time pieces arises in every phase of man's work, and when existing clocks cannot meet the need, man finds others. He has done just this to attain the super-accurate time measurement needed today in modern science where terrific velocities are dealt with. The measure: an atomic gain or lose a second. The clock consists of molecules of ammonia gas. In each molecule there are three atoms of hydrogen and one of nitrogen. With the three hydrogen atoms in a triangular pattern, the nitrogen atom flips back and forth perpendicular to their plane—the flip rate being 24,000,000,000 times a second.

Several different types of time systems which provide one standard of time throughout a plant or building have been in use for several years. In such systems an accurate master controls time indicating clocks, time recorders and time signals such as the five o'clock whistle. These systems require some form of connection between the master control and each of the individual clocks, recording units and signals in the system.

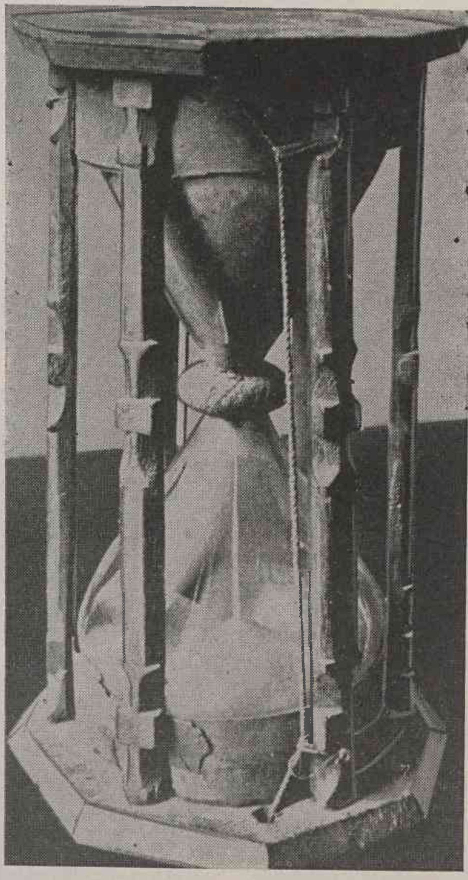
The use of carrier current—alternating current such as many of us have in our homes—offered an attractive solution to this problem. After a long period of research, engineering and testing, the International Business Machines Corporation came up with its electric time system with electronic self-regulation. Time units in this system are controlled without special clock wiring. They operate on regular AC lighting wires and are checked by the master control for any variation from the master's time. If variations from the master control's time should occur due to power failure or other unforeseen occurrences, the master control will correct each unit not coordinated with it *to the second.* It is here that the modern magic of electronics enters. The master control initiates an electronic pulse which is transmitted over the AC lighting wires. If any subsidiary time units are not in agreement with the master, the pulse causes them to correct themselves to complete uniformity with the master's time.

While the accuracy of any time system or time recording unit is of concern to us in our daily routine, it becomes doubly important in X-ray rooms where time stamps are used to record periods during which patients are exposed to radiation. Too little radiation may be ineffective while too much can be harmful. It is the time stamp's job to serve as the physician's assistant, checking the duration of exposure and, at the same time, maintaining a permanent record of treatment.

And now it has been found that there is a psychological value in time indicating. A recent issue of the Supervisor's News Service carried a story pointing up the benefits of the oft-maligned habit of "clock-watching." The head of the accounts division of a large department store declares it's a good thing to have a platoon of clock watchers in an office. His theory is that most people glance at the clock to pace themselves at their work. In other words, they clock themselves and their tasks to accomplish as much as possible.

As part of protective measures established for safety deposit box holders by banks, mechanically-made time records are kept of the arrival and departure, as well as the names, of box holders. These records have been offered as supporting evidence in legal action to protect the safety deposit box holders and their heirs.

They say everyone is born under a star. That may be so. What is certain is the fact that all of us, in one way or another, live by the star that sets the time standard given us through our clocks.



The three-minute sand glass is still in use today to time such things as boiling eggs. During the Middle Ages the hour glass was widely used in Europe because it proved more accurate than the Water Clock. The one pictured here was used to time sermons in Salem, Mass. in the 17th Century. As you can see, it is for a period considerably longer than three minutes. An hour would be a closer approximation of the time it took the sand to pass from the top to the bottom of this aged hour glass.