

MEDICINE

Diabetes Is Inheritable Disease Studies of Twins Shows

Rate of Incidence Among Children of Parents Having Diabetes Indicates It is Mendelian Recessive Trait

TWINS are helping to prove that diabetes or a tendency to it is inherited.

This theory has been held by physicians since 1696. But it is the occurrence of the disease in over a score of twins and the painstaking scientific study of hundreds of diabetic families that is proving hereditary tendency of diabetes to be a fact rather than a theory.

New evidence in support of this idea appears in two instances of diabetes occurring in identical twins, reported in the same week by physicians in Boston and Canada.

The cases reported from Canada occurred in twin brothers over fifty years of age. They are identical twins and resemble one another in appearance, interests, habits and behavior, according to the description given by Dr. E. M. Watson of the University of Western Ontario, London, Ont., in his report to the *Canadian Medical Association Journal*. When diabetes was discovered in the first twin, a test was made for the disease in his brother. This twin did not have any symptoms of the disease, and was apparently perfectly well, but the test showed that he was not utilizing carbohydrates properly and was excreting large amounts of sugar instead of burning it up in his body. An anti-diabetic diet was prescribed but he paid little attention to it and three years later he also developed the other symptoms of diabetes.

In Boston a five-year-old girl was brought into the New England Deaconess Hospital in diabetic coma. Physicians in charge, Drs. Priscilla White, Elliot P. Joslin and Gregory Pincus, ventured a prediction that her identical twin sister, then apparently well, would develop the disease within a decade. Three years later she did, the Boston physicians now report to the *Journal of the American Medical Association*.

Dr. Watson points out that an inherited tendency to the disease may not be sufficient to account for the develop-

ment of active diabetes without the aid of contributing influences. But environment is not the principal cause of diabetes in twins. Fraternal twins, developing from separate egg cells, occur three times as often as identical twins which have developed from the same egg cell. However, the majority of twin diabetics are identical twins. Both twins of each set therefore have an identical hereditary background.

The Boston investigators have worked out the way in which diabetes might be expected to occur in children of two diabetic parents; of one diabetic parent and one parent carrying the hereditary tendency to diabetes without developing the disease; and of both parents carriers. Considering tendency to diabetes as a Mendelian recessive characteristic, they would expect the disease to occur in children of the three groups of parents (carrier x carrier, carrier x diabetic, diabetic x diabetic) in the ratio of 1 to 2.5 to 6.1. A study of over 800 families gave the actual ratio of 1 to 2.4 to 5.7.

This significant fact and the concurrence of diabetes in identical twins gives validity to the theories that the disease is inherited and that it is transmitted from parent to child according to the Mendelian laws of inheritance, the Boston investigators conclude.

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ECOLOGY

Tough Plants Defy Death In Unique Gypsum Desert

DROUGHT and heat that would seem "fit to kill a horned toad" mean nothing to a few species of extra-tough plants, that grow in a unique desert composed of drifting dunes of pure gypsum crystals.

Two hundred seventy square miles of these drifting gypsum crystals constitute the area known as the White Sands of southern New Mexico. These dunes are so white that it is almost impossible to avoid the impression that



IN SHIFTING SANDS

Only a few plants can grow fast enough to keep from being buried by these drifting white sands of gypsum. And only a few are hardy enough to survive when the sands recede again, leaving roots exposed to the terrific glare of desert sun. The yucca pictured here is one of these rare desert-adapted plants.

they are fifty-foot snow drifts. This illusion tends to weaken, however, when the thermometer registers 100 in the shade that isn't there. Studies of the adjustments to these conditions are being carried on by Prof. Fred W. Emerson of New Mexico Normal University.

The gray or brownish dunes of impure quartz sand found in arid lands and along the shores of lakes or seas make hard conditions for the growth of plants, but these drifting piles of gypsum sand add new difficulties to plant life. Chemical tests show that there is not more than perhaps 2 per cent. of impurities in the gypsum, thus introducing difficulties in absorbing sufficient amounts of nitrates and other essential soil nutrients.

As in all drifting sand, there are only a few species of plants that are able to grow upward fast enough to keep from being covered by the advancing dunes. In the White Sands there are only six species that commonly succeed in the moving sand. They are a cottonwood, rabbit brush, aromatic sumac, a shrubby pennyroyal, a yucca and that peculiar gymnosperm, Ephedra.

Some of the individuals of species that usually grow to be only shoulder high under ordinary conditions grow forty or fifty feet upward through the dunes.

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