

GENERAL SCIENCE

# Plant Changed From Single To Two-Sexed by Colchicine

## Doubling Chromosome Numbers Makes Profound Changes; Science Is Shaping American Culture, Art, Religion

**P**ROFOUND sex changes in plants can be made by means of the drug colchicine, it was reported at the meeting of the American Philosophical Society in Philadelphia, by Drs. H. E. Warmke and A. F. Blakeslee of the Carnegie Institution of Washington. These changes, like others wrought by the same drug, are brought about through the heredity-bearing chromosomes.

The particular plant used by the two researchers was an Old-World species known as *Melandrium dioicum*. In nature, this plant bears male and female flowers on separate plants, instead of having male and female (pollen and seed-producing) parts in the same flowers, as is the case with most commonly known plants.

Sex in *Melandrium*, as in many other plants and animals, is linked up with two particular chromosomes, known for convenience as the X and Y chromosomes. A plant with the combination XY is male, or pollen-producing. One with the combination XX is female, or seed-bearing.

By treatment with colchicine, new strains of *Melandrium*, with double the usual chromosome numbers, have been produced. Sex chromosome combinations are thus possible in the combinations XXXX, XXYY and XXXY. XXXX plants are wholly female, XXYY plants wholly male. XXXY plants are male but have a touch of female about them, being able to produce a few seeds when self-fertilized.

From seeds produced by this self-fertilization new plants have been produced that have two-sexed flowers like those found in the majority of familiar forms, able both to produce pollen and to bear seed.

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## Dual Personality Theory

**T**HE PECULIAR effects of curare, Indian arrow poison which produces a sort of dual personality in dogs, are eliminated in animals that have lost the entire temporal lobes of the brain. Dr. Edward Girden, psychologist of Brook-

lyn College, told the American Philosophical Society.

Tricks learned by dogs drugged with curare are completely forgotten when the dogs are normal. And learning in normal conditions is lost while under the influence of this strange drug. This has already been established by previous research, and psychologists have theorized that learning ordinarily taking place through the cortex is "short-circuited" through other parts of the nervous system when the brain is put out of operation by the drug. When the animal recovers, these subcortical mechanisms are blocked by the brain's action.

The theory is confirmed by Dr. Girden's research. He found that after loss of the temporal lobes of the brain, no such separation of personality takes place under curare. Learning both with and without the drug is then sub-cortical.

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## Work on Fatherless Rabbits

**W**ORK done to date on producing rabbits without fathers was reviewed by Dr. Herbert Shapiro of Vassar College and Prof. Gregory Pincus of Clark University for the American Philosophical Society. They told how they obtained large numbers of rabbit ova for study by stimulating the does with injections of pituitary extract. Ova thus obtained were treated with salt solutions both above and below the level of normal blood concentration.

This stimulation resulted in initiation of development and early growth stages in many of the eggs. Meanwhile it was noticed that chance chilling of some of the eggs started their development, so some of the eggs were purposely chilled, with positive results. Finally, by surgical operation a water-cooling jacket was placed around the fallopian tubes in living animals. After treatment, the cooling apparatus was removed and the does permitted to recover from the operation. It was found that numerous ova were activated in this way, but only one actually developed into a complete young rabbit.

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## Science a Social Influence

**S**CIENCE is a decisive shaping influence in American culture, not only in material things but also in our intellectual life, our amusements, our art and our religion, declared Prof. Arthur H. Compton, University of Chicago Nobelist, before the American Philosophical Society.

"At no previous time in history has life been so greatly influenced by science as in the United States today," Prof. Compton stated.

America's pioneer (*Turn to next page*)

ARCHAEOLOGY

## Suggestion for Campaign From Ancient Egypt

**H**ERE you are, politicians! A handy figure of speech practically made to order for any Presidential candidate of 1940 comes straight from old Egypt. It's done in nautical terms: "The low-cable of the South, the mooring-stake of the southerners, the excellent stern-cable of the Northland."

Coined to praise Egypt's first feminist Queen, Hatshepsut, the shipping metaphor was thought up by "a high ranking official" of 1500 B.C. He added another good line: The queen was one "whose plans are excellent, who satisfies the Two Regions when she speaks."

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**LADY WITH BEARD**

*Hatshepsut, feminist queen of Egypt wore the false beard of a man in this "portrait."*