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## EARLY OBSERVATION OF THE DISEASE NOW KNOWN AS FRIEDRICH'S ATAXIA

The patients, two brothers, were first seen by me about the first of May, 1875, and were under treatment and daily observation during the months of May, June, July and August. They were aged, respectively, seven and ten years, and were of average development for their age. The younger of the two, when not in motion, gave every appearance of perfect health, and was a very mirthful, intelligent child.

The symptoms of the disease were most marked in the older boy. The ataxia of his lower limbs was so great that he was unable to walk, yet there was very little loss of muscular strength, or of electro-muscular contractility, with slight decrease of sensibility in the lower limbs. He could only move about by creeping on his hands and knees. The ataxic symptoms were quite apparent, though less strongly marked, in the head and upper extremities. Speech was slow, indistinct, and difficult. Sight and hearing were both appreciably impaired, and there seemed to be difficulty in controlling the eyes. The face wore an expression of stupid imbecility; yet when aroused, the intellect did not appear to be greatly impaired.

In the younger boy, the ataxic symptoms were almost wholly confined to the lower extremities. He could walk without much difficulty, though clearly manifesting the peculiar gait characteristic of the disease. His speech was distinct, and both sight and hearing were acute.

The mother of the boys stated that the disease was first observed in the older one about four years previously, when he was a very sprightly, well-developed child, having been healthy from infancy. He could then speak distinctly, and could see and hear as well as others. The disease had progressed



steadily from that time. Only about one year and a half had elapsed since the first symptoms were marked in the younger child; but the advance of the disease had been much more rapid than in his brother.

In endeavoring to discover, if possible, the exciting cause of this grave malady, at so unusual an age, I was unable to fix upon anything which could be considered at all sufficient to account for it. Both parents were healthy and of good character and habits. I elicited, however, what seemed to me to be fair presumptive evidence that the predisposition to the disease at least was hereditary. The facts upon which this opinion was based, are these:-

1. The same disease appeared in another child of the same family, a boy, and at about the same age. In this latter case it continued until it resulted in death from inanition, the muscles of deglutition being paralyzed at the age of twenty years.

2. The same disease also affected several children in the families of two sisters of the mother of the boys, pursuing the same course as in the last case referred to.

In each of the three families there were other children who enjoyed perfect health.

In all these cases various modes of treatment had been tried without the least apparent benefit. Magneto-electricity had been used, but without effect. I decided, in order to test the value of electricity as a remedy in this disease, to use no drugs, especially as the latter had been faithfully tried without effect, but to confine the treatment wholly to electricity and simple measures for improvement of the general health. The plan of treatment followed during the whole time the patients were under treatment, was this:-

Central galvanization, with prolonged application to the spine, every other day, with a current of ten or twelve cells Stöhrer; general faradization



once a week; frequent sun baths, sponge baths, and daily friction of the whole skin with the dry hand, together with systematic active and passive movements of the lower extremities. The only additional measures were abundance of exercise in the open air, and a generous diet.

Results of Treatment.- For several weeks there was no apparent change, except that the progress of the disease was checked. This was especially noticeable in the younger boy. During the next few weeks there was a manifest improvement in both cases, which was remarked by all who saw them (they were much noticed). The improvement was decided in the younger boy, but the older one improved so much that he could walk without canes. During the last month there was no further improvement, and treatment was discontinued, as the parents were unable longer to bear the necessary expense, being some distance from home.

From my observation of the effects of electricity in these cases, I am encouraged to believe that if it could be employed at an early period in this disease, it would not only check its further progress, but would effect a cure.



Mos. H.

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Med. Med. 4/16.  
(Mod. Med. 4  
add O. H. )

### UNPHYSIOLOGICAL ADVICE.

In a recent number of one of our excellent cotemporaries, we find an article on dietetics with which we feel compelled to take decided issue. The writer says:

"I am of the opinion that fasting during the long interval between supper and breakfast, and especially the complete emptiness of the stomach during sleep, adds greatly to the amount of emaciation, sleeplessness and weakness we so often meet."

"Physiology teaches that in the body there is a perpetual disintegration of tissue, sleeping or waking; it is, therefore, logical to believe that the supply of nourishment should be somewhat continuous, especially in those who are below par, if we would counteract their emaciation and lowered degree of vitality; and as bodily exercise is suspended during sleep, with wear and tear correspondingly diminished, while digestion, assimilation, and nutritive activity continue as usual, the food furnished during this period adds more than is destroyed, and increased weight and improved general vigor is the result."

"All beings except man are governed by natural instinct, and every being with a stomach, except man, eats before sleep, and even the human infant, guided by the same instinct, sucks frequently day and night, and if its stomach is empty for any prolonged period it cries long and loud."

"Digestion requires no interval of rest, and if the amount of food during the twenty-four hours is, in quantity and quality, not beyond the physiological limit, it makes no hurtful difference to the stomach how few or how short are the intervals between eating."



(Mod. Med.  
and G. N. 5)

The able writer who penned the above paragraphs seems to have overlooked several important physiological facts:

1. The body is not fasting between supper and breakfast. Observations show that the time required for the complete transit of a meal from the stomach to the colon is fourteen hours,-- in other words, from the time the patient eats his supper at six o'clock until the food taken is passed through the intestine and deposited in the colon, is fourteen hours. It is evident, then, that absorption is taking place during that entire period, and, although food is not taken into the stomach, the body is nevertheless being fed, and little or no absorption takes place in the stomach, as modern researches have clearly shown, consequently it is not a matter of importance that the stomach should contain food for any considerable length of time,-- the sooner it is emptied, in fact, the better, for the majority of people. Bourchard has shown that when food is retained in the stomach more than five hours after eating, fermentative and putrefactive processes begin, because of the presence of germs, and the withdrawal of the hydrochloric acid, which begins, as shown by the observations of Hayem and Winter, within two and a half hours after the taking of the meal. It is clearly evident then, that the primary reason assigned by the writer above referred to, for eating at night, is not a good one,-- in fact, it does not exist.

Another fact of importance is worth noting: The constant presence of acid gastric juice in the stomach acts as an irritant to the gastric mucous membrane, and gives rise to congestion, and when the gastric fluid is intensely acid, may, in time, result in ulcer. It must be remembered also that the gastric glands, like the nerve centers and muscles, become exhausted by their work, and require time for rest.

The taking of food at night, in a certain proportion of cases,



(Mod. Med.

and G. H. 6)

does promote sleep, and it is doubtless this fact which has led the doctor to his conclusions respecting the benefits of a small meal just before retiring. The true explanation, however, is to be found in the influence of the food taken upon the portal circulation. The portal veins are capable of containing all the blood in the body. When the visceral circulation is stimulated by the presence of food in the stomach, the amount of blood contained therein is greatly increased, and, by this means the amount of blood in the brain is very considerably diminished, and if the patient is suffering from insomnia as the result of cerebral congestion, release will be obtained. A late meal, of a small amount of some simple food, is certainly preferable to the loss of a night's sleep, but the same results can be accomplished in a much more satisfactory and physiological way. A hot foot-bath, taken just before retiring, and followed by a moist abdominal bandage-- the so-called "Neptune's girdle" is a far better means of securing sleep by diverting blood from the brain, and at the same time gives the stomach an opportunity to enjoy much needed rest. Cerebral activity is essential for perfect digestion, while the digestive process interferes with sound sleep by irritating the cerebral cells through reflex nervous activity.

After more than twenty five years experience in treating chronic invalids, among whom has been found many hundreds of persons suffering from inability to sleep well, and, in many cases, and in many cases subject to most inveterate insomnia, the writer has no hesitation in stating that the withdrawal of the evening meal has been found to be one of the most important factors in securing natural sleep.

When persons complain of inability to sleep because of a sensation of emptiness of the stomach, it has been found advantageous to allow the patient to take a glass or two of fruit juice, without cane



(Mod. Med.  
and G. N. 7)

sugar, or the juice of two or three oranges, or even a little ripe fruit at bedtime. Fruit furnishes nutrient material, and is ready for immediate absorption, hence does not tax the digestive organs, while it does relieve the sensation of discomfort, or "goneness," which may sometimes be the cause of sleeplessness. The popular idea that fruit, at night, is unwholesome, is entirely without foundation. It is only when the fruit is combined with cream and sugar, or butter containing colon germs, cake, pie, and other indigestibles taken with fruit that is likely to create disturbance, and even then, the fruit is not blameworthy, but rather the bad company in which it finds itself. If any food must be taken at night, fruit is preferable to everything else.



P. Vergely, who has made a careful study of the diet of infants and young children in this class of disorders, finds that one of the most important features of the dietetic management of diseases of the stomach and intestines is to abstain from meats. Beef tea, beef juice, animal broths, raw meats, and similar meat preparations, which have been so generally employed in all kinds of conditions, he finds to be highly injurious in these cases. It must be remembered that the kidneys are taxed to an enormous extent by the elimination of poisons which are formed in abundance by the action of germs through out almost the entire intestinal tract in these cases. A meat diet generally greatly increases the quantity of these poisons by furnishing a medium in which germs grow with the greatest rapidity and virulence. The diet, during the acute stages at least, should consist of well-boiled, carefully strained gruels, fruit soups, fruit juices, and malted nuts.

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Fruits are so generally regarded as a luxury that their dietetic value as a food seems to have been largely overlooked. Fruits without doubt formed a leading constituent, perhaps the chief element, in the original bill of fare of the human race, just as they now do in that of the gorilla, the chimpanzee, and the orang-outang, the classes of lower animals which come next to man in the scale of being, and the majority of savage tribes whose habits have not been modified by the contact with civilized man.

The many popular errors concerning the indigestion of fruits are perhaps responsible for their sparing use. Lack of knowledge respecting their great value in a variety of diseased conditions must also be held responsible to a considerable degree for the fact that they occupy so small a place in the usual bill of fare of civilized nations.

The value of the "grape cure" in certain forms of intestinal dis-



ease has long been known. The "apple cure," the "peach cure," and the "strawberry cure" have each had their advocates as rivals to the "grape cure." A recent writer on medical dietetics remarks that the rationale of the "grape cure" and other forms of fruit cures is not yet understood. We think the reason is plain, since the bacteriological investigations reported in this journal some months ago have shown clearly that those micro-organisms which are most abundant in certain forms of indigestion, particularly those accompanied by so-called biliousness, coated tongue, bad taste in the mouth, etc., do not thrive in any fruit juice. This fact shows quite conclusively that the value of a fruit dietary in indigestion is chiefly due to the germ-destroying properties of the fruit juices.

This action of fruit juices is doubtless due to the acids which they contain. Professor Koch, of Berlin, has conclusively demonstrated the fact that a small quantity of citric acid added to a glass of water is capable of destroying all disease-producing germs which it may contain. Other fruit acids seem to have similar properties. At any rate, the writer's experiments show that the juices of grapes, apples, lemons, and other acid fruits remain sterile when inoculated with stomach fluid which gives rise to a very abundant bacterial growth when inoculated into beef tea, gelatin, and other nutrient media of animal origin.

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The germicidal property of fruits renders them of immense value in the treatment of biliousness, nervous headache, sick-headache, fevers, and the stomach and intestinal disorders of both children and adults. It is necessary, of course, to adapt the particular kind of fruit eaten and the form in which it is presented, to the digestive organs of each individual case. It is also necessary to note that fruits are not compatible with all



other kinds of foods. For example, fruits and vegetables constitute a poor combination for persons suffering from slow digestion as the result of dilatation or prolapse of the stomach, or hypopepsia. Acid fruits and cereals are not a good combination in cases of hyperpepsia, because of the excessive acidity of the stomach whereby the gastric digestion of starch is seriously interfered with.

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Fruits are certainly of great value in many forms of disease, because of the acids which they contain. These acids, when taken into the blood, break up some of the compounds of waste substances which have been formed, and thus give rise to an increased excretion of these substances through the kidneys. In this way fruits are a great advantage in the treatment of rheumatism, gout, gravel, and all the different morbid conditions which accompany the so-called uric-acid diathesis. The observations of Haig respecting the relation of uric acid to neurasthenia give to fruit a great dietetic value in this disease. He has ~~always~~ shown that neurasthenia is almost always the result of the accumulation within the system of tissue wastes, largely in the form of uric acid. The free use of fruits aids in the elimination of these poisons, not only by breaking up the compounds which they form within the body, but by stimulating the kidneys to increased normal activity.

Remembering the interesting fact pointed out by Bouchard, that rheumatism is really a poisoned condition resulting from the decomposition of food-stuffs in a dilated or prolapsed stomach, we may also attribute the beneficial effects of a fruit diet in rheumatism and allied conditions to its value in suppressing the formation of poisonous substances in the alimentary canal.

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Obesity, which is, like rheumatism, a diathesis, may be successfully treated by a fruit dietary. This is due not only to the fact that fruit is a natural food, and thus aids the system to establish normal tissue changes and a normal balance between the ~~system~~ processes of assimilation and disassimilation, but also because it affords a very comfortable means of reducing the amount of nutrient material received to a minimum quantity.

Fruit is chiefly water, the amount of nutrient material it contains varying from five to eight or ten per cent. in most fruits, rising to a higher figure only in dried fruits, such as dried grapes, prunes, dates, etc. The writer has succeeded in reducing excessive weight in the most satisfactory manner by prescribing a diet consisting almost exclusively of grapes or apples, allowing only a small bit of thoroughly dried bread or zwieback in connection with the fruit. In some cases the fruit may be allowed as often as three or four times a day, to relieve an uncomfortable sensation of emptiness.

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In fevers, fruits, especially in the form of fruit juices, are a most convenient and certainly the most appropriate of all foods. It is now almost universally recognized that beef tea and meat preparations of all sorts should be wholly proscribed in cases of fever, as the patient is already suffering from the accumulation of waste matters to such a degree that the addition of even the small amount contained in beef tea or a small piece of meat, may be sufficient to give rise to an exacerbation of the disease, and lessen the patient's chances for recovery.

German physicians make great use of preparations of fruits in fevers, particularly of fruit soup, which is made by boiling for some time one part of dried fruit of some sort with four or five parts of water. In



cases in which considerable irritation of the stomach and intestines exists, the soup or decoction thus prepared should be carefully strained, so as thoroughly to remove the skins and all other extraneous matters. The juice of oranges, grapes, raspberries, tamarinds, currants, or cranberries may be added to water as a beverage in fevers. Thus used, they not only increase the quantity of water which the patient is enabled to drink, by giving to it a distinct and agreeable flavor, but also aid the elimination of poisons with which the system is struggling, by the slight diuretic action. Fruit juices used in the same way are likewise highly beneficial in Bright's disease and other forms of kidney disease in which it is desirable to increase and maintain the flow of urine. The grape-fruit, the lime, the shaddock, and the pomegranate also affords agreeable acid juices which may be used in the same manner. The antiseptic value of fruit juices must also be recognized as a positive benefit in these cases.

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There is no single article of diet of such great value in the treatment of intestinal inactivity or constipation as fruits. For this purpose fruits must be eaten freely, being taken, in cases of this sort, at the beginning of the meal or a little while before it. Fruit is most effective when taken by itself in this manner. Raw apples, steamed figs, peaches, apricots when not too ripe, prunes, oranges, and tamarinds are of the greatest value for this purpose. Tamarinds or pomegranates furnish an acid from which a very pleasant beverage may be prepared. Tamarinds used in this way sometimes serve a useful purpose in cases of constipation.

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Persons who employ a fruit diet for the relief of chronic symptoms such as rheumatism, neurasthenia, sick-headache, etc., should not, however, expect to be cured in a few days or a few weeks, but should adopt the free use of fruit as a regular practice. In cases of periodical sick-headache, which is almost always connected with dilatation of the stomach, the patient may advantageously adopt the plan of systematically confining himself to a fruit diet for one or two days preceding the time of the expected attack; or it may be sufficient to confine the diet to fruit for a single one of the daily meals, as for breakfast. Persons who require a fruit diet are generally benefited by an adoption of the two-meal-a-day plan, nothing being taken after three or four o'clock in the afternoon, so that the stomach may be prepared as thoroughly as possible for the reception of <sup>fruit</sup> the next day. As regards the particular fruit to be eaten for special conditions, the most important thing to be said is that fruits, if possible, be taken fresh and as soon after reaching maturity as possible. Canned fruit and dried fruits are inferior to fresh fruit; still they are far better than none, and if properly prepared, they may render very great service. Each fruit has its own special adaptation and limitations.

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The banana is, aside from the date, the fig, and the raisin, the most ← nourishing of all fruits. The amount of nutrient material contained in a pound of bananas is almost equal in sustaining value to that found in a pound of beefsteak. The amount of nitrogenous or albuminous substance found in a banana approximates five per cent. In the dried banana the proportion is about twenty per cent., or one fifth. Humboldt calculated that the banana, grown in suitable soil and properly cultivated, is capable of producing



more food to the acre than any other plant. When well matured, the banana is easily digestible.

According to Sergeant Parke, Stanley and his white associates subsisted almost exclusively upon banana flour for two years in the wilds of tropical Africa. The writer is inclined to attribute to this fact, in a large degree at any rate, the success of these intrepid explorers in withstanding the almost innumerable dangers to life and health from disease incident to travel in that portion of the world in which Stanley has rendered such great service as an explorer.

A gruel made of dried banana flour is not only highly nutritious, but in the highest degree wholesome, and is often tolerated when ordinary farinaceous preparations, such as milk, buttermilk, etc., are promptly rejected. The banana contains a small amount of starch; but this is so easily digested by the saliva that within an almost incredibly short space of time the stomach contents are found to contain a larger proportion of well-digested starch and similar substances previously existing in the banana and not requiring digestion, than can be produced in the same length of time in any cereal substance placed under the same conditions. Bananas which have been picked so green that when found in the market they are wilted and tough, are entirely unfit to eat. Green bananas may be baked the same as apples, and are by some greatly relished when thus served; indeed, the fruit is, on the whole, much better used in this way.

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Apples may be eaten either raw, stewed, or baked. If eaten raw, they should be thoroughly ripened, else in mastication large masses will enter the stomach in a condition to interfere with digestion, giving rise to fermentation or other disagreeable symptoms.

Pears may be cooked in the same way as apples, but are less useful in relieving constipation and are not usually so readily obtained. Pears, however, have the advantage over apples, ~~but are less useful in relieving constipation~~ that they are usually of a more mild and palatable flavor, so that they do not require the addition of sugar, which is often added to sour fruit in such excessive quantities as to render the fruit entirely unwholesome. Instead of adding cane-sugar to sour fruit, the better plan is to mingle together sour and sweet fruits.

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The pine-apple as well as the lemon, orange, grape-fruit, tamarind, guava, pomegranate, sapota, and other tropical fruits are as valuable as they are palatable, and ought to be freely used when obtainable.

There is perhaps nothing better for checking hemorrhage from the stomach than the juice of one or two lemons, swallowed quickly. Nosebleed may be stopped by snuffing lemon juice into the nostril from which the blood issues; and it has long been known to obstetricians that lemon juice is one of the most effective means of checking uterine hemorrhage after childbirth.

Pineapples, when allowed to mature upon the plant, are extremely palatable and luscious, and almost as easily digested as the peach, although containing considerable more woody matter; but in the form in which they are usually obtained in this country, they are quite indigestible if eaten raw, and only the juice should be swallowed. The juice of the pine-apple con-



tains a digestive principle similar to pepsin. It may be used with advantage as an application to the throat in diphtheria.

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The strawberry, which is one of the most popular favorites of all the various kinds of domestic fruits, is generally well received by the most delicate stomachs, if care is taken to avoid rendering it indigestible by the addition of cream and sugar, ice-cream, etc. The better varieties of strawberries are sufficiently sweet, and require no sugar. They are best when fresh, being less well adapted to canning than almost any other fruit. The strawberry is said to contain a larger proportion of iron in its water-free constituents than any other fruit. There is occasionally a person who cannot eat strawberries because of some idiosyncrasy, as the result of which an exceedingly troublesome rash appears.

A combination of fruits with nuts which have been thoroughly cooked and completely disintegrated is found of great value. "Fig bromose," "banana bromose," and a number of other similar products have proved of great value in the treatment of chronic constipation and various other conditions in which a fruit-and-nut diet is indicated.



In the exclusively fruit diet the fruit must be taken when the stomach contains no other food, and taken without other food, except that twice a day a small bit of crust, zwiebach, or granose might be taken, when the diet is long continued; but when the patient takes a strictly fruit dietary for a short time, he must take nothing but the fruit. This diet may be taken for one, two, or three days; for one or two weeks, or as long as six weeks. If a person takes a fruit dietary for six weeks, he must have something besides fruit; that is, he should take some cereal food or fat-containing food, but only a small amount of this should be taken.

There are a few rules which it is important to consider in using a fruit diet:--

Number of Meals.-- The patient may eat three or four times a day; once or twice a day is ~~not~~ usually not sufficient, for in a short time he complains of feeling hungry. This is an indication of the readiness with which the stomach empties itself of fruit. In two or three hours after eating freely of fruit a person will find that he is quite hungry. This is also an indication of the favorable influence of a fruit diet upon the appetite, it encourages those vital processes which result in the production of appetite. A person who is taking a fruit diet generally wants something to eat once in four hours. He might take his first meal at seven o'clock, ~~in~~ in the morning, his second meal at 11 o'clock, the next at three o'clock, and the last meal at seven o'clock or two or three hours before going to bed.

Quantity of Food.-- The person taking a fruit diet cannot take the same amount of grapes, raisins, or figs as he could of other fruits, which are less nutritious. The grape cure is an almost perfect form of fruit cure. It has been practiced in Switzerland for many ages; and also in this country to some extent, and in Italy, Australia, and Cape Town. Where it has been employed, it has been the custom, during grape



harvest, to give the patient from four to eight pounds of grapes daily, and I have known the quantity to be increased to twelve or fourteen pounds.

With reference to other foods which a person can take with the grape cure: in the grape cure as practiced in Switzerland and other places, it is seldom that the patient is required to take nothing but fruits. For example, they allow the patient to use yeast foods, but he must abstain from meats, fats, and greasy foods of every kind, and from cheese. He must take his fruit, as far as possible, when his stomach is free from all other foods. This has been the practice in reference to the grape cure for hundreds of years. The reason for the patient's being required to avoid meats is, that they encourage the growth of germs in spite of the beneficial influence of the grapes. We also see the reason why the patient should not eat cheese, because it contains germs, the very things which the object of the cure is to get rid of. And we see the reason he should not take greasy foods, because by this means the fruit will remain too long in the stomach, and thus aggravate the very condition that is sought to be cured.

People have practiced the grape cure without understanding these principles; they have practiced it in accordance with an antiseptic regimen and in accordance with rules found necessary by experience. We are just learning the scientific reasons for these rules.

The Modified Fruit Dietary.-- The average patient, after he has taken a strict fruit dietary for three or four days, can be put on a modified fruit diet,-- diet modified in several ways. For instance, we may say to a patient, "You must take a strictly fruit diet one day in the week regularly." That takes the place of lavage. The stomach accumulates impurities and germs, but if a person takes a fruit diet one day in the week, he will be able to keep himself in good digesting trim,



and his stomach will do fairly good work. Then we may say to the patient, "Use fruit freely with your food," or we may say, "Take a fruit diet for breakfast every day." I find this an excellent plan for myself; when I am tired and lose sleep, I always take fruit for breakfast, and nothing else.

Another precaution which I think is a good one for persons accustomed to taking three meals a day is to make breakfast and supper of fruit, and the solid meal for dinner. School teachers and others who have to take three meals a day will find this an advantage. Or they could take two half meals and one whole meal, but this plan is for sick people rather than for well people. I find it best to have a modified fruit dietary, taking apples, bananas, etc., and a sufficient quantity of other food .