THESIS

ON

"Affections of the Throat and Glands in Scarlet Fever: with statistics of 471 cases."

BY

Andrew Davidson M.A., M.B., C.M. (Glas)
Marianville
Cathcart.

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There are admittedly few diseases which vary more in intensity in different individuals than does Scarlet Fever. In one case, a passing sorethroat, with a minimum of pyrexia and an evanescent rash scarcely attracts attention to the young patient, while it often fails to evoke any complaint from him. In another, the sickness, prostration, high fever and brilliant rash are soon followed by dysphagia that seems to debar the patient from swallowing altogether and may be followed by destructive ulceration in the pharynx and cellulitis in the neck. And in yet another and fortunately rare class of cases, the excessive septic intoxication is evidenced by hyper-pyrexia delirium and convulsions, with death before the rash has had time to develope.

It is mostly among the poor and ill-fed children of a large

city that the disease is wont to show itself in its most complicated forms; and it fell to the lot of the writer to have charge of a large number of scarlet fever cases during a period of fully twelve months while the epidemic that visited Glasgow in the latter half of the year 1890 and the spring of 1891 tasked to the utmost the accommodation at Belvidere Hospital.

Interest always attaches to a comparison of one's own experience with the accepted teaching of standard writers and it is from a synopsis of my journal reports in these 471 cases that the following statistics and information are derived.

Out of the total number (471) deaths ensued in 20 instances. Two deaths resulted from causes not attributable, directly or indirectly, to the exanthem itself. One of these patients was a robust young workman, from whose bladder a calculus had

been removed in the Western Infirmary three months before his admission to Belvidere.

He had been subject to attacks of renal colic, great sickness and pain in the testicle at intervals of three weeks since the operation.

These attacks were paroxysmal and of short duration. About 6 weeks after his admission to Belvidere when he was convalescent and going about, he was seized with a similar attack which I ascribed to the passage and impaction of another calculus down the left ureter, a view which was subsequently confirmed at the autopsy. This attack was much more severe than any previous and induced peritonitis from which death resulted.

The other case which apparently ought not to be included in the statistics as a death due to Scarlatina was that of a young infant who though convalescent from the fever died of lung congestion and meningitis due to whooping cough.

which was present as a complication.
Even including this case however (as it is impossible to say how much or little the vital powers were deteriorated by the Scarlatina) and taking the number of deaths as 19, the mortality percentage is 4·62.
Among the remaining 18 fatal cases the following complications were present :—
Rheumatism Chorea & Endocarditis (1)
Rheumatism, Pleurisy, Pericarditis and latterly Pneumonia (1 case)
Malignant Scarlatina (2 cases)
Rheumatism, "collar-neck" pneumonia (1)
Rheumatism, Pericarditis, Endocarditis (1).
Empyaema and Bronchopneumonia (1).
Meningitis (2) (one due to Mastoiditis)
Puerperal Scarlet Fever (1 case).
Gangrene of throat (with haemorrhage).
Pneumonia & ulceration of cornea. (1)
Whooping-cough & Bronchopneumonia (1)
Venereal disease & headeymptoms. (1)
Ulceration of throat & nasal discharge (2)
Otorrhoea Collar-neck & Septicaemia. (1)
Otorrhoea and ulceration of throat. (2)

With regard to the initial symptoms

of Scarlet Fever, sickness & sorethroat were usually present together Thus out of 471 cases sickness had
83 % been complained of in 393 and
90 % sorethroat in 424. Convulsions ushered in the disease in 2 cases only; and in 8 the rash was the first symptom noted. Diarrhoea was present in 9 cases but may in some of these have been induced by the indiscriminate use of purgatives which are almost invariably used by parents when a child sickens

Regarding these initial symptoms allowance must be made for careless observation by parents and the inability of young patients to make their complaints known

With respect to the date of appear-ance of the rash, the following state-ment (derived chiefly from parents) is nevertheless interesting.

Out of 471 cases, rash was seen on
the 1st day of illness in 63 cases (13%)
" 2nd " " " " 232 " (49%)
" 3d " " " " 85 " (18%)
" 4th " " " " 27 "
" 5th " or later " 12 "

11 %

In 52 cases no rash was seen at all As experience shews that the rash to be observed must in many cases be carefully looked for, it is probable that in most of the 85 cases in which it was observed on the 3d day, a more careful scrutiny on the previous day would have revealed its presence and so with cases in which it was not observed until later. In those instances in which by mistake cases of sorethroat from infected districts were sent into hospital as cases of scarlet fever but developed it only after admission and under close observation, the rash was found to appear usually little if anything beyond 24 hours from the first onset of sickness

In endeavouring to decide upon the relative frequency of certain well-known appearances and symptoms in the tongue throat and neck glands one must clearly eliminate those cases in which the primary acute symptoms and notably the pyrexia had quite disappeared before admission into hospital.

Wunderlich in his work on Thermometry

(at page 349) when discussing temperature in scarlet fever writes thus:- "In an overwhelming majority of cases, defervescence is protracted and requires from 3 to 8 days for its completion" Henoch again in his work on Diseases of Children Vol II p 196 says "When the rash appears the temperature rises, and this persists without intermission as long as the eruption remains on the skin, i.e 4-6 days on an average. * * * *. When the eruption is fading, i.e. after about 4-6 days the fever begins gradually to diminish."

This seemed to justify the fixing of the 6th day of illness as a limit in selecting cases for the recording of primary objective symptoms. However it was found that by this method 33 cases would have been omitted which were admitted on the 7th 8th or 9th days of illness (ostensibly at least), but in which the condition of the throat and the high level of pyrexia proved either that the parents had miscalculated the date of onset of the illness, or that they were cases shewing a persistence of the primary acute symptoms beyond the usual limit.

In either case it seemed to me but fair that these cases should be included with the majority of the total number as "early cases" and this raised the number of the latter to 414.

Out of that number, the typical "strawberry tongue" was found to be present in 133 cases only. (32%)

Aphthous stomatitis was present as a complication in 18 cases and though very troublesome to the patients at the time was not in my experience an accompaniment of the more dangerous cases. Nasal discharge on the other hand which was present in 19 cases was almost always associated with virulent forms of scarlatina and was a marked feature in 5 of the fatal cases. Those patients who suffered from nasal discharge but did not die, made almost without exception extremely tardy recoveries; and in not a few it raised strong suspicions of a concurrent attack of diphtheria, although only in one case was a membranous cast shed and only in two did paralysis of the soft palate occur

As regards the condition of the pharynx and tonsils in these 414 early cases, the statistics shew that only in 9 cases was the throat practically, un-affected and of these 9, three were not seen until the 4th day of illness, two not until the 5th, and two only on the 6th day. Allowing for errors in calculation on the part of parents this amply corroborates the dictum of Trousseau and others that sorethroat in some form is an essential feature in all cases of scarlet fever.

The severity of the throat lesion, as will be seen varied greatly in the remaining 405 cases.

An arched area of congestion which involved the fauces tonsils and soft palate (with the uvula) was noted in
31 % 130 cases. To this was superadded in
31 % other 130 cases considerable swelling of the tonsils, without exudation;
18 % while in 76 cases all the above symp-toms were present along with a plastic pseudo-membranous exudation, sometimes homogeneous, sometimes in patches over the apertures of the closed follicles on the tonsils and soft palate.

Ulceration of the tonsils occurred in
10 % 43 cases, and ~~in two cases~~ there
was a slight necrosis observed in two
non-fatal cases which caused per-
-foration or tunnelling in the tonsil
and veil of the soft palate on each
side, while in one fatal case, as before
-mentioned, the destructive process
erroded a pharyngeal bloodvessel
of some size causing copious haemor-
-rhage.

Of the total 471 cases, chronic
hypertrophy of the tonsils was present
7 % in 33 cases, - a small percentage
which would probably have been
larger but for the tender age of
the majority of the patients, 75 per
Cent of whom were under 10 years
of age and 28 per cent under the
age of 5 years.

Returning to a consideration of the
414 "early cases" it was found that
in the initial febrile stage there was
38 % in 158 of these, distinct enlargement
of the glands in the neck, with pain
and tenderness to pressure. The
glands beneath the angle of the jaw
were the most frequently affected.

32 % In the case of 134 the enlargement was inconsiderable and pain only in a slight degree was felt on pressure

22 % In 93 cases no enlargement could be made out on palpation and no tenderness existed. It is to be noted however that palpation often fails to distinguish moderate enlargement of the glands in well nourished patients a fact which was repeatedly brought home to me in making post mortem examinations

Of the total number of cases (471) forty

8 % suffered (if suffering it could be called) from chronic painless enlargement of the submaxillary glands; and this category embraced a large number of children of a strumous habit.

The gland-affection went on to abscess in 10 cases only out of 471; and in a considerable proportion of these, suppuration had probably begun before admission to hospital. The number mentioned above refers only to abscesses which were incised: in some cases it appeared as if pus had formed and been reabsorbed.

10 % Otorrhoea was a complication noted in 47 cases, and in one of these the discharge was haemorrhagic, and copious though followed by speedy recovery.

5 % Scarlatinal rheumatism occurred in 24 cases, but it is to be observed that in 7 of these a previous history of rheumatism was admitted. In one fatal case after very slight symptoms of synovitis passed off, chorea set in coincidently with marked endocardial mischief.

5 % Of the total number of cases previous cardiac defect was noted on admission in 24 patients, while endocarditis followed scarlatinal rheumatism in 6 cases, and peri-carditis in five, 3 of the latter ending fatally.

Pleurisy was a symptom in only 3 cases (becoming purulent in one) while 18 suffered from broncho-pneumonia, and though several of the latter were the victims of old bronchitis, still my short experience does not bear out the commonly accepted view that

scarlet fever seldom affects the lungs themselves, while it is very prone to attack their serous envelopes. On the contrary I incline to the belief that where there is ulceration of the tonsils bronchopneumonia is very apt to follow, from inhalation of air polluted in its transit by the foul discharges, and that too despite the most careful antiseptic precautions.

Cerebral meningitis occurred in 3 cases and was invariably fatal. In 2 of these there was a strong suspicion of tubercular taint; while in the third there was pronounced mastoiditis following on neglected ear-disease, and this patient died about 24 hours after admission.

I much regret now not having made note of how many cases had failed to gain immunity by previous attacks of scarlatina. Such cases were frequent but mostly occurred in adults with a long interval separating the first and second attacks; and of the nurses in attendance on scarlet fever patients

who themselves contracted the disease the majority had had an attack in childhood. A second attack is perhaps little to be wondered at in persons exposed to such "concentrated" possibilities of infection; still it is noteworthy that one or two Belvidere nurses have had charge of Scarlet fever wards for years without at any time contracting the disease.

In one case I had occasion to record an unmistakable second attack of scarlatina during the period of desquamation from the first attack and followed by a second desquamation. The second attack came on 38 days after the onset of the first, and with a train of symptoms more acute than, but in most respects similar to those which characterized the first seizure. Second desquamation was observed 9 days later.

The cuticle shed from the palms and soles after the first attack was of the horny variety which befits a working-man, and in striking

contrast to the delicate skin thrown off during the second period of desquamation.
(I observed a report of a similar interesting case recorded in the Glasgow medical Journal early this year by Dr. Blair of Shotts)
These cases would almost lead one to think that there must be more than one specific micro-organism giving rise to the disease which is known as Scarlet Fever and they are interesting in relation to the occurrence of second attacks in general.

In two cases, gonorrhoea was an accidental complication of scarlet fever; and in both the throat symptoms were very severe and the discharges from them very offensive. Even more striking was the fact that both these adult patients shewed pronounced head-symptoms during the acute stage and in the case of one of them, a woman who was removed to hospital on the eve of her proposed wedding these symptoms persisted after the pyrexia disappeared, and partly through

shame at the contraction of this venereal taint and partly through the fear of having been impregnated without the hope of consummating her marriage she fell into a state of mental and bodily prostration in which she died with almost imperceptible pulse and very low temperatures, and apparently no organic ailment adequate to explain the fatal issue.

As regards the disturbance of the renal function in Scarlet fever it was observed that of the 414 early cases 128 suffered from primary albuminuria, a Symptom of little gravity doubtless and due in most of the cases to pyrexia

30 %

Of the 471 cases however, 26 suffered from secondary or scarlatinal nephritis. This complication varied greatly in intensity, albuminuria in some instances disappearing under prompt purgative and diaphoretic treatment in a week, while in others it persisted for even months. Moreover out of these 26 cases blood was absent

5·5 %

from the urine, or apparently so, in 11 cases; and these naturally the mildest of the category.

Uraemic convulsions occurred in two patients, both of whom after the prompt administration of pilocarpine and hot mustard packs made good recoveries.

As regards pyrexial limit, the highest level reached in cases that recovered was 106° (twice noted) while in fatal cases the highest noted was 107·2°; although I was privileged to see a fatal case under the care of one of my fellow-assistants in which just before death the thermometer registered a temperature of 109°.

The last set of statistics in regard to the total number of cases has reference to the subject of secondary glandular enlargements in the submaxillary region; and of these I intend to speak in more detail. Briefly and before entering on this subject it may be said that out of 471 cases, secondary sorethroat alone was

noted in 10 cases or less than 2 per cent; and in 4 of these otorrhoea was present and provided an adequate explanation of the onset of this symptom.

Secondary sorethroat accompanied by glandular enlargement was present in 16 cases in 1 of which otorrhoea may have been the exciting cause. 3·4 %

Secondary glandular enlargement without accompanying sorethroat was present in 68 cases or 14·4 per cent of the total number, and although otorrhoea was present in 15 of these cases, and nasal discharge in 4, there still remain 49 cases in which the enlargement in the glands merits more careful enquiry as to its cause.

Respecting even the primary affections of the throat and glands in the early stages of the disease the relation between them is perplexing; for contrary to expectation the amount of primary glandular inflammation was not in direct proportion to the severity

of the throat lesion. Thus :-
There were found to be 158 cases (or 38 per cent) in which, in the acute stage, the glands in the neck were distinctly swollen and painful. The concomitant state of matters in the throat was as follows :-

In 41 cases - simple arch of congestion.
55 " - do. + swollen tonsils.
34 " - do. + do + exudation
20 " - ulceration of the tonsils
8 " - chronic hypertrophy of the tonsils with a little congestion.

Moreover in the 10 cases of gland-enlargement which went on to abscess the tonsils were the seat of :-
ulceration -- in 4 cases.
enlargement + follicular exudation in 2 cases.
Enlargement without exudation in 4 cases.

It is also noticeable that while there were out of a total of 471 143 cases of ulceration of tonsils only 20 of these were accompanied by distinct and painful swelling of the glands and of these only 4 went on to suppuration.

Indeed it often seemed that

with careful treatment the products of inflammation gained easier exit from the abraded surface of an ulcerating tonsil, throwing less work on the absorbent lymphatic vessels and preventing the glands from becoming storehouses for these products and hence more liable to secondary enlargement As an instance of this compare the unexpectedly good result in the case of alexander Livingstone (p 58.)

Not quite in accordance with this view but suggesting among other things that the modern type of scarlatina must be more severe than that of a century ago, is the following note taken from Buchan's Domestic Medicine (1816)

ib. p. 190. "In the year 1774 during winter a very bad species of this fever prevailed in Edinburgh: it raged chiefly among young people. The eruption was generally accompanied with a quinsey and the inflammatory symptoms were so blended with others of a putrid nature as to

render the treatment of the disease very difficult. Many of the patients towards the decline of the fever were afflicted with large swellings of the submaxillary glands and not a few had a sup-puration in one or both ears."

Before discussing the subject of secondary gland-enlargements in more detail it may be well to give brief clinical accounts of 14 cases, some of them typically describing a state of matters which presented itself in many similar cases.

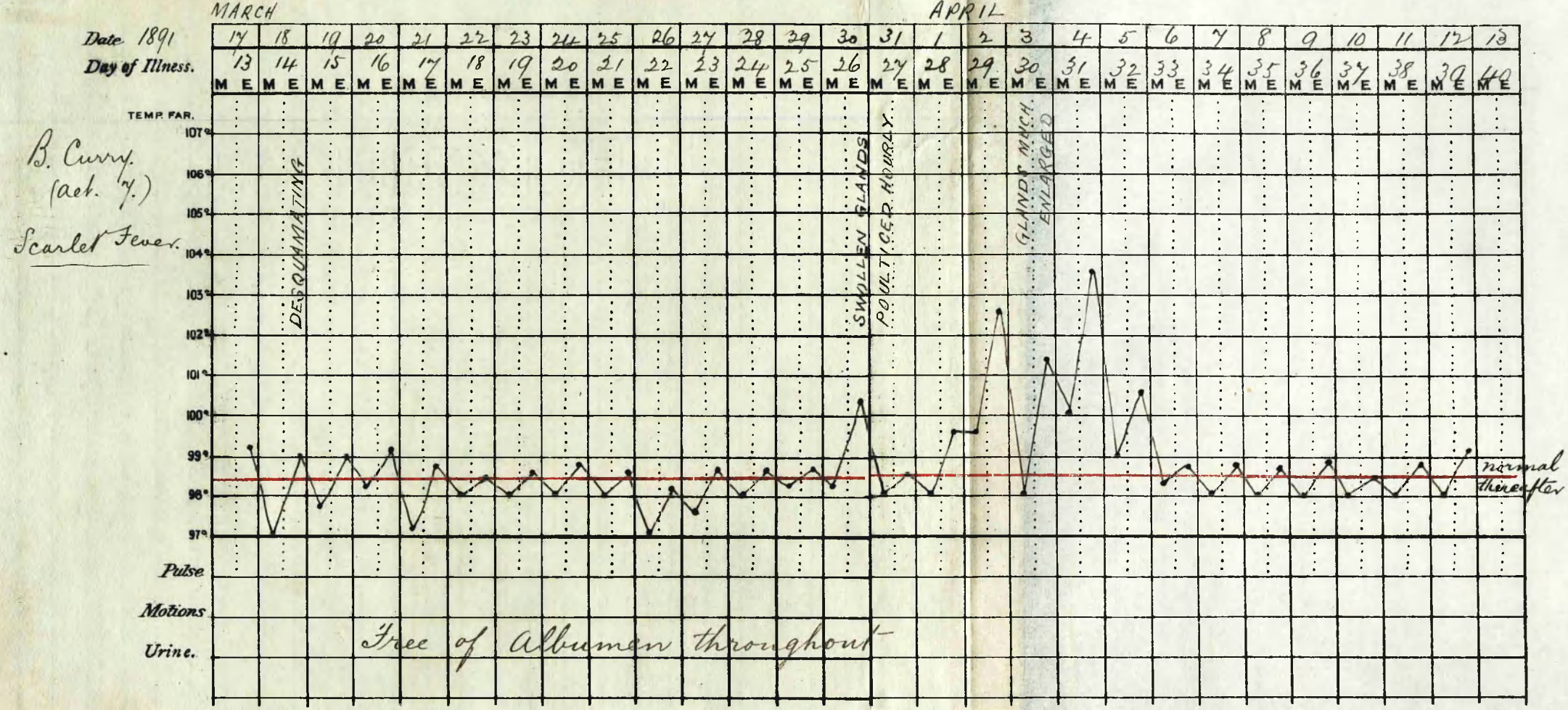
There are to begin with reports on three patients, all robust types whose convalescence was interrupted by one transient secondary affection of the glands in the neck, which readily yielded to treatment. There were many such cases in the wards.

Then follow reports of a couple of cases in which two exacerbations occurred during convalescence; and, as a subdivision of this class, come two instances in which glands were secon-darily affected, once while the

patient was confined to bed, and again immediately on getting up. -
This was also a frequent occurrence and is elsewhere referred to.

Two or three cases are next de-
-scribed in which the secondary attack of gland-enlargement was synchronous with the onset of Scar-
-latinal nephritis - a suggestive fact, as I take it, in regard to the aetiology of the former affection.

Finally there are short reports of cases in which the elimination of inflammatory products from the originally affected glands, is seen to be a tedious process and the liability to secondary and tertiary "explosions" of inflam-
-mation is embodied in the reports and more graphically depicted in the vagaries of the temperature-
-curves.


MARCH
APRIL
Date 1891
Day of Illness.
TEMP. FAR.
B. Curry.
(act. 7.)
Scarlet Fever.
DESQUAMATING
SWOLLEN GLANDS
POULTICED HOURLY.
GLANDS MUCH ENLARGED
normal thereafter
Pulse
Motions
Urine.
Free of Albumen throughout

Bertha Curry (act 6) was admitted to hospital on March 3.'91, illness having begun 12 days before with sickness and sorethroat. Rash was seen on 2.nd day; but the acute symptoms had naturally enough passed off and the tongue was pale, and the throat only slightly congested on admission. The cervical glands at the angle of the jaw were very little enlarged, and they soon ceased to be able to be felt by the hand or to cause the slightest pain on palpation and pressure. Desquamation was observed on the day after admission, and the case was a mild and uncomplicated one throughout, save for the occurrence (on the 26th day of illness) of swelling and pain in the neck glands. Hourly poultices were applied, intermitted at times to prevent injury to the skin, and then cotton wool was substituted.

The chart indicates by the varying levels of pyrexia the onset and defervescence from this complication, and it is worthy of note that meanwhile the throat shewed no signs of catarrh, urine remained clear, and no external cause could be assigned to explain the complication. Uninterrupted recovery followed

1891

M. Agnew.
aet. 9.

Scarlet fever.

Date Jan.	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10							
Day of Illness.	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27							
	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
Pulse																									
Motions																									
Urine. 3	30	30	28	29	28	23	32	32	32	32	32	33	21	26	34	24	34	48							

TEMP. FAR.

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

no subsequent of glands felt

Desquamating.

Glands swollen slightly

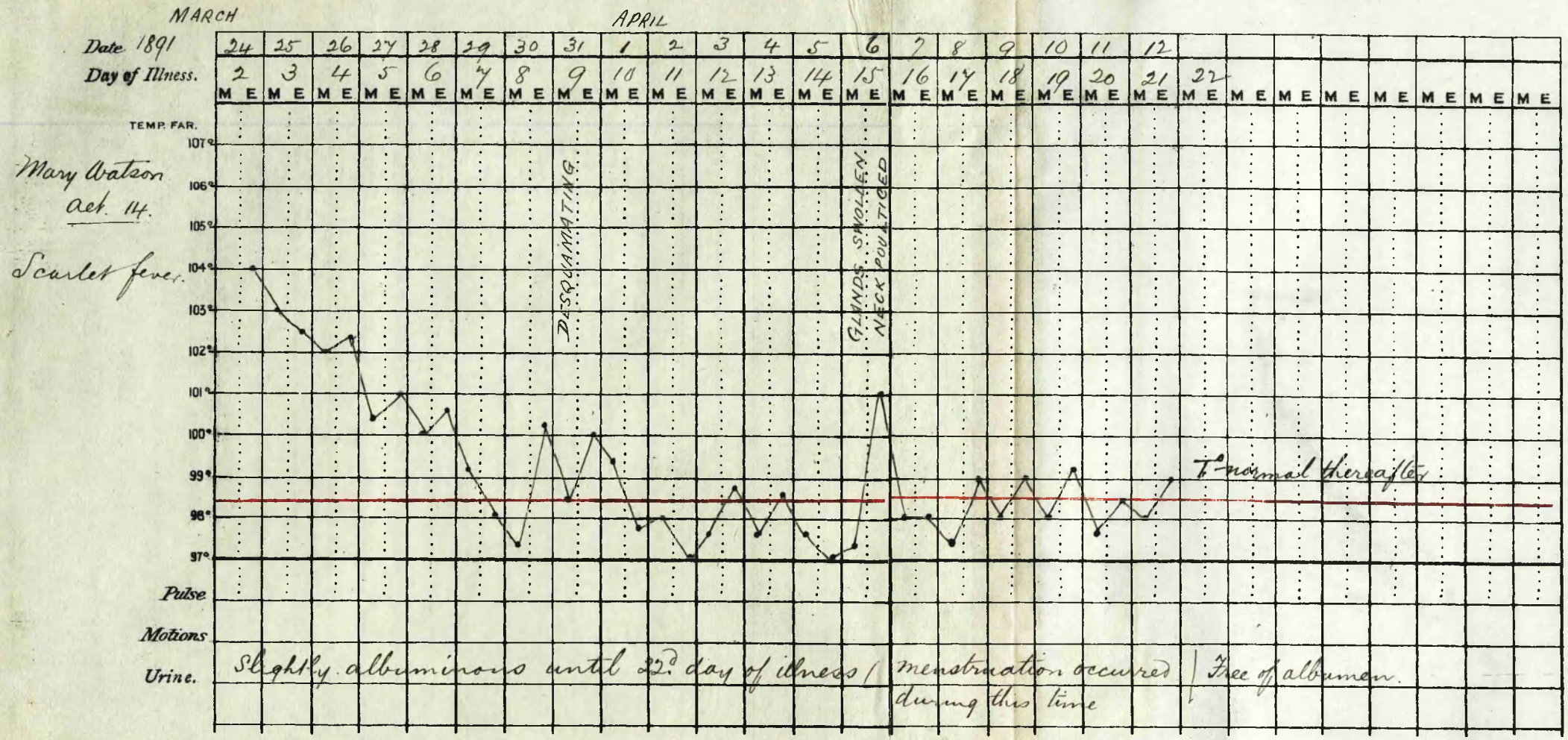
normal thereafter.

Free of albumen throughout

Maggie Agnew (aet 8) admitted 24th Jan. '91 illness having begun 9 days before with sickness, headache, & sorethroat & rash on 2nd day. On admission the tongue had a "strawberry" appearance and the tonsils and soft palate were congested and swollen with adherent "pultaceous concretions" (TROUSSEAU.)

The neck glands were unaffected, and continued so until the 2nd day of illness when they were observed to be slightly enlarged. Very pronounced, if transient, pyrexia accompanied this complication which quickly yielded to the effects of poulticing and the patient made a steady and otherwise uninterrupted recovery. The urine was free of all trace of albumen throughout. No catarrhal symptoms could be discovered to explain the swelling in the glands.

Patient was dismissed well 11. 3. 91.


MARCH
APRIL
Date 1891
24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12
Day of Illness.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
M E
TEMP. FAR.
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Mary Watson
aet. 14.
Scarlet fever.
DESQUAMATING
GLANDS SWOLLEN. NECK POULTICED
T° normal thereafter
Pulse
Motions
Urine.
Slightly albuminous until 22d day of illness
menstruation occurred during this time
Free of albumen.

Mary Watson (aet 14): admitted 24. 3. 91
illness having begun on the previous
day with vomiting sorethroat & rash.
Tongue was much furred, and straw-
berry-like at the tip and edges. T.° 104°
Throat was much congested and
the tonsils were very large, & covered
with yellow patches of exudation.
This condition was followed by
ulceration which left the tonsils quite
ragged in appearance. Meanwhile
the glands in the neck had been
painful and the dysphagia most
intense. Steam-spray inhalations
and regularly applied poultices to the
neck sufficed to get rid of these
painful symptoms, and 5 days
after admission the glands were quite
painless and scarcely to be felt
on palpation.

Defervescence as the chart indicates
was unusually rapid for such a
sharp case; and desquamation
appeared on the 9th day.

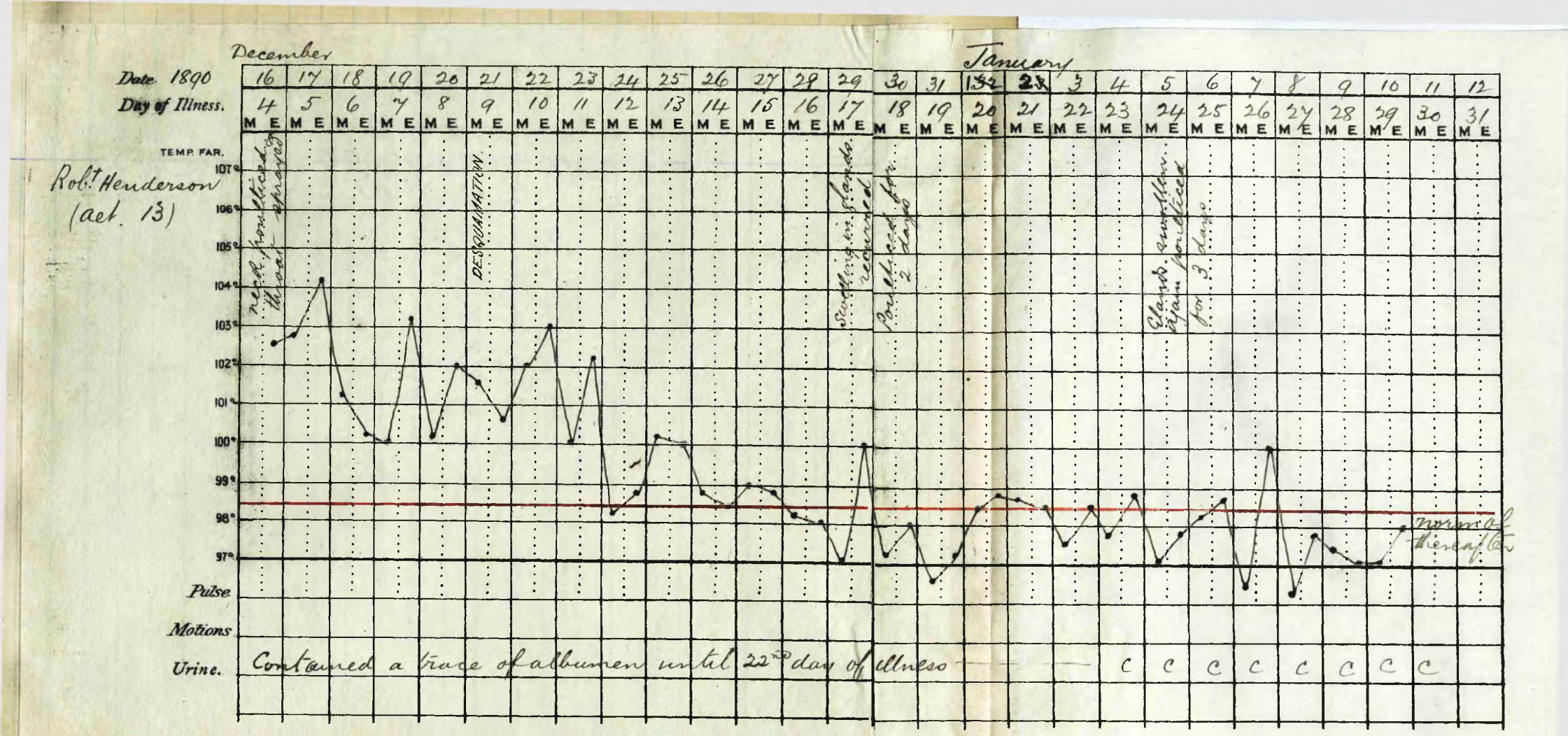
On the 15th day of illness, without
any pharyngeal symptoms to
account for it, the glands again
became swollen and painful,

(over)

and the temperature rose to 101° Fah. but this condition yielded rapidly to the use of poultices, and an uninterrupted recovery followed.

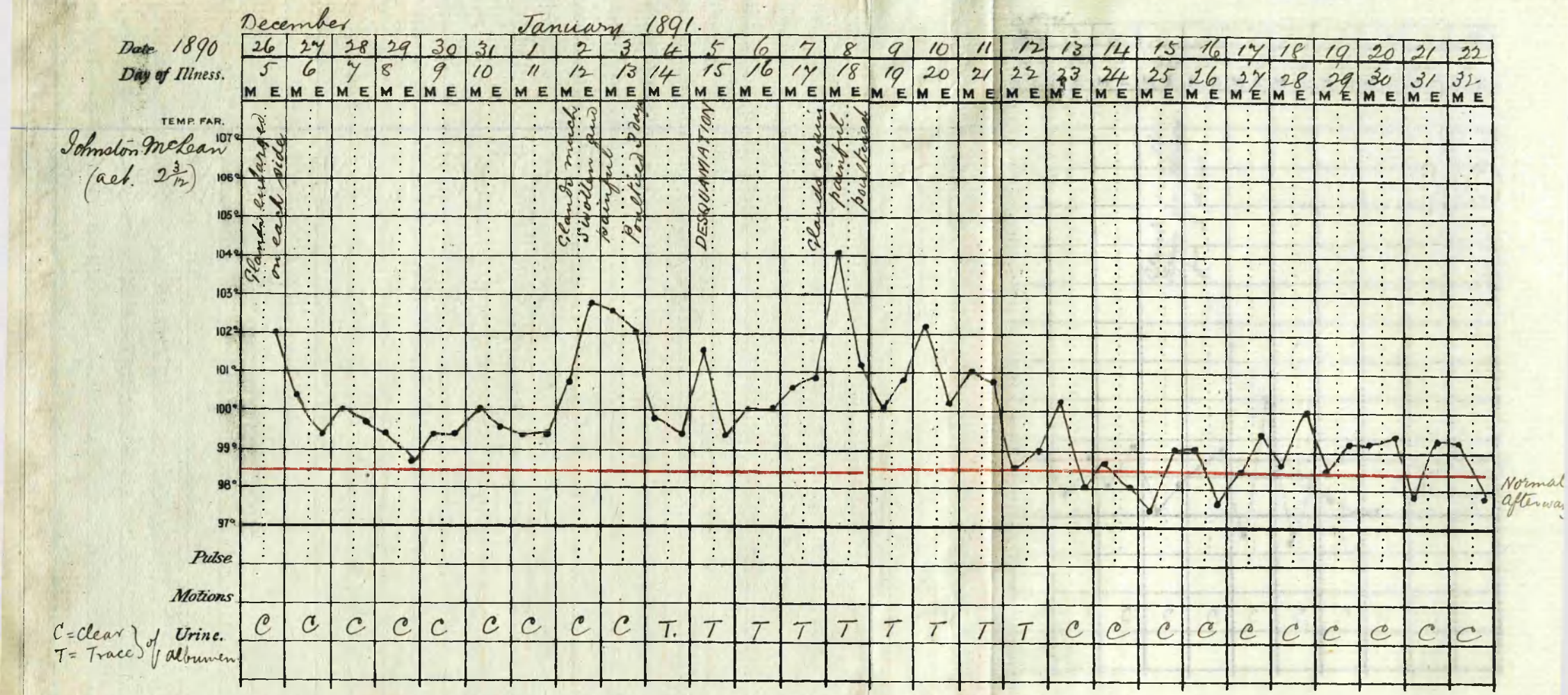
The urine at first was slightly albuminous; but with defervescence menstruation appeared, and thus altered the significance of this symptom.

Patient was dismissed well, 20. 5. 91.


December
January
Date 1890
Day of Illness.
TEMP. FAR.
Rob.t Henderson
(aet. 13)
Pulse
Motions
Urine.
Contained a trace of albumen until 22nd day of illness
DESQUAMATION.
Normal Temp.

Robert Henderson (aet 13), admitted 16. 12. 90. Illness having begun 3 days before with headache and sorethroat, rash on 2nd day. Tongue was much furred, and tonsils deeply congested, much enlarged and covered with yellow exudation. Glands on both sides of the neck were swollen and painful to touch. Defervescence was complete on 14th day, though the throat was slow to regain its normal colour. The glands were no longer painful, but became so without much pyrexia on the 18th day. This yielded to poulticing continued for 2 days. On 24th day of illness slight pain in the joints was noted and on the next day a very painful swelling arose in the right side of the neck, with surprisingly little pyrexia. This disappeared after 4 days poulticing and patient made a good recovery.

NOTE The low level of the temperature is quite in keeping with the fact that this boy was of a very phlegmatic temperament. The double occurrence of gland enlargement and of slight rheumatism seem to point to there having been a large amount of inflammatory products in the system, not surprising after such a sharp attack.


December
January 1891.
Date 1890
Day of Illness.
TEMP. FAR.
Johnston McLean
(aet. 2 3/12)
Glands enlarged on each side
Glands much swollen pus formed Painful Poulticed
DESQUAMATION
Glands again painful, poulticed
Pulse
Motions
C=clear
T=Trace
of Albumen
Urine.
Normal afterwards

Johnston McLean (act 2) admitted 26.12.90 illness having begun 4 days before with vomiting and sorethroat, rash on 2nd day. On admission tongue was pale and throat shewed a simple arch of congestion, apparently of old standing. One gland enlarged & painful on each side of the neck. Child is weakly and anaemic, with hydrocephalic appearance and engorgement of the veins on the scalp. As the chart indicates, defervescence was imperfect; and on 12th day of illness glands on both sides of the neck became enlarged again, and were poulticed. Swelling in two days diminished greatly. On the 18th day much increased and painful swelling in the glands was observed. Poulticing was again resorted to, but with a piece of lint smeared with Unguentum Hydrargyri interposed over the affected gland.

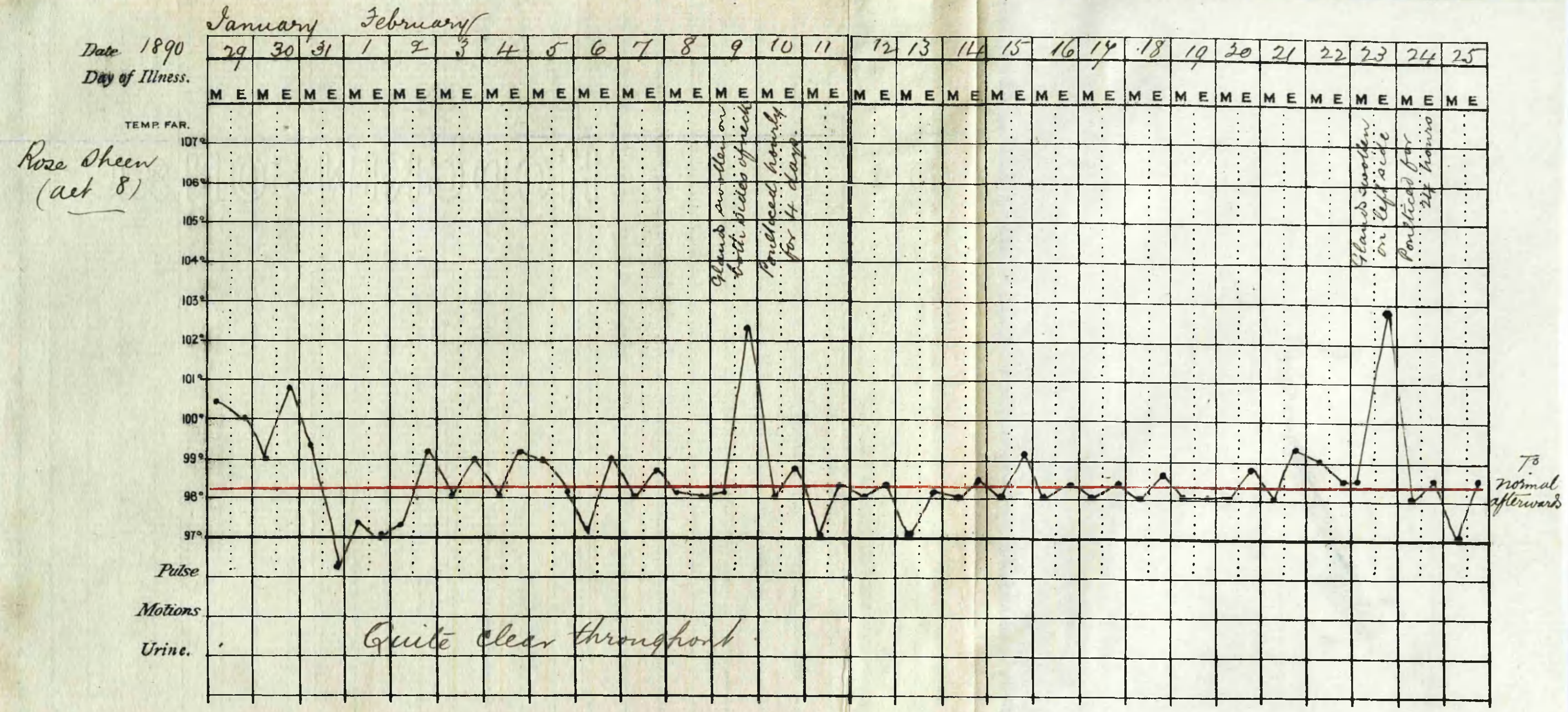
In three days the swelling was almost gone the pharynx all through having remained very slightly congested. Salivation however was induced and lasted for nearly a week despite treatment.

On the 27th day fluids were found to regurgitate through the nostrils; and snoring respiration, due to a

partial paralysis of the soft palate set in. This coupled with the occurrence of albuminuria (from 14th to 23d day) the nasal discharge and waxy colour of the skin and also the swollen cervical glands strongly suggested there having been diphtheria as a complication, even though no membrane of any kind was ever seen in the pharynx, and no laryngeal symptoms were noted. (Scarlatinal desquamation commenced on the 15th day.)

Steady but gradual improvement followed, and patient was dismissed well on the 18th February 1891.

NOTE. The albuminuria, which was first present when the first attack of secondary gland-enlargement set in, disappeared entirely when the glands returned to their normal size.

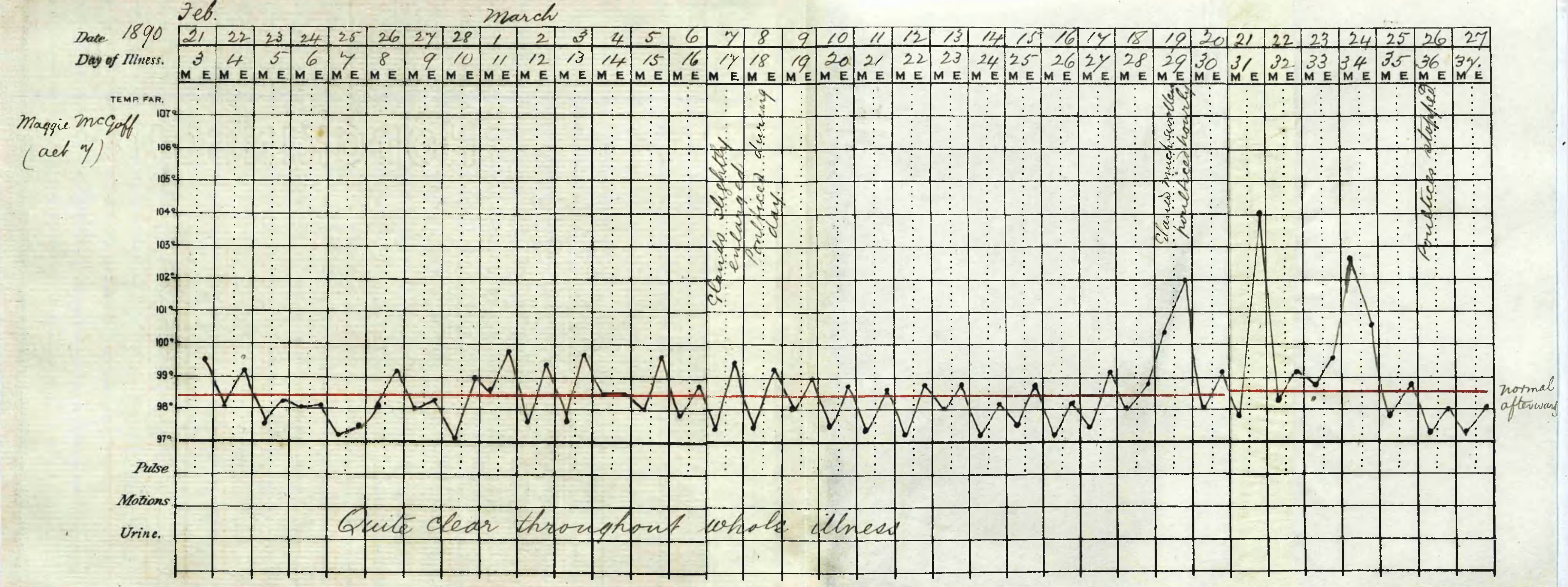

Rose Sheen
(aet 8)
Date 1890
January February
29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Day of Illness.
M E
TEMP. FAR.
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Pulse
Motions
Urine.
Glands swollen on both sides of neck
Poulticed hourly for 4 days.
Glands swollen on left side
Poulticed for 24 hours
T° normal afterwards
Quite clear throughout

Rose Sheen (act 7) admitted 28.1.91, illness having begun 2 days before with sickness, headache, and sorethroat. Rash seen on 2nd day. On admission tongue was heavily furred, throat much congested, tonsils enlarged & covered with patches of exudation. Herpes present on lips. Neck glands slightly enlarged and painful Steam spray inhalations medicated with Tinct Ferr. Perchlor. and Potass Chlorat were used for a week and defervescence was complete on the 12th day, and throat symptoms gone.

On the 15th day of illness, temperature rose to 102·2° and the glands on both sides of the neck became painful & swollen. Poultices were applied hourly for 3 or 4 days when the glands returned to their normal condition.

The patient was allowed up in blankets on the 28th day; and on the following evening the glands on the left side of the neck were again enlarged and painful. Having been poulticed regularly for 24 hours they rapidly regained their normal size, and did not again give rise to any trouble.

The urine remained clear throughout Patient was dismissed well on March 25th '91.



Maggie McGoff (aet 7)
Date 1890
Feb. 21 22 23 24 25 26 27 28
March 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Day of Illness. 3 4 5 6 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 32 33 34 35 36 37.
M E
TEMP. FAR.
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Glands slightly enlarged
Poultices during day.
Glands much swollen poulticed hourly
Poultices stopped
normal afterwards
Pulse
Motions
Urine.
Quite clear throughout whole illness

Maggie McGoff (act 6) admitted 19.2.91, illness having begun on previous day with vomiting, sore throat and rash. Tongue was pale but tonsils congested and swollen, though without exudation. Glands were enlarged and painful, and temperature, though not high, shewed for some time a tendency to evening rise + morning remission. On the 17th day of illness a slight enlargement of glands without any unusual pyrexia occurred. Poultices applied for 24 hours restored the glands to their normal state. On the 28th day patient got up in blankets and on following evening the glands on both sides were enlarged and painful, and temperature rose to 102°, while two nights later it reached 104°. Poultices were resorted to and the glands remained in a somewhat irritable state till the 36th day of illness after which they gave no further trouble. Urine remained clear throughout. Patient dismissed well on 4th April 1891.

NOTE This resembles the previous case in that during the stay in bed one exacerbation indicated the state of the gland as to its débris-contents, and foreshadowed a second enlargement when the neck muscles were put into exertion on the patient getting up.

No catarrhal symptoms were present in either case during the attacks referred to.

March April

Admission Date 1891

Day of Illness.

31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
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	M E	M E

TEMP. FAR.

Roberta Rosa
aet. 6.

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

DESQUAMATING.

GLANDS SWOLLEN
POULTICED.

normal thereafter

Pulse

Motions

Urine. C C C C C C C C C C C C C C

Blood albumen B A B A Alb A A A T. T. C

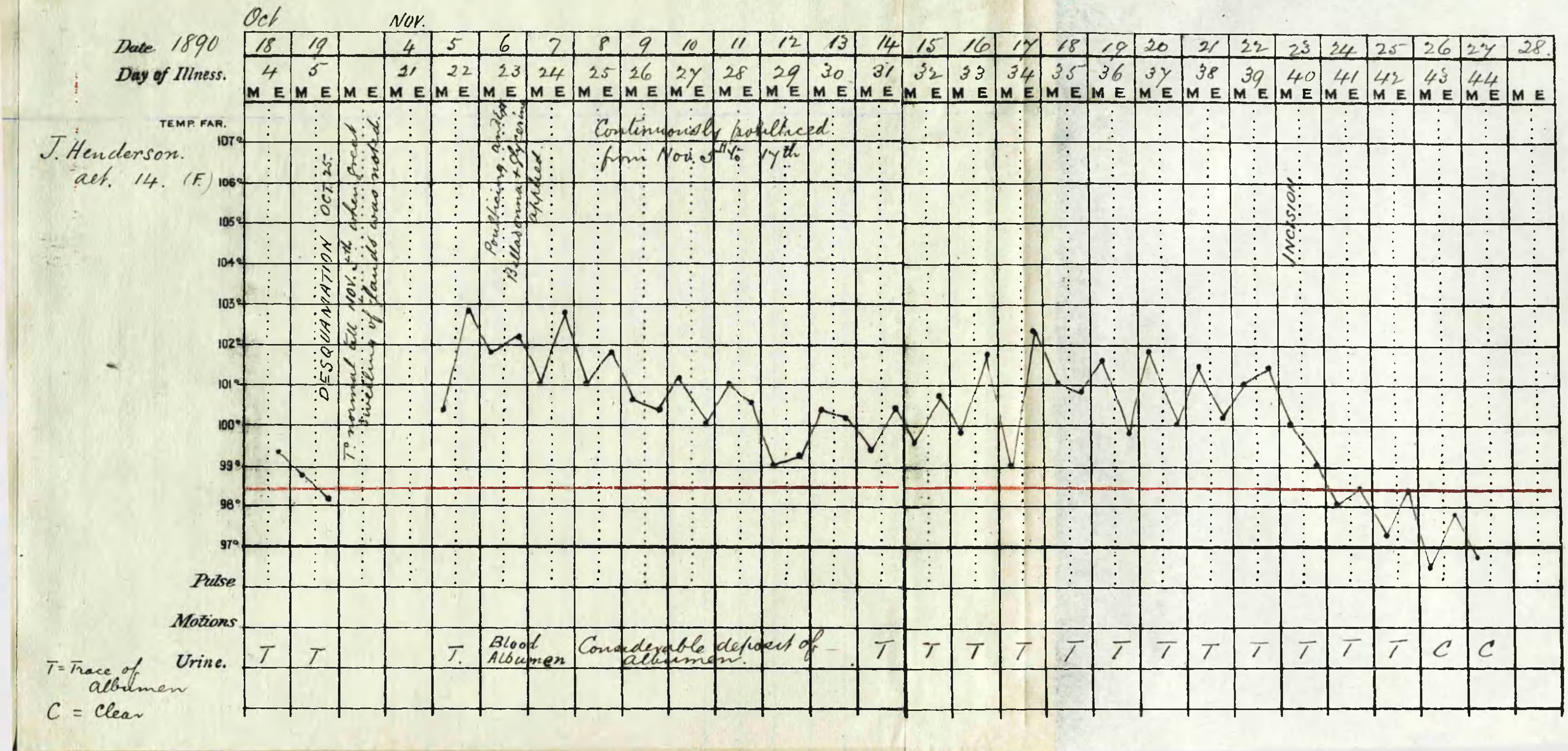
T = Trace of Albumen.
C = Clear.

Roberta Ross (act 6) admitted 31. 3 91, illness having begun 4 days before with vomiting and sorethroat. No rash had been observed and the case was sent in certified to be "mild diphtheria" (a mistake that might have led to serious consequences in the diphtheria ward.) There was scarcely any pyrexia on admission and the tongue was pale and the throat shewed a simple arch of congestion without swelling of the tonsils or any exudation. The glands however were somewhat painful & enlarged on each side; but this symptom disappeared with complete defervescence on 9th day of illness.

Desquamation was observed on the 18th day, and on the following day the glands on the right side of the neck became swollen, and, simultaneously, blood and albumen were found to be present in the urine.

Poultices were applied over both the kidneys and the inflamed glands, and the latter returned to their normal state, the urine also losing all trace of albumen on the 27th day.

Complete and uninterrupted recovery followed and patient was dismissed well on May 23. 1891.



Oct
NOV.
Date 1890
18 19 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28.
Day of Illness.
4 5 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
M E
TEMP. FAR.
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
J. Henderson.
aet. 14. (F.)
DESQUAMATION OCT. 25.
T° normal till NOV. 4th when great swelling of glands was noted.
Poulticing. and Belladonna + Glycerine applied
Continuously poulticed from Nov. 5th to 17th
INCISION
Pulse
Motions
Urine.
T T T. Blood Albumen Considerable deposit of albumen. T T T T T T T T T T T T C C
T = Trace of albumen
C = Clear

Jessie Henderson (act 14) admitted 18.10.90, illness having begun 2 days before with sorethroat Rash was seen on the 3d. day. The tongue was strawberry like in appearance and the throat deeply congested with enlarged tonsils but no exudation on them. The neck glands were very slightly enlarged and painful, but this with the other acute symptoms rapidly disappeared, defervescence being complete on the 6th day of illness.

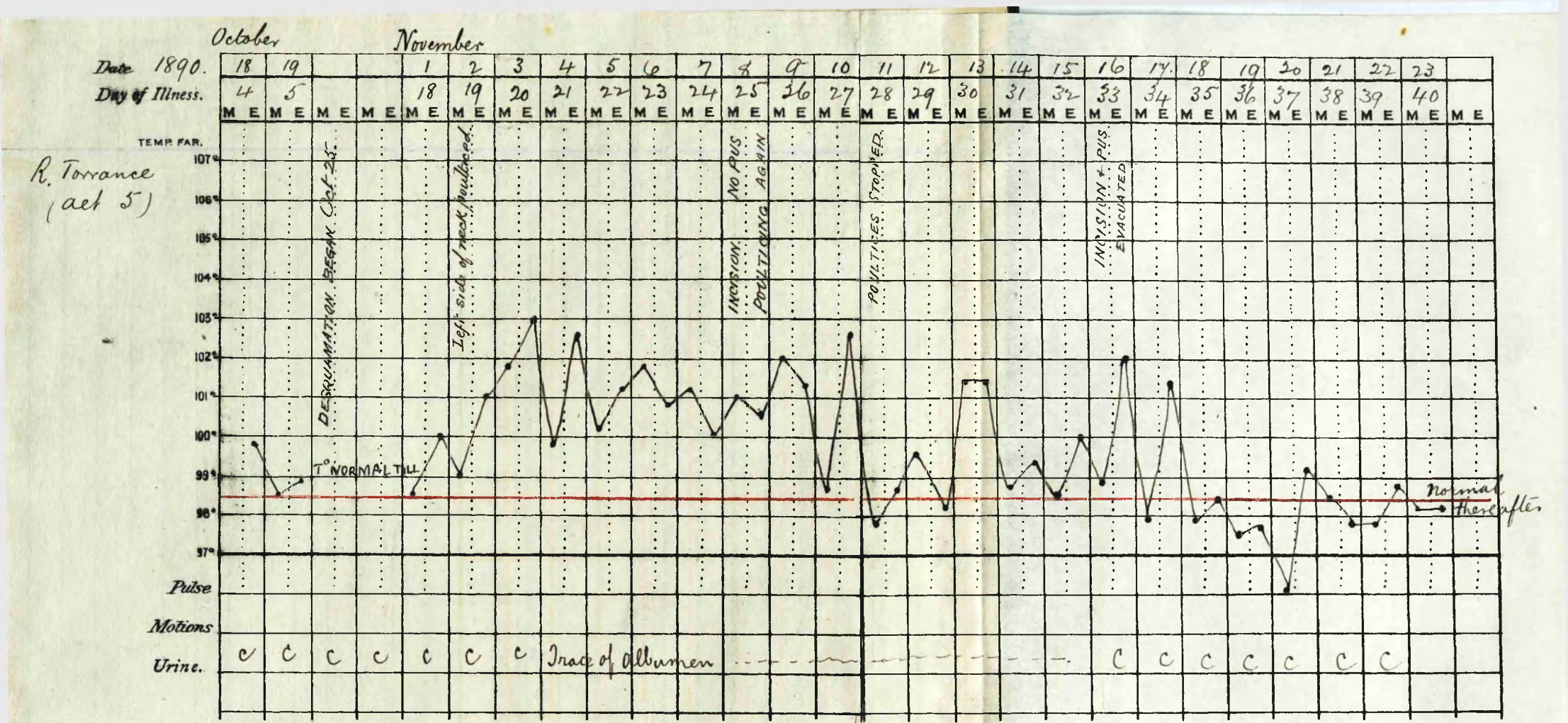
Desquamation was noted on the 11th day. On the 22nd day of illness, the neck glands became swollen and very painful. Over these a piece of lint smeared with equal parts of Extract of Belladonna and Glycerine was applied, and poultices on top of this. On the following day the urine contained blood and albumen in considerable amount. The tissues in the neck around the inflamed glands were considerably infiltrated and tense; and this state of things continued in spite of the poulticing. Deep fluctuation was made out; but, partly owing to the patient developing hysterical symptoms at the mention of incision, and partly with a hope that the pus might become reabsorbed, and so obviate the risk

of a disfiguring scar in the neck, the incision was delayed until the continuous though moderate pyrexia shewed it to be unavoidable.

On the 40th day a considerable amount of old, green, liquid pus was evacuated; and on passing a probe the cavity was found to take a sinuous direction downwards. On injecting carefully a weak carbolic solution into the cavity, (a step I shall hesitate to take again) the fluid mixed with more pus all certainly returned from the wound, but the patient screamed out that it had gone down her throat; thus indicating pretty clearly that the pus must have burrowed in dangerous proximity to the oesophagus.

With the evacuation of pus, patients temperature became subnormal, and remained so thereafter. The wound healed in 6 days, all discharge by that time having ceased. The urine 3 days after the incision was quite free from albumen.

Patient was dismissed well on the 17th of December 1890.

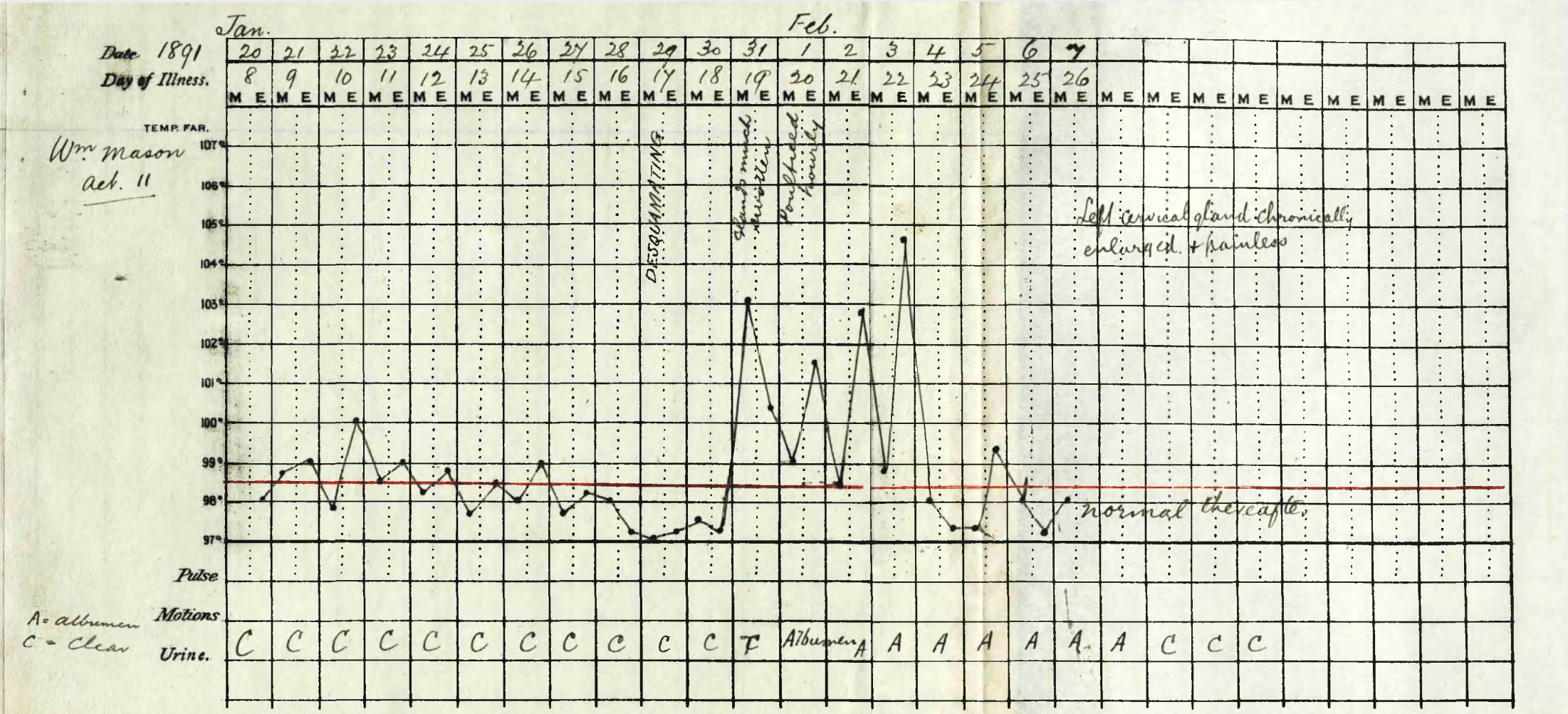

October
November
Date 1890.
Day of Illness.
M E
TEMP. FAR.
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
R. Torrance (act 5)
DESQUAMATION BEGAN Oct 25
Left side of neck poulticed
INCISION. NO PUS
POULTICING AGAIN
POULTICES STOPPED.
INCISION & PUS EVACUATED
T° NORMAL TILL
Normal thereafter
Pulse
Motions
Urine.
C
Trace of Albumen

Richard Torrance (act 6) admitted 18.10.90
illness having begun 3 days before with
sorethroat. Rash was seen on the 3rd day.
The tongue was strawberry-like, the throat
much congested, and tonsils swollen but
without exudation; and the neck-glands were
painful and enlarged. The temperature
fell to normal in two days, with abatement
of the other acute symptoms. On the 19th
day the glands on the left side of the neck
became much enlarged and painful
with tension of the surrounding tissues
Poultices were applied hourly but much
benefit could not have been derived
from them as the boy who was very
petulant invariably tore them off, if
they were at all warm. Deep
fluctuation seemed to be felt on the
25th day and an incision to the depth
of fully half an inch was made
without any pus being reached.
Thinking I might have been deceived
in regard to fluctuation the wound was
then dressed antiseptically and the
swelling diminished considerably.
However as the temperature curve
shewed a very irregular tendency (as
evidenced by the chart), and as there

was still considerable tension, a deeper incision was made in the original wound on the 33.d day. Much creamy pus was evacuated, the temperature fell 2 days later to normal, and practically did not rise again. The patient was dismissed well, on the 8th of December 1890.

NOTES The urine was somewhat albuminous from the 21st to the 32nd day of illness, and this symptom I scarcely think was due to the pyrexia entirely, but in part at least, to the blood being polluted by the inflam-matory products of the exanthem, and probably to the irritating nature of the lymph reaching the blood from the cervical lymphatics. The urine became clear immediately after the incision however, & with the fall of temperature. I have a conviction that if poulticing had got a fair trial, resolution would have taken place without the use of the knife, but was impressed strongly with the dangers of delay (as ~~exemplified~~ exemplified in Jessie Henderson's case) and perhaps incised too soon.

Very little cicatricial deformity resulted.


Jan.
Feb.
Date 1891
Day of Illness.
20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
M E
TEMP. FAR.
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Wm Mason
aet. 11
DESQUAMATING
Slept much during day
Poulticed hourly
Left cervical gland chronically enlarged + painless
normal thereafter.
Pulse
Motions
Urine.
A = albumen
C = Clear
C C C C C C C C C C C T Albumen A A A A A A C C C

Willie Mason (act 11) admitted 20th Jan 1891. illness having begun 7 days before, with headache, vomiting and diarrhoea, but no complaint of sorethroat. Rash was seen on the 3d day. On admission stomatitis was present, the tongue was foul and dry, and the cervical glands were enlarged, and painful, yet the throat only shewed a slight arch of congestion. Temperature was scarcely pyrexial and defervescence was complete on the 13th or 14th day.

Desquamation was observed on the 17th day and on the 19th, with a sudden rise of temperature to 103°, the glands which hitherto, though painless, had not regained their normal size became much swollen on the left side and less so on the right. Poultices were applied (with an interposed layer of lint smeared with Ungt Hydrarg.) and though for 3 or 4 days the swelling was very tense and the course of the temperature seemed to indicate the formation of pus, still on the 23d day the temperature became normal, swelling almost disappeared (but not quite for some time) and the patient progressed most favorably and was dismissed well

(over

on the 11th of march 1891.

NOTES It is interesting to observe that the urine, clear at all other times was distinctly albuminous from the 20th to the 27th day, i.e. from the morning after swelling was noted until 4 days after the temperature became normal and the local symptoms in the neck subsided. In this instance the albuminuria can scarcely be said to have been purely pyrexial.

It seems not improbable that in this case pus may have formed in small amount and been reabsorbed. The course of the temperature at least suggests this.

AUGUST Sept.

Date 1890 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28

Day of Illness. | 2 | 3 | 4 | 5 | 6 | 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 | 32 | 33 | 34 | 35

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

TEMP. FAR.

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

Wm Ferguson (aet. 8)

DESQUAMATING

Glands bilateral but enlarged Parotid and Sub. Max.

Glands diminishing slightly in size

Glands again enlarged

Incision

normal thereafter

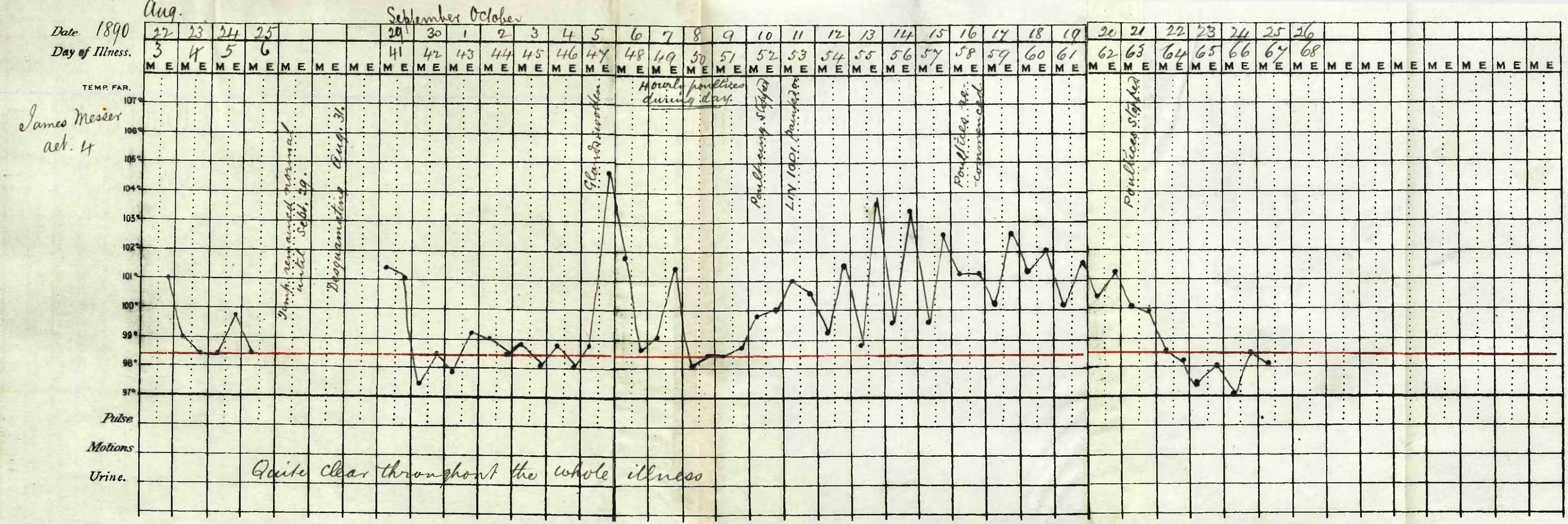
Pulse

Motions

Urine. Slight trace of albumen — + — Clear throughout afterwards

Willie Ferguson (act 8) admitted 25.8.90.
Illness having begun on the previous day with sickness, headache and sorethroat. Rash was seen on 2nd day, and tongue was furred & strawberry at the tip. On admission the throat was congested, and tonsils swollen but without exudation; while the glands were slightly enlarged and painful. The patient seemed very delicate, with a strong suspicion of strumous taint & the temperature maintained an unusually high level even after desquamation had set in. Both tonsils and neck glands remained enlarged though painless. The former were painted with Glycerine of Tannic acid while Lin Iodi was applied over the affected glands on the 17th day of illness. Temperature fell to normal on the 21st day and remained low but the glands has only slightly diminished in size On the 30th day they again swelled and with characteristic intermittent pyrexia pus formed in them and was evacuated by incision on the 32nd day. Urine was clear throughout. He was dismissed well on 18th October 1891.

NOTE He was accidentally seen a fortnight or so later at the hospital gate where he fainted through having been hurried on the way to the Enquiry-room. This seemed to confirm the poor opinion formed of his vital and recuperative powers.



James Messer
aet. 4
Date 1890
Aug.
22 23 24 25
September October
29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Day of Illness.
3 4 5 6 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68
M E
TEMP. FAR.
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Temp. remained normal until Sept. 29.
Desquamating Aug. 31.
Glands swollen
Hourly poultices during day.
Poulticing stopped
LIN. 1001. transferred
Poultices re-commenced
Poultices stopped
Pulse
Motions
Urine.
Quite clear throughout the whole illness

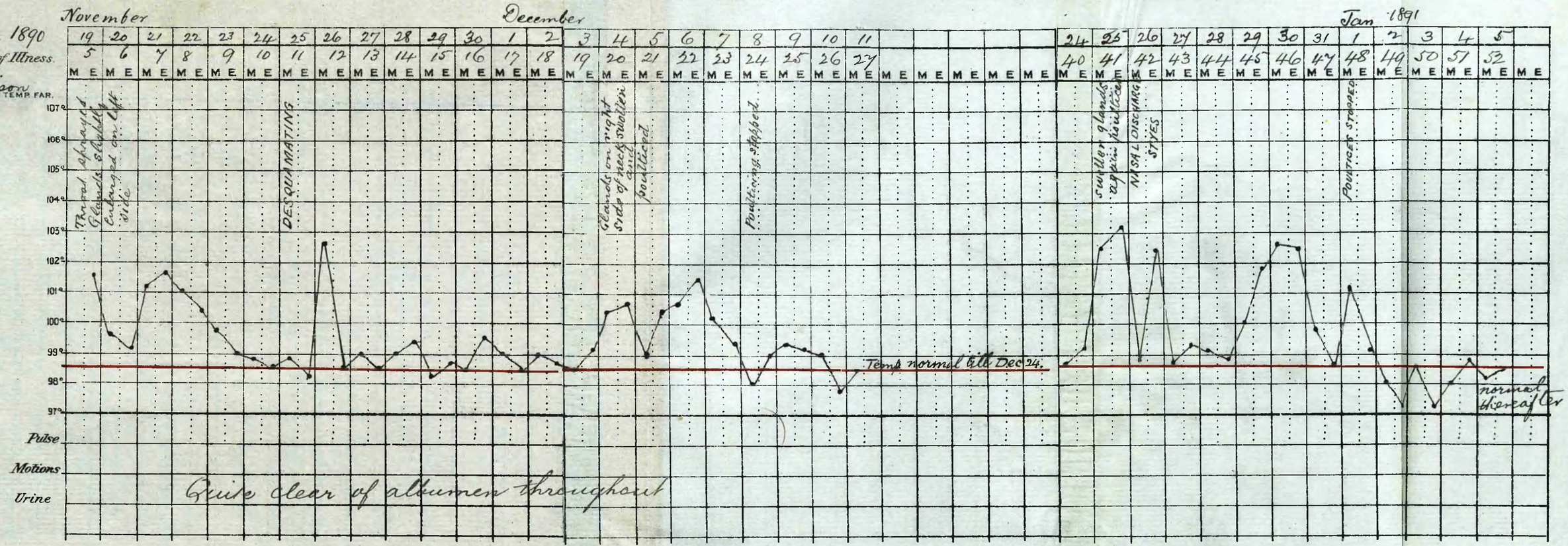
James Messer (aet 4) admitted 22. 8. 90
illness having begun 2 days before with
sickness and sorethroat. Rash was seen
on 3.d day. Tongue was pale on admission.
The condition of matters in the throat
and glands was extremely suggestive.
The throat was congested, both tonsils
enlarged and the left one undergoing
ulceration. Yet there was no enlarge-
ment of the submaxillary glands on
the left (ulcerated) side, but this was
present on the right. The swelling
however abated entirely in 3 days,
under treatment. Desquamation was
noted on the 12th day and for quite a
month the patient had no complaint
whatever. On the 141st day, without any
ascertained exciting cause, swelling
recurred in the right cervical region,
temperature rising to 101° 4°, only to
fall again at once on the application
of poultices. The swelling at the same
time disappeared and gave no further
trouble on that side. On the 47th day
however the glands on the left side became
swollen and painful and temperature
rose to 104° 6. Poultices were again
resorted to, and though after two days

the temperature fell and remained normal for over 48 hours, still the swelling did not quite disappear, and on the 52nd day Lin. Iodi was applied over the affected gland. The immediate result seemed to be a return of fever though of an intermittent character, suggestive of pus-formation (a result which followed the use of Lin. Iodi in nearly all the cases in which it was tried) However on the 58th day poulticing was again had recourse to, and in 5 days the swelling did disappear & temperature returned to normal, remaining so till the patients dismissal on Oct. 25th 1891. The urine remained clear throughout.

NOTE It was ascertained that some days after going home patient was exposed to cold, and an abscess formed in the left side of the neck which was incised.

The case is interesting as shewing the tardy elimination of inflammatory products from the lymphatic glands even in a strong and otherwise healthy child.

I have charts of other cases somewhat similar to this one in the main points. The total absence of albuminuria in spite of sustained pyrexia is instructive also.


November
December
Jan 1891
Date 1890
Day of Illness
Jas Morrison
aet (5)
TEMP. FAR.
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Pulse
Motions
Urine
Tonsil always Glands Enlarged on Left side
DESQUAMATING
Glands on right side of neck swollen and painful.
Peritonsitis stopped
Temp normal till Dec 24.
Suppur glands again inflamed
NASAL DISCHARG STYES
Pourtract sneeze
normal thereafter
Quite clear of albumen throughout

James Morrison (act 6) admitted 19.11.90, illness having begun 4 days before, with sickness, and sorethroat. Rash was seen on 2nd day. The tongue presented a strawberry-like appearance. The tonsils were the seat of chronic hypertrophy and in addition were slightly congested, as also was the soft palate. The neck-glands were slightly enlarged and painful on the left side but this and the other acute symptoms disappeared on the 10th day when the temperature fell to normal. Desquamation was noted on the following day, and a day late, the temperature rose to 102·6 but fell at night to the normal level. There was no local condition which explained this outburst of "ephemeral fever"; and for a week temperature was practically normal although occasionally it touched 99·4° at night, this being ascribed to the weakness of the boy who was very anaemic.

On the 20th day of illness, swelling arose in the right side of the neck which had hitherto remained quite unaffected. Temperature rose to 101·4°, but after poulticing had been kept up for five days, the swelling disappeared,

and the temperature remained normal for 10 days. The patient was up and walking about in the ward, when on the 41st day of illness the right side of the neck became swollen again, an abscess formed in the left upper eyelid (following a stye), and nasal discharge was observed for the first time. The swelling in the neck was poulticed for a week and then dis-appeared for good, pyrexia disappearing at the same time.

The urine had remained clear throughout. Patient gradually recovered strength and left the hospital quite well on 10th Jan '91.

NOTE A similarity to the previous case exists in so far that in both the glands on one side were primarily, and on the other only secondarily enlarged.

The nasal discharge in the present case was probably due to adjacent catarrh of the lachrymal conjunctiva, near the tear-duct. It certainly was not a tedious symptom.

In regard to the physiology of the lymphatic system, the following quotation from Prof. McKendrick's work (Vol II pp 146-7) briefly sets forth the main facts as accepted in modern teaching:

"The tissues are nourished by fluid matter which exudes through the walls of the capillaries. A portion of this fluid matter is taken up by, and incorporated with the tissues, and the remainder, which may be regarded as being in excess, is removed" (by the lymphatic channels). × × × × × × × × "There appears to be, more or less throughout every tissue, what may be termed a drainage system for the purpose of carrying off waste products and excess of pabulum. The fluid thus drained off is the lymph, which is conveyed first to the lymphatic glands" (and finally into the venous circulation.)

We know that the anastomoses in the lymphatic system are extremely free, and experiment has proved that even ligature of a main trunk is of itself incapable of causing the surrounding tissues to become infiltrated and

odenatous. Consequently, the mere mechanical arrest of the lymph-flow at an affected gland is not sufficient explanation of the tense and painful gland-enlargements which have been referred to in the preceding reports. Given a focus of inflammation in any of the mucous tracts, it is not uncommon to find engorgement and swelling in the lymphatic glands nearest to this focus in the direction of the lymph stream. Thus many people on 'catching a cold' or to put it more accurately contracting a naso-pharyngeal catarrh, have reason to complain of pain and swelling in the cervical glands, but this affection is usually slight and transient and rarely if ever goes on to abscess, unless the patient be of a strumous habit.

It is, I think commonly understood that the lymphatics which in health carry food to the tissues, and any excess of the same back into the blood for future use, do, in the event of a local inflammation, carry off inflammatory products and discharge them finally into the venous circulation

(by the openings of the thoracic or of the right lymphatic duct), there to be transformed by oxidation or to be eliminated from the system by the Kidneys and other organs of excretion.

Pathology teaches us (Coats 1st. ED. pp 380-1) that while dissolved substances for the most part pass through the complex sinuses and spaces of the lymphatic glands, (irritating them or not, according to the qualities of the solution) granular matter on the other hand is usually retained in the gland, which thus acts the part of a filter. We are also taught that in proportion as these granules are irritating or not, does the gland resent or tolerate their presence: and that hyperaemia of its vessels and general enlargement are more likely to occur when little particles of an infective nature are carried from the inflammatory focus, which in the case of Scarlet Fever is the tonsils, fauces, palate or pharynx.

Moreover while it is admitted that pigment granules may, and do often, remain quiescent in a gland for a life time, it will, I think, also be

admitted that the inflammatory products lodged in a scarlatinal bubo are gradually eliminated (as evidenced by its gradual diminution in size) and pass by degrees into the circulation there to be rendered innocuous by oxidation or excreted by the kidneys.

Taking into account the frequency and recurrence of gland enlargements late in the history of attacks of scarlatina, I was somewhat struck by the slight notice given to this symptom and its causes in medical works on Fevers. Trousseau in his "Clinical Medicine" (Vol II. p. 182) dismisses the subject in less than a page, from which the following long extract is made:—

"Engorgements of the glands, true scarlatinous buboes, occur sometimes towards the close of an attack of scarlatina about the decline of the eruption. They are met with in different situations but chiefly in the neck. All pestilential diseases are accompanied by buboes. × × × × × × × × Scarlatina, which is likewise a pestilential disease, has

also its buboes. The cervical region is their principal seat and their evolution is contingent upon the lesions of the throat. From the very beginning of the disease swelling of the glands is observable in both sides of the neck and at the angles of the jaw. Sometimes the cervical glands suddenly become the seat of inflammation about the 10th or 12th day independent of the effects of the severe form of sorethroat of which I have spoken. The skin becomes red and tense and in four five or six days, there is formed an abscess of greater or less size.

Scarlatina may cause not only glandular engorgements, acute buboes and diffuse phlegmonous inflammation of the cellular tissue during the active period of the disease, but likewise chronic enlargement of the glands. In children untainted with scrofula we meet with chronic glandular engorgements dating from the beginning of the attack of scarlatina and continuing, 2 3 or 4 months after recovery."

These remarks do not appear to me to cover the instances of secondary and

often recurrent attacks of glandular enlargement mentioned in the preceding short clinical histories; as in many of the cases the affection ensued long after the decline of the eruption and in almost every instance much later than the 12th. day. Moreover it was in the majority of cases unaccompanied by any concomitant catarrhal symptoms in the throat, and in two cases the throat became painful two days after the secondary glandular engorgement was complained of, clearly indicating the source of the irritation.

These cases of secondary gland-enlargement, occurring during the period of desquamation, were usually ascribed in Belvidere Hospital to the effects of draughts or exposure to cold. The frequency however of their occurrence in patients confined strictly to bed, in wards with double-paned windows, and ventilated by fanlights in a lofty roof, led me to ascribe them less to external influences than to the state of the glands themselves in regard to their probable contents; all the more that they usually occurred at a time when the chief eliminative organs (the kidneys)

were, owing to desquamative changes in their own epithelium, less potent to remove inflammatory debris from the system (viz. towards the end of the 3d and beginning of the 4th week of illness) The absence of catarrh in the pharynx strengthened this conviction.

I take it therefore that these buboes, hinted at in the third sentence of Trousseau's can be but remotely contingent on the lesion in the throat: and only so, if by this lesion we understand the primary lesion, from the neighbourhood of which, weeks before, the gland received and stored up its irritating,—one might almost say inflammable,—contents.

In Coats' Pathology, p. 384, the author in referring to suppurating buboes, writes:- "If the inflammation be of an infective nature colonies of bacteria may be found in the pus." Without being able to say either from personal investigation or from the written records of bacteriologists, that the specific bacterium of scarlet fever does exist in the enlarged glands or in the pus from scarlatinal buboes, I see no reason why this specific poison, as well as its inflammatory products, should not be

carried in the lymph-stream from the original focus to the adjacent cervical gland and after an interval, perhaps devoted to self propagation, cause the sudden and more severe inflammatory enlargements mentioned in some of the previous clinical reports.

Leaving however this purely speculative explanation which is probably not applicable to those cases of transient outbursts of swelling with an attack of ephemeral fever, one may safely enough presume that in the gland filter the fine granular inflammatory products gradually accumulate until by virtue of their irritating qualities or their amount or of both their presence becomes unbearable and the gland is stimulated with a sudden and painful effort to eliminate them from its meshes.

One fails to find in the writings of Trousseau, Henoch, Bristowe or Eustace Smith, such an explanation hazarded, but there is in Wunderlich's "Treatise on Thermometry in Disease" (p. 360) a remark that gives weight to the theory. Speaking of ephemeral fever, he writes:-

"Attacks of ephemeral fever sometimes

occur during the very time that a morbid poison is extending itself through the body by means of the lymphatics, although it may be followed by nothing more serious."

This explains satisfactorily enough the sudden and transient attack of pyrexia in the case of James Morrison (see p. 42 and chart) when on the 12th day of illness, one day after desquamation was observed, the temperature rose from subnormal to 102·6° without any local affection to account for it, and returned in 6 or 7 hours to normal. The fact that eight days later a secondary inflammation of the right cervical glands set in, serves to strengthen the idea that the bubo then developed was due to attempts on the part of the gland to eliminate its noxious contents; and, from the rapid disappearance of the painful swelling and pyrexia, we may infer that for the time being, and in part at least, these efforts were successful.

Further, in the case of Jessie Henderson (p. 33), two days after painful swelling in the left cervical glands was noted, the urine was

found to contain blood and albumen; and in the case of Roberta Ross (p. 32.) the nephritis and gland enlargement seemed to come on simultaneously, along with sudden pyrexia. Taking the last case by itself one might feel in doubt (granting that there was more than a coincidence in the matter,) as to whether the pyrexia attendant so often on the onset of nephritis was the primary cause of inflammation in an already susceptible gland. But this solution does not seem so reasonable as the other, namely that the sudden dispersion from the glandular storehouse of an unusual amount of inflammatory débris into the circulation, proved too great a strain for the kidneys which even in uncomplicated cases are prone at this period of the illness to attacks of inflammation. Moreover the fact that in Jessie Henderson's case the gland affection preceded by 2 days the onset of nephritis seems further to confirm this view.

In the analogous case of Wm Mason (p. 37.) although the presence of blood in

the urine was not evidenced by the Guaiac and Ether test (unfortunately it was not examined microscopically) still the amount of albumen deposited on heating was much larger than one might have expected to result from the intermittent pyrexial condition then existing, and it is also noticeable that it was found in the urine after the temperature had but once risen to 103° which level was probably only maintained for a few hours.

In all three cases the urine returned to its normal state as soon as, or very soon after the condition in the glands ceased to give trouble; contrasting strongly with the tedious course of scarlatinous nephritis in many other cases not complicated by any secondary gland-affection.

The fact that in the majority of the other cases of secondary enlargement the renal function was little, and often not at all disturbed, does not necessarily, to my mind, stultify the deductions just formed from these three striking cases; as in many of the former the kidneys were not

exposed to this possible source of danger at the period when they are most susceptible (18th to 24th days) and, for the rest, it is open to one to say that they were functionally strong enough to meet the demands made upon them.

Many patients suffered from secondary engorgement of the neck-glands on the occasion of being allowed to leave their beds, (on the 28th day as a rule.) All patients on being allowed up for the first time were invariably wrapped in blankets, and not allowed to sit up for more than 3 or 4 hours on the first day, and perhaps 6 on the second; so that one is less disposed to attribute the glandular swelling to exposure to cold. Probably the immediate exciting cause was muscular exertion attendant on the maintenance of the upright position and support of the head. Some might quite possibly have been exposed to a draught but even in this event the determining factor in the seizure

was probably the predisposition of the glands, in virtue of their partially eliminated inflammatory débris.

On referring to two almost typical instances of this occurrence in the cases of maggie McGoff & Rose Sheen (pp 30 + 31) it will be noted that earlier in the illness and while patients were confined to bed, a slighter attack of the same kind gave warning of the probable condition of the glands as to their retained contents.

That this predisposition to recurrent enlargement is retained for a long period in some instances by the glands, is evidenced by the case of James Messer (p. 40.) in whom after many attacks of engorgement which led to nothing serious, an exposure to cold after his dismissal from the hospital, induced the formation of an abscess in the neck probably as late as the 62nd day.

In addition to this, secondary enlargement of the glands was in a number of cases first noted as late as the 31st 32nd or 33d days of illness, and that in cases not subject

to chronic enlargement, strumous or otherwise.

None of the cases of secondary enlargement proved fatal, so that it is not possible to say what microscopic changes might have taken place in the glands; but in one very severe case in which death resulted on the 14th day after very severe ulceration in the throat, sections of enlarged glands shewed that not only was the adenoid tissue proper almost unrecognizable from the multitude of inflammatory round cells which had developed, but these latter were present in considerable numbers in the fibrous trabeculae as well.

In the majority of the 10 cases in which a suppurating bubo required incision, the patients seemed to have the strumous diathesis; and in some this was undoubted. In the works of Eustace Smith reference is made (respecting patients of this kind) to their proneness to develope scrofulous ulceration at the incision-wound. This occurred in none of the cases above referred to and only in two was the healing of the wound delayed beyond a week; one of these being intensely strumous and imbecile.

Trousseau at the conclusion of the quotation given some pages back writes regarding the engorgement of the cervical glands:-

"In persons of strumous diathesis these engorgements become King's Evil, (écrouelles) and in them the inflammation of the glands often terminates in scrofulous ulceration"

In connection with this statement, the following brief account of an undoubtedly strumous case may be interesting.

Alexander Livingstone (aet 14) admitted 26th March 1891, who had been exposed to possible infection of scarlatina and had contracted a sorethroat, was certified to be suffering from scarlet fever and sent into Belvedere Hospital. His temperature was subnormal and when the sorethroat (which was unaccompanied by any perceptible rash) passed away, only slight desquamation was noted at the tips of the fingers. Even this may have been induced by the patient himself in emulation of his fellow-patients.

Certain it is that after being 14 days in hospital he developed undoubted

April

Date 1891

Day of Illness.

7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10	11	12	13	14
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

TEMP. FAR.

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

normal afterwards

Alex Livingstone (act 14) admitted March 24

Scarlet Fever

acquired in hospital

? 2nd attack

Strumous case No sequelae or complications

Dismissed well. 3° June 1891

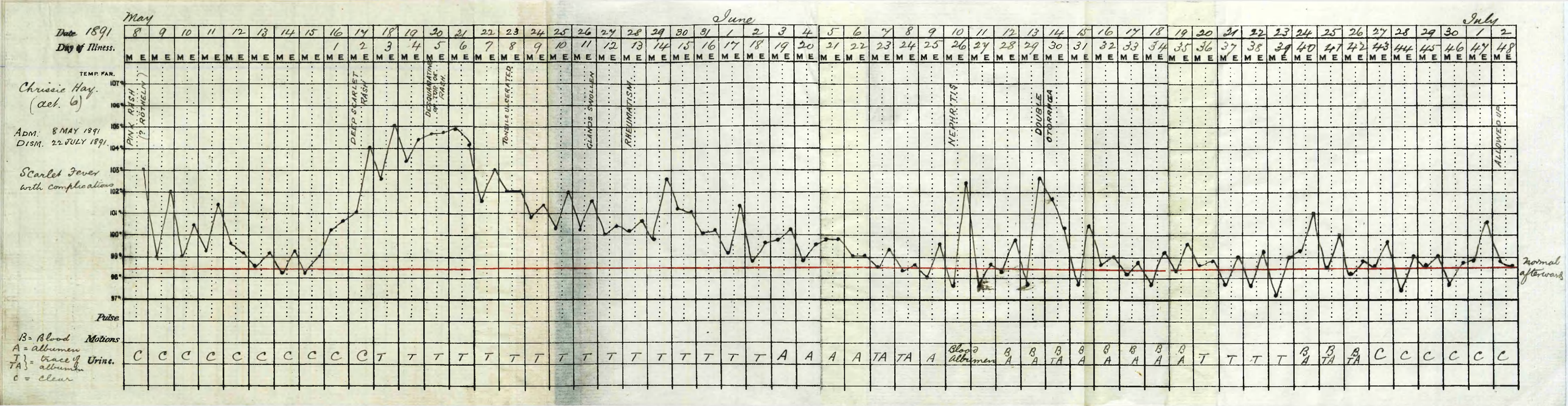
	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Pulse														
Motions														
Urine.	C	C	C	T	T	T	C	C	T	C	T	C	C	C

C = Clear
T = Trace } of albumen

scarlet fever, and as his neck was badly disfigured by strumous cicatrices and little nidges of Cheloid tissue, a serious and protracted illness was anticipated. The initial symptoms seemed to confirm this expectation; for following upon intense sickness, came a flagrant rash, the tonsils were much swollen and covered with pultaceous concretions, and the pain on swallowing even saliva was, as he afterwards described "perfectly sickening". The boy was quite prostrated but the neck glands scarcely became enlarged at all, although they were somewhat tender to palpation. The proneness of follicular tonsillitis to go on to ulceration of the tonsils in strumous patients (described by Eustace Smith and often verified in my own experience) was also exemplified in this case; and the fauces and tonsils soon presented a very foul appearance. Steam inhalations to the throat, and painting of the ulcerated surfaces frequently with dilute Glycerine of Carbolic acid along with poultices to the neck formed the treatment that was employed.

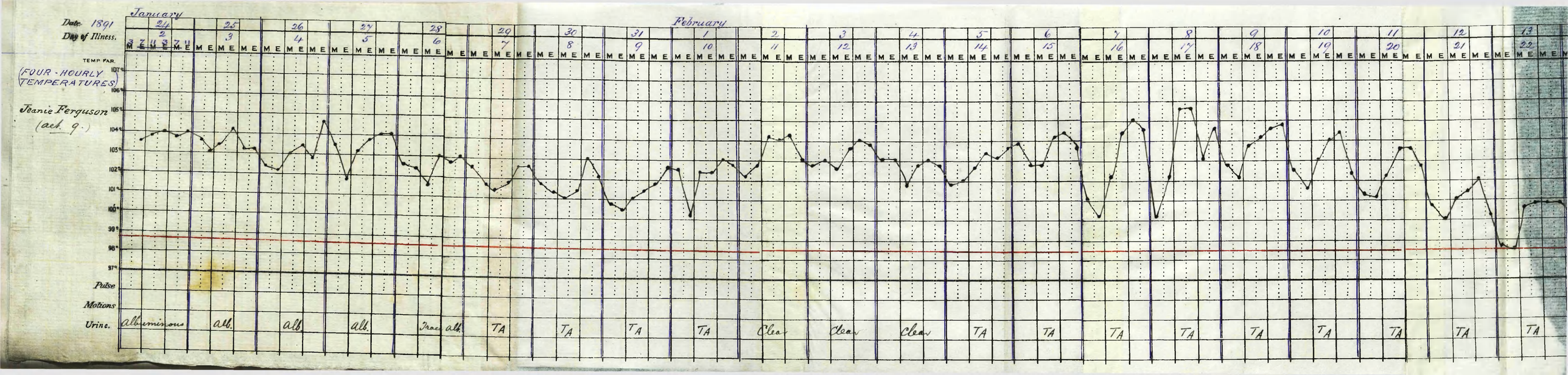
Deferoescence was practically complete on the 11th day and contrary to expectation the neck glands never gave the slightest trouble, and no complications followed. No doubt the patient had suffered from King's Evil to start with, nevertheless the dictum of Trousseau seems unduly decided.

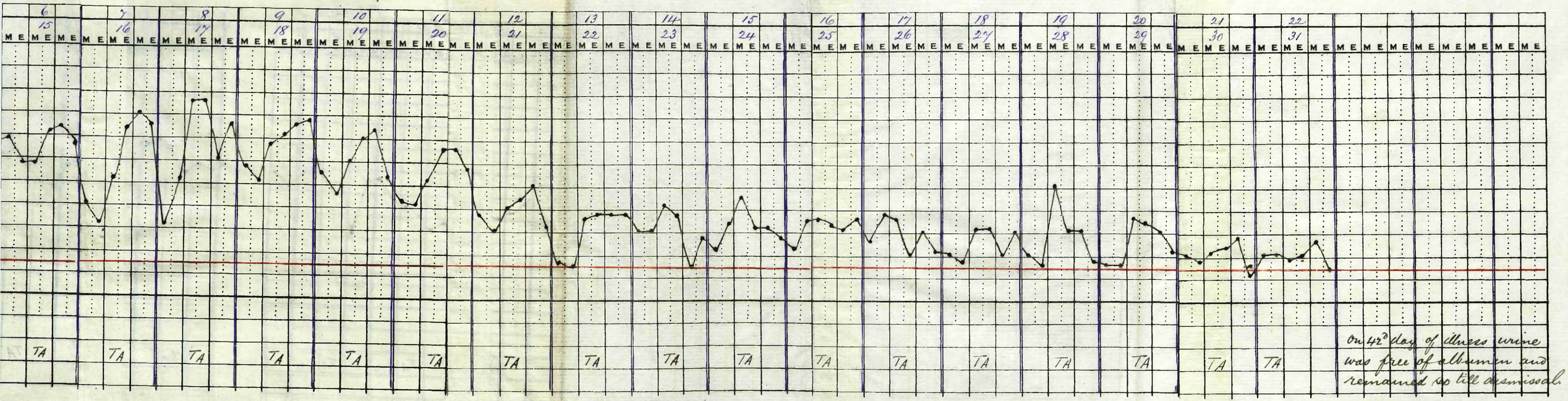
"Without bearing any distinct relation to the above case, but as shewing that a much complicated case does not always or necessarily make a tardy recovery, the following chart and brief report is inserted. The complications present with a very sharp attack of scarlet fever were ulceration of tonsils, scarlatinal buba, Rheumatism, Nephritis and double otorrhoea and although each of these ran a very short course, they were perfectly distinct and even acute while they lasted. Nevertheless the patient was dismissed well and strong only twelve days after the expiry of the regulation period for detention of scarlet fever cases, viz 36 days from the onset of the fever.


May
June
July
Date 1891
Day of Illness.
TEMP. FAR.
Chrissie Hay. (aet. 6)
ADM: 8 MAY 1891
DISM. 22 JULY 1891.
Scarlet Fever with complications
PINK RASH (2 ROTHELN)
DEEP SCARLET RASH
DESQUAMATING OF SCARLET RASH
TONSILS ULCERATED
GLANDS SWOLLEN
RHEUMATISM.
NEPHRITIS
DOUBLE OTORRHŒA
ALLOWED UP
normal afterwards
Pulse
Motions
Urine.
B = Blood
A = Albumen
TA = trace of albumen
C = clear

Chrissie Hay (act 6) who had all but completed her convalescence from an attack of measles was seized with slight sore-throat, feverishness (103°) and a distinct, uniformly distributed, light pink rash over the chest and arms. She had accidentally been exposed to scarlatinal infection a few days previously; and the evidence was deemed (after consultation) sufficient to justify her removal to a scarlet fever ward. The chart shews how defervescence came on the 6th day & throat symptoms had well disappeared, when, 9 days after admission, she sickened and went through all the stages of a severe attack of scarlet fever. Temp. ranged between 104° and 105° for nearly 4 days and on the 5th day of this second illness, coarse desquamation was present on the top of a very deeply coloured rash. Tonsils were the seat of ulceration on the 8th day. Glands secondarily swollen on the 11th. Knees elbows and wrists painful and swollen on the 13th, albuminuria on the 19th complicated by haematuria & some puffiness of the face on the 26th and double otorrhoea on the 29th day of illness.

Whether the first rash & pyrexia were Scarlatinal or not remains in doubt.


Date. 1891
January
February
Day of Illness.
TEMP. FAR.
(FOUR-HOURLY TEMPERATURES)
Jeanie Ferguson
(aet. 9.)
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Pulse
Motions
Urine.
albuminous
alb.
alb.
alb.
Trace alb.
TA
Clear
clear
clear
TA


6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
M E M E M E
TA
On 42d day of illness urine was free of albumen and remained so till dismissal.

The following tedious and interesting case seems to me well worthy of being recorded more fully in regard to the severe throat lesion and dangerous complications, which almost suggest diphtheria to have occurred. (No paralytic symptoms followed)

Jeanie Ferguson (aet 9) was admitted to Belvidere Hospital on January 24th 1891 (along with 3 other members of the family who had each well marked scarlatina) She became ill on Jan 23d with vomiting and sorethroat: and a rash was said to have been observed on the morning after (before she was taken to hospital.) She has had measles and whooping cough but is otherwise said to have enjoyed perfect health. The family history is not particularly good: the father asserting that his wife's relatives are subject to "decline" while she declares that all his brothers (like himself) have bad chests. The eldest son who is also in the ward with scarlatina has a discharging strumous sore of old standing in the neck. (NOTE He developed an ulcer of the cornea and died)

The patient (Jeanie) has on admission a temperature of 103° 6', a heavily furred

tongue with prominent red papillae and the merest trace of erythema on
Jan. 24 the chest. The heart-sounds are pure. Throat is much congested, tonsils large and dotted over with yellow spots of exudation. The submaxillary glands are very slightly enlarged and not very painful. (Poultices ordered.) Urine contains a trace of albumen.
Jan. 25 Temperature is again very high tonight (104·2°) and the exudation-patches on both tonsils have become confluent. Tonsils themselves are much swollen and a very deep red in colour. Patient uses the steam spray well
26 Temp. fell almost to 102°. Patient began to vomit a good deal at night.
27 A proper scarlatinal rash appeared this morning on the chest and arms. The adjacent tonsillar margins are now beginning to ulcerate. Painted with dilute Glycerine of Carbolic acid. Temp. 104°
31 Throat not so much congested and exudation all gone. pro tem. Glands are no longer enlarged at all, poultices were discontinued yesterday. Ulceration on the tonsils still present.
Feb. 1 Sloughs are adhering to the abraded surfaces

of the tonsils. Fauces still very red. Double otorrhoea and nasal discharge observed tonight. Temp 103°.

Feb. 2 Temperature still keeping up. No change in symptoms except that there is a membranous patch on the uvula

3. There are today for the first time, cooing bronchitic râles heard over both lungs posteriorly. On examining the throat the uvula and veils of the soft palate are seen to be covered with a white membranous exudation. Otherwise the throat is simply uniformly congested There is intense tenderness over an enlarged gland in front of the tragus of the left ear. Both ears discharging pus.

4 although last night's temperature was very high, and this morning's even 103°, still the reading at noon was 101·6° after which it rose again. Throat condition is improving there being no exudation save on the uvula. There is a good deal of nasal discharge. The tenderness in front of the left ear is less marked but there is a slight tenderness in the glands on the left side of the neck. The pulmonary state is much the same but the râles are a trifle moister and less musical.

Effect of spray

Feb. 5. Uvula is still white with plastic exudation
Copious discharge of pus from the left
Ear. (Both ears have been regularly syringed
with Boric acid solution since otorrhoea set in)
Temp. seems to fall slightly. Pulse fair.
6 Throat much the same. Pulse good. Much
less discharge from ears and nose.
Temp rose to 104·2° and Antipyrin gr v
was given to induce sleep (with success)
8 Temp rose to 105·4°. Increased pain in
front of both ears and increase of discharge
from the right. Râles are muco crepitant
over the upper lobe of left lung but are
purely moist elsewhere. Uvula is now
white and shrivelled and there is much
tenacious mucus about the buccal cavity.
9 Temp. still high and oscillating. Neck
-glands (left) somewhat swollen, and pain
in front of both ears still complained of.
Pupils equal and normally dilated.
Small patches of slough on tonsils & uvula
look as if they would separate easily.
Throat painted with solution of Thymol in
Olive Oil (15%) Respirations shallower
And more jerky. Muco crepitant râles
here and there over the right lung: and
tubularity with dull patches. and sonorous
râles at different points over left lung.

Pulse (under the influence of m̄v doses of ℞ Digitalis every four hours) is strong and regular but somewhat rapid.

Feb. 10 There is today pronounced swelling and extreme tenderness over the left mastoid process, which seemed to indicate that pus was forming in the mastoid cells. T.° 104·5° After consultation with Dr. Allan, an incision was made through skin and periosteum into the mastoid process. There was some bleeding and perhaps a little pus, but this was not very clear. Immediate relief followed the incision and patient soon fell asleep

11 Temp. considerably lower, child in better spirits, respiratory sounds improved and pain gone from the ear. Throat is still foul with sloughs adherent to the fauces

12 Temp fell to 100° at 11. a.m. Left tonsil has been perforated from behind forwards by the gangrenous process. There is still an adherent slough on the wall of the pharynx. Discharge from ears and wound over mastoid process diminishing

13. A glandular swelling below the left mastoid process has gone and neck glands are not swollen. Both ears discharging. The "tunnel" in the left tonsil seems to have

begun to granulate at the edges
Uvula & soft palate have shed their
lately adherent exudation or slough and throat
seems improving. Temp. touched 98·4°
at 9 a.m. On auscultation over the
chest moist rales are the only abnormal
symptom and percussion-note is practi-
-cally clear.

Feb. 15 Congestion in the throat is even less marked
to-day but the perforation in the tonsil is
in statu quo. Copious left otorrhoea.
Child is not drinking well.

17 Temp. Keeping about 100°. Profuse dis-
-charge from left ear and also from
wound in mastoid. (Pus flows when the
ear is syringed.) Lung condition is
again less satisfactory as there are some
patches of consolidation over left lower
lobe and loud muco-crepitant rales.
Mustard & linseed poultice applied.
Throat little congested but aperture in the
tonsil does not seem to be healing; indeed
it seems large and bids fair to become two
ragged appendages to the tonsil.

18 Foetid discharge from left ear. Iodoform
and Boric acid is being insufflated. Less
discharge from right ear and from the wound.

20 Granulations are seen to be rising on the walls

of the perforation in the tonsil. Respiratory sounds again nearly normal; only a few mucous rales being audible.
Child bright and lively. Temp normal for most part of the day, reaching its maximum daily at 11 am (about 100°)
21. Temp remained about 99° for last 24 hours. Ear discharge still foetid.
23 Temp still low. Throat is clean and the aperture in the tonsil is granulating rapidly. Discharge from ears not now foetid, but patient still practically "stone deaf"
24 There was a large flow of pus from the mastoid wound today and, on probing, carious bone was found which was removed by a small scoop and the cavity plugged with Bichloride gauze and Iodoform Temp quite normal

It is scarcely worth while following the case in detail further. The discharge from the ears and mastoid wound alternately ~~was~~ disappearing & recurring suffice it to say that the temps. kept practically normal from the above date. Patient got up on march 26th and rapidly "put on flesh." The wound in the tonsil had quite healed long before

On April 27 the discharges were still present to a slight degree but patient's hearing was very much improved It was determined that the atmosphere of a scarlet fever ward was not suited to the healing-up of the wound behind the ear and as patient was otherwise well and strong, acute in hearing (all things considered) and as the chances of the ear discharge being infectious after such a long illness were very slight she was sent home on May 14 1891 having been nearly 4 months in hospital. The wound in the mastoid healed up for good very soon after dismissal and patient improved steadily.

Oct. 16. I called on her father today and ascertained that with the exception of a slight dulness of hearing on the left side and a very occasional and extremely slight discharge from the left ear patient is now enjoying excellent health.

(This report is far from being an ideal one but gives the main points in the history Needless to say the patient was very freely 'stimulated' throughout.)

In conclusion it appears to me that much may be done to prevent the occurrence of secondary glandular enlargements by suitable treatment in the acute stage of the fever.

The complete and rapid evolution of the throat lesion ought to be aided in every possible way, and any treatment that has a revulsive tendency e. g. the use of astringent gargles and inhalations in the acute stage of the throat affection, though relieving somewhat the dysphagia for the time being, seems to delay the return of the affected throat to its normal condition and also seems to prolong the engorgement in the adjacent glands. Even the sucking of ice, which is intensely agreeable to the patient, is theoretically open to this criticism.

Ordinary steam inhalations from a Siegle's or Adams' Spray (in cases where there is no ulceration) or medicated with a weak antiseptic when this happens to be present or pending, give in my experience the most rapid and satisfactory results. When

ulceration is present, the use, after the steam spray, of Glycerine of Carbolic Acid (B.P.) diluted in the proportion of 1 to 4 with ordinary Glycerine or Glycerine of Borax as an application for painting on the abraded tonsillar surfaces, was found most effectual in checking decomposition of the discharges and so minimizing the risk of septic bronchitis or bronchopneumonia setting in as a complication.

This application gave quite as good results as (if not better) than) that of a 15 per cent solution of Thymol in Olive Oil which after a fair trial was found to produce intense nausea in the majority of patients.

Attention to the excretory functions is of course of paramount importance. Occasional purgation by Castor Oil free use of good milk and of mechanical diuretics e.g. Acid Phosph. (dil) and Syrup in weak solution (unless during or after haematuria) together with a warm uniform temperature, blankets and flannel garments to promote free action of the skin form the main indications for treatment

Iron and other tonics are useful during convalescence.

Trousseau speaks with little favor of the use of caustics to acutely congested and ulcerating throats; esteeming them unsafe for application in the case of children and on the whole untrustworthy. Hydrochloric acid he describes as the least untrustworthy; and acting upon this I once applied it to the gangrenous perforation in the soft palate veil in the case of a little child. The cavity granulated satisfactorily but took longer to do so than the analogous one in the tonsil of Jeanie Ferguson (whose case was last described) in which case Glycerine of Carbolic Acid (diluted) was for the most part employed.

With respect to acute or subacute glandular engorgements, nothing was found to be so beneficial as consistently applied poultices of linseed meal with steam inhalations when the throat was simultaneously inflamed. This seemed to hasten to a conclusion the inflammatory

process and facilitate natural repair.

But as poulticing, if long continued, is apt to lessen the vitality of the skin and, by keeping them persistently in dilatation, to lower the tone of the capillaries and lymphatic vessels it was found advisable at times to intermit their application and substitute thick layers of cotton wool and some emollient over the affected glands. Good results were obtained in many cases by poulticing hourly during the day and allowing sleep to be undisturbed by the application of poultices at night.

Belladonna applications (so useful in mammary engorgements) seemed to do little good when used alone but along with a superimposed poultice gave good results.

The greatest difficulty however arises in the treatment of glands which, after being acutely enlarged and painful, do not quite return to their normal size even though they become quite painless.

In such, secondary engorgement is very prone to occur, and this

goes to warm us that though for a long time the glands have been quite painless and the desquamation perhaps nearly completed it cannot be safely said that the morbific process has been entirely suspended.

Doubtless the majority of such late chronic enlargements give no trouble, and gradually, week by week, diminish in size. Still it is scarcely right to look upon them otherwise than as a possible source of danger; and one does well to endeavour by all possible means to effect a reduction in their size. Liniment of Iodine, in every instance in which it was used by me, failed to effect this; and in not a few it seemed rather to induce deep inflammation and certainly its use preceded the formation of abscesses in several cases.

But for the risk of irritating the Kidneys Cantharides would have merited a trial.

The only external medicament that gave satisfactory results (and that not invariably by any means)

was Unguentum Hydrargyri, smeared on lint and applied over the affected gland with a poultice regularly applied overhead.
Only in one case did salivation result: and in one case its use was attended with most rapid and beneficial results. The patient Joseph Prentice (aet 1½) was admitted with much congestion of the throat and ulceration of the tonsils, together with pronounced enlargement of the right cervical glands, and brawny cellular thickening. Poultices were applied regularly for 3 days, when fluctuation was made out, and two drachms of fresh pus were evacuated by incision.
Pyrexia disappeared at once, and the thickening in great part also vanished, but the abscess (as in at least one other instance on record) seemed to have been located, not in the substance of the gland, but in its sheath: and for quite 14 days after the evacuation of pus, this gland remained enlarged & much indurated giving to the fingers the impression

of almost stony hardness.
Mercurial ointment & poultices were tried; and to my agreeable astonishment the enlargement was practically gone in 2 days and quite absent in four. It did not recur.

Several cases defied all efforts of this kind and for such (and they were mostly of the strumous type) generous diet, fresh air Cod liver oil, Malt Extract and Syrup of the Iodide of Iron were relied upon to promote the reduction of the swelling. Many of these cases of gland-enlargement were probably due to the presence of connective tissue as a result of past inflammations, and would in all likelihood be permanent or nearly so.

Leaving out of account such conditions as the last-named it seems to me that in addition to the primary engorgements of the cervical glands in the first days of scarlet fever, and distinct also

from these buboes which sometimes form about the 11th or 12th day, after the eruption has ~~begun to~~ declined (both of these being more or less contingent on the lesions in the throat) there is a much later category including subacute attacks of adenitis, unaccompanied by catarrh in the throat, and apparently eliminative in origin.