

thoughts, I believe it is germane to remember that the technically oriented community is growing larger every day, and will inevitably grow larger in the future.

While the mass media are the primary instruments for informing the present generation on science, I have always believed that there should be intensive concentration on developing a future electorate well versed in the principles and processes of science.

I believe we can all take heart in the significant programs that have been developing in recent years to make science a real part of the education of the young. These include experimental programs to develop materials and techniques for teaching science to elementary school children.

The curricula of high school science have been immensely improved by the work in physics of the Physical Sciences Study Committee and Educational Services, Inc.; by the work in chemistry of the Chemical Educational Material (CHEM) Study and the Chemical Bond Approach Project; and by the work in biology of the Biological Sciences Study Committee.

Science Service's extensive program with its local science fairs and its International Science Fair, and with its more than 25,000 youth science clubs having over three-quarters of a million members, is making an important impression on a national and international basis.

### New Centers Rising

New centers, with dynamic concepts for imparting knowledge of science, are beginning to rise. The Pacific Science Center is an outstanding example. The Lawrence Hall of Science, in Berkeley, holds great promise, being in part a national research institute on the teaching of science at all levels. The new Hall of Science of the City of New York is also incorporating programs to assist the schools in the improvement of science teaching. All of these fine centers also provide science learning opportunities for the public at all age levels. . . .

I should like to touch on one other subject that is pertinent to the matter of public understanding of science, and it involves the scientists themselves. Science long since has departed the ivory tower, as any researcher can testify who has been called to a Congressional hearing. I believe there is wide appreciation among scientists of the value of public understanding of what the scientist is doing.

Scientists have been among those who have taken the lead in many efforts to improve public understanding. The ethical code and the culture of science, however, often inhibit the efforts of scientists in this field. I would hope that senior scientists might help to break down needless inhibitions among their students and junior colleagues. I would hope that senior sci-

entists would encourage those among their juniors who have a talent for popularization to cultivate that talent in acceptable ways.

In conclusion, I offer my congratulations to this community for contributing, through the Arches of Science Award and the Pacific Science Center Foundation, to one of the most important educational problems of our time. I believe that we are only at the beginning of the Scientific Revolution.

As this Revolution accelerates, so will our dependence on the processes of science and technology. We can ex-

### INVENTION

## Current U. S. Patents

► THE FIRST disclosure of a simple, inexpensive test for pregnancy using chemicals came when the U.S. Patent Office granted patent 3,278,270.

The purely chemical method for detecting pregnancy has been tested so far on 8,000 women. It is 95% to 97% accurate, an improvement of some five percent over the most accurate method now in use.

The chemical pregnancy test should emerge from the clinical research stage to the market within one or two years. The test is hopefully the forerunner of one that any woman could use at any time in her own home to determine whether or not she is fertile on a particular day.

Although the pregnancy detection method will be available only to doctors at first, it is hoped to make it available to the public in kit form soon after that. In both cases the test is registered under the trade name, "Am I?" Cost is estimated to be one-eighth of a cent each.

Many chemical compounds can be used to make the pregnancy test. The results are indicated in several ways, including color, cloudiness or heat, depending on the chemical used. Being able to feel the heat generated by the chemical reaction means that blind persons can detect a reaction with the same accuracy as the sighted.

The most accurate and the most easily detectable results are obtained when pyran aldehyde, dihydro pyran, dihydro furan or some of their chemical relatives are used. The preferred method is to add the testing compound to a tube containing urine from the woman who wants to know whether or not she is pregnant.

If there is a color, precipitation or heat reaction, the woman is pregnant. No reaction indicates no pregnancy.

The test is most accurate during the second and third months after conception. The method was developed by Eric T. Fossell, who is a graduate student in organic chemistry at Yale University. Mr. Fossell assigned patent

rights to Unimed, Inc., Morristown, N.J.

As in all other pregnancy tests, only when a baby is born, or aborted, is the method counted as accurate. Hospitals cooperating in the clinical study are all on the East Coast.

Now that the patent on the chemical test method has been granted, medical journals are expected to publish results of the clinical experiments within six months.

Black and White Produce Color

The effect of color is produced using only black and white parts when a moving shutter and other elements are combined as outlined in patent 3,278,182, awarded to George Wright Lescher of Nashville, Tenn.

Mr. Lescher found that the color effect is observable when light is diffracted at and around areas where light intensity is changing rapidly. One device for generating subjective color from black and white parts consists of a fast-moving foreground shutter rotating continuously in front of an element that is dark on one side but light gray on the side illuminated from the rear.

Other Interesting Patents

A method for prospecting for oil using changes in infrared radiation detected from an airplane flying over promising terrain earned patent 3,278,746 for Gideon Fiat of Los Angeles, Calif. Mr. Fiat assigned rights to himself and to Bill Noel, also of Los Angeles. Both men do business as Ormad Systems.

A device for counting meteoroid particles in space that will help engineers design the lightest possible space shielding to protect manned satellites from bombarding dust particles earned patent 3,277,724. Inventor John F. Lundberg assigned rights to The Boeing Company, Seattle.