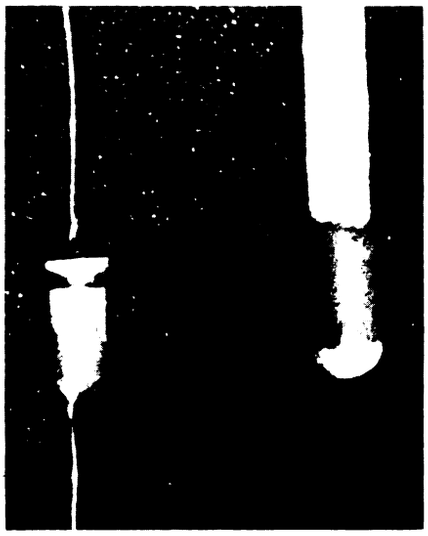

*TINY CAPACITOR — For use in such miniature electronic equipment as wrist radios and hearing aids, this minute capacitor compares in size to the head of a match. Meauring one-eighth inch in diameter, it can filter current to eliminate most static.*

HORTICULTURE

## Fluorescent Light for Basement Gardens

➤ YOU CAN start flower or vegetable seeds or cuttings in your own basement the year around by installing fluorescent lighting.

Dr. V. T. Stoutemyer, professor of floriculture and ornamental horticulture at the University of California at Los Angeles, speaking before the American Society for Horticultural Science in Madison, Wis., told of propagation experiments involving seedage and grafting under this form of artificial illumination.

He said that most flower or vegetable plants or shrubs could be started from seeds or cuttings by these methods. Such techniques would be particularly valuable to amateur gardeners who could use them in basements or storage rooms.

Seedlings were started on sphagnum moss and were transplanted at an early stage to a mixture of composted soil, coarse sand and Michigan peat. About 16 hours of light a day seemed to be the most satisfactory. With automatic time switches, the seedlings or cuttings demanded little attention if sufficient light intensity was provided.

Plants used in the study included cabbage, tomato, parsley, eggplants, petunias, zinnias and grafts of hemlock, rhododendron and Colorado blue spruce. All propagated well under the artificial illumination techniques.

The studies were performed in collaboration with Dr. Albert W. Close, formerly with the U. S. Department of Agriculture, now retired.

Science News Letter, October 10, 1953

PHYSICS

# Cooler H-Bomb Starting

**Speculation that starting mechanism for the hydrogen bomb need not involve temperatures on the order of a million degrees from an A-bomb blast is not new.**

➤ SPECULATION THAT the hydrogen bomb can be made without using the older and less powerful atomic bomb (fission of uranium or plutonium) as a trigger is not really new.

Last year (see SNL, July 12, 1952, p. 18) SCIENCE SERVICE carried a report that it was considered possible that a starting mechanism for the H-bomb's thermonuclear reaction need not involve the conventional atomic bomb with its temperature of the order of a million degrees.

Suppose a lower temperature, say a few hundred thousand degrees, would start the conversion to energy of some of the mass of hydrogen atoms (whether the common sort of mass one plus, or the double weight deuterium, or the triple weight tritium). Then the required intense spot of heat might be provided by a fine metallic wire exploded by a shock of electricity.

This possible trigger of the H-bomb was forecast by exploding wire experiments at Mt. Wilson Observatory in the 1920's, when attempts were made to duplicate here on earth the temperatures and the light of the stars.

Such a non-A-bomb trigger might very well break the monopoly that uranium now has on atomic bomb production. Hydrogen is widespread in the world. The ordinary and double sort is in every drop of water. Even less technological nations than the United States and Russia might undertake H-bomb development with relatively limited resources.

For future power for industry, such possible developments may have more interest and promise to the world than for military might and destruction, if war can be avoided. Easier starting of the H-bomb fusion, or conversion of mass into energy, if combined with control of the rate of fusion, would give a great new source of power for war and peace, unhampered by the scarcity of uranium.

Experiments in 1949 from the Los Alamos AEC Laboratory actually produced power from the fusion of hydrogen atoms on a small scale. Since work on the hydrogen bomb began well over a decade ago, even before the fission atomic bomb was proved practical, some very important and practical developments may very well have been made and remain hidden under the cloak of atomic secrecy.

Such industrial and power applications of converting mass into energy via the hydrogen fusion reactions should be more important than the making of bombs. But in the present state of the world a relatively easy and cheap H-bomb would obviously throw more fear and apprehension into our military and political leaders than Russia's possession of the kind of super uranium-triggered H-bomb we have assumed has been exploded.

If the public is given solid scientific facts, of the sort that the famous Smyth report of 1945 gave about the atomic bomb, apprehension bordering upon public panic may be avoided. The heralded Operation Candor may be sufficiently candid.

If the safety of the future must depend upon the behavior of any small group in this compact world of ours, we had better know the worst in order that we may, even this late, build up psychological defenses.

Science News Letter, October 10, 1953

BIOLOGY

## Embryos Develop in Eggs of Virgin Turkeys

➤ LIVING, FATHERLESS embryos have developed in 15% of all eggs laid by experimental virgin turkey hens at the Agricultural Research Center of the U. S. Department of Agriculture in Beltsville, Md., it has been disclosed.

This may be the first case of parthenogenesis, which is the development of embryos without fertilization by the male, to be observed in birds or higher animals, Dr. M. W. Olsen and S. J. Marsden of the Bureau of Animal Industry report. Parthenogenesis is known to occur as far up the animal scale as frogs or even fish, but no higher, they said.

In 98% of cases of fatherless embryos, embryonic development was disorganized, a translucent membrane simply spreading over part of all of the egg yolk. None of the embryos ever lived more than seven days, and usually stayed alive only two to four days. This discovery may have significance for medical science.

The scientists believe that the abnormal growth of tissue where none should develop might be of interest to cancer research. It is possible that hormone imbalance, traceable perhaps to the pituitary gland, explains the parthenogenic eggs, they say.

With turkey eggs costing 25 cents each, the question of parthenogenesis should be of interest to hatcherymen. They have found a discouragingly large number of fertile-looking eggs never hatching out. Actually, many of these fertile-looking eggs, because of parthenogenesis, might never have been fertile at all.

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