

THE BATTALION

"I'm sorry but I'm afraid I can't make out, the note I wrote on your paper . . . . Oh, yes, it says 'improve your legibility.' "

# Wednesday, April 14, 1971 NASA research will aid heart doctors

WASHINGTON (NASA) -Doctors can watch a movie of the beating of a patient's diseased heart — identifying dead spots or scar tissue in the heart wall, aneurysms (bubble-like projections of the heart muscle), and other malfunctions - with a computer method devised by a National Aeronautics and Space Administration-Stanford University team. The system, still under devel-

opment, would improve on current complex diagnostic methods by providing a simple means of viewing the heart in action. Figuratively, it allows doctors to "walk around" the isolated beating heart, viewing it from any desired angle.

Doctors also can stop the display at any desired point of heart expansion or contraction and can play the picture back and forth for many cycles.

The system projects a threedimensional, animated cartoon-like image of any desired chamber of the patient's heart in lines of light on a computer display screen, similar to a television screen. The display is derived from two-dimensional "X-ray movies" made by injecting X-ray contrast dye into the desired heart chamber.

Scientists and doctors from NASA-Ames Research Center, Mountain View, Calif., and the

where no such restrictions exist,

fares are well under half of those

McCracken said the council

decided to mention the taxicab

in New York.

Alto, Calif., have worked together on the system. It appears the method may be

a major advance for the physician to determine the patient's need for heart surgery, coronary pumps). artery grafts, and treatment of various heart conditions. Heart disease is the leading cause of death in the United States.

The system's animated display is exact enough to show dead sections of the heart wall about the size of a nickel (two centimeters) details of large malfunctions, and holes between heart chambers.

Combined with standard clinical measurements of blood flow per heart beat, it can measure inefficient pumping by heart chambers. It also will help to identify leaky valves and shows the severity of valve damage.

The system will allow further validation of a sonar-like system for testing heart function is also under development by this group of scientists. These sonar systems would allow examination of the healthy hearts of astronauts, pilots and ordinary citizens, using a simple sensor placed on the chest.

"The Ames animated display system seems to be an important advance in the diagnostic tools for studying heart disease," said Dr. Donald C. Harrison, chief of the Division of Medical Cardiology at Stanford Medical Center, which is doing the clinical work on the project.

"While X-ray examinations of hearts as they beat are currently in use," said Ames' Dr. Harold Sandler, originator of the 'system, "X-rays are two-dimensional and hard to interpret because of the various other body structures in the same picture."

The value of the method for doctors is that it eliminates all irrelevant details. For example,

Analysis

# Soviets concerned

By THE ASSOCIATED PRESS Under the towering spire of the massive Stalinesque Foreign Ministry building in Moscow, experts of the far east division must be bitting their nails, wondering what sort of devilment is being cooked up in China. Are those Peking "revisionists" planning some sort of Great Leap Forward in foreign policy?

Cardiology Division of Stanford it can show the complete interior University Medical Center, Palo surface of the beating left ventricle (the heart's main pump) on the lighted display screen and nothing else. The system can do the same with the right ventricle and the two auricles (intake

> Since the animated displays are a form of computer readout, they can be transmitted to doctors at distant locations by an ordinary telephone line, and recreated on a computer display screen.

> The displays are derived from X-ray movies, plus a computer program based on intensive research in heart configurations and dimensions, plus new threedimensional computer display techniques. Daryl Rasmussen, Ames Research engineer, developed the mathematical and computer techniques, using data gathered by Dr. Sandler during six years of work at Ames on heart chamber dimensions and means of measuring them.

Doctors first take the X-ray movie, known as an angiogram. To do this, they inject a dye opaque to X-rays through a catheter into the patient's heart. The X-rays then outline the selected heart chamber in cross section as it expands and contracts.

Stanford cardiologists working under Dr. Harrison's direction take two sets of X-ray movies at right angles to each other, at 60 frames per second.

Obtaining the X-rays may be difficult since injection of the angiographic dye itself changes the function of the heart and makes only the data from two heart beats acceptable for analysis. However, the researchers use a variety of independent measurements to make sure the two beats used are exactly typical. Validation of the technique by other independent means is now being accomplished.

#### From the two X-ray movies, tions of hundreds of normal abnormal human hearts gathe the computer constructs the animated display. The entire seby Dr. Sandler from autop and studies of patients with quence of movie frames, each one heart diseases of various type containing the heart chamber outline, is traced on a computer The two stored beats are reinput screen, and is retained in peated over and over by the comthe computer memory. The computer, allowing doctors to stud puter program then mathematithe heart in action for any de cally projects the two views of sired period of time. the heart chamber back into space. From these it reconstructs the chamber. This three-dimensional construction is also stored

in the computer memory for analysis and display. The technique allows the com-

puter to calculate the changing SALES - SERVICE positions of the entire interior surface of the heart chamber in "Where satisfaction is question, so the moving heart

point. The computer program is based on studies of the exact propor-

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## Third inflation alert given Washington, D.C., by contrast,

White House said Tuesday the steel industry's competitive position would be jeopardized and employment reduced if steel workers land a large increase in wages

In their third and sharpest inflation alert to date, President Nixon's economic advisers edged to the brink of calling wage demands by steel workers inflationary.

But the alert, a three-month report put out by the White House, stopped short of direct criticism of union demands, or even of naming a wage boost that might be acceptable.

In a roundabout way, however, by linking the demands to a recent settlement in the can industry, the White House made clear its unhappiness with the union call for a hefty three-year wage increase, unofficially estimated at from 26 to 32 per cent.

First, it called the 9 per cent annual boost in benefits to can industry workers "clearly in excess of any realistic assessment of long-term productivity growth prospects." And it noted that the can industry settlement usually is a pattern for other metals industries.

"If the terms of the settlement are extended to the basic metals industries, the competitive position of these industries and many of the metals-using industries will be jeopardized," the alert

WASHINGTON (P)\_The tition and if its competitive position is significantly eroded through large increases in wage costs, the result will be sharply reduced employment opportuni-ties in the industry," it said.

But Paul W. McCracken, council chairman, refused to specify what would be acceptable. "Since this is a problem area," he told newsmen, "I think it would be inappropriate for me to discuss it in detail."

I. W. Abel, president of the United Steel Workers, said in a statement issued in Pittsburgh that the facts do not support the conclusion in the White House report. And he reiterated that the union will follow its previously outlined position in bargaining.

"The facts clearly demonstrate steelworkers have been the victims of inflation, not the cause of it. The facts clearly show that the purchasing power of steel workers has declined," he said.

"Therefore, the steelworkers have no intention of acquiescing voluntarily in any effort that would deny them an equitable settlement . . . "

There was no immediate comment from the industry.

Although steel clearly was the focus of the report, the White House saved its toughest comments for recent taxicab fare increases in New York City.

The problem in New York, it said, is that the city restricts the ber of cabs on the street and

Sesame Street

**Evening News** 

Cousteau Special

NET Playhouse

To Rome With

Changing Scene

Hawaii Five-O

Soul (PBS)

They Went Thataway (PBS)

Final News

The Law and

The FBI

Mr. Jones

(PBS)

Jacques

Today

Love

Campus and

Community

issue because it "epitomizes the kind of problem that is developing in regulated industries." Railroad freight rates, for example, have gone up drastically since the middle of last year be-

cause of the lack of competition in the transportation industry. The freight rate increases, approved by the Interstate Commerce Commission are "of a magnitude that will produce increases far above those for wholesale prices generally," the

alert said. The alert said the large increases "highlight the urgency of measures to improve efficiency and stabilization" in transportation, such as gradual deregulation of the industry's pricing structure.

# Automakers plan few for 1972, late model years

DETROIT (AP) \_ Extensive restyling of Ford Motor Co.'s intermediate Ford Torino and Mercury Montego lines will be the American products less frequentbiggest changes when the auto- ly and less extensively," Ford makers unveil their 1972 models wrote. next summer

stockholders earlier this month. change the design of our North

months in advance.

in restyling plans.

United Auto Workers strike.

"In future years we plan to

While stopping short of Ford's

The Chinese are smiling at Americans and suddenly presenting an amiable image to the outside world. To Soviet experts that must surely spell some sort

of bad news. It isn't necessarily good news for the U. S. government, for that matter. The regime thus far is smiling only upon table tennis players and the few correspondents permitted to accompany them on their unexpected tour into Red China. The reason behind all this is far from clear. There has been no indication of smiles on the official level nor

of any softening of Peking's attitude toward Washington. It sounds like bad news to the

Russians, however, because they are as suspicious of a Peking approach to the United States as the Chinese have been of a Russian approach in the same direc-

"Our steel industry is faced that number has not increased with strong international compe- since 1937. It added that in

### tonight on the tube

| Nui<br>nels d |    |      | () denote chan-                |             | 15 | (12 |
|---------------|----|------|--------------------------------|-------------|----|-----|
|               |    |      | Edge of Night                  | 6:00        | 2  | (5  |
| 2.00          |    |      | Sesame Street<br>(PBS) (Repeat | 6:30        |    |     |
|               |    |      | of Tuesday)                    |             | 15 | (12 |
| 3:00          | 3  | (5)  | Gomer Pyle                     |             |    |     |
| 3:30          | 3  | (5)  | Town Talk                      | and the let |    | -   |
|               | 15 | (12) | University                     | 7:00        |    |     |
|               |    |      | Instructional                  | 7:30        | 3  | (5  |
| 4:00          | 3  | (5)  | That Girl                      |             |    |     |
|               |    |      | Bewitched                      | 8:00        |    |     |
| 4:00          |    |      |                                | 8:30        | 15 | (12 |
|               | 19 | (12) | What's New                     | 9:00        | 3  | (5  |
|               |    |      | (NET)                          | 9:30        | 15 | (12 |
| 5:00          | 3  | (5)  | General Hospital               |             |    |     |
|               | 15 | (12) | Misterogers'                   | 10:00       | 3  | (5  |
|               |    |      | Neighborhood                   | 10:30       | 3  |     |
|               |    |      | (PBS)                          | 11:30       |    |     |
| 5:30          | 3  | (5)  | CBS News                       |             |    |     |

Bingo-Weekdays at 5, BCS\*TV/9. Nothing to buy. You need not be present to win.

Most of the other lines will receive only minor restyling this year and even fewer changes can be expected in coming years, as manufacturers cut back on their annual revisions.

Henry Ford II, board chairman of Ford Motor Co., sounded the death knell for major annual model revisions in a letter to

### **Bulletin Board**

TONIGHT

India Association will meet at 7:30 p.m. in room 145 of the Physics Building to elect officer bearers. All members are urged to be present. THURSDAY

**Mid-Jefferson County Hometown** Club will meet at 8 p.m. in room 2A of the MSC to complete plans for the Hensel barbecue, discuss the Somerville party, view the 1939 A&M-Tulane Sugar Bowl game, and hear two speakers. Texas A&M Motorcycle Club will meet at 7:30 p.m. in room 2C of the MSC to view a film on motorcycle racing. Members are urged to attend, and nonmembers are welcome.

The two one-time Comm pronouncements, other auto execnist allies, now accustomed to utives have also indicated the calling each other bad names, model change is on the way out. often accuse one another of shin-When Ford spoke, however, the ing up to the "American imper-1972 models were already in the ialists." works since the tools, dies and machines needed to build the

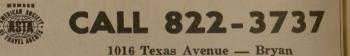
A China relatively isolated from much of the outside world new models must be ordered had been troublesome for Moscow, notably in the field of General Motors is expected to ideology and in impact on the make little change in its lines extreme left. this fall. The full-sized GM cars

It remains to be seen what underwent a major restyling last Peking does next. year and a planned restyling of

Is China about to woo Washthe intermediate models reportedly was canceled after the 67-day ington actively? Is the table tennis thing just a curtain raiser? Little change also is expected The answer — for the time being — is probably "no." But the from Chrysler Corp., where financial problems last year report-Chinese probably would just as edly resulted in a sharp cutback soon let the Russians stew about it.

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#### LETTERS POLICY

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