

CHEMISTRY

Plants Need No Vitamins

For about fourteen years it has been known that animals require in their diet organic substances of unknown composition, termed vitamins, before health can be kept up or growth obtained. These vitamins occur in plants, such as spinach, cabbage and tomatoes. Dr. Norman Clark of Iowa State College, has investigated the possibility that green plants, in their turn, require similar organic substances in order that they may thrive. He states that organic matter is not needed.

Small green duckweeds, familiar objects on the surface of ponds throughout the country, were grown by the use of carefully purified chemicals. It was found, when conditions were made favorable, that the plants were perfectly healthy, and reproduced without the addition of any substance of unknown composition. Dr. Clark states that these results indicate there is no vitamin-like substance essential for the growth of all green plants. There is still the possibility that organic matter may stimulate or increase the growth in plants, but it is not an essential in the same way as vitamins are essentials in the food of animals.

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PSYCHOLOGY

Test Family Likenesses

How much alike mentally are the members of a family? To answer this question, 100 families near Stanford University, California, have been given mental tests, and the points of likeness and difference between members of the families reduced to statistical tables.

Results of the investigation reported by Dr. Raymond R. Willoughby of Clark University show that in general, the closest family resemblance in mentality was found between sister and sister. The lowest degree of similarity was between father and daughter, possibly, he explained, because of a "minimum common environment" for these two members of a household.

The degree of likeness between brother and brother was found to be about the same as that between husband and wife in Dr. Willoughby's tests, which raises the question of the comparative power of heredity and environment to shape personalities, and also the question of the extent to which similar types of mind may attract one another.

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GEOLOGY

Earth Systole and Diastole

The startling suggestion that the earth cannot be relied upon to stay the same size but that it swells and shrinks at irregular intervals is made by Dr. Walter D. Lambert of the United States Coast and Geodetic Survey. Such a variation in the size of the earth would alter its rate of rotation and so upset our universal time-piece for the length of day is our measure of the lapse of time. Prof. E. W. Brown has pointed out that such a variation in our unit of time might account for the apparent irregularities in the motion of the moon that have made it impossible to predict exactly where our inconsistent satellite will turn up at an eclipse. Dr. Lambert thinks it may also account for inexplicable variations in latitude, or what is the same thing, the apparent wandering of the pole. For some years prior to 1918 the north pole appears to have moved progressively toward North America and then to have turned aside without apparent reason and moved toward Europe. Comparatively slight expansion and contractions of various parts of the earth's surface might account for such disconcerting discrepancies in our standards of time and space.

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PSYCHOLOGY

Player Rolls Yield Secrets

How study of player piano rolls will give the secret of the marvellous effects produced by the great pianists has been studied by Dr. Guy M. Whipple, director of the National Intelligence Tests.

Comparison of rolls of the great players with the original score will indicate just where and how they deviated from the score to obtain their effects. Such analysis holds great possibilities for piano students and teachers, Dr. Whipple believes. He points out that although the player piano is so perfected that the artists themselves admit the accuracy of the reproductions the piano roll does nothing but control the time relations or the intensity of the piano hammers or the pedals. Hence interpretation is all a matter of time or intensity.

"You strike a key at a certain time with a certain force," he says, "hold your finger there a certain length of time, push the pedals down at a certain time and let them up at a certain time; that's all the mystery there is about the piano playing of the great masters of the key-board."

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BIOLOGY

NATURE RAMBLINGS

By FRANK THONE

Groundhog

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Will the groundhog see his shadow next Wednesday?

It is probable that 99 per cent. of all persons in this country able to speak English have asked each other that question on the second day of every February since the founding of Jamestown. The notion that a sunny Candlemas day betokens six stormy weeks still to come is one of those quaint folk-superstitions, probably pre-Christian in its origin, that dies hard simply because hardly anybody takes it seriously any more. Then, too, it has the advantage of making people wait six weeks to see whether the prophecy is fulfilled or not; and in these busy days nobody is going to stop in the middle of March to figure up the weather and see whether the furry little beast was right or not.

Little blame should attach to the groundhog anyway if he doesn't hit it right. It wasn't his job originally, it was the European hedgehog's—quite a different animal, more like a porcupine. But when the early comers found no hedgehogs in this country they passed on the burden of foretelling the advent of spring to the woodchuck, or marmot, or groundhog. For this interesting little rodent has three aliases, and they are all good and legitimate English names.

To be sure, he doesn't chuck wood, in spite of the old unanswerable riddle. He is a chuck who lives in the wood, and a closely related variety is a chuck who lives among the rocks and is therefore called a rockchuck. The ground part of his groundhog name is all right, for he does burrow extensively; but he is not a hog. There is nothing porcine about him. He is much more closely related to rabbits and squirrels and to those two other misnamed rodents, the guinea pig and the porcupine.

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All insects start out in life as eggs.

The old Egyptians used music in treating disease.