-energy physics. A formal document sealing the agreement should be signed by March 15, pending approval by the new Japanese government.