

From January 17th to March 18th, 1853, the galvanism was applied to the platinum wire, which was allowed to remain, about twice a week. Then ligatures and pressure were adopted for four months, with some improvement. In consequence, however, of the discontent manifested by the girl and her friends at the duration of the treatment, I was induced to change my plan; and consequently, on September 1st, I passed a very narrow double-edged knife under the skin, near to the external canthus, and cut up the whole of the blood-vessels; the hæmorrhage being in a great measure arrested by the immediate injection of a filtered saturated solution of the lactate of iron. The eyelid was a little swollen for a day or two.

On September 16th and 30th, I performed the same operation, but with so little benefit that I determined on varying my proceeding by using an unfiltered solution of the lactate of iron, which, I felt persuaded, would succeed, by its irritant as well as by its coagulating power, in stopping the circulation of the part. On November 13th, after having cut up the tumour as on each former occasion, I injected a drachm of as thick a solution as would pass through the small canula attached to the syringe. Though but little pain was experienced in former operations, after the anæsthesia had passed off, much was complained of this time; and consequently I was not surprised to find, on the following day, that considerable inflammatory action had been set up. The eye was much chemosed; the lids were swollen and very tense; and I feared that the sight would be lost. The chemosis gradually diminished; but the vitality of a portion of the lid ceased; and, on November 18th, five days after the injection, nearly the whole of the aneurism sloughed, leaving a large gap in the lid, which slowly granulated up, a few small blue vessels only remaining to be obliterated.

At the expiration of four months, I again injected the lactate of iron a few times, but without success, the remnant of the tumour being evidently too small to be affected by the fluid. Pressure and ligature seemed quite useless; and the only means left was the *potassa fusa* or hot needles. The latter I applied, and cured the case.

Chloroform was inhaled from twenty-five to thirty times, anæsthesia at first being induced in six minutes, at last in ninety. The dose on this occasion was seven drachms; and so great was the coma, which suddenly supervened to a state of vexatious talkativeness, that I feared a fatal result, and did not think it prudent to accede to the wish of my patient to administer it again.



Fig. 2.

It will be observed in figure 2 that there is a little deficiency of the lower lid, which gives a stare, and allows the tears to trickle over in moments of excitement. This defect has improved since the drawing was taken.

Although this case was under observation and treatment about two years, its result (which has placed the poor girl in a position to obtain her own livelihood) amply repays the time and labour devoted to it. I have to thank my friends, Mr. John Lowe and Mr. Jacobson, for their able assistance.

OBSERVATIONS ON ELIMINATION IN FEVER.

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THE mode of determining the amount of uræa in the following cases is a modification of that proposed by Dr. Davy (*Dublin Hospital Gazette*, June 1st, 1851, p. 134). One drachm of urine is poured into a tube graduated into cubic inches, tenths, and hundredths; and the tube is then filled up with liquor sodæ chlorinatæ, diluted with an equal volume of water, and immediately inverted in a solution of common salt. The urine, as it gradually mixes with the liquor sodæ chlorinatæ, becomes decomposed, and nitrogen is set free, which collects in the top of the tube. Much of the liquor sodæ chlorinatæ is wasted, being expelled by the nitrogen as it collects. Some loss of uræa, no doubt, takes place; but not much, I think, as scarce any gas is evolved in the lower third of the tube. After standing some hours, the tube should be shaken, as Dr. Davy recommends, after which some further amount of nitrogen is extricated. In about six hours, the volume of gas may be read off, and the amount of uræa can be easily calculated from it; 1,540 cubic inches of nitrogen = 1 grain of uræa. I do not suppose this method is so accurate as that of Liebig; but it can be very easily and readily performed, and affords, at any rate, results capable of being compared with each other. The main cause of error lies in the circumstance that so small a quantity of urine only can be operated on.

CASE I. R. B., aged 24, was admitted September 30th, 1856. He had been ill seven days. He had severe fever, from which he was convalescent on November 11th. There was diarrhœa, and at one time high delirium. He was treated by salines and a little wine till October 9th, when he got two grains of quinine every three hours. The wine was increased to six ounces on October 10th. Improvement had begun by October 13th.

Urine. October 7th. The urine was of yellowish colour, clear; specific gravity 1014; slightly albuminous, depositing numerous granular and translucent casts. The quantity in twenty-four hours was above 20 oz.

October 10th, during depth of fever. The quantity passed in twenty-four hours was 66 oz., of specific gravity 1018. The total amount of uræa was 534.864 grains; the total amount of uric acid, 23.76 grains. There were many casts deposited.

October 23rd. The patient was taking bottled porter and three ounces of wine; no meat. Convalescence had commenced. The quantity of urine in twenty-four hours was 60 oz., of specific gravity 1017. The total amount of uræa was 468.00 grains; of uric acid, 4.20 grains. Much uric acid was deposited; there were also a trace of oxalate of lime, and a few casts with fungi filaments.

November 14th. He was quite well. He had had ordinary diet and porter since October 27th. The quantity of urine in twenty-four hours was 66 oz., of nearly normal colour, of specific gravity 1017. The acidity per ounce was represented by forty drops of saturated solution of bicarbonate of soda. The total amount of uræa was 490.776 grains; of uric acid, a trace. There was, besides, a copious precipitate of uric acid, which fell down spontaneously, and could not be estimated. There were no casts.

It is clear that the greatest amount of tissue-metamorphosis as indicated by the urine, took place during the depth of the fever; it was less at the period of commencing convalescence, and increased again somewhat when health was restored, but did not equal then that which went on when the vital powers were most prostrated by the fever-poison. The spontaneous separation of the uric acid during convalescence, as long as the patient was under observation, is worthy of remark. It did not result from superacidity of the urine, as this was notably less than the normal mean (sixty drops per ounce). I have now a patient, who has been under my observation for months, suffering from symptoms of renal degeneration; his urine constantly deposits much uric acid, although the acidity is below the usual mark. The spontaneous separation of uric acid is a very common occurrence in children recovering from scarlatinal drowsy. In all these cases, I do not think the phenomenon is to be explained by the existence of an excess of urates, or of over-acidity of the urine. I rather refer it to an impairment of the function of the kidney, and look upon it as a sign of a weakened organ. Is there any connexion between this state and that which gives rise to calculus?

CASE II. J. H., aged 49, a woodman in Hyde Park, was admitted October 13th. He had been ill one week with typhoid fever, accompanied by some delirium and diarrhœa. He be-

came very low, and died October 25th. He was treated by beef-tea and six ounces of wine. On October 19th, he had half an ounce of spt. guacæ every four hours.

Urine. October 20th. The quantity in twenty-four hours was 34 oz.; specific gravity 1025; colour high. The acidity was below the normal mark. The total amount of urea was 263.206 grains; of uric acid, 10.2 grains. The urine deposited casts, mostly homogeneous.

CASE III. S. B., aged 39, a nurse in St. Mary's Hospital, was admitted December 2nd, 1856. She had been ill some days before admission. She was attacked at first with diarrhœa and vomiting. She lapsed into a state of extreme depression, and died October 10th. She was treated with salines and nitric ether, and compound chalk powder with opium for diarrhœa. She had half a bottle of stout on December 6th; and, on December 9th, was ordered to have an ounce of *mistura spiritûs vini gallici* three times a day.

Urine. December 9th. The quantity of the last twenty-four hours was 42 oz.; it was high coloured, turbid, but clear after depositing a white sediment; specific gravity 1020. The acidity per ounce was equal to thirty drops of saturated soda solution. The total amount of urea was 431.424 grains; of uric acid, 5.88 grains. The urine was doubtfully albuminous. In the deposit were masses of uric acid, granular and homogeneous casts, a good deal of renal epithelium, and some blood-corpuscles.

In both the preceding cases, the fatal event precluded a comparative analysis. It is apparent, however, that, in the last case, the amount of urea excreted was quite equal to that produced by a person in health (336 to 401 grains, according to other observations with this method). In Case II, the amount of urea was below the healthy mean; but the number of ounces passed, and the specific gravity, do not support the view that elimination was not going on freely. Moreover, the quantity of uric acid was above the mean.

CASE IV. G. B., aged 20, male, was admitted November 4th, 1856. He had been ill five days before admission. He had typhoid fever, from which he was convalescent December 4th.

November 6th. He had six ounces of port wine daily.

November 12th. He was ordered a draught of decoction of cinchona, with a drachm of tincture of cinchona, every three hours.

November 19th. Broth diet and milk were ordered: the medicine and wine were omitted.

Urine. About November 5th. The quantity in twenty-four hours was 12 oz.; it was nearly clear, not high coloured; specific gravity 1016. The acidity per ounce was equal to sixty drops of saturated solution of bicarbonate of soda. The total amount of urea was 112.418 grains; of uric acid, 1.56 grains. The urine was slightly albuminous; it deposited a very few granulo-homogeneous casts.

November 27th. The quantity in twenty-four hours was 74 oz.; it was clear; specific gravity 1014. The acidity was represented by thirty-three drops of the soda solution. The total amount of urea was 374.144 grains; of uric acid, 1.11 grains.

December 19th. The quantity in twenty-four hours was 66 oz.; specific gravity 1014.5; quite clear. The acidity per ounce was equal to 65 drops of saturated soda solution. The total amount of urea was 361.152 grains; of uric acid, 3.96 grains. The urine deposited a good deal of uric acid spontaneously, and a little oxalate on standing two or three days.

The first analysis in this case does not refer to the depth of the fever, but to an earlier period. The amount of excreta was very greatly increased during the time when convalescence was fully established, as the two last analyses show. The result, on comparison, is notably different to that of Case I; but the date of the first analysis in Case IV has to be regarded. The two experiments are not quite parallel.

CASE V. G. F. H., aged 14, male, was admitted November 21th, having then been ill one week. He had diarrhœa and low fever, began to convalesce about December 5th, and was discharged well about January 22nd. He was treated by hydrargyrum cum cretâ, night and morning, from November 26th to December 6th; and an ounce of decoction of cinchona thrice daily. Beef-tea and milk, and two ounces of port wine, were given.

December 10th. He had broth diet and milk.

December 13th. He had half ordinary diet; on December 30th, ordinary diet.

Urine. December 2nd. The quantity in twenty-four hours was 51 oz.; specific gravity 1007; natural colour. The acidity per ounce was equal to twenty-five drops of soda solution. The

total amount of urea was 197.472 grains; of uric acid, 1.02 grains. There was a deposit of mucus-corpuscles.

January 8th, 1857. The quantity in twenty-four hours was 82 oz.; specific gravity 1012. The acidity per ounce was equal to twenty-five drops of soda solution. The total amount of urea was 249.854 grains; of uric acid, a trace.

In this instance, the amount of the excreta had increased considerably during the period of convalescence. This may in part, no doubt, be attributed to the improved diet which he had for several days before the second analysis. The urine of the full fever period was, however, in large quantity, though of low specific gravity.

CASE VI. E. S., aged 20, female, was admitted December 12th. She had been ill about seven days before admission. She had typhoid fever, was convalescent about December 30th, and was discharged well about the middle of January. She was treated by three grains of hydrargyrum cum cretâ, night and morning, for some days, with an ounce of mixture of acetate of ammonia three times a day; milk, and beef-tea.

December 15th. Five ounces of port wine were given.

December 30th. She had half ordinary diet, and a pint of porter; also an ounce of decoction of cinchona three times a day.

Urine. December 18th. The quantity in twenty-four hours was 44 oz., of clear light colour; specific gravity 1008. The acidity per ounce was equal to sixty-five drops of the soda solution. The total amount of urea was 193.116 grains; of uric acid, 2.64 grains.

January 5th. The quantity in the last twenty-four hours was 79 oz.; it was clear; specific gravity 1012. The acidity per ounce was equal to sixty drops of soda solution. The total amount of urea was 302.017 grains; of uric acid, a trace.

This case is very similar to the preceding; the same remarks apply. In both cases, the uric acid in the period of convalescence amounted to but a mere trace.

CASE VII. A. P., aged 22, a male, was admitted June 26th, 1857, having been ill seven days before admission. He had typhoid fever, with diarrhœa. He was in the depth of fever about July 9th, began to convalesce about July 14th, and was doing quite well on August 14th. He was treated with six-drachm doses of quinine mixture from July 6th to 8th; afterwards with mixture of acetate of ammonia, and two grains of bicarbonate of ammonia, every four hours. Four grains of hydrargyrum cum cretâ were also given on the night and morning of one day. He had broth, and five ounces of wine daily.

July 14th. He had half a pint of bottled porter, with half a drachm of yeast.

July 17th. Half ordinary diet was ordered, with a pint of milk, and the same quantity of beef-tea.

July 19th. The following was prescribed:—

℞ Decocti cinchonæ ʒi; ammoniæ bicarbonatis gr. ij. M. Fiat haustus ter die sumendus.

July 20th. He was ordered an egg daily.

August 3rd. He was ordered two ounces of port wine daily.

August 6th. He had a pint of bottled stout.

August 7th. He was ordered ordinary diet, with a pint of milk, and half a pint of beef-tea.

Urine. July 9th. The quantity in twenty-four hours was 38 oz.; specific gravity 1016. The acidity per ounce was equal to thirty-five drops of the soda solution. The urine was of pale red colour, nearly clear; it contained much albumen. The total amount of urea was 388.512 grains; of uric acid, 1.90 grains. The urine deposited some casts, granular and corpusculated; and some renal epithelium.

August 1st. The quantity in twenty-four hours was 29 oz.; specific gravity 1023. The acidity per ounce was equal to forty drops of the soda solution. The colour was high, clear; there was no albumen, nor were there casts. The total amount of urea was 296.496 grains; of uric acid, 8.245 grains.

In this case, elimination by the urine went on in much greater quantity during the depth of the fever than subsequently, when health was being re-established. The presence of albumen, casts, and renal epithelium, in the secreta during the fever period, testify to the existence of renal congestion at that time, which subsequently ceased.

REMARKS. In cases IV, V, and VI, the amount of urinary *eliminata* was greater during convalescence; in I and VII, it was greater during fever. This no doubt depends partly on the circumstance that the analysis was made at an earlier period of the disease in the former than in the latter. The average date in the one is 18.5, in the other 11.33 days, from the commencement; as appears from the following table.

Dates of the Analyses (a) during the Fever Period; (b) during Convalescence.

Cases.	Fever period.	Convalescence.
I	17th day.	30th and 44th days.
II	13th "	" "
III	12th "	" "
IV	6th "	28th and 50th
V	15th "	52nd
VI	13th "	31st
VII	20th "	43rd

In the latter, also, there was decided renal congestion; in the former, it was absent, or but slight. Only in case IV was the amount of urine during the fever period below the normal amount; in all the others, including II and III, it was rather copious than the reverse. It is rather remarkable that the greatest elimination during the fever period should have occurred in those cases which presented renal congestion at the same time. The vital action of the glands was not overborne by the hyperæmic afflux, as is so often the case. It is to be remembered, of course, that the amount of elimination during the fever period took place at a time when the supply of food was very materially diminished, and when the amount of waste would naturally have been lessened. A lower figure at this time indicates a proportionally greater degree of elimination than it would during convalescence, when more food was consumed.

The general tendency of the result seems to me to point to the conclusion that, in these fevers, the eliminatory process was not so deficient as to indicate the necessity of directing therapeutic proceedings with the view of increasing it. It is clear that greater waste and elimination may go on during fever than during convalescence; so that diminished excretion cannot be the essence of fever. I once asked a physician, who had ordered grey powder for a fever patient twice a day, what was his reason for doing so; and his reply was, "To eliminate the morbid matter." This idea seems to be widely diffused, and is, in fact, the popular medical theory of the day. I do strongly suspect it is unsound; and that it might easily, but for the clear necessity of supporting the patient's strength, lead to wrong practice. The fever poison is surely gaseous, if it is a material thing. What prospect have we of getting rid of it, especially if it multiplies itself as we conceive, by any kind of evacuation, except it be by the pulmonary exhalations. Indeed, the breathing a free pure air I can believe to be of the greatest importance; but I question exceedingly whether, in any fever except rheumatic, eliminatory remedies are of the least avail, supposing them to act beneficially by ridding the system of the virus or miasm it has imbibed. That they may do good by subduing local inflammations or congestion, is very intelligible, as when renal congestion of scarlatinal origin is relieved by purging; but this is no more than effecting a determination of fluids elsewhere.

If in a malarious fever there comes a complication of dysentery, we do not give diuretics to carry off the poison by the urine, or put our trust in forcing copious sweats, but we treat the dysentery as a local inflammation, arrest its flux as soon as we can, and deal with the fever poison by fortifying the nervous system with quinine, and so enabling it to withstand the morbid influence. Who would dream, in a bad case of erysipelas, of trying to get rid of the poison? Our instinct and our experience tell us that our task is to maintain the system in its struggle against it. The same is true in the case of snake bite, and, indeed, of most poisons once received into the blood. Should we think of elimination in the case of poisoning by opium or strychnine? In fact, the attempt is simply impossible in any such instance; the virus is diffused everywhere throughout the blood and fluids of the system, and we might probably evacuate all before the end was attained. The rational treatment of fevers therefore resolves itself into this; (1) to quiet inflammatory movement if it run high, locally or generally; (2) to sustain the several vital actions when in danger of failing in asthenia. In tropical fevers large blood-lettings may be most essential with antimonials and refrigerants. Even in some forms of fever among ourselves the administration of tartar emetic and opium, as practised by Dr. Graves, is of the greatest benefit. Usually, however, at the present day, all our exertions are called forth to counteract asthenia; and if any part become seriously engorged, a cautious local bleeding is to be associated with stimulus. An eminent physician once described his practice to me in pneumonic complication occurring in fever thus: "For every ounce of blood I take by cupping from the chest, I give an ounce of wine."

In the above cases there is the same diversity as noted by Dr. Parkes in instances of pyrexia; viz., increased elimination in some, diminished in others. I have examined the histories of the latter, but do not find that any sudden special excretion took place during convalescence, as he considers is likely to occur from the semitransformed and retained matters being at last hurriedly evacuated.

The large flow of urine which took place in almost all the cases during convalescence deserves to be noted.

In Case I it amounted to 66 ounces on the thirtieth day, and in Case V to 82 ounces on the thirty-fourth day after improvement had commenced. This appears ascribable to remaining debility. A case of chronic phthisis under my care passed 50 to 67 ounces of urine daily, of specific gravity 1010. Few things are more apparent than the long continuance of the prostrating effect of fever. The system too often has received a *coup* from which it never fully recovers.

Periscope.

EPIDEMIOLOGY, HYGIENICS, AND STATISTICS.

ON THE SPOTS OBSERVED IN THE PROGRESS OF FEVER, AS A MEANS OF DIAGNOSIS.

DR. HENRY KENNEDY of Dublin has published a paper on the diagnostic value of the spots observed in the progress of fever, in the *Dublin Hospital Gazette* for April 15th, 1857. He is of opinion that, with regard to these spots, views prevail which are not supported by facts. As example, he refers to the prevalent idea that the presence or absence of spots at once marks the kind of fever present. But he has often observed cases of fever to come from the same room—often from the same bed—and yet some of them only to present spots. Or a husband and wife are attacked with fever, and the one is spotted, the other not. Some time since, three brothers, adults, were admitted into Cork Street Hospital, under the care of Dr. George Kennedy. They lived together, and were admitted within two days of each other; they had all heavy fever, but one only was spotted. Will it be maintained that those men suffered from different kinds of fever, merely because one was spotted and the others not? Some time back, he saw, with Dr. Denham, five members of the same family labouring under scarlatina; not one of these had the same form of disease. Few would maintain that the disease was due to a different poison in each instance. Yet, when precisely a similar occurrence takes place in our ordinary fevers, it is considered by many to be caused by a variety in the poison; and the presence of spots, above all, makes many look on the disease as something very specific. Dr. Kennedy believes that all such differences as those alluded to are due, either to the intensity of the poison, or the state of the constitution at the time being; or any cause rather than a difference of the poison.

A second point to be noticed is, as to whether there is anything of a specific character in the fever of this country. In 1847-48, the expression "Irish fever" was to be found through all the English papers. Dr. Kennedy asserts that there is no fever peculiar to Ireland, as distinguished from what is seen in England and Scotland; and also that, before the epidemic fever in Ireland in 1847-48, the disease had increased much in England. There is a great law affecting all the more wide spread epidemics, and showing that their course across the globe is from east to west, or from south-east to north-west.

At a certain period of some cases of fever, spots make their appearance. This is usually from the sixth to the ninth day of the disease; but on this point there are great differences. They will be occasionally seen as early as the third day, reckoning from the period of the rigor. There are difficulties, however, in determining this; for it by no means follows that the patient is not ill before the rigor. Still, some of the cases seen by Dr. Kennedy were inquired into as minutely as was possible, and the spots did appear then on the third day. On the other hand, they are often much later than what is usual in making their appearance. Thus he has seen them as late as the twentieth day; and very critical cases all such in general were. In cases where the fever is made up of two parts, with an interval between, they may be absent in the first and present in the second, and *vice versa*; though the last is not as common as the first. Dr. Kennedy has notes of more than one case where the individual passed through three distinct fevers before leaving the hospital; yet it was only in one of the series