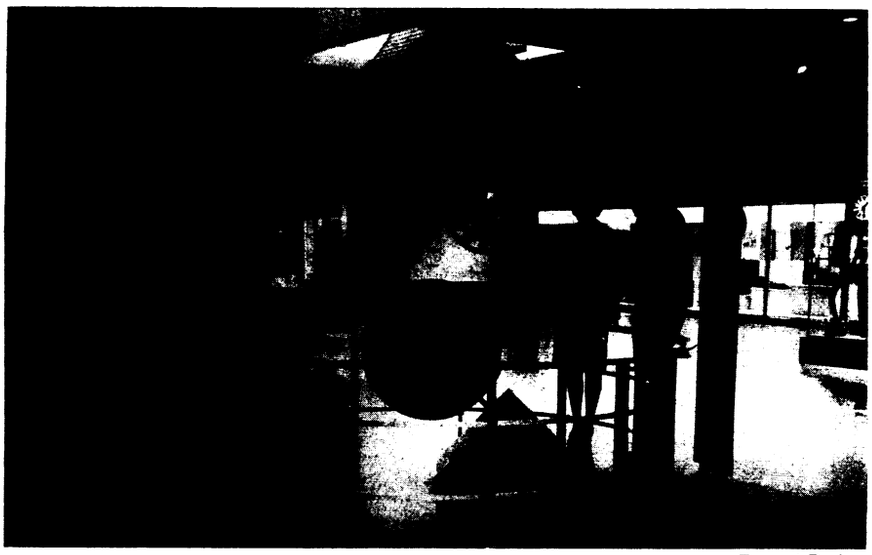

Fremont Davis

AS THE EARTH TURNS—Edwin A. Battison, curator of the Hall of Clocks and Watches, Phonographs, Typewriters and Locks, takes a curious sightseer on a tour of man's measurement of time through the ages. In the background is a 1790 tower clock which will have four faces when completed.

GENERAL SCIENCE

New National Monument

The newest Smithsonian Institution addition, opened this week, blends the nation's scientific developments and inventions with America's cultural history—By Elizabeth Hall

See Front Cover

➤ ONE OF WASHINGTON'S newest monuments honors man's technological achievement and cultural progress.

Situated on the Mall, between the U.S. Capitol and the Washington Monument, is the Smithsonian Institution's newest addition, the Museum of History and Technology, dedicated Jan. 22 by President Lyndon B. Johnson.

In the center hall of the new building, shown on this week's front cover, a golden pendulum swings, demonstrating for visitors one of the most basic scientific proofs for the rotation of the earth.

It is attached to the ceiling of the second floor and hangs down through a spherical opening in the ceiling of the first floor. A golden indicator arm on the floor indicates to visitors how fast the building turns independent of the pendulum.

Looking up through the opening, the visitor can see the original Star Spangled Banner that flew over Fort McHenry.

Although many of the museum halls are incomplete at this time, early visitors will see the Halls of Everyday Life and American Costume, including the gowns of the First Ladies, on the second floor, and farm machinery, railroads, vehicles, tools, light machinery, clocks and watches, phonographs, typewriters and locks on the first floor.

One of the most significant exhibits traces man's measurement of time. It begins with a huge globe turning on its axis under a canopy of stars. Appropriately-placed lights cast the sun's shadow at high summer and low winter.

The measurement of time then progresses through models of primitive and early American sundials, water clocks, the sand-glass, early clocks up until the atomic clocks that measure time by the motion of atoms.

In the center of the time exhibit, the authentic clockworks from a 1790 tower clock in Frederick, Md., are exhibited in the top of a "tower." The four clock faces on each side have different dials—a sundial, a civil time dial, a dial with moving figures, and an astronomical clock dial that has 24 hours instead of 12.

One of the largest exhibits in the new museum stands in the Hall of Railroads. It is a 180-ton steam locomotive and tender, the Southern Railway No. 1401, and fills a huge picture window at the east end of the building. The locomotive was hauled over the roads to the museum on huge transport trucks and installed before the building was completed.

Other exhibits in the Hall of Railroads include an authentic Seattle cable car, and the Pioneer, an early passenger locomotive built in 1851. The adjoining Hall of Vehicles features almost every type of horse-drawn and horseless carriage, including a mid-19th century stagecoach and the first gasoline automobile.

A gigantic thresher combine built in 1886 dwarfs other exhibits in the hall devoted to farm machinery and agriculture. Nevertheless, room was found for early large steam farm tractors, a hive of living bees, and early plows.

Another hall now open to visitors is the Hall of Tools, featuring an authentic machine shop of a century ago. Most of the tools are in operating condition. Included in this area is the oldest stationary steam engine in the country that was built in 1819, as well as the oldest steam engine, built in 1803 for marine use.

The exhibit on measurement, also on the first floor, features the third automatic graduation machine built in this country. Dating from 1859, the machine was in active use until the past summer when it was donated to the Smithsonian.

Future technological exhibits include Henry's electromagnet, Whitney's cotton gin, Morse's telegraph, Borden's evaporator, Thomson's electric welder, Howe's sewing machine and Bell's telephone among significant American inventions. Halls devoted to the history of physics and chemistry, electricity and electronics, nuclear energy and textiles will also occupy the first floor.

The second floor is devoted to civil and political history and the third floor to the history of the armed forces. Also featured on the third floor will be exhibits of ceramics, glass, musical instruments, printing presses, photographic equipment, the history of money, the National postage stamp collection and the history of the mails.

• Science News Letter, 85:55 Jan. 25, 1964

ENGINEERING

President Pushes Button, Welds Keel of New Ship

➤ WHEN President Johnson pressed a button in his office Jan. 16, a direct live wire from the White House to a New Orleans shipyard began to hum and a torch automatically began to weld two metal plates together.

These two plates constituted the keel of what will be one of the first highly-automated ocean-going cargo vessels of the U.S. Merchant Marine. Eight of these vessels are being constructed by the Avondale Shipyard, New Orleans, for the Lykes Brothers Steamship Company, also of New Orleans.

The heart of the automated ship is a centralized engine room control (CERC) system developed by Westinghouse. It will enable one man to control the entire operation of the ship's engine room.

Part of the system includes an electronic data logger which will automatically record over 90 temperature and pressure readings in the engine room. A separate console with more than 100 alarm lights will warn the operator of unusual occurrences.

For the first time officers on the bridge of a U.S. cargo ship will, if necessary, have fingertip control of the speed and direction of the ship.

One of the most significant results of the new cargo vessels, scheduled for delivery new cargo vessels, scheduled for delivery in mid-1965, will be a 30% reduction in crew.

• Science News Letter, 85:55 Jan. 25, 1964