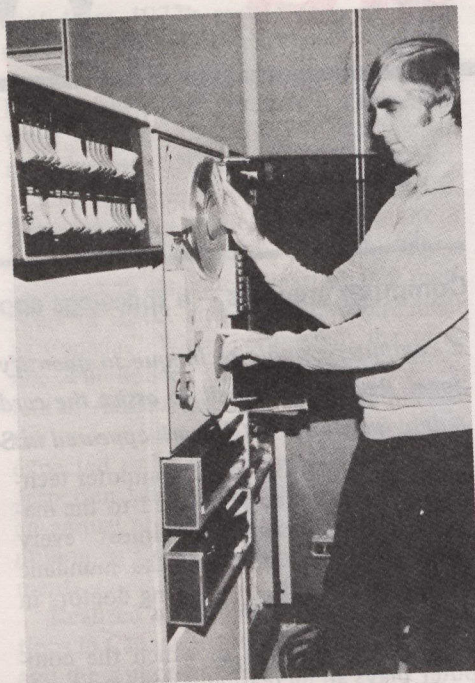


displayed on the CRT monitor. The ejected volume is almost instantaneously calculated and is also displayed on the CRT.

"This procedure was applied to the angiograms of a variety of heart patients and, as expected, some had ejection fractions below the normal level," explains Mr. Shepertycki. "But we quickly discovered that there was a group of patients which had been diagnosed to be suffering from coronary artery disease, but according to our calculations still had normal ejection fractions." In this group the disease, presumably, had not yet progressed. Although a part of the left ventricular wall was not contracting properly, the remaining muscle took up the slack to maintain a normal blood output. Interestingly, when the angiograms of the relaxed and contracted stage are superimposed, the damaged wall segment and the area which compensates, are both distinguishable.

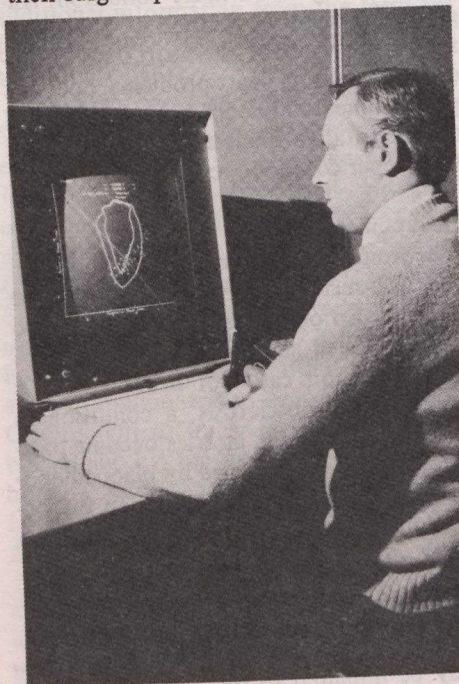
Improved technique

"At this stage we realized that we had to increase the sophistication of the technique," stated Mr. Shepertycki. "We wanted a more sensitive index, to identify those patients with normal ejection fractions but with abnormal left ventricular wall motion due to coronary artery disease." This refinement was achieved by using a simplified three-dimensional computer model of the left ventricle in a calculation which more aptly defined its functional state. A formula was used to calculate a "shape index factor" which was defined as the ratio of the left ventricular volume to the volume of a sphere having the same surface area as the left ventricle. This method was then used to calculate the shape index factors for both the minimum and maximum expansion of the left ventricle for a selected group of patients all suffering from coronary artery disease but with normal ventricular ejection volumes. These patients were divided into two groups depending on whether, in Dr. Morton's opinion, they did or did not exhibit normal ventricular wall motion. When the calculated factor for the ventricle in the expanded state was plotted against the factor for the contracted state, the two groups of individuals clustered into the appropriate normal and abnormal categories. That is the method which successfully revealed those patients with damaged ventricular wall tissue even though their hearts pumped the normal



Tape is loaded into computer in preparation for data analysis.

amount of blood. With the aid of such computer graphic techniques and their future refinements, cardiologists will be able not only to better assess the nature and extent of the disease, but also to gauge the success of their surgical procedures.



Mr. Shepertycki selects a particular data point on the tablet stylus, and the computer fetches the corresponding ventricular profiles stored on disk. The ever-increasing speed and flexibility of computers make them a prime diagnostic tool.

Canadian/U.S. talk air quality

Canadian and U.S. officials held informal and exploratory discussions on transboundary air pollution in Washington on December 15.

The talks included priority problems and co-operation on air quality matters, including air pollution control programs in both countries.

Both sides agreed to continue the discussions early this year.

Creation of Northwest Atlantic Fisheries Organization

The Convention on Future Multilateral Co-operation in the Northwest Atlantic Fisheries, which provides for the establishment of a Northwest Atlantic Fisheries Organization (NAFO) to replace the International Commission for the Northwest Atlantic Fisheries (ICNAF) came into force January 1.

The new organization is composed of a scientific council, responsible for scientific data review and discussion; a fisheries commission, responsible for the management of fisheries beyond the areas under the jurisdiction of coastal states; a general council, responsible for the supervision and co-ordination of NAFO activities, and a secretariat.

The new convention was developed at a series of international meetings held during the past two years. The final signature ceremony was hosted by the Canadian Government in Ottawa last October. Since that time, in addition to Canada, the following have ratified the NAFO Convention: Cuba, the European Economic Community, the German Democratic Republic, Iceland, Norway and the U.S.S.R. Additional ratifications are expected in the near future.

Secretary of State for External Affairs Don Jamieson hailed the new convention as a major international achievement, built on a pre-existing store of good will and co-operation among the coastal states of the Northwest Atlantic and the other states that fish in the area.

"NAFO will bring us even closer to realizing our common objectives of conservation and optimum utilization of the important fishery resources in the area," Minister of Fisheries and Oceans Roméo LeBlanc added.

NRC photo by Bruce Kane

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