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THE
THERMOMETRIC OBSERVATIONS

IN

6A

FEVER.

BY

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THERMOMETRIC OBSERVATIONS IN FEVER.

THE following report of the results of observations on temperature in cases admitted into Cork-street Hospital, may not be without interest at the present time, when the temperature of the body in disease is attracting so much attention. In most of the following cases the temperature and pulse have alone been noted, but in all cases at present under observation the rate of respiration is also being recorded, so that in future when I may have the honour of continuing these reports in THE PRESS, I shall have more complete records to lay before your readers. The observations in these cases have been registered but once a day in each case, my reason for not having taken them oftener being, that I do not consider it of much practical importance, for in using the thermometer as a constant means of assisting our diagnosis, it would generally be impracticable to examine our patient's temperature more than once daily, just as we usually employ our stethoscope but once in twenty-four hours on each case. The fact is, it is only when a case *has* become serious that we give it two or more visits a day. The object of making these observations, upon which I am now reporting, is to test the value of the thermometer as a practical help to the formation of our diagnosis, and not merely as a means of scientific inquiry. I am afraid the value of the thermometer as a

means of diagnosis, has (at least in fever cases) been much overrated, but I shall refrain from drawing conclusions, until I have finished my report of the observations which I am at present conducting.

The cases upon which these observations have been made have been all under the care of Dr. Henry Kennedy, many of them during the whole period of their treatment.

Case 1.—Elizabeth C., admitted December 21st, 1865, age 22. Ill eight days before admission; brown tongue and all the symptoms of typhus, but no eruption.

		Pulse.	Temperature Fahr.
December	21	120	103·75
"	22	116	103·75
"	23	116	103·50
"	24	120	102·50
"	25	120	103·50
"	26	112	103·00
"	27	108	101·50
"	28	108	102·50
"	29	84	101·5
"	30	84	98·25
"	31	96	103·00
1866—January	1	84	99·00
"	2	84	98·00
"	3	84	97·50
"	4	130	not taken.
"	5	84	98·25
"	6	60	98·50
"	7	80	97·75
"	8	80	98·50
"	9	72	98·00
"	10	84	102·00
"	11	70	98·00
Convalescent.			

The points to be remarked in this case are, it was apparently a pure typhus case *without* spots. On January 4th, the patient got up, contrary to orders, the pulse rising to 130, but the temperature was not tested; on January 10th, the temperature rose to 102°, although for some days it had been normal. On this day the patient complained of pain in the abdomen and confined bowels, which

were relieved by a dose of purgative medicine, the rise in temperature not being accompanied with equivalent rise in pulse, nor sufficient decrease to account for the great increase of heat.

Case 2.—Theresa S., admitted December 21st, 1865, age 26; six days ill before admission; complains chiefly of weakness. There appeared to be a slight mottling of the skin, of which, however, there was no trace the following morning.

			Pulse.	Temperature.
	December	21		
	"	22	112	102·00
	"	23	120	101·50
	"	24	108	102·00
	"	25	112	101·75
	"	26	108	101·25
	"	27	88	102·00
	"	28	84	101·00
	"	29	84	101·75
	"	30	100	100·00
	"	31	120	99·00
1866—	January	1	88	100·00
	"	2	84	99·00
	"	3	84	97·50
	"	4	108	99·00
	"	5	84	98·00
	"	6	80	98·00
				Convalescent.

The range of temperature in this case is remarkable, as the patient exhibited no other symptom of departure from health. The thermometer alone would have caused an erroneous prognosis.*

Case 3.—Martha S., admitted December 23rd, age 60. Ill eight days before admission. Large dark maculæ very numerous; tongue dark-brown and very dry.

* I have now to report that this patient returned to the hospital on January 24th, labouring under typhus fever, of a well-marked character, having the range of temperature which I have found usual in such cases. Can it be possible that the high temperature during her first sojourn in the hospital was caused by the latent fever poison which did not show its presence by other symptoms for above a fortnight afterwards? I cannot think that such was the case; however, it is possible; and the facts observed in this case are important in connexion with the question under discussion.

		Pulse.	Temperature.
December	23	132	103·00
"	24	104	102·00
"	25	132	102·50
"	26	124	101·50
"	27	132	100·50
"	28	Imperceptible	95·00

Died at twelve noon on December 28th.

In this case the sudden and extended fall in temperature on the day of death is remarkable.

Case 4.—Thomas H., admitted December 23rd, 1865.
Ill three (?) days before admission; densely maculated.

		Pulse.	Temperature.
December	23	104	100·50
"	24	112	101·00
"	25	120	102·50
"	26	116	104·00
"	27	110	101·00
"	28	110	102·50
"	29	120	100·50
"	30	108	102·50
"	31	96	100·50
1866—January	1	100	99·50
"	2	88	99·50
"	3	90	100·00
"	4	76	98·59
"	5	70	99·00
"	6	84	98·00
"	7	84	98·00
"	8	84	98·00

Convalescent.

In this case the rise in temperature on December 25th and 26th is to be remarked. On the latter day pneumonia of the base of the right lung was discovered, to which the rise in temperature may be fairly ascribed.

Case 5.—Amelia G., admitted December 28th, age 57.
Ill eleven days before admission.

		Pulse.	Temperature.
December	28	144	103·00
"	29	132	101·00
"	30	120 (?)	102·25
"	31	140 (?)	99·00
1866—January	1	Imperceptible	99·00
"	2	"	99·50

Died.

It is to be remarked in this case, as in Case 3, that there was a sudden and extended fall of temperature immediately before death. The temperature of the skin in this case although high did not give such a sensation to the touch, therefore the thermometer was of great value in ascertaining the real condition of the patient.

Case 6.—John L., admitted December 27th, age 18. Ill five days before admission; has many symptoms of commencing fever.

		Pulse.	Temperature.
December	28	84	99·00
"	29	84	Not taken. Patient up.
"	30	68	98·00
"	31	64	99·00
1866—January	1	84	98·00
"	2	76	98·00

This patient left the hospital against the advice of Dr. Kennedy, under whose care he was, still retaining many of the symptoms of approaching fever, but has not since returned.

Case 7.—Christopher McM., admitted December 29th, age 16 years. Ill eight days before admission.

		Pulse.	Temperature.
December	29	108	103·00
"	30	100	102·50
"	31	100	102·50
1866—January	1	112	101·50
"	2	104	104·00
"	3	100	103·00
"	4	104	100·50
"	5	84	99·50
"	6	82	98·50
"	7	84	98·50
"	8	60	98·25
"	9	60	98·00
"	10	72	98·00
Convalescent.			

This case at first gave symptoms of being a case of typhus, but turned out to be one of febrile catarrh accompanied with parotid inflammation. The great rise in

temperature on January 2nd, was immediately followed by the parotid inflammation.

Case 8.—Elizabeth S., admitted December 29th, 1865, age 15. Ill nine days before admission.

		Pulse.	Temperature.
December	29	120	101.50
"	30	104	102.25
"	31	100	102.00
1866—January	1	102	99.50
"	2	90	99.00
"	3	76	98.50
"	4	84	99.00
"	5	96	98.00
"	6	72	98.00

Convalescent.

This was a case of febricula, with some pleurodynia.

Case 9.—Theresa W., admitted January 3rd, 1866, age 16. Ill twelve days before admission; densely maculated.

	Pulse.	Respiration.	Temperature.
January 3	140	32	103.25
" 4	132	36	105.00
" 5	144	36	103.50
" 6	112	40	102.00
" 7	126	32	101.80
" 8	96	32	99.00
" 9	112	28	98.00
" 10	96	21	98.00
" 11	108	21	98.00
" 12	96	20	98.00
" 13	120	20	98.00

Convalescent.

This, so far as it goes, may be considered as a typical case of typhus. There was no complication.

Case 10.—Thomas C., admitted January 4th, 1866, age 50. Ill five days before admission.

	Pulse.	Respiration.	Temperature.
January 4	72	22	98.00
" 5	72	24	98.00
" 6	72	20	97.50
" 7	72	20	98.00
" 8	74	20	99.25
" 9	72	24	98.50

Convalescent.

It was at first thought that this would prove a fever case, the state of the tongue and the patient's own account favouring this opinion. The thermometer in this case appears to have indicated that the case would not prove febrile.

Case 11.—Thomas S., admitted January 11th, 1866, age 30. Ill eight days before admission; densely maculated.

	Pulse.	Respiration.	Temperature.
January 11	144	24	104·00
„ 12	Imperceptible	30	101·50

The great fall of temperature before death may again be remarked in this case, although not so marked as in Cases 3 and 5.*

Case 12.—Ellen B., admitted December 23, 1865; eight days ill before admission; delirious; maculated.

	Pulse.	Temperature Fahr.
1865—December 23	140	103·50
„ 24	120	103·50
„ 25	120	102·50
„ 26	144	103·00
„ 27	132	102·00
„ 28	120	102·50
„ 29	120	101·00
„ 30	126	99·00
„ 31	104	99·00
1866—January 1	120	98·50
„ 2	112	98·50
„ 3	108	99·25
„ 4	108	98·50
„ 5	84	99·25
„ 6	84	99·00
„ 7	76	99·50
„ 8	84	99·00
„ 9	90	98·75
„ 10	96	98·50
„ 11	96	98·50
„ 12	84	98·75
„ 13	96	98·50
„ 14	75	99·50
		Convalescent.

* The thermometers used for taking these observations are made after the directions of Dr. Aitken, and were obtained from Messrs. Yeates and Son of Grafton-street.

This case is remarkable on account of the long continuance of a temperature above natural, although the patient appeared quite well. On the day on which she was sufficiently well to be considered convalescent, the temperature was still above 98 deg.

Case 13.—Mary McG., age 19 years; admitted January 1st, 1866; five days ill before admission, nursing a child five months old; maculated.

			Pulse.	Temperature Fahr.
January	1	.	136	104·00
"	2	.	144	104·00
"	3	.	144	102·50
"	4	.	144	103·00
"	5	.	144	103·75
"	6	.	130	104·00
"	7	.	120	102·00
"	8	.	120	102·75
"	9	.	108	99·00
"	10	.	96	99·00
"	11	.	96	100·00
"	12	.	120	99·25
"	13	.	108	99·50
"	14	.	108	99·00
"	15	.	96	98·25
"	16	.	84	99·75
"	17	.	110	99·00
"	18	.	96	99·00
"	19	.	120	99·00
"	20	.	96	98·25

Convalescent.

This was an ordinary case of severe typhus, without complication. It may be remarked that the rise of temperature on January 11th was followed by a severe pain in the left ear, on the 12th.

Case 14.—Daniel B., age 47, admitted January 4, 1866; eight days ill before admission; tongue brown in centre, with white band on either side, and red at the edges.

		Pulse.	Respiration.	Temperature Fahr.
January	5	96	30	102.25
"	6	Not taken.	Not taken.	Not taken.
"	7	84	20	97.50
"	8	80	22	98.75
"	9	108	20	101.00
"	10	70	20	100.50
"	11	96	20	99.00
"	12	72	18	98.25
"	13	84	20	98.50
"	14	98	20	98.00
Convalescent.				

This case it was thought would prove one of typhus, but did not, the patient being discharged quite well on January 15th.

Case 15.—James C., age 40, admitted January 8th; eight days ill before admission; mottled.

		Pulse.	Respiration.	Temperature Fahr.
January	9	120	28	101.00
"	10	120	24	104.25
"	11	120	24	104.75
"	12	132	26	104.75
"	13	120	36	101.50
"	14	150	50	102.00
Died at two p.m. on 14th.				

This patient was a heavily-built man, a very bad subject for typhus. He was maculated with large dark, but not numerous, spots.

Case 16.—Alexander McK., age 44 years, admitted January 11th, 1866; five days ill before admission; maculated.

		Pulse.	Respiration.	Temperature Fahr.
January	11	120	24	101.50
"	12	144	30	101.50
"	13	120	24	100.50
"	14	150	24	101.00
"	15	144	40	100.25
"	16	135	36	101.00
"	17			Died.

This case is remarkable as having a comparatively low range of temperature; the patient's brain was scarcely

affected, never being delirious, and scarcely even stupid; so little so, that the day before his death he offered to hold the thermometer himself while I went to the other end of the ward.

Case 17.—Michael B., age 14 years, admitted January 13th, 1866; maculated.

			Pulse.	Respiration.	Temperature Fahr.
1866—Jan.	13	.	135	. 24	. 103·25
	14	.	144	. 36	. 103·50
	15	.	120	. 24	. 102·00
	16	.	120	. 36	. 101·75
	17	.	108	. 24	. 100·75
	18	.	81	. 24	. 98·50
	19	.	84	. 20	. 98·00
	20	.	90	. 16	. 97·00
	21	.	80	. 20	. 97·00
Convalescent.					

This was quite a typical case of typhus, without complication.

Case 18.—Julia M., age 12 years, admitted January 13th, 1866; ill seven days before admission.

			Pulse.	Respiration.	Temperature Fahr
January	13	.	144	. 25	. 103·50
	14	.	130	. 24	. 102·00
	15	.	120	. 24	. 102·75
	16	.	150	. 24	. 103·25
	17	.	120	. 26	. 102·25
	18	.	125	. 60	. 104·25
	19	.	120	. 32	. 104·50
	20	.	120	. 40	. 102·50
	21	.	108	. 40	. 102·75
	22	.	120	. 30	. 103·50
	23	.	108	. 24	. 101·60
	24	.	84	. 24	. 99·80
	25	.	100 (?)	. 22	. 99·00
	26	.	80	. 24	. 99·00
Convalescent.					

This was quite a typical case of typhus *without* spots, as is of frequent occurrence at such an age.

Case 19.—Catherine C., age 36 years, admitted January 15th, 1866; densely maculated.

		Pulse.	Respiration.	Temperature Fahr.
January	15	98	19	100.50
"	16	110	20	103.50
"	17	100	18	102.50
"	18	120	20	104.00
"	19	108	20	102.50
"	20	96	24	102.25
"	21	100	20	97.00
"	22	95	22	97.75
"	23	90	24	97.75
"	24	84	20	98.00
"	25	75	18	98.00
Convalescent.				

An ordinary case of typhus. In this case there was a sudden fall of temperature on January 21st, after which the patient rapidly recovered.

Case 20.—Mary H., age 19, admitted January 16th, 1866; eleven days ill before admission; densely maculated.

		Pulse.	Respiration.	Temperature Fahr.
January	16	120	60	104.50
"	17	120	24	103.00
"	18	132	50	103.75
"	19	120	45	101.50
"	20	96	32	100.40
"	21	95	24	99.25
"	22	96	25	97.80
"	23	96	24	98.00
"	24	84	28	99.00
"	25	84	20	98.80
"	26	75	18	98.00
Convalescent.				

The only complication in this case, which was one of pure typhus, was slight bronchitis.

Case 21.—Mary K., age 14 years, admitted January 16, 1866; maculated.

		Pulse.	Respiration.	Temperature Fahr.
January 16	.	130	. 60	. 104.00
" 17	.	132	. 34	. 102.25
" 18	.	120	. 42	. 102.25
" 19	.	150	. 44	. 103.75
" 20	.	144	. 45	. 103.75
" 21	.	120	. 36	. 102.50
" 22	.	90	. 36	. 98.25
" 23	.	96	. 30	. 98.50
" 24	.	84	. 22	. 98.25
" 25	.	80	. 24	. 98.25
" 26	.	72	. 20	. 98.00
A usual typhus case.				Convalescent.

Case 22.—James S., age 26 years, admitted January 19th, 1866; maculated; bronchitis.

		Pulse.	Respiration.	Temperature Fahr.
January 19	.	120	. 28	. 103.00
" 20	.	104	. 21	. 102.50
" 21	.	120	. 24	. 101.75
" 22	.	130	. 28	. 101.50
" 23	.	120	. 24	. 100.50
" 24	.	108	. 24	. 100.75
" 25	.	98	. 25	. 100.75
" 26	.	110	. 28	. 99.00
" 27	.	100	. 24	. 98.50
" 28	.	150	. 40	. 96.50
				Died.

It is to be remarked that in this case the patient had recovered his usual temperature, when a fall, accompanied by a great rise in the rate of the pulse and respiration, preceded death.

Case 23.—Ann C., age 25, admitted January 22, 1866; eight days ill before admission; densely maculated.

		Pulse.	Respiration.	Temperature Fahr.
January 22	.	140	. 38	. 104.00
" 23	.	144	. 36	. 104.00
" 24	.	130	. 46	. 103.50
" 25	.	150	. 60	. 104.00
				Died.

This case had severe chest complication, which was the chief cause of her death.

In the cases given above it will be remarked that they differ from each other in many respects. The cases have been selected from a number of others on account of these very differences. These cases may be classified, as follows:—

a. Cases at first doubtful, which did not turn out to be typhus.

b. Simple cases of typhus terminating in recovery.

c. Simple cases of typhus terminating in death.

d. Cases of typhus with complications.

Let us now see of what value the thermometer has been in forming an opinion in each of these classes of cases.

Class *a*, includes Cases 2, 6, 7, 8, 10, and 14. In Cases 6 and 10 we have instances where there were many signs which warranted an opinion that fever was not far off, but in these cases the thermometer contra-indicated this diagnosis, and must, therefore, in similar cases be considered as a valuable help to the formation of a true opinion. In Cases 7 and 8, the high temperature taken alone would have indicated a much more serious prognosis than, as subsequent events proved, would have been warranted. Case 2 has already been alluded to. In Case 14, the elevation of temperature was not of sufficient height or persistency to warrant any unfavourable opinion; the patient being a painter may have had something to do with the matter, as in a doubtful case, which afterwards proved to be one of lead poisoning, there were considerable and irregular rises in temperature.

With regard to the simple cases of typhus terminating in recovery (Class *b.*), we have examples in Cases 1, 9, 12, 17, 18, 19, and 21. In Case 1, we have no spots, therefore the thermometer was of value in helping to determine the true nature of the case. The rise on January 10th, teaches how cautious we should be in using the thermometer as a means of diagnosing a relapse or the

advent of a severe sequela. In Case 9, we have the thermometer correcting the indications of the pulse ; the former showing a normal temperature on January 9th, 11th, and 13th, although the pulse was much quickened. In Case 12, the thermometer tended to mislead into an opinion that some serious sequela was to be expected, but such did not occur. In Cases 17, 18, 19, and 21, the thermometer agreed with the pulse and all other symptoms in every particular.

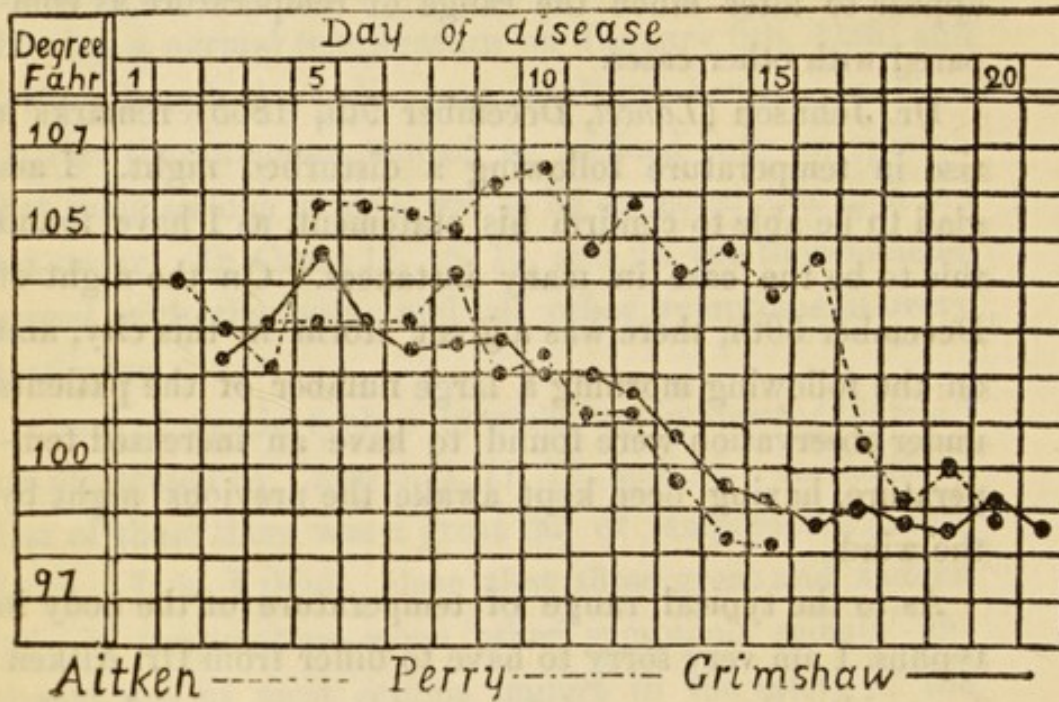
Cases of simple typhus terminating in death (Class *c.*) are illustrated by Cases 3, 5, 11, 15, and 16. In the three first of these there was a great fall of temperature before death. It is, I think, clear that these great and sudden falls in temperature, when other symptoms remain unabated, are of most serious import to the safety of the patient. In Cases 15 and 16 there was a rise in temperature before death. These rises I do not consider of such serious import as the sudden falls, as I have noticed many such rises where no serious consequences followed ; of course, in conjunction with other dangerous symptoms, they must be considered unfavourable signs. In Case 16, the temperature did not at all accord with the other symptoms, which were of a very bad character.

Concerning complicated cases (Class *d.*), of which we have examples in Cases 4, 13, 20, 22, and 23, I may remark that the origin of a complication is always accompanied by a rise in temperature, as noted by Dr. Sydney Ringer (*Lancet*, Dec. 9, 1865), Dr. Aitkin, and others. The increase of heat, however, accompanying a complication does not appear to be commensurate with the importance of the complication ; thus, in Case 4, we had a rise of one degree and a half in temperature as a precursor of serious chest complication ; whereas, in Case 13, a rise of a degree was only followed by an insignificant disease of the ear, which left no ill-effect behind. In Cases 20, 22,

and 23, the complication was bronchitis, which did not appear to alter much the range of temperature as compared with other cases.

Dr. Johnson (*Lancet*, December 9th, 1865) remarks a rise in temperature following a disturbed night. I am glad to be able to confirm his statement, as I have found this to be the case in many instances. On the night of December 30th, there was a great storm in this city, and on the following morning a large number of the patients under observation were found to have an increased temperature, having been kept awake the previous night by the wind.

As to the typical range of temperature of the body in typhus, I am very sorry to have to differ from Dr. Aitken. I consider the range of temperature as given by that gentleman in his excellent work on the "Practice of Physic," as quite too high for a typical range. I am glad to say I am confirmed in this view by Dr. Robert Perry, in a very valuable and interesting paper read before the Glasgow Medical Society on December 19th, 1865. By selecting twenty-five (of what appeared to me to be typical cases of typhus) from a large number of cases, and taking an average for each day, I have arrived at what I conceive to be a typical morning range of temperature for typhus fever. I subjoin a diagram representing this range, with which I have placed the morning ranges as given by Drs. Aitken and Perry. It will be seen that my line very nearly coincides with that of Dr. Perry:—



I do not at all wish to impeach the accuracy of Dr. Aitken's observations, which appear to have been made with admirable care. I think we must look to the difference in condition or modes of treatment of the patient upon which the observations were made, in order to find out the cause of this discrepancy of results. That there is some great difference in the gravity which typhus assumes in different localities is, I think, shown by the rate of mortality in different hospitals; thus, 20·89 per cent. (Murchison), 14·41 per cent. (Perry), and 8·75 per cent., are the rates of mortality in typhus cases for the London Fever Hospital, Glasgow Royal Infirmary Fever-house, and Cork-street Fever Hospital respectively. The great difference between 20·89 per cent. and 8·75 per cent., can scarcely be attributed to difference in treatment. Perhaps the difference in the range of temperature may be accounted for, by the difference in diet between the English on one hand and the Scotch and Irish on the other,

the former being much higher fed than the latter, and having, therefore, more tissue to be burned up, as it were, during a fever, and consequently a higher temperature produced. I merely throw out this as a suggestion, not having any proof of the correctness of the theory. I am afraid the temperature of the body has been relied on too much by some as a symptom of more value, than various others which up to the present we have been accustomed to rely upon as our great guides. Believing thermometric observations to be of considerable value in aiding the formation of an opinion in doubtful cases, and of deep interest from a scientific point of view, I regret that these observations should fall into disrepute owing to their being cried up by those who "ride their hobbies to death." It has been the fate of many valuable instruments to fall into bad repute owing to their deceiving those who relied upon them, to the exclusion of older and more thoroughly tested means of diagnosis in treatment. It is to be hoped that such will not be the case with the thermometer.

In conclusion, I have to return my thanks to my colleagues, Drs. Kennedy and Mason, for their kindness in allowing me to select from among their patients such cases as I considered suitable for thermometric observations; without this courtesy on their part it might have been long before I could have laid these observations before the profession.

