recently published data on hypercholesterolemia, a disturbance of cholesterol metabolism which "may be the common denominator in most patients who have coronary artery disease." At Boas' suggestion and with his kind permission, the following analysis of their data was undertaken. These authors studied the families of patients chosen because they had proved coronary artery disease, the symptoms of which began before the age of 50. Fifty families yielded 37 families which could be used for a numerical test of the mode of inheritance, because they included more than one child in each family and at least one sibling per family was affected with hypercholesterolemia. Study of these 37 families revealed 11 families of 2 children, with 14 affected; 10 families of 3 children, with 22 affected; 10 families of 4 children, with 19 affected; 2 families of 5 children, with 6 affected; and 4 families of 6 children, with 6 affected; giving a total of 67 affected out of 126 children. When the number expected to be affected for these 37 families is calculated on the basis of a 1:1 ratio, using the corrective factors for small family size given by Hogben (*3*), for hereditary characters with complete penetrance, the result is 70.5 expected affected, with a standard deviation of 4.8.

This is clearly an excellent fit to a 1:1 Mendelian ratio, which is obtained in the case of a dominant trait when one parent is heterozygous for a dominant defective gene and the other parent is homozygous for the recessive normal allele, or which is obtained in the case of a recessive trait when one parent is homozygous for the recessive defective allele and the other is heterozygous normal. Since the data do not include the parents, a decision can be reached only tentatively as to which one of these two possibilities is a priori more probable. Data somewhat similar to those of Boas, *et al.* have been obtained and analyzed by us for the inheritance of Heberden's nodes (*6*) and hyperuricemia (*8*), in comparison with similar cases in the literature which were shown more conclusively to be due to autosomal dominance. We are thus led to the conclusion that hypercholesterolemia is an autosomal dominant trait with complete or nearly complete penetrance. As in research on many other hereditary conditions, the gene frequency, linkage relations with other genes, and confirmation of its mode of inheritance as a dominant with complete penetrance require further investigation.

Boas, *et al.* arbitrarily selected a concentration of 300 mg/100 ml as indicative of hypercholesterolemia, purposely choosing a high level to eliminate the influence of minor elevations. This happy choice has been entirely justified by the data of Peters and Man (*5*), who, in a study of 174 determinations in normal individuals, found an average serum cholesterol of 194.1 mg ± 35.6 mg/100 ml. Three times this standard deviation above the mean gives a limit of normality of 300.9 mg/100 ml. Such a figure, that is, would allow only 1 or 2 persons in 1,000 to be above 300 mg and still be classified as normal in cholesterol concentration in the blood serum.

Certain people with hypercholesterolemia may be considered to exhibit a genetic trait characterized by this chemical abnormality. It is not at all certain that the genetic form of this abnormality can be identified by one chemical determination without regard to age, sex, diet, or other conditions of metabolism which may elevate the level temporarily—any more than one blood sugar determination identifies unqualifiedly a diabetic, or one uric acid determination identifies a gouty individual. Further investigation may reveal hypercholesterolemia as an inborn error of metabolism (*2*) similar to gout, albinism, cystinuria, or pentosuria, which are definitely dependent upon genetic factors. Constitutional hypercholesterolemia may offer an organic explanation for some cases of familial angina pectoris and coronary artery disease, as well as familial xanthelasma and xanthomatosis.

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The Flowering and Seed-Setting of Sweet Potatoes in Puerto Rico

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The work of Hartman (*3*) reporting complete failure of flower formation in Jersey-type sweet potatoes and the more recent work of Mikell, Miller, and Edmond (*4*) have prompted us to report certain observations on the flowering of sweet potatoes in Puerto Rico.

Thirteen of 16 varieties grown in field plots at the Federal Experiment Station flowered during the fall and winter of 1947–48. These were grown from sprouts, set in the field in July. Plants were trained up on 6′ chicken-wire trellises and were kept thinned by constant pruning, following the methods of Miller (*5*). It was not found necessary to girdle the plants.

Among the varieties which flowered was one of the difficult-to-flower Jersey types, Orange Little Stem. Two out of three plants of this variety included in the trials began to flower early in December and continued through the middle of January.[2] These flowers opened at the same hour and were very similar in appearance to the flowers of other varieties. Microscopic examination of

[1] Administered by the Office of Experiment Stations, Agricultural Research Administration, U. S. Department of Agriculture.

[2] It may be reported that this variety again started flowering in August 1948.

the pollen showed it, also, to be similar to that of the other varieties, with considerable variation in size and many shrunken grains. Anthers and stigmas were normal and functional, except in one or two flowers, where the anthers failed to dehisce and appeared to be sterile. In all, a total of about 50 blossoms were produced, generally one or two per day, and these on particular branches. Three plants of another Jersey variety, Maryland Golden, grown similarly failed to flower.

One hundred fifty-three crosses were made, using Orange Little Stem as the pollen parent and various of the moist-flesh varieties as female parents. Of these, only 6, or 3.9% (involving B-5928, UPR-3, Don Juan, and Mameya), were successful and set seed. This is a low percentage of set but compares favorably with 492 crosses made at the same time among moist-flesh varieties, of which only 17, or 3.5%, were successful. Seeds also were obtained from several open-pollinated Orange Little Stem flowers, thus proving this variety to be both male- and female-fertile. The open-pollinated and hybrid seeds were sent to Dr. C. E. Steinbauer, at Beltsville, for germination, distribution, and testing under a cooperative sweet potato-breeding agreement.

It is of interest that W. K. Bailey, working at this station more than 10 years ago, also reported flowering in Jersey varieties (*1, 2*). He brought Big Stem Jersey, Vineland Bush, and Yellow Jersey into flower and succeeded in crossing the first two of these with moist-flesh varieties. Moreover, at least some of these crosses produced offspring. This early work of Bailey and the production of flowers by Orange Little Stem here at Mayaguez this past season indicate that the Jersey varieties will flower and probably are not fundamentally very different from the moist-flesh varieties, with regard to flowering, if grown under the proper environmental conditions.

The conditions under which the Jersey varieties have flowered here are: (1) an average annual rainfall of 80″ which falls off from a high of 11″ in August to 2.5″ in December; (2) a mild temperature, with average maxima and minima for August of 90° and 68° F, respectively, and for January of 86° and 62° F, respectively; (3) a day length which varies from 13.2 hrs in June to 11.0 hrs in December, with a yearly average of about 8 hrs of sunshine per day. Under these conditions, sweet potatoes behave as perennials and grow throughout the year.

Most moist-flesh varieties flower and seed profusely in Puerto Rico. This past season, plants of B-5988 and Mameya frequently produced 50–100 new blossoms each day and were literally covered with seed capsules. It is also of interest that some of these varieties appear to lose their seasonal flowering response in Puerto Rico. The varieties B-5928, UPR-3, and Mameya, which began flowering in November, 1947, did not return to a vegetative state at the end of the usual flowering period, but continued to flower during the spring and summer months. This flowering was not as profuse as during the fall and winter, but some buds and flowers were in evidence continually.

Other Jersey varieties, including Yellow Jersey, Red Jersey, Big Stem Jersey, and Vineland Bush, and the new wilt-resistant introductions, 153655, 153907, and 153909, have been included in the breeding project for the coming season. This station will cooperate with the Division of Vegetable Crops and Diseases of the Bureau of Plant Industry, Soils, and Agricultural Engineering, at Beltsville, and the sweet potato breeders of the southern states in an attempt to combine the desirable root characteristics of the Jersey varieties with the vigor, high carotene content, and fusarium wilt resistance of some of the moist-flesh varieties, through hybridization.

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Influence of Texture of Food on Its Acceptance by Rats

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It is known that rats often eat only the germ part of whole kernels of corn and leave the starchy part when sufficient corn or other food is available. The gnawing out of the germ part of corn by rats usually seems to be so precise that it has been regarded as a reliable method of determining the proportion of germ in kernels of corn and also as evidence of a high "nutritional I. Q." in rats. Some rats, nevertheless, eat the white starchy part of kernels of corn as well as the germ part but still leave the flintlike yellow part of the kernels and separated skin, which obviously has a considerable "edge resistance." It therefore appeared possible that the rats ate the germ part or germ and white starchy part of corn because these parts are of softer texture than the yellow part and skin.

To test this possibility further, 12 rats on an otherwise adequate diet and in separate cages were provided on alternate days with a supplement of dry kernels of corn and one with kernels that had been soaked in water at room temperature from 24 to 48 hrs. In practically all instances the rats ate all but the skin of the soaked or softened kernels of corn, while only the germ part or germ and white starchy part of the dry or hard kernels was eaten. It seems doubtful that a diffusion of tasty substances throughout the kernels of the corn, as a result of soaking in tap water, explains the difference in the parts consumed. It is more likely that soaked corn is less tasty than dry corn, but soaking evidently makes kernels of corn more completely edible.

The influence of the texture of food on its acceptance by rats was also noted by us in previously reported studies. Thus, in a study on rats fed vegetarian self-selection diets (*1*), it was found that no dry green peas