

St. Elizabeth's Hospital in Washington.

The researchers ran the same fluorescent antibody test on the blood sera from the patients at St. Elizabeth's. The results were the same, indicating the bacterium was the same in both cases. How the piece fits into the puzzle is still unanswered, but researchers are running tests on other sera in search of similar results.

Epidemiologists also hope that the location of other pneumonia cases in the vicinity of the convention-goers' hotels will guide them to the bacterium's origin. The exact time and location of exposure

must be established and a blood sample must be procured and tested before any positive statements about the geographical distribution of the disease can be made. Besides the logistical difficulties involved in tracking down the blood samples and the correct information about exposure researchers fear that the publicity surrounding the disease may have interfered with routine sampling procedures. In face of the odds, however, the CDC staff will still be plugging away at the cause and identification of the Legionnaires' disease for the next few months. □

ployees, a group not consulted by the citizens' committee, have written to the city council with a number of recommendations.

The final passage of the ordinance would set two important precedents. The first is the decision not to ban the moderate-risk research, but to regulate it locally. Other city and state governments, including the New York Attorney General's office, are following developments in control of research using recombinant DNA.

The other precedent is the success of a committee of lay citizens in tackling a highly technical and controversial topic and emerging with concrete and intelligent recommendations.

"In presenting the results of our findings we wish also to express our sincere belief that a predominantly lay citizen group can face a technical scientific matter of general and deep public concern, educate itself appropriately to the task and reach a fair decision," the citizens' committee wrote. "Decisions regarding the appropriate course between the risks and benefits of potentially dangerous scientific inquiry must not be adjudicated within the inner circles of the scientific establishment." □

Cambridge may O.K. gene research

After months of stormy debate, the city council of Cambridge, Mass., is near a decision on regulation of genetic research using spliced genes, or recombinant DNA. This week the council narrowly passed, on a preliminary vote, an ordinance permitting moderate-risk research, but imposing safeguards somewhat more stringent than those required by the National Institutes of Health (SN: 6/3/76, p. 3). The ordinance must now be published and public hearings completed. The final council vote on the ordinance and any amendments will occur on Feb. 7, which is also the last day of a seven-month city moratorium on moderate-risk genetic research.

The proposed ordinance is the product of a committee of Cambridge citizens. This eight-member review board, appointed by the city manager, includes a former Cambridge mayor and businessman, medical personnel, an engineer, a professor of urban policy and community activists. They spent more than 100 hours learning about research techniques, studying the NIH guidelines, visiting laboratories and listening to scientists debate. They then reached a unanimous decision.

The controversial research in question is a class of experiments that the NIH guidelines designate moderate risk. These experiments include splicing the genes of a virus or bacteria to partially purified DNA from mammals or birds or from lower animals known to produce potent toxins or pathogens. The Massachusetts Institute of Technology has a laboratory for cancer research that meets the NIH requirements for such work. The issue of recombinant DNA research first came to the attention of Cambridge mayor Alfred Vellucci last June when Harvard undertook construction of such a P3 facility.

In a report presented Jan. 5, the citizens' committee recommended that moderate-risk genetic research, both in profit and nonprofit institutions, be permitted in Cambridge as long as it conforms to the NIH guidelines. The board further stipulated that institutions using recombinant DNA must train all laboratory personnel in appropriate safety procedures; include

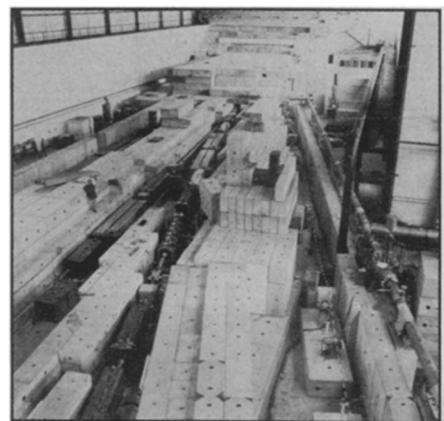
representatives of both laboratory technicians and the community on biohazards committees; test the purity of experimental organisms and check for resistance to common antibiotics, and monitor the health and intestinal flora of laboratory workers. The committee also specified that all experiments requiring P3 laboratories use genetically crippled bacteria and viruses (ensuring that no more than one spliced gene in one hundred million will survive outside a carefully regulated laboratory environment). Finally, the committee proposed that Cambridge establish a biohazards committee to oversee all recombinant DNA research. The biohazards committee would review proposals for recombinant DNA research in the city, receive reports of violations, visit laboratories, modify the city safety requirements as the federal guidelines evolve, and examine reports of the institutional biohazards committee.

Scientists, both those opposing and favoring city regulation of the research, praised the work of the citizens' committee. Although some think the extra stipulations are unnecessary, they do not consider them a major problem. Harvard and MIT are preparing responses, expected to express willingness to comply with the proposed ordinance.

Phillip Sharp, an MIT biologist who hopes soon to do P3 experiments in his own research, called the report of the review board "superb." He told SCIENCE NEWS: "I am encouraged that laymen would take time to do the homework, and that they considered the need for research and realized risk is involved in all research. The laboratory research board went through all of it and came out with a very intelligent report."

Jonathan King, another MIT researcher, praised the committee's strong statement on citizen control, but thought the report should have been more explicit. "It lacks teeth, it lacks a mechanism of enforcement," he says. He feels that experiments assigned to a lower risk category by NIH should also be regulated under the ordinance. The ordinance may be amended before final passage to make it stronger, King says. Some Harvard laboratory em-

400-GeV experiments begin at Geneva



Overview of sps West Experimental Hall.

On January 7, with the feeding of the first 400-billion electron-volt (400-GeV) protons to the West Experimental Area of the Super Proton Synchrotron, Western Europe's CERN laboratory entered the newest range of high-energy physics. The laboratory, owned and operated by a consortium of West European nations, also operates the 30-GeV Proton Synchrotron and the Intersecting Storage Rings, the world's most energetic colliding-beam apparatus for protons.

The Super Proton Synchrotron, which straddles the French-Swiss border near Geneva, is in many ways a companion piece to the 500-GeV synchrotron at the United States's Fermi National Accelerator

tor Laboratory near Batavia, Ill. The two giant accelerators were proposed simultaneously, and planning for both of them began more than a decade ago. Delicate negotiations over siting and financing delayed construction of the European synchrotron.

In the last few years Fermilab has opened a new chapter in experimental physics. Especially intense excitement now surrounds studies of high-energy neutrino interactions, and neutrinos generated by the protons will be a feature of several of the experiments at the SPS. □

Chemistry tool probes muscle cells

A powerful analytical technique of chemists is being focused on the metabolism of animal cells. Nuclear magnetic resonance spectroscopy (NMR) can reveal chemical compounds in intact muscle and changes resulting from drug treatment or disease, researchers at the University of Illinois Medical Center report in the Jan. 14 SCIENCE.

In NMR spectroscopy, a large magnetic field and radio-frequency energy interact with the nuclei of atoms to give signals. The research group chose to analyze naturally occurring phosphorus (phosphorus 31) in biological samples. Compounds containing phosphorus play important roles in a tissue's economy and can serve to differentiate its metabolic states, they explain. Spectra can be obtained rapidly from large tissue specimens and, because the sampling is nondestructive, data can be gathered over a period of time.

C. Tyler Burt, Thomas Glonek and Michael Bárány examined muscle from several species of animal and from humans. The spectra display clear peaks for inorganic phosphate (I in diagram), sugar phosphates (S) and the energy-storing molecules, ATP (A) and phosphocreatine (P). The NMR analysis also produced evidence of a family of compounds

not previously identified in muscle. The newly discovered phosphate diesters were particularly abundant in toads and frogs and absent in abalones. The researchers observed differences in the distribution of these compounds between normal and diseased human and chicken muscle. "The detection of the four diester compounds by P-31 NMR in muscles opens the way for studying their possible physiological role and their connection with various disease states," they say.

Another difference the researchers found between normal and diseased muscle was the levels of energy-storing molecules. In spectra from chickens with a genetic muscular dystrophy, the peaks of ATP and phosphocreatine were clearly reduced. The researchers report lowered levels of phosphocreatine in biopsy muscle from a human patient with a neuromuscular disease. Furthermore, they found the enzyme activity in muscle samples removed from patients was altered in diseased muscle.

Burt, Glonek and Bárány were able to use extracts of muscle, as well as intact tissue, for obtaining P-31 spectra. This procedure allowed extracts to be prepared near the location of biopsy surgery at various Chicago hospitals and then transported to the medical center laboratory for analysis.

Burt believes that P-31 NMR spectroscopy will eventually be able to look at entire organs that have been isolated and perfused with fluid. In five to fifteen years, he predicts, the technique may be applied to tissues still in a living animal. □

Patients' rights in medical privacy

Before the Supreme Court ruling of 1973, the only way a woman could obtain a legal abortion in some states was to claim mental instability. Often, the documentation was no more than a ploy, but her "mental instability" would leave an indelible mark on her medical record.

Years later, that document could cause the woman problems. Her insurance company or employer might turn up the information, and her credit rating or job might be affected. Social work agencies use medical data for their decisions, and potentially stigmatizing information, such as drug treatments, sexual preferences or psychiatric help, might influence decision making.

While insurance companies and government agencies appear to have easy access to medical records, patients are often ignorant of the type and destination of their records. And with computerization of those records, the potential increases for even greater amounts of information to be released haphazardly.

Now, a report sponsored by the National Bureau of Standards (NBS) has rec-

ommended significant changes in medical-record policies, calling for more control over the dissemination of information and for patients' rights to full information about their health conditions.

The study, "Computers, Health Care and Citizen Rights," was directed by Alan F. Westin, a law professor from Columbia University and author of "Privacy and Freedom," a comprehensive analysis of privacy in a democratic society. The study was first conceived in a workshop on privacy held by the Institutes for Computer Sciences and Technology of the NBS.

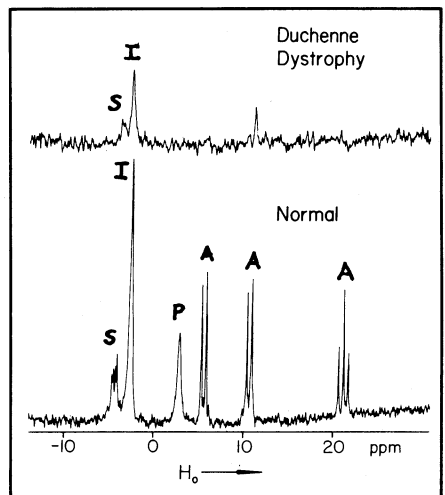
At a news conference announcing the study's release, Westin explained the problem. "Every time we visit a hospital or fill out health insurance forms," he said, "a record is generated, and information from these medical records now flows regularly out of the primary health care setting in ways that give us little control over how this information is used."

Although Westin feels that no single proposal or law can correct this potential infringement, his report recommends that patients should have an absolute right to inspect any information released from their records when the data are being used nonmedically. The report also calls for a clearly written account to be given to patients on how their records will be used. In addition, the report says a person has a right to all information about his or her health conditions including, in some situations, a doctor's working notes.

With so many hospitals computerizing their records, the aspects of information release are changed. The report found few actual abuses of computerized records, perhaps due to the fact that computers are more difficult to open than file drawers containing written records. But computers carry a great deal more information and present it more efficiently than written records, thereby exacerbating the problem.

Hoping to retain individual rights of privacy during the imminent computerization of most health records, the report outlines some basic principles for health care data systems, which Westin describes as "a code of citizen-rights practices." Besides calling for the patient's greater control over personal medical records, the principles advocate data-security measures to control access to records, special training for managers to respect citizen rights and the printing of patients'-rights handbooks.

The report also suggests some specific legislation to help strike a balance between privacy and public access, such as fair information practice laws already operating in five states and citizen-rights guarantees in any national health insurance law. It also proposes "privacy audits" by hospitals and medical centers to determine what kinds of information are going out and whether privacy rights are being violated. □



Spectra of extracts from human muscles.