Serum Therapy

with

notes of Cases treated by

Antitoxin Serum

and Remarks

by

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Antitoxin Therapy

It appears to me that it is only during the last few years that the treatment of specific fevers by Antitoxin therapy seems to have grown upon the mind of as yet only a certain proportion of what would be termed General Practitioners - I know that I myself was perfectly indifferent in or upon the matter until I had read the admirable treatises given by Sims Woodhead in his "Bacteria and their Products" - After reading this work carefully over and digesting its contents as well as I was able, I had no hesitation in coming to the conclusion that so far as I was concerned in my after practice in the treatment of specific fevers (as Professor John Chiene used to so often say to us when he was dilating upon his only instilling the Principles of Surgery into our minds and that we ourselves (his students) had the duty to perform of finding out the truths in Practice) so it seemed to me that after reading this work it was now my duty to find out the truth of Sims Woodheads

statements by putting his views into practice whenever and wherever I considered that suitable opportunities occurred. Since I came to that conclusion (in the Year 1892) I have lost no opportunity — due to the incentive caused by early successes in the application of the treatment — of carrying out the practice whenever I considered that available cases for such treatment presented themselves

I have collected some of the cases which at the time seemed to me of the most interest and propose to cite such of them as seems necessary to explain the views which I believe are now held with regard to Serum Therapy.

Erysipelas

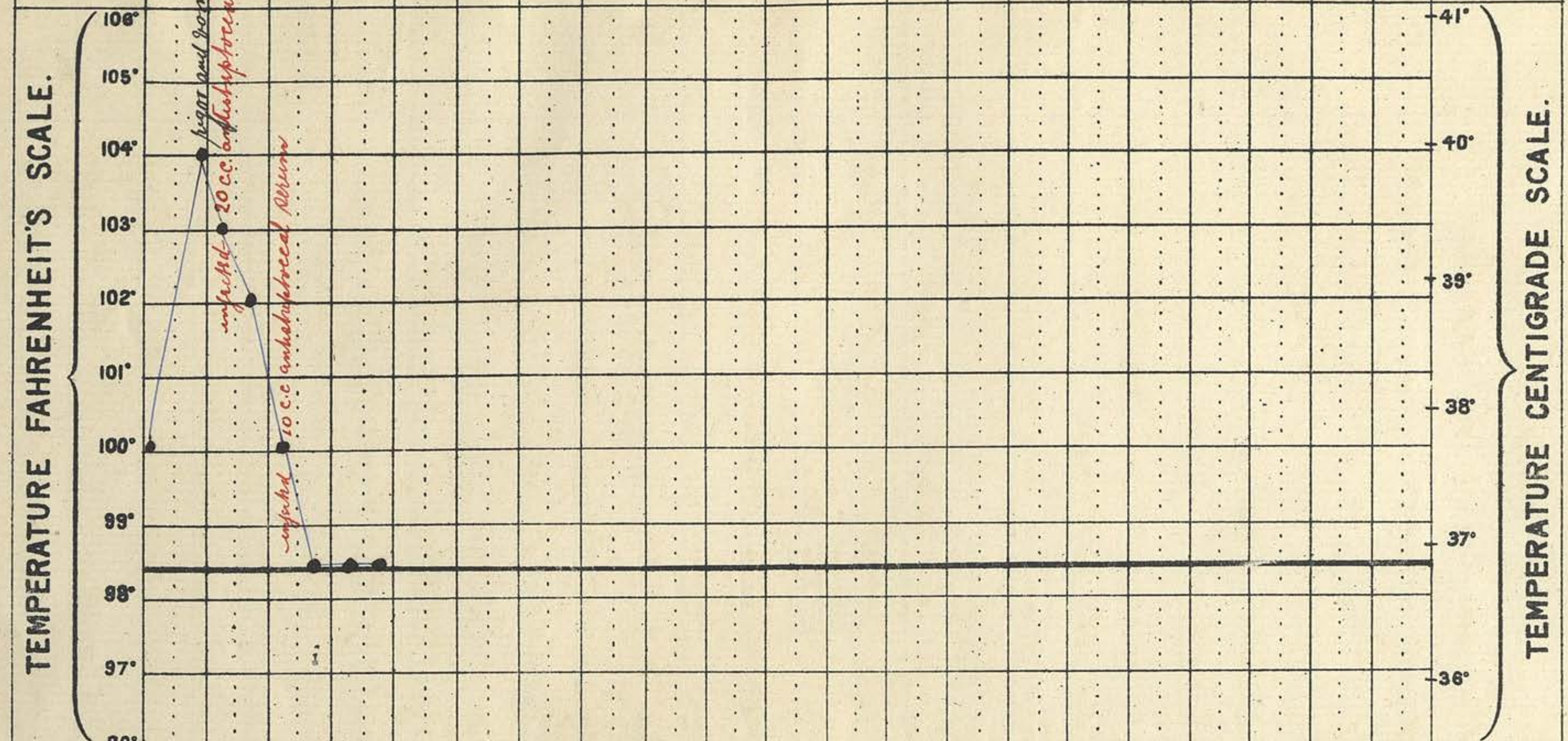
According to Sims Woodhead the organism found is a Streptococcus very similar to the Streptococcus pyogenes

"V. Noorden recently found Streptococci in the blood taken from the body of a woman who had died from erysipelas; according to Crookshank

Streptococcus Pyogenes was described by Ogston as occurring in abscesses It was afterwards submitted to Kochs' cultivation processes by Rosenbach who gave it the name of Streptococcus Pyogenes and it is now known to be associated with Septic Processes of all kinds whether in men or animals. It is the same as Fehleisens Streptococcus Erysipelatis and Löfflers Diphtheriacoccus. It has been obtained from the Pus of Pyaemic abscesses, empyema, from the tissue fluids in spreading Gangrene, from the Vesicles and Pustules in Smallpox, and in contaminated Calf Lymph. It occurs in the bloodvessels in certain cases of diphtheria, Scarlet fever, Puerperal Septicaemia, Measles, and typhoid. It may gain admission to the System in any disease attended with lesions to the Skin or mucous membrane, setting up destructive processes when the resistance of the tissues is greatly impaired by the working of a Specific organism" - vide Cagney clinical diagnosis -

Case 1

Name Mrs W. **Age** 68 **Disease** Erysipelas **Result** Recovery



Pulse	m		120	90	72
	e	140	100	78	72
Resp	m		26	20	18
	e	32	24	20	18
Motions		2	1	1	0
Urine, ozs.		30	35	50	60
Sp. Gr.		1030	1025	1020	1017
Reaction		acid	—	—	—
Casts ~~Chlorides~~		present	epithelial & hyaline		
Albumen		Present	present	present	present
Day of Dis.		1	2	3	4

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I have quoted these remarks of Crookshank's in order to explain the reason why at times I have found it necessary to inject both the serum of the special fever, and the antistreptococcal serum

Case 1. with Chart—

Mrs W aet 68 years suffering from Hemiplegia —

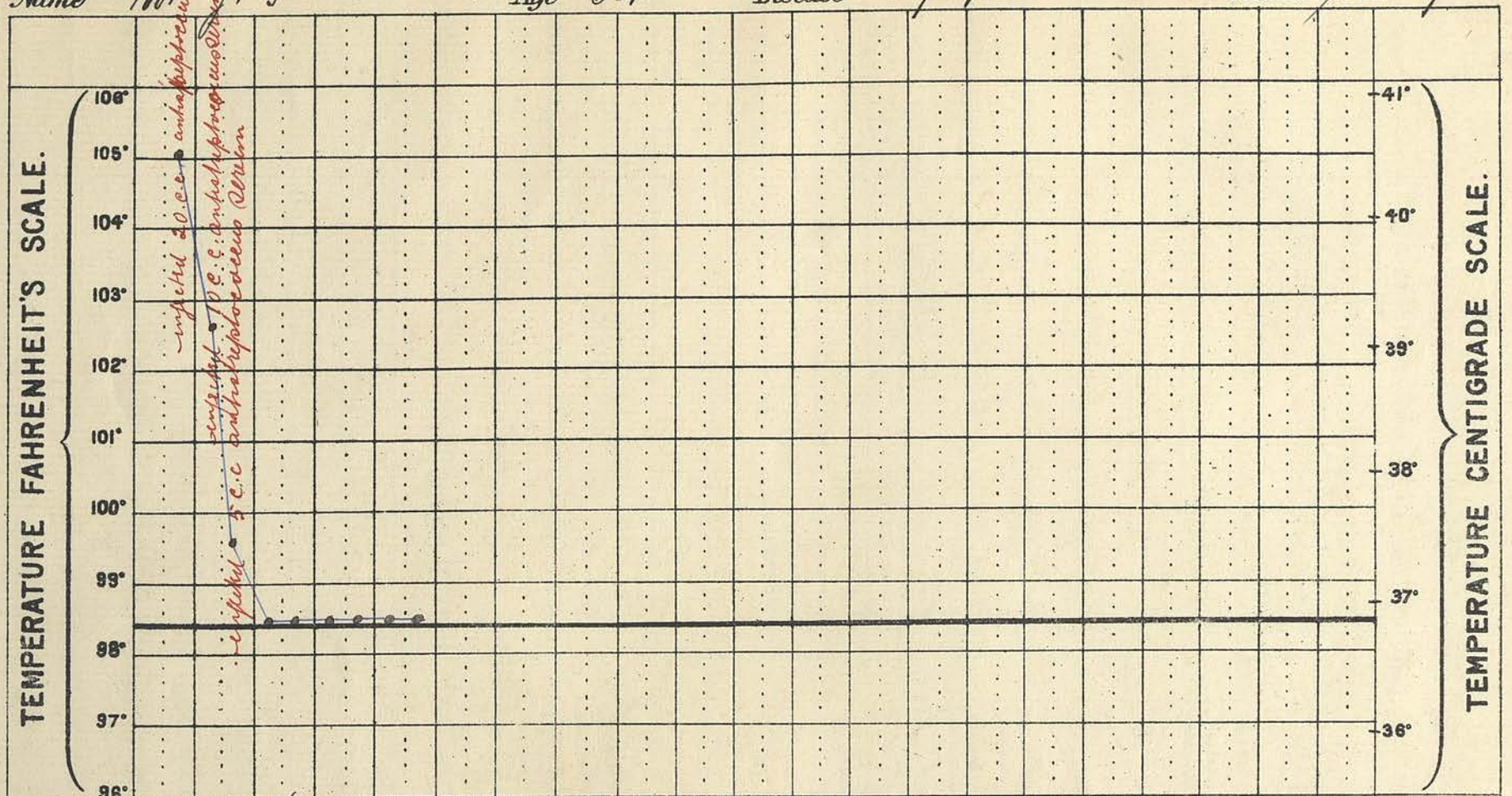
The patient—had a large bedsore caused by neglect. Her temperature suddenly rose to 104°4, She complained of headache, had a rigor and vomited. A well marked erysipelatous blush surrounded the bedsore. Examination of the blood revealed the presence of Streptococci. The following morning her temperature was 103°4 and the erysipelatous blush had advanced a quarter of an inch (the original circumference of the erysipelatous blush had been ringed with Nitrate of Silver). 20 c.c of antistreptococcus serum was injected into her interscapular region with antiseptic precautions. In the Evening her temperature was 102°4 and the blush was fading. The

Case I

Name Mrs W. Age 68 Disease Erysipelas Result Recovery

Case II

Name Mrs J. T Age 34 Disease Erysipelas Result Recovery



Pulse m		140	86	72	72	Pulse m
Pulse &	160	120	80	72	72	Pulse &
Resp m		36	20	18	18	Resp. m
Resp &	42	30	20	18	18	Resp. &
Motions	4	1	1	1	1	Motions
Urine, ozs.	20	40	60	60	60	Urine, ozs.
Sp. Gr.	1040	1030	1020	1012		Sp. Gr.
Reaction	acid	—	—	—	—	Reaction
Casts Chlorides	present	epithelial	do	do	do	Chlorides
Albumen	present	p.	p.	p.	p	Albumen
Day of Dis.	4th	5th	6th	7th	8th	Day of Dis.

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following morning her temperature was 100°F. A second injection of 10.c.c was given; in the evening her temperature was normal and remained so; a slight blush still remained around the bedsore - The following morning 48 hours after the first injection there was no blush to be observed

No drugs whatever were administered internally. (Vide Chart-i)

Case ii with Chart

J. T. aet 34 Lacerated wound of Chest —

The patient was a man who indulged freely in the use of alcohol. He fell down three steps, causing a Lacerated wound of the Chest. When I saw him three days after the accident his temperature was 105°F in the axilla. He was wildly delirious and had vomited twice. Around the site of the injury was a well-marked erysipelatous blush.

Examination of the blood revealed the presence of Streptococci.

20 c.c of antistreptococcal serum was injected. The following morning his temperature was 102.6°F. Delirium still continued but he was less restless and his tongue previously dry, brown and cracked was now moist. The condition of the wound was unchanged. A second injection of 10 c.c. of the serum was given. Two hours after which the patient slept soundly for ten hours and awakened quite rational. In the evening his temperature was 99.6°F in the axilla the blush around the wound had disappeared. A third injection of 5 c.c.c was given and the following morning his temperature was normal and remained so.

No drugs were given internally of any description whatever

Remarks on Cases i and ii

There are some who would say that the cases would have recovered either:—

1. Spontaneously
2. By Local Treatment

3 By Internal Treatment—
4 By a combination of local and
internal treatment—.

But now under (1) in Case i.— Would the Case have recovered with simple dietary precautions and attention to her alimentary tract? In reply I must say that the Case was getting worse

Under (2) would Local treatment—have sufficed? My reply is that it must fail as the organism is found in the blood.

In Case i Nitrate of Silver was used to mark out the margin of the erysipelatous blush. but the advance of the Inflammatory Process was not checked in the slightest degree

As to Internal treatment; the class of drugs used are those which increase the oxygen-bearing powers of the red blood corpuscles such as the different—preparations of Iron.

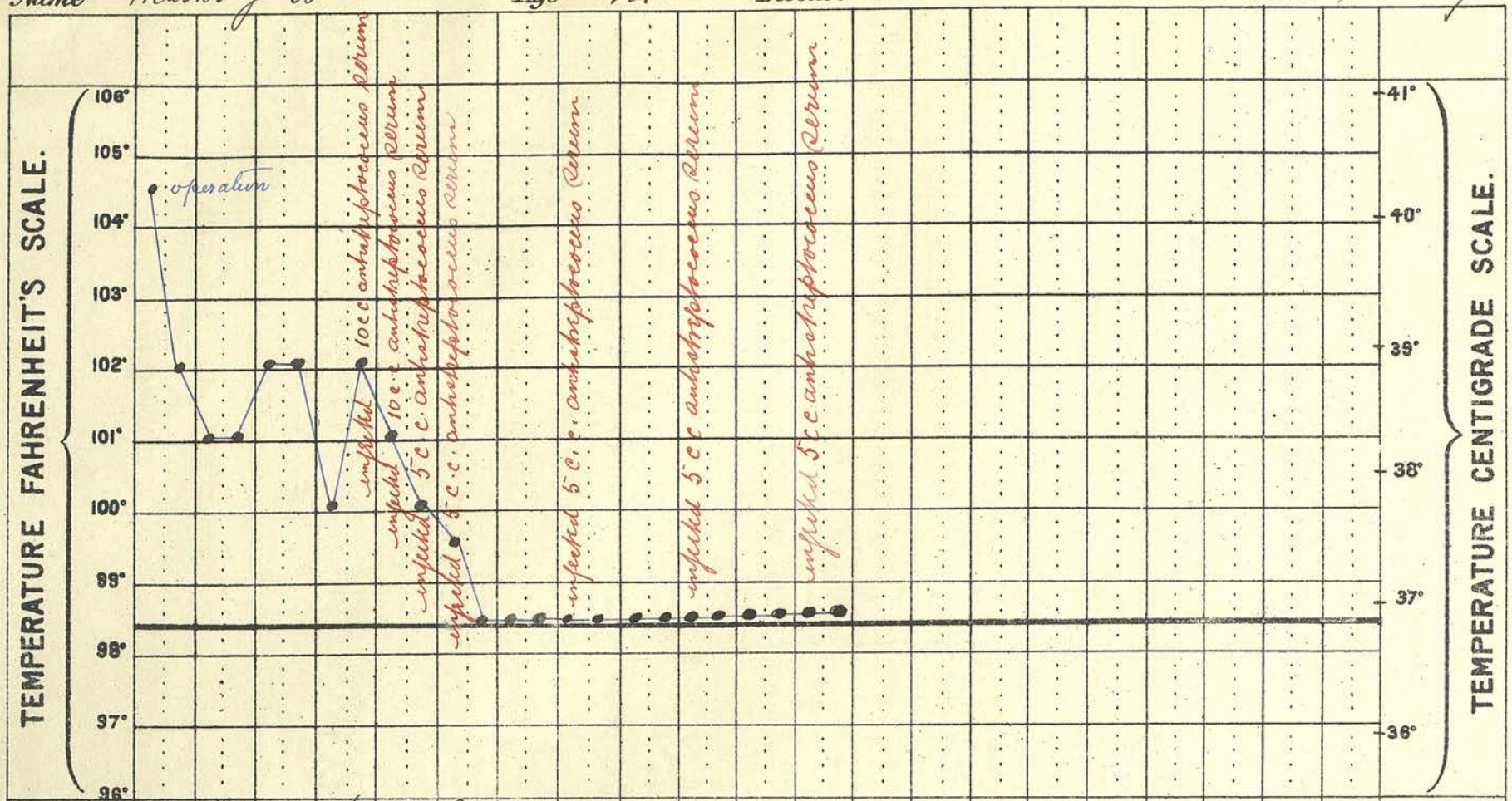
Unfortunately the Erysipelas Streptococcus thrives as well in the presence as in the absence of Oxygen

Remarks on Urine in Cases i and ii

With regard to the urine in these

Case 111

Name Master J W Age 14 Disease Mastoid Abscess Result Recovery



Pulse	m	120	110	120	96	100	80	72														Pulse m
	e	120	115	125	120	96	72	72														e
Resp	m	34	36	38	32	30	20	20														Resp. m
	e	34	36	36	36	20	17	20														e
Motions		1	1	0	1	1	0	0														Motions
Urine, ozs.		40	50	40	46	50	54	60														Urine, ozs.
Sp. Gr.		1020	1015	1025	1020	1020	1020	1020														Sp. Gr.
Reaction		Acid	Acid	Acid	Acid	Acid	Acid	Acid														Reaction
Chlorides		None	—	—	—	—	—	—														Chlorides
Albumen		None	—	—	—	—	—	—														Albumen
Day of Dis.		20	21	22	23	24	25	26														Day of Dis.

Casts

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cases, in both of them Albumen and casts were permanent features. In the first the case was one of Chronic Glomerular Nephritis following an attack of Scarlet Fever at the age of 23. In the 2nd case the Kidneys were Granular Contracting as the result of Chronic alcoholism

Streptococcus Toxin

Case iii - Mastoid Abscess

J. W. - a schoolboy act 14. - The patient developed a mastoid abscess, Septic thrombosis of the Lateral Sinus and internal Jugular Vein - The mastoid Cells were drained; the Lateral Sinus cleared; the internal Jugular Vein ligatured, and the offending portion removed. His temperature before operation was 104.6° F in the Axilla, immediately afterwards it fell to 102°F., but altho the wound was draining well and the discharge scanty his temperature oscillated between 102° F and 100° F. Tempero-Sphenoidal or Cerebellar abscess was suspected but - No Evidence could be obtained to justify

further operation. Examination of the pus revealed the presence of Streptococci a few Staphylococci but no tubercle bacilli

Optic neuritis was not present but this did not of course negative the possibility of cerebral or cerebellar invasion. 10 c.c of antistreptococcal serum were injected. The following morning the temperature was 101°F. A second injection of 10 c.c. was given. The evening temperature now registered 100°F. A third injection of 5 c.c was given - in the morning his temperature was 99.6°F. A fourth injection of 5 c.c. was given in the evening his temperature was normal and remained so subsequently.

As a precautionary measure 5 c.c were injected every alternate morning for a week and the patient rapidly recovered (vide Chart iii)

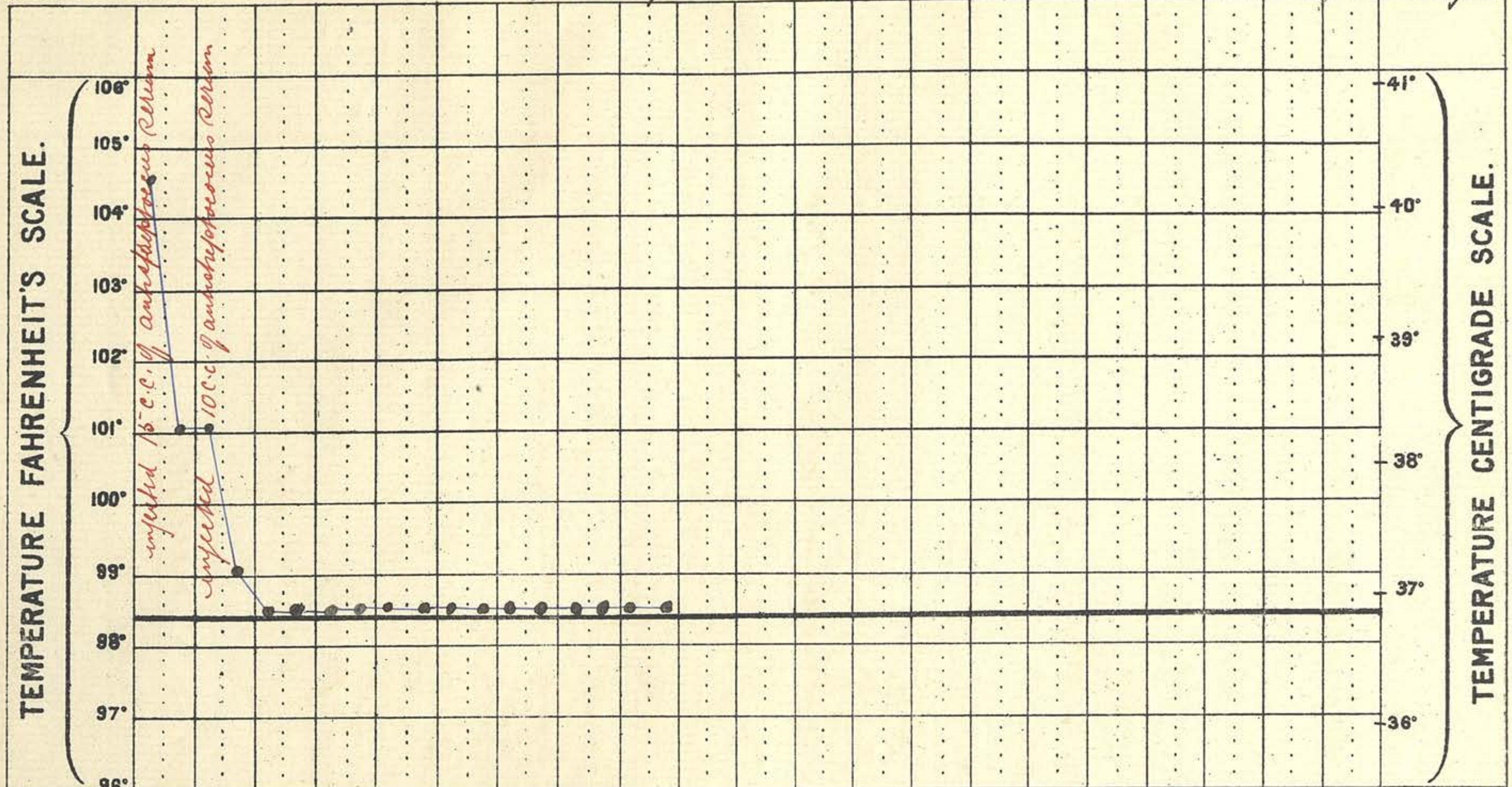
Follicular Tonsillitis

Case iv vide Chart iv

F.W. aet 15 years

Follicular Tonsillitis - When first seen the temperature was 104.6°F

Name Miss F W **Age** 15 Years **Disease** Follicular Tonsillitis **Result** Recovery



Pulse	m	160	120	100	76	72
	e	120	100	98	74	70
Resp	m	40	30	20	19	17
	e	36	24	20	17	17
Motions		2	0	1	1	1
Urine, ozs.		34	50	60	50	54
Sp. Gr.		1025	1020	1017	1017	1020
Reaction		acid	—	—	—	—
Casts ~~Chlorides~~		absent	—	—	—	—
Albumen		present	present	present	present	absent
Day of Dis.		4	5	6	7	8

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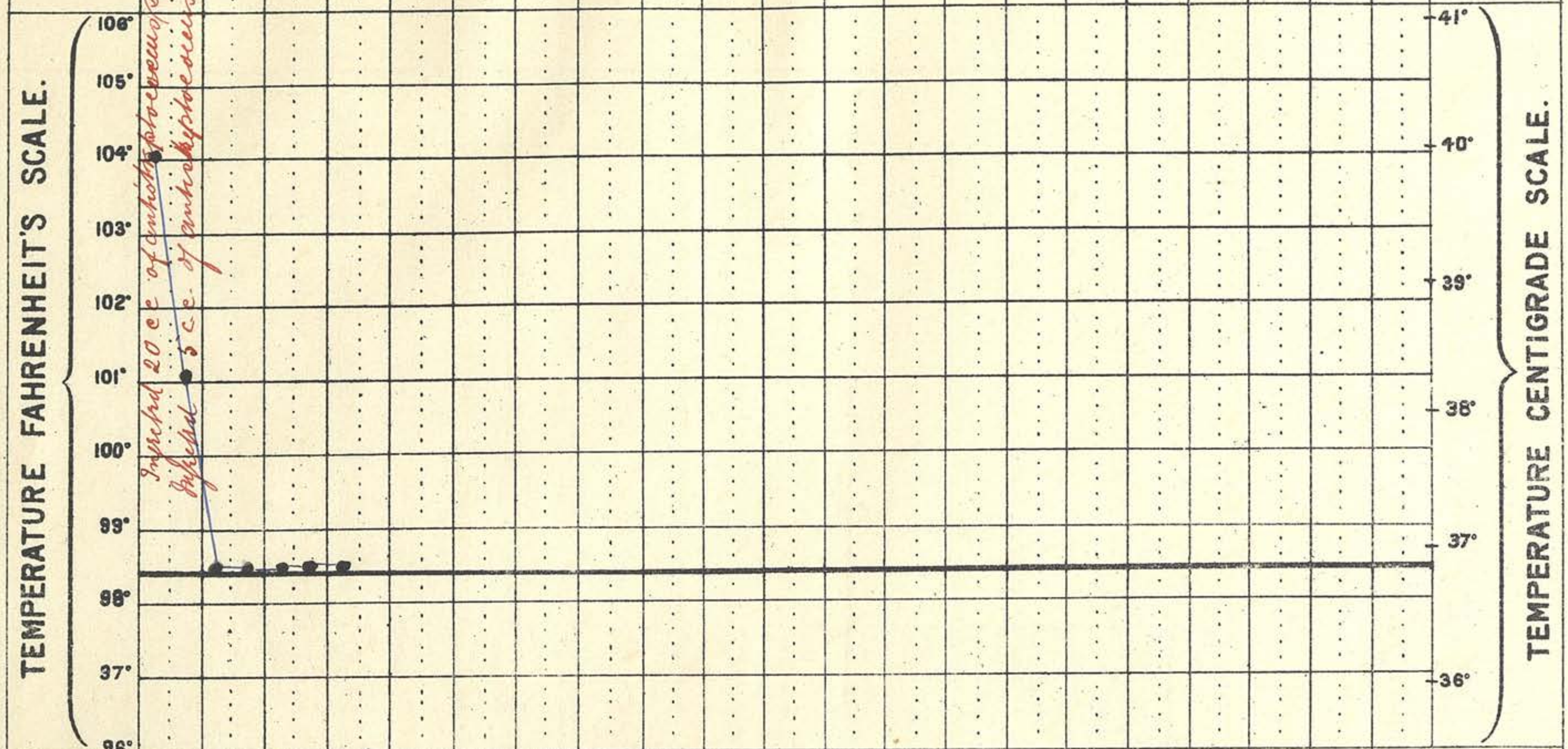
Case V

Name Miss A. B. **Age** 16 **Disease** Follicular Tonsillitis **Result** Recovery



Pulse	m	140	110	84	76
	e	120	100	76	
Resp	m	30	26	19	
	e	24	20	17	
Motions		2	0	1	
Urine, ozs.		40	50	64	
Sp. Gr.		1020	1020	1020	
Reaction		Acid	—	—	
Casts ~~Chlorides~~		absent	—		
Albumen		trace	trace	trace	absent
Day of Dis.		3rd	4th	5th	6th

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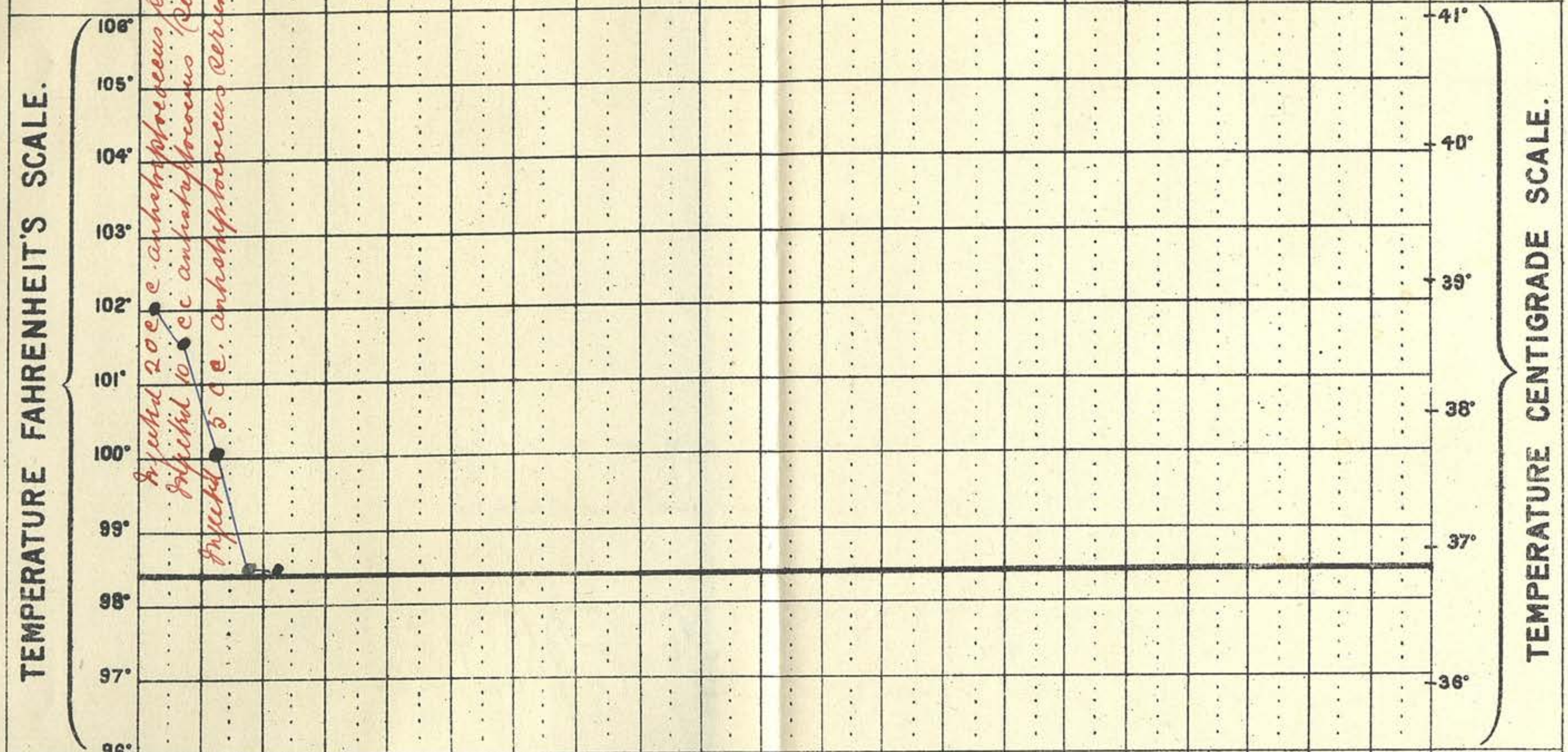
The left tonsil was covered with a follicular deposit, examination of which revealed the presence of numbers of Streptococci and Staphylococci with other mouth bacteria.
15 c.c. of antistreptococcal serum were injected. The Evening temperature was 101°7. The following morning the temperature was still 101°7 but the tonsillar deposit was beginning to clear
Another injection of 10 c.c was given. Evening temperature was 99°7 and the tonsil free from all deposit. The morning temperature was normal and remained normal.

Case V vide Chart V

A. B. aet 16 years Follicular Tonsillitis - When first seen the tonsils were covered with a membranous deposit, which was not so well defined as in the last Case but Confluent. Urine Sp. gr. 1020, Slightly acid, Cloud of albumen, No Casts. Temperature 104°7. - 20 c.c. of antistreptococcal serum were injected - The Evening temperature was 101°7
5 c.c.c were injected. Morning temperature

Case VII

Name Miss E. S. **Age** 30 years **Disease** Follicular Tonsillitis **Result** Recovery



		1	2	3
Pulse	m	100	84	76
	e	96	80	
Resp	m	26	24	19
	e	26	20	19
Motions		1	0	1
Urine, ozs.		50	50	50
Sp. Gr.		1020	1020	1020
Reaction		Acid	—	—
Casts ~~Chlorides~~		absent	—	—
Albumen		absent	—	—
Day of Dis.		1	2	3

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normal, and the deposit had entirely disappeared - the urine was now free from albumen.

Case vi. vide Chart vi

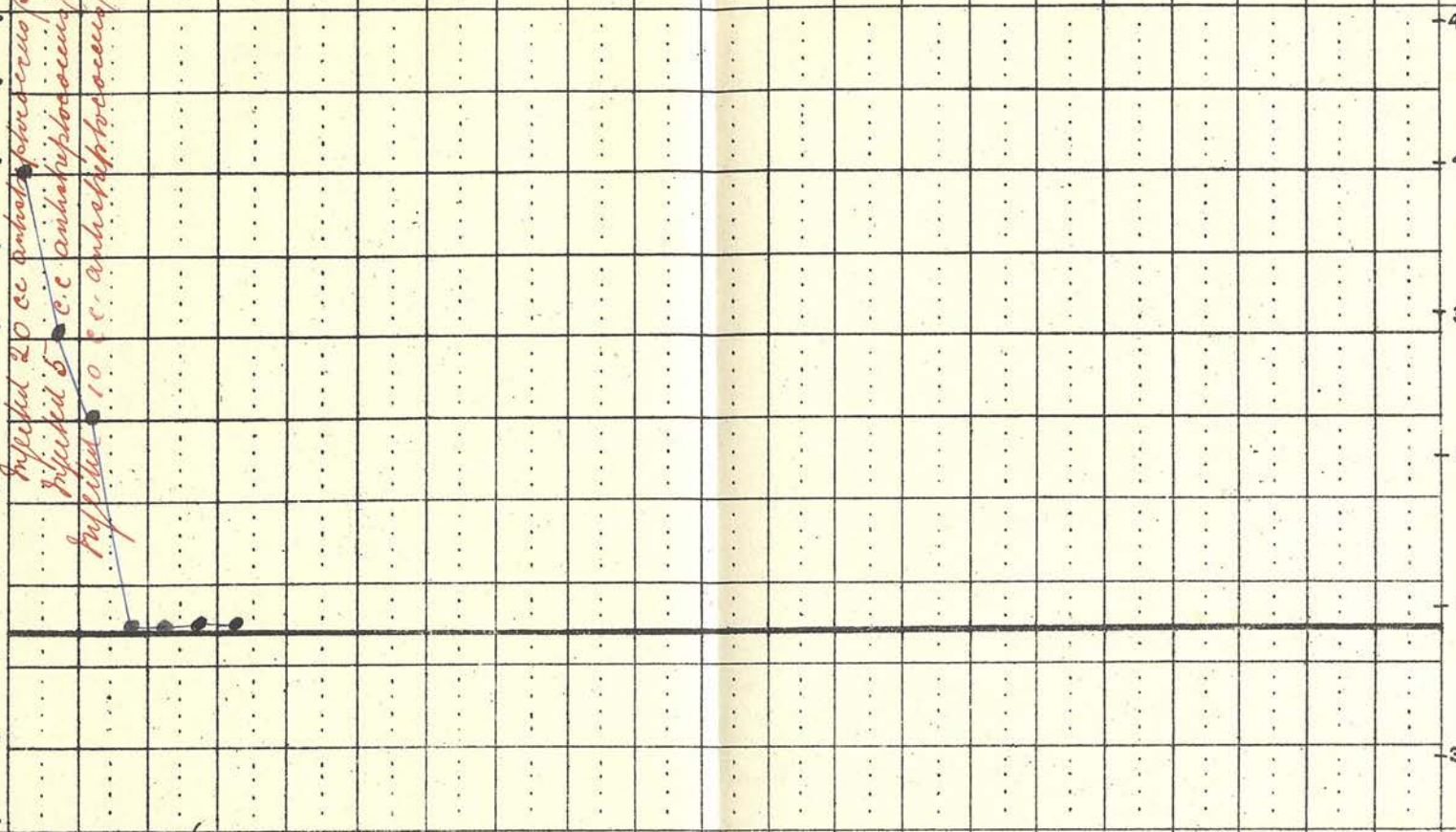
S. T aet 22 years Follicular Tonsillitis - The patient had been ill three days. Her temperature was 104°F - Left tonsil showed a follicular deposit -
20 c.c. of antistreptococcal serum were injected - the evening temperature was 102°F - 5 c.c. were injected morning temperature was 101°F. 10 c.c. were injected - temperature was normal and remained so

Case vii vide Chart vii:

E. S. aet 30 years, Follicular Tonsillitis - When first seen her temperature was 102°F. A follicular deposit was present on the left tonsil.
20 c.c of antistreptococcal serum were injected - evening temperature 101.6°F - 10 c.c were injected morning temperature 100°F 5 c.c injected, temperature in the evening. Normal and remained so - The urine was at first albuminous but became normal

Case vi

Name Miss S F Age 22 years Disease Follicular Tonsillitis Result Recovery



Pulse	m	120	110	86	7																			Pulse
	e	120	98	74																				
Resp	m	30	24	19																				Resp.
	e	24	20	17																				
Motions		0	1	1																				Motions
Urine, ozs.		48	54	50																				Urine, ozs.
Sp. Gr.		1020	1017	1020																				Sp. Gr.
Reaction		Acid	—																					Reaction
Chlorides		absent	—																					Chlorides
Albumen		Absent	—																					Albumen
Day of Dis.		4	5	6																				Day of Dis.

Case vi

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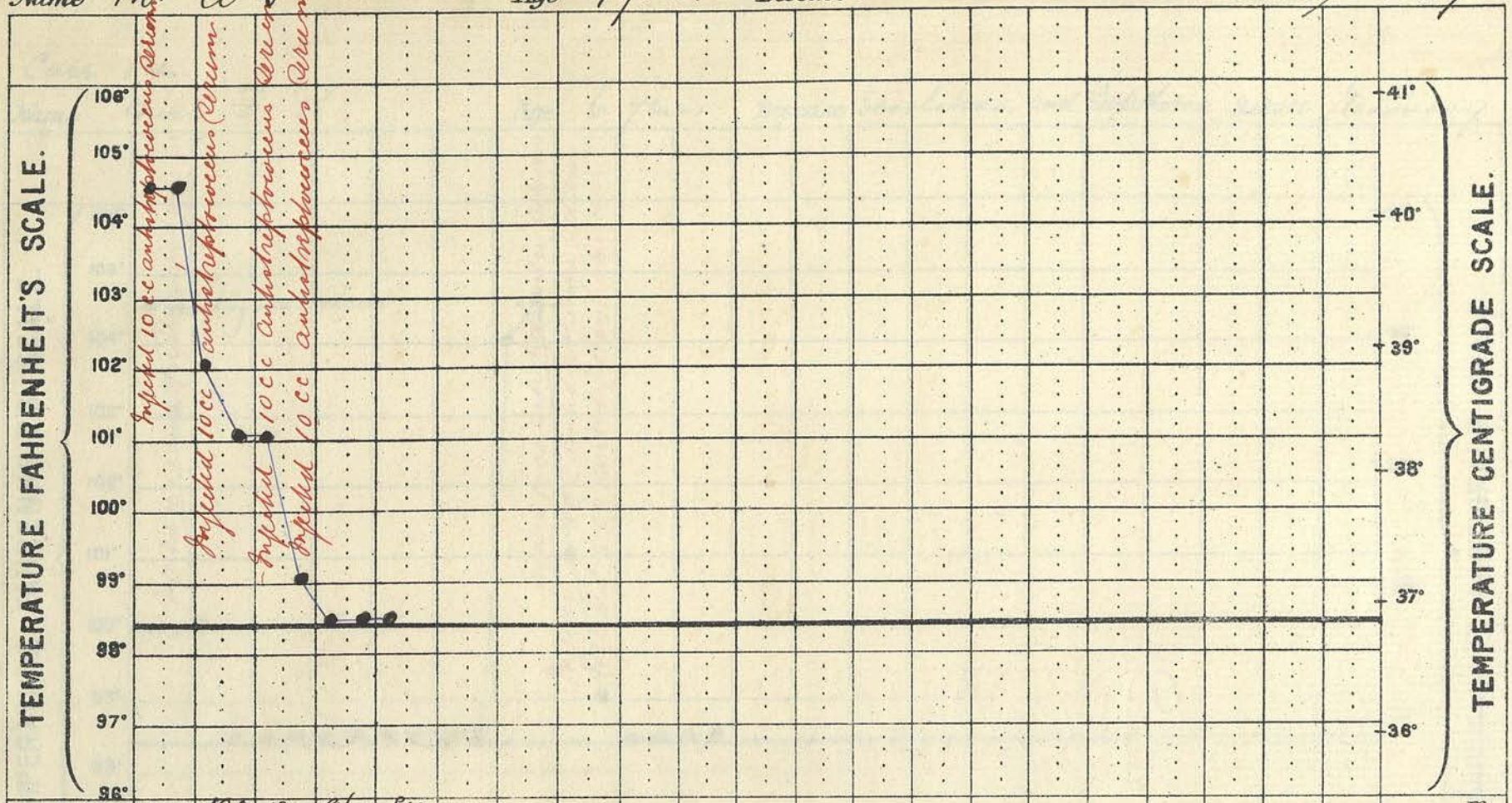
Case viii

Name Mr. A. J. Age 24 years Disease Follicular Tonsilitis Result Recovery



Pulse	m	140	120	120	96	84					Pulse m
	s	140	124	96	84						s
Resp	m	Irregular & sighing				no true record could be made					Resp. m
	s										s
Motions		1	0	0	1						Motions
Urine, ozs.		40	42	48	60						Urine, ozs.
Sp. Gr.		1025	1025	1020	1020						Sp. Gr.
Reaction		Acid	—	—	—						Reaction
Casts Chlorides		absent	—	—	—						Chlorides
Albumen		present	present	p.	p.	p.	p	p	absent		Albumen
Day of Dis.		3d	4th	5th	6th	7th	8th	9th	10th		Day of Dis.

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Albumen absent absent

Case viii with Chart viii

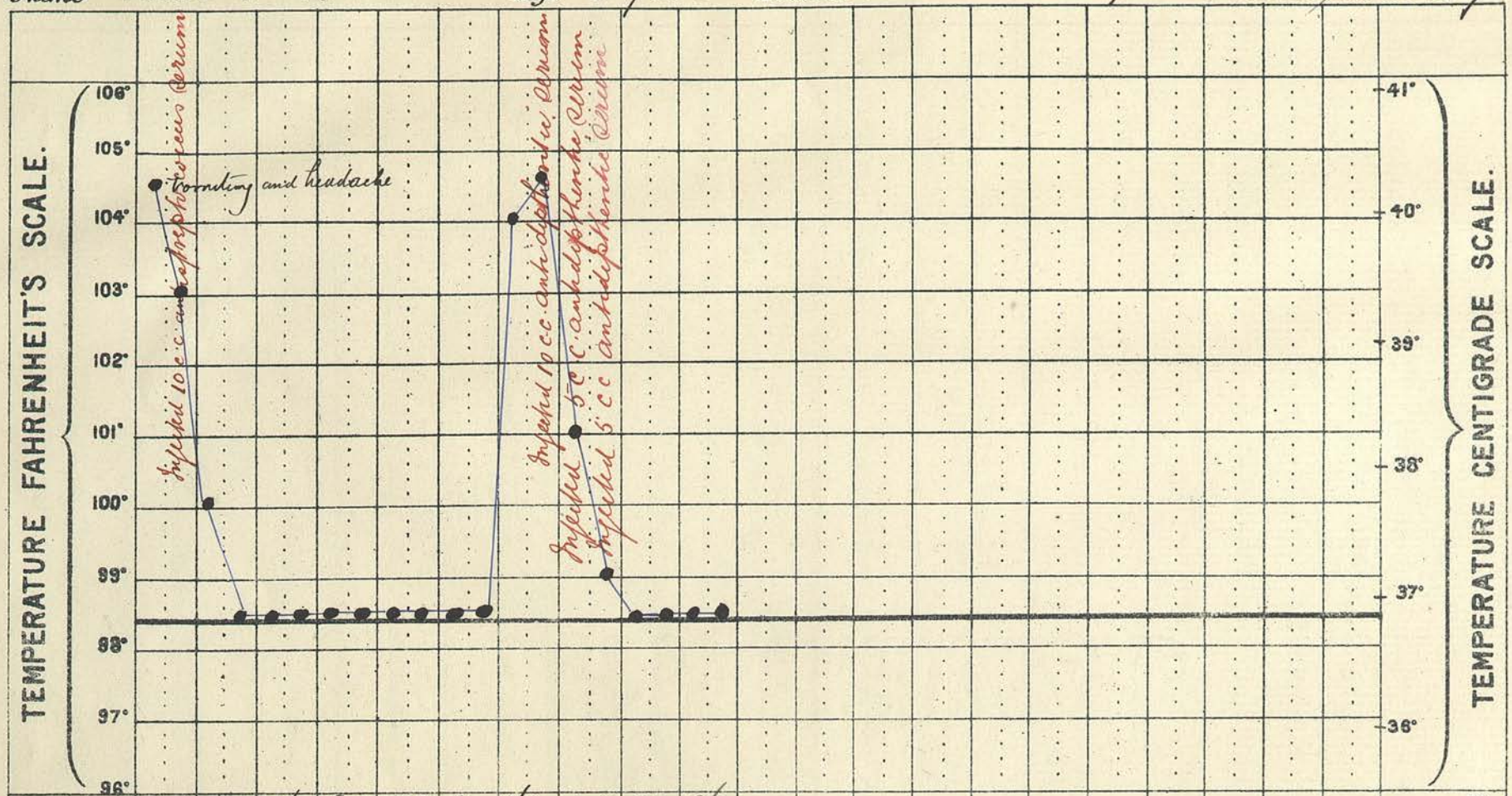
A. J. aet 24. Follicular Tonsillitis
Both tonsils were covered with a membranous deposit. Temperature 104.2°F
Enlargement of glands on the left side of the neck which subsequently suppurated. Urine albuminous but free from Casts
10. c. c. of antistreptococcal serum were injected each day for four days when defervescence was complete and permanent

Mixed Infection: Scarlatina and Diphtheria. - Case ix vide Chart ix

F. R aet 6 years
For two days the child complained of lassitude, headache, and vomited her temperature 104.6°F, and a well marked General Scarlatinal rash. - Urine non-albuminous, no enlargement of the Cervical glands. - Tonsillitis present - but no deposit.
10. c. c. of antistreptococcal serum injected - She desquammated freely. - After her temperature had been normal for four days she had a relapse, and her

Case ix

Name Miss F. R. Age 6 yrs Disease Scarlatina and Diphtheria Result Recovery



Pulse	m	140	120	96	80	78	80	160	140	120	96
	e	120	100	80	80	80	90	160	120	100	80
Resp	m	40	30	19	18	18	18	40	34	20	17
	e	31	19	18	18	18	20	36	30	17	17
Motions		1	1	0	1	1	0	2	1	0	1
Urine, ozs.		34	40	48	54	54	50	30	40	60	53
Sp. Gr.		1026	1022	1020	1020	1020	1020	1025	1020	1015	1017
Reaction		Acid						Acid			
~~Chlorides~~ albumen		absent	absent	absent	absent	absent	absent	present	present	present	present	present	present	present	present	present	absent
Albumen		absent	absent	absent	absent	absent	absent	present	present	present	present	present	present	present	present	present	absent

Pulse	m / e
Resp.	m / e
Motions	
Urine, ozs.	
Sp. Gr.	
Reaction	
~~Chlorides~~ albumen	
Albumen	

temperature rose to 104°7. Dysphagia was a marked symptom.
Upon examining the throat I found a small membranous patch on the soft palate. Tonsils inflamed but no deposit. Glandulae concatenatae enlarged on both sides
The urine contained a faint trace of albumen. In the evening her temperature was 104.6° F and there was a slight deposit on the left tonsil. Examination of the deposit revealed the presence of streptococci and diphtheria bacilli
I injected 10 c.c of Anti-diphtheritic serum. The morning temperature was 101° F and the membrane had entirely disappeared
A second injection of 6 c.c was given, evening temperature 99°7
A third injection of 5. c.c was given, morning temperature normal and remained so

Remarks on Cases of Follicular Tonsillitis

In the fourth Edition of V. Jaksch Clinical Diagnosis Edited by Jas. Cagney

page 100 we read "The points to be decided in the examination of morbid deposits upon the tonsils are (1) Whether there are present only streptococci, staphylococci and Cocci or —

(2) Whether these micro-organisms are present with diphtheria bacilli or —

(3) Whether diphtheria bacilli are present alone.

All the cases which I have recorded more especially Case viii, resemble cases of diphtheria. In this last case however the cervical glands suppurated and the enlargement was unilateral; but even suppuration is possible in cases of true diphtheria, as the diphtheria organism is frequently associated with strepto and staphylococci. In none of these cases we note was the soft palate invaded by the deposit. In no case had we signs of bagal neuritis. Truly may we call them border-land cases between diphtheria on the one hand and ordinary septic throats on the other.

What is the meaning of Albumenuria
in these cases? Formerly we were
taught that Albumenuria together
with a membranous tonsilitis and
enlarged glands in the posterior
triangle clinched the diagnosis of
diphtheria. Now we know that
is not true. In some cases in
which albumen is absent, the
diagnosis of diphtheria is
subsequently confirmed by the
appearance of post-diphtheritic
paralysis of the lower extremity
or cardiac syncope, and is not
this what we should expect. In one
case we have elimination of the
toxine by the kidney or assistance
in its elimination, in another
the toxine is not so eliminated
but acts in a concentrated form
on the nervous tissues leading
to sudden collapse. Again
there is another explanation
which is that the albumen is due
to circulatory changes. That
toxic influence must be considered
as I think proved by the fact
that I have frequently observed
serum-albumen (apart from nucleo-albumen

present in a patients urine after a drinking bout who had previously been healthy, and lasting until the excretion of alcohol was complete. Nothnagel has affirmed that in this condition of alcoholic poisoning casts may be present, but this I cannot confirm

General remarks on Antistreptococcal Serum

I shall not draw any conclusions as to the value of this Antitoxin in suitable cases before referring to a few of the now many records of its value in other cases, Here I shall only summarise cases. In the appendix fuller details will be found.

Antistreptococcal Serum has been successfully used in the following cases

i. Acute Septic Peritonitis
ii Acute Septicaemia
iii Acute Infective Epiphysitis
iv Carbuncle
v. Chronic Septic discharge
vi. Puerperal Septicaemia
vii Pyaemia
viii Scarlatina
ix Infective Endocarditis

Records of Cases such as these coming from all parts of the Country points to the absolute necessity of having antistreptococcal serum a place in our Pharmacopoeia.

How should the serum be administered?

Drs Broadfoot, Allinson and others have suggested administration by the mouth. The disadvantages have been pointed out by Sims Woodhead as follows:—

i. The antitoxin when passed through the stomach is very materially altered i.e. it is digested and rendered almost inert.

ii – If the fluid be not sufficiently active to destroy the antitoxin it will absorb the fluid exceedingly slowly

iii – Every moment is of importance, and the subcutaneous method allows the antitoxin to get into the circulation much more rapidly than by any other method. except when intra-venous injection is resorted to ∴ we are driven to the Conclusion that serum should be injected subcutaneously

Preparation of Site for Injection.—
Wash the skin well with sterilized water, then with Ether, and lastly with a saturated solution of Boracic Acid

Site for Injection The most useful site generally is the interscapular region; in Cases of tetanus the anterior abdominal wall; in Cases of chancroid infection the inguinal region.

Syringe should be as simple in Construction as possible. Each part should be capable of being separately sterilized; Each part should be boiled before using. Sterilized water should be run through the needle before injection. The parts should be cleaned again before putting away.

Serum never keep it uncorked in general practice the fluid serum is most useful. It is as well after the Cases recorded of imperfectly filtered serum and living streptococci being found in the serum injected by Nathan Raw and Stephen Paget

to make tentative inoculations upon tubes before using

Quantity Use freely - When first introduced we were apt to be overcautious in dosage. Now we know that we can use the serum freely without danger and it is well to repeat the dose in a few hours if amelioration of symptoms does not take place after the first injection

Time for Injection as early as possible. There is no gain in waiting for a bacteriological examination which may or may not be conclusive E.g. in cases of diphtheria. We have seen regret over and over again expressed at not using the serum earlier

Sequelæ and results of Injection

These are few, except in the two cases previously quoted in which the serum injected was found to contain living streptococci, urticaria, pains in the joints of short duration, and transient Erythema are the most formidable complications which I have seen

Probably in other cases had the serum been examined (such as that reported by Durnot in which erysipelas presented itself at the site of infection) imperfect filtration would have been proved. In no single case have I regretted the use of serum

Effects of the Serum

1. It reduces the temperature quickly and permanently thus lessening the danger of Cardiac degeneration and its inevitable consequences and therefore ameliorates the general condition of the patient
2. It reduces the frequency and improves the tension of the pulse
3. If discharge be present and foul it becomes sweet
4. It shortens the duration of fever of Streptococcal origin

We notice that it can be successfully used in cases of mixed infection if Streptococci be predominant.

A Summary of Twenty Eight Cases of Diphtheria

Ages	Number of Cases	Deaths
1 to 2 years	2	1 no antitoxin used
2 to 10 years	15	3
10 to 20 "	4	0
20 to 30 "	6	0
30 to 40	2	0

Deaths Equal 14.2 per cent or Excluding the Case in which antitoxin was not used 10.1 per Cent

Remarks on Deaths

In the Case in which no antitoxin was used the Patient died a few hours after I saw her on the fourth day of the disease.
In one of the Cases between 2 & 10 years the disease was first treated by antitoxin on the fourth day but the Patient died of Cardiac Syncope - In the other two Cases the treatment was first adopted on the fifth day and failed

Position of the Membrane

right tonsil and soft Palate involved in seven Cases. Left tonsil and

Soft palate involved in four cases
Both tonsils and soft palate in
seventeen cases.

Duration of disease before Injection

First day	Nine Cases
Second day	Seven "
Third "	Four "
Fourth "	Four "
Fifth "	Three

Albuminuria was present in twenty
four cases.

Average Quantity of Antitoxin used
30. c.c

Tracheotomy in 3 Cases - Recovery in all

Complications following the use of
Antitoxin

Erythema Lasting 3 days one Case
Urticaria Lasting 36 hours two Cases
Pains in Joints Lasting 42 hours one Case

Effects of Antitoxin Injection

1. It rapidly dissolves the membrane
2. Relieves respiratory Embarrassment
3. Cases of Tracheotomy simplified
(in three cases certainly no
worse than the three previously
mentioned in which tracheotomy
was performed before the use

of antitoxin there were two deaths

4. Shortens the duration of the disease thus lessening the danger of bagal and or peripheral Neuritis

5. In No Case did post-diphtheritic paralysis occur.—:—

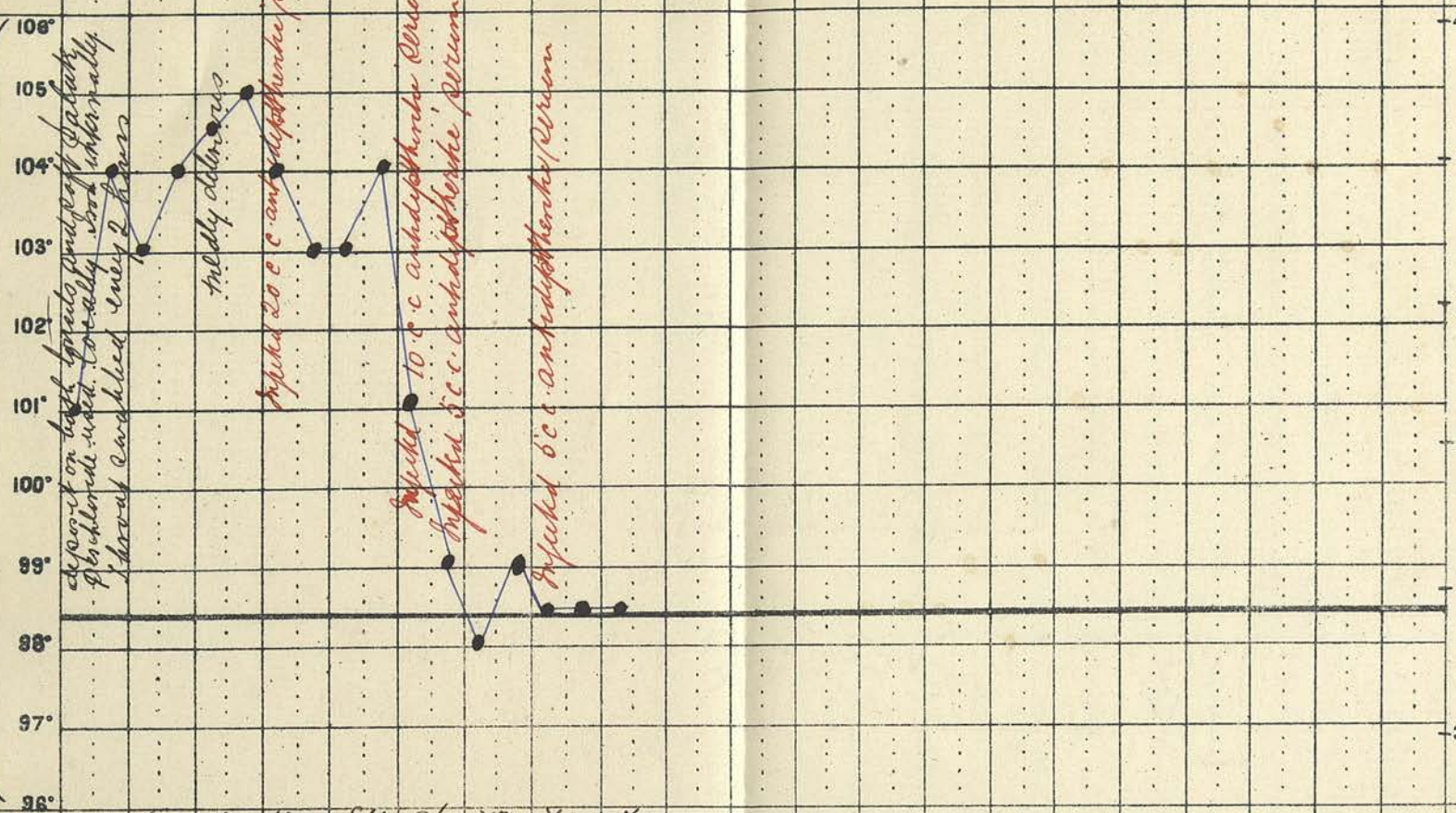
(Exception since compiling these statistics I have been called upon to treat a case of diphtheria where the membrane had existed for three days before the use of antitoxin. The membrane entirely disappeared on the sixth day after 30.c.c had been injected, but three weeks after signs of post-diphtheritic paralysis have presented themselves.)

6. rapid fall in temperature follows the use of the antitoxin serum.

Antitoxin appears to have been less useful in the Nasal forms of diphtheria in all probability from not using the serum sufficiently Early or using it in too restricted doses.

All the above twenty Eight Cases were Examined bacteriologically

Name Mr F. G. Age 52 years Disease Diphtheria Result Recovery



Pulse	m	140	120	140	120	84	96	72	70	70			Pulse m
	e	160	120	120	80	100	80	82	70				e
Resp	m	32	34	42	38	34	20	20	14	17			Resp. m
	e	40	40	42	30	40	24	14	18				e
Motions		2	2	4 blood	2	2	1	0	1	1			Motions
Urine, ozs.		46	40	38	26	22	28	50	52	60			Urine, ozs.
Sp. Gr.		1025	1020	1025	1015	1020	1022	1020	1017	1020			Sp. Gr.
Reaction		Acid	—	—	—	—	—	—	—	—			Reaction
Albumen Chlorides		albumose	present		p.		p	p	p	p	abs		Chlorides
Albumen		present	p	p	p	p	p	p	p	p	absent		Albumen
Day of Dis.		1	2	3	4	5	6	7	8	9	10	11	Day of Dis.

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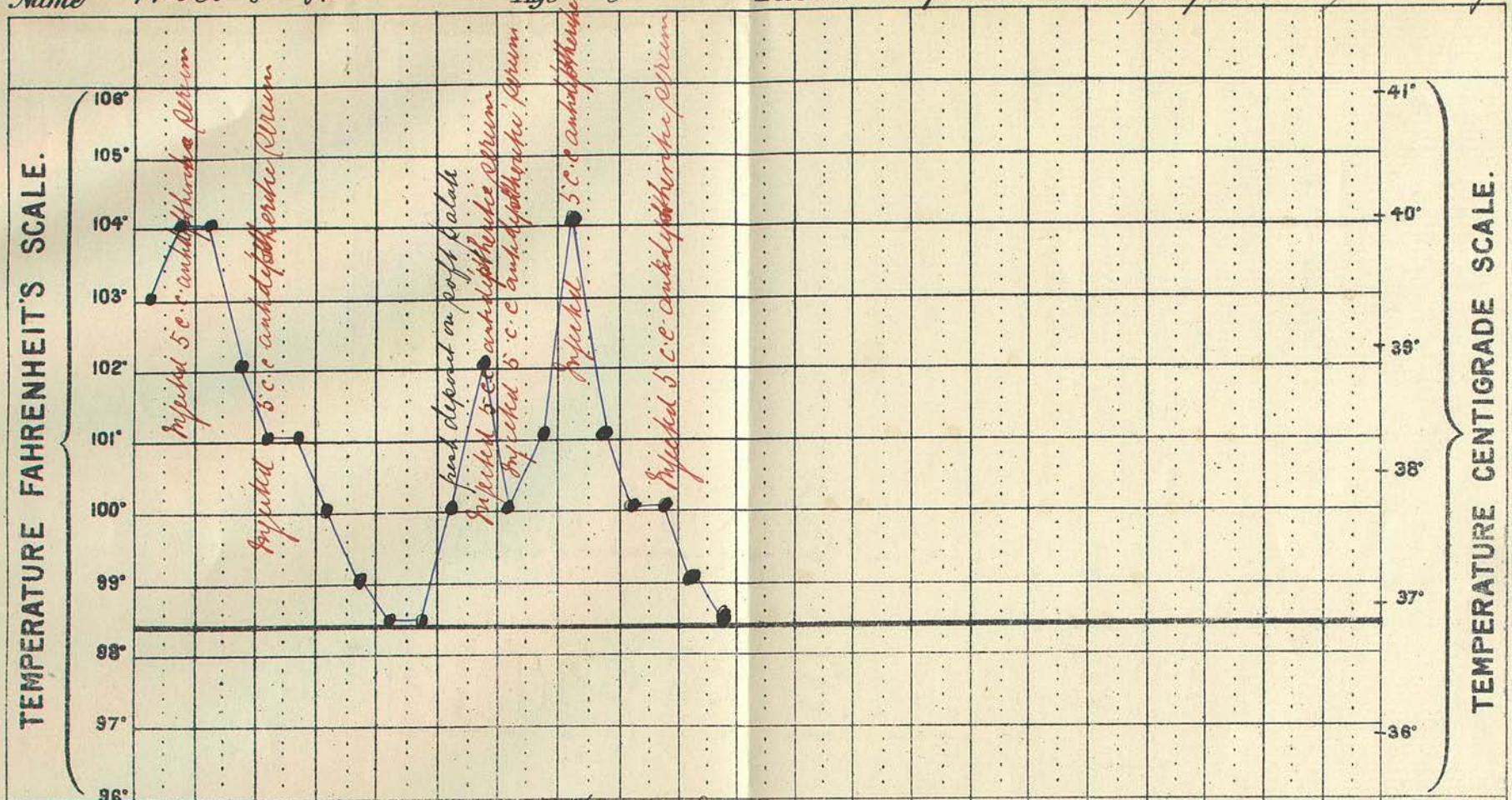
Name Miss F. H. Age 8 Disease Diphtheria with Relapse Result Recovery



Pulse	m	140	140	120	84	80	120	135	160	110	84	80															Pulse m
	e	160	130	120	84	84	140	120	130	96	80	78															e
Resp	m	38	40	34	28	20	27	30	42	28	24	19															Resp. m
	e	42	36	34	30	14	32	34	40	26	20	19															e
Motions		2	1	1	0	0	2	1	0	0	1	0															Motions
Urine, ozs.		30	28	40	42	38	50	60	64	40	50	52															Urine, ozs.
Sp. Gr.		1030	1025	1020	1020	1030	1017	1015	1017	1025	1018	1020															Sp. Gr.
Reaction		Acid																									Reaction
Albumen Chlorides		present	p.	p	p.	p	p.	p	p	p	absent	abs															Chlorides
Albumen		present	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	absent	absent				Albumen
Day of Dis.		4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21	22	23rd						Day of Dis.

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and the diagnosis conformed in twenty two cases by the late professor Kanthack . Streptococci, Staphylococci, and the Diphtheroid organism being proved present.

Three Cases of Diphtheria with Remarks

I have recorded three Cases as being typical of three Phases in the Treatment of this disease

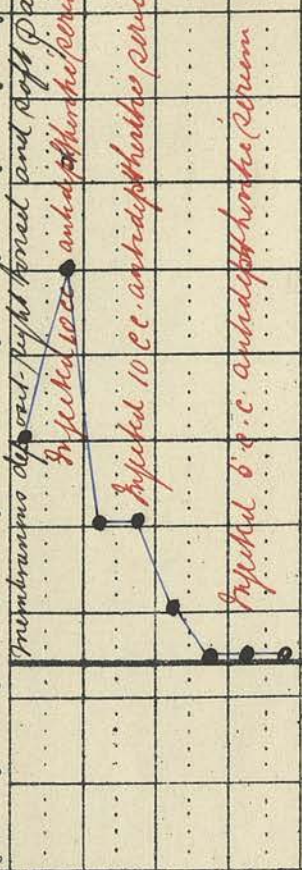
Case i with Chart

Mr F. G. Who believed in local and tonic treatment and it was only when the acuteness of the Infection had bereft him of his reason that Antitoxin as a last resort was employed The temperature chart speaks for itself

Case ii with Chart

Miss F. A. this Case arose when we were feeling our way, and here we see the result of two small doses We notice however even in this Case the beneficial effect of the serum was seen. A relapse occurred but yielded to further treatment

Name Mr. M R Age 16 years Disease Diphtheria Result Recovery



TEMPERATURE FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°

TEMPERATURE CENTIGRADE SCALE.
41° 40° 39° 38° 37° 36°

Pulse	m	110	120	80	76		Pulse m
	e	120	130	80	72		e
Resp	m	32	24	19	17		Resp. m
	e	40	26	19	18		e
Motions		1	1	1	1		Motions
Urine, ozs.		50	43	56	52		Urine, ozs.
Sp. Gr.		1020	1025	1017	1020		Sp. Gr.
Reaction		Acid	~	~	—		Reaction
Chlorides		pres	p.	p	p.	absent	Chlorides
Albumen		pres	p.	p	p	absent	Albumen
Day of Dis.		1	2	3	4	5	Day of Dis.

albumen

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Case iii with Chart

M. R. - We see in this Case the use of serum treatment up to date - A case apparently going to be severe yields in three days to treatment - I would point out that so long as Albumen is present in the urine the treatment - by use of the serum should be continued, except Evidence be forthcoming that the albumen is derived from actual structural renal change which has taken place previous to the attack.

A few remarks on the Urine

The presence of peptonuria is sometimes marked in Case of diphtheria - Peptonuria is most commonly associated with diseases which are characterized by the collection and subsequent destruction of leucocytes; the peptone gaining admission into the blood stream to be subsequently eliminated by the Kidneys - We must remember that this condition of leucocytosis is marked in cases of diphtheria and the

destruction of leucocytes, largely takes place in cases of diphtheria. In these three cases we notice the temporary presence of albumose, during the height of the fever, disappearing when leucocytosis has ceased to occur

Appendix

To further strengthen the views upon the antitoxin treatment of Erysipelas I may quote the following Cases:—

Case 1. Severe Erysipelas of the head successfully treated by Antistreptococcall Serum by Dr Freil (vide. B. M. J. May 22nd 1897.) Streptococcy were found in the Serum of the bullae, with the infection of antistreptococcal Serum Rapid Recovery followed.

Case 2. A Severe Case of Facial Erysipelas treated by Antistreptococcal Serum - Recovery - by Dr McGregor Young (vide B M. J. Dec 11th 1897) -
Dr Young remarks that whilst all drugs administered failed. improvement followed the first injection of the Serum -
Other Cases are also recorded.

Case 3. In the B M J. January 15th 1898. Dr Knight of Bridgewater records a case of Trephining for Mastoid disease - No relief - Subsequent treatment - with Antistreptococcal Serum - recovery - This Case is

Similar in many respects to the one I have recorded - differing however in several essential points :-

(1) bare bone of considerable surface was discovered

(2). No septic phlebitis was present -

(3). Retraction of the head was present -

(4) Ahent a month elapsed before the use of the serum

(5) The wound was very foul -

(6). Optic neuritis was present and afterwards disappeared.

Nature of Case	Result	Remarks
Case 4		
Acute Septic peritonitis by R Lans. v. B. M. J. Jany 2nd 1897	Recovery	1st Injection on 5th day Early injections two restricted Urticaria lasting 4 days appeared at the Site of Injection
Case 5		
Acute Septicaemia by A. B. Crossing and H B. Webber v. B M. J. Jany 23rd 1897	Death	Serum not used sufficiently Early, on 10th day & on too small doses
Case 6		
Chronic Septic discharge by Dr Jamieson v B. M. J. Jany 23rd 1897.	Recovery	1st Injection 62nd day.

Nature of Case	Result	Remarks
Case 7 Puerperal Septicaemia by W. A. Cannons v. B. M. J. Feby 13th 1897	Recovery	1st Injection 6th day. before using the Serum The Case has apparently Hopeless
Case 8 Acute septic Puerperal fever. by S. Moorhead v. B. M. J. Jany 23rd 1897	Recovery	1st Injection 3rd day rapid change for better after 1st Injection
Case IX Seven puerperal Septicaemia by A. Sharp v. B. M. J. July 27th 1897	Recovery	1st Injection 4th day drugs first tried and failed
Case X Blood poisoning. by Samuels Boakes v. B. M. J. Feby 27th 1897	Death	1st Injection 15th day local condition improved after first Injection Dr Boakes says in a similar case he would be inclined to inject Earlier. So say I.
Case XI Acute Infective Erythysipelas by J. H. Mapleton v. B. M. J. March 1897	Recovery	

Notes on Cases	Results	Remarks
Case xii Lymphangitis from inoculation from a case of septic Peritonitis by Stephen Paget v. B.M.J. May 22nd 1897	Recovery	1st Injection within an hour of Pregr Streptococci found in the Urine.
also Case xiii Lymphangitis from mixed Infection by the same Author	Death	1st Injection 3rd day mixed Infection (Bokenham)
Case xiv puerperal Septicaemia by J.T.L. Whittendale vide B.M.J. July 3rd 1897	Recovery	1st Injection 4th day
Case xv. Septic absorption from an ulcerating Fibroid by G.S. McGregor v. B.M.J. 25th Sept 1897	Recovery	In this Case Antiseptic drugs were unsuccessfully used 1st Injection on 14th day.
Case xvi puerperal Septicaemia by J.C. McNally v. B.M.J. Jany 8th 1898	Recovery	1st Injection 3rd day
Case xvii Abortion with Septicaemia by J. Munro Campbell v. B.M.J. Jany 29th 1898	Recovery	1st Injection 3rd day no improvement followed douching and Curetting

Refs on Cases	Results	Remarks
Case XVIII Pyaemia by Dr Littledale v. B M J. June 25th 1899	Death	Streptococci and Staphylococci found 1st Injection given on 6th day but patient rapidly became worse and died Examination of serum used proved presence of living Streptococci ∴ the ill Effects not due to injection but to injection of imperfectly filtered serum
Case XIX Puerperal Septicaemia by Dr J. Walters v. B M J. Oct 15th 1898	Recovery	1st Injection 4th day In Dr W's opinion recovery due to use of Serum
Case XX Carbuncle by E. Oliver Ashe v. B. M J. Nov 5th 1898	Recovery	1st Injection 6th day. With early benefit. Local treatment had been unavailing
Case XXI Septicaemia by Dr Lermitty v. Brit M J. Nov 26th 1898	Death	8th Injection 7th day. Injection too late and when even proving of Value No more serum Could be obtained

Cases XXII and XXIII

Dr Moore . v. B. M J. Nov 26" 1898

records two interesting Cases of Chancroids and arrives at the following Conclusion

a. in Cases of Chancroids use the Serum Early it causes healing of the Chancroid and prevents Suppuration of the bubo

b. if the bubo has already developed and acute inflammatory symptoms have not been present for more than 48 hours 10. c.c. of Antistreptococcal Serum injected into the inguinal region Corresponding to the inflamed gland will cause Resolution in Most Cases

c. always inject into the area drained by the infected gland and not into a remote area

d. in Phagedaenic ulcers Complicating Venereal sores the toxine is neutralized and a healthy Condition brought about by the injection of the Serum

Notes on Cases	Result	Remarks
Case xxiv Phlegmonous Ulceration of the Mouth by O. Smithson v. B. M. J. Dec 16th 1898	Death	1st Injection 14th day Here the infection has commenced to take and the dosage too small.