

# 'Teaching Machines' May Prove To Be Revolutionary Development

## At Least 20 Different Types Now on Market

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U.S. schools are gingerly experimenting with a variety of new "teaching machines" that may prove to be the most revolutionary development in education in many years.

At least 20 different types of teaching machines are now in the market. Some are enormously complex and expensive; others are relatively simple.

All of them are alike in one respect, however; they apply the modern sciences of automation to a method of instruction as old as Socrates. Educators call it the "Tutorial Method." It consists of leading an individual student, at his own pace, through a carefully-planned program of learning in which the subject matter is broken down into a series of very small steps.

**Given Question**

At each step, the student is given a question to answer or a problem to solve, along with some hints or promptings. When he responds, he is told immediately whether he was right or wrong. If he was right, he goes on to another closely-related problem. If he was wrong, he is

told why, and is given another crack at solving it correctly.

Human tutors do all this, of course, by simple verbal exchange with the student. Mechanical tutors, or teaching machines, do it by presenting the problem in writing (in an aperture of the machine, or on a TV-like screen) and letting the student respond in either of two basic ways.

In one type of machine, he is given a multiple choice of answers and presses a button to record his choice. The machine then tells him (usually by flashing a red or a green light) whether he was right, and presents him with another problem, or an explanation of why his answer was wrong.

The other type of machine

requires the student to write out his answer on a movable roll of paper. When he has done so, the answer is rolled up under a sheet of glass, so that he can't tamper with it, and the correct answer is

**Turkey To Be Fare At State Penitentiary**

Salem — (UPI) — The Thanksgiving day fare at Oregon's 11 state institutions is turkey — six tons of it.

The state board of control said 12,000 pounds of turkey was to be served, figuring out to be one pound per person. Seven tons of potatoes were also purchased for the holiday dinner along with large quantities of cranberries, olives, celery, pumpkin and mince.

simultaneously revealed to him in another aperture.

The first teaching machine was invented in the early 1920's by Prof. S. L. Pressley of Ohio State University. Its potentialities were largely ignored by educators, however, until 1954 when Dr. B. F. Skinner, professor of psychology at Harvard, threw his prestige behind the idea.

Skinner and others who have experimented with teaching machines say that their effect is remarkably like providing a private tutor for each student.

They say the machine requires a continuous, active response from the student (unlike lectures, textbooks, movies or television teaching) and insists that each point be thoroughly understood before he proceeds to another.

Also, like a good tutor, the machine presents just the material which the student is ready to handle, lets him move ahead as fast as he can

**Building Fruit Tree Is Easy Decoration**

"Build" a fruit tree for an outstanding, lovely Christmas decoration. It's easy.

Start with a cone-shaped piece of wood from a foot to a foot and a half high. Slice the top off. Fill it with small-head nails; that is for attaching the fruit. Form the tree with apples, oranges, and fill in the spaces with nuts and bits of greenery. Top with a pineapple.

or as slowly as he must, patiently gives him the amount of practice and repetition which he personally requires, and "reinforces" his responses by letting him know immediately (instead of a week later, when the test papers are graded) whether his answers are right or wrong.

**Said Cheat-Proof**

Other advantages are claimed: The machines are cheat-proof; they can free teachers from much of the drudgery of administering tests and grading papers; they appeal to the mechanical instincts of modern youngsters and give learning the same fillip of excitement that attends the playing of pin-ball machines.

If experience bears out all of these claims, teaching machines doubtless will play an

increasingly important role in education, and they may even become what some enthusiasts are already calling them — the answer to the teacher shortage.

But most educators are taking a wait-and-see attitude. They've been through "educational revolutions" before (radio, movies, TV teachings, etc.) and they know how easy it is to overrate the potential contribution of a new technological gadget. They also know that teaching machines have not yet been tested on a large scale in ordinary classroom situations—and that any new technique looks good when it's being tried out by enthusiastic teachers and students under the artificial stimulus of an experimenting situation.

Widespread testing of teaching machines will not be possible until there are more solid programs of instructional material to use in the machines. And this is one little detail that the manufacturers have tended to overlook in their haste to get on the market with the latest type of gadget. It takes a skilled teacher as long as two years to prepare all of the material required for machine teaching of a course in, for example, high school algebra.

The painstaking work of preparing programs is now underway in many subjects — from third grade spelling to college physics.

In the words of one educator, "The cart is waiting, and it looks splendid. As soon as the horse arrives, we'll try it out."

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**Small Worlds Around Us**

By Lynn M. Watkins

**Mustard Plaster Was Pain To Make You Forget Pain**

"Being plastered" had a burning connotation a few decades ago when the attachment of a mustard plaster to the human skin was painfully evident to the wearer that he was really "plastered."

This diabolical poultice was frequently used in the treatment of many ailments to which the human body is heir. Mustard plasters were homemade; a thick paste made from equal parts of ground mustard and flour dampened with water, and spread on a cloth.

Whenever a pain persisted on the human anatomy, the warm plaster was slapped on and usually held in place by a string or a bandage. Shortly thereafter the area under the plaster grew red and irritated. That seemed to be the idea. The plaster was a counter-irritant, the patient couldn't feel the original pain, for the burning agony of the plaster neutralized what pain the silly thing was intended to correct.

**Agony Sets In**

Inside of an hour, after the plaster was slapped on, the wearer began pacing the floor; he couldn't remain quiet for over a few minutes at a time. The plaster pulled, burned, itched, puckered the skin, blistered it, and just about drove the poor guy "nuts."

These plasters were used for strained muscles, so-called "stitches" in the back, or "cricks" in the neck; even at times for cuts and bruises. Once they were called "shin-plasters" probably because grandfather often bumped his metacarpal bones. He bumped his shins every time he prowled around the house at night, after the kerosene lamp was extinguished.

After the plaster was plastered on, the poor fellow suffering with the itching and fleshcrinkling, thought he was correcting the trouble by suffering it out; sort of using one pain to cure another pain. If this was the intention, the mustard plaster was an irritating success.

**Easy Grown**

Mustard plants were easily grown in the home garden or purchased from a store. The seeds of the black mustard were the best. They were ground into a powder and could be mixed with a little vinegar to become a condiment, or with flour and water and become a mustard plaster.

Even after the victim thought he was cured, the mustard plaster stuck, and often had to be painfully pulled off or soaked off with warm water, leaving a blistered area of skin where it had been. It took courage to wear one or to remove it.

The extensive use of the mustard plaster, at one time, could only be attributed to one reason. Many people suffered the burning, itching, blistering agony only because it felt so darn good when it was removed.

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