On the Urinary Elimination of Chlorine in Acute Pulmonary Affections (Acute Lobar Pneumonia, Pleurisy with effusion. and Acute Phthisis) based on the results of daily observations in nineteen cases.

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It may be taken as a fairly correct estimate that the quantity of Chlorine eliminated by most healthy adults amounts to from 6 to 8 grammes in 24 hours, the quantity probably being somewhat less in the case of women and children. Hegars observations quoted in Neubauer and Vogel[1] give a variation of from 7.4 grammes to 13.9 grammes, while Bischoff[2] found the mean daily quantity of Chlorine eliminated in the urine of a healthy adult man to be 8.7 grammes, of a woman 43 years of age 5.5 g grammes, of a girl of 18 years of age 4.5 grammes, and of a boy of 16 years of age 5.3 grammes. It is however generally admitted that the quantity of Chlorine eliminated in the urine varies greatly not only in different individuals but also in the same individuals under different conditions. The first statement as to the diminution of Chlorine in the urine of pneumonic patients was made by Redtenbacher[3] in 1850, who stated his belief that in inflammation of the lungs, the chlorine compounds in the urine were in direct proportion to the increase and decrease of the inflammation. Since then the subject has received much attention both in this country and on the Continent, the latest authoratative work being that of Hutchison[4] in which its historical and bibliographical aspects

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are fully treated.

Much discussion has naturally taken place as to the diagnostic significance of a diminished excretion of Chlorine, many observers as Julius Vogel, Howitz and F. Hoppe, holding that the diminution of chlorine in the Urine is not a feature of any particular disease such as pneumonia, but rather of an entire class of diseases characterised by fever; while other observers hold that fever "per se" does not lead to any marked diminution in the elimination of Chlorine compounds.

Thesthesis is not intended to cover so extensive a field but is simply limited to a consideration of the results obtained from a careful observation of the quantities of Chlorine eliminated daily during the course of acute pulmonary affections - Lobar pneumonia, Pleurisy with effusion, and Acute Phthisis - and the relationship of this elimination to certain clinical phenomena, particularly to the quantity of Urine secreted daily, the total solids, the temperature, and the inflammatory process.

The observations were conducted in the Glasgow Royal Infirmary (by the kind permission of Dr. Lindsay Steven) and include notes on 19 cases admitted to the wards. Of these, 10 were cases of undoubted Lobar Pneumonia/

monia, 8 were diagnosed Pleurisy with effusion, and 1 case was acute Phthisis. In all the quantitative estimations of chlorine in these cases amounted to 300.

The method followed in estimating the quantity of Chlorine was that of Mohr. 5 c.c. of Urine were as a rule used and evaporated to dryness with about 2 grammes of chemically pure Nitrate of Potash. The residue obtained was then gradually heated until the carbon was completely oxidised and the residue fused into a white mass. The fused mass was then dissolved in distilled water and rendered faintly acid with pure very dilute Nitric Acid. The acid reaction was then neutralised by the addition of a little precipitated carbonate of Lime.

For titration, an accurately standardised solution of silver Nitrate was used, of such strength that 1 c.c. of the solution was equivalent to 3.534 millegrammes of Cl. A neutral chromate of Potash solution was used as an indicator.

The first 10 cases are those of pneumonia, the following 8 are pleurisy with effusion, and the last case is Acute Phthisis.

Each case is stated in synoptic tabular form, and in addition is accompanied by 3 charts, viz:-

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A. Giving the temperature, etc; the daily amount of Cl in grammes; the daily quantity of urine - for convenience of chart - on ounces, and also a statement of the physical condition from time to time.

B. Giving the Cl - as Na Cl - per 1000 of urine; the Total Solids per 1000 of Urine, and the quantity of Urine in c.c's; daily.

C. Giving the Chlorine - as Na Cl - expressed in terms of the Total solids per diem.

Pneumonia Series:

In no instance during the whole series of observations in the pneumonic cases has there been a total absence of Cl. from the urine on any day. Thus in case 1 the minimum quantity was 1.99 grammes; in case 2, 2.1 grammes (on the 10th day of illness); in case 3, 1.45 grammes on the 3rd day; in case 5 minima of 1.5 grammes and 1.4 grammes were recorded on the 6th and 12th days respectively; in case 6, 1.6 grammes and 1.4 grammes on the 7th and 9th; in case 7 the minimum was 1.25 grammes on the 3rd day; in case 8, 1.47 grammes on the 8th; [illegible] case 9 gave minima of 1.87 grammes and 1.4 grammes on the 9th and 14th days and in

case/

case 10 the minima were 1.5 grammes on the 4th and 1.6 grammes on the 6th day of the disease. Case 4 being in some respect exceptional is reserved for consideration by itself. In all cases, with one exception (that of case 2) there is to be noted a marked diminution in the daily elimination of Chlorine during the Febrile period.

The maximum output of Chlorine before the crisis (or first day of normal temperature in non-critical cases) was as follows:- (1) 2.06; (2) 6.29; (3) 2.01; (5) Lysis 3.05; (6) 4.34; (7) 2.77; (8) 3.0; (9) Lysis 4.19; and (10) Lysis 1.89 grammes.

After the crisis (or first day of normal temperature in non-critical cases) the quantity of Chlorine varied as follows:-

	Minimum.	Maximum.
Case 2. -------	2.1 grm. on 10th day (1st after crisis)	8.25grm on 21st day.
Case 3 -------	3.5 " " 7th " (1st " ")	10.5grm on 14th day.
Case 5 Noncritical	1.37 " " 12th "	7.35grm on 14th day.
Case 6 -------	1.4 " " 9th " (1st " ")	15.66grm on 14th day.
Case 8 -------	1.47 " " 8th " (1st " ")	8.64grm on 11th day.
Case 9 Noncritical	1.4 " " 14th " (1st n. t.)	13.05grm on 18th day.
Case 10 Noncritical	4.03 " " 12th " (1st n. t.)	8.44grm on 17th day.

Case/

† Case 6 was fatal before crisis, and case 7 immediately after.

In relationship to the output of Urine.

During the two observations in case 1 the relationship remained practically constant. In case 2 during the febrile period the quantity of chlorine was tolerably high, varying fairly regularly and directly with the variation in the quantity of urine, In the post critical period there was a gradual rise in the chlorine accompanied by a gradual rise in the urine, and in the convalescent period, although the quantity of chlorine eliminated was greater in proportion to the urine excreted, there was still, as shewn in Chart, 2a, a rise and a fall in the quantity of urine, corresponding to a rise or a fall in the amount of chlorine eliminated. Expressing the chlorine in terms per centum of the urine the following figures are obtained:- In the febrile period .31% to .5%; post critical period .35% to .54% ; in the convalescent period .59% to .7%.

During the febrile period of Case 3 while the quantity of Cl. eliminated was small, varying roughly from 1.5 to 2 grm., the quantity of urine excreted in the 24 hours was fairly normal. Chart 3a shews that concurrently with the crisis there was a rise both in chlorine and in urine

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until the day after crisis when the relationship became more irregular. In the convalescent period although the output of chlorine was greatly increased, there was still an increase, but relatively a less one, in the amount of urine excreted. The results when expressed in percentages are, for the febrile period .13% to.18%; post critical period .18% to .38% and for the convalescent period .38% to .54%.

In case 5 the quantity of urine excreted during the febrile period of the disease was small, and the quantity of Chlorine eliminated was correspondingly low, the rise and fall in the two curves as shewn in Chart 5a corresponding closely with each other. From the 8th to the 10th day of the disease the urine remained constant at 880 c.c. - 900 c.c. (31 to 32 ounces) but the chlorine shewed a tendency to rise and reached 3.67 grammes on the 9th but fell again and on the 10th day reached as low a figure as 1.366 grammes at a time when the daily quantity of urine had increased to 42 ounces and 38 ounces (1193 c.c. - 795 c.c.). From this date onward there was a marked increase in the quantity of chlorine eliminated daily relatively more marked than the increase in the quantity of urine.

Expressed/

Expressed in percentages the urine contained during the first 8 days of illness from .26% to .36%; on the 9th and 10th days .41% and .33%; on the 11th and 12th days .21% and .17% and from the 13th day onward from .5% to .6%.

Case 6 was in all respects a perfectly typical Lobar pneumonia. Here the quantity of urine during the febrile period varied within perfectly normal limits, while the output of Chlorine varied from a maximum of 4.34 grammes on the 5th day of the disease to a minimum of 1.6 grammes on the 7th day.

Chart 6a. shews that with the crisis on the 8th day there was a marked fall in the quantity of urine, 682 c.c. (24 ounces) being recorded for the two following days - the 9th and 10th of the disease - with an output of Chlorine for these two days of 1.4 grammes and 2.4 grammes. Until the 12th day there was a uniform rise both in urine and in chlorine. On the 14th day the urine suddenly rose to 3124 c.c. (110 ounces) and was accompanied by a correspondingly sudden rise in Chlorine to 15.66 grammes. From this date the urine fell to normal quantities, and the chlorine remained about normal varying from 9 grammes to 10 grammes per diem. During the acute period the urine contained from .14% to .33% Chlorine; on the

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2 days after the crisis (9th and 10th) .22% and .35%; on the 12th day .46%; on the 13th and 14th days .44% and .5%, and from this date onward from .57% to .59%. It may be specially noted that on the 14th day of illness when the output of Chlorine was 15.66 grammes the urine contained .5%, while on the 13th day when the output of Chlorine was only 3.72 grammes the percentage was nearly as high, viz., .44% and also that from the 15th day of illness onward the urine contained .58% when the output of Chlorine was from 9 grammes to 10 grammes per day.

The subject in case 7 died on the day following crisis. During the whole period of observation the urinary output was distinctly low being with the exception of one day between 22 ounces and 30 ounces (511 c.c. and 582 c.c.). The quantity of Chlorine eliminated was also low and remained throughout in fairly constant relationship to the output of urine. Until the crisis the urine contained a percentage of Chlorine varying from .24% to .34% and on the day following the crisis the urine contained .28%.

Case 8 came under observation on the day of Crisis, the quantity of urine falling with the crisis from 40 ounces to 24 ounces and the chlorine/

chlorine also falling with the crisis from 3 grammes to 1.46 grammes.

On the day following the crisis the urine rose to normal quantities and was accompanied by a corresponding rise in the output of chlorine (chart 8a.). In the convalescent period the urine remained within normal limits and the chlorine rose to 8.6 grammes.

Until the crisis was complete on the 7th day of illness the urine contained a percentage of Chlorine varying from .24% to .26% . On the day after crisis the percentage was .22, and rose regularly on the 3 following days to .3, .49, .61%.

In case 9 which resolved by lysis, the urine during the acute period was fairly constantly diminished in quantity varying from 18 ounces as a minimum to 42 ounces as a maximum (500 c.c. - 1190c.c.), and the chlorine eliminated per diem during the same period varied from 1.87 grammes to 4.2 grammes. Chart 9a. however shews some irregularity in the daily variation of the urine as compared with that of the Chlorine during this period. On the first day of normal temperature the quantity of Urine excreted was 568 c.c. (20 ounces) and the corresponding amount of Chlorine eliminated was 1.4 grammes. During the next two days the urine rose regularly to 1704 c.c. - 60 ounces - and was accompanied by an

equally/

equally regular rise in the quantity of chlorine to 13 grammes in the 24 hours. During the remainder of the convalescence the urine varied from about 30 ounces to 40 ounces and the chlorine from 8 grammes to 12 grammes. Expressing the chlorine in percentages, the urine contained during the febrile period from .17% to .48%; on the first day of normal temperature .25%; on the three succeeding days from .57% to .73% reaching a maximum on the 18th day of 1.0%.

Case 10 also resolved by lysis. During the first 4 days of observation (4th to 7th of illness) the quantity of urine varied from a maximum of 900 c.c. to a minimum of 568 c.c. - 32 ounces to 20 ounces - and the amount of chlorine eliminated from 1.5 grammes to 1.8 grammes. On the 8th and 9th days the urine rose to 44 ounces and 60 ounces and was accompanied by a rise in chlorine elimination to 5 grammes and 6.1 grammes. On the 10th day a fall in urine to 35 ounces was accompanied by a fall in chlorine to 2.85 grammes, and from the 11th to the 15th day (which was the first day of normal temperature) the urine remained low - about 30 ounces - but the quantity of chlorine rose regularly to 5.37 grammes. The quantity of urine remained fairly normal from the 16th day onward and was accompanied by a continued increase in the output of Chlorine to 8.44 grammes with a variation thereafter between this figure and 6.7 grammes. (See Chart 10a.). From the 4th to the 6th day of illness the urine

contained/

contained from .16% to .28% of Chlorine; from the 7th to the 9th day .36% to .4%; on the 10th day .28% and from the 11th day onward from .4% to .66%. It may be noted that corresponding to the maximum output 8.4 grm. the urine contained .59% of Chlorine, and on the 13th day of illness .57% when the quantity of chlorine eliminated was little more than half the maximum quantity.

In relationship to the Total Solids: (Cl. being calculated to Na Cl.)

In the two days in which case 1 was under observation, the total solids per 1000 were respectively 60.58 parts and 55.92 parts while the Na Cl. per 1000 was 3.46 and 4.65, or respectively $\frac{1}{17.5}$ and $\frac{1}{12}$th of the total solids. In case 2 during the febrile period the total solids per 1000 varied from 53.59 parts to 69.9 parts. On the day after crisis they reached 72.23 parts but fell regularly from this day until the 16th day of illness when they represented 39.61 parts about which figure they remained, with one exception, during the rest of the observations. The Na Cl per 1000 during the acute period varied from 5.12 parts to 8.26 parts, and rose on the day after crisis from 5.82 parts to 10.71 parts which was recorded on the 16th day of illness, - that is they rose during the period in which the total solids fell to their minimum. From this period until the/

the end of the observations the Na Cl per 1000 varied from 9.9 parts to 11.6 parts. Reference to Chart 2b. shews that in the febrile period the total solids and Na Cl varied fairly directly, and that from the crisis onward until convalescence was established the variation in Na Cl was ~~uni~~ inversely to the variation in total solids. When expressed in terms of the total solids and represented graphically in Chart 2c, during the acute period the Na Cl represented about $\frac{1}{10}$th of the total solids. On the day after crisis the proportion fell to $\frac{1}{12.5}$ but rose regularly as convalescence progressed to remain fairly constant at about $\frac{1}{5}$ th.

In case 3 the total solids during the febrile period varied from 41.94 parts to 48.93 parts. On the day following crisis 46.6 was recorded rising regularly until the 12th day of illness (6th day after crisis) to a maximum of 62.91 parts. From the 12th to the 14th day the quantity fell suddenly to 37.28 parts at which figure they remained practically constant. The Na Cl per 1000 during the acute period varied from 1.98 parts to 2.92 parts. On the day after crisis the quantity was 2.92 parts and rose regularly thereafter until the 12th day of illness (6th after crisis) when a maximum of 8.96 parts was recorded corresponding to the maximum total solids of 62.91 parts on the same day. From this maximum there is a slight/

slight fall in Na Cl to 7.1 parts about which figure it remains constant, the total solids during this period, as already mentioned falling suddenly to 37.28 parts (see Chart 3b.)

Expressed in terms of the total solids the Na Cl during the acute period represented from $\frac{1}{15}$th to $\frac{1}{23}$ rd. On the day of Crisis the proportion was $\frac{1}{25}$th; on the day following $\frac{1}{16}$th then $\frac{1}{8}$th and gradually rose to $\frac{1}{6}$th. about which figure the proportion remained constant. Until the first day of normal temperature in Case 5, (that is from the 3rd to the 7th day of disease) the total solids varied from 46.6 parts to 69.9 parts per 1000, and during the first 5 days of convalescence remained practically constant at 46.6 parts. From this until the end of the observations (other 10 days) the quantity was higher varying - with one exception of 44.27 parts - from 51.26 to 60.58. During the corresponding periods the Na Cl per 1000 varied as follows - 3rd to 7th day, 4.4 to 6.06; 8th to 12th day, 3.83 to 6.87; 13th to 22nd day, 8.04 to 10.97 parts.

Chart 5b. shews that until lysis is complete the variations in quantity/

quantity of Total Solids and Na Cl are direct, for the four following days inverse, becoming again direct in convalescence.

Expressing the Na Cl in terms of the total solids the figures during the first period (3rd to 7th) are $\frac{1}{6}$ to $\frac{1}{12.5}$, from 8th to 11th $\frac{1}{10.5}$ to $\frac{1}{7.}$ On the 12th day of illness the minimum of $\frac{1}{16.5}$ is recorded, the proportion thereafter rising rapidly to $\frac{1}{8}$ and then to $\frac{1}{5}$ in which proportion it remained during the rest of the observations.

In case 6 the total solids during the acute period remained fairly constant in quantity, - the variation being from 51.26 parts to 53.59 parts per 1000. On the day of crisis they rose to 58.25 parts per 1000 and reached their maximum on the day following crisis, viz., 67.57 parts. On the two following days the quantity still remained high (65.24 parts), but fell again on the 4th day after crisis (12th day of disease) when the quantity was 53.59 parts, the fall continuing until the 14th day of disease when a minimum of 34.95 parts was recorded. Thereafter the total solids remained constant at from 37 parts to 39 parts per 1000. The Na Cl per 1000 of urine during the acute period varied from 2.36 parts to 5.47 parts, the lower figure being that recorded on the day before crisis. On the day of crisis the Na Cl per 1000 began to rise, at

first/

first along with, and shewing a curve parallel to, the total solids, but the Na Cl as shewn in Chart 6b. continued to rise during the days of sudden fall in the total solids (12th,13th and 14th days of illness) and reached a maximum on the days when the total solids became normal in amount. Incidentally attention may be drawn to the fact prominently brought out on Chart 6b. that, just as one would expect, the sudden fall in total solids was coincident with a sudden and great rise in the quantity of urine. but that, on the other hand, the great rise in the quantity of urine is not accompanied by a fall in the Na Cl per 1000, but rather by a distinct and regular rise.

Expressing the Na Cl per 1000 in terms of the total solids one has during the five days of acute illness the following proportions $\frac{1}{9}$, $\frac{1}{14}$, $\frac{1}{9.4}$, $\frac{1}{15}$, $\frac{1}{22}$, and on the day of Crisis $\frac{1}{19}$. Following the crisis the proportion increased, reaching on the second day after (the 10th) $\frac{1}{11}$. the fourth day after $\frac{1}{7.5}$ and on the 6th day after crisis $\frac{1}{5}$ about which proportion - occasionally touching $\frac{1}{4}$ - it remained practically constant.

Case 7 proved fatal on the 9th day the crisis having occurred on the 7th day of the disease. During the whole course of observations the total solids varied from a minimum of 53.59 parts to a maximum (on the 4th/

4th day) of 60.58. The Na Cl per 1000 during the first three days of observation (3rd, 4th and 5th of illness) varied from 4 parts to 4.48 parts per 1000 of Urine, but rose to a maximum on the day of crisis when 5.67 parts was recorded - the quantity per 1000 of urine falling again on the day after crisis to 4.6 parts (see Chart 7b.). In terms of the total solids, the Na Cl per 1000 gave the following figures throughout the illness:- $\frac{1}{14.5}$, $\frac{1}{13.5}$, $\frac{1}{13.5}$, $\frac{1}{10.5}$, $\frac{1}{9.5}$, $\frac{1}{11.7}$. (see Chart 7c.).

The observations commenced in Case 8 on the 7th day of the disease, on which day the total solids per 1000 amounted to 58.25 parts. On the day of crisis the amount was 62.91 per 1000, and fell on the following day to reach a minimum of 46.60 on the 10th day of disease. The Na Cl per 1000 on the 7th day of the disease amounted to 4.37 parts, and on the day of crisis 3.54 parts. Concurrently with the convalescent fall in the total solids there was in this case also a rise in the Na Cl per 1000, the figures being for the three succeeding days 5.19 parts, 8.14 parts, and 10.04 parts. (Chart 8b.). When expressed in terms of the total solids the Na Cl per 1000 gives the following proportions:- 7th day, $\frac{1}{13.5}$, 8th day, $\frac{1}{17.7}$, and on the three following days, $\frac{1}{10.}$ $\frac{1}{5.7}$, and $\frac{1}{5.3}$ respectively. - Chart 8c.

Case/

Case 9 Lysis. During the febrile period in this case the total solids varied from a minimum of 60.58 per 1000 to a maximum of 67.57. On the first day of normal temperature and on the three suceeding days the quantity of total solids per 1000 was 74.56 parts, and rose to a maximum on the following day of 83.88 parts, from which figure (on the 17th day) the quantity fell rapidly to 51.26 parts. The Na Cl per 1000 during the febrile period varied from a minimum of 2.83 parts per 1000 on the 11th day of disease, to a maximum of 8.02 parts which was recorded on the 13th day. On the first day of normal temperature the Na Cl per 1000 registered 4.14 parts but rose rapidly on the 15th and 16th days - while the total solids remained constant at 74 parts per 1000 - and registered 9.5 parts and 12.6 parts per 1000. Here again during the convalescent fall in the total solids the Na Cl continued to rise reaching 17.81 and 13.92 parts per 1000 of urine while the total solids fell from 72.23 to 51.26 parts per 1000 - Chart 9b.

When expressed in terms of the total solids the same irregularity in the proportion of Na Cl here obtains as has been previously noted. Thus on the 8th, 9th and 10th days of the disease the proportion was $\frac{1}{12.5}$; $\frac{1}{10}$; $\frac{1}{9.4}$; on the 11th day $\frac{1}{24}$, on the 12th and 13th days $\frac{1}{10}$ and $\frac{1}{9.5}$, and on the 14th day - the first of normal temperature - $\frac{1}{24.}$ On the/

the 15th day the proportion was $\frac{1}{6}$ and from this rose gradually to $\frac{1}{4}$ on the 18th and 19th days of the disease - see Chart 9c.

The observations in case 10 started on the 4th day of the disease. During the first four observations (4th to 7th days) the total solids varied from 41.94 parts to 55.92 parts per 1000, and from the 8th to the 10th day from 55.92 parts to 69.90 parts reaching on the first day of normal temperature 72.23 parts at which figure they remained, practically, until the 14th day of illness. From the 14th to the 16th days the total solids fell from 72.23 parts to 39.61 parts, and remained thereafter fairly constant at 42 parts per 1000. The Na Cl per 1000 during the first four observations rose regularly from 2.72 parts to 4.71 parts, and reached 6.61 parts on the 8th and 9.5 parts on the 13th day of illness. The convalescent fall in the total solids was accompanied by a rise in the Na Cl per 1000 to 11 parts, the quantity afterwards varying somewhat more widely than usual between 7 parts and 9.5 parts per 1000 - Chart 10b. The proportion of the Na Cl per 1000 to the total solids shews, (Chart 10c), the same irregularity noted in all the previous cases, the variation during the acute period being from $\frac{1}{16}$ to $\frac{1}{9}$. On the first day of normal temperature the proportion was $\frac{1}{11}$, and then rose gradually to remain constant/

stant at about $\frac{1}{5}$ as convalescence progressed.

Case 4. As will be seen from the notes appended to the tabular statement of this case it is peculiarly interesting in many respects, and particularly on account of the very marked renal complication. It has therefore been kept apart for special consideration. The observations from the point of view of chlorine elimination commenced on what was considered to be the 7th day of illness. During the first 8 observations (7th to 14th days) the total quantity of Chlorine eliminated daily remained very low varying from a minimum of .6 grammes to a maximum of 2 grammes - the average for these 8 days being 1.3 grammes. On the 15th day of illness, after 3 days of comparatively normal temperature, the quantity of Chlorine in the 24 hours, suddenly rose to 7.06 grammes (Chart 4a) but fell again rapidly during an exacerbation in temperature accompanied by diarrhoea on the 16th and 17th days, to 3.9 and 0.68 grammes respectively and remained at a very low figure until the 23rd day. The average quantity of Chlorine eliminated daily during those 6 days (18th to 23rd) was 1.09 grammes, during the first 4 days of which the temperature was high and diarrhoea was considerable. On the 24th day the quantity of Cl. rose to 3.92/

3.92 grammes, but fell again to 1.5 grammes on the 25th and remained low until the 29th day when 4.01 grammes was recorded the rise continuing until the 31st day when the quantity of Chlorine eliminated was 5.6 grammes. On the 33rd day there was a sudden rise to 10.63 grammes, the output of Chlorine reaching a maximum on the 36th day, of 13.03 grammes. From this until the close of the observations on the 43rd day the amount of chlorine eliminated daily remained high and varied within fairly normal limits.

In relationship to the Urine. During the first 8 observations in which the average output of Cl. per diem was 1.3 grammes, the quantity of urine per day varied from 1136 c.c. to 2840 c.c. (40-100 ounces) there being practically no variation in the quantity of Chlorine as against a great variation in the amount of Urine. On the 15th day the quantity of urine rose to 2272 c.c. (80 ounces) and was accompanied by a rise in Chlorine to 7.06 grammes.

From the 15th to the 17th day the urine fell to 625 c.c. (22 ounces) and was accompanied by a fall in Chlorine to 0.68 grammes.

From the 18th until the 23rd day there was again a period in which the Chlorine remained constantly low as against a distinct variation in/

in the quantity of Urine, but from the 24th day of the disease until the close of the observations on the 43rd day the two quantities varied together, the chlorine rising and falling within normal registers with a rise and fall in the quantity of Urine. When expressed in parts per centum of the urine the chlorine gives, during the first 8 observations, a variation of from 0.057% as a minimum to .156% as a maximum, the average for the period being .096%. On the 15th and 16th days when the total quantities of Chlorine per diem were 7.06 grammes and 3.9 grammes respectively, the percentage remained constant at .31%; on the 17th day it was .135%, and from the 18th to the 23rd day - when the total daily output averaged 1.09 grammes - the percentage varied from .057 to .127, with an average of .088%. From the 24th to the 29th day, .085% to .212% with an average of .12%; from the 30th to 32nd day the average was .24%; and from the 33rd to the 43rd day the percentage varied from .3% to 47% . It may be noted that during the convalescent period when the maximum output of Chlorine was 13 grammes, the urine contained .39% and that a higher percentage .47 was present on the 43rd day when the total daily quantity was considerably less, viz., 8.07 grammes.

In relationship to the Total Solids. A reference to chart 4b. shews at

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a glance that throughout the whole extended series of observations the total solids per 1000 of the urine remained very low varying from a minimum of 23.3 to a maximum of 37.28 which was recorded on the 17th day of illness. The Na Cl. per 1000 during the first 8 days varied from .69 to 2.57 parts and averaged 1.57 per diem. On the 15th and 16th days the quantity was 5.12 per 1000. From the 17th to the 23rd inclusive the average daily quantity per 1000 was 1.57, and from the 24th to the 29th 1.97. From the 30th to the 32nd day the average increased to 3.88 parts, and from the 33rd to the 43rd day the quantity of Na Cl per 1000 still further increased from a minimum of 4.66 parts to a maximum of 7.8 parts. When the Na Cl per 1000 is expressed in terms of the total solids a very marked irregularity in the proportion is seen prior to the convalescent period. Taking the same subdivisions the proportion varied during the first 8 observations from a minimum of $\frac{1}{44}$ on the 11th day, to a maximum of $\frac{1}{13}$ on the 9th. On the 15th and 16th days the proportion was $\frac{1}{7}$, from the 17th to 23rd $\frac{1}{29}$ to $\frac{1}{13}$, from 24th to 29th $\frac{1}{8}$ to $\frac{1}{18}$, from 30th to 32nd $\frac{1}{7}$ and from the 33rd day onward the proportion rose from $\frac{1}{7}$ to $\frac{1}{4}$ and remained fairly constant at the latter figure until the end of the observations - see Chart 4c.

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This case presents special interest on account of the possible alternative diagnosis of Enteric Fever. In Enteric Fever, however, provided due allowance be made for the restricted diet, a marked diminution in the Chlorine does not as a rule exist except in the first week of the disease. Thus Terray (5) states the average excretion to be from 3 to 5 grammes per day, and Howitz (6) considers that a sudden diminution in the chlorine during the course of Enteric Fever to be indicative of the supervention of Pneumonia. It may therefore be considered that on the whole such a marked diminution in the chlorine elimination as was marked during the 2nd and 3rd weeks of illness in this case points rather against than in favour of a diagnosis of Enteric Fever. The other question to which this case gives rise is, to what extent was the marked renal condition responsible for the great diminution in the urinary chlorides? It may be stated that the exfoliative condition of the kidneys was almost as marked at the end of the observations as it was at the commencement, and therefore it is difficult to believe in view of the fairly normal elimination during the last 10 days that this factor could have been directly responsible for the great diminution in the earlier observation. It is probable that the effect of the renal condition on the elimination of

Chlorine was secondary rather than primary through the production of vicarious/

vicarious diarrhoea - an idea which is supported by the persistently low elimination of total solids in the urine throughout the whole illness.

This assumption is borne out by the results of Hutchison's experiments (7) which tend to prove that impaired power on the part of the kidney is not responsible for a diminution in the chlorine compounds of urine.

Relationship to Temperature. A reference to the Charts of series A shews that so far as these observations are concerned no definite conclusions can be drawn, although the general statement may be made that the diminution in the excretion of Chlorine is not in any way definitely related to the height of the temperature. Thus in Case 2 the Chlorine elimination was higher during the acute period than it was when the temperature became normal, and on each chart instances may be found where the amount of Chlorine eliminated and the degree of temperature shew great irregularities.

Relationship to the Inflammatory Process: If as was originally suggested by Redtenbacher the diminution of the Chlorine compounds in the urine is in direct proportion to the increase and decrease of the inflammation one would expect to find in these cases a progressive diminution in the elimination/

elimination of chlorine as the disease advanced. This certainly is not so and indeed there is nothing so striking as the marked irregularity which occurs in the acute period of this series of cases. On the other hand it may be noted that in the critical cases the minimum excretion of Chlorine as a rule occurred on the day following the crisis but in non-critical cases no definite statement as to the occurrence of the minimum can be made, the variation on this point being considerable.

Pleurisy with effusion series: A reference to the tabular statements of this series will shew at a glance that in only one case (Case 14) was there anything like a marked reduction in the daily elimination of Chlorine, and in this case, as will be seen later, there is reason to believe that the principal pathological condition was a pneumonic consolidation rather than an effusion.

In case 11 there was considerable variation in the chlorine elimination, the minimum quantity in 24 hours during the febrile period being 1.23 grammes and the maximum 5.79 grammes with an average for 8 observations of 3.32 grammes. During the subfebrile period the quantity per day varied from 2.2 to 8.23 grammes giving an average for 7 observations of 4.27 grammes, and during the convalescent period from 3.01 grammes to 6.83/

6.83 grammes giving an average for 8 observations of 5.1 grammes. Considered in relationship to the output of urine per day the quantity of Chlorine is seen by a reference to Chart 11a to vary fairly directly with the variation in the quantity of urine. Thus during the febrile period the minima of 1.23 grammes and 1.41 grammes were recorded on days in which the quantity of urine excreted was 340 c.c and 284 c.c respectively (12 and 10 ounces), and the maximum of 5.79 grammes on the day on which the quantity of urine was 880 c.c. (31 ounces). During the subfebrile period the same direct variation may be noted but during the convalescent period the variation is not so direct the quantity of chlorine eliminated per day rising fairly regularly while the quantity of urine remained fairly constant. In this period also the maximum and minimum quantities were recorded along with the maximum and minimum urine, viz., 6.83 grammes with 1420 c.c. and 3.01 grammes with 568 c.c. When the Chlorine is expressed in parts per cent. of the urine, the variation during the acute period was from .36% to .72% with an average for the 8 observations of .51%; during the subfebrile period from .29% to .71% with an average for 7 observations of .49%, and during the convalescent period from .48% to .62% with an average for 8 observations of .54%. It may be noted in passing that on 16th December when the total output of Chlorine for the day/

day was 1.41 grammes the percentage contained in the urine was .5, on the 17th with 4.4 grammes eliminated - .52%, on the 27th with 2.21 grammes - .71%, while on January 5th when 6.65 grammes were eliminated the percentage was .49 and on January 7th .49% was also present when the total chlorine eliminated only amounted to 3.93 grammes.

The total solids during the febrile period varied from a minimum of 37.28 per 1000 to a maximum of 55.9 and the Na Cl per 1000 from 5.95 parts to 12.23 parts. In the subfebrile period the total solids varied from 30.29 to 55.9 per 1000 and the Na Cl from 4.78 to 11.65 per 1000. During the convalescent period the total solids varied from 34.95 to 48.93 parts per 1000, and the Na Cl from 7.93 to 10.13. In all three periods it will be seen by reference to Chart 11b. that the Na Cl per 1000 varied in a manner directly with the variation in the total solids, the minima and the maxima of both being recorded as a rule together. Expressed in terms of the total solids the Na Cl during the first 3 days of the febrile period gave a proportion of $\frac{1}{9}$ rising to $\frac{1}{6}$, and from the 4th observation onward right through the subfebrile and the convalescent periods remained fairly constantly at $\frac{1}{5}$ a fact which is brought out graphically on Chart 11c.

In Case 12 throughout the observations the quantity of Chlorine eliminated/

eliminated per diem varied within fairly normal limits the daily quantities being - with oneexception of 3.56 grammes - from 5.06 to 13.13 grammes. The quantities of Urine and Chlorine eliminated daily varied in a fairly direct manner, the minimum output of Chlorine being recorded when the urine for the day amounted to 710 c.c (25 ounces) and the maximum of 13.12 grammes when the urinary output amounted to 2152 c.c. (76 ounces). The percentage of Chlorine in the urine varied from a minimum of .502% to a maximum of .855%. The minimum percentage was recorded when the chlorine eliminated amounted to 6.84 grammes and the maximum percentage when the daily amount was 5.59 grammes while the percentage represented by the minimum output of Chlorine was .523 and that represented by the maximum output of 13.12 grammes was .608.

The total solids during the observations varied from 37.28 to 62.91 parts per 1000, and the Na Cl per 1000 varied from a minimum of 8.37 parts to a maximum of 14.09 parts the variation all through being in direct proportion to the variation in the total solids - see Chart 12b. At no time during the observations did the Na Cl when expressed in terms of the total solids amount to a less proportion than $\frac{1}{6}$ the average proportion all through being about $\frac{1}{5}$ - see chart 12c.

Throughout the entire course of Case 13 the amount of Chlorine eliminated/

eliminated per diem remained fairly normal. On two occasions 5.3 grammes as a minimum was recorded, and the maximum output in one day amounted to 12.47 grammes. When considered in connection with the daily excretion of urine, the quantity of Chlorine is found to vary fairly directly with that of the urine. Expressed in parts per centum of the urine the Chlorine varied from .31% to .72%.

On the two occasions on which the minimum quantity of 5.3 grammes was recorded the percentage of Chlorine in the urine was .311% and.466%. On the day when the maximum output of Chlorine was reached (12.47 grammes) the urine contained .54% while on the day on which the maximum percentage of .71 was recorded the quantity of Chlorine eliminated was 8.19 grammes.

The total solids, with one exception of 62.91 parts per 1000. varied from 39.61 to 53.59 and the Na Cl per 1000 from 5.13 to 11.88. Reference to Chart 13b. shews that in the earlier observations the total solids and the Na Cl per 1000 vary in an inverse manner, but that in the later observations - those during the period of normal temperature - the variation is a direct one. Considered in terms of the total solids the proportion of Na Cl varied during the acute period from $\frac{1}{12}$ to $\frac{1}{7}$, in the subfebrile period from $\frac{1}{5}$ to $\frac{1}{6}$ and during the convalescent period/

period remained at about $\frac{1}{5}$ - see Chart 13c.

Case 14 is of special interest on account of the difficulty experienced in arriving at a correct diagnosis - see notes on Chart 14a. The febrile period of the disease extended over the first 14 days of observation, i.e., from the 3rd to the 16th day of illness. During this entire period the elimination of Chlorine per diem remained constantly low, the minimum quantity being 1.27, the maximum 4.32 and the average daily output 2.53 grammes. In the two days which constitute the subfebrile period the quantity eliminated rose to 6.2 grammes and 5.03 grammes, and in the convalescent period with one exception when 3.76 grammes was recorded the daily quantity varied from 6.14 to 12.33 grammes. In its relationship to the urinary output during the febrile period the chlorine shewed a tendency to vary inversely with the amount of urine. Thus on two occasions when the urine amounted to 1420 c.c. 2.39 and 4.32 grammes of Chlorine were eliminated, and again when the urine amounted to 994 c.c. and 1022 c.c. the chlorine eliminated was respectively 3.6 grammes and 2.24 grammes. In the two days of subfebrile temperature the same inverse variation was present, but in the convalescent period the output of chlorine varied directly with the output of Urine. During the acute period the urine contained a percentage of Chlorine varying from .13 to .29, in the subfebrile/

febrile period .3 and during the convalescent period from .36 to .53. The total solids per 1000 varied in the febrile period from 39.61 parts to 74.56 parts and the Na Cl per 1000 from 2.09 to 4.78 - the minimum being recorded when the total solids were at their maximum, and the maximum, which occurred twice, - when the total solids stood at 69.9 parts and 62.9 parts per 1000. In the subfebrile period the total solids were 39.61 and 34.95, and the Na Cl per 1000 5.7 and 4.43 respectively; and in the convalescent period the variation in the total solids ranged from 27.96 to 41.94, the Na Cl per 1000 varying from 4.55 to 8.77 parts.

Reference to Chart 14b shows that during the febrile period the total solids and the Na Cl tend to vary inversely the inverse variation being continued for a few days after the convalescent fall in the total Solids, and also shews that the Na Cl per 1000 rose steadily when the total solids remained constant or fell, until convalescence was established when the variations in quantity became direct.

When the Na Cl. is expressed in terms of the total solids it is found that during the acute period the proportion varied from a minimum of $\frac{1}{35}$ which occurred on the 7th day, to a maximum of $\frac{1}{12}$, the daily proportions shewing great irregularity. In the subfebrile period the proportion rose to $\frac{1}{7}$ and during the convalescent period to $\frac{1}{4}$ and/

and $\frac{1}{5}$ at which figure it remained practically constant. It may be seen at a glance on reference to chart 14c. that the variation in Na Cl when expressed in terms of the total solids corresponds closely to that already noted as a feature in lobar pneumonia, and bears practically no resemblance to the type of chart which is found in pleurisy with effusion. This may therefore be taken as at least tending to confirm the diagnosis of Lobar Pneumonia as the principal pathological condition in the case.

In case 15 there was no febrile reaction during the observations. The output of Chlorine varied considerably from day to day, a less quantity than 4 grammes per diem being recorded on 4 occasions, the absolute minimum quantity being 2.71 grammes. Otherwise the daily quantity eliminated varied from 5 grammes to 6 grammes with maximum records of 7.39 and 9.94 grammes each occuring once. The daily variation which was usually considerable (Chart 15a) was throughout in direct relationship to the output of urine. Thus the minimum daily amount of Chlorine (2.71 grammes) occurred when the minimum quantity of urine was excreted, viz., 426 c.c. (15 ounces) and the maximum chlorine elimination (9.94 grammes) when the urinary output reached its maximum of 1420 c.c. (50 ounces). Throughout the observations the quantity of urine was as a rule well below normal, the quantity on 11 days being below 1136 c.c. (40 ounces) with maximum/

maximum and minimum quantities as already mentioned 1420 c.c. and 426 c.c. On no day was there any marked reduction in the percentage of Chlorine contained in the urine. It is interesting to note that on the days of maximum and minimum quantities of Chlorine the percentage contained in the urine stood on each day at .7, while the same percentage of .7 was also recorded on the day when the quantity of Chlorine eliminated was 4.5 grammes.

On the other hand the maximum percentage recorded of .82 occurred when the quantity of Chlorine for the day stood at 5.58 grammes.

The total solids varied from a minimum of 30.29 parts to a maximum of 60.58 parts and the Na Cl per 1000 from a minimum of 6.53 parts to a maximum of 13.51 parts, with quantities of 10.48 per 1000 and 11.54 per 1000 when the urine and chlorine were at their minimum and their maximum respectively - see Chart 15b.

When expressed in terms of the total solids the Na Cl is found to shew little or no variation beyond what would naturally occur in any urine - See Chart 15c.

Case 16. During the first 9 observations in this case there was a wide variation in the quantity of Chlorine eliminated per diem the minimum quantity being 3.95 grammes and the maximum quantity 11.56 grammes the average/

average daily quantity for the period being 7.27 grammes. The three following daily estimations gave 3.09, 6.2 and 3.94 grammes respectively but from this time onward through the next 10 observations the quantity of chlorine eliminated remained very small varying from a minimum of .79 grm. to a maximum of 2.76 grammes with an average daily quantity for these 10 days of 1.54 grammes. During the remaining six observations the elimination of chlorine rose to more normal quantities 4.4 grammes being recorded as a minimum and 10.28 grammes as a maximum, giving an average daily quantity of 6.24 grammes. It may be noted that sweating, particularly at night was a fairly constant feature in this case and was particularly marked during the period in which the elimination of Chlorine was so low (see Chart 11a). The quantity of urine passed per day varied like the Chlorine ~~urine~~ within fairly wide limits. In the first period of 9 days the minimum output was 568 c.c. (20 ounces) and the maximum output 2272 c.c. (80 ounces) the quantity of Chlorine eliminated daily varying in a direct manner with the quantity of urine per day. During the remaining observations the quantity of urine per day remained low, and in the period of 10 observations already mentioned the variation was from a minimum of 227 c.c. (8 ounces) to a maximum of 568 c.c. (20 ounces) which was once recorded, the remaining 9 observations being under 511 c.c. (18 ounces). In the last 6 observations the

quantity/

quantity of urine again rose the minimum being 586 c.c on the day before death and the maximum being 1420 c.c. Expressed in percentages the urine contained during the first 9 observations from .51% to .8%. In the next 3 observations from..4% to .53%. In the 10 following observations, i.e., the period of very low elimination of Chlorine, the urine still contained from .4% to .56% and in the convalescent period, i.e., the last 6 observations from .56% to .78%.

The total solids contained in the urine during the first 9 observations varied from 32.62 to 62.91 parts per 1000, and the Na Cl from 8.39 to 11.88 parts per 1000. In the 3 following observations the total solids varied from 39.61 parts to 53.59 parts per 1000, while the Na Cl varied from 6.53 parts to 8.73 parts per 1000. In the following 10 observations (the period of low elimination) the total solids varied from 48.93 parts to 62.91 parts per 1000, and the Na Cl from 6.49 parts to 9.19 parts per 1000. In the final or convalescent period the total solids varied from 41.94 parts to 53.59 parts per 1000 with a variation in the Na Cl of from 9.19 parts to 12.85 parts per 1000 of the urine.

Reference to Chart 17b. shews that on the whole the variations in total solids and Na Cl occurred irregularly, being at times direct an at other times inverse.

Then/

When expressed in terms of the total solids the Na Cl as indicated on Chart 17c shew a variation in the first period of from $\frac{1}{7}$ to $\frac{1}{4}$, in the second period of $\frac{1}{4.5}$ to $\frac{1}{3}$ in the third period of $\frac{1}{8.5}$ to $\frac{1}{9.5}$ and in the convalescent period of $\frac{1}{4.5}$ to $\frac{1}{5.}$

Acute Phthisis. Eight observations of the daily quantity of Chlorine eliminated were made in this case. Until the third day before death the total quantity eliminated varied from a minimum of 5.85 grammes to a maximum of 7.83 grammes, while on the last 3 days of illness the quantities eliminated were 1.9, 3.9, and 2.38 grammes respectively. Throughout the illness the quantity of urine eliminated was less than normal the daily quantity with one exception being below 1136 c.c. (40 ounces), and on the last four days of illness it did not exceed 625 c.c. (22 ounces). The maximum quantity of Chlorine eliminated in one day (7.83 grammes) occurred with the maximum quantity of urine 1335 c.c. (47 ounces) and the minimum of 1.9 grammes when the urinary output reached its minimum of 370 c.c. two days before death. Throughout the observations the urine contained a fairly high percentage of Chlorine the quantity remaining constantly at about .7% during the first 4 observations and varied from .51% to .61% during the last four. The total solids throughout the illness varied from

a/

a minimum of 62.91 parts per 1000, which was recorded three times, to a maximum of 76.89 parts per 1000 which was recorded twice. A reference to chart 16b. shews a tendency on the part of the total solids to increase in an intermittent manner as the illness progressed. The Na Cl varied from a maximum of 12.75 parts per 1000 to a minimum of 8.5 parts per 1000 and chart 16 b. shews that as the illness progressed they tended to fall gradually until the day before death.

Chart 16c. shews that the proportion of Na Cl when expressed in terms of the total solids varied during the earlier observations from $\frac{1}{5}$ to $\frac{1}{6}$ and during the last three observations from $\frac{1}{6}$ to $\frac{1}{9}$. A comparison of Chart 16c with the other "C" Charts shews that it bears no resemblance to those of the pneumonic series, and while resembling the charts from the pleurisy series differs from them in the falling proportions in the last stages of the disease. This may be specially noted on comparison with Chart c. of Case 16 (numbered 17c.) which also proved fatal.

In relationship to the Temperature. Here even more markedly than in the pneumonic cases is it evident that a diminished elimination of Chlorine is not a necessary concomitant of fever. Thus particularly in cases 12, 16 and 17, though also in others, high registers of temperature are accompanied by an elimination of Chlorine which is quite within normal limits. and it

is/

is also evident on referring to the appended notes that no relationship can be established between the extent of the inflammatory effusion and the amount of Chlorine elimination.

References

1. Neubauer and Vogel on the Urine 1863.
2. Ibid
3. Ztschr d. K-K. Gesellsch d Aerzte zu Wien 1850
4 Journal of Pathology and Bacteriology 1898
5. Ztsch f klin. Med: 1880.
6 Schmidt's Jahrb Leipzig 1857.
7. Journal of Pathology and Bacteriology 1898.

Conclusions :—

Conclusions.

The following are the conclusions to be drawn from the foregoing observations.

(a) In Pneumonia 1. During the acute period there is almost invariably a marked diminution of chlorine compounds.

2. The absolute minimum is as a rule eliminated on the first day after the crisis.

3. Low elimination is the rule even when the quantity of urine is normal, what might be called the chlorine-concentration of the urine being represented generally by from .1% to .2%.

4. The Total Solids and Na Cl vary during the acute period in an irregular manner.

5. The Na Cl invariably shews a marked reduction when expressed in terms of the total Solids - the proportion during the acute period being never higher than 1/10 and frequently as low as 1/30.

6. The extent to which the chlorine compounds are diminished cannot be taken as any measure of the severity of the attack.

7. The diminution in the chlorine elimination has no relationship to the height of the temperature.

(b)/

(b) In Pleurisy.

1. There is no marked diminution in the urinary chlorides, consideration always being had to the restricted diet.

2. Low elimination in the quantity of chlorine in pleurisy is invariably accompanied by low excretion of urine, the chlorine-concentration of the urine being thus fairly normal and represented by about .5%.

3. The Total solids and the Na Cl as a rule vary directly.

4. No reduction in the proportion of Na Cl to the total solids is found.

(c) Acute Phthisis.

1. In the one case observed there was no reduction in the quantity of chlorine eliminated until three days before death,

2. The Chlorine concentration throughout remained high and was represented by from .5% to .7%.

3. There was no reduction in the proportion of Na Cl when expressed in terms of the total solids, until the last three days when 1/9 was recorded.

From/

From a diagnostic point of view there can be no doubt that a diminution in the elimination of chlorine is of considerable value provided the quantity of urine excreted on the day on which the test is made be kept in mind. Otherwise the ordinary bedside test is liable to give an erroneous idea, for with a large quantity of urine a comparatively small precipitation with Silver Nitrate may be produced and thereby give the impression that the Chlorides are much more diminished than may actually be the case. On the other hand a concentrated urine may give a moderate precipitation and lead to the conclusion that the chlorides are not diminished when in reality the total quantity per day may be much below normal.

From a prognostic point of view the chlorine elimination is of no value.

Case 1. J. W. aet 48. Pneumonic consolidation of left upper lobe of uncertain duration but preceded by Rigor, Cough, Breathlessness and Pain 14 days before admission. Dyspnoea very troublesome, Sputum tenaceous, frothy and rusty - Death.

Date.	Day of Disease.	Urine in 24 hours.	Cl in 24 hrs in Grammes.	Percentage of Cl in Urine.	Total solids per 1000 of Urine.	Na Cl per 1000.	Na Cl / T. S.
28 Dec.		909 c.c.	1.991	.210	60.58	3.46	1/17.5
29 "		727	2.056	.282	55.92	4.65	1/12

Case II. W.W. aet 20 Acute Lobar Pneumonia of characteristic type, setting in with pain in the chest but without rigor on 2nd January. Dulness corresponds fairly accurately to the anatomical boundaries of the lobe - Urine slightly albuminous - Crisis - Recovery.

Date.	Day.	Urine in 24 Hours.	Cl in 24 hrs in Grammes.	% of Chlorine in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T.S.
							1/10 Milk
Dec. 7	5	1392 c.c.	5.805.	.417	69.90	6.87	
" 8	6	1562	6.294	.402	55.92	6.26	1/9
" 9	7	1676	5.212	.311	53.59	5.12	1/10
" 10	8	1108	5.56	.501	69.90	8.26	1/8.5
" 11	9	1165	4.858	.417	67.57	6.87	1/10 Crisis.
" 12	10	597	2.109	.353	72.23	5.82	1/12
" 13	11	568	2.168	.381	60.56	6.28	1/9.6
" 14	12	682	3.565	.54	62.91	8.90	1/7
" 15	13	795	3.885	.499	51.26	8.22	1/6 Improved Diet
" 16	14	852	4.056	.476	46.60	7.84	1/6
" 17	15	1108	6.578	.593	46.60	9.77	1/5
" 18	16	597	3.881	.650	39.61	10.71	1/4
" 19	17	1250	7.510	.601	39.61	9.90	1/4
" 20	18	1022	6.431	.629	39.61	10.37	1/4
" 22		710	3.414	.481	46.60	7.93	1/5
" 23		852	5.781	.679	60.56	11.19	1/5
" 24		1136	8.246	.707	39.61	11.65	1/3.4

Case III. W. D. aet 26. Acute Lobar Pneumonia involving the Right lower lobe. Setting in with rigor and pain on 30th January. Physical signs characteristic but complicated by Chronic Bronchial Catarrh with Emphysema - Urine nonalbumenous - Crisis - Recovery.

Date.	Day	Urine in 24 Hours.	Cl in 24 hrs in Grammes.	% of Chlorine in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								Milk.
Feb. 1	3	1,136	1.447	.127	46.60	2.09	1/22	
" 2	4	1,250	1.673	.134	46.60	2.21	1/21	
" 3	5	1,136	2.007	.177	41.94	2.92	1/14	
" 4	6	1,704	2.047	.120	48.93	1.98	1/25	Crisis.
" 5	7	1,988	3.513	.177	46.60	2.92	1/16	
" 6	8	1,420	5.420	.382	48.93	6.29	1/8	
" 7	9	1,988	6.323	.318	46.60	5.24	1/9	
" 8	10	1,420	5.62	.396	51.26	6.52	1/8	Milk Diet.
" 9	11	1,136	5.299	.466	53.59	7.68	1/7	
" 10	12	1,704	9.274	.544	62.91	8.96	1/7	
" 11	13	1,704	7.346	.431	53.59	7.10	1/7.5	Fish "
" 12	14	2,386	10.512	.44	37.28	7.25	1/5	
" 13	15	2,272	10.002	.44	37.28	7.25	1/5	
" 14	16	1,988	7.588	.382	39.61	6.29	1/6	
" 15	17	2,272	8.992	.389	37.28	6.41	1/5	
" 16	18	1,704	8.672	.509	44.27	8.39	1/5	

Case IV. F. M. aet 25. Illness commencing on 2nd Feb. with sickness, vomiting and diarrhoea. Pain in Right Mammary region. No Rigor. Face flushed but no physical evidence of Pneumonia. Abdomen slightly distended but without tenderness - Urine containing albumin, Blood, Granular and Epithelial casts - "General appearance suggests acute Gastro Enteric Catarrh of Uraemic Origin - Sudden onset mammary pain, and flushed face suggest acute Lobar Pneumonia but without physical evidence of this condition" - Widal's reaction negative.

Feb. 7th. Marked respiratory embarrassment with apical dulness and physical signs of Pneumonia. No diarrhoea.

Feb. 17th. Return of Diarrhoea with slight distension - No splenic enlargement. Widal negative. Feb. 23rd. Cessation of diarrhoea and great improvement in pulmonary symptoms. Recovery.

Date	Day.	Urine in 24 hours.	Cl in 24 hrs in Grammes.	% of Chlorine in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								Milk Temp"
Feb. 8	7	1136 c.c.	.803	.071	27.96	1.17	1/24	100°
" 9	8	1136	1.381	.120	27.96	1.98	1/14	to
" 10	9	1136	1.606	.141	30.29	2.32	1/13	103°
" 11	10	1136	.642	.057	30.29	0.94	1/32	
" 12	11	2840	1.204	.042	30.29	.69	1/44	Temp"
" 13	12	1250	1.148	.092	27.96	1.52	1/18	Normal
" 14	13	1988	1.686	.085	25.63	1.40	1/18	
" 15	14	1250	1.943	.156	27.96	2.57	1/11	
" 16	15	2272	7.066	.311	34.95	5.12	1/7	
" 17	16	1250	3.906	.311	34.95	5.12	1/7	
" 18	17	625	.679	.135	37.28	2.23	1/17	
" 19	18	966	.546	.057	27.96	.94	1/30	
" 20	19	1193	1.518	.127	30.29	2.09	1/14.5	
" 22	21	1136	1.204	.106	27.96	1.75	1/16	
" 23	22	1647	1.862	.113	30.29	1.86	1/16	
" 24	23	1136	1.446	.127	27.96	2.09	1/13	Temp" intermittent with Diarrhoea
" 25	24	1846	3.915	.212	27.96	3.49	1/8	
" 26	25	1420	1.506	.106	27.96	1.75	1/16	Temp" Norm"
" 27	26	1704	1.446	.085	25.63	1.40	1/18	
" 28	27	1704	2.317	.134	23.30	2.23	1/10	
Mar. 1	28	2272	--	--	23.30	--	1/9	Irish ts
" 2	29	2272	4.014	.177	25.63	2.92	1/9	
" 3	30	2130	4.668	.219	25.63	3.61	1/7	

(Contd.)

Case IV. (Contd.)

Date	Day.	Urine in 24 hours.	Cl in 24 hrs in Grammes.	% of Chlorine in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.
Mar. 4	31	2256	5.600	.219	25.63	3.61	1/7
" 5	32	1704	4.577	.269	30.29	4.43	1/7
" 6	33	3408	10.627	.311	30.29	5.12	1/6
" 7	34	3408	9.635	.283	32.62	4.66	1/7
" 8	35	3408	11.321	.332	27.96	5.47	1/5
" 9	36	3351	13.027	.389	27.96	6.41	1/4
" 10	37	3351	12.316	.368	30.29	6.06	1/5
" 11	38	2386	9.611	.403	30.29	6.64	1/5
" 12	39	3351	11.606	.346	25.63	5.70	1/5
" 13	40	2272	8.511	.375	30.29	6.18	1/5
" 14	41	1704	6.142	.260	32.62	5.93	1/6
" 15	42	2485	9.133	.459	25.63	7.56	1/3.4
" 16	43	2130	8.07	.474	30.29	7.80	1/4.

Case V. A. M. aet 18. Acute Pneumonia of 24 hours duration involving right lower lobe - Constitional symptoms slight - cheeks flushed. No. Herpes - Urine nonalbuminous - Lysis - Recovery.

Date.	Day	Urine in 24 hours.	Cl in 24 hrs in Grammes.	% of Cl in Urine.	Total Solids per 1000	Na Cl per 1000	Na Cl / T. S.	
Mar 13	3	909 c.c.	4.818	.531	69.90	8.75	1/8	Milk
" 14	4	1079	3.051	.283	46.60	4.42	1/11	
" 15	5	710	2.608	.368	58.25	6.06	1/10	
" 16	6	511	1.482	.290	53.59	4.78	1/11	
" 17	7	625	2.120	.339	62.91	5.59	1/11	
" 18	8	880	2.363	.269	46.60	4.43	1/11	Temp: Normal.
" 19	9	880	3.670	.417	46.60	6.87	1/7	
" 20	10	909	3.019	.332	51.26	5.47	1/9.5	
" 21	11	1193	2.53	.212	46.60	3.49	1/10.5	Milk Food.
" 22	12	795	1.366	.172	46.60	2.83	1/16.5	
" 23	13	738	4.018	.544	65.24	8.96	1/7	
" 24	14	1250	7.353	.587	51.26	9.67	1/5	
" 25	15	1079	5.641	.523	44.27	8.62	1/5	
" 26	16	966	6.430	.666	53.59	10.97	1/5	Light Diet
" 27	17	1022	6.002	.587	51.26	9.67	1/5	
" 28	18	682	3.467	.508	51.26	8.37	1/6	
" 29	19	596	4.139	.695	58.25	11.45	1/5	
" 30	20	767	4.503	.587	53.59	9.67	1/6	
" 31	21	1136	5.531	.488	53.59	8.04	1/6.6	
Apl. 1	22	1136	7.158	.630	60.58	10.38	1/5.8	

Case VI. P. F. aet 38. Acute Lobar pneumonia (complicated by previous pleural attacks) setting in on 15th March with Rigor - Physical signs of consolidation of right lower lobe complicated by distinct dulness in right infraclavicular region as far as 4th rib. Urine distinctly albuminous - Crisis - Recovery.

Date	Day	Urine in 24 hours.	Cl in 24 hrs in Grammes.	% of Cl in Urine.	Total Solids per 1000	Na Cl per 1000.	Na Cl / T. S.	
								Milk
Mar. 18	3	1,704 c.c.	5.902	.346	51.26	5.70	1/9	
" 19	4	1,250	2.914	.233	53.59	3.84	1/14	
" 20	5	1,306	4.340	.332	51.26	5.47	1/9	
" 21	6	1,250	2.738	.219	53.59	3.61	1/15	
" 22	7	1,136	1.626	.143	51.26	2.36	1/22	
" 23	8	1,250	2.326	.186	58.25	3.07	1/19	Crisis.
" 24	9	682	1.415	.219	67.57	3.61	1/19	
" 25	10	682	2.391	.351	65.24	5.78	1/11	
" 26	11	682	---	---	25.24	--		
" 27	12	1,250	5.637	.455	53.59	7.43	1/7	
" 28	13	852	3.721	.437	46.60	7.20	1/6.5	Improved Diet
" 29	14	3,124	15.657	.501	34.95	8.26	1/4	
" 30	15	1,789	9.603	.570	37.28	9.44	1/4	
" 31	16	1,704	9.883	.580	39.61	9.56	1/4	
April 1	17	1,704	10.004	.589	39.61	9.67	1/4	

Case VII. J. B. aet 47. Acute Lobar Pneumonia of right upper and middle lobes of 3 days duration. Cardiac action rapid and irregular. No Herpes nor Splenic enlargement. Urine contains albumen and bile - Crisis on 8th day - Death on 9th.

Date.	Day.	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000	Na Cl per 1000	Na Cl / T. S.	
Mar. 22	3	511 c.c.	1.245	.243	58.25	4.0	1/14.5	Milk
" 23	4	625	1.700	.272	60.58	4.48	1/13.5	
" 24	5	1136	2.766	.243	55. 92	4.0	1/13.4	
" 25	6	682	2.098	.308	53.59	5.08	1/10.5	
" 26	7	654	2.246	.344	53.59	5.67	1/9.5	Crisis begins
" 27	8	852	2.379	.279	53.59	4.60	1/11.7	Death

Case VIII. J. B. aet 28. Acute Lobar pneumonia of 5 days duration, involving right lower and middle lobes. No rigor. Urine contains albumin and a trace of blood - Crisis on 7th day - Recovery.

Date	Day	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								Milk.
Apl. 1	6	--	--	.243	60.58	4.00	1/15	
" 2	7	1136 c.c.	3.009	.265	58.25	4.27	1/13	Crisis
" 3	8	682	1.465	.215	62.91	3.54	1/18	
" 4	9	1420	4.474	.315	51.26	5.19	1/10	
" 5	10	1136	5.612	.494	46.60	8.14	1/6	
" 6	11	1420	8.642	.609	53.59	10.04.	1/5	

Case IX. J. M. aet 21. Acute Lobar Pneumonia of right upper lobe setting in without rigor on 31st March. Physical signs characteristic. Urine albuminous. - Pseudocrisis on 9th day, Lysis on 12th and 13th - Recovery.

Date	Day	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								Milk.
Apl 6	7	---	----	.308	60.58	5.08	1/12	
" 7	8	1051 c.c.	3.085	.294	60.58	4.84	1/13	
" 8	9	501	1.865	.372	60.58	6.13	1/10	Pseudo Crisis
" 9	10	994	4.199	.422	65.24	6.95	1/9	
" 10	11	1193	2.050	.172	67.57	2.83	1/24	
" 11	12	682	2.735	.401	65.24	6.61	1/10	
" 12	13	710	3.457	.487	74.56	8.02	1/9	
" 13	14	568	1.423	.251	74.56	4.14	1/18	Temp: Normal
" 14		994	5.694	.573	74.56	9.44	1/8	Beef Tea.
" 15		1704	13.055	.767	74.56	12.62	1/6	
" 16		1136	8.866	.780	83.38	12.85	1/6	
" 17		1136	12.282	1.08	72.23	17.81	1/4	
" 18		852	7.198	.845	51.26	13.92	1/4	
" 19								

Case X. J. H. aet 33. Acute Lobar Pneumonia commencing on 3rd April with pain and cough, involving the left upper lobe and doubtfully the right. Sputum highly rusty. Urine albuminous - Lysis 9th, 10th and 11th day - Recovery.

Date	Day	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								mick.
Apl. 7	4	909 c.c.	1.497	.165	41.94	2.72	1/15	
" 8	5	852	1.891	.222	53.59	3.66	1/15	
" 9	6	568	1.627	.286	53.59	4.71	1/11	
" 10	7	682	---	---	55.92	--		
" 11	8	1250	5.012	.401	55.92	6.61	1/8.5	
" 12	9	1704	6.100	.358	62.91	5.9	1/11	Lysis
" 13	10	994	2.847	.286	69.90	4.7	1/15	
" 14	11	994	4.057	.408	72.23	6.7	1/11	
" 15	12	852	4.026	.473	69.90	7.79	1/9	Temp: Norm!
" 16	13	852	4.880	.573	72.23	9.44	1/8	
" 17	14	---	--	.479	72.23	7.89	1/9	
" 18	15	852	5.673	.666	58.25	10.97	1/5	
" 19	16	1562	6.710	.430	39.61	7.09	1/6	
" 20	17	1420	8.439	.594	41.94	9.97	1/4	
" 21	18	1420	8.439	.594	41.94	9.79	1/4	
" 22	19	1704	7.564	.444	37.28	7.32	1/5	
" 23	20	1250	6.726	.538	41.94	8.87	1/5	
" 24	21	1420	8.439	.594	41.94	9.79	1/4	

Case XI. J. C. aet 9. Illness of 10 days duration with physical signs of right pleural effusion, the dulness posteriorly extending from Scapular spine to Base. No appreciable cardiac displacement. Perspiration profuse from 17th to 23rd December. Slow improvement in physical signs from December 24th onward. Urine nonalbuminous - Recovery.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
Dec. 11	340 c.c.	1.23	.36	51.26	5.95	1/9.5	Milk Diet.
" 12	795	3.31	.44	55.90	7.22	1/7.7	
" 14	682	3.12	.47	51.26	7.70	1/6	
" 15	880	5.79	.66	46.60	10.83	1/4	
" 16	284	1.41	.5	37.78	8.16	1/4.5	Febrile Temperature
" 17	852	4.40	.52	44. 27	8.50	1/5	
" 19	654	2.87	.44	46.60	7.72	1/6.6	
" 21	568	4.22	.72	53.59	12.23	1/4.4	
" 22	313	2.21	.71	55.90	11.65	1/4.8	
" 23	568	3.09	.54	46.60	8.96	1/5	
" 24	852	3.55	.42	32.62	6.87	1/4.7	
" 25	994	2.95	.29	30.29	4.78	1/6.3	
" 26	852	3.43	.40	37.28	6.64	1/5.6	Subfebrile
" 27	1278	6.42	.50	37.28	8.27	1/4.5	
" 28	1420	8.23	.58	53.59	9.56	1/5.6	
" 29	568	3.01	.53	46.60	8.73	1/5.3	Normal. Ordinary Diet
Jan 1	710	4.26	.60	48.93	9.90	1/5	
" 3	852	5.24	.62	51.26	10.13	1/5	
" 4	852	4.70	.55	48.93	9.08	1/5.3	
" 5	1363	6.65	.49	34.95	8.04	1/4.3	
" 7	1420	6.83	.48	39.61	7.93	1/5	
" 9	795	3.93	.49	44.27	8.16	1/5.4	
" 13	1136	6.18	.54	41.94	8.96	1/4.6	

Case XII. D. P. aet 16. Left Pleural Effusion with a history of rigor. Physical signs of effusion characteristic, dulness extending at first to the 7th dorsal vertebra but later to the scapular spine. Cardiac displacement well marked, right border being 2 inches to right of middle line. Urine normal.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
Dec. 24	730 c.c.	5.89	.806	55.90	13.28	1/4	Light Diet.
" 25	738	5.06	.686	60,58	11.30	1/5	
" 26	710	3.56	.523	48.93	8.62	1/5.7	
" 27	1363	6.84	.502	46.60	8.27	1/5.6	
" 28	1420	8.53	.601	60.58	9.90	1/6	
" 29	568	Lost	--	37.28	---		
Jan. 1	2158	13.12	.608	48.93	10.02	1/5	
" 3	1165	7.903	.679	51.26	11.17	1/4.6	
" 4	1108	8.38	.756	55.90	12.46	1/4.5	
" 5	1363	7.06	.516	37.28	8.50	1/4.4	
" 7	654	5.56	.855	62.91	14.09	1/4.5	
" 9	1022	6.214	.608	51.26	10.02	1/5	
" 10	759	5.34	.670	62.91	11.06	1/5.7	Temp: Irregularly Intermittent.

Case XIII. A. H. aet.21. Acute right pleurisy with moderate effusion setting in 8 days before admission with rigor, vomiting and constitutional disturbance. Moderate fever. Distinct signs of pleural effusion, dulness extending from 4th Dorsal vertebra to base. No Cardiac displacement. Urine non-albuminous.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
							Milk
Dec. 28	568 c.c.	1.77	.311	62.91	5.13	1/12	
" 29	1,704	8.73	.523	62.91	8.62	1/7	
" 30	1,420	6.83	.481	51.26	7.93	1/6.5	
Jan. 1	1,704	5.299	.311	51.26	5.13	1/10	Milk Diet
" 3	1,846	12.35	.495	44.27	8.16	1/8	
" 4	2,272	11.88	.523	39.61	8.62	1/4.6	
" 5	1,136	6.42	.565	51.26	9.31	1/5.5	Temp: Normal
" 7	1,136	5.299	.466	51.26	7.68	1/6.7	
" 9	1,704	11.18	.650	53.59	10.71	1/5	
" 11	1,136	8.19	.721	53.59	11.88	1/4.5	
" 13	1,988	9.695	.488	41.94	8.04	1/5.2	
" 15	1,988	8.993	.452	39.61	7.45	1/5.3	
" 19	1,420	10.037	.706	53.59	11.63	1/4.6	
" 21	1,704	12.474	.544	39.61	8.96	1/4.4	
" 23	1,775	10.037	.707	51.26	11.65	1/4.4	

Case XIV. R.W. aet 22. Acute Lobar pneumonia of mild type. Rigor and pain in right side 18 hours before admission. Spit scanty but rusty. Physical signs not striking. Dulness appeared at right base on 4th day of disease - V.F. not diminished but not exaggerated - R.M. distant but without rale. Feb. 6th Dulness increased to scapular spine. V.F. impaired - R.M. diminished - No Cardiac displacement. Feb. 9th Dulness in front to Rt. Clavicle. Feb. 13th "Physical signs puzzling but indicate widespread plastic pleurisy without much adhesion" (See Chart 14a.)

Date	Day	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.	
								milk
Feb. 1	3	511 c.c.	2.095	.410	76.89	6.76	1/11.3	
" 2	4	1420	2.391	.168	53.59	2.77	1/19.3	
" 3	5	937	2.386	.254	62.91	4.19	1/15	Temp[t] 100° - 103° 6 F.
" 4	6	1420	4.316	.304	60.58	5.01	1/12	
" 5	7	994	1.265	.127	74.56	2.09	1/35	
" 6	8	795	2.023	.254	58.25	4.19	1/14	
" 9	11	766	1.408	.184	65.24	3.03	1/21.5	101° - 102° 4 F.
" 10	12	994	3.599	.290	69.90	4.78	1/14.6	
" 11	13	1136	3.292	.290	62.91	4.78	1/13.1	
" 12	14	1022	2.240	.219	53.59	3.61	1/14.8	99° - 101° F.
" 13	15	1079	2.517	.233	39.61	3.84	1/10.3	
" 14	16	1022	2.890	.283	39.61	4.66	1/8.5	
" 15	17	1818	6.295	.346	39.61	5.70	1/6.9	98° - 100° F.
" 16	18	1874	5.034	.269	34.95	4.43	1/7.9	
" 17	19	1704	6.142	.360	34.95	5.93	1/5.9	Temp[t] Normal.
" 18	20	2272	9.635	.424	37.28	6.99	1/5.3	milk Diet
" 20	22	1306	6.371	.488	53.59	8.04	1/6.7	
" 22	24	1647	7.684	.466	39.61	7.65	1/5.1	
" 23	25	2272	3.758	.276	27.96	4.55	1/6.1	Full Diet
" 25	27	2272	11.081	.488	34.95	8.04	1/4.3	
" 26	28	1477	7.515	.509	37.28	8.39	1/4.9	
" 27	29	2357	12.326	.532	37.28	8.77	1/4.2	

Case XV. M. R. aet 15. Pain in right side, cough and spit of 10 days duration, with physical signs of moderate pleural effusion.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T.S.	
Feb. 11	1136 c.c.	5.219	.459	46.60	7.56	1/6	Temp^{t} Normal. Light Diet.
" 12	909	3.854	.424	46.60	6.99	1/6.7	
" 13	1136	4.496	.396	41.94	6.53	1/6.4	
" 14	1136	5.144	.452	41.94	7.45	1/5.6	
" 15	1357	5.401	.516	44.27	8.50	1/5	
" 16	454	3.212	.707	51.26	11.65	1/4.4	
" 17	1022	6.721	.657	51.26	10.83	1/4.7	
" 18	426	2.713	.636	60.58	10.48	1/5.8	
" 19	682	4.046	.594	46.60	9.79	1/4.8	
" 20	682	5.582	.820	58.25	13.51	1/4	
" 22	909	4.882	.537	51.26	8.85	1/5.8	
" 23	1306	7.387	.565	30.29	9.81	1/3.3	
" 24	1363	6.552	.481	44.27	7.93	1/5.6	
" 25	625	4.505	.721	60.58	11.88	1/5	
" 26	568	3.613	.636	44.27	10.48	1/4.2	
" 28	1420	3.936	.700	53.59	11.54	1/4.6	

Case XVI. A. L. aet 40. Indefinite illness of 8 weeks duration. Pain in right side a fortnight before admission with pleural friction detected in right mammary and axillary regions. Emaciated and exhausted -Diminished expansion of right chest. Dulness from right nipple in front and from scapular spine posteriorly. R. M. feeble and accompanied by friction. No cardiac displacement. Night sweating constant. Fluid by aspiration on 25th March. Convalescence - Unexpected fatal termination. P. M. pus found in pleural cavity - see chart 17a.

Date,	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000.	Na Cl per 1000.	Na Cl / T. S.
Mar 7	852 c.c.	4.758	.558	62.91	9.19	1/6.8
" 8	568	4.662	.721	62.91	11.88	1/5.3
" 9	1136	7.789	.686	51.26	11.30	1/4.6
" 10	1136	9.154	.806	53.59	13.28	1/4
" 11	862	3.950	.580	--	9.56	
" 12	852	5.420	.636	48.93	10.48	1/4.7
" 13	1420	8.030	.565	48.93	9.31	1/5.2
" 14	1420	9.133	.643	46.60	10.60	1/4.4
" 15	2272	11.562	.509	32.62	8.39	1/3.9
" 16	625	3.091	.495	51.26	8.16	1/6.3
" 17	1250	6.204	.530	39.61	8.73	1/4.5
" 18	994	3.936	.396	53.56	6.53	1/8.2
" 19	227	.899	.396	62.91	6.53	1/9.6
" 20	284	1.586	.558	60.58	9.19	1/6.6
" 21	284	1.526	.537	60.58	8.85	1/6.8
" 22	313	1.299	.415	62.91	6.84	1/9.2
" 23	454	1.790	.394	62.91	6.49	1/9.7
" 24	199	1.785	.394	62.91	6.49	1/9.7
" 25	284	1.179	.415	55.92	6.84	1/8.2
" 26	511	2.373	.465	60.58	7.66	1/7.9
" 27	341	1.153	.444	62.91	7.32	1/8.6
" 28	586	2.764	.487	49.93	8.03	1/6.1
" 29	682	4.444	.652	46.60	10.74	1/4.3
" 30	852	4.758	.558	53.59	9.19	1/5.8
" 31	1420	10.278	.724	41.94	11.93	1/3.51
Apl 1	1136	7.158	.630	53.59	10.38	1/5.2
" 2	825	6.439	.780	51.26	12.85	1/4
" 3	586	4.392	.773	51.26	13.74	1/4

J. 98°4 - 101°3

J 98 - 100°8

98°4 - 105°3

101° 103°6

99° 101°4

99° - 101°

98°4 - 102°

98° - 101°

Normal.

Case XVII. E.P. aet 20. Acute Phthisis Pulmonalis with marked hectic symptoms, in which post mortem both lungs were more or less solid and studded by small grayish areas of caseous necrosis and with numerous small cavities in the right lung.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine.	Total Solids per 1000	Na Cl per 1000.	Na Cl / T.S.
Jan. 26	795 c.c.	5.846	.731	65.24	12.05	1/5.4
" 27	808	6.842	.774	62.91	12.75	1/5
" 28	1108	7.674	.693	69.90	11.52	1/6
" 29	--	--	--	72.23	---	1/6
" 30	852	6.263	.735	69.90	11.21	1/6
" 31	1135	7.833	.587	62.91	9.67	1/6.5
Feb. 2	370	1.906	.516	76.89	8.50	1/9
" 3	625	3.798	.608	62.91	10.02	1/6
" 4	454	2.377	.523	76.89	8.62	1/9

Case XVIII. J. C. aet 11. Pleurisy on Left Side with considerable effusion of 10 days duration on admission. Dulness posteriorly from 2nd dorsal spine downward - improvement - recovery.

Date	Urine in 24 hours.	Cl in 24 hours in Grammes.	% of Cl in Urine
Nov. 23	?	?	.5
" 24	1065 c.c.	4.291	.4
" 25	?	?	.4
" 26	923	4.63	.5
" 27	710	2.76	.39
" 30	568	2.61	.46
Dec 1	817	4.33	.53
" 2	923	3.91	.42
" 3	1775	9.53	.52
" 4	639	3.75	.59
" 5	852	3.73	.44
" 7	994	6.53	.66
" 9	639	2.53	.40
" 11	1207	6.83	.57
" 13	1100	8.48	.77
" 15	1172	7.21	.62
" 17	852	4.82	.57
" 19	1136	4.34	.38
" 21	1207	7.08	.57

Case XIX. Mrs M. aet 28. Illness of 3 weeks duration characterised by pain and shortness of breath. Physical signs of moderate pleural effusion. - Recovery.

Date	Urine on 24 hours.	Cl in 24 hours in Grammes	% of Cl in Urine.
24	710 c.c.	4.37	.62
25	710	3.21	.45
26	850	4.39	.52
27	1385	7.33	.53
28	1065	5.50	.52
30	746	4.85	.65
1	1846	7.24	.39
2	2030	8.47	.42
4	2059	9.89	.43
5	1846	7.83	.42
7	2059	9.06	.44
11	1775	8.78	.50
13	1278	7.5	.58

4 HOUR CHART.

DISEASE.

Name Joseph Whyte

Age 42 yrs

Diet

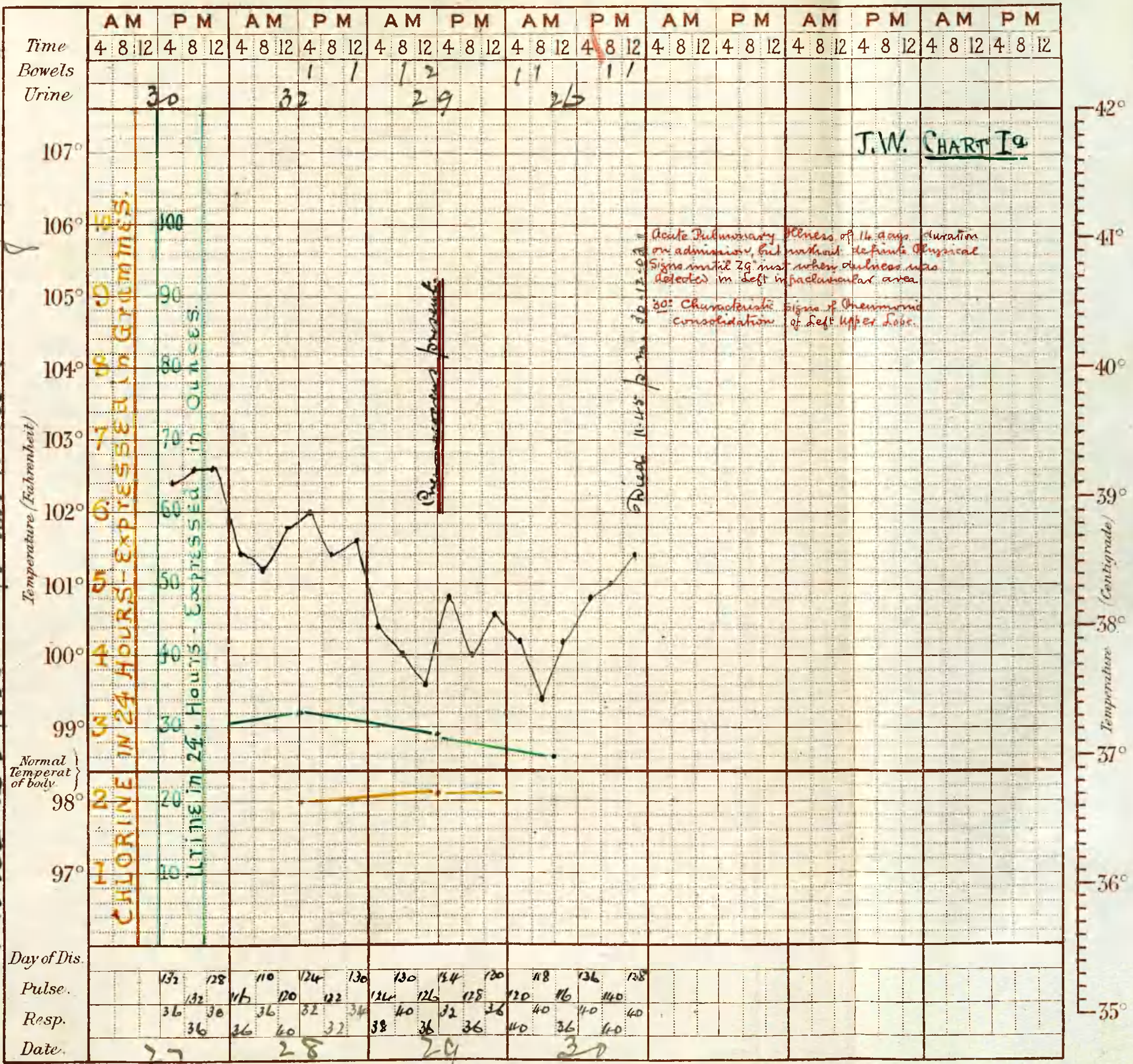
Case Book No.

Notes of Case

Urine ac: 1025: No albumen

Date of admission 27. 12. 02.

Result



Time
Bowels
Urine
AM PM AM PM AM PM AM PM AM PM AM PM AM PM
4 8 12 4 8 12
30 32 29 26
J.W. CHART Ia
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Temperature (Fahrenheit)
Normal Temperat of body
CHLORINE IN 24 HOURS-EXPRESSED IN GRAMMES.
URINE IN 24 HOURS-EXPRESSED IN OUNCES.
Died 11.45 p.m. 30.12.02
Acute Pulmonary Illness of 14 days duration on admission, but without definite Physical Signs until 29th inst when dulness was detected in left infraclavicular area.
30th: Characteristic signs of Pneumonic consolidation of Left Upper Lobe.
42° 41° 40° 39° 38° 37° 36° 35°
Temperature (Centigrade)
Day of Dis.
Pulse.
132 132 128 116 110 120 124 122 130 124 130 126 134 128 130 120 118 116 136 140 128
Resp.
36 36 38 36 36 40 32 32 34 38 40 36 32 36 36 40 40 36 40 40 40
Date.
27 28 29 30

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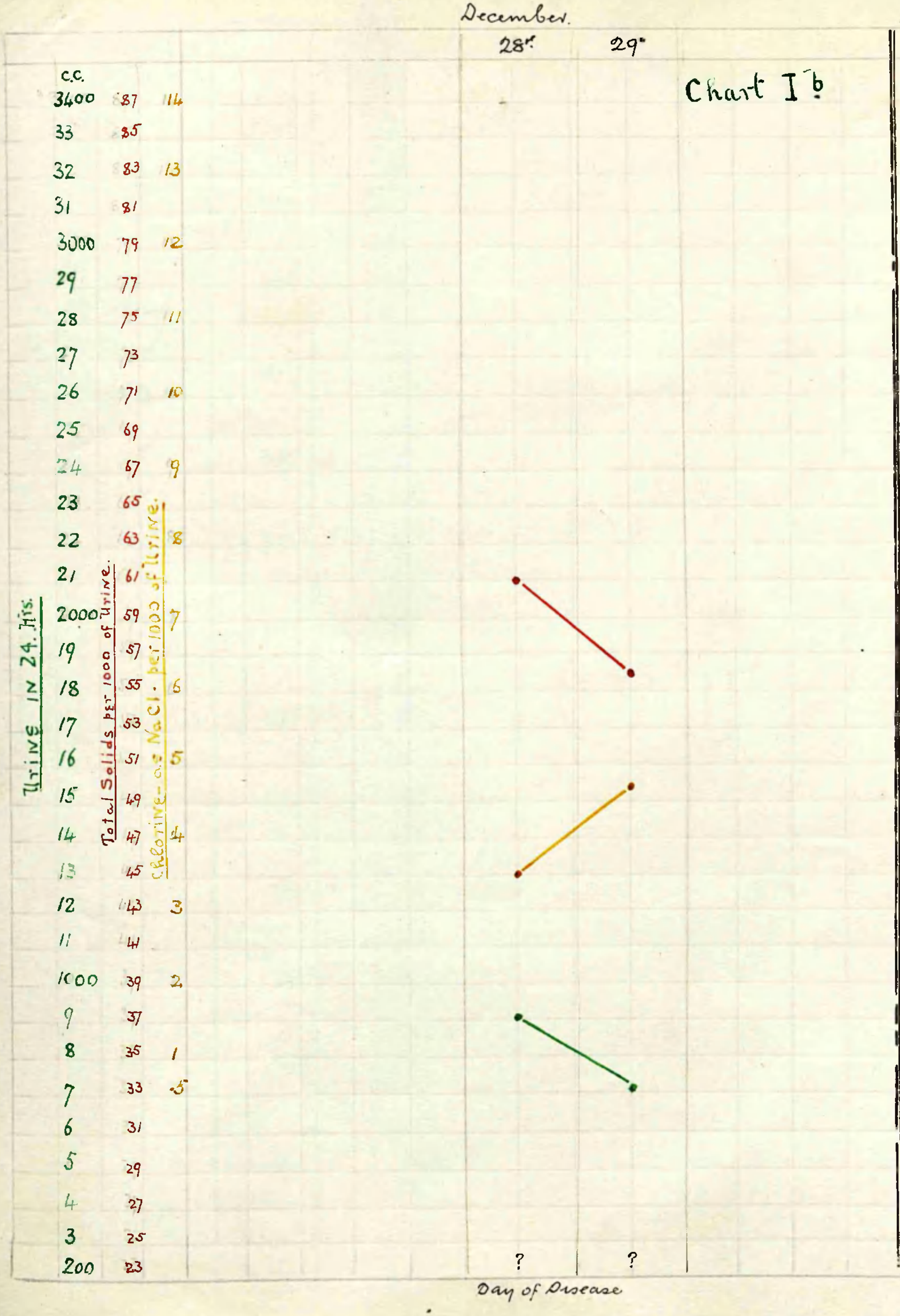
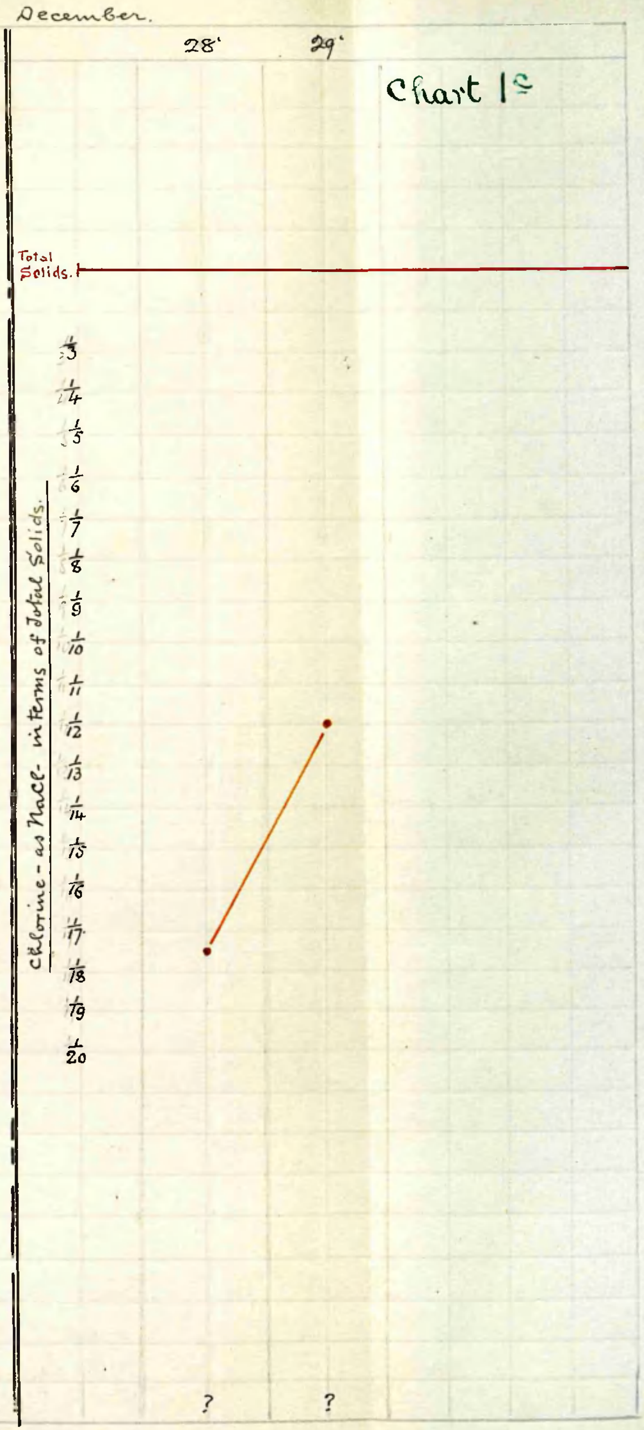

December.
28th
29th
Chart Iᵇ
c.c.
Urine in 24. Hrs.
Total Solids per 1000 of Urine.
Chlorine - as NaCl - per 1000 of Urine.
3400 87 14
33 85
32 83 13
31 81
3000 79 12
29 77
28 75 11
27 73
26 71 10
25 69
24 67 9
23 65
22 63 8
21 61
2000 59 7
19 57
18 55 6
17 53
16 51 5
15 49
14 47 4
13 45
12 43 3
11 41
1000 39 2
9 37
8 35 1
7 33 .5
6 31
5 29
4 27
3 25
200 23
?
?
Day of Disease


December.
28th
29th
Chart Iᶜ
Total Solids.
Chlorine - as NaCl - in terms of Total Solids.
1/3
1/4
1/5
1/6
1/7
1/8
1/9
1/10
1/11
1/12
1/13
1/14
1/15
1/16
1/17
1/18
1/19
1/20
?
?

4 HOUR CHART.

DISEASE.

Name: William Wishart

Age: 20 yrs

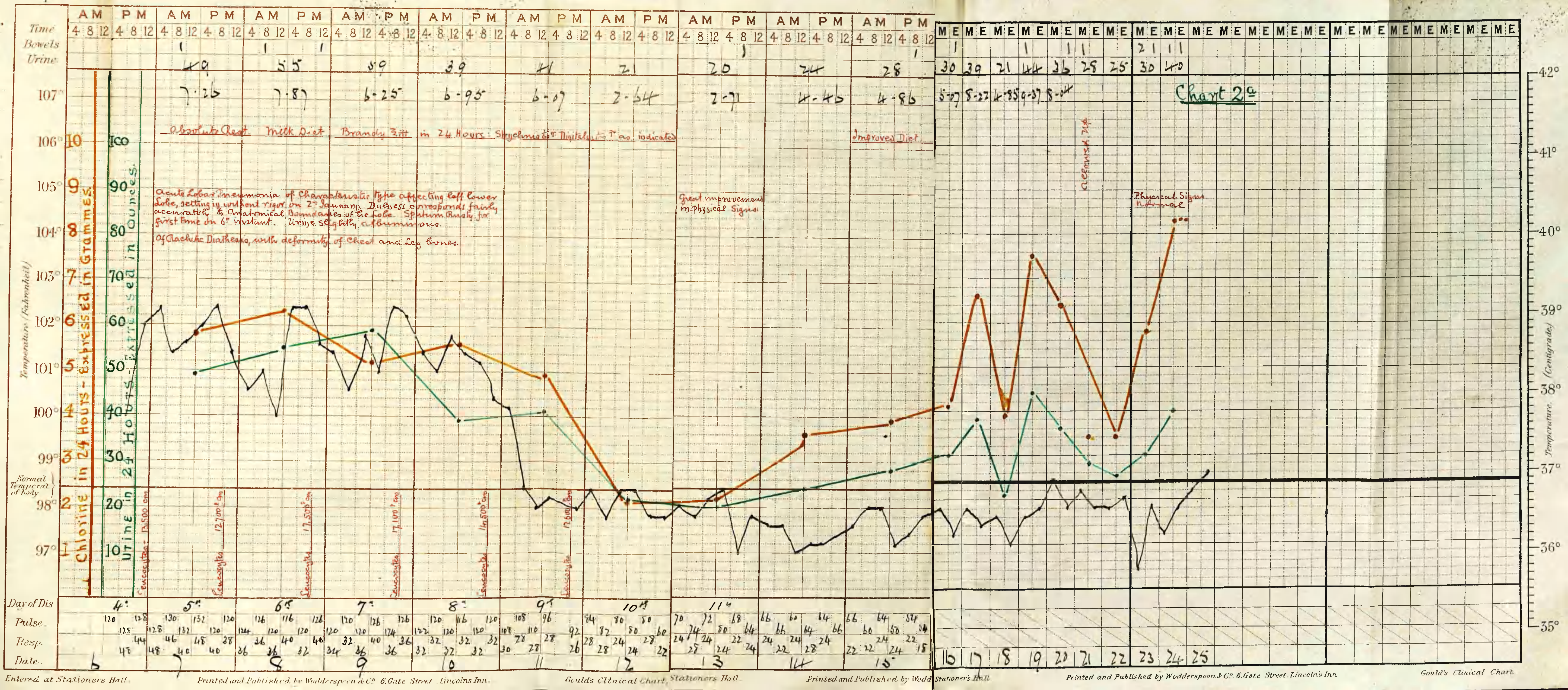
Diet

Case Book No.

Notes of Case

Date of admission: 6th Jan 03

Result



Time
Bowels
Urine
AM PM
Chlorine in 24 Hours - Expressed in Grammes
Urine in 24 Hours - Expressed in Ounces
Temperature (Fahrenheit)
Normal Temperature of body
Temperature (Centigrade)
Absolute Rest. Milk Diet. Brandy ℥iii in 24 Hours. Strychnine & Digitalis as indicated
Improved Diet.
Acute Lobar Pneumonia of Characteristic type affecting left lower Lobe, setting in without rigor on 2nd January. Dullness corresponds fairly accurately to Anatomical Boundaries of the Lobe. Sputum Rusty for first time on 6th instant. Urine slightly albuminous.
Of Rachitic Diathesis, with deformity of Chest and Leg Bones.
Great improvement in Physical Signs.
Physical Signs normal
Allowed Up
Chart 2a
Day of Dis
Pulse
Resp.
Date
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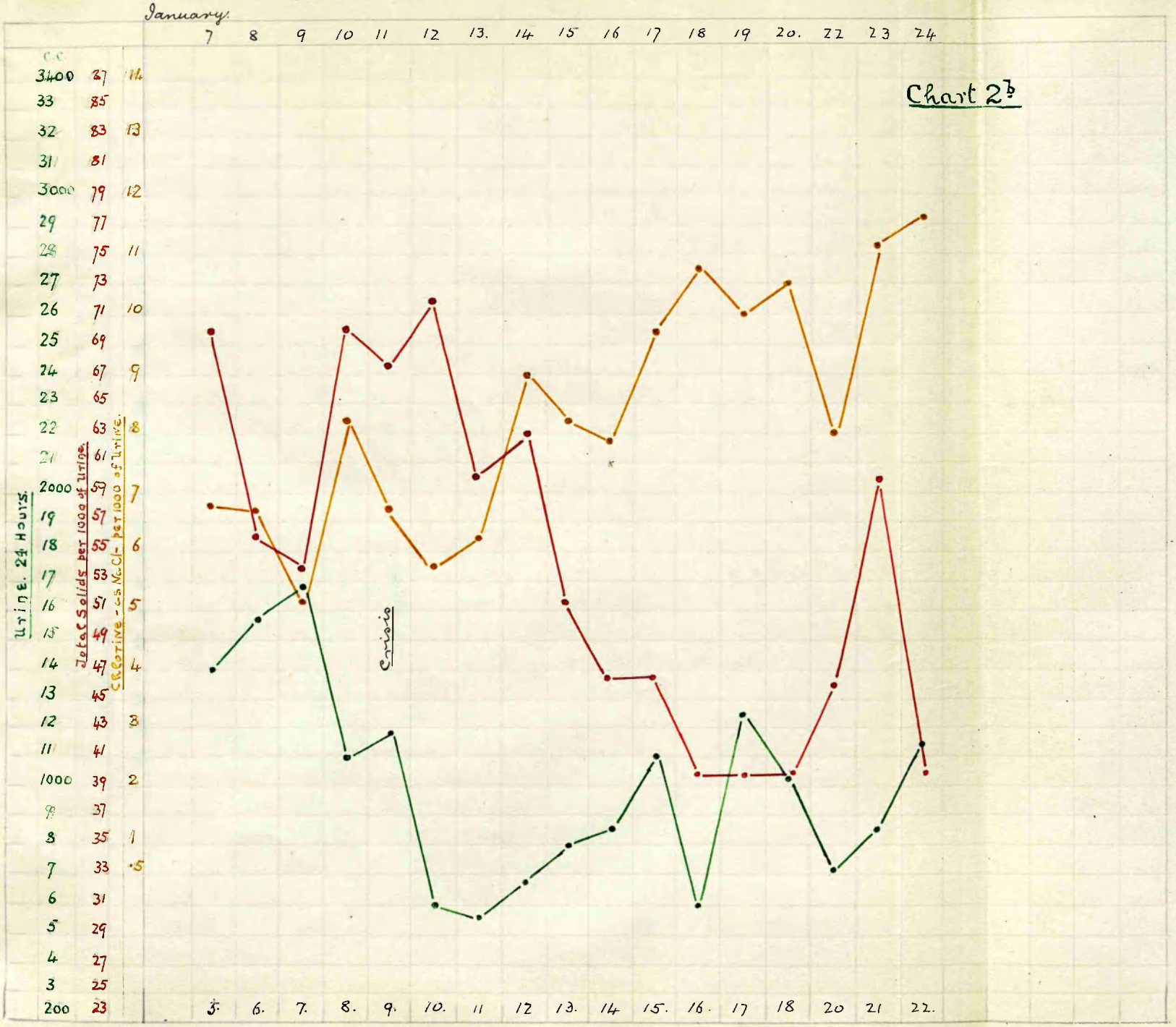
Goulds Clinical Chart.


January.
7 8 9 10 11 12 13. 14 15 16 17 18 19 20. 22 23 24
Chart 2b
c.c
3400 33 32 31 3000 29 28 27 26 25 24 23 22 21 2000 19 18 17 16 15 14 13 12 11 1000 9 8 7 6 5 4 3 200
37 35 83 81 79 77 75 73 71 69 67 65 63 61 59 57 55 53 51 49 47 45 43 41 39 37 35 33 31 29 27 25 23
11 13 12 11 10 9 8 7 6 5 4 3 2 1 ·5
Urine. 24 Hours.
Total Solids per 1000 of Urine.
Creatine - as NaCl - per 1000 of Urine.
Criteria
3. 6. 7. 8. 9. 10. 11 12 13. 14 15. 16. 17 18 20 21 22.

January.

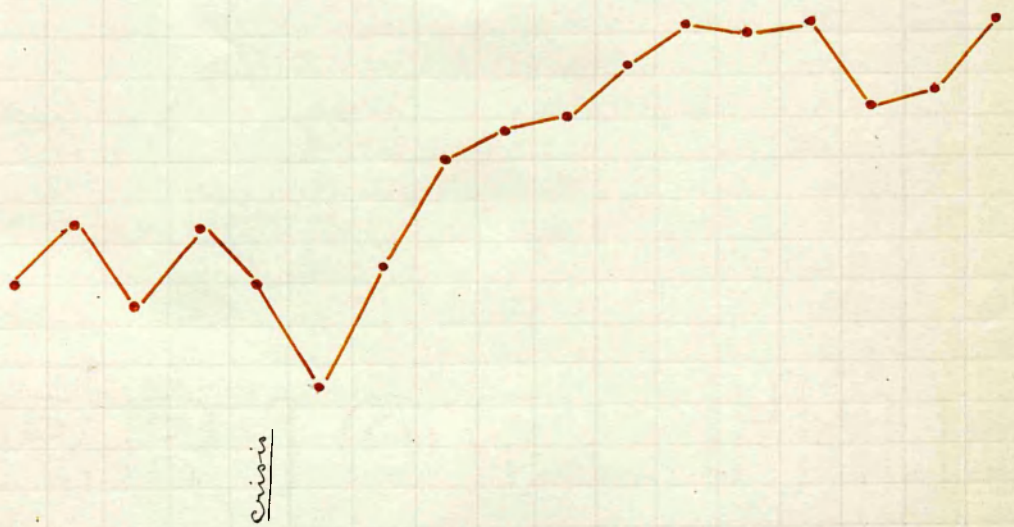
7 8 9 10 11 12 13. 14 15 16 17 18 19 20 22 23 24.

Chart 2c

Total Solids:

Cl Range - as NaCl - expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20



5 6. 7. 8. 9. 10 11 12 13. 14 15. 16 17 18 20 21 22.

Day of Disease

4 HOUR CHART.

DISEASE.

Name William Desport.

Age 26. years

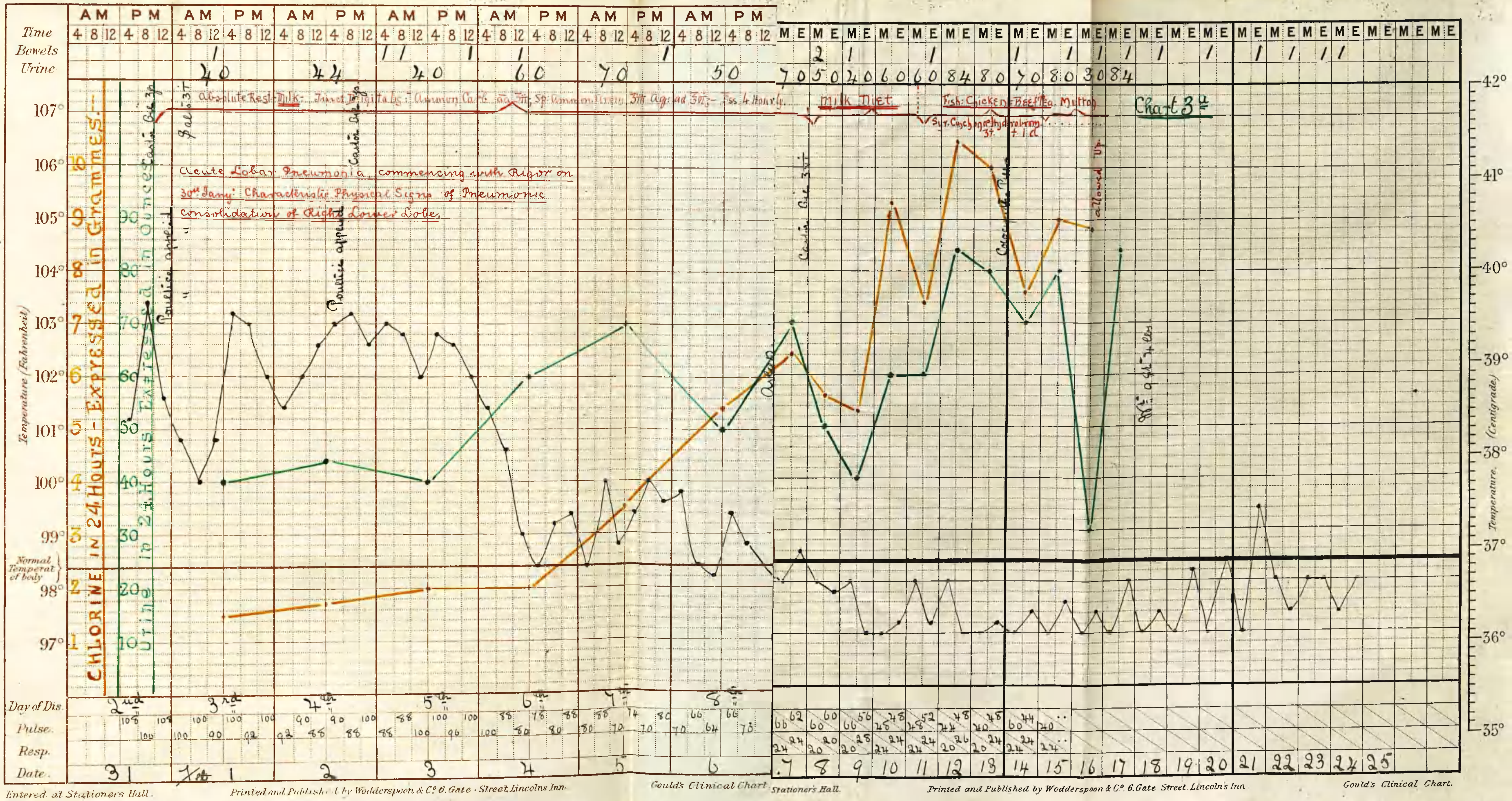
Diet

Case Book No.

Notes of Case

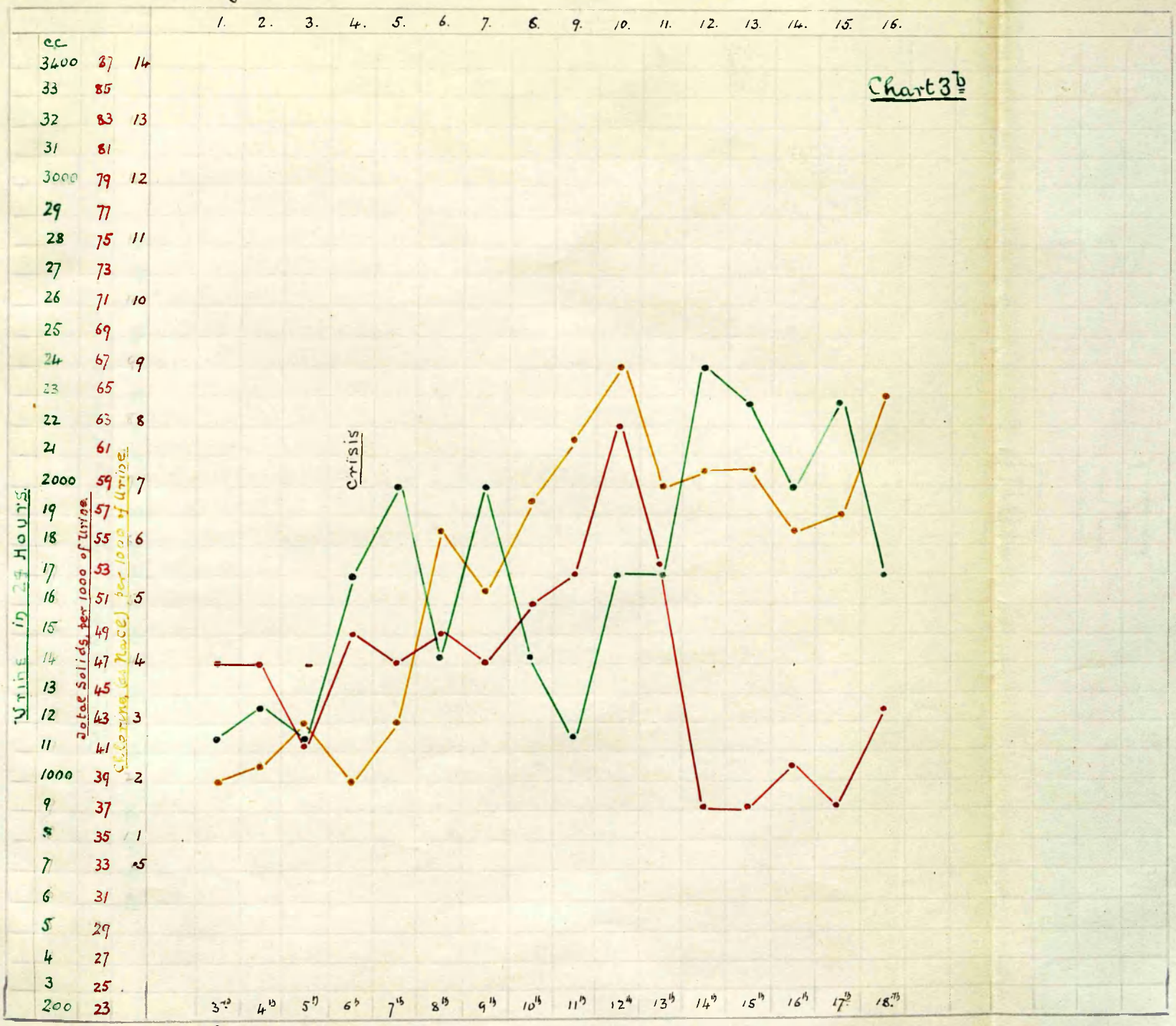
Date of admission 31/1/03.

Result



February.

Chart 3b



February

1. 2. 3. 4. 5. 6. 7. 8. 9 10. 11. 12. 13. 14. 15. 16.

Chart 3c

Total Solids

Chlorine - as NaCl - expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20 1/21 1/22 1/23 1/24 1/25

Crisis.

3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th

Day of Disease.


4 HOUR CHART.
DISEASE.
Name Frederick McDaid
Age 25 yrs.
Diet
Case Book No
Notes of Case
Date of admission 5/2/03.
Result
Time
Bowels
Urine
AM PM
Temperature (Fahrenheit)
Normal Temperat of body
CHLORINE in 24 HOURS – Expressed in Grammes.
Urine in 24 Hours – Expressed in Ounces.
Day of Dis.
Pulse.
Resp.
Date
Absolute Rest in Bed – milk 3–4 pints daily –
Widal's reaction negative.
Illness commencing on 2nd Feb. with sickness, vomiting & Diarrhoea, pain in right mammary region, no Rigor. Face flushed, but no physical evidence of Acute Lobar Pneumonia.
Abdomen slightly distended, but without tenderness.
Urine contains albumin, Blood.
General appearance suggests Acute Gastro Enteric Catarrh of Uraemic Origin.
Sudden onset, Acute mammary pain and flushed face suggest Acute Lobar Pneumonia but without any physical evidence of the Condition.
Marked Respiratory Embarrassment commencing on the 7th instant, with dullness extending in front to the 3rd rib, and to midscapular region behind, with tubular Respiratory Murmur and bubbling râles.
Pneumococci present in Sputum
Digitalin 1/100 gr: Strych. Sulph 1/60 gr night and Morning
No diarrhoea or vomiting. Dulness in front diminishing but loud, medium, crackling râles present.
Return of Diarrhoea: Slight Abdominal gurgling: No splenic enlargement.
Widal's Reaction again Negative.
Catechu : Laudanum
Diarrhoea still troublesome. Abdomen distended. Marked Lithuria.
Pulmonary Symptoms clearing off.
Fish and Chicken
Tonic
Chart 4a
No pulmonary Symptoms. No Diarrhoea. Dismissed well.
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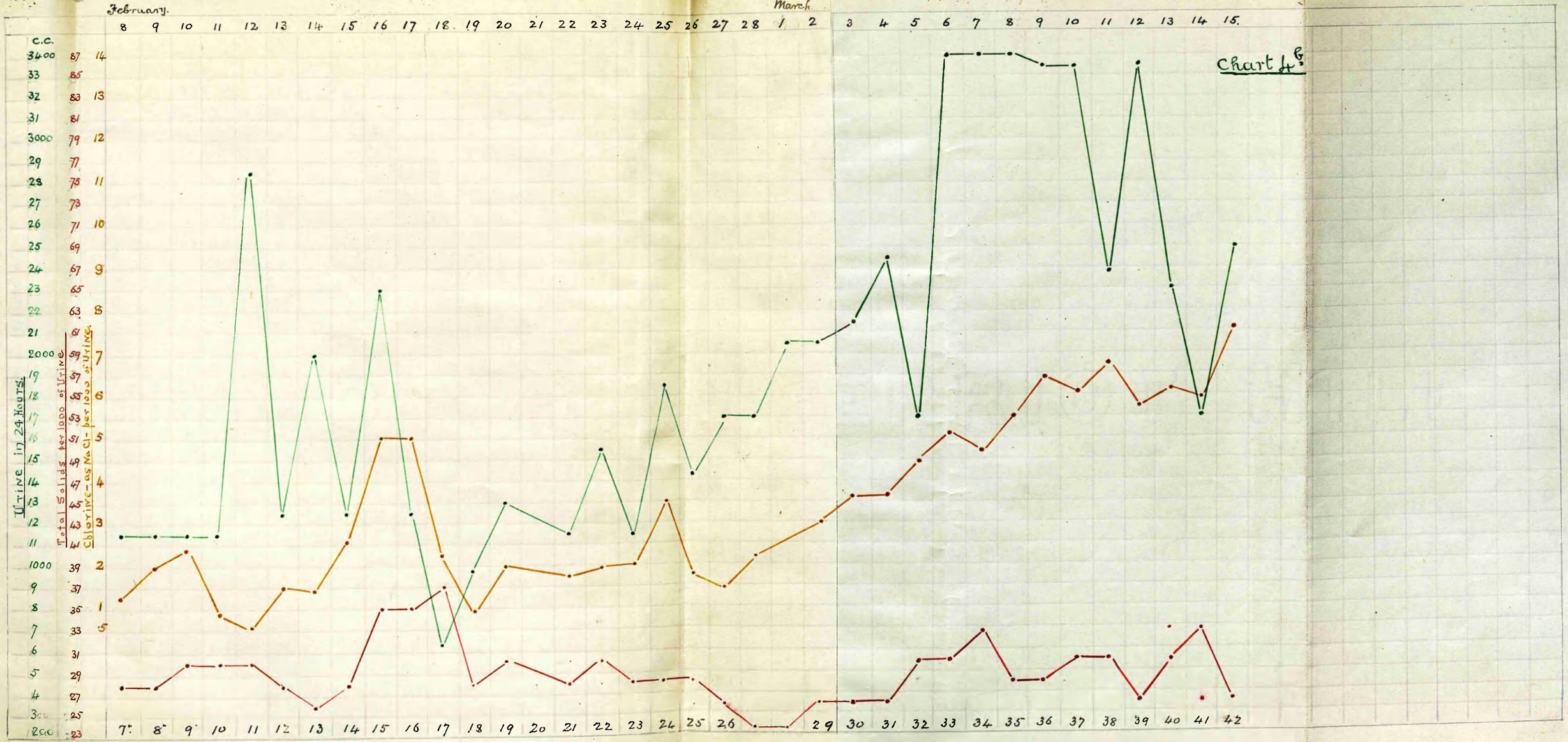
February.
March.
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2
3 4 5 6 7 8 9 10 11 12 13 14 15.
Chart 4.
c.c.
Urine in 24 Hours.
Total Solids per 1000 of Urine
Chlorine as NaCl per 1000 of Urine.
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Day of Disease.

February. March.

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Chart 4c

Total Solids

Chlorine - as NaCl - expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20 1/21 1/22 1/23 1/24 1/25 1/26 1/27 1/28

7 8 9 1/33 10 1/44 11 12 13 14 15 16 17 18 1/29 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

Day of Disease

4 HOUR CHART.

DISEASE.

Name: Annie Wannclark

Age: 18 years.

Diet

Case Book No.

Notes of Case

Date of admission: 12th Mar. 1903

Result

Time | Bowels | Urine

Temperature (Fahrenheit) | Chlorine in 24 Hours - Expressed in Grammes | Urine in 24 Hours Estimated in Ounces | Normal Temperat of body

Day of Dis | Pulse | Resp. | Date

Rest in Bed. -- Milk. -- Ammon. Carb. gr 2½: Spiritus Ammon. Arom. m10: Tinct. Digitalis m 3: every 4 Hours. -- Milk Diet.

Pain in right side of Chest on cough of 24 Hrs duration: Cheeks flushed. Herpes. Respiratory movements equal. Diminished resonance from 4th Rib to Right Base. Auscultatory Signs Normal, except over dull area. Posteriorly V.R. V.F. diminished at R. Base. Dulness from 5th Dorsal Spine to Rt Base. Rm tubulary, ? with out rale.

Dulness continues as before. But Respiratory Murmur is accompanied by fine Crepitant rale.

Urgent Symptoms have disappeared: but free from Rale. Pulmonary dulness RM remains tubulary

Chart 5th

Signs of Consolidation are also slowly fine

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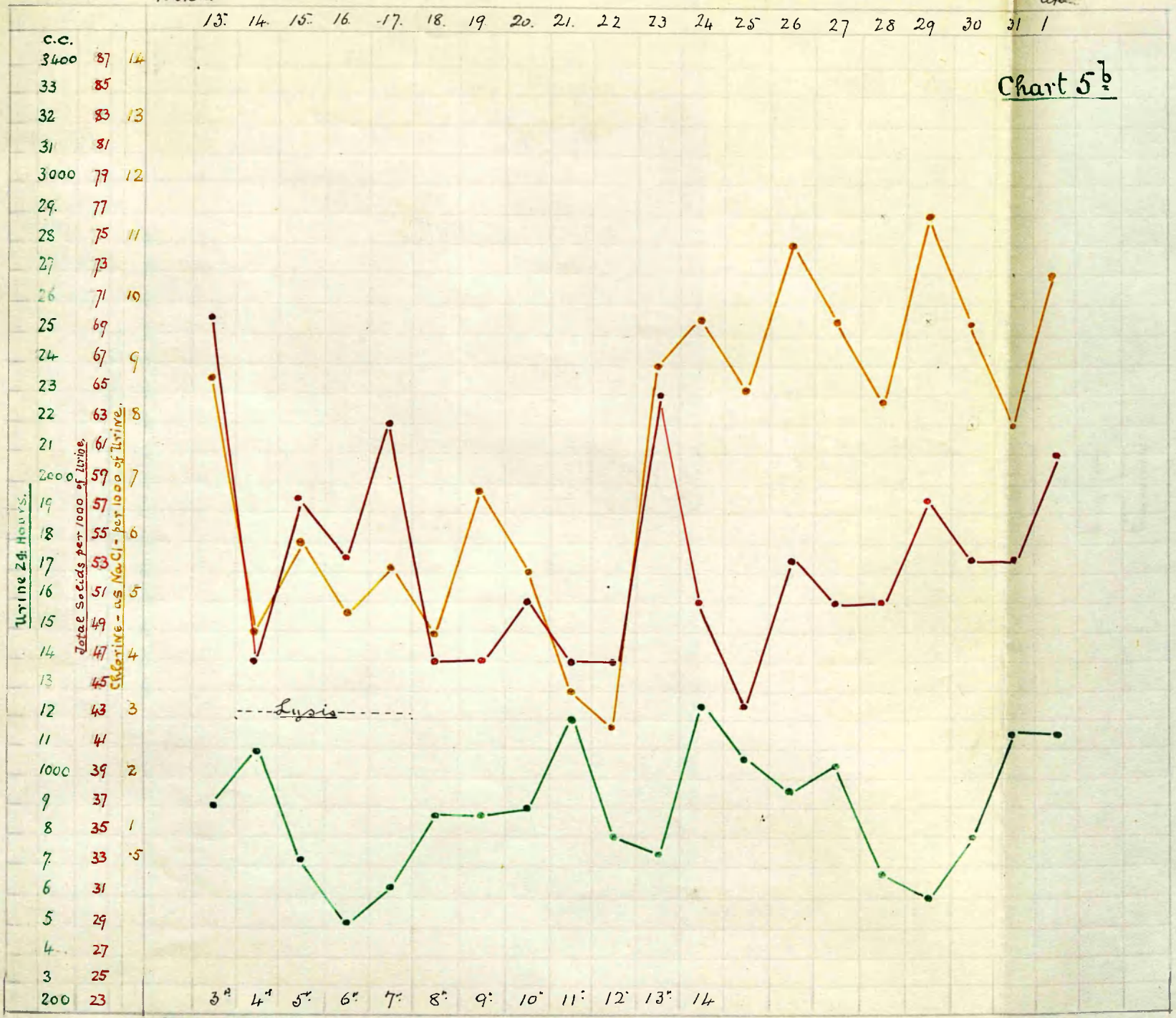
Gould's Clinical Chart Stationers Hall.


March.
13. 14. 15. 16. 17. 18. 19 20. 21. 22 23 24 25 26 27 28 29 30 31 1
Chart 5b
c.c.
3400 87 14
33 85
32 83 13
31 81
3000 79 12
29. 77
28 75 11
27 73
26 71 10
25 69
24 67 9
23 65
22 63 8
21 61
2000 59 7
19 57
18 55 6
17 53
16 51 5
15 49
14 47 4
13 45
12 43 3
11 41
1000 39 2
9 37
8 35 1
7 33 .5
6 31
5 29
4 27
3 25
200 23
Urine 24 Hours.
Total Solids per 1000 of Urine.
Chlorine - as NaCl - per 1000 of Urine.
Lysis
3d 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th
Day of Disease.

March. Apr.

13. 14 15 16 17. 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1

Chart 5c

Total Solids:

Chlorine – as NaCl – expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18

Lysis

3d 4th 5th 6th 7th 8th 9th 10th 11th 12th 13 14 15 16. 17

Day of Disease

4 HOUR CHART.

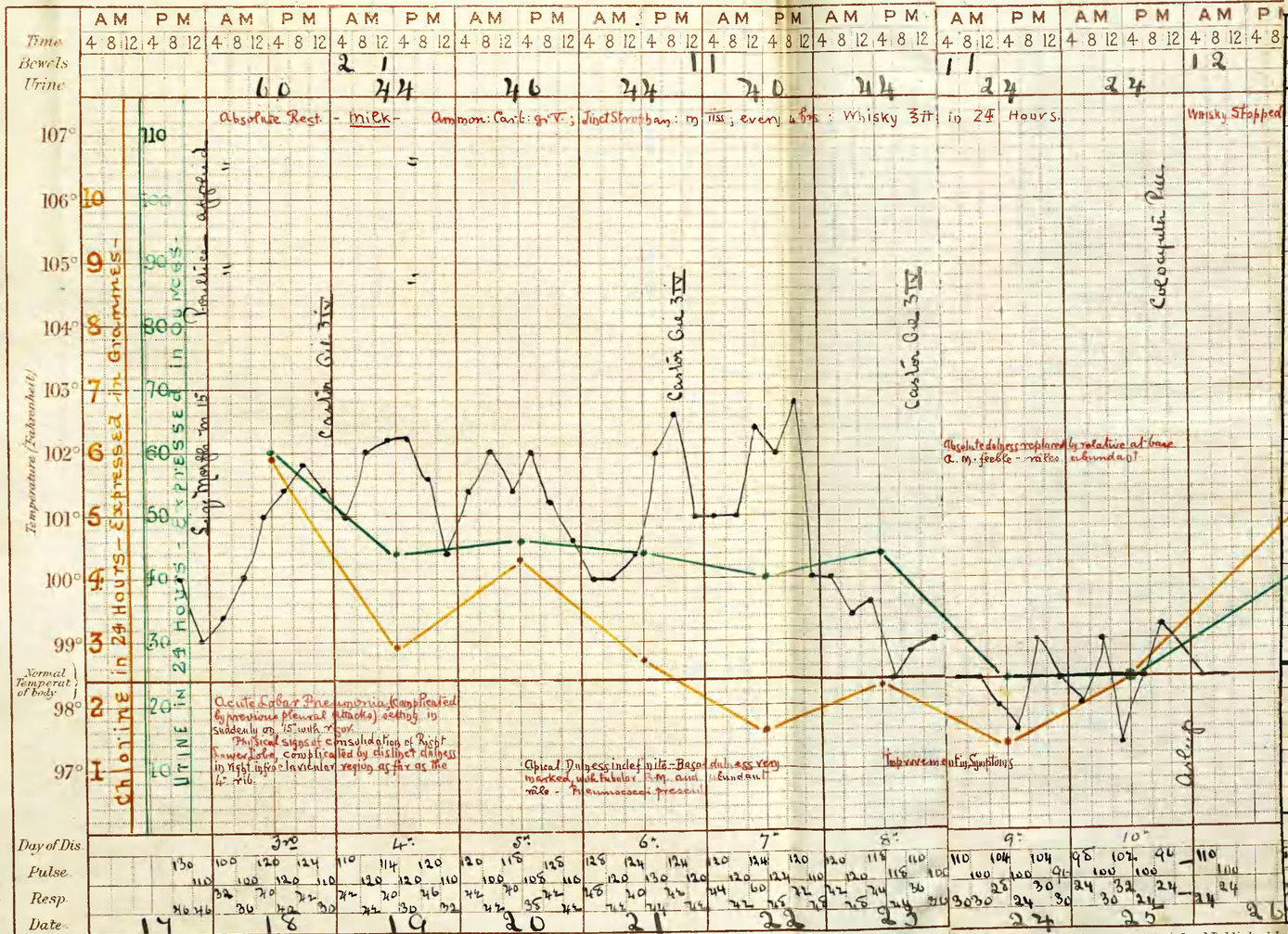
DISEASE.

Name: Peter Foley.
Age: 38 years.
Diet:
Case Book No.:

Notes of Case

Date of admission: 17/3/03

Result:



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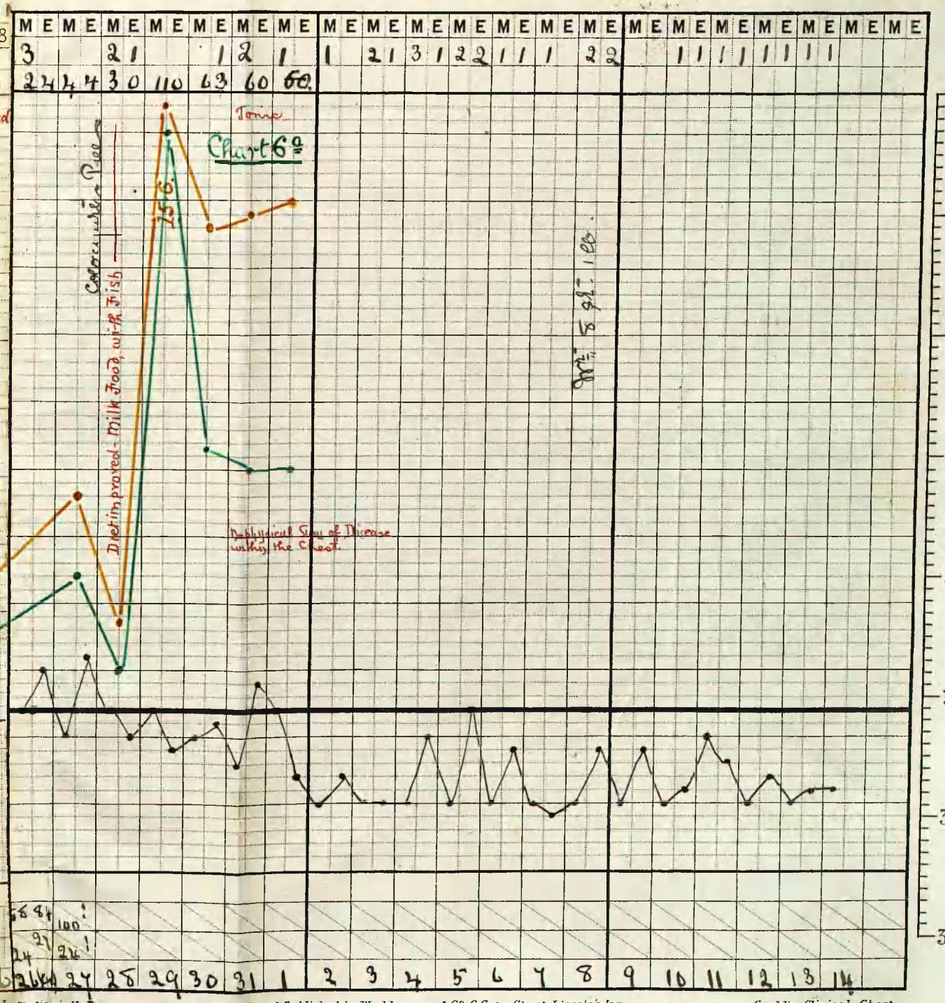

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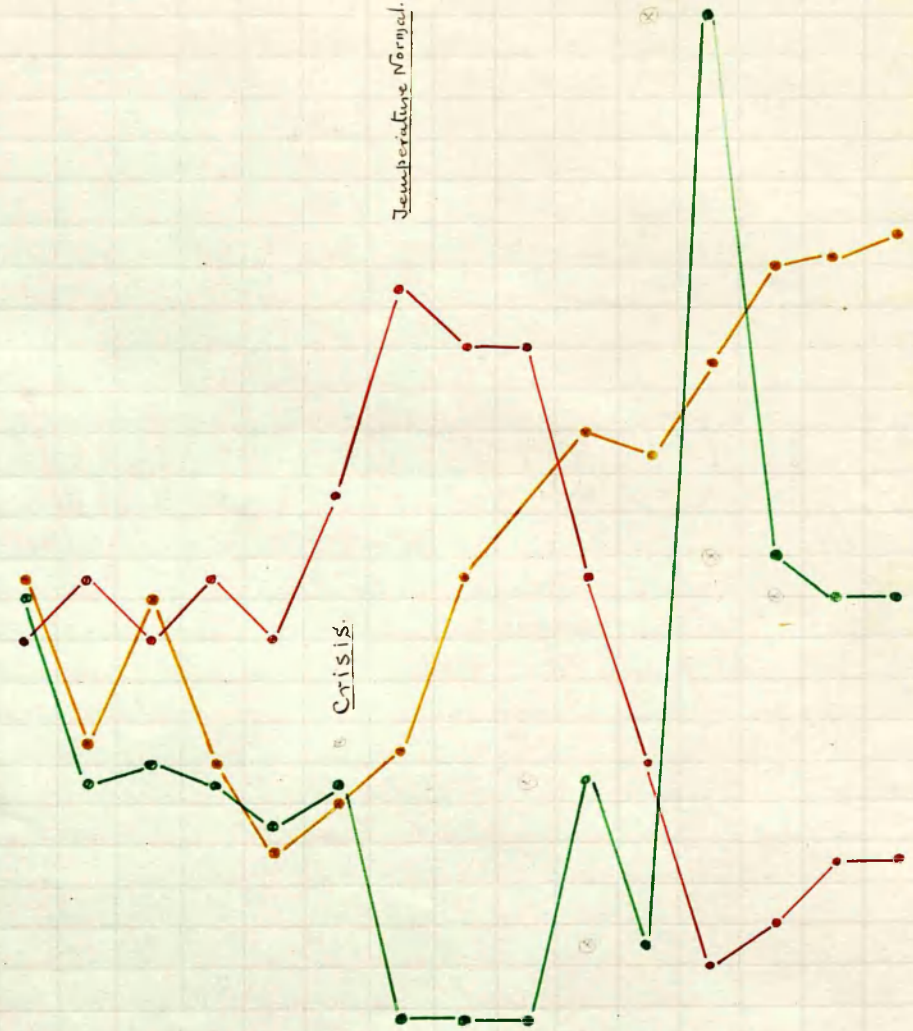
Goulds Clinical Chart

March. April.

18. 19. 20. 21. 22. 23. 24. 25 27 28. 28 29. 30 31. 1.

Chart 6b



Urine in 24 Hours.	Total Solids per 1000 of Urine.	Chlorine as NaCl per 1000 of Urine.
3400	87	14
33	85	
32	83	13
31	81	
3000	79	12
29	77	
28	75	11
27	73	
26	71	10
25	69	
24	67	9
23	65	
22	63	8
21	61	
2000	59	7
19	57	
18	55	6
17	53	
16	51	5
15	49	
14	47	4
13	45	
12	43	3
11	41	
1000	39	2
9	37	
8	35	1
7	33	·5
6	31	
5	29	
4	27	
3	25	
200	23	

3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th

Day of Disease.

Foley.

March

18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. April. 1

Chart 6c

Total Solids

Chlorine-as NaCl- in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20 1/21 1/22 1/23 1/24 1/25

Temperature Normal.

Crisis.

3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th

Day of Disease.

Foley.

4 HOUR CHART.

DISEASE.

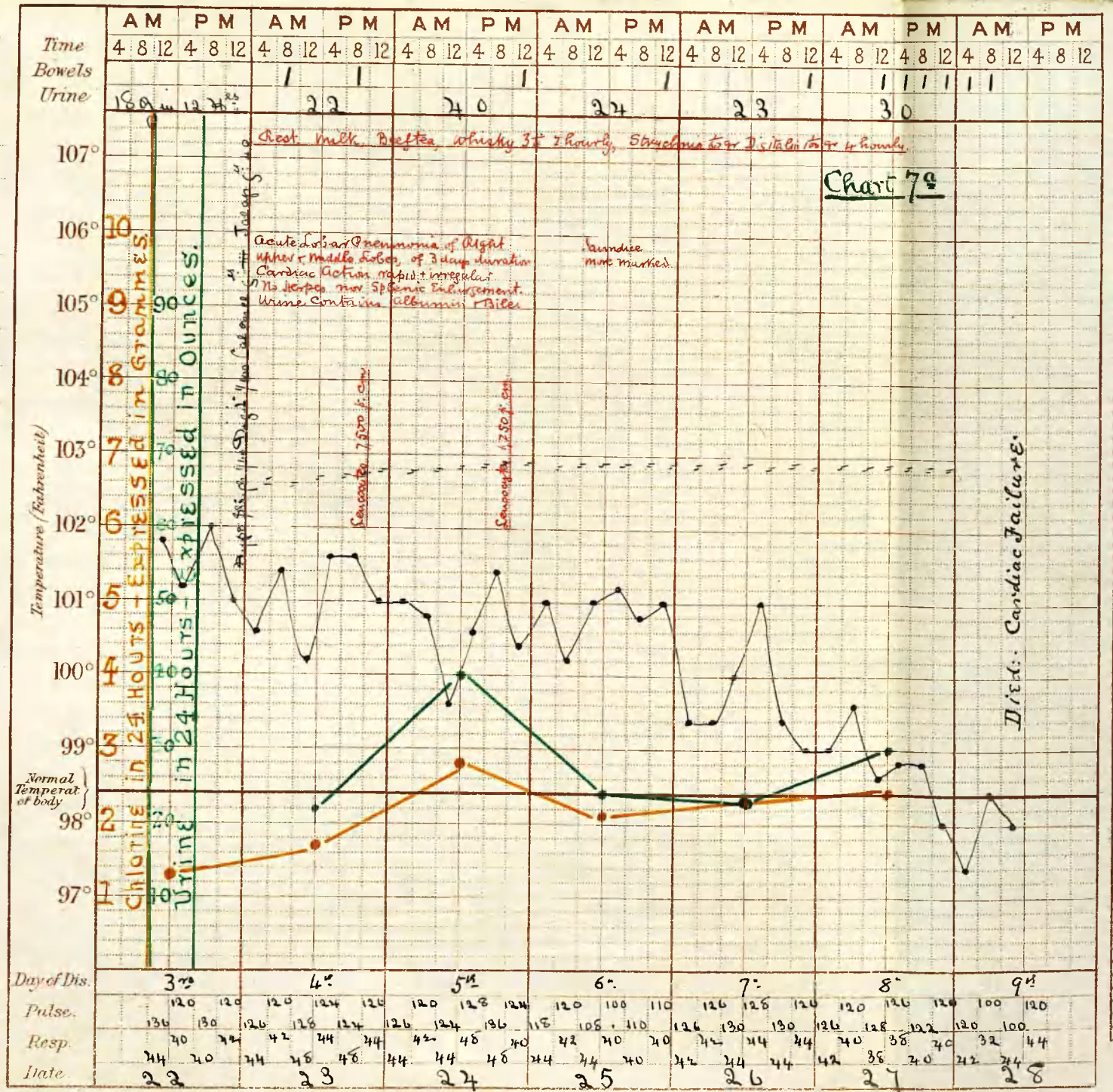
Name Joseph Belcher

Age 24 yrs.

Diet

Case Book No.

Notes of Case



Date of admission 22/8/03

Result

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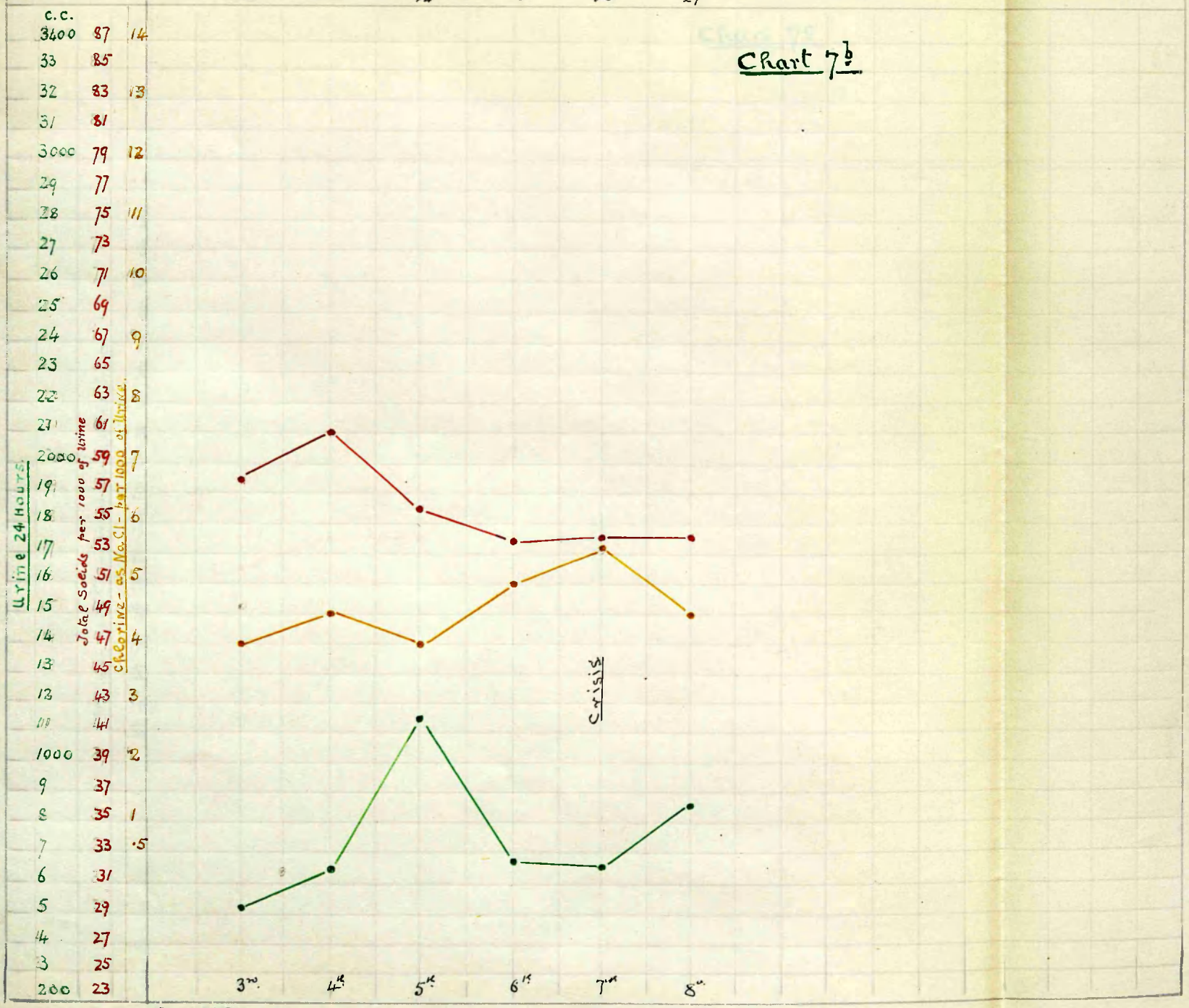
March.

22nd 23rd 24th 25th 26th 27th

Chart 7b



March.

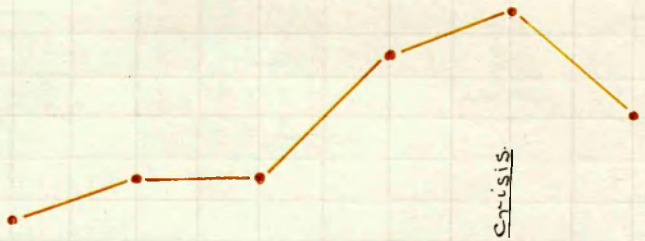
22nd 23rd 24th 25th 26th 27th

Chart 7c

Total Solids:-

Chlorine – as NaCl – expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20



3rd 4th 5th 6th 7th 8th

Day of Disease.

4 HOUR CHART.

DISEASE.

Name John Bowers

Age 28 yrs.

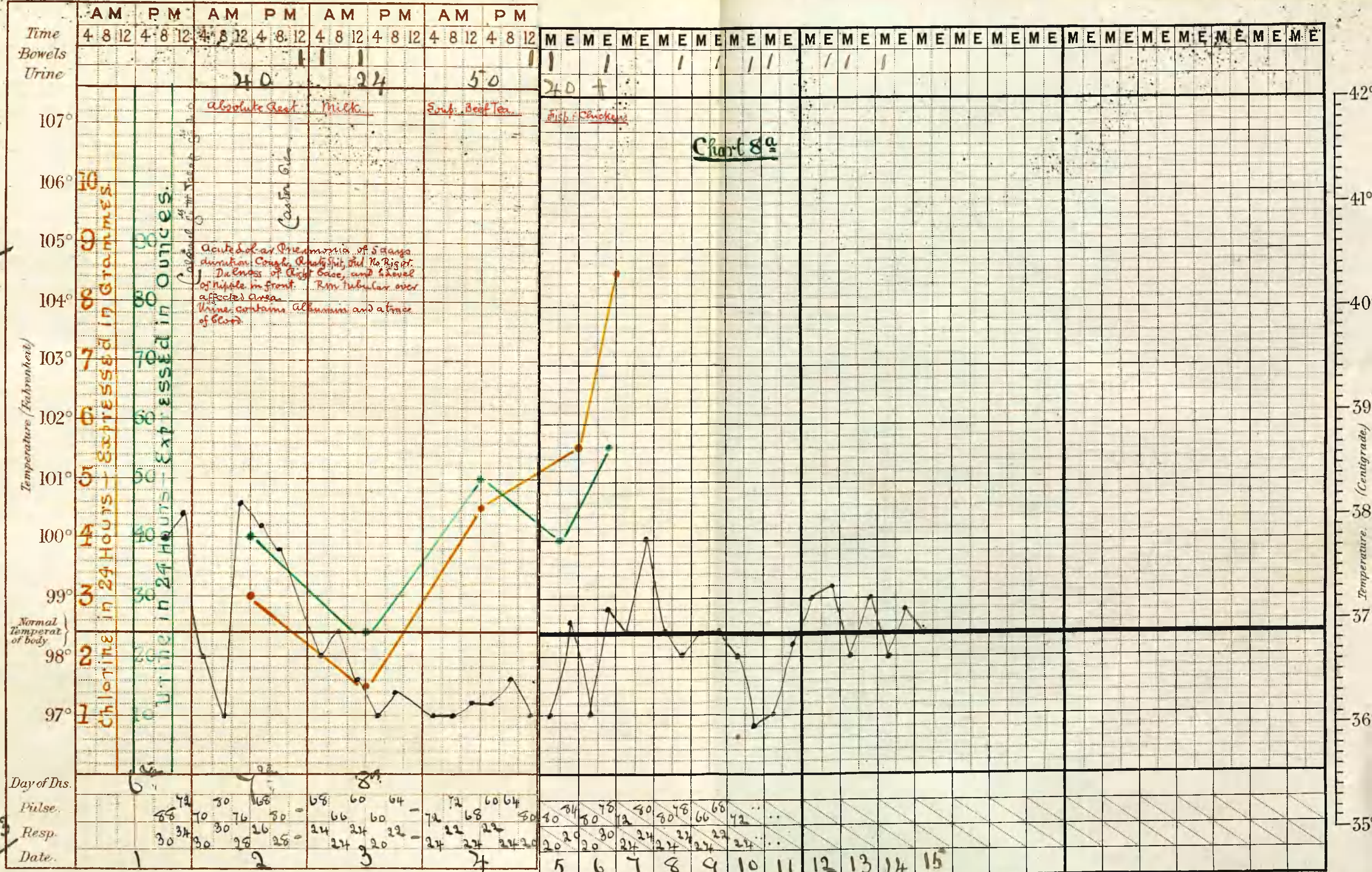
Diet

Case Book No.

Notes of Case

Date of admission. April 1st 1903

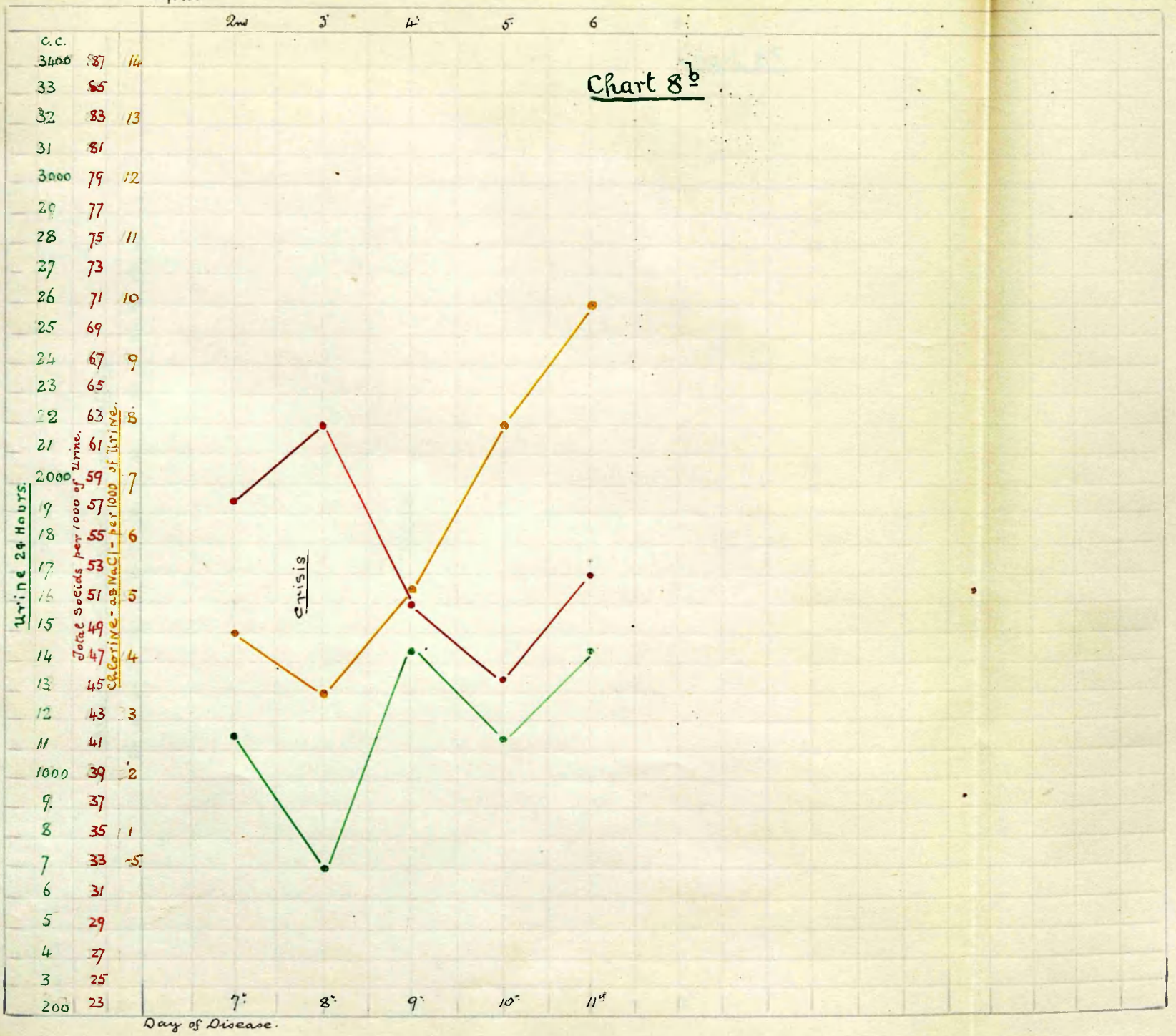
Result



Time
Bowels
Urine
AM PM AM PM AM PM AM PM
4 8 12 4 8 12
M E
40
24
50
240
Absolute Rest
Milk
Fish. Beef Tea.
Fish. Chicken
Chart 8a
Castor Oil
Chlorine in 24 Hours – Expressed in Grammes
Urine in 24 Hours – Expressed in Ounces.
Temperature (Fahrenheit)
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Normal Temperat of body
Temperature. (Centigrade.)
42° 41° 40° 39° 38° 37° 36° 35°
Acute Lobar Pneumonia of 5 days duration. Cough, Rusty Spit, but No Rigor. Dulness of Right Base, and to level of nipple in front. R.M. tubular over affected area.
Urine contains albumin and a trace of blood.
Day of Dis.
Pulse.
Resp.
Date.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

April

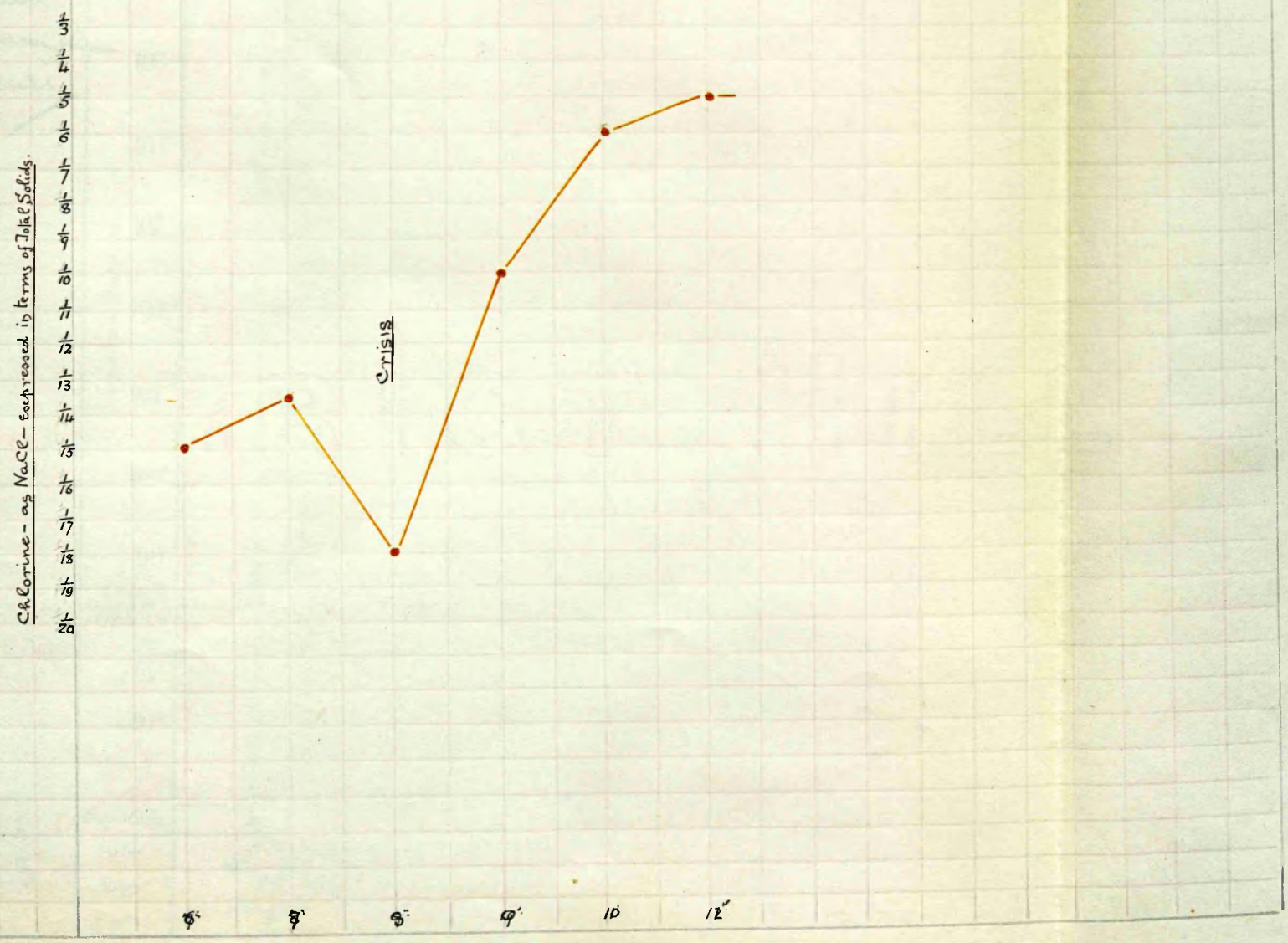
Chart 8b



April.

Chart 8c

Total Solids:-



4 HOUR CHART.

DISEASE.

Name Mrs Thomas Dangal

Age 21 years.

Diet

Case Book No.

Notes of Case

Date of admission 6/4/03.

Result

Time
Bowels
Urine

AM PM AM PM AM PM AM PM AM PM AM PM AM PM

4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12 4 8 12

1 1 1 1 1

37 18 35 42 24 25

Absolute Diet Milk Ammonium Carb. 5 grs. Tinct Digitalis mxv every 4 hours.
Strychninate Dialudin 1/50 gr. 6 hrly Whisky 3ii every 2 hours. Strychnine 1/60 (stopped)

Acute Lobar Pneumonia of Right Upper Lobe, setting in without Rigor on 31st Ultimo.
Dullness in front to 4th interspace and behind to Scapular Angle with Tubular Breath and fine moist rales.
Slight Abdominal distension. No Splenic enlargement. Albuminuria.

Temperature (Fahrenheit)

107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°

10 9 8 7 6 5 4 3 2 1

Chlorine in 24 Hours—Expressed in Grammes.

Urine in 24 Hours. Expressed in Ounces.

Normal Temperat of body

Day of Dis.

Pulse.

Resp.

Date.

6 7 8 9 10 11 12

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M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E

1 22 1 1 1 1 1

20 35 60 40 40 30

Beef Tea

Chart 9a

13 123

Beef Tea Milk Diet Ordinary Diet

42° 41° 40° 39° 38° 37° 36° 35°

Temperature (Centigrade)

13 14 15 16 17 18 19 20 21 22

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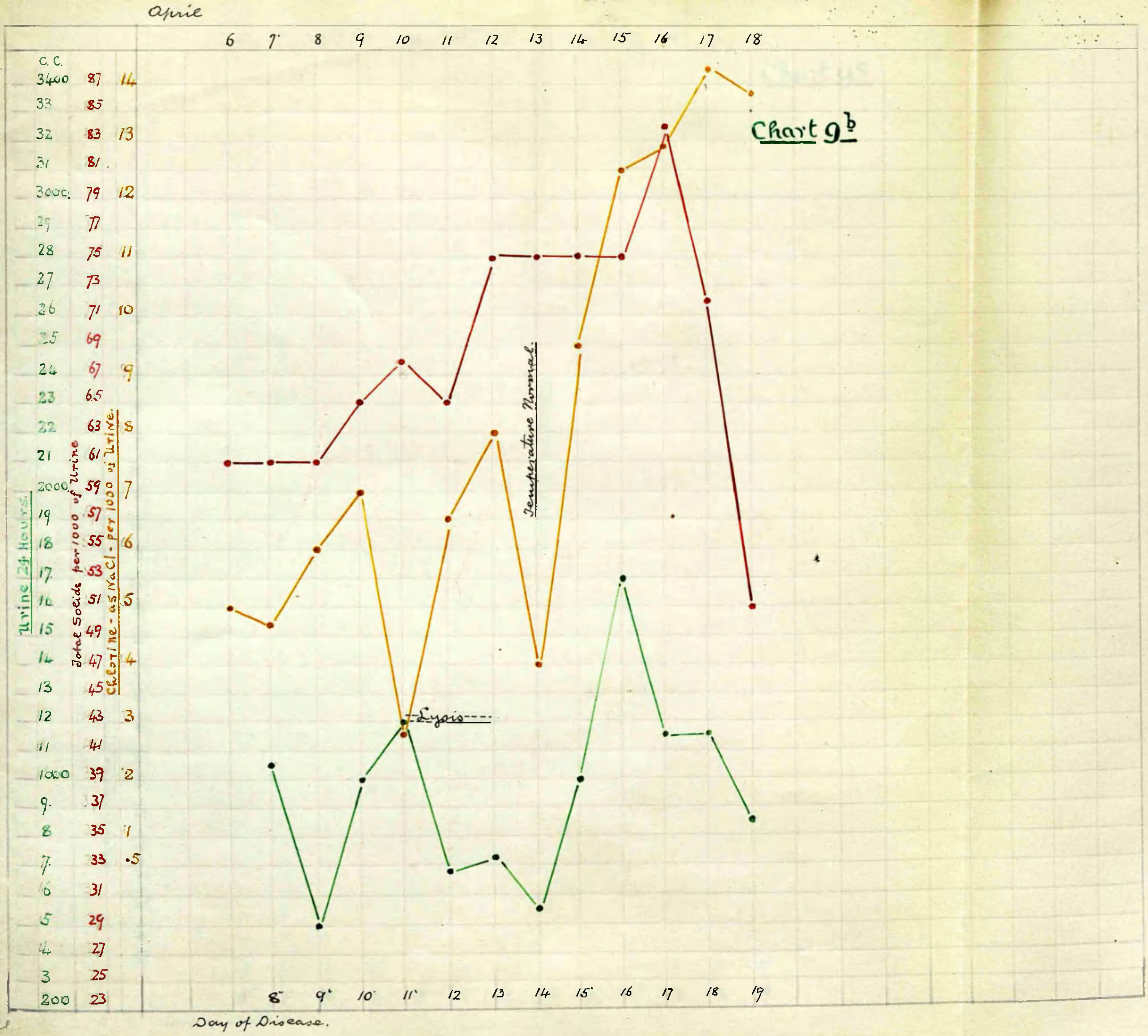
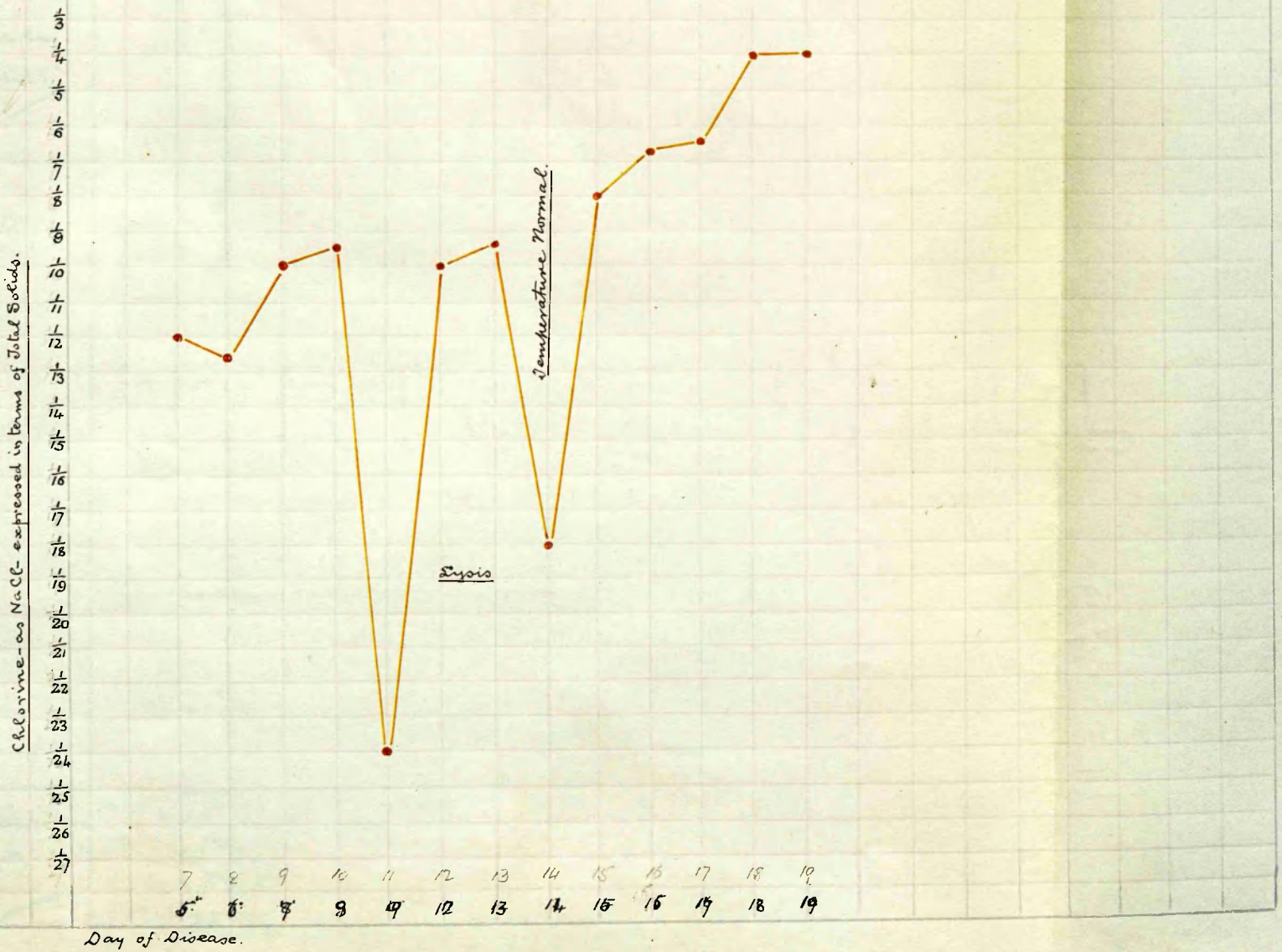

April
Chart 9b
C. C.
Urine 24 Hours.
Total Solids per 1000 of Urine
Chlorine - as NaCl - per 1000 of Urine.
Temperature Normal.
Lysis
Day of Disease.

Chart 9c

Total Solids:-



4 HOUR CHART.

DISEASE.

Name John Heaney

Age 33 years

Diet

Case Book No.

Notes of Case

Date of admission 6/4/03.

Result

Chart 10a

Temperature (Fahrenheit) — Normal Temperat. of body

Chlorine in 24 Hours – Expressed in Grammes — Urine in 24 Hours Expressed in Ounces

Bowels: 1 1 1 1 1 1 2 3 1

Urine: 32 30 20 24 44 60 35 35 30 30 18 30 55 50 50 60 44 50

Absolute Rest — Milk — Ammon. Carb. gr. ii; Tinct. Dig. ℥ii/15 q.h. evens 4 hours — ℞ as 15 q.h. ℥ii every two hours — 10 fluidg. to be Forty

Beef Tea. — Ordinary Diet + 3 pints Milk — Emulsion — Iodide Stopped

Acute Lobar Pneumonia, setting in on 3rd inspiration. Pain in left side, cough, and Expectoration. No dulness, but Bronchial Breathing: fine Crackling rale everywhere. Left front: Herpes: Expectoration rusty. Albuminuria.

Dulness in left Infraclavicular Region with Tubular R.M., but no Rales. Expectoration highly Rusty.

Dulness at left Apex R.M. tubular over area, accompanied by small moist rales.

No dulness behind, nor is R.M. anywhere definitely tubular.

Great improvement. Dulness entirely disappeared. R.M. still Tubular, in left Infraclavicular area. Rales abundant at Base. Crackle and Sputum Spit purulent.

Dulness entirely disappeared. R.M. still Tubular, in left Infraclavicular area. Rales abundant at Base. Crackle and Sputum Spit purulent.

Blood-stained Sputum appeared

Day of Dis. 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Pulse

Resp.

Date. 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

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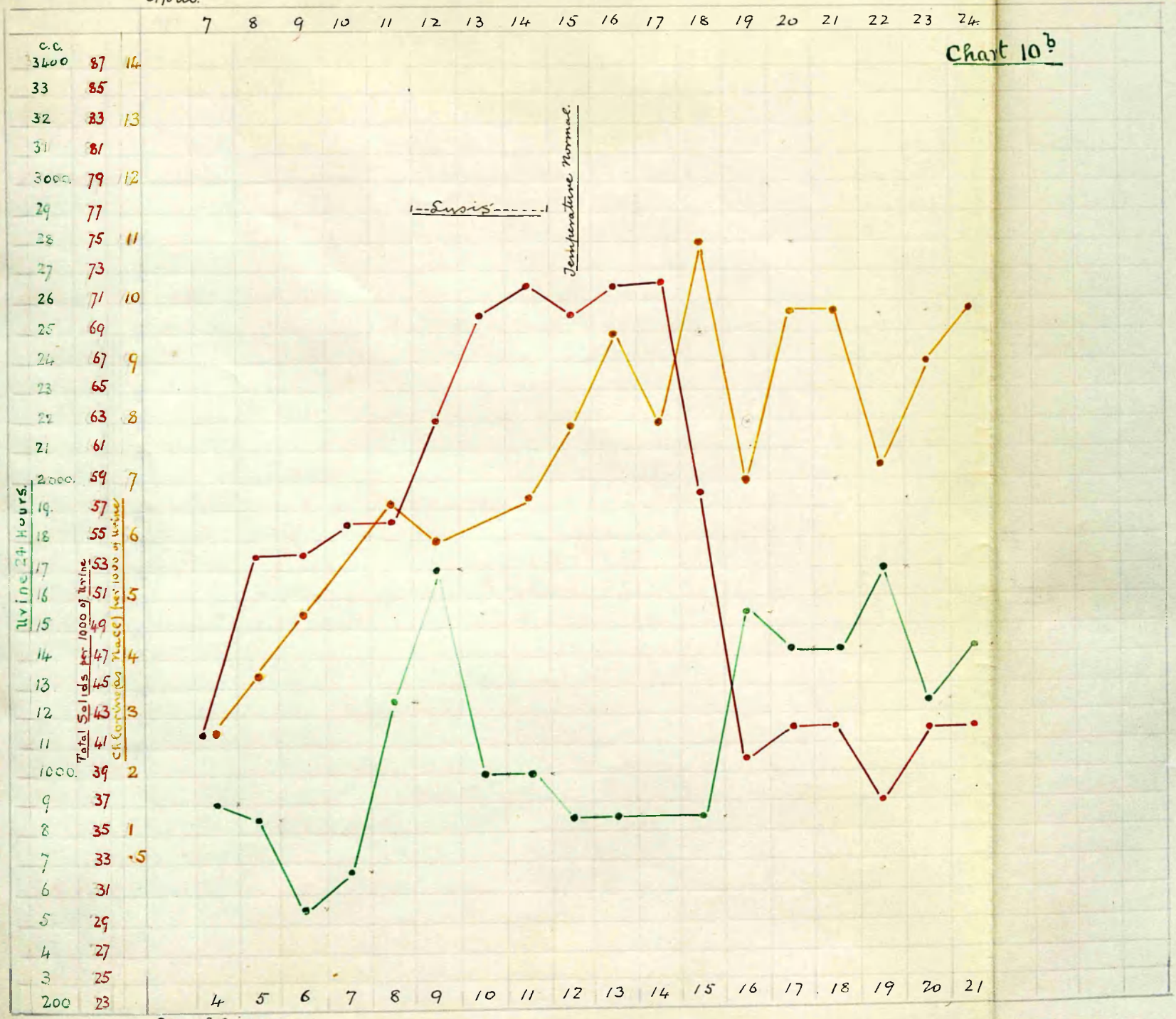
April.

Chart 10b



Haney.

Apr. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18 19 20 21. 22. 23. 24.

Chart 10c

Total Solids.

Calorine – as NaCl – expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20

Lysis

Temperature Normal.

4. 5. 6. 7. 8 9 10 11 12 13 14 15. 16. 17. 18 19 20 21

Yancey.

4 HOUR CHART.

DISEASE.

Name James Crawley.

Age 9 years

Diet.

Case Book No.

Notes of Case

Date of admission 10/12/02.

Result

Chloride in 24 Hours – Expressed in Grammes

Urine in 24 Hours – Expressed in Ounces

Temperature (Fahrenheit) — Normal Temperat. of body

Time / Bowels / Urine

Day of the Disease

Pulse. Resp. Date.

December

Rest in Bed – Milk Diet – Potas. Acetatis, Potas. Bicarb. aa 3ij; Syrup. Scillae 3j; Infusi Buchu ad 3iij m. Sig. 3j every 4 hours

Rest in Bed – Milk Diet – Quininae Sulphatis gr ½ ter in die

Illness of 10 days duration, with physical signs of right pleural effusion, the dulness posteriorly extending from Scapular Spine to Base. No appreciable Cardiac Displacement.

Dulness to Percuss. in mid. so absolute – Is diminished but not Friction Crepitus in Mammary & Axillary Regions. Deficient Resonance at R. Base.

Bronchial – Blindly distributed intermediate rales.

Somewhat Profuse Perspiration

Well.

Quininae Sulphatis gr ½ 4 in 3

Cantor. Oleo 3iij

Expectorant Draught 3iij

Chart No 2

Rest in Bed – Light Ordinary Diet with Milk

Albuminized Milk

January.

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December
January
11 12 14 15 16 17 19 21 22 23 24 25 26 27 28 29 1st 3rd 4th 5 7th 9th 13th
Febrile Period.
Subfebrile Period.
Convalescent period.
Chart 11b
Urine in 24 Hours.
cc.
3400 87 14
33 85
32 83 13
31 81
3000 79 12
29 77
28 75 11
27 73
26 71 10
25 69
24 67 9
23 65
22 63 8
21 61
2000 59 7
19 57
18 55 6
17 53
16 51 5
15 49
14 47 4
13 45
12 43 3
11 41
1000 39 2
9 37
8 35 1
7 33 .5
6 31
5 29
4 27
3 25
200 23
Total Solids per 1000 of Urine.
Chlorine (as NaCl) per 1000 of Urine.

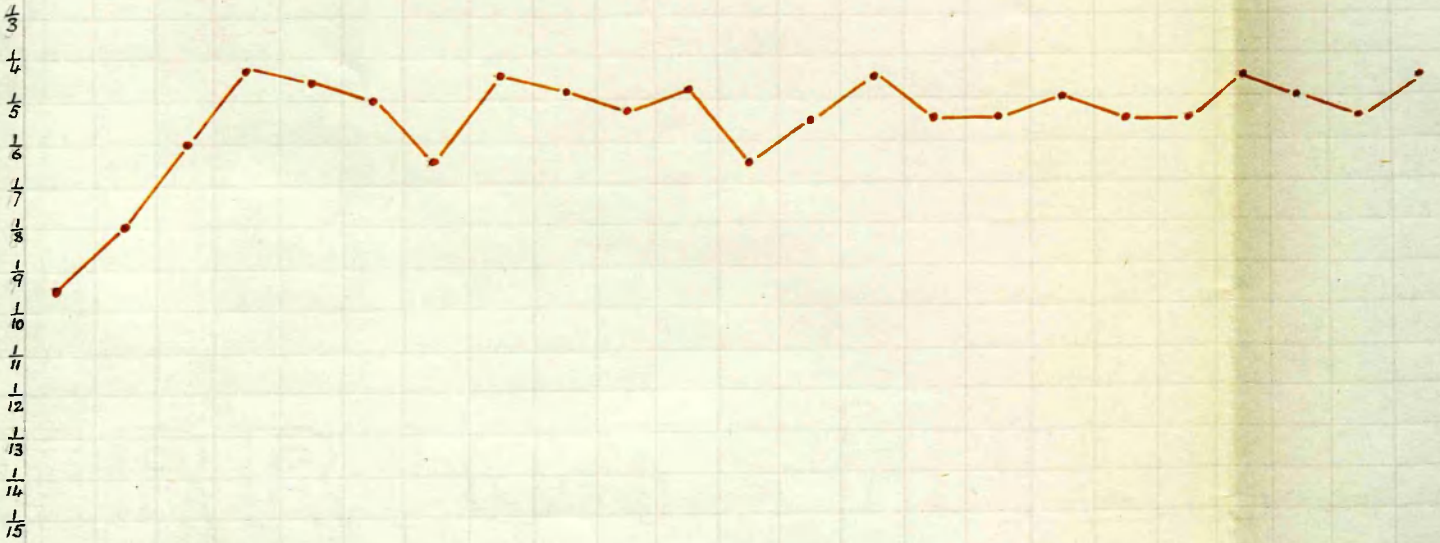
December. January

11 12 14 15 16 17 19 21 22 23 24 25 26 27 28 29 1 3 4 5 7 9 13.

Febrile Period. | Subfebrile Period. | Convalescent Period.

Chart IIc

Total Solids:



4 HOUR CHART.

DISEASE.

Name Dan. Paterson

Age 16 years

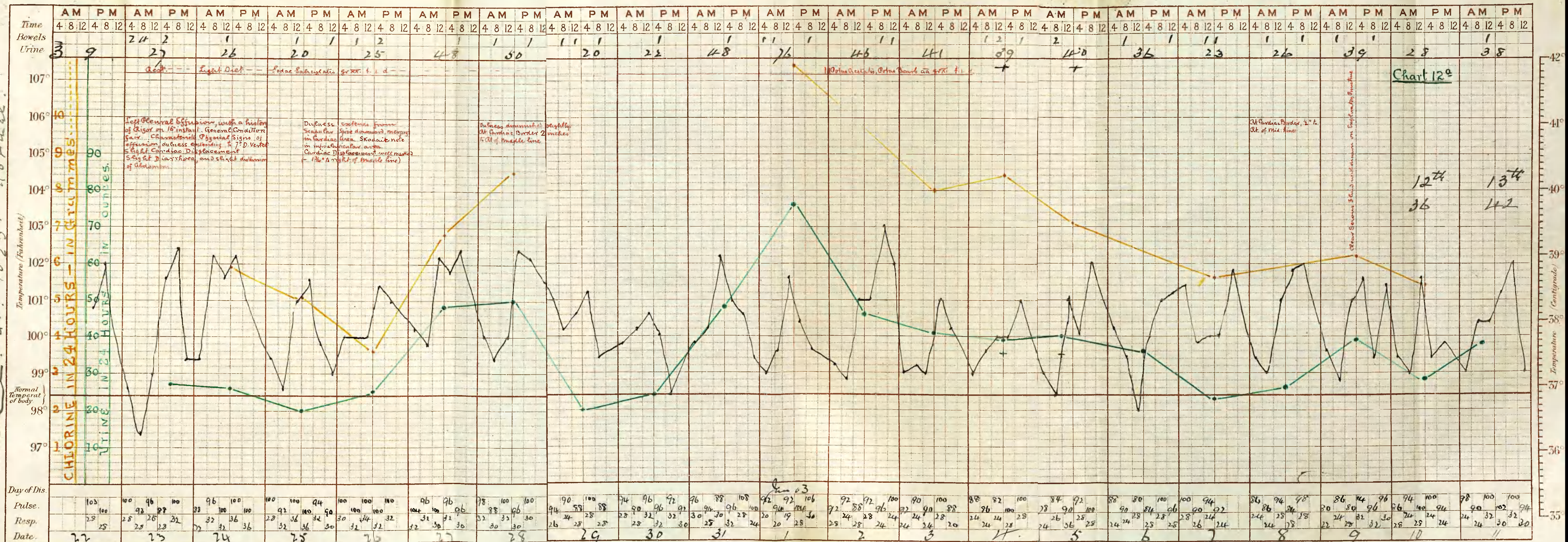
Diet

Case Book No.

Notes of Case

Date of admission 22 · 12 · 02

Result



Time
Bowels
Urine
AM PM
4 8 12 4 8 12
Temperature (Fahrenheit)
107°
106°
105°
104°
103°
102°
101°
100°
99°
Normal Temperat of body
98°
97°
CHLORINE IN 24 HOURS — IN Grammes.
URINE IN 24 HOURS IN Ounces.
Rest — — — Light Diet — — Sodae Salicylatis gr xx. t. i. d — —
Left Pleural Effusion, with a history of Rigor on 16th instant. General Condition fair. Characteristic Physical Signs of effusion, dulness extending to 7th D. Vertebra Slight Cardiac Displacement Slight Diarrhoea, and slight distension of Abdomen
Dulness extending from Scapular Spine downward, merging in Cardiac Area. Skodaic note in infraclavicular area. Cardiac Displacement well marked (1¾" to right of middle line)
Dulness diminished slightly. Rt. Cardiac Border 2 inches to Rt. of middle line
Rt. Cardiac Border, ½" to Rt. of Mid: line
Chart 12a
12th 36
13th 42
42°
41°
40°
39°
38°
37°
36°
35°
Temperature (Centigrade)
Day of Dis.
Pulse.
Resp.
Date.
22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11

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Dec: Jan:

24 25 26 27 28 ~~30~~ 3 4 5 7 9 10 11

Temperature Intermittent – 98° 103° F.

Chart 12b

C.C.	Urine in 24 Hours.	Solids per 1000 of Urine	Chlorine as NaCl per 1000 of Urine.	
3400	87			14
33	85			
32	83			13
31	81			
3000	79			12
29	77			
28	75			11
27	73			
26	71			10
25	69			
24	67			9
23	65			
22	63			8
21	61			
2000	59			7
19	57			
18	55			6
17	53			
16	51			5
15	49			
14	47			4
13	45			
12	43			3
11	41			
1000	39			2
9	37			
8	35			1
7	33			-5
6	31			
5	29			
4	27			
3	25			
200	23			

Patterson

Dec: Jan.

24 25 26 27 28 3 4 5 7 9 10 11

Temperature Intermittent 98° F – 103° F.

Chart 12c

Total Solids:

Chlorine – as NaCl – expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17

DISEASE.

Notes of Case.

Name { Alexander Hill

Age 21 years

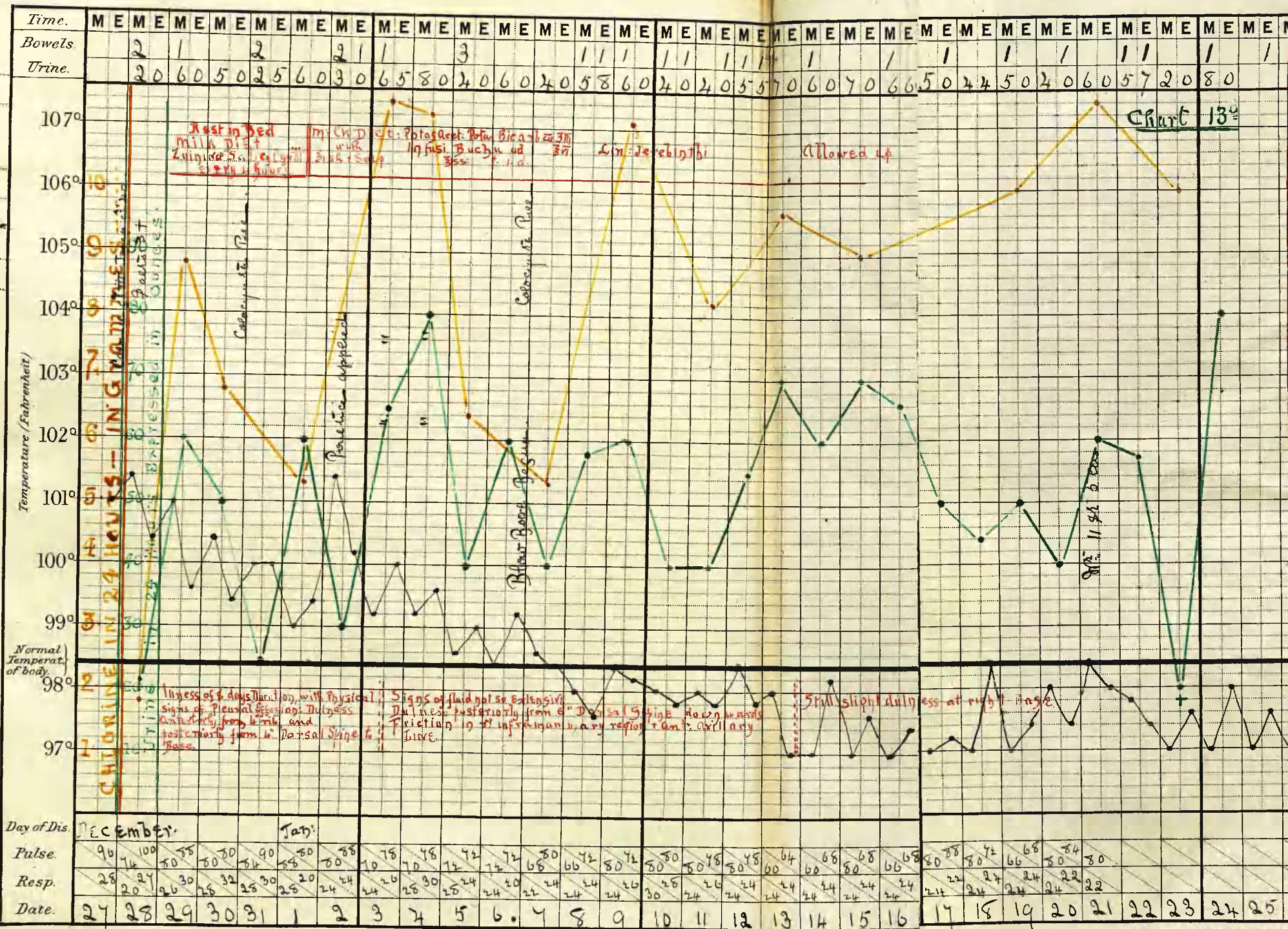
Diet

Case Book No.

Date of admission.

27/12/02

Result



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December. January.

28. 29. 30. 1. 3. 4. 5. 7. 9. 11. 13. 15. 19. 21. 23.

Temp: 99°–101°4 ..... Temp: 98°4–100° ..... Temperature Normal .....

Chart 13b

c.c. Urine 24 Hours.	Total Solids per 1000 of Urine.	Chlorine - as Nacl - per 1000 Urine.
3400	87	14
33	85	
32	83	13
31	81	
3000	79	12
29	77	
28	75	11
27	73	
26	71	10
25	69	
24	67	9
23	65	
22	63	8
21	61	
2000	59	7
19	57	
18	55	6
17	53	
16	51	5
15	49	
14	47	4
13	45	
12	43	3
11	41	
1000	39	2
9	37	
8	35	1
7	33	·5
6	31	
5	29	
4	27	
3	25	
200	23	


4 HOUR CHART.
DISEASE.
Name Robert Wood
Age 22 yrs
Diet
Case Book No
Notes of Case
Date of admission 31. 1. 03.
Result
Time
Bowels
Urine
AM PM
4 8 12 4 8 12
Temperature (Fahrenheit)
Temperature (Centigrade)
Normal Temperat of body
Chloride in 24 hours – Expressed in Grammes
Urine in 24 hours – Expressed in Ounces
Chart 14a
Day of Dis.
Pulse.
Resp.
Date.
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February.

1. 2. 3. 4. 5. 6. 9. 10. 11. 12 13 14 15 16. 17. 18 20 22 23 25 26 27.

.....Temperature 100°- 103°4 ..... || Temperature 99°8 - 101°4 ... 98°4 - 100° | ..... Temperature Normal .....

Chart 14c

Total Solids:-

Chlorine - as NaCl - expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 1/19 1/20 1/21 1/22 1/23 1/24 1/25 1/26 1/27 1/28 1/29

3rd 4th 5th 6th 7th 1/35 8th 11 12 13 14 15. 16. 17. 18 19 20. 22. 24 25. 27 28 29

Day of Disease.

DISEASE.

Notes of Case.

Name Maggie Rae

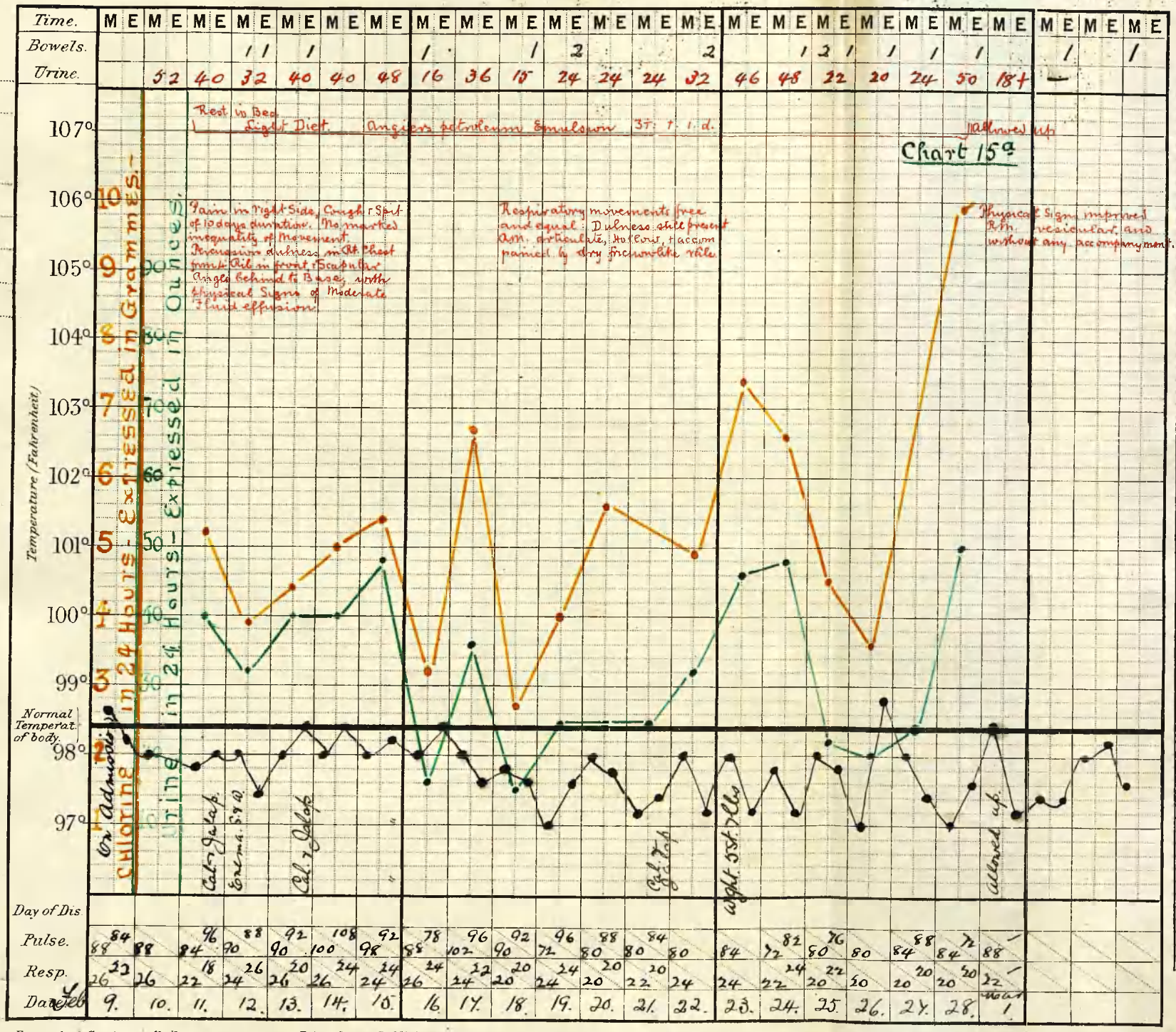
Age 15 years

Diet

Case Book N°

Date of admission.
9th Febry. 1903

Result



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February.

11 12 13 14 15 16 17 18 19 20 22 23 24 25 26 28.

Temperature Normal Throughout.

Chart 15b

c.c. Urine 24 Hours.	Total Solids per 1000 of Urine.	Chlorine as NaCl per 1000 of Urine.
3400	87	14
33	85	
32	83	13
31	81	
3000	79	12
29	77	
28	75	11
27	73	
26	71	10
25	69	
24	67	9
23	65	
22	63	8
21	61	
2000	59	7
19	57	
18	55	6
17	53	
16	51	5
15	49	
14	47	4
13	45	
12	43	3
11	41	
1000	39	2
9	37	
8	35	1
7	33	·5
6	31	
5	29	
4	27	
3	25	
200.	23	

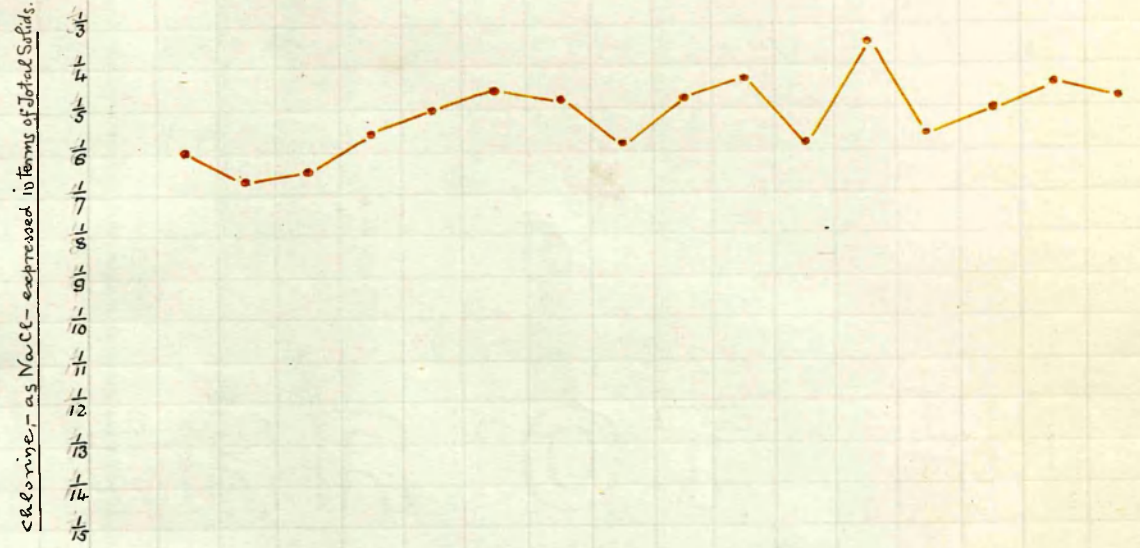
February

11 12 13 14 15 16 17 18 19 20 22 23 24 25 26 28.

Temperature Normal Throughout.

Chart 15c

Total Solids:-



DISEASE.

Notes of Case.

Name Edward Price

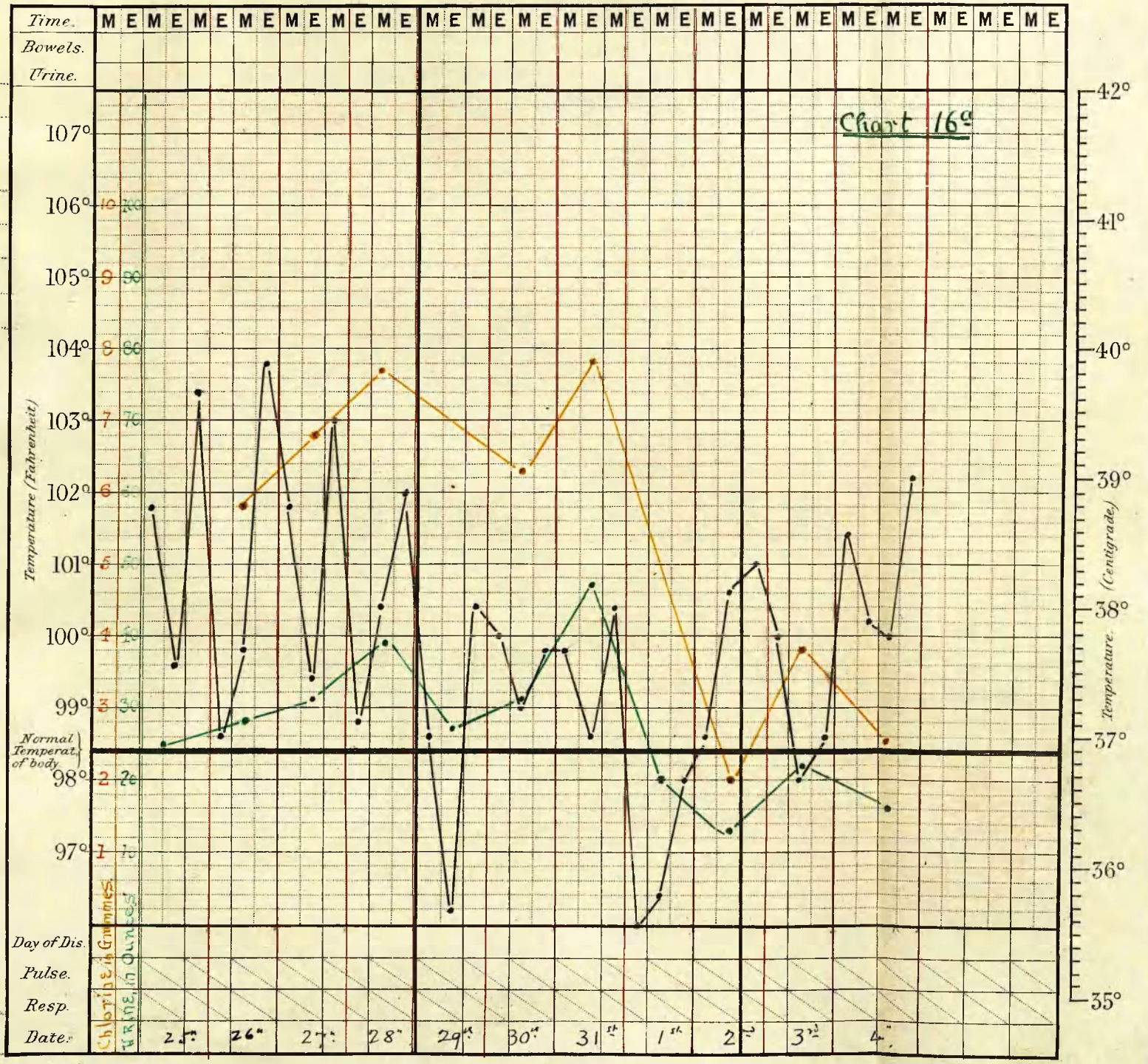
Age aet 20.

Diet

Case Book N°

Date of admission.

Result



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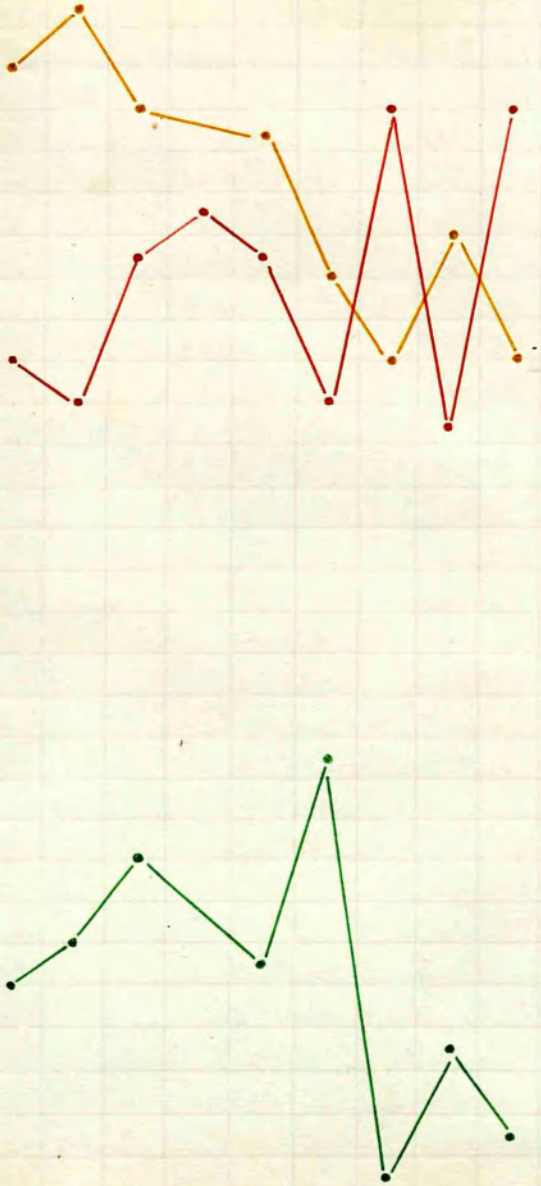
January: February.

26. 27. 28. 29 30 31 2 3. 4

Intermittent Temperature (97°-103°.8)

Chart 16b



c.c.		
3400	87	14
33	85	
32	83	13
31	81	
3000	79	12
29	77	
28	75	11
27	73	
26	71	10
25	69	
24	67	9
23	65	
22	63	8
21	61	
2000	57	7
19	57	
18	55	6
17	53	
16	51	5
15	49	
14	47	4
13	45	
12	43	3
1100	41	
1000	39	2
9	37	
8	35	1
7	33	.5
6	31	
5	29	
4	27	
3	25	
200	23	

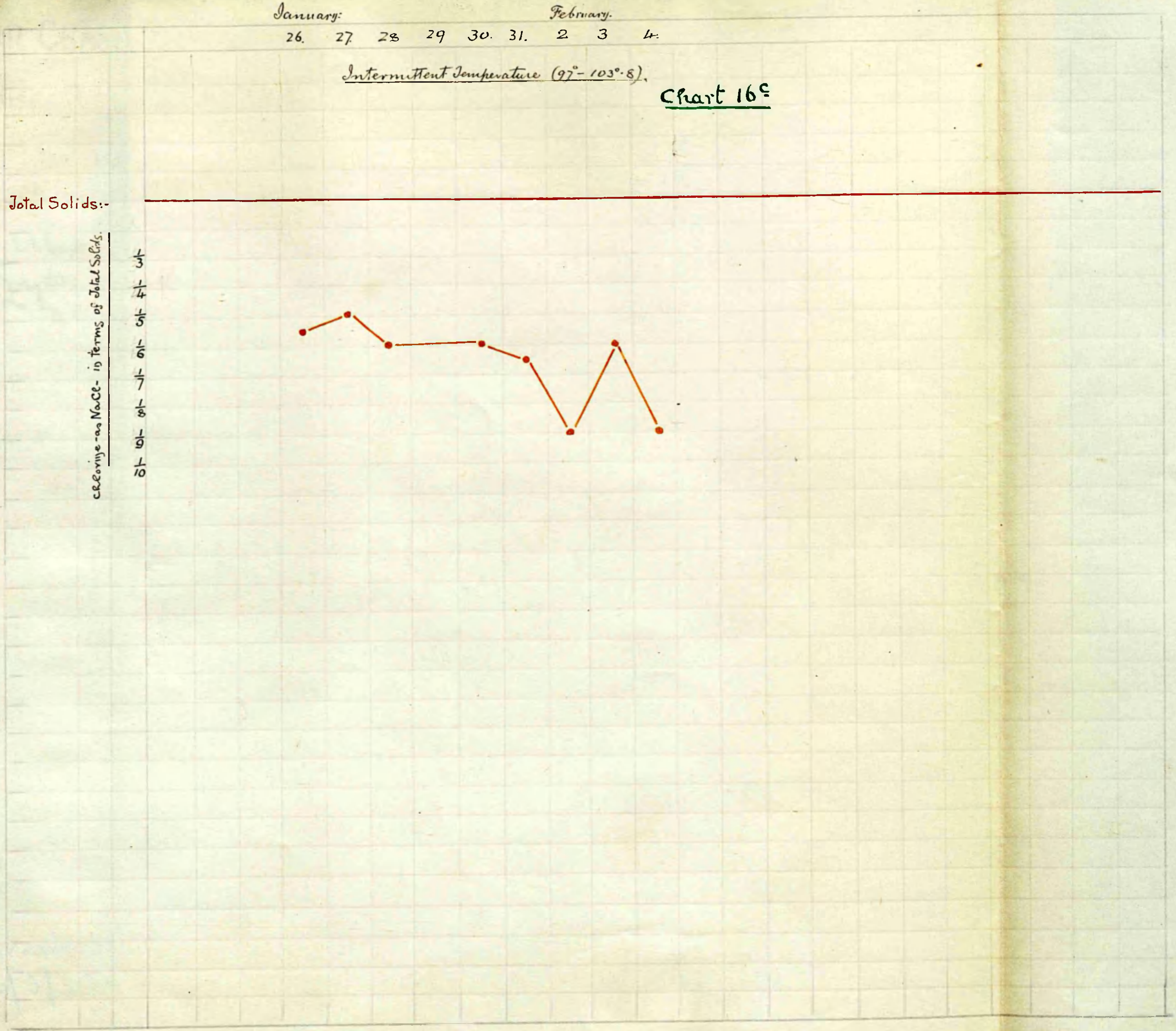
URINE: 24 Hours.

Total Solids per 1000 of urine.

Chlorine - as NaCl - per 1000 of Urine.

Price

Chart 16c


January:
February.
26.
27
28
29
30.
31.
2
3
4.
Intermittent Temperature (97° - 103°·8).
Total Solids:-
Chlorine - as NaCl - in terms of Total Solids.
1/3
1/4
1/5
1/6
1/7
1/8
1/9
1/10

4 HOUR CHART.

DISEASE.

Name { Alex Lyon.

Age 40 yrs

Diet

Case Book No.

Notes of Case

Date of admission 6/3/03

Result

Time

Bowels

Urine

Temperature (Fahrenheit)

Chlorine in 24 Hours expressed in Grammes

Urine in 24 Hours expressed in Ounces

Normal Temperature of body

Day of Dis.

Pulse.

Resp.

Date.

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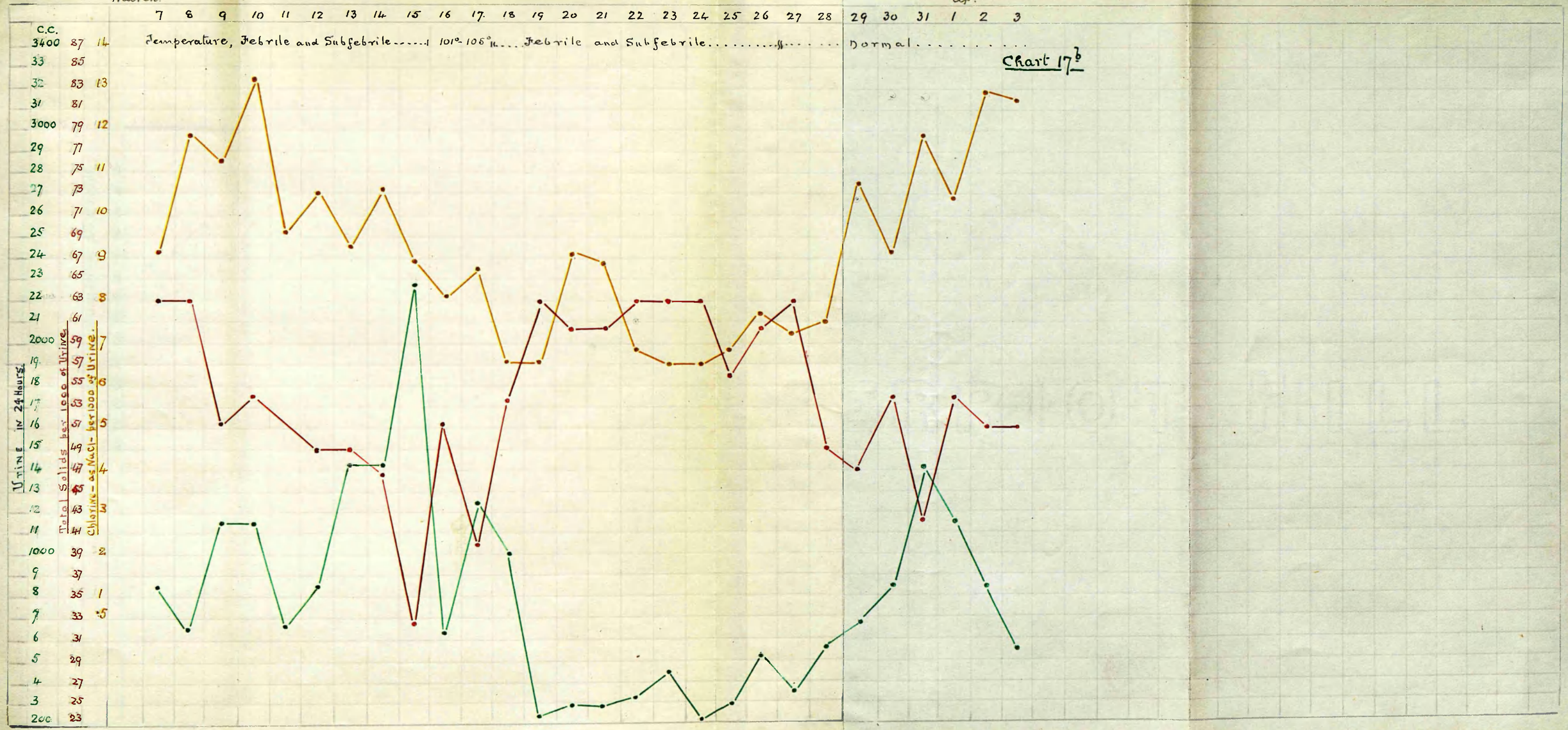

March
Apr.
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3
Temperature, Febrile and Subfebrile..... 101°-105°F.... Febrile and Subfebrile..... Normal.....
Chart 17b
C.C.
Urine in 24 Hours.
Total Solids per 1000 of Urine.
Chlorine - as NaCl - per 1000 of Urine.

March. April.

7 8 9 10 11. 12. 13. 14. 15. 16. 17 18 19 20 21 22 23. 24 25 26 27 28 29 30 31. 1 2 3.

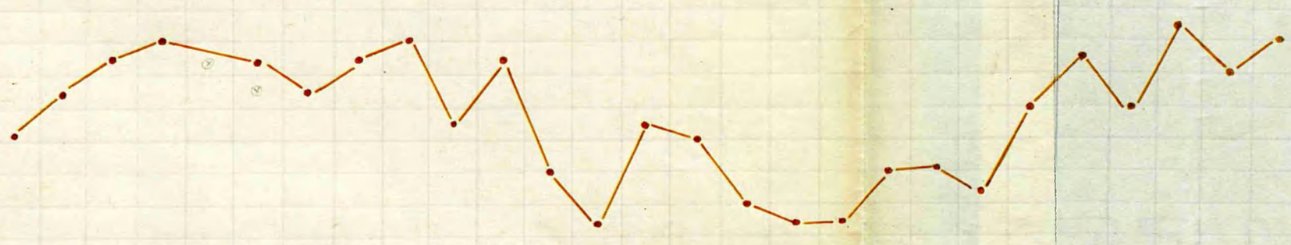
Temperature Subfebrile to Febrile ------ Jein 101°-105° ------ Febrile -- to -- Subfebrile ------ Temp' Normal ----------

Chart 17c

Total Solids:

Chlorine - as NaCl - expressed in terms of Total Solids.

1/3 1/4 1/5 1/6 1/7 1/8 1/9 1/10 1/11 1/12 1/13 1/14 1/15 1/16



Ryon