How to balance Acid and Alkaline Foods in Your Diet to prevent disease and dental decay

By Martha R. Jones, Ph.D.

The story of how Director Walter E. Clark of the North Country School in Lake Placid. New York, became a convert to "organic gardening", and how the better foods, free from insecticides and the effects of chemical fertilizers, improved the health of the pupils and increased their resistance to tooth decay-as featured in the March number of MODERN NUTRITION-inspires the hope that the "back to Nature" trend in food production may be speeded up. Said Mr. Clark, "I wouldn't be able to prove this, but illnesses have decreased by one-half, according to infirmary records.' How the improved diet affected the children's teeth was indicated in a letter written by a fourteen year old girl who visited her dentist on her return home from school. She wrote: "My dentist asked me what school I went to and I told him North Country School. He was wondering why I had so few cavities."

Included in the story was an analysis of a typical day's menu. It provided 3131 calories—the percentages of protein, fat and carbohydrate and representation of the "basic seven foods" being in accordance with accepted standards. Vitamins and minerals far exceeded in amounts the allowances recommended by the National Research Council (1958), with the single exception of vitamin D, which, no doubt, was generously supplied through the outof-door life enjoyed by the children.

This writer believes that, with a very minor change in this good dietary program, an *even greater* improvement in the children's already improved physical and dental health would result. This would create an enviable record indeed!

Nutritional Imbalance

It is generally agreed that dental caries and other diseases are manifestations of a nutritional imbalance. Said the famed nutritionist, the late Dr. T. D. Spies: "Our chief medical adversary is a disturbance of the inner balance of the constituents of our tissues. which are built from, and maitained by, the necessary chemicals in the air we breathe, the water we drink and the food we eat." The writer would like to propose the thesis, borne out by a lifetime of research in nutrition, that special attention given to the proper balance between acid-forming and alkali-forming foods can bring greatly increased benefit to an individual, even though he is on a very good diet already.

The writer has made analyses of numerous diet-dental caries studies reported in

Martha Richardson Jones was educated at Peabody College for Teachers (B.S. and M.A.); at Vanderbilt University (three years of study); and at Yale University (Ph.D.).

Assistant, Dept. of Physiological Chemistry (first woman) Yale, 1918-20; Research Associate, Dept. of Pediatrics, U. of Cal. Medical School, 1920-28; Research Associate, The Queens' Hospital, Honolulu, Hawaii, 1928-36; Organizer and Director of the Ewa Plantation Health Project, Hawaii, 1929-36; Director, "Diet and Teeth" research, Pan-Pacific Women's Assoc., 1928-36; Associate with Captain H. E. Harvey, U.S.N., diet and teeth study of midshipmen, U.S. Naval Academy, Annapolis, 1936-37.

She has just established the Martha R. Jones Lectureship in Nutrition at Asbury Theological Seminary at Wilmore, Kentucky.

Dr. Jones has been a contributor to leading medical, dental and scientific journals.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

Dr. Jones has devoted her professional life to research in nutritional diseases. Among her professional assignments have been the following:

No part of this research may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher. Visit http://ppnf.org for more information.

the literature¹ as well as a number conducted by herself in collaboration with professional associates. Notably among the latter was the study of the enlisted men at the Pearl Harbor Submarine Base, Hawaii, in collaboration with Lt. George Crosland, Dental Corps, United States Navy², and the midshipmen at the U.S. Naval Academy with Captain H. E. Harvey, senior officer, Dental Corps, and assistant to the surgeon general.

In these studies especially, and in the three-year study of the Mooseheart Orphanage children conducted by Hanke and associates¹, all known food factors were present in generous amounts, and one factor only bore a constant relation to dental caries. This was the balance between grains and "grains-like" foods (acid formers), and the greens and "greens-like" (alkaline ash) varieties.

Acid Foods

The acid-forming group consisted of bread, pastries, cereals of all kinds, meat and flesh foods, eggs, cheese, fresh corn, prunes, plums and cranberries.

Alkaline Foods

The alkalis are: milk, fruit, vegetables (root and top, leaf and stem), tubers (potato), legumes and grasses (juices of sugar and sorghum canes). The degree of alkalinity of the various foods vary greatly and bear no relation to color-green asparagus, cabbage and peas being poor in this factor, and thin green leaves such as turnip tops and spinach, and sugar cane juice (grass) being exceptionally high. In general, the thinner the leaf and greener. the richer it is in vitamins, minerals and potential alkalinity. A disproportion between the acid-forming and the alkaline ash foods in the diet was invariably associated with grief. Too much of the acidformers in relation to the alkalies, as is characteristic of today's diet and to the North Country School's-but to a lesser degree-spells a corresponding amount of tooth decay and susceptibility to respiratory and other ills, even though generous amounts of all known essential nutrients may be present.

Over-alkalinity

Too much of the alkaline ash varieties as in the diet of certain South Sea islanders is associated with sound-appearing teeth which become loose and fall out. This phenomenon was observed in the writer's dog experiments conducted at the University of California Medical School, San Francisco. in collaboration with Dr. Vance Simonton of the School of Dentistry, and the California Stomatological Research group³. In those experiments, the calcium-phosphorus ratios of a basal, growth-promoting ration was varied from 1 : 4 to 4 : 1 by the addition of calcium or phosphorus salts, and the acid-base balance by the addition of soda or hydrochloric acid. During the alkaline period, degenerative changes in the bones and roots of the teeth were often dramatic, and equally dramatic on restoration when a more "normal" acid-base balance of the diet was instituted, the calcium-phosphorus ratios remaining the same. Similarly, a certain degree of acidity was associated with sound bones and tooth roots, but enamel caps ravaged by decay. This type of tooth decay differs from "caries," and was called "odontoclasia." It was found to be endemic in the preschool children of the laboring population of Hawaii, where acidforming grains predominate in the diet.

In a paper read at the Centennial Meeting of the New York Dental Society in 1934¹, the writer said: "It may be that there is some unknown factor in fruits and vegetables that is specific for dental caries, and the leafy vegetables are particularly potent in this respect. However, until this factor is discovered, the potential aklkalinity of an otherwise "adequate" diet seems to be a dependable guide for the control of dental disease." There is no known reason today, to modify that statement.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

Optimum Balance

What is the optimal potential alkalinity of a vitamin-mineral rich diet conforming in all respects to accepted standards? Analyses of the studies referred to¹ indicate an excess of 80 cc normal solution of alkali in a 3000 calorie diet. As the degree of alkalinity decreased, the incidence of dental caries increased, invariably, regardless of the amounts of milk, meat, egg, fruits and vegetables. The three diet periods of the Mooseheart experiment conducted by Hanke and associates⁴ strikingly demonstrated this phenomenon, though they did not analyze their findings from the standpoint of the acid-base balance of the diet.

If the sample menu of the North Country School was truly representative of the diet for the school year, its potential alkalinity (due to its high protein and wholegrain content) was probably around 40 cc normal solution of alkali, indicating that about half of the children would experience new caries during this time, the writer believes in the light of her experience.

What to Change?

A fifty per cent reduction in grains and the addition of one 4 to 5 oz. serving of thin leaf green vegetable as spinach, turnip tops, etc., would have increased practically all the known essential nutrients and raised the potential alkalinity almost 100 per cent -closely approximating 80 cc normal solution of alkali. Reduction of some acidforming food as eggs, say, to one a day, and substitution of sugar cane syrup or sorghum cane syrup for the honey and sugar would have had a comparable effect. A serving of green leaf vegetable and cane syrup daily would have changed the composition of the diet for the good, tremendously, and assured even better health and less tooth decay, the writer believes.

 $McCollum^5$ wrote, in 1929, that one of the greatest surprises in the history of

nutritional research was the discovery of the unique dietary properties of the leaf of the plant compared with other parts. As early as 1916 it was known that cereals, roots, tubers and legume seeds collectively in any proportion could not form a satisfactory diet for any kind of animal studied. The addition of a certain amount of leaf changed failure in nutrition to success. The distinguishing characteristic of green leaves, as far as minerals are concerned is their richness in potassium. This element is so abundant in nature that it has been thought a deficiency of it in human dietaries was most unlikely and little consideration has been given to its concentration in the diet. Potassium salts are extremely soluble, and no doubt goodly portions literally "go down the drain" in the preparation of our foodstuffs. More are lost in the refining of grains, the bleaching of vegetables and most of all, in the manufacture of white sugar from sugar cane juice-probably man's richest source of this element. These losses markedly lower the potential alkalinity of today's diet. A potassium deficiency seems not only possible, but highly probable.

Role of Potassium

A look at the role of potassium in human nutrition is revealing. It is found mostly in tissues cells-the blood cells containing 20 times as much as their surrounding plasma. It is associated with sodium in the maintenance of fluid balance in the tissues; with calcium in the maintenance of nerve irritability; with carbohydrate metabolism, and maintenance of normal muscle tone. A deficiency of potassium causes microscopic lesions in the heart and other muscles - a fact that prompted Dr. Hans Selvé of Toronto to feed potassium salts to his infarct susceptible rats under stress. The results were dramatic---no case of coronary thrombosis as compared with 100% coronary deaths in control animals. Some 50 years

(Continued on page 23)

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

15

BALANCE OF ACID AND ALKALINE FORMING FOODS

(Continued from page 15)

ago, Dr. Forbes Ross, a British surgeon specializing in cancer, reported that in his entire practice no patient of his had ever developed cancer while under his care. He attributed their freedom from the disease to his liberal use of potassium salts in his prescriptions. In his opinion, the immunity to cancer of the native people of the West Indies, at that time, was due to the high potassium content of the sugar cane which they chewed prodigiously⁶.

Plantation Negro's Diet

It is a well known fact that grazing cattle and sheep select the "greens" they eat with uncanny precision, as do dogs and cats. So did the plantation Negroes in the "Deep South." Two of their favorite greens were turnip tops and "long sweetening." The latter was the concentrated juice of the sugar cane, which, in its natural form, might be called "liquid grass." Both were daily articles of food and eaten liberally. Both were rich in minerals (potassium, calcium and iron, especially), contain vitamins, and were high in potential alkalinity. Raw cane juice is probably our richest source of antistiffness factor which Wulzen and associates found to be effective in resolving calcium deposits in the muscles and joints of guinea pigs7.

Plantation Negroes were famed for their glistening white teeth. Tooth decay was practically unknown to them, it is said, as were tooth brushes. Their diet was all wrong, according to accepted standards no milk, high in carbohydrate soaked in grease and sugar coated. Actually, it consisted of freshly ground, whole grain corn (least acid of the cereals) made into a "hoe cake," usually; the whole hog, minus bristles and squeals; chickens, eggs and o'possums when they could be caught; vegetables, principally sweet potato and turnip greens, and berries and other fruits

in season, and always, "long sweetening." This is the type of diet southern Negros still prefer, and they still have less tooth decay than their northern kinsmen or white neighbors.

"Mess-o-greens"

Many a southern white child's life has been saved by his "Black Mammy" surreptitiously feeding him the "pot licker" from a "mess-o-turnip greens." A high government official in the Eisenhower administration was one such. Born heir to a famous estate, he was provided with the best medical and nursing care available, but he did not thrive. The "black mammy' of the family stood it as long as she could, then appeared at the nursery door early one morning ready for action. The two white nurses on duty were dismissed politely, but firmly. The family was flabbergasted, "Mammy" adamant. The doctor, summoned hurriedly, acquiesced with obvious relief. With Mammy established in the nursery on a 24-hour basis, the baby and household settled down to a restful sleep. The baby's improvement was a near miracle, and he soon became healthy and husky. The doctor came daily, as before, and not being able to wheedle the old woman's secret from her, left with instructions to "keep up the treatment." Some months later the mother happened to go into the pantry at lunch time and found Mammy and her big, rollicking boy enjoying their noon-day meal together. It was the usual "mess-o-greens" cooked with the jowl (cheek) of the hog, and now topped with a poached egg. Corn bread, buttermilk and "long sweetening" completed the meal. The mother was horrified and summoned the doctor; Mammy's secret was out. The baby's first food under her care had been the "pot licker" from the "mess-o-turnip greens" which were a "must" daily for the house servants and farm workers. "Mammy" didn't know what was wrong with the baby, but she knew how to cure it.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

Vital Factors in Cane Juice

Grass rates next to air, light and water as a life essential for warm-blooded animals, it is said. It is a principal food for some of earth's largest and strongest beasts of burden. The concentrated juices of both sugar cane and sorghum (grasses) were staple foods in every home in our country in pioneer days. Indeed, it is doubtful whether the newcomers to our shores could have survived the struggle for existence had it not been for the barrels of "molasses" which tided them over periods of want. Then came modern food technology and stripped this "wonder food" of its calcium, magnesium, potassium, iron, and other minerals and trace elements; the vitamins, chlorophyll, antistiffness factor, albuminoids, amino acids, etc., and gave us in its place an empty, albeit, tasty caloriewhite sugar-which might be called the "Trojan horse" of today's health. We consume more than 100 pounds of these empty calories per person, per year, in the United States-entailing tremendous losses in life essential nutrients. These losses, plus many more from the refining of grains, the bleaching of vegetables, etc., have created "a disturbance of the inner balance of the constituents of our tissues," as Dr. Spies said, and made us "the most unhealthy nation in the world," according to Dr. Paul Dudley White. The hundreds of man-made chemicals added to our foodstuffs, plus residues of chemical fertilizers and insecticides with which they are contaminated, engender more "disturbances of the inner balance of the constituents of our tissues" which all too often reach catastrophic proportions, ending in invalidism and death. Small wonder, tooth decay is practically universal; that nearly three-fourths of our youth are disqualified for military service because of physical and/or emotional instability; that one in four of us have or will have cancer; that one in ten need psychiatric care and half of us are

working to keep the other half hospitalized or otherwise cared for—in a state of half health.

Midshipmen's Dental Record

The diet-dental caries study of the midshipmen referred to was probably the most accurate undertaken by the writer. The dental examinations of the 328 men (1937 class) were made by specially appointed and trained dentists. Every item of food entering into the menus for one full year was accounted for. The food was purchased and handled, and menus planned, according to government specifications due regard being given to the "basic seven" varieties and protein, fat and carbohydrate percentages.

The Academy had its own dairy, and the men drank their fill of whole, fresh milk at each meal. The average daily consumption per man was a little more than $1\frac{1}{4}$ quarts of whole milk or equivalent and a little less than one-fourth pound of butter. The diet provided all known essential nutrients in generous amounts, yet there was an excess of only 21 cc. normal alkali per 3000 calories.

Eighty-one percent of the class (1937) developed new caries in their teeth during their senior year, and 98.5% during the four years of training. Their health and dental records, as of now, would be most interesting. The substitution of 1 to 2 ozs. of whole-juice sugar cane or sorghum syrups for an equivalent amount of refined sugar and synthetic syrups, and sweet potato, say, for an equivalent amount of bread or other acid-forming carbohydrate foods, plus a serving of green leaf vegetable such as spinach, mustard, turnip or other greens, would have gone a long way toward correcting the nutritional imbalance occasioned by the large amount of bread. pastries and other acid-formers consumed. The resistance to tooth decay, colds. and related ills would have increased proportionately, the writer believes.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

No part of this research may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher. Visit http://ppnf.org for more information.

The profit that undoubtedly would have accrued to our government in the better health and increased usefulness of the men, reduction in costs of medical and dental care, and most of all, the teaching of food values and their relationship to health and efficiency—by *demonstration* to our whole populace, cannot be estimated.

Rule of Thumb

In the paper read at the meeting of the New York Dental Society referred to above, the writer said that molasses was good for the teeth, and greens more important than milk in the diet. Protests were immediate and vigorous. Later, the Guggenheim Dental Clinic tested the 1 : 2 "rule of thumb" suggested: for every serving of bread, meat, egg and other acid-ash food, eat TWO servings of fruit, vegetable or milk (alkalis)-making sure that one in each five servings of vegetable was of the thin green leaf variety. It was reported that even a lower degree of alkalinity in an otherwise "adequate" diet was successful in controlling tooth decay.

Dental Immunity Factors

In December, 1928, Dr. J. H. Shaw of the Harvard School of Dental Medicine reported the results of a ten year study on carbohydrates in relation to dental caries in rats. Blackstrap molasses was found to be the only carbohydrate food studied that inhibited caries in the rats' teeth⁸. Osborn and Noriskin incubated comparable sound teeth in crude and in refined sugar solutions inocculated with saliva. The teeth in the crude sugar solution were scarcely affected, while the ones in the refined solution were decalcified9. There appears to be some factor in natural sugar cane juice which inhibits tooth decay. This could account for the reputed excellence of the teeth of cane-chewing people all over the world. There are many "common knowledge" claims regarding the immunity of native cane-chewing people to cancer, arthritis. polio. circulatory and other diseases which beset today's generation as well as dental caries. The rich content of raw cane juice in potassium, magnesium, iron, trace elements, chlorophyll, antistiffness factor, vitamins, etc. lend credence to these claims. So do the findings of a 50-man safari through some 10,000 miles of African jungles in recent months, and the medical report on some 12,000 patients cared for by a large sugar mill "deep in the heart of Mexico" visited by the writer.

Primitive Knowledge

Primitive people have long recognized the therapeutic as well as nutritive value of sugar cane juice and used it in medicinal concoctions. The "Black Mammy" of the old South was adamant when it came to administering the spring-time tonic of molasses and sulphur to black and white alike. Blended with lemon it was a home remedy, par excellence, for irritated throats, coughs. colds, that too full feeling after eating unwisely, sluggish elimination, and especially, that shivery feeling that is so often a fore-runner of an oncoming cold.

Aware of its many virtues from her own childhood days, and impressed by the high regard for sugar cane by the remnant of native Hawaiians who, as late as 1928, still adhered to their ancient food habits and cane-chewing practices, the writer was emboldened to make and add cane juicelemon syrup to the milk fed some hundreds of babies under her care, 1929.'3610. This, supplemented with native fruits, vegetables and the "mess-o-greens" ("pot licker' for the small babies) in which the hog jowl of the South was replaced with beef, including liver, changed sickly babies into healthy huskies, and toppled a towering infant death rate to zero. Defective teeth hardened and became resistant to decay.

Could not more of our babies, children, and adolescents benefit from obtaining the necessary amount of these valuable alkaline foods? This writer firmly believes so.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

Differences Between Black Molasses, Sugar-cane Syrup and Sorghum Molasses

Blackstrap molasses, as commonly known, sugar-cane syrup and so-called sorghum molasses are three different products, and should not be confused as diet staples. Blackstrap and sugar-cane syrup have a common source-sugar cane-of which there are many varieties. Sorghum is also a cane but contains little crystallizable sugar and is not used for sugar-making. It grows in colder climates than does sugar cane, and is used, primarily, today, as a cattle feed.

Cane grown for sugar manufacture has been developed for this purpose-largely by the use of certain chemical fertilizers which stimulate carbohydrate production. It is commonly sprayed with insecticide and burned before harvesting in the United States and other areas. The sugar-rich juice expressed from the wax-coated burned cane is contaminated with tar and charcoal, residues of chemical fertilizer and insecticide and debris of various kinds. Much clarifying, bleaching, purifying, etc. is required to rid the concentrated juice from which the sugar is crystallized of undesirable and sometimes toxic substances. Every operation degrades the molasses, nutritionally speaking, so that the end product-blackstrap-is in no sense comparable to the original cane juice, having lost many nutrients and acquired various breakdown and other substances in the processing.

Sugar cane grown for syrup-making is of a different variety containing less sugar and is not commonly burned or spraved with insecticide, to the writer's knowledge. Cane syrup is the whole juice concentrated in open kettles, the coagulable substances rising to the surface are skimmed off mechanically. Nothing is added usually but

heat labile substances as vitamin C and certain of the B complex are destroyed in whole or in part. Open kettle cooking which is the way cane syrup has been made for untold centuries, accentuates the molasses flavor which is characteristic of cane juice, and darkens it in color. Recent advances in food technology encourage the hope that a milder-flavored, lighter-colored syrup with the wealth of health-promoting nutrients contained in the original raw juice remaining intact, may be perfected.

The writer believes that the daily consumption, by young and old, of 1 to 2 ozs. of this "wonder food" would markedly improve our health.

BIBLIOGRAPHY

- Jones, Martha R.: "Our Changing Concept of an "Adequate" Diet in Relation to Dental Disease." Dental Cosmos, June, July, August, 1935.
- Jones, Martha R. and Crosland, George N.: "A Study of the Diet in Relation to Caries Activity in 212 Enlisted Men at the Pearl Harbor Sub-marine Base, Hawaii." U. S. Naval Medical Bul-letin, Vol. 34, No. 2, 1936.
- Simonton, F. V. and Jones, Martha R.: "Odonto-ciasia." Jour, American Dental Association, June, 1927.
- Hanke, M. T. and the Chicago Dental Research Club: "Nutritional Studies on Children." Dental Cosmos, October, 1933.
- McCollum, E. V. et al: "Newer Knowledge of Nutrition." Macmillan Company, 1929. Fourth Edition.
- Ross, F. W. Forbes: "Cancer, the Problem of its Genesis and Treatment." Methune & Company, Ltd., London, England, 1912.
- 7. van Wagtendonk, W. J., and Wulzen, R.: "Phy-siological and Clinical Aspects of the Antistiffness Factor Essential for Guinea Pigs." Vitamins and Hormones, Vol. 8, 1950.
- 8. Shaw, J. H.: "Carie Producing Factors." Amer-ican Dental Association, December, 1958.
- Osborn, T. W. B. and Noriskin, J. W.: "A Com-parison of Crude and Refined Sugar and Cereals in the Ability to Produce in Vitro Decalcification of the Teeth." Journal Dental Research, 1937, 16, 165.
- Jones, Martha R.: "Report of Dietary Observa-tions Carried on at Ewa Plantation 1932-'33." Bulletin No. 1, Hawaiian Sugar Planters Asso-ciation.

Milk and eggs have a distinct advantage over meat in respect to their vitamin and mineral content. To replace meat entirely with milk and eggs is compatible with good nutrition .-- J. S. McLester and William J. Darby, Nutrition and Diet in Health and Disease, p. 172.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

No part of this research may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher. Visit http://ppnf.org for more information.

	Meas- ure	calo- ries									Excess
Feod			Ca. mg.	lron. mg.	Potas- sium mg.	A mg.	B ₁ mg.	B ₂ mg.	Nia- cin. mg.	Ascor- bic Ac. mg.	Alkali N. Sol. cc.
Spinach	1 C	46	223	3.6	1794*	21,200	.14	.36	1.1	54	52.0
Turnip	1 C	43	376	3.5	632*	15,370	.09	.59	1.0	87	(48.6)
Roots: (raw)	1 C	43	54	0.7	310	Trace	.07	.09	.6	38	3.0
Carrot	1 C	45	43	0.9	439	13,200	.06	.06	.7	7	10.8
Leaf vegetable (raw)		14	43	0.9	230	260	.03	.04	.4	31	2.5
Lettuce (head)		7	11	0.2	65	270	.02	.04	.1	4	2.7
2 lg. or 4 sm. 1	Y.										
Tubers: W. potato (bld(1 C		105	14	Q.9	519*	20	.12	.04	1.3	17	9.0
S. potato (bkd)											
1 potato 5x2''		183	44	1.1	787*	11,410	.12	.08	.9	28	9.9
Emilie (repul											
Apple (2½" diam.)		76	8	0.4	97	1 20	.05	.04	.2	6	4.6
Banana (medium)		88	8	0.6	420	430	.04	.05	.7	10	4.9
Grapes	1 C	84	20	0.7	101	90	.07	.05	.3	5	2.0
Orange (3" diam.)		70	51	0.6	264	(290)	.12	.04	.4	77	7.7
Syrups:											
Molasses (Lt. ca	ine)	100	66	1.8	595	?	.02	.02	Tr.	?	(20.8
Ist extract.	2 I	124	2	04	4	0	Tr.	.02	Tr.	?	?
Money	2 T	114	18	1.06	?	0	0	Tr.	Tr.	(0)	?
Biends (corn)	<u> </u>	·									-
Sugars: Granulated	2 Т	96	?	?	?	(0)	(0)	(0)	(0)	(0)	(0)
Brown	2 T	102	20	.8	63	(0)	(0)	(0)	(0)	(0)	(0)
Maple (30 gm.)	1	104	?	?	?	?	?	?	?	?	?

COMPARATIVE VALUES OF CERTAIN NUTRIENTS IN SOME COMMONLY USED FOODS¹

²All values except potassium and excess alkali were obtained from United States Department of Agriculture, Agriculture Handbook No. 8, 1950: potassium—Heinz' Nutritional Data, 1956; alkali excess---Food Products, H. C. Sherman, 1914.

*Asterisk indicates row food.

() Parentheses indicate imputed value.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.