

Service identified vitamin G as the pellagra-preventing factor.

Now vitamin G, in turn, may need to be broken down into separate parts. Various experimenters have been having difficulty in checking each other's work in vitamin G studies, and it has been suggested by Drs. Hogan and Richardson that the confusion is due to the existence of at least two different deficiency diseases, related to the vitamin B complex.

One disease is a severe form of skin irritation, or dermatitis. It was created by Missouri scientists by feeding rats a source of vitamin B which has been intensely radiated with ultraviolet light. After developing the dermatitis, the rats died.

The second disease was one in which experimental rats lost all their hair, became miserable in appearance and finally died. It was caused by feeding the

rats a source of vitamin B called tikitiki, an alcoholic extract of rice polishings.

The denuded type of disease was cured, the scientists report, by feeding the rats flavine.

Wheat germ oil cured the dermatitis type of disease, but flavine would not do so.

Describing the two different types of disease and the means of curing them, Dr. Hogan said:

"These additions to our knowledge should help the biochemist in deciding whether other vitamins exist. They should help the clinician in deciding the relation between vitamins and pellagra, and possibly between vitamins and other diseases."

The experiments of Drs. Hogan and Richardson have been published in the British science journal (*Nature*, Aug. 3).

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DIETETICS

Spinach Over-Rated As Source of Iron

SCIENCE is coming to the defense of the youngster who refuses to eat his spinach.

Mother, it seems, is only partly right when she pleads with Junior to "Eat your spinach—it's good for you."

It's good for him, but not nearly as good as it's been cracked up to be. It just can't be spinach that enables Pop-eye the Sailor to perform all those red-blooded feats in the movies. For spinach contains iron, but—

New studies at the University of Wisconsin, carried on in those agricultural chemistry laboratories which have already made countless contributions to the knowledge of vitamins and minerals, show that only 25 per cent. of the iron in spinach is "available," as scientists put it. That is, only one-quarter of it is in a form that is usable by the body. Other vegetables are no better than spinach in this respect.

A higher proportion of the iron in meat is available, according to the Wisconsin investigators. More than 60 per cent. of the iron in heart muscle and liver—both of beef and pork—is usable for blood-building. In ordinary beef the proportion is 50 per cent. In oysters it is less than 25 per cent. The iron in cereal breakfast foods and grains is also only partly available.

It must be remembered that these figures represent only the *proportion* of the

total iron which is available. Any attempt to rate foods in the order of their value as iron carriers must consider also the *total amount* present—in fact, the latter is the only criterion that has been used in the past. New information will now make it necessary for nutritionists to revise present standards.

Some of the present revelations regarding iron in foodstuffs are of significance to farmers and stockmen interested in livestock feeding. The iron in soybeans was found to be 60 per cent. available, and that in alfalfa and blood, 25 per cent.

Investigations on the availability of iron were simplified by the recent development of a chemical for making this determination. The foregoing results were secured by this means and then checked by feeding trials with anemic experimental animals.

Not only iron, but also copper is needed for building blood hemoglobin. Wisconsin scientists are now investigating whether it, like iron, varies in its availability. So far the only food on which complete results have been obtained is wheat. It was found that the iron in this grain is readily available.

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So-called Damascus steel blades—watered steel—were produced not merely at Damascus but throughout the East.

ORNITHOLOGY

Mockingbirds Are Upholders Of Property Rights

MOCKINGBIRDS, like most songbirds, are not communists. They recognize definite property rights, and will fight vigorously to defend them, if necessary.

Mockingbird landholding customs have been carefully studied by Harold Michener and Josephine R. Michener of Pasadena (*Condor*, May-June, 1935).

When a male mockingbird in spring finds a suitable place for bringing up a family, he posts himself at a prominent point and by loud singing notifies all comers that he has staked his claim. Would-be claim-jumpers of his own sex are promptly attacked and routed. When he is joined by a female and takes her for his mate, the territory he has chosen becomes the source of the family food supply for that breeding season. The male continues to defend it, the female taking no part in his fights in defense of the home territory, but devoting herself to her maternal affairs.

But after the young ones are raised and the nest abandoned, both birds select a winter feeding territory, which often includes the nesting area but usually has wider boundaries. This they defend together, the lady being no less pugnacious than her mate if an intruder tries to forage in it.

Boundaries, once established, are usually recognized by the birds on both sides of them; though some individuals are less careful about respecting their neighbor's property rights than are others, and have to be chased home frequently.

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PSYCHOLOGY

Reading Improves Spelling, Even for Words Not Read

IF YOUR boy is a poor speller, reading will help him to overcome this fault. Tests of 380 men and women college students show what improvement in spelling follows reading. And surprisingly enough, the improvement extends to words not included in the matter read. The tests were made at the University of California by Dr. Luther C. Gilbert.

Reading slowly does not give any advantage in the matter of spelling improvement, the tests showed. No significant differences were found in the reading rates of those who improved greatly and those who showed little progress.

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