TECHNOLOGY

Casting Method Found

A SIMPLE, inexpensive method of casting statuary which enables an average foundryman to reproduce an artist's work satisfactorily has been developed at the Massachusetts Institute of Technology.

Casting has restricted American sculptors. Large statues usually have been cast in segments from wax or plaster patterns. Cutting, filing, shaping, burnishing and joining these parts requires time and skill. Only a few foundries in this country, consequently, have been willing to serve artists.

The new method is actually a simplification and improvement of the old "lost wax" process.

To demonstrate what can be done with it, the MIT foundry has produced a 400-pound, two-and-one-half-foot-high, bronze statue of Pegasus. This modern winged horse was the work of a Boston artist, Al Duca, who worked closely with the metallurgists on a project sponsored in part by the Rockefeller Foundation Department of Humanities. Although quite complex, this Pegasus was cast in one piece.

Mr. Duca carved the horse in expanded polystyrene, the fluffy white material used by decorators and florists. This was placed in a large flask and surrounded with sand. Bronze then was poured in at a temperature of 2,300 degrees Fahrenheit. This molten metal vaporized the polystyrene and left a bronze Pegasus beneath the sand in 38 seconds.

"Advantages of this casting technique are several," it was reported in the current issue of The Technology Review, March 8, 1960, published at MIT. "It means that artists can design with more flexibility—a sculpture with complex surfaces will be no more expensive than a simple one. The process is fast and does not present annoying problems of fitting and joining. Aesthetically, too, this method has significance. A sculpture so produced has the organic vitality of initial creation. Its integrity is unquestionable; the model has become the statue."

Science News Letter, March 12, 1960

GENERAL SCIENCE

"Age of Decision" Is 13

THE AGE of decision, as far as a future career is concerned, was 13 years of age for a quarter of America's top young scientists. This is shown by a poll of this year's Science Talent Search winners who were in Washington, D. C., for the five-day Science Talent Institute and scholarship judging.

Another quarter of the young scientists said that they never considered for a moment any role in life other than being a scientist. About a tenth of these high school seniors charted their age of decision at nine years old, and a like number delayed until age 15. One girl, now 18, waited until she had had a "fair taste of chemistry" last year to become convinced that science was her field.

The inspiration for this career planning came from such sources as their homes and families, teachers, books and magazines, science projects and science fairs, and visits to research laboratories and museums. They report having been impressed by "the enthusiasm and character" of scientists they know personally. One boy discovered that science was "the most philosophically satisfying method for really finding things out."

The professional goals of these young men and women are fairly awe-inspiring. The 15% planning to enter medical research hope to ferret out the last secrets of such problems as cancer and the chemical processes of life. A matching group is heading into the realms of mathematical theory.

These are followed by the physicists, who want to look into particle and atmospheric physics, and the chemists, physical chemists and biochemists. Others are drawn by the importance of mathematics and science teaching and of finding better and cheaper ways of producing abundant power for individual and industrial use and for space travel.

A great many of the student-scientists hope ultimately to contribute to world peace through their research, and several are driven by what one boy describes as "the fundamental question of why."

As to the adults important to their development in science, 40% of these Science Talent Search winners named teachers; 30% scientists, some of whom are university professors; and 25% members of their families.

Describing the way in which her teacher helped her, one of the girls said: "She taught me to think things out for myself and develop new procedures instead of trying vainly to follow stereotyped ones which were not feasible in our laboratory."

A father is pictured by his son in this way: "He allowed me to use his texts and he has taught me to criticize my work, perfect it, and make certain I am correct."

Two scientists impressed their young proteges in terms of "influence upon my understanding of the job and the place of a scientist in society" and "one of the major influences in causing me to conduct research and not just to study."

The Science Talent Search is conducted by Science Clubs of America, an activity of SCIENCE SERVICE, and is supported by the Westinghouse Educational Foundation.

Science News Letter, March 12, 1960

ASTRONAUT'S EARTH GUIDE—This instrument will show man in a space capsule where he is in relation to countries, oceans and cities before he fires the rocket to return to earth. The globe will turn with the same movements as the earth in the instrument, made by Minneapolis-Honeywell Regulator Company.

CHEMISTRY

New Weight for Silver Will Not Affect Dimes

AN ATOM of silver weighs less than previously thought, but this new finding of the National Bureau of Standards will not affect the silver dimes in your pockets. A dime will still be worth ten cents.

The new atomic weight of silver was set at 107.873 through accurate measurements with a mass spectrometer. The atomic weight currently used is 107.880.

The more precise atomic weight of silver may mean that the atomic weights of other elements may have to be adjusted. Silver has been used to set the atomic weights of certain other elements.

What makes the new measurement significant is the fact that the mass spectrometer was calibrated to extraordinary accuracy through use of known mixtures of the two highly purified silver isotopes.

Silver occurs as two natural isotopes having relative weights of 107 and 109. Ions of the lighter isotope, 107, are deflected more quickly by the magnetic field of the mass spectrometer than those of the heavier isotope, 109. This enabled scientists to separate into groups and collect the 107 and 109 ions. By doing this and measuring the relative abundance of each, the new figure 107.873 was arrived at which represents the atomic weight of silver.

The research was carried out by Dr. V. H. Dibeler, W. R. Shields and Dr. D. N. Craig of the Bureau. It was announced to teen aged winners of the Westinghouse Science Talent Search conducted by SCIENCE SERVICE.

Science News Letter, March 12, 1960