XIV. *Appendix to a paper on the Variations of the Acidity of the Urine in the state of Health.*

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On the Influence of Caustic Potash, Tartaric Acid, and Tartrate of Potash on the Acidity of the Urine.

IN a paper on the variations of the acidity of the urine in the state of health, I have, in the third section, given the effect of dilute sulphuric acid; in this Appendix I purpose to show the influence of other medicines on the variations of the acidity of the urine.

III. (*b.*) The effect of caustic potash on the acidity of the urine was examined.

The caustic potash of pharmacy varying much in its specific gravity from 1060 downwards, and in the proportion of carbonate of potash which it contains, some caustic potash perfectly free from carbonate, and of specific gravity 1072, containing, by Dr. HOFMANN's analysis, from 6·20 to 6·29 per cent. of potash, was used for the following experiments. It was taken in distilled water.

The day before the alkali was begun the variations of the acidity of the urine were first determined for the purpose of comparison.

The first day two drachms and a half of caustic potash were taken; the same quantity the second day, and the third day three drachms were taken. Thus eight drachms were taken in three days; and the following day, when no caustic potash was taken, the variations of the acidity of the urine were again determined for the purpose of further comparison.

(20.) The day previous to the alkali. Breakfast on eggs, meat, coffee and bread, at $8^h\ 5^m$ A.M. Dinner on mixed diet at 6^h P.M. Water passed at $7^h\ 15^m$ A.M. was thrown away.

	h	m		Spec. gr.	Acidity per 1000 grains of urine.	Appearance.
Water passed at	8	5	A.M.	=1023·2	=+25·41 measures.	Thick from urates.
Water passed at	9	30		=1022·8	=+12·61	Thick from urates.
Water passed at	10	45		=1024·1	=− 4·88	Clear.
Water passed at	11	35		=1027·0	=−13·63	Clear.
Water passed at	12	35	P.M.	=1026·5	=− 3·89	Clear.
Water passed at	2	30		=1025·0	=+14·72	Clear.
Water passed at	4	15		=1024·4	=+20·49	Clear.
Water passed at	6	0		=1026·6	=+31·17	Thick from urates.
Water passed at	9	0		=1028·6	=+18·47	Clear.
Water passed at	11	0		=1028·0	=−11·67	Clear.

From this it appears that the variations are nearly alike to those which were

observed six months previously; and it is worth noting that for six weeks before this experiment very little walking exercise was taken.

(21.) The following day breakfast was as before, at $8^h\ 10^m$ A.M. Dinner at 6^h P.M. One drachm and a half of liquor potassæ was taken in distilled water between 11^h A.M. and 1^h P.M., and another drachm between 3^h and $3^h\ 30^m$ P.M., both in as little water as possible.

	h m	Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	7 0 A.M.	=1019·0	=+14·71 measures.	Clear.
Water passed at	8 10	=1026·1	=+20·46	Thick from urates.
Water passed at	9 30	=1025·0	=+12·68	Clear.
Water passed at	11 0	=1025·8	0	Clear.
Water passed at	1 0 P.M.	=1025·6	=− 6·82	Clear.
Water passed at	3 0	=1024·1	=+10·74	Clear.
Water passed at	3 40	=1022·0	=+ 9·78	Clear.
Water passed at	6 0	=1019·2	=+10·78	Thick from urates.
Water passed at	9 0	=1032·0	=+11·62	Clear.
Water passed at	11 15	=1028·7	=−28·19	Thick from phosphates.
Water passed at	6 30 A.M.	=1024·3	=+ 1·95	Clear.
Water passed at	7 40 lost.			

(22.) The following day. Breakfast at $8^h\ 40^m$ A.M. Dinner at 6^h P.M. Liquor potassæ a drachm and a-half from 10^h to $10^h\ 30^m$ A.M. and one drachm at 3 P.M. In as little distilled water as possible.

Water passed at	8 40	=1024·4	=+12·69 measures.	Clear.
Water passed at	9 50	=1024·6	=+11·71	Thick from urates.
Water passed at	10 50	=1021·5	=+ 1·95	Clear.
Water passed at	11 55	=1024·5	0	Clear.
Water passed at	2 45 P.M.	=1025·3	=− 1·95	Clear.
Water passed at	4 10	=1025·7	=+ 9·74	Clear.
Water passed at	6 0	=1027·1	=+14·59	Thick from urates.
Water passed at	8 40	=1033·3	=+14·51	Thick from urates.
Water passed at	11 30	=1031·5	=+ 9·70	Thick from urates.

(23.) The following day. Breakfast at $8^h\ 10^m$ A.M. Dinner at $6^h\ 30^m$ P.M. A drachm and a-half of liquor potassæ was taken at $9^h\ 30^m$ A.M., a drachm at 10^h A.M., and a drachm at $11^h\ 15^m$ A.M.

Water passed at	7 0 A.M.	=1020·2	=+11·76 measures.	Clear.
Water passed at	8 10	=1017·3	=+ 3·93	Clear.
Water passed at	9 20	=1020·0	=+ 4·94	Thick from urates.
Water passed at	10 30	=1010·0	=− 3·96	Clear.
Water passed at	11 15	=1019·7	=−11·76	Clear.
Water passed at	12 5 P.M.	=1019·8	=−19·61	Clear.
Water passed at	12 35	=1022·6	=−18·58	Clear.
Water passed at	2 45	=1022·6	=+ 2·93	Clear.
Water passed at	3 45	=1024·0	=+ 8·79	Clear.
Water passed at	5 20	=1024·4	=+10·73	Thick from urates.
Water passed at	6 30	=1025·3	=+11·70	Thick from urates.

	h	m		Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	9	10	P.M.	=1029·4	=+ 4·85 measures.	Thick from urates.
Water passed at	11	45		=1030·6	=−16·50	Clear.
Water passed at	6	55	A.M.	=1020·3	=− 0·98	Clear.
Water passed at	8	15		=1023·2	=− 2·93	Clear.

(24.) The following day. Breakfast at $8^h\ 15^m$ A.M. Dinner at $6^h\ 30^m$ P.M. Food as before. No alkali was taken.

Water passed at	10	0	=1025·0	=− 4·88 measures.	Clear.
Water passed at	11	25	=1025·1	=−18·53	Iridescent scum.
Water passed at	12	45 P.M.	=1025·0	=− 9·75	Clear.
Water passed at	2	50	=1024·2	=+11·71	Clear.
Water passed at	4	15	=1025·0	=+15·60	Clear.
Water passed at	6	30	=1027·0	=+21·42	Thick from urates.
Water passed at	10	45	=1030·2	=+10·67	Thick from urates.
Water passed at	6	30 A.M.	=1014·5	=+ 4·92	Clear.
Water passed at	8	10	=1022·2	=+ 9·88	Clear.

The result of these experiments is easily seen in Table XXI. It follows therefrom that liquor potassæ, taken in large doses, produces a decided effect in diminishing the acidity of the urine.

It by no means renders the urine constantly alkaline, and its effect on the urine seems rapidly to pass away. Notwithstanding the large quantity of liquor potassæ taken, the influence of food appears very evident; before each meal the acidity was highest; after each meal the alkalescence was greatest.

The acidity of 1000 grains of urine was rarely more than sufficient to neutralize one grain of dry and pure carbonate of soda; and the alkalescence was more than equal to a grain and a half of carbonate of soda in 1000 grains of urine.

The conclusion from these experiments is, that an ounce of liquor potassæ taken in three days does not counteract or conceal the influence of the stomach on the reaction of the urine.

III. (*c.*) The effect of tartaric acid on the acidity of the urine was then examined. Some splendid crystals of tartaric acid were given to me by Mr. Morson. These were dried, reduced to a fine powder and heated in a water-bath until they ceased to lose weight; a weighed quantity was dissolved in distilled water.

(25.) The first day for comparison no tartaric acid was taken. Breakfast at $8^h\ 45^m$ A.M. Dinner at $6^h\ 10^m$ P.M. Mixed diet.

	h	m		Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	7	45	A.M.	thrown away.		
Water passed at	8	45		=1025·4	=+19·50 measures.	Thick from urates.
Water passed at	9	45		=1025·0	=+13·65	Thick from urates.
Water passed at	10	45		=1022·7	=− 2·93	Clear.
Water passed at	12	45	P.M.	=1027·5	=− 8·75	Clear.
Water passed at	2	55		=1027·1	=+ 7·79	Clear.
Water passed at	6	10		=1025·7	=+26·32	Thick from urates.

	h	m	Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	8	35 P.M.	=1032·3	=+19·37 measures.	Thick from urates.
Water passed at	10	30	=1031·9	=+14·53	Thick from urates.
Water passed at	6	40 A.M.	=1023·8	=+19·53	Clear.

For the three following days tartaric acid was taken. The first day forty-two grains of dry, pure tartaric acid, in two ounces of distilled water, at $11^h\ 40^m$ A.M. Forty-two grains more at $12^h\ 40^m$ P.M. In all, eighty-four grains. It did not act on the bowels as an aperient, but it caused pain in the bowels from about three hours after it was taken. It produced no pain when first taken into the stomach.

(26.) Breakfast as before, at $8^h\ 10^m$ A.M. Dinner as before, at $6^h\ 30^m$ P.M., eighty-four grains of tartaric acid being taken.

Water passed at	8	10 A.M.	=1025·3	=+24·38 measures.	Thick from urates.
Water passed at	10	0	=1026·2	=+13·64	Thick from urates.
Water passed at	11	15	=1029·1	=− 7·77	Clear.
Water passed at	12	55 P.M.	=1027·9	0	Clear.
Water passed at	2	30	=1027·1	=+23·36	Clear.
Water passed at	4	40	=1027·4	=+25·30	Cloudy urates.
Water passed at	6	30	=1030·4	=+32·99	Thick from urates.
Water passed at	8	40	=1033·1	=+36·79	Thick from urates.
Water passed at	11	40	=1033·0	=+ 7·74	Thick from urates.
Water passed at	6	50 A.M.	=1022·2	=+17·60	Clear.

(27.) The following day. Breakfast as before, at $8^h\ 10^m$ A.M. Dinner at $6^h\ 35^m$ P.M. Tartaric acid, fifty-four grains dry and pure, in two ounces of distilled water, at 11^h A.M.; fifty-four grains, in two ounces of water, at $12^h\ 15^m$ P.M.; in all 108 grains. This day the dinner was more and longer than usual.

Water passed at	8	10	=1026·0	=+23·33 measures.	Thick from urates.
Water passed at	9	30	=1021·5	=+14·68	Thick from urates.
Water passed at	10	10	=1020·6	0	Clear.
Water passed at	11	0	=1025·8	=− 9·74	Clear.
Water passed at	12	15 P.M.	=1026·4	0	Clear.
Water passed at	2	15	=1026·2	=+16·56	Clear.
Water passed at	3	15	=1025·0	=+23·41	Clear.
Water passed at	5	30	=1024·8	=+25·37	Clear.
Water passed at	6	35	=1027·0	=+31·15	Clear.
Water passed at	11	30	=1034·0	=+19·43	Thick from urates.
Water passed at	6	50 A.M.	=1025·4	=+16·58	Clear.

(28.) The following day. Breakfast as before, at $8^h\ 15^m$ A.M. Dinner moderate, mixed diet, at $6^h\ 50^m$ P.M. At 11^h A.M., tartaric acid, fifty-four grains in two ounces of water. At $11^h\ 40^m$ A.M. fifty-four grains of acid; at $12^h\ 40^m$ P.M. fifty-four grains; in all 162 grains. No pain in the abdomen until 3^h P.M., then much pain for an hour. Less pain for another hour, then all the pain went away. No action of the acid on the bowels.

	h m	Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	8 15 A.M.	=1026·0	=+21·44 measures.	Thick from urates.
Water passed at	9 50	=1024·2	=+ 0·97	Clear.
Water passed at	10 40	=1024·9	=−28·29	Thick from phosphates.
Water passed at	11 40	=1024·4	=−23·42	Thick from phosphates.
Water passed at	12 40 P.M.	=1023·7	=+ 3·90	Clear.
Water passed at	1 15	=1023·5	=+ 9·77	Clear.
Water passed at	2 25	=1024·7	=+22·44	Clear.
Water passed at	3 15	=1023·4	=+24·42	Clear.
Water passed at	5 5	=1019·4	=+26·48	Clear.
Water passed at	6 50	=1025·3	=+29·26	Clear.
Water passed at	11 35	=1030·6	=+17·46	Thick from urates.
Water passed at	6 20 A.M.	=1025·0	=+ 5·85	Clear.
Water passed at	8 15			

(29.) The following day. Breakfast at 8^h 15^m A.M. Dinner at 6^h P.M. Food as before. No tartaric acid was taken.

Water passed at	8 15	=1026·4	=+21·43 measures.	Thick from urates.
Water passed at	10 15	=1025·4	=+ 6·82	Clear.
Water passed at	11 20	=1024·7	=−13·66	Clear.
Water passed at	12 35 P.M.	=1025·5	=− 7·80	Clear.
Water passed at	2 40	=1026·0	=+14·61	Clear.
Water passed at	6 20	=1028·6	=+26·23	Clear.
Water passed at	11 25	=1031·0	=+ 5·81	Thick from urates.
Water passed at	6 45 A.M.	=1024·6	=+10·72	Clear.
Water passed at	8 10	=1025·9	=+14·62	Clear.

The result of these experiments is easily seen in Plate XXII. It follows that tartaric acid in large doses does produce a decided effect on the acidity of the urine; but it did not render the urine constantly acid during the three days that the experiment lasted.

The first day on which the acid was taken, the urine was much more concentrated than on the two other days, and hence the effect of the smaller dose of acid appears more evident than the larger.

The influence of the state of the stomach is very apparent. Before each meal the acidity is greatest. After food, notwithstanding the tartaric acid, the acidity is diminished.

The alkalescence of the urine was rarely so much as to equal one grain of carbonate of soda in 1000 grains of urine; whilst the acidity of 1000 grains of urine for the most part required about two grains of carbonate of soda to make its reaction neutral.

The conclusion from these experiments is, that 354 grains of dry and pure tartaric acid, taken in three days, increases the acidity of the urine; but in that time it does not render the effect of the stomach on the reaction of the urine less apparent than when no acid was taken.

III. (*d.*) The effect of tartrate of potash on the acidity of the urine was then examined. Some well-crystallized tartrate of potash was dried, reduced to a fine powder and dissolved in distilled water. The solution was neutral to test-paper.

(30.) The first day, for comparison, no tartrate of potash was taken. Breakfast at $8^h\ 15^m$ A.M. Dinner at 6^h P.M. Mixed diet. Water passed at $6^h\ 45^m$ A.M. thrown away.

	h	m	Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	8	25 A.M.	=1023·3	=+21·49 measures.	Clear.
Water passed at	9	40	=1024·4	=+17·57	Clear.
Water passed at	10	50	=1027·0	=− 9·73	Clear.
Water passed at	12	56 P.M.	=1027·2	=+ 6·81	Clear.
Water passed at	3	10	=1025·7	=+23·39	Clear.
Water passed at	5	55	=1028·2	=+28·20	Clear.
Water passed at	10	40	=1034·4	=+18·36	Thick from urates.
Water passed at	6	15 A.M.	=1025·4	=+16·58	Clear.

For the following days tartrate of potash was taken. The first day two drachms of dry and pure tartrate of potash were taken, dissolved in two ounces of distilled water, at 9^h A.M. The same quantity was taken at $10^h\ 25^m$ A.M.; and one drachm of tartrate of potash was taken in one ounce of water at $2^h\ 30^m$ P.M. This last, on an empty stomach, caused slight nausea for twenty minutes. In all, then, on this day five drachms of tartrate of potash were taken in five ounces of distilled water. The bowels were not acted on by the saline.

(31.) The breakfast was at $8^h\ 10^m$ A.M. Dinner at $6^h\ 30^m$ P.M. Mixed diet.

Water passed at	8	10	=1026·4	=+23·38 measures.	Thick from urates.
Water passed at	9	30	=1022·4	=+ 2·93	Clear.
Water passed at	10	30	=1024·5	=−29·29	Cloudy from phosphates.
Water passed at	11	30	=1023·7	=−31·16	Cloudy from phosphates.
Water passed at	12	20 P.M.	=1021·4	=−14·68	Slight cloudiness from phosphates.
Water passed at	2	25	=1025·8	=+ 4·87	Clear.
Water passed at	4	5	=1027·5	=− 4·86	Clear.
Water passed at	6	30	=1033·3	=+24·19	Clear.
Water passed at	8	55	=1036·5	=+21·22	Thick from urates.
Water passed at	10	45	=1028·4	=−39·86	Thick from phosphates.
Water passed at	6	30 A.M.	=1027·0	=−14·60	Cloudy from phosphates.

(32.) The following day. Breakfast as before, at $8^h\ 10^m$ A.M. Dinner at $6^h\ 45^m$ P.M. Three drachms of tartrate of potash in four ounces of water, at $2^h\ 10^m$ P.M. caused slight nausea, and no action of the bowels.

Water passed at	8	10	=1030·2	=− 9·70 measures.	Clear.
Water passed at	9	30	=1026·2	=−19·49	Thick from phosphates.
Water passed at	11		=1024·9	=−27·31	Thick from phosphates.
Water passed at	12	30 P.M.	=1027·9	=− 5·83	Cloudy from phosphates.
Water passed at	2	10	=1028·8	=+23·32	Clear.
Water passed at	3	30	=1025·7	=−18·52	Clear.
Water passed at	5	10	=1025·1	=−10·73	Clear.
Water passed at	6	45	=1031·0	=+19·39	Clear.
Water passed at	9		=1034·1	=− 7·73	Clear.
Water passed at	10	45	=1026·3	=−37·02	Thick from phosphates.
Water passed at	6	20 A.M.	=1027·8	=− 4·86	Clear.

(33.) The following day. Breakfast as before, at 8 A.M. Dinner at $6^h\ 45^m$ P.M. Two drachms of tartrate of potash in four ounces of distilled water, at $2^h\ 45^m$ P.M. caused the slightest nausea and no action of the bowels.

	h	m		Spec. gr.	Acidity per 1000 grs. of urine.	Appearance.
Water passed at	8			=1031·8	=+ 4·84 measures.	Clear.
Water passed at	9	45		=1026·7	=−22·42	Thick from phosphates.
Water passed at	11	45		=1025·9	=−28·26	Thick from phosphates.
Water passed at	1		P.M.	=1027·4	=+ 4·85	Clear.
Water passed at	2	45		=1030·9	=+29·10	Cloudy from urates.
Water passed at	3	20		=1026·6	=− 7·79	Clear.
Water passed at	3	50		=1026·2	=−17·54	Clear.
Water passed at	4	50		=1027·8	=+11·67	Clear.
Water passed at	6	45		=1032·8	=+23·23	Clear.
Water passed at	9	25		=1036·5	=+ 9·64	Very thick from urates.
Water passed at	11	45		=1029·6	=−33·99	Very thick from phosphates.
Water passed at	5	55	A.M.	=1021·5	=−14·68	Cloudy from phosphates.

(34.) The following day. Breakfast as before, at $8^h\ 5^m$ A.M. Dinner at $6^h\ 55^h$ P.M. At $2^h\ 30^m$ P.M. three ounces of distilled water without any tartrate of potash were taken.

Water passed at	8	5		=1028·5	=+ 8·75 measures.	Clear.
Water passed at	9	20		=1021·3	=− 5·87	Clear.
Water passed at	11			=1020·0	=−31·37	Thick from phosphates.
Water passed at	12	45	P.M.	=1025·4	=−20·48	Cloudy from phosphates.
Water passed at	2	30		=1026·3	=+ 9·74	Clear.
Water passed at	3	40		=1024·3	=+23·43	Clear.
Water passed at	5	25		=1026·3	=+26·30	Clear.
Water passed at	6	55		=1028·4	=+31·11	Clear.
Water passed at	9	5		=1032·2	=+27·12	Thick from urates.
Water passed at	11	25		=1033·2	=+23·22	Thick from urates.
Water passed at	6	20	A.M.	=1026·5	=− 0·97	Cloudy from phosphates.
Water passed at	8	5		=1026·5	=+17·53	Clear.

(35.) Breakfast the following day at $8^h\ 5^m$ A.M. Dinner at $6^h\ 30^m$ P.M. At $2^h\ 30^m$ P.M. thirty grains of pure fused nitrate of potash were taken dissolved in three ounces of distilled water.

Water passed at	9	35		=1027·1	=+ 8·76 measures.	Clear.
Water passed at	11	20		=1028·9	=−22·35	Thick from phosphates.
Water passed at	12	40	P.M.	=1028·0	=− 2·92	Clear.
Water passed at	2	30		=1025·8	=+21·44	Clear.
Water passed at	3	10		=1024·6	=+23·42	Clear.
Water passed at	3	55		=1025·4	=+27·30	Clear.
Water passed at	5			=1027·2	=+31·15	Clear.
Water passed at	6	30		=1029·5	=+33·02	Clear.

It follows from these experiments, which are easily seen in Plate XXIII., that the influence of tartrate of potash is most decided. In five-and-thirty minutes after two

drachms of tartrate of potash were taken, dissolved in four ounces of distilled water, the urine was found alkaline, but in two hours the urine was again acid: the first effect on the urine had ceased to be very evident. That this was not caused by mere irritation of the stomach is seen by nitre and distilled water producing no similar effect. The influence of the tartrate of potash became again evident after the next meal, when the decrease in the acidity of the urine was much greater than when no tartrate of potash was taken.

From the high specific gravity of the urine after the tartrate, it is probable that undecomposed tartrate of potash passes off in the urine, and from the height to which the acidity rises when the medicine is taken, it seems possible that the tartaric acid is not decomposed but separated from the base *in transitu*; but on this point further experiments are requisite.

When much larger doses of tartrate of potash were taken, the rise and fall of the acidity of the urine before and after food were still distinctly evident.

The conclusions from these experiments regarding the effect of medicines on the acidity of the urine are—

(*b.*) That liquor potassæ taken in large doses does lessen the acidity of the urine. One ounce of liquor potassæ taken in three days hindered the acidity of the urine from rising before food to the height it otherwise would have done, but it by no means made the urine constantly alkaline, nor did it hinder the variations produced by the state of the stomach from being very evident.

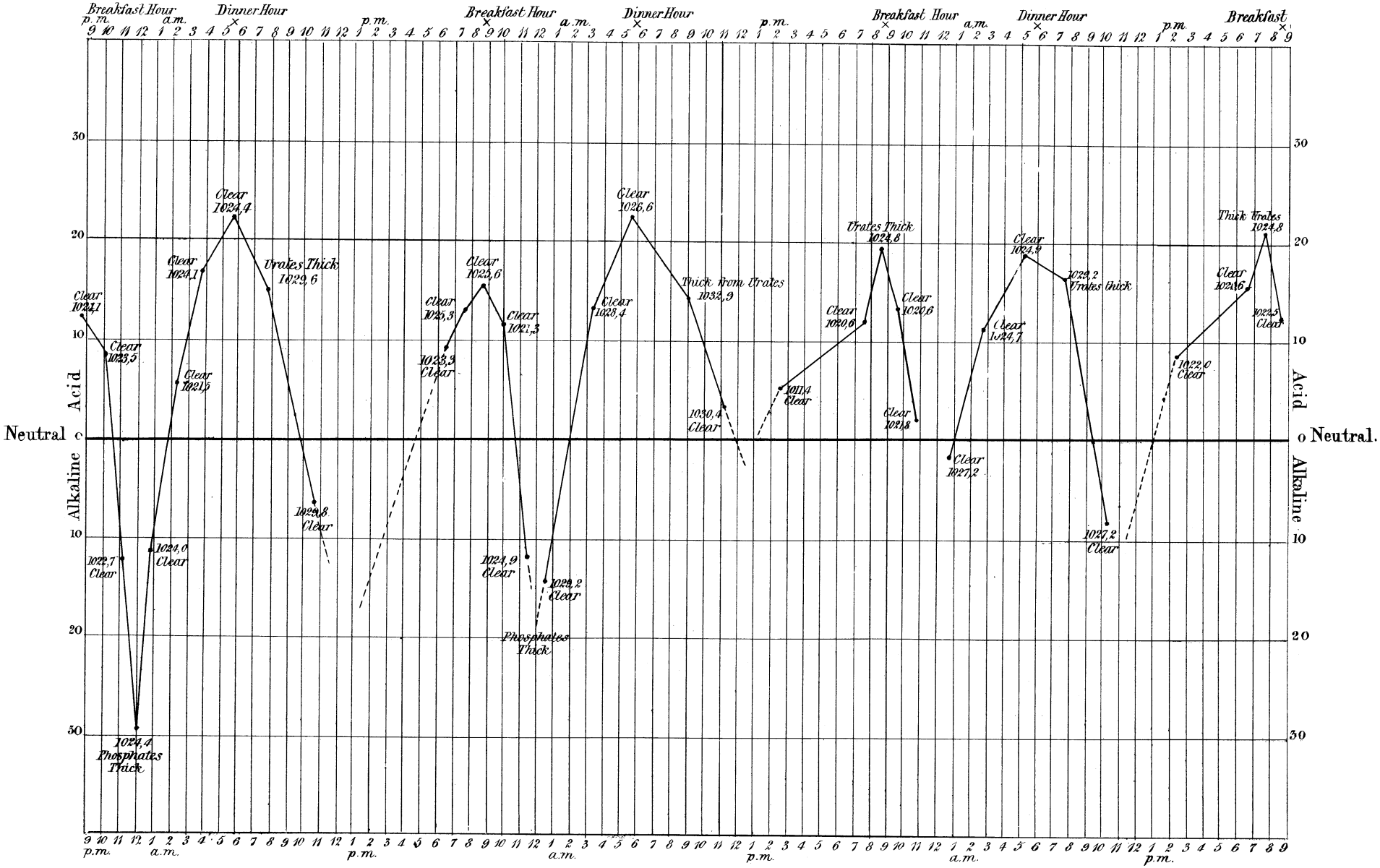
(*c.*) That tartaric acid in large doses does increase the acidity of the urine. 354 grains of dry pure tartaric acid, dissolved in water, taken in three days, caused the acidity of the urine before food to rise considerably higher than it otherwise would have done; but this quantity of acid was not sufficient to hinder the urine passed a few hours after food from being alkaline. This quantity of tartaric acid therefore in this time does not produce so much effect on the reaction of the urine as the stomach does.

(*d.*) That tartrate of potash in large doses produces the most marked effect on the alkalescence of the urine. 120 grains of pure dry tartrate of potash dissolved in four ounces of distilled water made the urine alkaline in thirty-five minutes. In two hours the alkalescence had disappeared, but after the next meal the effect of the tartrate of potash was again apparent.

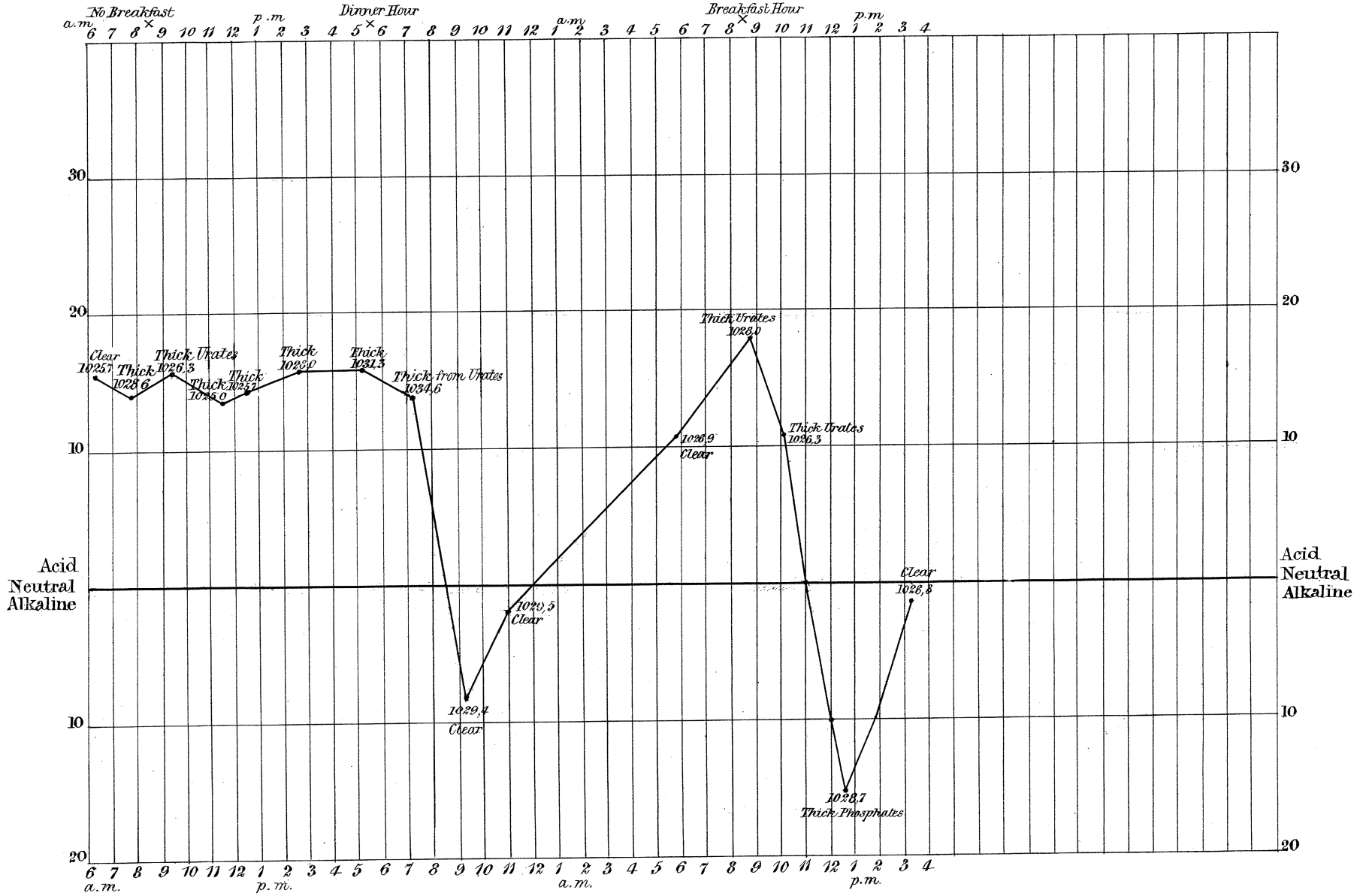
Ten drachms of tartrate of potash taken in three days produced but little, if any, effect on the acidity of the urine after it had been omitted for twenty-four hours.

The Variations of Acidity during Seventy two hours when a Mixed diet was taken

Each degree of Alkalescence or Acidity equals the twelfth of a grain of Carbonate of Soda (dry & pure)

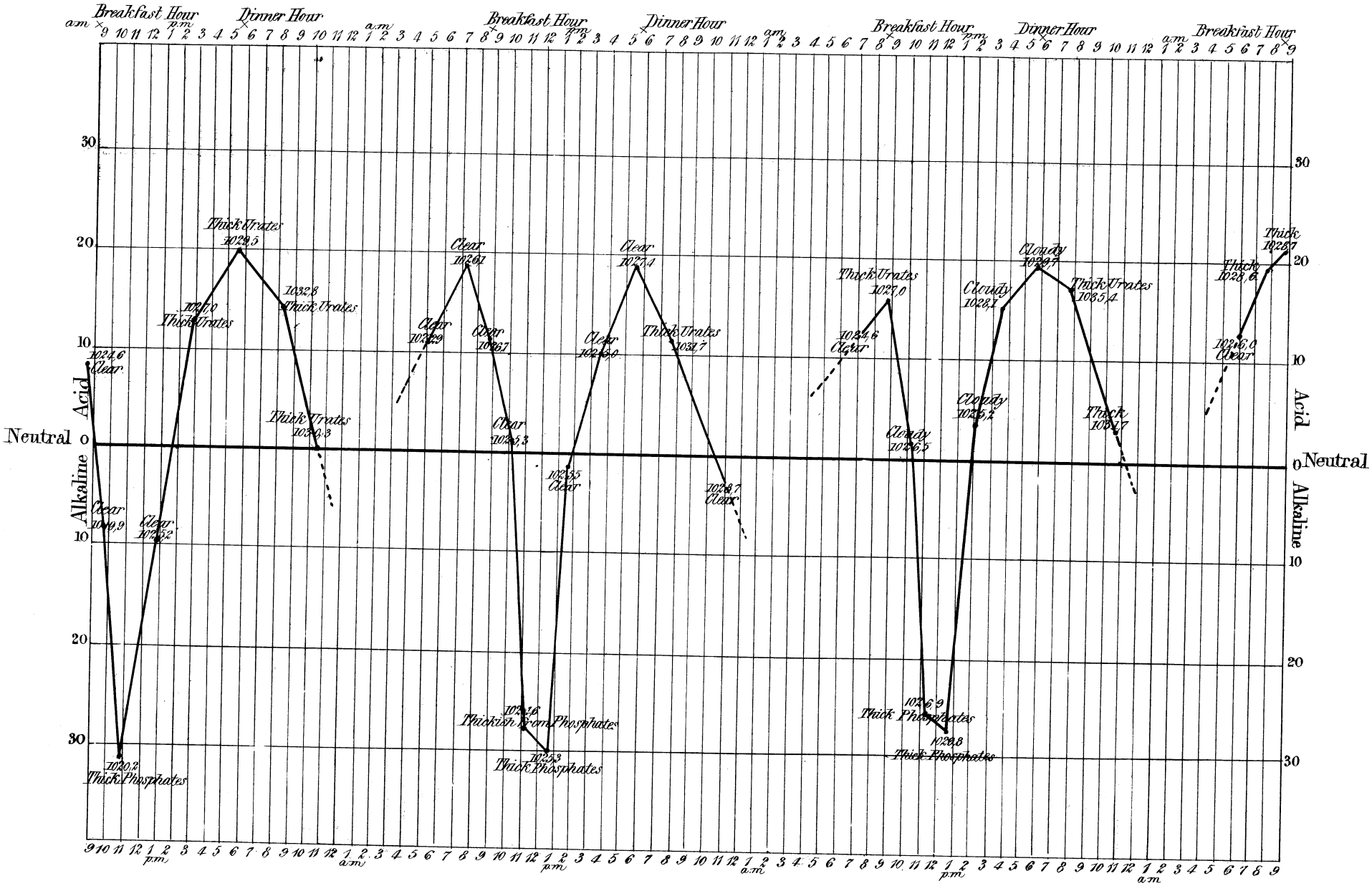


Comparison of the Variations of the Acidity when no food was taken with the Variations when food was taken.



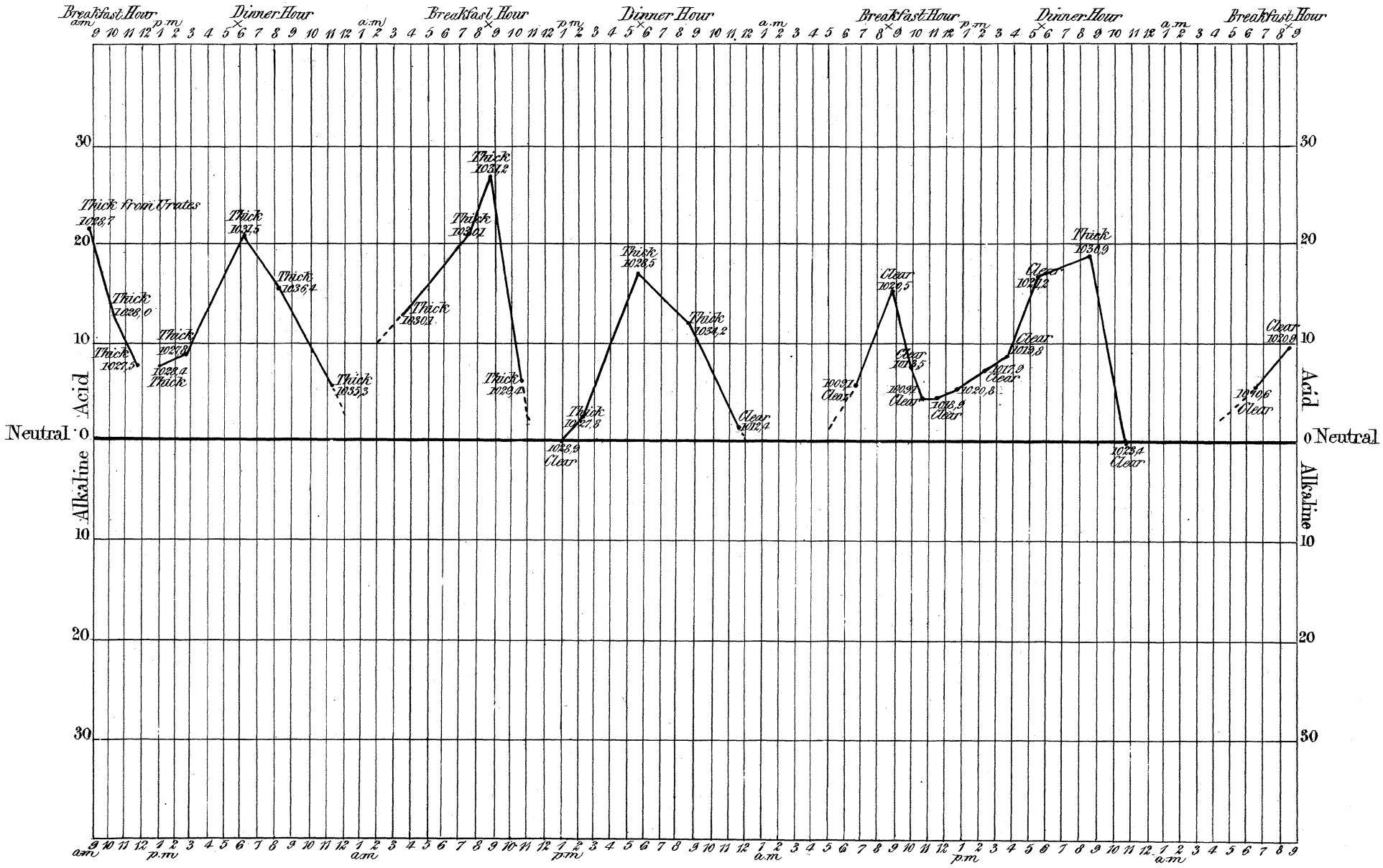
J. Basire, lith.

The Variations of the Acidity of the Urine during Seventy two hours, when Animal food only was taken.



J. Basire, lith

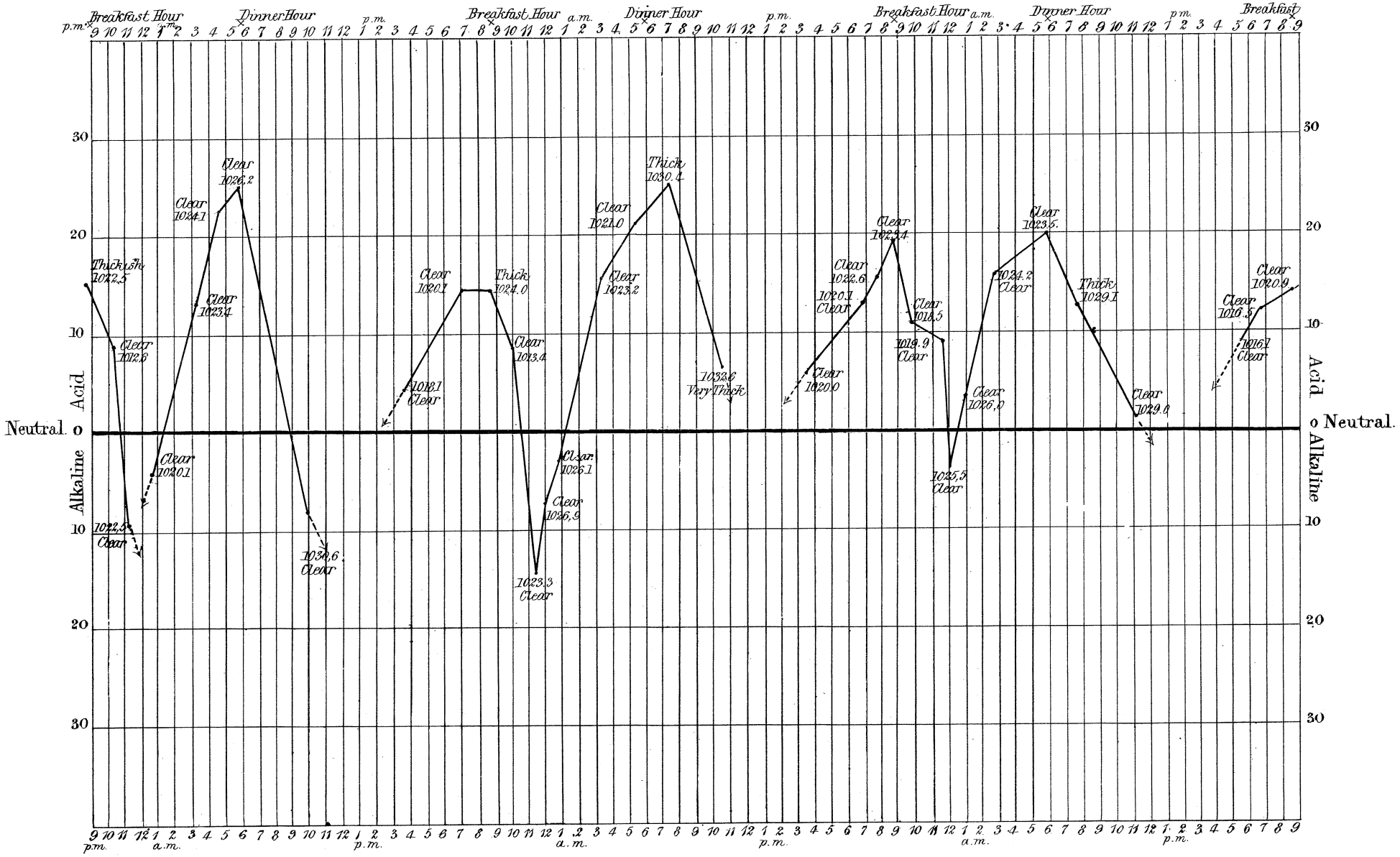
The Variations of the Acidity of the Urine during Seventy two hours when Vegetable food only was taken.



J. Basire, lith.

The Variations of the Acidity of the Urine during seventy two hours,

during which nine drachms of dilute Sulphuric Acid were taken in distilled water.

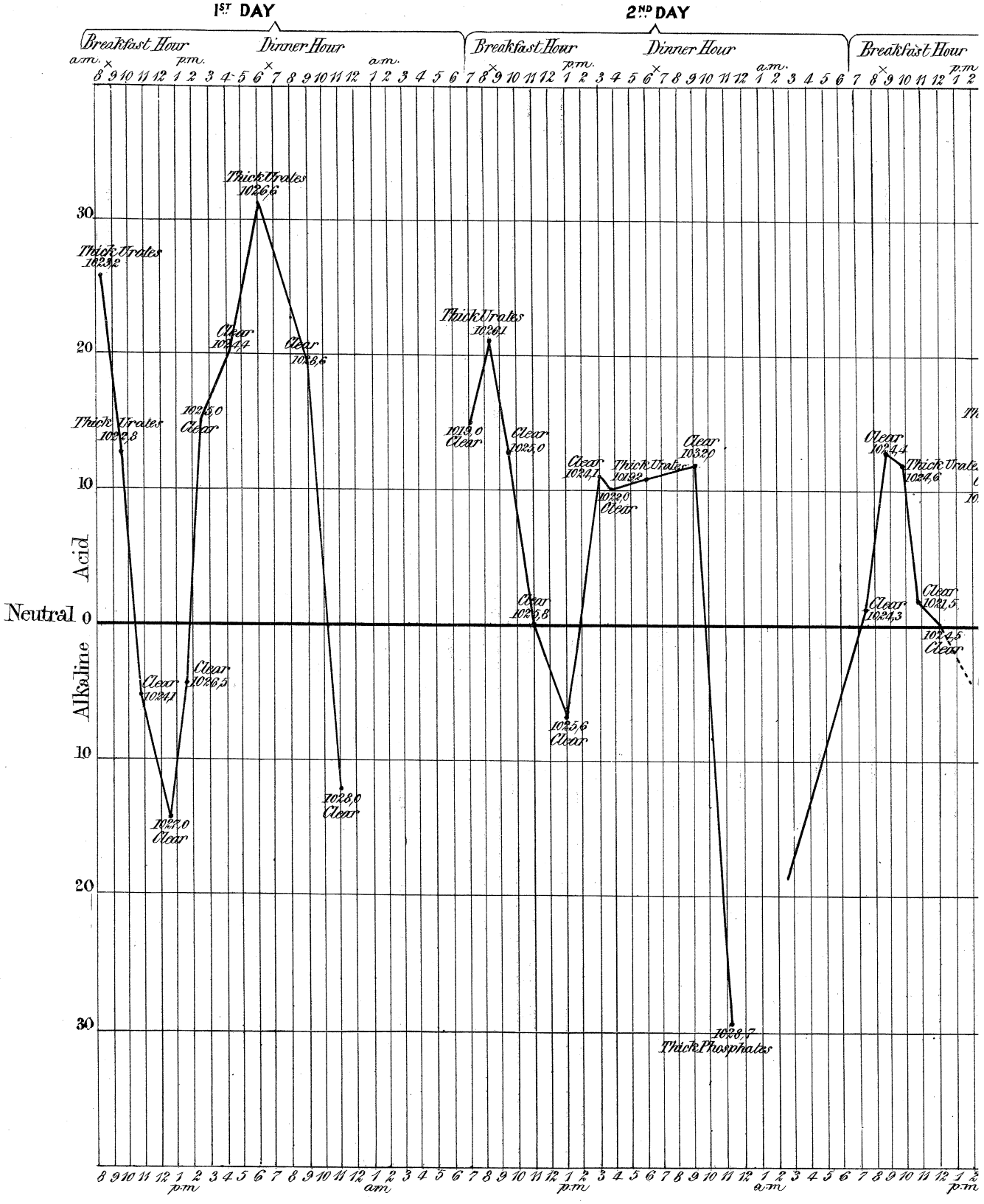


J. Basire lith.

The Variations

No Liquor Potassæ

2nd, 3rd & 4th Days with Liquor Po



lations of the Acidity of the Urine,

uor Potassæ in all one ounce specific gravity 1072.

No Liquor Potassæ

3RD DAY **4TH DAY** **5TH DAY**

ast Hour *Dinner Hour* *Breakfast Hour* *Dinner Hour* *Breakfast Hour* *Dinner Hour*

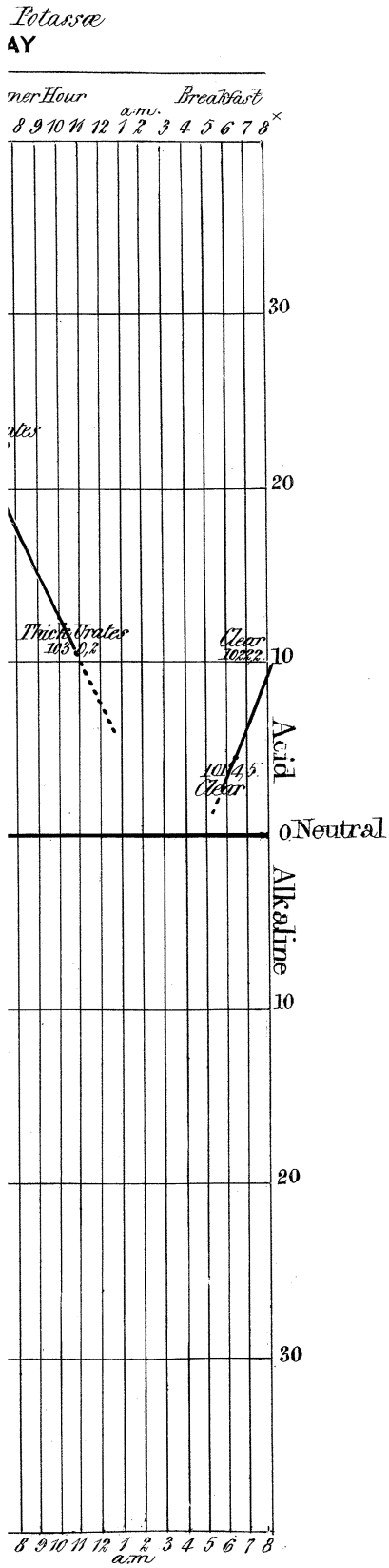
p.m. a.m. p.m. a.m. p.m.

10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11

Thick Urates 1024.6
Clear 1021.5
1024.5 Clear
Clear 1025.7
Thick Urates 1027.1
Clear 1025.3
Thick Urates 1033.3
Thick Urates 1031.5
Clear 1020?
Thick Urates 1020?
1027.3 Clear
Clear 1010
Clear 1019?
1023.8 Clear
1022.6 Clear
Thick Urates 1024.4
1024.0 Clear
Thick Urates 1025.3
1023.4 Thick Urates
1030.6 Clear
Clear 1020.3
Clear 1023.?
1025.0 Clear
1022.1 Cloudy Phosphates
Thick Urates 1027.0
Clear 1025.0
1024.2 Clear
Clear 1025.0
Thick Urates 103?

10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11

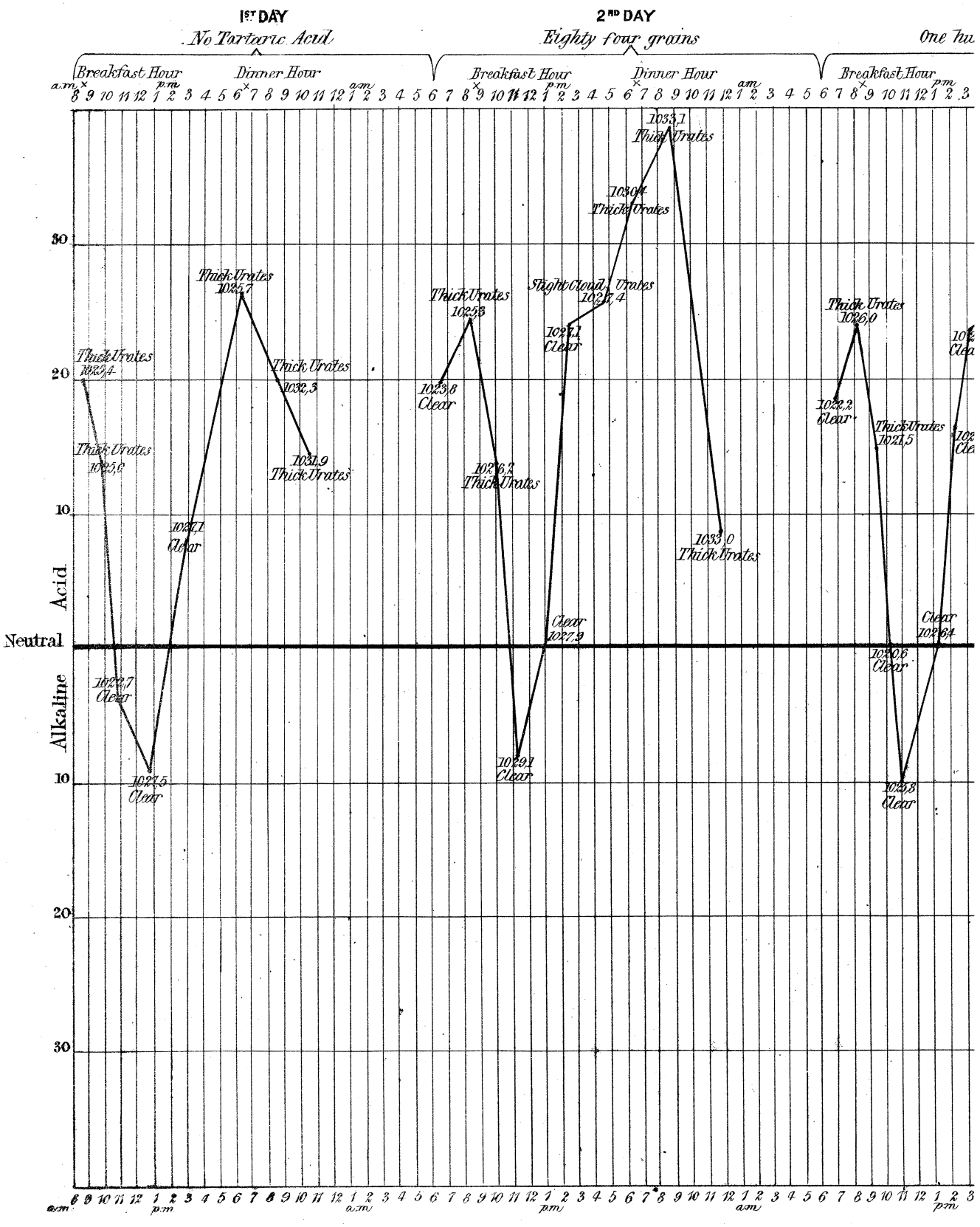
p.m. a.m. p.m. a.m. p.m.


Potassæ
AY
ner Hour
Breakfast
a.m.
8 9 10 11 12 1 2 3 4 5 6 7 8
30
20
10
Acid
0 Neutral
Alkaline
10
20
30
Thick Urates
1035 0,2
Clear
1022
1014,5
Clear
8 9 10 11 12 1 2 3 4 5 6 7 8
a.m.

J. Basire, Jun.

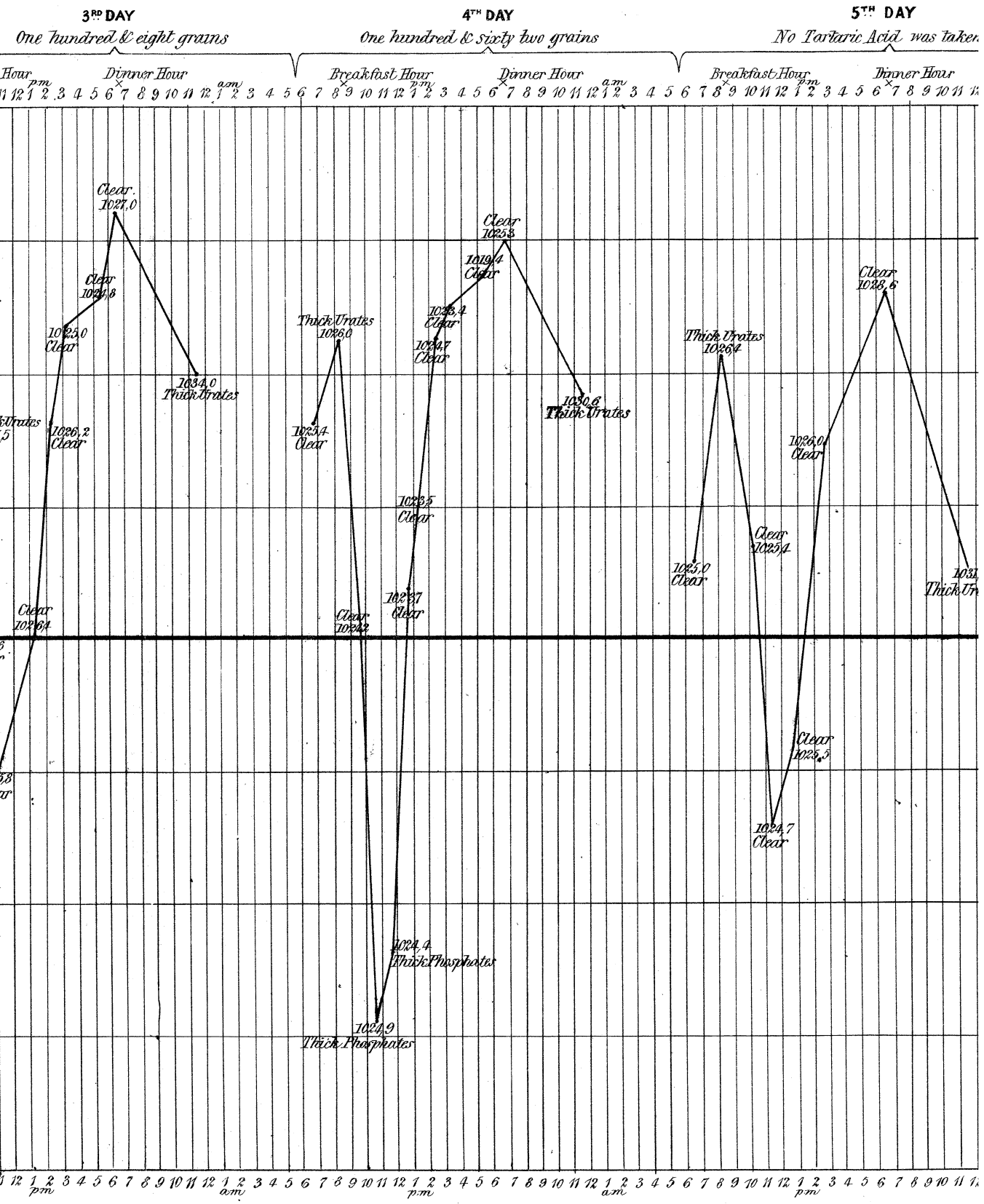
The Variations of

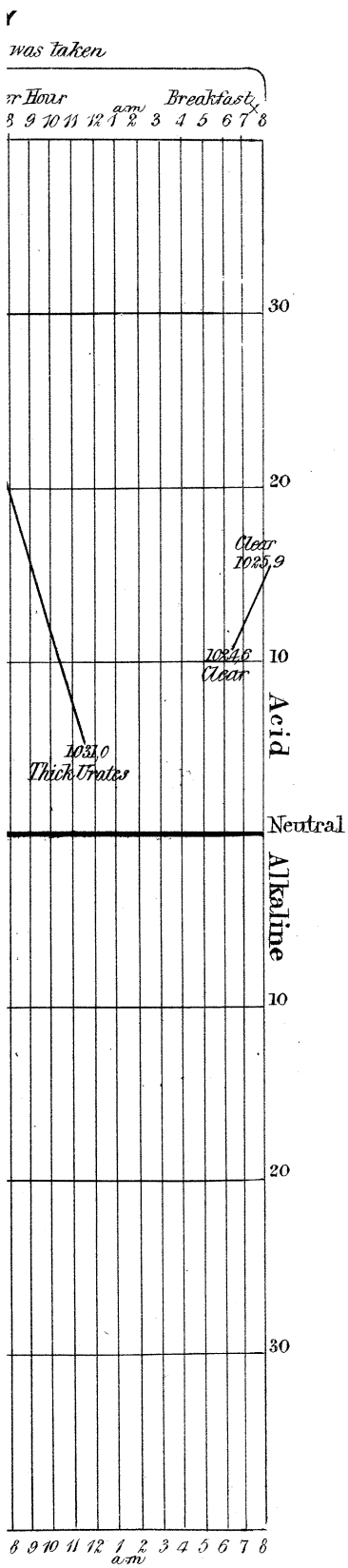
When Tartari

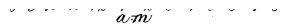


ons of the Acidity of the Urine

Tartaric Acid was taken.

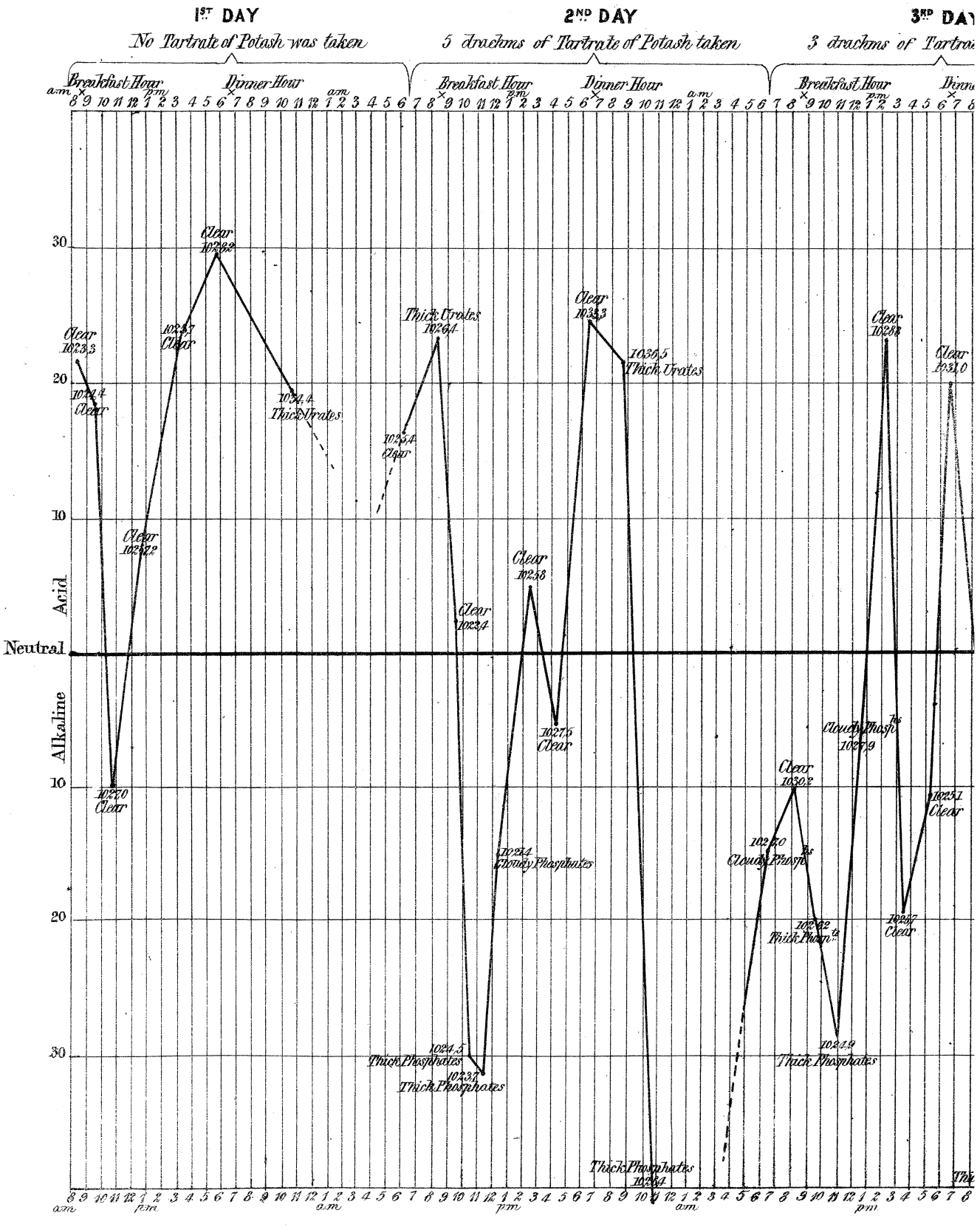



was taken
Hour
Breakfast
8 9 10 11 12 1 2 3 4 5 6 7 8
a.m.
30
20
Clear
1025.9
10
1024.6
Clear
1031.0
Thick Urates
Acid
Neutral
Alkaline
10
20
30
8 9 10 11 12 1 2 3 4 5 6 7 8
a.m.

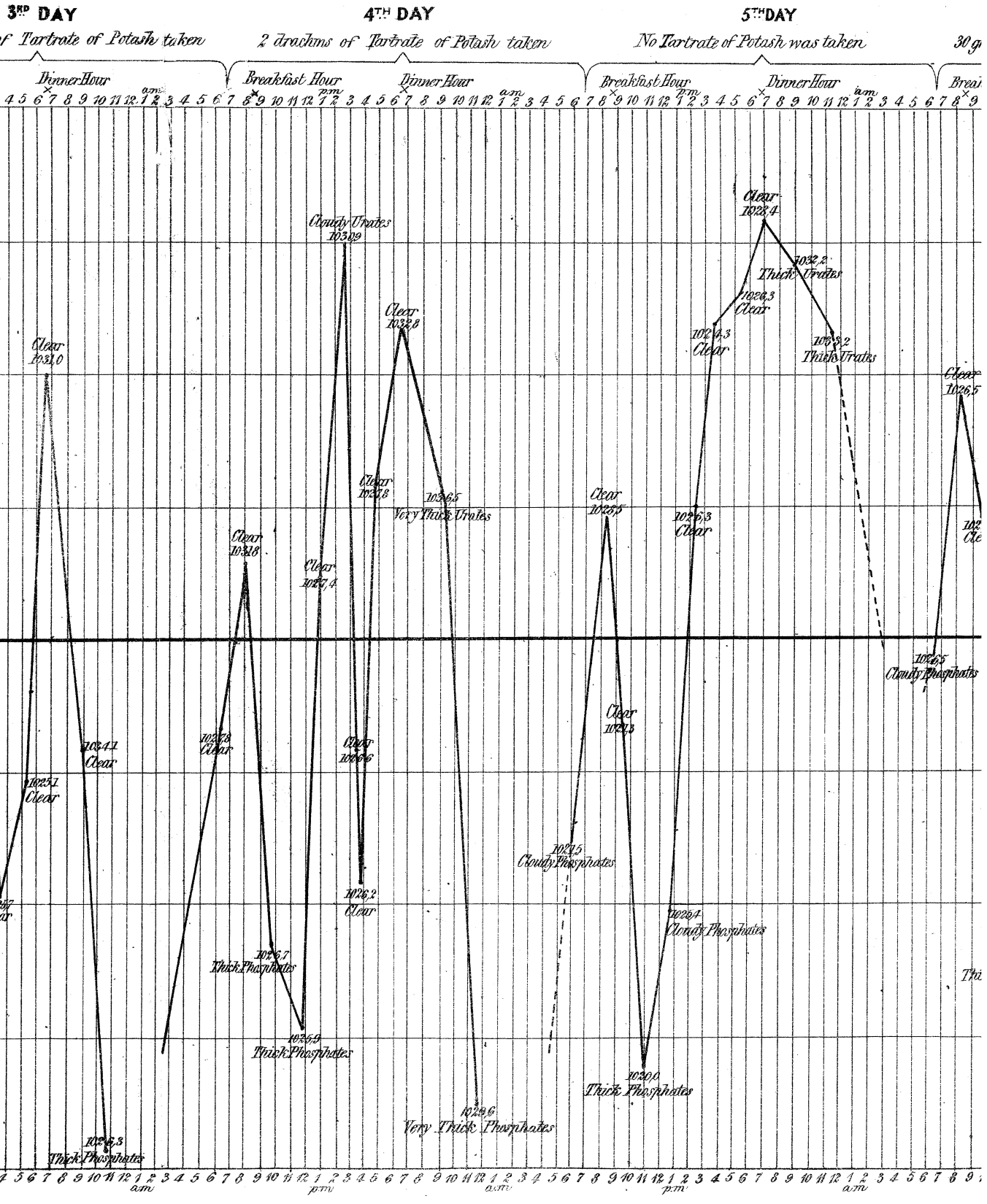


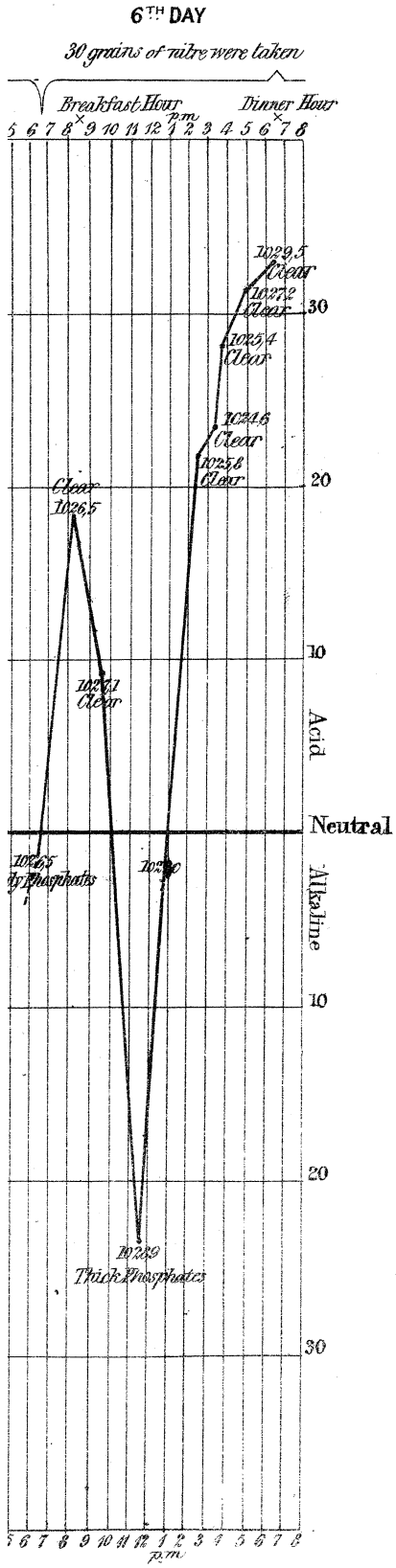
J. Bastre, fanc.

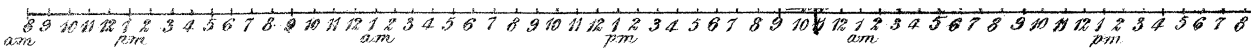
The Variations of the Acidity

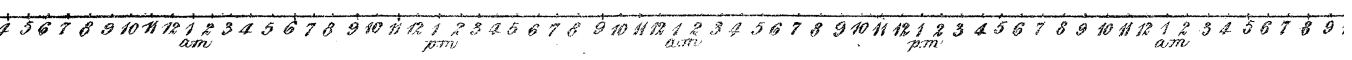


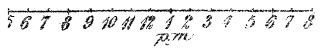
Acidity of the Urine with Tartrate of Potash.




6TH DAY
30 grains of nitre were taken
Breakfast Hour
Dinner Hour
5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8
p.m.
1029.5 Clear
1027.2 Clear
1025.4 Clear
1024.6 Clear
1025.8 Clear
Clear 1026.5
1027.1 Clear
1026.5 Cloudy Phosphates
1029.0
1022.9 Thick Phosphates
30
20
10
Acid
Neutral
Alkaline
10
20
30
5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8
p.m.


8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8
a.m. p.m. a.m. p.m. a.m. p.m.


4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9
a.m.
p.m.
a.m.
p.m.
a.m.



J. Bastre, Jane.

Description of the Plates.

PLATE XVI.

The variations of the acidity of the urine during seventy-two hours when a mixed diet was taken.

PLATE XVII.

The comparison of the variations of the acidity of the urine on two mornings, on the first of which no breakfast was taken, and on the second a mixed diet.

PLATE XVIII.

The variations of the acidity of the urine during seventy-two hours when animal food only was taken.

PLATE XIX.

The variations of the acidity of the urine during seventy-two hours when vegetable food only was taken; at the end of that time animal food only was taken, and for eight hours afterwards the acidity of the urine is given in this Plate.

PLATE XX.

The variations of the acidity of the urine during seventy-two hours when nine drachms of dilute sulphuric acid and mixed diet were taken.

PLATE XXI.

The variations of the acidity of the urine during 120 hours. In the first twenty-four hours no liquor potassæ was taken; in the following seventy-two hours upwards of an ounce of liquor potassæ was taken with a mixed diet, and for the last twenty-four hours no liquor potassæ was taken.

PLATE XXII.

The variations of the acidity of the urine during 120 hours. For the first twenty-four hours no tartaric acid was taken; in the following seventy-two hours 354 grains of dry and pure tartaric acid were taken with a mixed diet, and for the last twenty-four hours no tartaric acid was taken.

PLATE XXIII.

The variations of the acidity of the urine during 132 hours. For the first twenty-

four hours no tartrate of potash was taken; in the following seventy-two hours ten drachms of tartrate of potash were taken with a mixed diet, and for the next twenty-four hours no tartrate of potash was taken, and in the last twelve hours thirty grains of nitre were taken.

PLATE XXIV.

The comparison of the variations of the acidity of the urine when different diets were taken.

PLATE XXV.

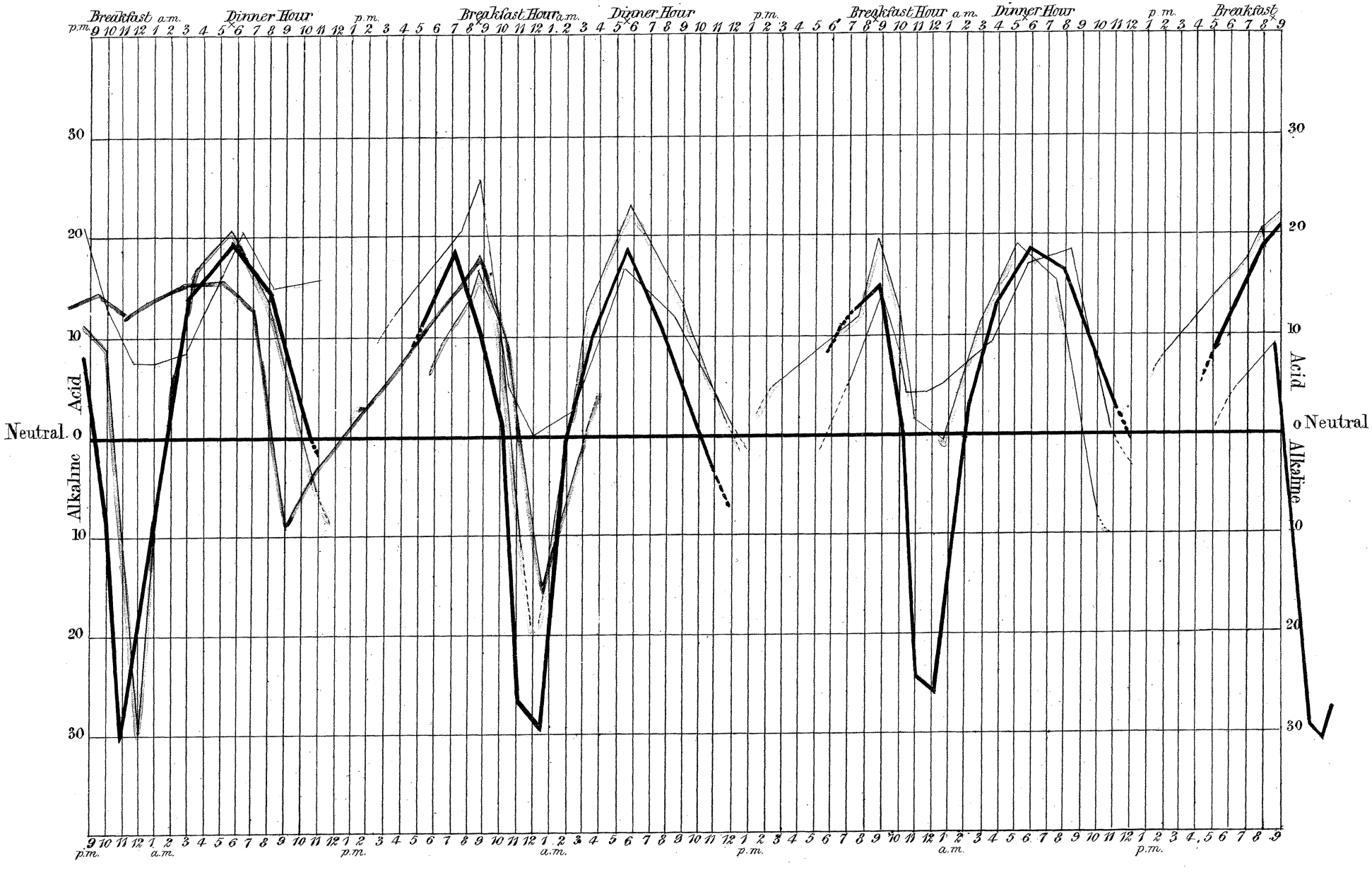
The comparison of the variations of the acidity of the urine when sulphuric acid, liquor potassæ, tartaric acid and tartrate of potash, and a mixed diet only, were taken.

The Variations of the Acidity of the Urine.

Mixed Diet. ——— Vegetable Food. ———

Each degree of Acidity or Alkalescence equals 1/12 of a grain of Carbonate of Soda.

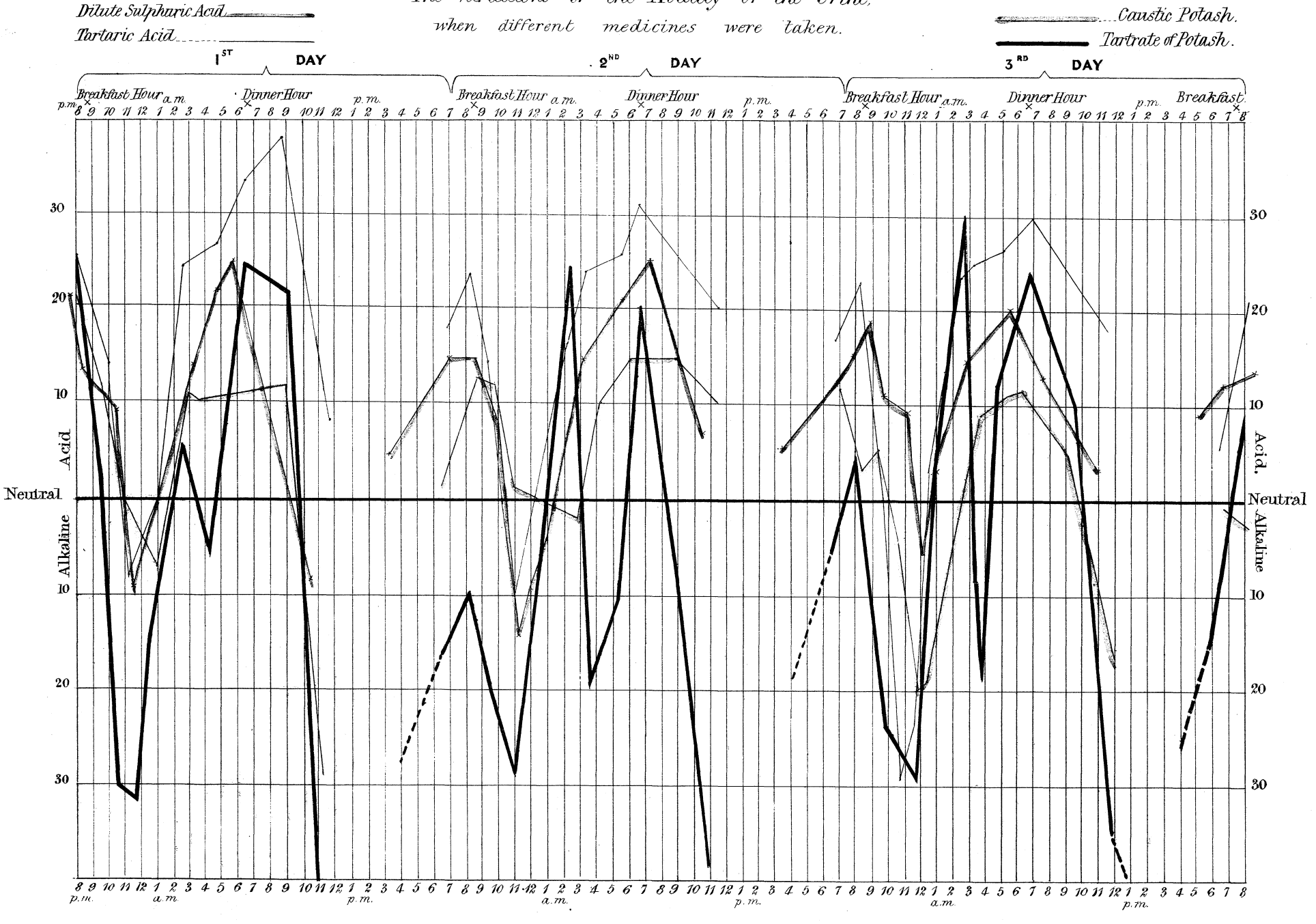
——— Animal Food. ——— No Food until Dinner.



J. Basire lith

The Variations of the Acidity of the Urine,

when different medicines were taken.



J. Basire lith

The Variations of the Acidity of the Urine,

2nd, 3rd & 4th Days with Liquor Potassæ in all one ounce specific gravity 1072.

No Liquor Potassæ — 1ST DAY — 2ND DAY — 3RD DAY — 4TH DAY — No Liquor Potassæ — 5TH DAY

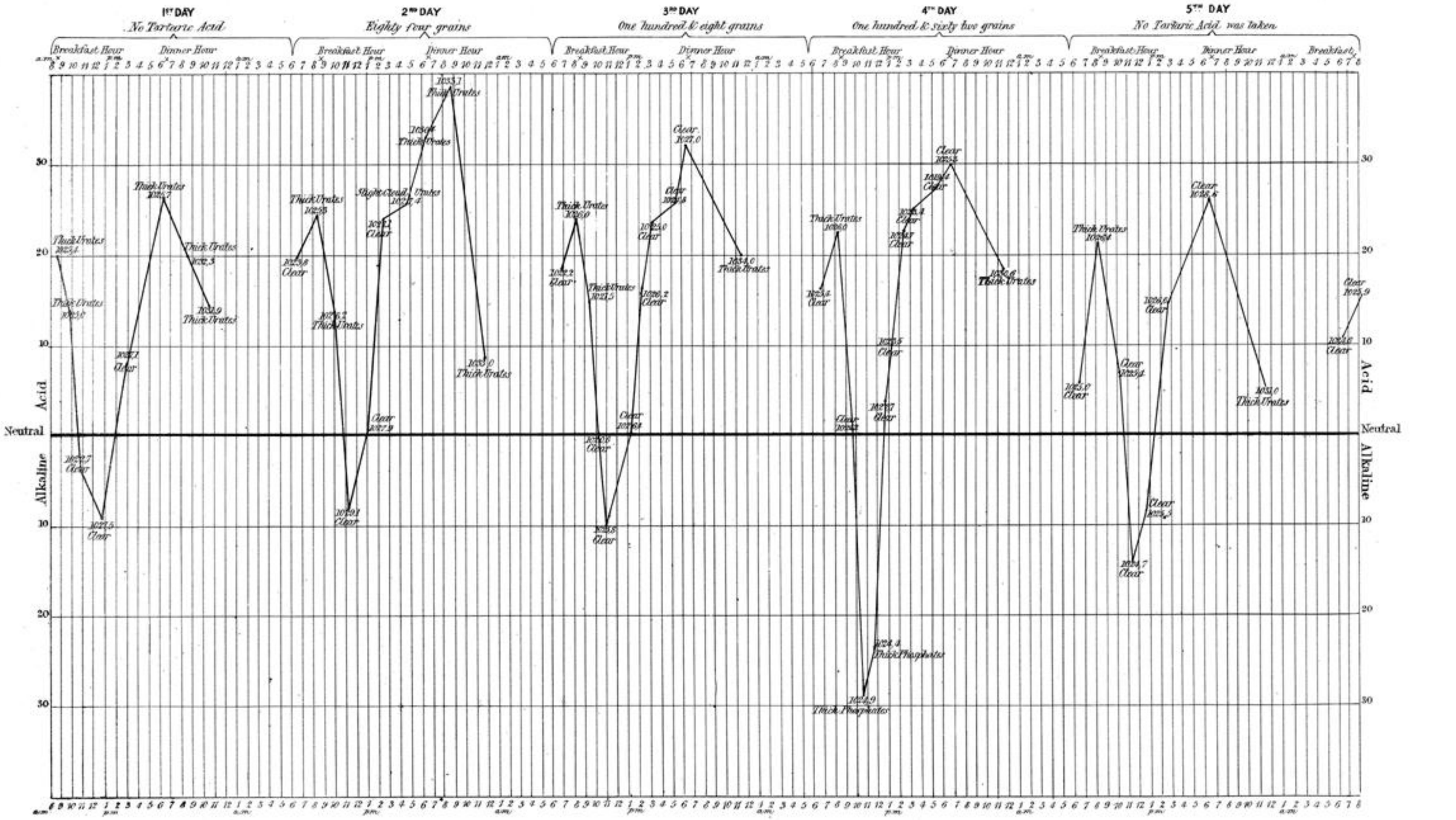
Breakfast Hour — Dinner Hour — Breakfast Hour — Dinner Hour — Breakfast Hour — Dinner Hour — Breakfast Hour — Dinner Hour — Breakfast Hour — Dinner Hour — Breakfast

Acid — Neutral — Alkaline

J. Basire Jnr.

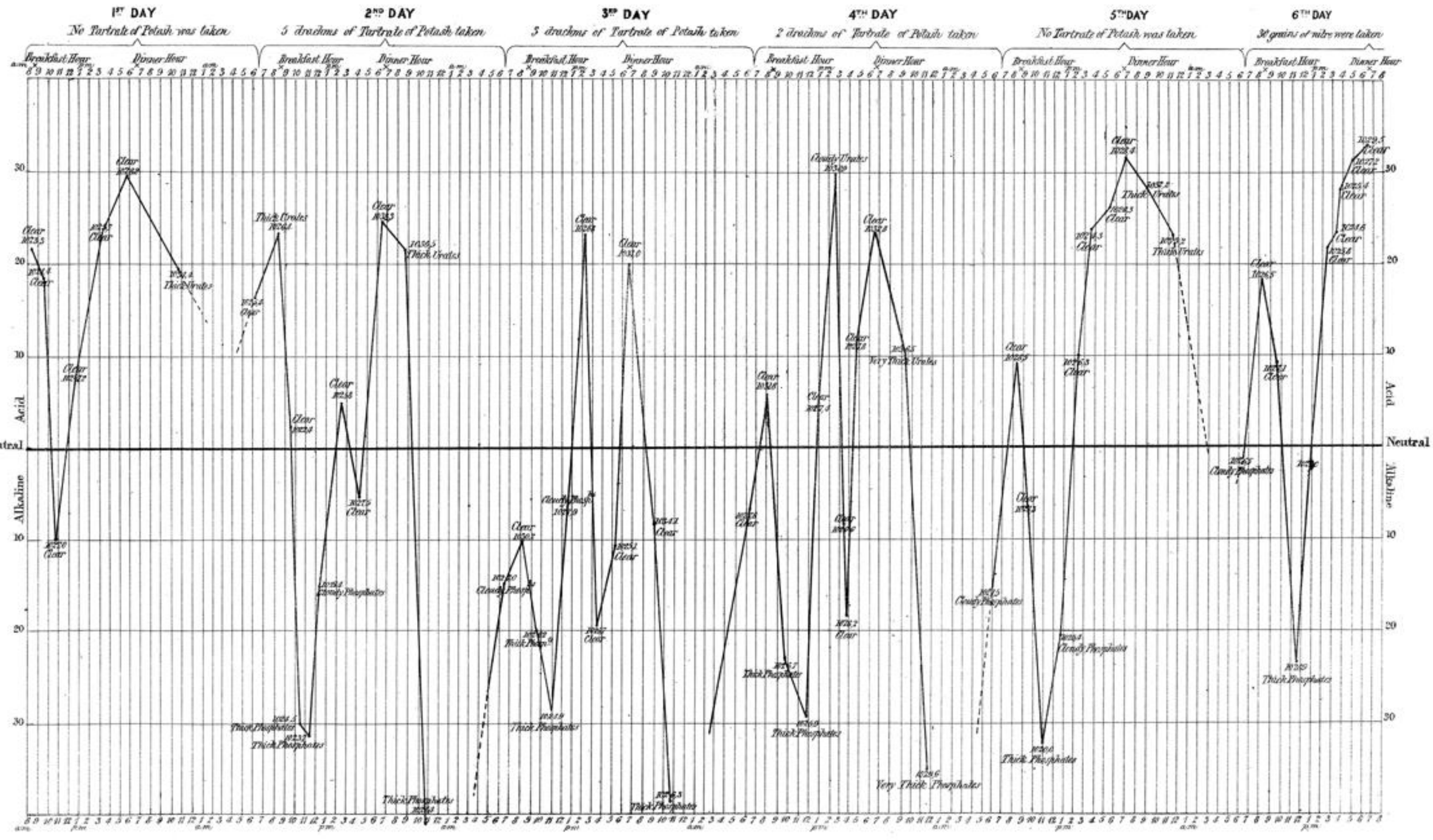
The Variations of the Acidity of the Urine

When Tartaric Acid was taken.



J. Basire, Jun.

The Variations of the Acidity of the Urine with Tartrate of Potash.



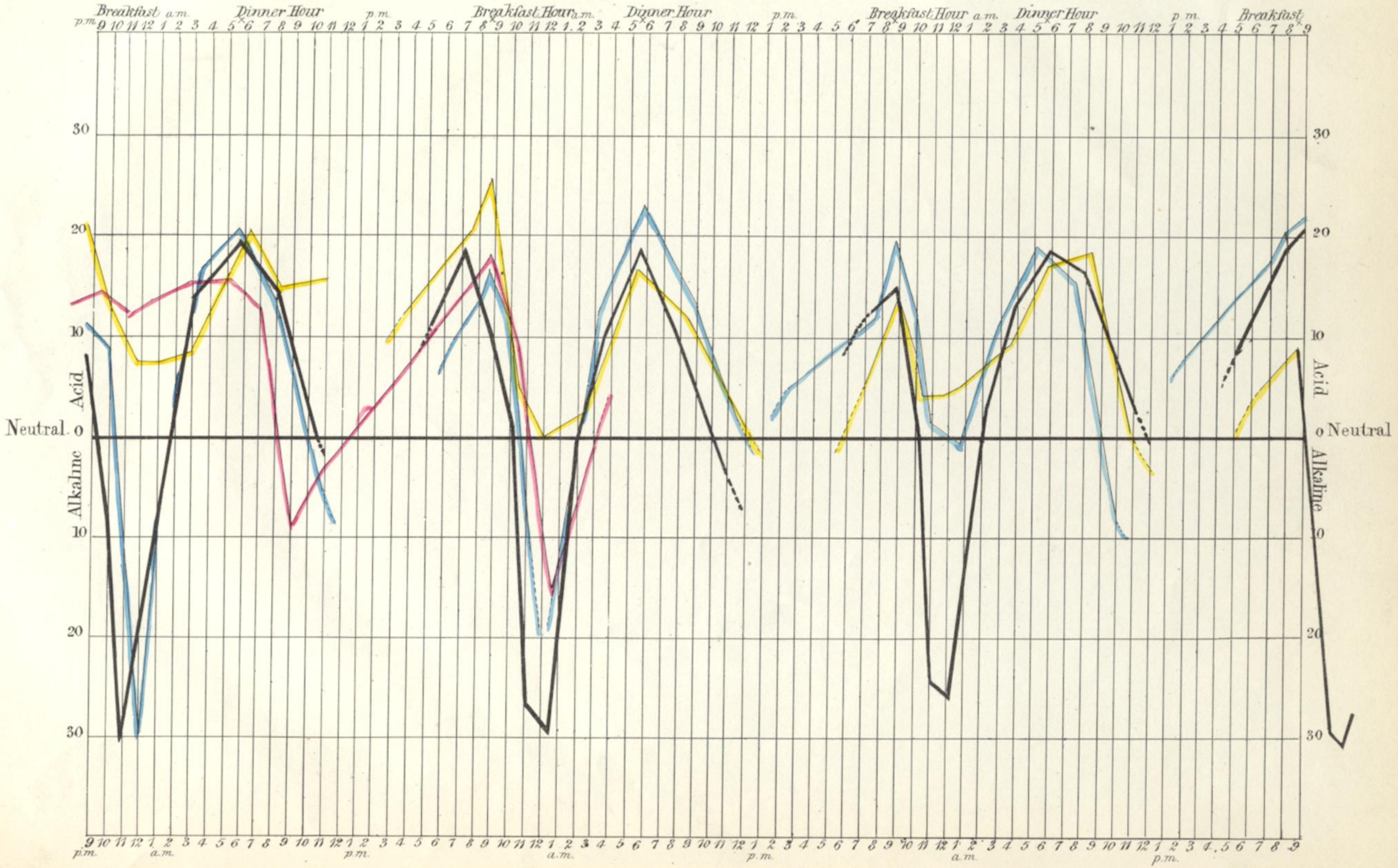
J. Basire, Jun.

The Variations of the Acidity of the Urine.

Mixed Diet .....
Vegetable Food .

Each degree of Acidity or Alkalescence.
equals 1/12 of a grain of Carbonate of Soda.

Animal Food.
No Food until Dinner.



The Variations of the Acidity of the Urine, when different medicines were taken.

Dilute Sulphuric Acid
Tartaric Acid
Caustic Potash.
Tartrate of Potash.

1ST DAY — 2ND DAY — 3RD DAY

Breakfast Hour a.m. · Dinner Hour p.m. · Breakfast Hour a.m. · Dinner Hour p.m. · Breakfast Hour a.m. · Dinner Hour p.m. · Breakfast

p.m. 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8

30 20 10 Acid. Neutral 10 Alkaline 20 30

8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8

p.m. a.m. p.m. a.m. p.m. a.m. p.m.