THE SEASONAL RELATIONS OF CHOREA, RHEUMATISM AND NEURALGIA.

Read before the Philadelphia County Medical Society, on March 23, 1887.

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I have been requested by your committee on meteorology and epidemics to read a paper on the influence of different conditions of weather on rheumatism and nervous affections, and take pleasure in doing so, but must state that the paper read by me before the Philadelphia Neurological Society, in October, 1886, which appeared in the *Medical News*, of November 13, 1886, embodies nearly all the facts that I have to bring before you to-night. The salient points, however, I think I can bring forward in a clearer manner than then, having changed the method of tabulation so as to make the subject more easily comprehended.

A *daily* comparison between the states of the weather and disease could not be made, as the *days of onset* of the two affections, chorea and rheumatism could not be obtained. The *months of onset* were, therefore, taken and compared with the *monthly* average of the weather, this, although rendering the result less accurate will, however, show many points of interest, the study extending over the decade 1876-1885 inclusive.

The months of onset of 437 separate attacks of chorea were taken from the books of the Orthopædic Hospital and Infirmary for Nervous Diseases during this decade; and attention is drawn to the fact that it is the time of onset of the disease that is noted and not the time of application for treatment; any conclusion drawn from the latter method of notation must necessarily be inaccurate. As it is a well-recognized fact that a relationship exists between chorea and rheumatism, which it is needless to say, is as yet imperfectly understood, I thought it would be of interest to compare with the cases of chorea the months of onset of attacks of acute and inflammatory rheumatism, and for this purpose studied the notes taken at the Pennsylvania Hospital, which were placed at my disposal; from these were collected 467 separate attacks of acute rheumatism which occurred during the years in question, all cases being excluded that were at all doubtful, together with those that did not originate in this city: this, of necessity, excludes nearly all the cases occurring among sailors.

To compare neuralgia with these two affections, I have extracted from the article by Captain Catlin, on "The Relation of Pain to Weather" (read before the College of Physicians in June, 1883, by Dr. S. Weir Mitchell), the hours of pain per month for the period of his study, of his own case, from 1875 to 1882 inclusive; but, unfortunately, Captain Catlin was situated at West Point, and the years of study do not coincide, and, therefore, for a better comparison I have prepared a table in which the first year of the neuralgia record (*viz.*, 1875) and the last three of my records of chorea and rheumatism (*viz.*, 1883-84-85)

have been expunged, this then includes a period of seven years, 1876-82 inclusive, in which the two studies coincide, except for locality.

The weather statistics were compiled from the records kept at the Signal office in this city, and consist of a study of the temperature, range of the thermometer, barometer, relative humidity, amount of rain and snow in inches, number of cloudy and rainy days, and the number of storm centres (centres of low barometer) passing within circles of varying radii drawn around Philadelphia as a centre.

The monthly average of the weather being thus studied for ten years was then taken and compared with the monthly average of disease; but the peculiarities about to be spoken of, are best seen when a table is made which shows the mean of the ten years in question, month by month.

It must be borne in mind that while the records of the weather are complete so far as they go, the cases of disease here reported are but a small portion of those that must have occurred in this city during that decade; the neuralgia record is an exception, as it is a complete record at least of the sufferings of one person. The 437 attacks of chorea are distributed among the twelve months of the year as follows:

January,	36 attacks = 8.2 per cent.
February,	33 " = 7.5 "
March,	67 " = 15.3 "
April,	38 " = 8.6 "
May,	47 " = 10.7 "
June,	40 " = 9.1 "
July,	46 " = 10.5 "
August,	34 " = 7.7 "
September,	27 " = 6.1 "
October,	18 " = 4.1 "
November,	19 " = 4.3 "
December,	32 " = 7.3 "

The 467 attacks of rheumatism are distributed as follows:

January,	50 attacks = 10.7 per cent.
February,	44 " = 9.4 "
March,	45 " = 9.5 "
April,	81 " = 17.3 "
May,	48 " = 10.2 "
June,	32 " = 6.6 "
July,	28 " = 5.9 "
August,	26 " = 5.5 "
September,	29 " = 6.2 "
October,	28 " = 5.9 "
November,	24 " = 5.1 "
December,	32 " = 6.6 "

To compare the relative frequency of neuralgia per month with these records, I have had recourse to the unique study of the relation of pain to weather by Captain Catlin, previously mentioned.

The total amount of pain for the eight years ending January 1, 1883, was 12,994 hours, or nearly one-fifth of the time.

The winter months hold the advantage as pain producers, and for this period, while the sun was north of the equator, there were 6783 hours, against 6161 hours while it was south of the equator.

The hours of pain were distributed among the twelve months as follows:

January,	1220	hours	=	9.4	per cent.
February,	1084	"	=	8.3	"
March,	1234	"	=	9.4	"
April,	1062	"	=	8.1	"
May,	1089	"	=	8.3	"
June,	947	"	=	7.2	"
July,	997	"	=	7.6	"
August,	1060	"	=	8.2	"
September,	1006	"	=	7.7	"
October,	1038	"	=	7.9	"
November,	1104	"	=	8.4	"
December,	1153	"	=	8.8	"

In glancing over these figures, great variation in the number per month is seen; the two highest months for chorea being May and March respectively, and the two lowest being October and November; while for rheumatism, the two highest are January and April, and the two lowest November and August.

The highest month for rheumatism follows the highest month for chorea, instead of preceding it, as we might have been led to suppose from our knowledge of the relationship between these two affections, although a considerable rise is seen in the number of attacks of rheumatism in January, two months before the greatest rise in the number of chorea cases.

The greatest suffering from neuralgia occurred in March, and the least in June. An attempt to explain these variations, naturally brings us to a study of the varying conditions of the weather.

Nothing especial is seen in comparing with the chorea tracing (tabulated from the foregoing figures) that of the *mean relative humidity*, (and by this is meant, not the *mean actual amount* of moisture contained in the air, but the *mean per cent.* of the moisture that could be held in suspension at the mean temperature of each month) or that of the mean barometer, except that there appears to be an increase in the number of attacks of chorea with a fall in these two tracings; the reason for this will appear later; neither is much learned by comparing the chorea tracing with that of the mean daily range of the thermometer, which shows the variableness of the different months; this is greatest in May, and least in December. The mean temperature tracing which is highest in July and lowest in January, does not throw much light upon the subject. When, however, the tracings of the number of the cloudy days, and the days on which rain or snow fell, and the amount of rain, or melted snow in inches, are studied, a slight resemblance to the chorea tracing begins to be apparent, and the probable cause of this becomes more evident when the storm tracings are studied, because these meteorological factors may be considered as component parts of a storm. The cause of the relationship previously noted as existing between the chorea, and the mean relative humidity and mean barometer tracings, now becomes clearer, the storm centres being centres of low barometer.

In studying the storms, circles of varying radii were drawn around Philadelphia as a centre, and the number of storms, as marked on the weather bureau maps, counted in each.

The storms passing within the 400- and the 700-mile circles are the only ones I will discuss; the former because it shows the nearest resemblance to the chorea tracing, and the latter, because the average distance over which a storm can influence neuralgia has been found by Captain Catlin to be about 700 miles. A very strong resemblance exists between these two storm tracings.

The smallest number of storms passing within the 400-mile circle occurs in August; a rapid rise of the tracing then takes place, until December and January are reached, then there is a slight fall in February, immediately followed by a rise to the highest point in March, after which there is an irregular fall until the low point in August is reached. The total number of storms passing within this circle for the ten years in question, is 520, and they are distributed as follows:

January,	60	storms	=	11.5	per cent.
February,	54	"	=	10.3	"
March,	75	"	=	14.0	"
April,	46	"	=	8.8	"
May,	41	"	=	7.8	"
June,	28	"	=	5.3	"
July,	34	"	=	6.5	"
August,	19	"	=	3.6	"
September,	24	"	=	4.6	"
October,	32	"	=	6.1	"
November,	47	"	=	9.0	"
December,	60	"	=	11.5	"

Any one comparing a tracing made from these figures with that of chorea, must be struck by the resemblance between the two, which is more than accidental.

While the chorea tracing shows a strong tendency to keep pace, month by month, with the irregularities of the storm tracing, that of rheumatism, while also strongly resembling the latter in its general characteristics, may be seen to be almost exactly *one month later*, looking as if the effect of the meteorological changes was immediate in the case of chorea (as will be seen later to be the case with neuralgia), and preparatory only in the case of rheumatism. A marked resemblance exists between a tracing made from the hours of pain per month previously mentioned, and the storm tracings, even when the years of study do not coincide; when, however, a table is prepared for the years 1876-82 inclusive, during which the studies do coincide, the great resemblance becomes manifest; this is most marked with the 700 mile, and less marked with the 400-mile tracing, although still pronounced.

It would be interesting to know how many nervous disorders are thus immediately influenced by the weather, and in how many others are the meteorological changes to be looked upon as preparatory to the outbreak of the disorder. The hot weather of July has been shown to precede the month of onset of the greatest number of attacks of infantile palsy.

A similar study in the case of epilepsy, hemiplegia, and many other affections might open up much that is new.

TABLE SHOWING THE FIGURES FOR CHOREA, RHEUMATISM, NEURALGIA, AND THE 400- AND 700-MILE TRACINGS FOR THE YEARS 1876-82, INCLUSIVE.

MONTH.	No. of attacks of chorea.	No. of attacks of rheumatism.	Hours of pain.	Storms passing within 400-mile circle.	Storms passing within 700-mile circle.
January.....	32	44	1018	44	76
February.....	16	27	918	38	67
March.....	50	34	1045	55	76
April.....	24	54	932	33	58
May.....	27	35	907	25	46
June.....	28	18	827	21	42
July.....	30	13	875	25	38
August.....	21	16	885	15	41
September.....	16	18	901	19	43
October.....	14	16	903	21	49
November.....	10	15	914	32	43
December.....	17	17	977	47	71
Totals.....	280	495	11,332	375	650

MEDICAL PROGRESS.

SALICYLIC ACID IN CHANCROID.—The use of salicylic acid in the therapeutics of soft chancre has been recommended by various authors. Dr. Giuseppe di Bella, in a report of cases treated in the clinics of Drs Monteforte and Santi-Sirena, says that this agent has acted promptly and efficaciously in a large number of cases. Hebra has seen a number of cases of chancroid cicatrize in a very few days under treatment by salicylic acid. Dr. Ping y Falco has also obtained most satisfactory results with this same agent in similar cases. DR. A. FARRIOLS ANGLADA reports in the *Gaceta Médica Catalana*, of October 15, 1886, thirty-two cases of soft chancre in which salicylic acid was used with the happiest results. This method, he says, possesses many advantages over the others hitherto used, and especially over the abortive plan. It is very simple, and the patient himself can carry it out; it is only necessary to wash the chancroid with some antiseptic fluid, and then to dust it with finely pulverized salicylic acid. In the great majority of cases, no more than two applications in the twenty-four hours are required, and in a few days (four or five, according to the author's experience) the ulcer loses entirely its specific characteristics. When this result has been obtained, that is, when the lesion has been converted into a simple ulcer, the applications of salicylic acid should be suspended, and a carbolic acid lotion or boracic acid ointment employed. Under this treatment, the ulcer becomes covered with healthy granulations, and cicatrization proceeds with great rapidity. Finally, Dr. Anglada urges, if we bear in mind that salicylic acid causes hardly any pain or inconvenience of any sort, in this way differing so greatly from the caustics ordinarily employed, we are forced to admit that it is a most valuable therapeutic agent in the management of soft chancres.—*Journ. Cutan. and Genito-Urin. Diseases.*, February, 1887.

EFFECTUAL DISINFECTION OF UTERINE TENTS.—DR. DIRNER, of Buda-Pesth, has recently written in the *Centralblatt für Gynäkologie* on the effectual disinfection of tents used for gynecological purposes. He observes how, after the greatest precautions, serious pelvic inflammation may follow the introduction of sponge or laminaria tents. This accident is clearly due, not to the mere ulceration of the dilated structures, but to the introduction of septic material through the wounded mucous surface. The preparation of tents by soaking or coating in antiseptic media is insufficient. Septic matter may be introduced with the aseptical tent; surgeons handle and throw about samples at the shops, nor is the process of manufacture always properly superintended. Fritsch's method of coating tents with wax requires warm water to be at hand when the wax has to be melted, and that water may be septic. Dr. Dirner has detected cracks in the wax, allowing the admission of dust. The most carefully prepared dry tents can convey septic germs on their surfaces. For a year Dr. Dirner has employed in Professor Tauffer's wards a special system of disinfecting laminaria tents. He immerses them in a 1 per cent. solution of corrosive sublimate in absolute alcohol contained in a wide-mouthed bottle. When required, a tent is taken straight out of the solution and passed into the canal of the cervix, the patient being previously placed in the semiprone position, and the vagina disinfected. He takes care to inspect hollow stems before introduction, and should any crystals of sublimate be detected in the channel of a stem, it is dissolved with pure water. The results of this practice have been admirable, and he has seen no bad effects follow the introduction of the disinfected tents; provided that absolute alcohol be employed, the expansive power of the laminaria is in no way damaged.—*British Medical Journal*, March 5, 1887.

PERIOD OF INCUBATION OF HYDROPHOBIA.—BAUER, in a careful study of 510 cases of hydrophobia in man, in which the length of the period of incubation was positively and reliably known, arrived at the following conclusions:

The average duration of the period of incubation was in men eighty days, in women sixty-five days, in children fifty-seven to, in the strongest, seventy to seventy-five days.

The location of the wound influenced much the length of the period of incubation. Bites on the head or neck, or numerous teeth wounds about the body, produced an average period of fifty-five days; wounds of the lower extremities, a period of seventy-four, and of the upper, 81.5 days.

The period of incubation from wolf bites averaged thirty-nine days; from dogs, 73.5, from cats, eighty days.—*Centralblatt für klinische Medicine*, January 8, 1887.

PASTEUR states that the average period of incubation is from forty to sixty days when the bite is by a dog; and when by a wolf, thirty to sixty days, or less.—*Bullet. de l'Acad. de Méd.*, March 2 and May 4, 1886.