EPIDEMIC DISEASES

AS DEPENDANT UPON

METEOROLOGICAL INFLUENCES.

BY

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ST. LOUIS, MO.
AHNER, MENNING & CO., PRINTERS, 211 MARKET STREET.
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PREFACE.

When giving publicity to the ideas or to the facts gained by research, we, of course, submit to criticisms, that have the right of self-limitation. I could but receive them as a compliment, and would sincerely solicit them in reference to the scientific exposition, ventured in the subject matter of this treatise. But with regard to the strictured and inflexible manner, characterizing the rhetorical part, I must ask lenient indulgence. At this opportunity it may appear proper also to state, that this issue is but an advanced publication, only containing the first article of the treatise contemplated—being at present partially under the pen, and partially completed,—and proposes to treat on the principles of epidemic diseases in general: on yellow fever, cerebro-spinal-meningitis, cholera, and small-pox, in particular, which after being brought to a close, is intended to be published in one volume.

St. Louis, Mo., January 1874.

THE AUTHOR.

ARTICLE I.

YELLOW FEVER.

MOTTO;
View reason, science but with contempt,
Man's most potential faculties—
Accept but craft and enchantment
As dazzling guides for energies,
Then art thou mine conditionless.—
Translated from Goethe's Faust.

In the first or general part of this volume, probably, all the doubts and objections, entertained and uttered by the adherents to infection and to specificity, against the rational, scientific and consistent exposition of the natural causes of epidemic diseases, demonstrated by the operations of the laws of physico-chemistry and chemical physiology—or by the laws of biology—may have been sufficiently sifted; their demerits made apparent, and their bad effects upon the proper understanding of the ætiology of this class of diseases exemplified, so as now warranting to reject the application of the term "epidemics" in the sense of conveying the idea: these diseases only to be the consequence of a dissemination of a "specific cosmic poison." Otherwise the term epidemics can etymologically consistently be employed, as thereby is expressed a numerical augmentation of a certain disease, which, of course, takes place under prevailing differentiations of the reactions of physical laws. Now, in this sense the recent epidemics of yellow fever, by which Shreveport, La., and Memphis, Tenn., were visited, are here to be considered.

Since the phrase, "epidemic diseases are of specific character," has been introduced by medical writers, and particularly as the causes of these diseases are ontologically so regarded, features of joy and universal satisfaction countenance the great majority of medical men and sanitarians, and during the last two decennial periods such enthusiastic efforts are being made to discover the specific agency for each one of these diseases, that, if otherwise applied, could be hailed a most laudable and fortitudinous activeness. Frequently eminent writers were thus induced to fancy a demonstration ad oculis of the "animal," looked upon as pregnant with danger and annihilation to human existence.

Yet the ætiology of yellow fever has, from all evidence until the present, been spared with an invasion of those zoophitic-parasitic-bacterian or bacterio-sarcode celebrities, which are said to attend, either the one or the other, genetically their special epidemic disease, according to the character to be manifested, probably after a Deus ex machina.

Certainly those who presume themselves to be right, do not need to hesitate to announce their views at once, and this heralding was at once indulged in, when yellow fever made its appearance in Shreveport. The people were told that yellow fever was due to a specific poison, and that, owing to this agency, the disease was contagious, and therefore the rigid quarantaine regulations were urged at once to be put in force; also inducing telegrams from Shreveport to announce the "disease to be under control!" But—humanum est errare—hence this proclamation soon proved to be premature, and notwithstanding the supposed controling powers, exercised to the utmost ability, the dis ease increased to spread, and proving even more fatal until *meteorological influences* caused a diminution in its frequency as well as in its ultimate extinction.

It is a well established fact which comes to observation in every epidemic: that among those in whose system the power of resistance is sufficiently lowered in the scale of health, either in consequence of their pursuits or incum-

bered existence, or from deviation from healthful living, with those whose means would shield them against want. Therefore with the proletary (and especially the uneducated) is the Alpha and the Omega in any epidemic, as also this class being by far the greatest contributor to the mortality list. Pursuant to the reports from Shreveport, during the last epidemic of yellow fever, the utterances here made may appear paradoxical, as six Catholic priests died there from yellow fever, who were faithfully devoted to their duties in visiting the sick and the dying, and also one United States army officer died there in pursuit of his duties,—yet it must not be overlooked, that from the total number of six hundred and seventy-eight, that died at this place of yellow fever, one hundred and seven alone were colored persons, who, as far as can be learned, belong to the suffering proletary.

Of the one thousand one hundred and seventy-two deaths from yellow fever at Memphis, the proletary again furnished by far the greater plurality.

Contrasting with these two mentioned cities the city of New Orleans, which, as is well known, is inhabited by an increased proportion of proletary population, and yet but merely a few isolated cases of yellow fever have occurred there, where, on the contrary, a destructive outbreak of this disease might have been looked for. In the first place, in accordance to the "specific" and "infection" theory, owing to the vivid commercial interchange, a sufficient infecting influence ought have been imported there from Shreveport and Memphis; and secondly, owing to the high water stage during the latter part of last spring, and the early part of last summer, there ought to have been brought forth so much of the elements congenial to the production of this disease, as to infect every one. Yet this city remained spared from a visitation of the yellow fever epidemic.

Naturally, therefore, pursuant to these most commanding facts, an inquiry becomes imperative as to the assignable causes, to which the occurrence of such an epidemic can consistently be attributed, in explanation of the reason why Shreveport and Memphis suffered so intensely, and

New Orleans, comparatively speaking, escaped entirely. And really, the explanation of the causes is at hand, even to an immediate demonstration. Thanks to the more universal pursuits in science of nature, and an unembarrassed understanding of the laws that govern phenomena in nature.

Here, in gratitude, the wisdom and foresight of our government must be acknowledged, for the establishment of meteorological observatories, without which the facts and laws, now at hand, in reference to the causes of epidemic diseases, would not be available. And a hope which is already a conviction in the mind of the writer, can not well be omitted here to be expressed: that an ultimate success will crown the further efforts in meteorological study, in order to predict with an equal precision and reliability, as the states of the weather are prognosticated, where and when epidemics may occur, and of what nature, by further analysis, they may be!

But before the evidences, derived from meteorological statistics, are enumerated, and the deductions to which they give imperative impulses, unfolded, it would be proper to evolve the rational explanation of the nature of yellow fever, as thereby the true causes can easily be understood, and all supernatural speculation readily excluded.

In illustrating the effects of the physiological chemistry, essentially engaged in elaborating the systemic contamination presented to observation in yellow fever, the history of a case in point may therefore first be related.

—— ——, male, aged 62 years, medium size, otherwise of fair health, appears free from vicious habits, is 18 years in United States, during which period he resided in the West, north of 36° latitude, but is a proletary of the lower order. On the 14th of last August he embarked here for New Orleans. Being detained on the river near Cairo, Ill., the trip lasted ten days. Two days previous to the arrival at New Orleans, he was taken with a chill, followed by fever and headache, of which he continued to suffer with intermission during his stay there, also after his return to St. Louis, September 14th. On the 5th of October I was called to attend him, and upon the first visit all the symptoms of

a medium severe form of yellow fever supervened: black vomiting, partial stupor, dry and yellow colored skin (of an appearance of light orange color), costiveness, and to some extent tympanitis with rather dry crusty tongue and sordid teeth (similar to the appearance in typhoid fever). In the evening the patient, in a low muttering delirium, had taken a knife and attempted to cut the arteries in the left fore arm. On the following day, upon exploring the chest, the liver proved on percussion to be enormously enlarged, and reached to the superior margin of the fifth rib. In this state the patient continued to remain for an entire week, although mercurials and purgatives, succeeded by iodide of potassa and the neutral hydrochlorate of quinia, with an application of an 8-12 blister over the region of the liver, had been made use of, yet only in the second week slight improvement became manifest.

In the forepart of the third week the general symptoms markedly began to disappear, the discoloration of the skin diminished, and the liver only reached to the inferior margin of the seventh rib. Convalescence progressed at this stage so satisfactorily that further attendance was discontinued, and at present—January 1874—the patient pursues his ordinary vocations.

In connection with this brief sketch of the clinical records of the above related typical case, also a glance over the morbid anatomy of the liver of similar cases can not be avoided here to be subjoined, for, to the altered state of this organ, the investigation requires to be directed, as its perverted physiologico-chemical function will attribute to a scientific explanation of the nature of yellow fever.

According to La Roche, as cited by Condie[1], "the liver is usually yellow, mostly the entire surface and the parenchyma, and recent observations show this discoloration to be due to a fatty degeneration of the organ. When the parenchyma is divided, it is often found hard, dry, tough, brittly, and more or less devoid of blood. Sometimes engorded with blood, the biliary pores occasionally contain bile, more frequently not."

1 Watson, Lectures. Amer. Edit. 1858. Also compare Jones of New Orleans, La. on treatment of yellow fever, § 8. St. Louis Med. and Surg. Journal, October 1873.

By taking yellow fever a typhus icterodes, wherein the same morbid alterations of the liver are met with, a more extensive record of anatomical research, specially of the liver, is available, tending to corroborate the narrative, given by Condie, which includes names among the contributors of marked authority.

Consecutive microscopic investigations have elicited the substances to which the liver thus owes its peculiar appearance, to be partially detritus of the normal liver tissue, fatty globules and pigmentary granules, which in some localities surround hyperaemic acini as a corrupted grayish yellow mass[1]. The parenchyma, from albuminous infiltration, being swelled, and the epithelium presents an oily or fatty appearance[2].

These post mortem evidences certainly are of a grave character, and can under no pretence be admitted as the results of an "infection," of which the disease—the decomposition of the blood—as is said, runs but an acute course, for they can only be of a gradual development. Therefore, it would at once appear illogical to imagine a specific poison, floating in the air, (to which everybody was exposed, and yet not affected by) should have entered the blood of a patient and to produce yellow fever. Or that a yellow fever patient should generate an "effluvium," which also would be communicated by the atmosphere to others, and be possessed of the specific power to produce the same disease. But the more most plausible and rational explanations in answer to the phenomenon of yellow fever, are at hand, which can be sustained by facts that, at any moment, are demonstrable in the laboratory and with the aid of physical or philosophical instruments, the irrational and arbitrary assertions, uttered in support of the fanciful specific infection theory must at once be rejected.

Yellow fever, properly speaking, is a malady pertaining to southern latitudes or regions that are approximating more or less the torrid zone, and, as a general fact, in such climates liver complaints are the constantly prevailing sick-

1 Frerichs. Leberkrankheiten.
2 Coze et Feltz, Maladies infectieuses.

ness, owing to a tardiness of the venous circulation, and the consecutive enlargement of this gland, leads, under various anomalies of secretion, to ultimate grave structural changes. Moreover from influences of a warmer climate a diminution of carbonic acid gas in expiration takes place, as the state of such atmosphere is less capacitated to aireate the blood than is otherwise the case in colder climates. Hence alone from the vicarious actions of lungs and liver, the latter naturally must be the organ *a priori* exposed to encroachments, as the portal circulation surcharges its ability of performing properly its functions, owing to incomplete compliance of pulmonary action. For in low temperature, ranging from 37.^{5}° to 59° F., the quantity of air taken in by respiration is slightly increased in contradistinction to elevated temperature, 60.^{5}° to 75.^{5}° F. The absolute quantity of carbonic acid exhaled per minute in low temperature, is 18.^{27} cubic inches, and in high temperature 15.^{73}.[1]

But before an attempt may be ventured, in view to explain the manner in which the morbid material has occurred found post mortem in the liver after yellow fever, the nature and the composition of this material as well as the laws upon which its occurrence is dependent, is adverted to, a brief review of the anatomical structures and hysto-chemical actions of the liver, would appear proper here first to be had recourse to.

Owing to the profound researches of Kirnan and Beal[2], the structural arrangement of the lobules and the capillary circulation of the liver are now well understood, so that the fact is demonstrable: the portal vein and hepatic artery convey the material to the liver cells, from which the secretions of the liver and other vital actions are resulting. The liver cells are the ultimate structure upon which the vessels expand (i. e. break up to ultimate structure), and by means of which the material is conveyed containing the chemical agencies, which lend peculiarity to the functions of this gland. Again, these cells are also the primitive

1 Flint, Physiology of Man. Vol. Respiration p. 441.
2 Todd and Bowman. Microscopic Anatomy of Man.

source of the capillaries of the hepatic veins; of the origin of lymphatics and bile-duct;[1] also the origin of the nerves that issue from the liver[2].

Now knowing that in health the liver is the only organ for the elaboration of bile, which as a fluid of secretion must all be conveyed from it into the alimentary canal, there to serve in part as an essential agency in the process of digestion, and in part to attribute to the formation of so-called healthy faecal matter, by means of this fluid the inorganic basic substances are removed from the liver secretions as well as the most principal portion of cholesterin, and mucin[3]. The latter substance is an ammoniacal compound, and thereby the alkali—ammonia—is removed from the remainder of the hepatic secretions—the venous blood—which consecutively is then conveyed by the hepatic vein to the vena cava, in order to leave for the lungs only to oxidize such hydro carbons, which in a state of suboxides and of the glycose variety, have resulted from the admixture of the remainder of arterial blood from the hepatic artery to the blood of the portal vein, and in this way giving rise, by circulating through the pulmonary tissue to respiration. Thus the oxygen from the atmosphere is energetically attracted, and constituting the "vital" power in the process of oxygenating the blood by the lungs. (In the fœtus the same processes take place, however without its own respiration, yet the placental tufts are bathed in the same manner in the maternal circulation as the liver cells in that of the vena portæ, and hence the frequent yellow discoloration of new-born infants after respiration of their own is established.)[4]

If now the morbid state of the liver, as met with in this fever, is considered in its proper bearings, a most consistent and very plausible account of the processes essentially engaged in the development of yellow fever can readily be rendered.

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1 Hering. Stricker's Handbuch der Gewebelehre.
2 Pflueger. Archiv f. Physiologie, 1867.
3 Hoppe-Seyler. Physiologisch- und Pathologisch-Chemischen Analysen.
4 Comp. Flint, l. c. Vol Secretion p. 319 and 322.

If, however, the medical profession is yet unwilling to listen to the most commanding facts in nature, and simply be lured into dormancy by the sophistical or inconsistent inspirations of "infectionists," "contagionists" and "specificists," or to hand over but to categoric and dogmatical proficiencies all inquiries of the nature of things, which so intensely involve the welfare of mankind, certainly it would be equally as idle to make an attempt for gaining better judgment, and hence to act in a sense of humanity, as to attempt to make an absolute deaf person to hear, and an absolute blind one to see.

Every rational practitioner experiences abundantly, as already indicated, that "liver complaints" are the more prevalent, the more individuals are exposed to southern climate, and that these complaints lead, more or less, to grave general disturbance under sudden and wide meteorological oscillations, or under deleterious social conditions. For, any cause interfering with the ready ingress of the hepatic blood into the vena cava, will lead to congestion (stasis) of the liver, as great contractility and over lateral pressure this circulation is unable to overcome[1]. Hence it must be admitted that the physiological state of the liver was morbidly altered far previous to perceptible indications of yellow fever. It is unnecessary to say that, when an organ has suffered structural changes, in proportion the performance of its functions must deviate. This is self-evident. And now, from any cause whatever, the material from which the hepatic chemistry is to elaborate those agencies, as already indicated, for the maintenance of health and performance of functions essential to life, prevents the liver cells to accomplish this object, then, by precipitation, these substances infiltrate these cells, and ensue to the obliteration of liver structure, frequently spread over considerable territory. In connection with this, also bearing in mind that the ammoniacal compound mucin, is ordinarily removed from the liver by the biliary secretion, and in the morbid state being retained; that the glycogenic

1 Niemeyer, Lehrbuch der speciellen Pathologie und Therapie, 6th Ed., Vol. I, p. 659.

material is thus imperfectly formed, and thus impairing respiration; that pursuant to these data, hæmato-globin of the blood is consecutively converted into bile or bilious coloring matter, what[1] even Niemeyer admits, owing to the fact that, in access of an ammoniacal alkaline solution, haemoglobin exhibits a greenish color, or that from D to E of the spectrum[2]; moreover, "glycogen,[3]" under the admixture of an alkali and an application of elevated temperature (blood heat 34.5 C.) eagerly absorbs oxygen,[4] thus fermenting and constituting thereby a most destructive process to the blood, and consequently most imminently dangerous to life, and thus the actual causes and processes of this grave disease are readily made apparent. That the blood exhibits a remarkable appearance in yellow fever patients, was already noticed by Stevens[5], who found the blood, in the primary stage, uncommonly dark, and after further progress of the disease so much decomposed, as to have a watery appearance. These changes he attributed to a want of the saline ingredients; for, if the essential salts were added, the dark blood would change into a scarlet color[6].

In a criticism on Pavy's work and experiments, Seigen[7] denies the formation of sugar in the liver of living organisms, or when the circulation is uninterrupted—contrary to Bernard—and also states: when cold is applied to frogs, that sugar does not form, but after the livers of them were placed in elevated temperature, sugar formed at once. The validity of these observations is not very tenable, as sugar (grape sugar) is represented by Hoppe-Seyler: C. $_6$,

1 L. c. Vol. I, p. 725. 2 Hoppe-Seyler l. c. p. 218.

3 Glycogenic matter. Accord. t. Flint op. c

4 Hoppe-Seyler, p. 108-9 and 117.

5 Quoted by Canstadt. Handbuch d. med. Klinik, 2d ed., Vol. II, p. 388. Note.

6 In the author's essay on Causes and Nature of Variola, is shown that, by adding solution of No. Cl. to dark blood, a change into scarlet color is produced.

7 Canstadt, Jahresbericht, 1864, Vol. IV, p. 151 and 153.

8 Flint l. c. Vol. Secretion, p. 34, observes: "The glycogenic matter is not taken up by the blood as it passes through the liver, but is generally transformed in the substance of the liver, into sugar, which is washed out of the organ as fast as it is produced. Thus the blood of the hepatic veins always contains sugar, though sugar is not contained in the substance of the liver during life."

$H._{12}$, $O._{6}$, but glycogen is represented: $C._{6}$, $H._{10}$, $O._{5}$, which this author states, is always formed in living *healthy* livers, however not in the liver of sick persons, and is, as already indicated, most prone to fermentation, and thus readily converted into sugar.

For illustration, the analysis of the blood from an allied disease may here be adduced:

Of five typhoid patients, in a hundred "grammes" of blood were found:

Urea, mean, 4.080, Glycose, mean, 7.000.

And for contrasting: from an eruptive disease—scarlatina—in 100 grammes of blood were found in four patients:

Urea, mean, 0.046+, Glycose, mean, 0.010.[1]

Now, in opposition to these authenticated chemico-physiological facts, but in accordance to the infection theory, or the theory of specificity of the diseases of an epedemic character, the causes of these diseases are said to be *exclusively* due to organized specific poisonous bodies, either pertaining to the animal or vegetable kingdom, and ingenious minds were, of course, prompt in pretending to demonstrate the Deus mala-fide, as also not hesitating to claim, that the processes, as above indicated, are only brought about by their specific "X." and in order to have a systematic arrangement, terms as "Monas crepusculum,[2]" "Bacterium termo,[3]" "Vibrio lineala,[4]" "Micrococcus,[5]" "Cylindrotænium,[6]" "Schizomycetes,[7]" "Bacterische Mykosen,[8]" are introduced, intended to vindicate these bodies the "specific-miasmatic" properties and an ante dato existence, hence to be the spiritus animus in the development of epidemic mischief. But when unprejudiced minds inquired into the correctness of these assertions, they found that there was no specificity! For, there is a convertibility of the one sort of these "specific infecting" bodies into another, by mere changing external conditions and neutrient material[9], as thus bacterii the most feared of all are abund-

1 Coze et Feltz, l. c. 2 Ibid. 3 Ibid.
4 Hallier, Die pflanzliichen Parasyten. 5 Hallier, vide Robin, Anatomie et Physiologie Cellulaires.
6 Thome. 7 Eidam, Mycologie. 8 Eberth, Leipzig, 1872.
9 Hilgard, vide Both on Small Pox.

antly generated.[1] Again, that they have no poisonous property, as otherwise stated by infectionists. If unfermented cheese (the German hand-cheese) and boiled starch are mixed, or placed in a closed vessel, so as not to be exposed to a great variation of temperature (about 60° F.), in course of two to three weeks an abundance of bacterii can thus be produced which manifest, under the microscope, great activeness, but have not proved injurious. I have smelled at them quite frequently and with deep inspiration, and have *swallowed* some of them by the mouth, and yet not the least impression I have experienced in consequence thereof. Still declared infectionists confidently look upon these bodies as infallible agencies for the production of their "specific and epidemic" diseases, as is expressed in their own language: Par la présance des organismes infe-rieures nous n'hesitons pas à appeler un phénomène de fermentation et duquel reléve la *specificite generale.* De l'existance de fermentations intra-organiques de variétés differentes, d'ou les specificités specialés.[2] Another expresses his conviction, relative to epidemic diseases being produced by parasitic vegetation, thus: "Zu ihrem Auftreten ist also hier keine besondere Praedisposition des Wirthes erforderlich; im Gegentheil, je gesuender derselbe ist und je kraeftiger entwickelt, desto ueppiger gedeiht auch der im Innern wuchernde Fremdling[3]." Furthermore is asserted: "Jede contagioese Krankheit ist das Produkt der Einwirkung des Contagiums und eines ganz bestimmten 'schaedlichen Stoffes' auf den Organismus, als ein streng wissenschaftlich begruendetes Gesetz (zu) betrachten[4]." There is but one reply to these assertions, namely: they state the *results* of the action of decomposition as the causes thereof![5]

1 Karsten, Chemismus der Pflanzenzellen.

2 Coze et Feltz, l. c., p. 315.

3 Eidam, l c., p. 215.

4 Robinski, Contagioese Krankheiten. Berlin, 1874.

5 Huchard, Mort dans la Variolie, also an infectionist, but must acknowledge p. 15 l'Etat de cadaverisation du sang des varioleux pendant la vie, sa putrefaction rapid apres la mort, sont des causes du developpement de ces infusoires. If previous to these efforts of spurious philosophy an attempt would have been made, simply to recognize the fundamental law, viz: disintegration precedes life manifestations, or decay is the antecedent motor of

From own experiment, as above indicated, bacterii form merely from the mutual decomposition of fresh cheesy matter and boiled starch, and Pasteur himself has been obliged to acknowledge that fermentation can be produced by the ashes of burned yeast[1].

If mannit is mixed with chalk and cheese, and left standing for several weeks, fermentation ensues[2], and heating chalk, then mixing it with boiled starch and keeping it in a well closed vessel, previously heated over a spirit lamp, for two or three weeks, in about 60° F. of temperature, an abundance of moving cells is met with on microscopic examination, termed by Sachs[3] zoospores, hence substantial evidence is thus afforded for acceding to a "generatio spontania" devoid of specificity.

After these expositions, probably, it may not appear greatly inducing further to argue in favor of the infection theory, to ascribe the morbid changes of the glandular organs in yellow fever to a "specific infecting effluvium," but it would by far be more truthful to ascribe the morbid alteration of the liver particularly to climatical influences, as pointed out, and of which the grave character in yellow fever, is merely a progressed state, as a natural consequence, gradually developed long prior to the outbreak of the fever, and constitute the immediate predisposition.

To be sure, from old habits Niemeyer could not suppose any climatic disease to originate unless by miasma, though his notations are much to the point in favor of the argument advanced in this treatise, and may therefore here be quoted: "Hyperaemiae of the liver in tropical countries usher in with severe general disturbance, severe headache, bilious vomiting, and sanguinolent-slimy discharges from the bowels; these symptoms indicate a morbid state of the liver,—at this period[4] not well understood,—but bear testi-

lite action, which great truths have long since been promulgated to the medical world by one of the most brilliant minds in medical philosophy, our ever living late Prof. Watters, medicine would have been spared to refute inconsistencies, which are strained into medical science with an eagerness actually revoiting.

1 Oesterlen, Seuchen, p. 61.

2 Hofmeister, Physiologische Botanik, p. 359.

3 Lehrbuch der Botanik, p. 196.

4 *i. e.* Their occurrence.

mony not only of the hyperaemiae of the liver, but also of the anomaly of its secretion, and bespeak the incipiency of grave structural alterations which frequently increase, in the process of development[1]. These observations grow the more important by the support of direct experiment, produced for the purpose of decomposing the blood, in order to constant the action of quinine, by Binz[2], who took ichorous fluids out of maceration tubs from the dissecting rooms, and injected them into the external epigastric vein of dogs, when on the fourth day after the injection one of the dogs died,—and in thirty hours after death, post mortem examination was held—the liver was found (as the other organs—congested—I infer) easy to be mashed, and the gall strikingly dark-brown." It also may be inferred from these adduced important facts, why some persons perish in consequence of unusual climatical reactions, and others remain unmolested, although living simultanuously under the same cosmic influencé, productive the epidemic diseases.

If the abdominal large glands of secretion: the liver, kidneys, and pankreas (and in a nosological point of view, the spleen), continue to elaborate abnorm fluids, and in proportion contaminaté the blood, in a quantitative and qualitative sense, special forms of disease are then assumed, according to external influences. These influences constit ute the " exciting causes " after our immortal Linton. And according to my own view the intensity of the reactions of the exciting causes is modeled in proportion to the reduction of the essential equivalent of chloride of sodium held in solution by the blood, (in the healthy state imparted to it in proper proportion), hence from the unhealthy secretions of these glands deviations from the essential equivalent of this mineral, the blood fails to maintain its vital quality. In health, albuminus coagula in the blood are re-dissolved by this agency, and the vital employment of oxygen is thereby regulated[3].

By reverting to the morbid alteration of the liver again it would yet appear more appropriate to glance over the

1 l. c., Vol. I, p. 662.
2 Virchow's Arch., Vol. XLVI.
3 Comp. Hoppe-Seyler, l. c., p. 203, and Pflueger, Arch. f. Physiol. 1869.

actual mode of their occurrence, as they admit of quite a possible and consistent elucidation on physiologico-chemical principles. Bearing in mind the different secretions of the liver in the healthy state, their composition and their proneness to be converted into compounds of strikingly different physical characteristics, or to chemical morphology, there is hence in the healthy liver every essential substance for any morbid new formation. Should, for instance, mucin not be eliminated by the formation of gall, glycogen, owing to the alkalinity of mucin, would not as such be formed, as this compound would then suffer to be metamorphosed into dextrin, and thence into grape sugar[1]. If in the transition state any of the nitrogen from the ammonia is not set free, amyloid matter is formed, which emits a reddish color on the iodine tests[2], and the more albuminous impurities are admixed, a brownish, and instead of blue, a greenish taint is produced[3], in this state approximating the gelatinus tissue (Schleimgewebe), from which a fatty substance or the lardacious tissue may regressively form, and vice versa, as the gelatinous (Schleim) and lardacious state of tissue are parallel states of the same kind of tissue[4]. In the further progress of these metamorphoses, calcarious-atheromatous deposits and cholestearin will result[5]. In this manner will have occurred the degenerated state of the liver, as found in yellow fever cases, and surely without the aid of specificity. Furthermore, future more exact anatomical research, will undoubtedly verify the above made statements. It may appear quite a superfluous repetition again to state: when in the principal glandular system such to health irrelevant processes progress, the blood must exhibit morbid alterations also, as already noticed by Stevens, it thus illustrates and constitutes the "locus minoris resitenciae," against which cosmic influences of crushing swiftness may react as the tempest in the purification of the atmosphere. But herein is to be sought, as

1 Hoppe-Seyler, l. c., p. 117.
2 Ibid., p. 211.
3 Virchow, Cell. Pathol., 4th Edit., p. 437.
4 Virchow, Onkologie, Vol. II, p. 399.
5 Virchow, Cell. Pathol., 4th Edit., Chapters XVIII and XIX.

also to be found, the genius epidemicus, loudly called for by the latest infectionist Robinski[1], and the predisposition he inquired for, also, are found in the conditions upon which the structural changes of the principal glands are dependent, the causes of which are the predisposing causes. As long now as a state of the weather will prevail, which corresponds with that appertaining to the degrees of latitude and longitude, altitude and season of a given place, and if there are no essential meteorological oscillations, then no epidemic will take place; the form of sickness prevalent at such locality will maintain the peculiarities of its geographical characteristics—with reference to rapidity in course and degree of intensity—and the usual rate of mortality will not be superceded. The truth of these assertions, as facts of general bearing, are well illustrated by the process of dentition of infant children, in large cities particularly, of the United States. During the warm months, when the temperature is elevated to 90 and 95° F., the mortality of those "under five years of age" exceeds double the number, in comparison to the months when the thermometer indicates from 30 to 40° F.!

By glancing over the map of physical geography, and assuming that under the Equator, to an altitude of 7000 ft., extends the dysenteric region; that between 7000 and 8000 ft. of altitude is the enteromesenteric region, and over this, from 8000 to 16,000 ft., is the catarrhalic region. That with the 45th degree of northern latitude the enteromesenteric region begins at 0, (or the level of the sea,) and extends to 3000 ft. altitude, and from this to 9000 feet, the catarrhalic region. But at the 67th degree north latitude the catarrhalic region begins with the level of the sea[2]. In addition to this, recognizing the continental and oceanic climate which peculiarize a geographical section or point, there presents itself to the sensitive observer a law overwhelmingly powerful, and against which human arbitrariness and caprices appear deplorable mockery. Latitude and climate are recognized as the fundamental causes, pursuant to which the

1 L. c.

2 Fuchs, Medicinische Geographie.

human population inhabiting the globe owes the various characteristics, ordinarily denominated races[1], and if individuals are suddenly to suffer transposition from their native climate to another of marked difference, experience testifies that such is always accompanied with the greatest danger to their lives. If, however, a gradual accession is resorted to,—an acclimation,—an individual may with this provision live in opposite zones. In a less wide range acclimatic peculiarities will adhere to the individual, and require a due course of time before they are stamped out. Boudin[2] observed that troops, removed from France to Africa, and vice versa, continued to suffer from the diseases which prevailed at the original station at or prior to their departure, frequently for nearly a year, but consecutively they exhibited but those forms of illness prevalent at their new abode[3]. Moreover, if localities where ordinarily an oceanic climate prevails, should reversely have the continental climate, they will be visited by epidemic diseases[4], as prior to this is already stated by Clut-Bey, quoted by Armand[5], when speaking with reference to endemo-epidemic diseases of the Orient, but particularly of yellow fever: "Cette maladie *ne se repand jamais ni par contagion ni infection, elle se developpe uniquement sous l'influence de conditions climateriques.*"

The facts here set forth cannot be contradicted. They prove that climatical influences exercise an intense modification over the human organism, leading to great advantage or to entire destruction, according to the nature of these influences, or in what state man is when they react upon him.

The solemnity of these great truths of nature are too verily told by the tables of meteorological records and by the mortality lists of the latest yellow fever epidemic of Shreveport, La., and Memphis, Tenn., which follow here in extenso:

1 Berghaus, Physikalischer Atlas. 2 Vide Fuchs, l. c.

3 An exception to this law is evidently the vulture Condor of South America who descends from the snow line of the mountains of the Llanos, and, as is stated, not to be influenced by the different climates through which it passes. Certainly the anatomy and physiology of the bird would be a highly interesting subject for further study.

4 Fuchs, l. c.

5 Cimatologie generale du globe. Paris 1873. P. 484.

Copied from the Daily Bulletin, as published under supervision of the Chief Signal Officer, U. S. A., and kindly transmitted.

(Hours of Observation read thus: 7.35 A. M., 4.35 P. M., 11.00 P. M.)

SHREVEPORT—JUNE.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.07	77	82	E	1		Fair.
	4.35	29.99	91	45	SW	5	.06	Fair.
	11.00							
2	7.35	30.09	76	82	SE	5		Cloudy.
	4.35	30.00	86	65	W	4		Cloudy.
	11.00	30.02	76	86	S	8	.29	Fair.
3	4.35	29.86	91	48	SW	5		Cloudy.
	11.00	29.92	74	90	SW	5	.84	Cloudy.
4	7.35	29.94	69	86	SW	2	.02	Clearing.
	4.35	29.89	75	81	S	8	.25	Light rain.
	11.00	29.90	73	90	SW	2	.25	Fair.
5	7.35	29.92	73	90	SW	2		Foggy.
	4.35	29.89	78	78	E	5	.01	Cloudy.
	11.00	29.90	78	90	SE	4		Cloudy.
6	7.35	29.98	77	82	N	6		Fair.
	4.35	29.92	83	75	SE	12		Cloudy.
	11.00	29.92	74	90	E	7		Cloudy.
7	7.35	30.01	77	82	SE	5		Cloudy.
	4.35	29.94	83	71	SE	8	.37	Cloudy.
	11.00	29.97	77	91	SE	5		Cloudy.
8	4.35	29.90	88	56	SE	5		Fair.
9	4.35	29.90	79	74	SW	8	.09	Cloudy.
	11.00	29.94	77	91	SE	4		Cloudy.
10	4.35	29.92	75	50	SW	2		Cloudy.
	11.00	29.90	78	85	SE	15		Fair.
11	7.35	30.06	74	86	SW	1	.12	Cloudy.
	4.35	30.02	84	64	N	13		Cloudy.
	11.00	30 04	79	78	NE	1		Clear.
12	4.35	30.01	88	46	NW	6		Fair.
	11.00	30.01	80	73	Calm			Fair.
13	7.35	29.97	79	78	SW	5		Fair.
	4.35	29.88	81	67	NE	17		Cloudy.
	11.00	29.91	70	100	N	4	.98	Light rain.
14	7.35	29.86	73	81	SW	6	.15	Clear.
	4.35	29.84	85	61	N	4		Clear
	11.00	29.90	79	87	Calm			Clear.

SHREVEPORT—JUNE—*Continued.*

Date	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
15	7.35	29.94	76	91	E	1		Clear.
	4.35	29 93	79	81	SW	11		Clear.
16	4.35	29.89	77	82	E	10	1 33	Cloudy.
	11.00	29.93	73	95	SE	4	.71	Clear.
17	7.35	29.93	73	90		5		Cloudy.
	4 35							
	11.00	29.92	75	86	S	6		Clear.
18	4.35	29 84	83	67	E	6		Cloudy.
	11 00	29.87	76	86	E	5		Clear.
19	4.35	30 02	49(?)	67	S	10	.02	Cloudy.
	11 00	30.04	77(?)	91	SE	2		Clear.
20	7.35	30.12	77	91	SE	6		Cloudy.
	4.35	30 04	90	59	SE	7		Cloudy.
21	7.35							
	4.35	29 97	78		SE	10	.41	Light rain.
	11.00	29.94	76	49	S	7	.25	Fair.
22—								
23	7.35	29 98	76	91	SE	6		Cloudy.
	4.35	29.96	88	62	S	1		Cloudy.
	11 00	29.99	81	62	S	11		Clear.
24	7.35	30.12	77	91	S	2		Cloudy.
	4.35	30.07	88	56	E	4		Fair.
	11.00	30 09	83	75	E	4		Clear.
25	7.35	30.14	83	78	SE	4		Clear.
	4 35	30.06	92	40	NW	4		Fair.
	11.00	30.10	82	71	Calm			Fair.
26	7.35	30 13	80	78	E	6		Clear.
	4 35	30.07	90	57	NE	6	.02	Cloudy.
	11.00	30 08	84		Calm			Clear.
27	7.35	30.09	83	79	NE	2		Fair.
	4.35	30.02	81	67	NE	7	.02	Threatening.
	11.00	30.09	77	86	E	1		Clear.
28	4.35	29.85	89	59	S	2		Cloudy.
	11.00	29.85	78	86	NE	2	.21	Cloudy.
29—								
30	4.35	29.75	87	65	W	5		Fair.
	11.00	29.76	73	79	SE	5		Clear.

SHREVEPORT—JULY.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	4.35	29.84	90	57	S	17		Fair.
	11.00	29.90	83	71	S	18		Clear.
2	7.35							
	11 00	30.01	83	79	S	10		Fair.
3	7.35							
	4.35	30.08	94	49	S	7		Fair.
	11.00	30 07	84	71	S	6		Clear.
4	7.35	30.12	79	82	SW	5		Clear.
	4.35	30.07	92	52	SW	4		Fair.
5—	4.35	30 05	94	41	NW	4		Fair.
6—	4.35	30.00	93	46	NW	7		Fair.
7	7.35	30.13	80	82	E	1		Fair.
	4.35	29.96	95	44	N	6		Fair.
	11.00							
8	7.35							
	4.35	29.94	95	47	W	6		Fair.
	11.00	30.00	78	69	E	5		Fair.
9	4.35	29.96	93	46	NW	1		Fair.
	11.00	29 99	81	74	SW	2		Clear.
10	7.35	30.01	79	70	SW	2		Cloudy.
	4.35	29.92	95	36	SW	7		Fair.
	11.00	29.92	87	72	Calm			Fair.
11	4.35	29.92	94	49	SW	5		Cloudy.
	11.00	29.95	84	79	SE	6		Fair.
12	7.35	30.01	81	74	S	7		Cloudy.
	4.35	29.96	93	49	S	7		Fair.
	11.00	29.97	87	65	SE	2		Clear.
13	7.35	30.06	73	75	SW	5		Clear.
	4 35	30.02	91	51	E	5		Fair.
14	7.35	30.11	84	71	Calm			Clear.
	4.35							
	11.00	30.08	78	85	E	5		Cloudy.
15	7.35							
	4.35	30.02	84	64	N	8		Cloudy.
	11.00	30.01	80	87	NE	5		Clear.
16	4.35	29.98	89	50	E	4		Fair.
	11.00	29.99	83	67	SE	2		Clear.
17	7.35							
	4.35	30.00	88	56	SE	11	.05	Cloudy.
	11.00	30.06	81	78	S	2		Fair.

SHREVEPORT—JULY—*Continued.*

Date	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction,	Velocity.	Rainfall.	State of Weather.
18	4.35	30.04	78	82	SW	8	.09	Light rain.
	11.00	30.08	78	86	SW	2		Light rain.
19	7.35							
	4.35	30.07	80	66	NE	2	.19	Cloudy.
	11.00	30.07	75	81	NE	4		Fair.
20	7.35							
	4.35	30.05	83	46	N	7		Fair.
	11.00	30.06	73	72	NE	8		Clear.
21	7.35	30.09	7[illegible]	71	NE	4		Fair.
	4.35							
	11.00	30.17	78	69	E	0		Fair.
22	7.35							
	4.35	30.06	86	58	SE	5		Cloudy.
	11.00	30.11	78	73	SE	2		Clear.
23	7 35	30.21	76	82	SE	2		Fair.
	4.35	30.16	86	55	E	5		Cloudy.
	11.00	30.23	77	82	SE	4		Clear
24	7.35							
	4.35	30.08	88	56	SE	5		Fair.
	11.00	30.07	80	78	SE	4		Fair.
25	7.35	30.06	72	85	NE	1	.54	Cloudy.
	4.35	29.97	81	74	S	8		Fair.
	11.00	30.00	73	90	SE	8		Clear.
26	7.35	30.04	71	95	Calm		.03	Light rain.
	4.35	29.97	81	78	S	8	.01	Cloudy.
	11.00	30.03	77	8[illegible]	S	7	.02	Cloudy.
27	7.35	30.07	73	90	S	1	.17	Cloudy.
	4.35	30.03	79	70	SW	10	.84	Cloudy.
28	7.35							
	4.35	30.02	85	61	N	4		Cloudy.
	11.00	30.04	78	86	E	2		Clear.
29	7.35							
	4.35	29.99	82	75	W	7		Cloudy.
	11.00	30.12	74	90	SE	6	.06	Fair.
30	7.35	30.03	76	90	SE	6		Cloudy.
	4.35	29.98	76	86	SW	8	1.13	Light rain.
	11.00	30.01	71	95	SE	13	.52	Light rain.
31	7.35							
	4.35	30.02	84	71	S	8		Cloudy.
	11.00	30.05	79	86	S	14		Clear.

SHREVEPORT—AUGUST.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.14	77	86	SW	6		Cloudy.
	4.35	30.10	90	50	SW	8		Fair.
	11.00	30.08	80	82	SE	4		Fair.
2	7.35							
	4.35	30.05	90	53	NW	2		Fair.
	11.00	30.04	83	79	Calm.			Clear.
3	4.35	30.04	91	54	NW	5		Fair.
	11.00	30.07	84	79	Calm			Cloudy.
4	7.35							
	4.35	30 11	79	82	SW	1	.40	Cloudy.
	11.00	30.12	78	91	Calm			Clear.
5	7.35	30.18	71	80	NE	5		Cloudy.
	4.35	30.08	85	47	NE	5		Fair.
	11.00	30.11	75	78	NE	2		Clear.
6	7.35	30.13	73	79	NE	5		Fair.
	4.35	30.04	88	46	N	6		Fair.
	11.00	30.04	80	70	N	2		Clear.
7	7.35	30.03	79	74	SE	1		Cloudy.
	4.35	29.97	83	60	SE	4		Cloudy.
	11.00	29.98	80	78	SE	2		Fair.
8	7.35	30.01	76	82	E	1		Clear.
	4.35	29.97	81	67	SE	5	.13	Light rain.
	11.00	29.99	69	78	Calm			Fair.
9	7.35	30.07	76	82	E	5		Clear.
	4.35	30 01	87	58	E	6		Cloudy.
	11.00							
10—11.00		30.08	80	82	S	2		Fair.
11	7.35	30.08	79	82	N	1		Fair.
	4.35	29 99	90	57	SE	7		Cloudy.
	11.00	29.99	82	75	Calm			Cloudy.
12	4.35	29.95	92	51	E	5		Cloudy.
	11.00	30.00	80	78	SE	5		Cloudy.
13	4.35	29.98	92	54	W	7		Cloudy.
	11.00	29.99	84	75	Calm			Fair.
14	7.35							
	4.35	29.98	90	100	E	10	.39	Heavy rain.
	11.00	29.96	75	90	E	5	.21	Clear.
15	7.35	29.95	75	95	Calm			Foggy.
	4.35	29.85	90	66	NE	6		Cloudy.
	11.00	29.89	75	90	NE	7	.24	Cloudy.

SHREVEPORT—AUGUST—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather
16—	11.00	29.94	78	91	N	2		Cloudy.
17	7.35	30.00	76	73	N	2		Cloudy.
	4 35	29 94	84	71	N	10	.05	Cloudy.
18	7.35	30.07	76	77	NE	4		Fair.
	4.35	30.03	86	42	N	6		Fair.
	11 00	30 05	74	76	NE	1		Clear.
19	4.35	30.01	84	47	NE	5		Cloudy.
	11.00	30.02	76	77	Calm			Fair.
20	7.35	29.99	72	80	E	2		Fair.
	4.35	29.92	86	42	NE	6		Cloudy.
	11.00	29.95	78	73	SW	4		Clear.
21	7.35	29.97	77	73	W	2		Fair.
	4.35	29.94	80	66	NW	2		Cloudy.
	11.00	29.95	77	82	S	1		Clear.
22	7.35	30.04	75	86	Calm			Fair.
	4.35	29.99	86	51	NE	7		Fair.
	11.00	30.03	80	74	Calm			Clear.
23	7.35							
	4.35	30.04	84(?)	57	E	7		Fair.
	11.00	30.08	78	82	NW	2		Clear.
24	7.35	30.17	77	82	Calm			Clear.
	4.35	30.06	90	50	SE	4		Fair.
25	7.35	30.09	77	86	S	1		Clear.
	4.35	29.99	91	48	SE	1		Fair.
	11.00	30.00	83	75	Calm			Clear.
26	7.35	30.05	63	78	SW	5		Fair.
	4.35	29 98	92	48	N	6		Cloudy.
	11.00	30.03	75	86	S	4		Fair.
27	7.35							
	4.35	29.97	92	48	NW	6		Fair.
	11.00	30.04	82	75	SE	10		Cloudy.
28	7.35	30.04	78	73	W	4		Clear.
	4.35	30.00	83	64	S	6		Cloudy.
29—	11.09	30.13	80	87	Calm			Fair.
30	7.35	30.21	78	82	S	2		Clear.
	4.35	29.87	89	54	S	5		Cloudy.
	11.00	30.16	82	71	Calm			Clear.
31	7.35	30.22	79	74	Calm			Clear.
	4.35	30.08	92	45	S	1		Fair.

SHREVEPORT—SEPTEMBER.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind, Direction.	Wind, Velocity.	Rainfall.	State of Weather.
1	7.35							
	4.35	30.01	91	48	S	7		Fair.
	11.00	30.05	81	70	W	5		Fair.
2	7.35							
	4.35	29.99	91	66	SW	8		Cloudy.
	11.00	30.03	81	74	S	5		Cloudy.
3	7.35							
	4.35	29.98	92	45	SW	10		Cloudy.
	11.00	29.99	82	71	S	12		Fair.
4	7.35							
	4.35	30.02	92	40	SW	7		Cloudy.
	11.00	30.04	81	66	S	2		Clear.
5	7.35							
	4.35	30.09	94	28	SW	4		Clear.
	11.00	30.18	83	67	Calm			Fair.
6	7.35							
	4.35	30.12	87	58	E	8		Cloudy.
	11.00							
7—								
8—	4.35	30.14	83	41	NE	11		Fair.
9	7 35	30.13	66	73	NE	6		Fair.
	4 35	30.03	85	47	N	5		Cloudy.
10—	4.35	30.01	88	46	E	5		Fair.
11—	4.35	30.01	89	49	E	4		Fair.
12—								
13—	4.35	30.03	78	61	NE	8		Cloudy.
14—	4.35	30.09	75	37	NE	10		Clear.
15—	4.35	30.07	80	44	SE	1		Clear.
16—	4.35	30.08	83	30	E	5		Clear.
17—	4.35	29.93	84	47	E	4		Clear.
18—	4.35	29.85	87	49	N	5		Fair.
19	7.35	29.95	71	80	NE	4		Clear.
	4.35	29.89	85	51	NW	8		Fair.
20—	4.35	29.97	78	43	NE	7		Fair.
21	7.35	30.06	60	71	E	5		Cloudy.
	4.35	29.96	80	51	E	7		Fair.
22—	4.35	29.93	69	68	N	5		Cloudy.
23—	4.35	29.92	78	50	N	7		Cloudy.
24—	4.35	29.82	86	45	S	5		Fair.

SHREVEPORT—SEPTEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
25—	4.35	29.86	86	68	S	5		Fair.
26—	4.35	29.97	82	63	S	13		Cloudy.
27—	4.35	29.94	80	76	SE	5		Cloudy.
28—	4.35	29.87	87	62	S	5		Cloudy.
29—	4.35	30.00	76	82	NW	5	.12	Cloudy.
30—	4.35	30.00	74	51	NE	6		Clear.

SHREVEPORT—OCTOBER.

Quotations at 11 P. M., as telegraphed for newspaper publication.

1—		30.06	67	69	NE	7		Fair.
9—		30.13	69					Fair.
14—		30.19	68		SE	4		Clear.
15—		30.22	73	63	SE	4		Fair.
17—		30.00	75	78	SE	8		Cloudy.
21—		29.82	65	63	S	7		Clear.
22—		30.05	45		NW	7		Heavy rain.
23—		30.21	47	85	NE	4		Clear.
24—		30.23	45	100	E	6		Threatening
28—		30.49	40	56	NW	8		Clear.
29—		30.22	47	48	S	4		Fair.
30—		30.15	53	86	N	1		Clear.
31—		30.35	47		NE	4		Clear.

October 6, change in weather from summer heat to winter cold.
" 7, slight frost.
" 8, " "
" 20, " "
" 24, weather continued cold.

SHREVEPORT

Is surrounded west and southwardly and northwardly by swampy country, eastwardly fronting on the Red River. The place has an altitude (above level of sea) of 450 feet. 32.30° latitude, 93.45° longitude, 68° isotherms. Population, 3000.

MORTALITY OF YELLOW FEVER AT SHREVEPORT, LA.

(NEWSPAPER DISPATCHES.)

Sept. 10, number of diseased, as telegraphed, 400.

Sept.	15	33 deaths	Oct.	9	10 deaths
"	16	25 "	"	10	3 "
"	21	20 "	"	11	6 "
"	22	24 "	"	13	8 "
"	26	13 "	"	14	7 "
"	27	22 "	"	15	15 "
"	29	8 "	"	17	3 "
"	30	7 "	"	18*	
Oct.	2	17 "	"	20	5 "
"	3	19 "	"	21	3 "
"	4	9 "	"	22	4 "
"	5	16 "	"	24	3 "
"	6	17 "	"	25	2 "
"	7	8 "	"	29	3 "
"	8	12 "			

*For the week ending, 59 interments. Total to date. 658

Grand total 678, of which there were 6 Catholic priests, one U. S. army officer, and 107 colored persons.

MEMPHIS—JUNE.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.15	74	72	SE	5		Clear.
	4.35	30.09	84	56	SE	8		Fair.
	11.00	30.14	74	76	SE	1		Clear.
2	7.35	30.16	74	72	Calm			Fair.
	4 35	30.06	84	40	SE	4		Clear.
	11.00	30.06	76	68	Calm			Clear.
3	7 35	30.04	74	72	Calm			Fair.
	4.35	29.89	85	54	SW	4		Fair.
	11.00	29.89	79	73	E	4		Cloudy.
4	7.35	29 89	77	77	S	4		Fair.
	4.35	29.79	84	60	NW	4		Threatening.
	11.00	29.85	78	73	SW	8		Cloudy.
5	7.35	29.80	76	72	SW	8		Fair.
	4 35	29.82	87	51	SW	12		Fair.
	11.00	29.88	79	73	SW	4		Fair.
6	7.35	29.86	75	85	SW	4		Cloudy.
	4.35	29.93	79	73	SW	5	.27	Fair.
	11.00	29.98	77	71	Calm			Fair.
7	7 35	30.03	78	73	SE	1		Clear.
	4.35	29.96	80	70	NE	12		Cloudy.
	11.00	30 02	76	77	SW	4		Cloudy.
8	7.35	29.95	75	85	Calm			Fair.
	4.35	29.91	88	46	W	4		Fair.
	11.00	29.96	80	74	SE	4		Clear.
9	7.35	29 97	76	78	S	4		Fair.
	4.35	29.92		68	NE	8		Cloudy.
	11.00	29.96	74	85	SE	16		Threatening.
10	7.35	29.96	72	90	S	5	.08	Cloudy.
	4.35	29.89	87	58	SE	8		Fair.
	11.00	29.98	69	100	NE	4	2.68	Light rain.
11	7.35	30.03	72	90	NW	4	.02	Threatening.
	4.35	30.01	80	70	N	8		Threatening.
	11.00	29.95	73	85	SE	2	.08	Cloudy.
12	7.35	30.06	72	85	E	4		Cloudy.
	4.35	30.00	80	74	NW	4		Cloudy.
	11.00	30.02	75	85	E	4		Cloudy.
13	7.35	29.94	77	81	E	4		Clear.
	4.35	29.84	81	59	SW	1		Cloudy.
	11.00	29.81	73	81	S	1		Cloudy.

MEMPHIS—JUNE—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
14	7.35	29.78	73	85	W	4		Cloudy.
	4.35	29.79	79	65	NW	16	.02	Cloudy.
	11.00	29.84	74	81	N	4		Fair.
15	7.35	29.94	77	73	Calm			Fair.
	4.35	29.91	87	48	SW	2		Fair.
	11.00	29.94	77	77	W	2		Fair.
16	7.35	30 01	72	90	S	6	.08	Light rain.
	4 35	29.95	79	69	NW	4	.23	Fair.
	11.00	29.96	74	81	NE	4		Cloudy.
17	7.35	29.97	74	85	SE	4		Fair.
	4.35	29.89	75	90	S	4	.94	Heavy rain.
	11.00	29.88	72	60	S	2	.14	Clear.
18	7.35	29.91	75	81	S	6		Fair.
	4.35	29.83	87	55	S	4		Clear.
	11.00	29.88	76	82	S	12		Cloudy.
19	7.35	29.99	74	85	SW	4	.04	Cloudy.
	4.35	30.01	85	60	SW	12		Fair.
	11.00	30.08	76	77	SW	6		Clear.
20	7.35	30.11	76	86	SW	4	.19	Fair.
	4.35	30.02	91	50	SW	6		Fair.
	11.00	30.07	72	95	S	2	.74	Cloudy.
21	7.35	30.04	76	86	S	4		Fair.
	4.35	29.95	91	50	SW	4		Fair.
	11.00	29.97	81	74	SW	1		Clear.
22	7.35	29.95	79	77	S	1		Cloudy.
	4.35	29.87	93	43	S	8		Fair.
	11.00	29.92	81	74	S	4		Fair.
23	7.35	29.98	79	73	S	4		Cloudy.
	4.35	29.94	92	39	SW	8		Fair.
	11.00	30.00	81	66	SE	4		Fair.
24	7.35	30.11	82	20	Calm			Clear.
	4.35	30.04	94	43	W	4		Fair.
	11.00	30.11	83	71	Calm			Fair.
25	7.35	30.12		74	Calm			Fair.
	4.35	30.13	73	90	N	9	.19	Light rain.
	11.00	30.10	76	90	Calm		.08	Cloudy.
26	7.30	30.08	79	83	NW	1		Fair.
	4.35	30.05	90	53	NW	8		Fair.
	11.00	30.10	78	81	E	4		Fair.

MEMPHIS—JUNE—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
27	7.35	30.11	80	74	SE	4		Fair.
	4.35	29.98	86	61	SE	4		Cloudy.
	11.00	30.03	72	90	NW	4	.47	Threatening.
28	7.35	29.96	72	90	NE	6		Cloudy.
	4.35	29.82	86	57	NW	4		Fair.
	11.00	29.80	79	86	Calm			Clear.
29	7.35	29.78	79	77	S	4		Fair.
	4.35	29.63	91	56	SW	12		Fair.
	11.00	29.69	73	85	S	1	.18	Light rain.
30	7.35	29.69	73	85	W	4		Cloudy.
	4.35	29.71	85	47	W	4		Fair.
	11.00	29.82	75	85	S	4		Clear.

MEMPHIS—JULY.

1	7.35	29.85	76	77	SW	8		Cloudy.
	4.35	29.82	92	48	S	16		Fair.
	11.00	29.92	81	74	SE	6		Fair.
2	7.35	30.02	80	78	S	10		Cloudy.
	4.35	30.02	92	51	S	11		Fair.
	11.00	30.05	82	78	S	6		Clear.
3	7.35	30.11	82	74	SW	6		Fair.
	4.35	30.04	95	49	SW	9		Fair.
	11.00	30.05	82	70	S	4		Clear.
4	7.35	29.98	82	74	S	6		Clear.
	4.35	30.01	87	44	SW	10		
5	4.35	30.01	93	51	NW	7		Fair.
	11.00	30.03	85	74	NE	10		Fair.
6	7.35	30.03	84	64	NE	4		Fair.
	4.35	29.96	93	48	E	4		Cloudy.
	11.00	29.98	83	75	NE	2		Clear.
7	7.35	29.98	75	86	NE	2		Clear.
	4.35	29.89	95	47	SW	8		Clear.
8	7.35	29.94	81	70	NW	8		Fair.
	4.35	29.96	82	58	N	11		Cloudy.
	11.00	30.00	74	67	NE	3		Clear.
9	7.35	30.05	74	67	E	6		Fair.
	4.35	29.98	86	48	NW	5		Fair.
	11.00	30.00	77	68	Calm			Clear.

MEMPHIS—JULY—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
10	7.35	29.98	75	68	SE	1		Cloudy.
	4.35	29.90	89	46	SE	4		Cloudy.
	11.00	29 96	77	81	N	4		Fair.
11	7 35	30.00	76	77	NE	3		Clear.
	4 35	29.96	87	55	NE	9		Fair.
	11.00	29.99	76	82		3		Clear.
12	7.35	30.01	78	73	E	5		Fair.
	4.35	29.97	93	43	W	20		Cloudy.
	11.00	30.00	80	78	S	2		Clear.
13	7.35	30.07	80	74	S	1		Fair.
	4.35	30 02	96	42	SW	5		Fair.
	11.00	30.06	84	64	SE	4		Clear.
14	7.35	30.14	83	67	S	5		Clear.
	4.35	30.08	94	43	W	3		Fair.
	11.00	30.10	84	64	SE	6		Clear.
15	7.35	30.14	83	71	SE	1		Clear.
	4.35	30.05	92	51	N	7		Cloudy.
	11.00	30.05	83	63	SE	3		Clear.
16	7.35	30.07	84	60	Calm			Fair.
	4.35	30.00	94	38	NW	6		Cloudy.
	11.00	30.02	78	77	S	2		Clear.
17	7 35	30 04	81	74	SW	1		Clear.
	4.35	29.97	93	43	SW	9		Clear.
	11.00	30.01	83	67	SW	3		Clear.
18	7.35	30.03	81	70	SW	5		Fair.
	4.35	29 99	77	81	S	4	.32	Light rain.
	11.00	30.01	75	90	S	5	.01	Fair.
19	7.35	30.09	72	71	N	8		Fair.
	4.35	30.06	81	51	NW	10		Fair.
	11.00	30.12	70	75	N	5		Clear.
20	7.35	30 14	74	51	NE	5		Clear
	4.35	30.06	79	40	N	10		Clear.
	11.00	30.08	70	70	Calm			Clear.
21	7.35	30.11	72	62	Calm			Clear.
	4.35	30 02	82	39	NE	1		Clear.
	11 00	30.10	73	62	N	1		Clear.
22	7.35	30.17	71	70	Calm			Clear.
	4.35	30.11	95	39	NE	4		Clear.
	11.00	30.17	80	62	SE	5		Clear.

MEMPHIS—JULY—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
23	7.35	30.25	74	79	NE	2		Clear.
	4 35	30.17	82	59	NE	7		Cloudy.
	11.00	30.20	77	73	NE	4		Fair.
24	7.35	30.19	74	81	Calm			Cloudy.
	4.35	30.06	75	81	SW	6		Cloudy.
	11.00	30 04	73	90	Calm			Clear.
25	7.35	30.01	74	85	SW	4		Fair.
	4.35	29.76	81	38	NW	5		Fair.
	11.00	29.98	79	74	SW	3		Fair.
26	7.35	29.99	78	73	SW	5		Fair.
	4.35	29.93	88	49	S	6		Cloudy.
	11.00	30.00	78	81	N	3		Fair.
27	7.35	30.04	78	81	SW	3		Fair.
	4.35	30.00	83	61	S	7		Cloudy.
	11.00	30.04	73	90	S	2		Fair.
28	7.35	30.02	72	90	S	6		Cloudy.
	4.35	30.01	85	57	W	5		Fair.
	11.00	30.04	76	86	SW	3		Clear.
29	7.35	30.06	74	85	S	2		Fair.
	4.35	29 97	89	49	W	6		Cloudy.
	11.00	30.03	77	68	E	5		Fair.
30	7.35	30 06	74	90	S	2		Cloudy.
	4 35	29.99	83	71	W	8		Light rain.
	11.00	29.99	72	95	SE	4	.04	Fair.
31	7.35	30.04	74	85	S	6		Cloudy.
	4.35	29.99		81	W	10	.05	Heavy rain.
	11.00	30.06	74	85	S	7	.40	Fair.

MEMPHIS—AUGUST.

1	7.35	30.10	70	100	SW	5	.60	Heavy rain.
	4.35	30.04	85	68	SW	6	1.03	Cloudy.
	11.00	30.06	69	94	SW	2	1.31	Fair.
2	7.35	30.10	70	94	SW	2		Fair.
	4.35	30.00	89	59	SW	6		Fair.
	11.00	30.01	79	86	Calm			Clear.
3	4.35	30.05	82	59	N	12		Fair.
	11.00	30.12	72	85	N	5		Clear.
4	7.35	30.18	68	74	NE	4		Fair.
	4.35	30.11	79	44	NW	10		Clear.
	11.00	30.18	69	74	NE	5		Clear.

MEMPHIS—AUGUST—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
5	7.35	30.21	69	74	N	3		Clear.
	4.35	30.11	82	42	NE	12		Fair.
	11.00	30.15	72	75	NE	3		Clear.
6	7.35	30.14	71	75	NE	12		Clear.
	4.35	30.04	87	51	SE	5		Cloudy.
	11.00	30.08	76	81	SE	2		Fair.
7	7.35	30.07	72	80	E	12		Cloudy.
	4.35	29.98	81	66	N	8		Cloudy.
	11.00	29.99	74	90	NE	1		Clear.
8	7.35	30.03	75	85	SE	2		Clear.
	4.35	29.95	88	52	SW	5		Fair.
	11.00	30.02	78	77	E	1		Clear.
9	7.35	30.07	77	81	Calm			Fair.
	4.35	30.01	91	50	NW	5		Fair.
	11.00	30.08	78	90	SE	1	.03	Fair.
10	4.35	30.03	92	56	NW	6		Cloudy.
	11.00	30.07	80	91	Calm		.23	Fair.
11	7.35	30.06	81	82	E	4		Clear.
	4.35	29.96	91	50	N	6		Fair.
	11.00	30.01	82	82	N	2		Clear.
12	7.35	30.03	79	82	Calm			Fair.
	4.35	29.93	93	45	W	5		Fair.
	11.00	29.99	82	78	N	2		Fair.
13	7.35	29.97	78	86	SW	4	.01	Cloudy.
	4.35	29.95	86	68	W	7	1.08	Cloudy.
	11.00	29.98	76	90	NW	1		Clear.
14	7.35	30.00	75	76	NE	1		Clear.
	4.35	29.93	85	41	N	11		Fair.
	11.00	29.97	75	76	Calm			Clear.
15	7.35	29.96	72	75	NE	2		Fair.
	4.35	29.86	87	48	W	4		Cloudy.
	11 00	29.87	79	77	S	2		Clear.
16	7.35	29.90	73	90	W	4		Cloudy.
	4.35	29.90	79	77	NW	11		Cloudy.
	11.00	29.97	74	85	N	5		Cloudy.
17	4.35	29.95	82	55	NW	12		Fair.
	11 00	30.01	74	81	NW	5		Fair.
18	7.35	30.08	71	70	N	2		Clear.
	4.35	30.03	81	41	NW	12		Clear.
	11.00	29.98	67	74	Calm			Clear.

MEMPHIS—AUGUST—*Continued.*

Date	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
19	7.35	30.07	69	70	N	3		Cloudy.
	4.35	30.00	85	47	N	8		Cloudy.
	11.00	30.06	75	92	E	2		Clear.
20	7.35	29.90	71	70	NE	1		Fair.
	4.35	29.93	86	31	NW	6		Fair.
	11.00	29.98	74	72	N	2		Clear
21	7.35	30.01	71	75	NE	2		Fair.
	4.35	29.94	88	76	E	7		Cloudy.
	11.00	30.00	76	72	S	2		Clear.
22	7.35	30.05	71	85	SE	2		Cloudy.
	4 35	29.97	86	51	NE	6		Cloudy.
	11.00	30.03	75	81	NW	1		Clear.
23	7.35	30.11	72	85	E	1		Fair.
	4.35	30.06	89	49	E	6		Fair.
	11.00	30.10	79	73	SE	1		Clear.
24	7.35	30.17	78	86	SE	1		Clear.
	4.35	30.05	92	48	SW	5		Fair.
	11.00	30.07	81	67	Calm			Clear.
25	7.35	30.06	80	78	NE	1		Clear.
	4.35	29.95	92	45	W	4		Fair.
	11.00	29.97	82	83	N	2		Clear.
26	7.35	30.01	79	82	S	4		Clear.
	4.35	29.93	94	43	SW	5		Fair.
	11.00	29.95	83	75	SW	9		Clear.
27	7.35	29.99	77	86	N	2		Cloudy.
	4.35	29.89	93	43	W	4		Fair.
	11.00	29.97	75	81	SE	5	.19	Cloudy.
28	7.35	30.01	75	85	N	4		Fair.
	4.35	29.98	88	49	NW	12		Fair.
	11.35	30.04	77	68	NE	4		Clear.
29	7.35	30.10	72	80	NE	3		Fair.
	4.35	30.06	88	46	NW	8		Fair.
	11.00	30.13	78	69	N	3		Clear.
30	7.35	30.19	77	77	N	1		Clear.
	4.35	30.03	92	34	SW	5		Fair.
	11.00	30.13	78	69	Calm			Clear.
31	7.35	30.14	77	77	SW	1		Clear.
	4.35	30.02	93	48	SW	7		Fair.
	11.00	30.03	82	70	SW	6		Clear.

MEMPHIS—SEPTEMBER.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.07	80	74	SW	6		Fair.
	4.35	29.95	92	45	SW	12		Cloudy.
	11.00	30.00	81	82	W	3		Fair.
2	7.35	30.04	78	81	SW	1		Fair.
	4.35	29.98	82	60	NW	1		Cloudy.
	11.00	30.03	73	90	NW	7		Light rain.
3	7.35	30.03	76	86	S	8		Cloudy.
	4.35	29 96	77	86	SW	3	.40	Cloudy.
	11.00	29.93	76	90	S	5		Clear.
4	7.35	30.02	76	86	SW	6		Cloudy.
	4.35	29.96	89	52	S	10		Cloudy.
	11.00	30 00	79	65	SW	5		Fair.
5	7.35	30.10	77	75	SW	1		Cloudy.
	4.35	30.09	86	64	N	9		Cloudy.
	11.00	30.17	76	81	NE	4		Fair.
6	7.35	30.20	74	67	NE	3		Fair.
	4.35	30.14	84	43	NE	9		Fair.
	11.00	30.18	72	62	NE	5		Fair.
7	7.35	30.26	66	78	N	3		Cloudy.
	4.35			54	NE	14		Fair.
	11.00	30.27	65	78	N	3		Clear.
8	7.35	30.28	60	65	NE	6		Clear.
	4.35	30.18	77	31	N	10		Clear.
	11.00	30.20	65	68	N	4		Clear.
9	7 35	30.17	63	72	NE	3		Clear.
	4.35	30.05	83	52	N	10		Cloudy.
	11.00	30.07	73	76	NE	3		Clear.
10	7.35	30.13	69	84	SE	1		Cloudy.
	4.35	30.02	86	44	N	4		Cloudy.
	11.00	30.07	76	77	Calm			Clear.
11	4.35	30.13	72	72	S	1		Fair.
	7.35	30.02	86	48	W	5		Fair.
	11.00	30.02	76	77	Calm			Clear.
12	7.35	30.01	77	68	SW	2		Clear.
	4.35	29.92	83	52	SW	11		Cloudy.
	11.00	29.97	70	75	N	13		Light rain.
13	7.35	30.04	67	84	NE	4	.10	Cloudy.
	4.35	30.07	71	49	N	14		Cloudy.
	11.00	30.15	58	64	N	7		Clear.

MEMPHIS—SEPTEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
14	7.35	30.19	53	7	N	5		Clear.
	4.35	30.10	68	42	N	8		Clear.
	11.00	30.13	58	69	N	2		Clear.
15	7.35	30.15	55	68	E	2		Clear.
	4.35	30.07	76	41	W	2		Clear.
	11.00	30.12	64	78	Calm			Clear.
16	7.35	30.17	65	71	Calm			Clear.
	4.35	30.09	82	42	NW	8		Clear.
	11.00	30.08	71	75	Calm			Clear.
17	7.35	30.06	66	83	Calm			Clear.
	4.35	29.94	86	41	W	4		Fair.
	11.00	29.97	75	55	SE	4		Clear.
18	7.35	29.96	70	70	Calm			Clear.
	4.35	29.86	85	50	NW	6		Fair.
	11.00	29.91	75	76	Calm			Clear.
19	7.35	29.99	63	72	N	13		Cloudy.
	4.35	29.96	69	39	N	13		Clear.
	11.00	30.05	56	56	N	5		Clear.
20	7.35	30.11	53	60	NE	4		Clear.
	4.35	30.09	64	52	NW	10		Cloudy.
	11.00	30.08	58	25	NE	2		Cloudy.
21	7.35	30 11	58	64	NE	2		Cloudy.
	4.35	30 04	73	42	NW	9		Cloudy.
	11.00	30.06	65	73	NE	2		Cloudy.
22	7.35	30.06	65	78	W	3		Cloudy.
	4.35	29.99	70	65	N	11		Cloudy.
	11.00	30.03	63	94	NE	3	.51	Clear.
23	7.35	30.04	60	92	NE	8		Cloudy.
	4.35	29.92	70	61	NW	9		Fair.
	11.00	29.98	61	82	N	2		Clear.
24	7.35	29.94	56	87	SE	3		Foggy.
	4.35	29.80	73	67	SE	6		Fair.
	11.00	29.84	68	79	S	4		Cloudy.
25	7.35	29.95	66	89	N	5		Cloudy.
	4.35	29.90	79	65	NW	6		Cloudy.
	11.00	29.94	74	81	S	4		Clear.
26	7.35	30 01	70	89	S	7		Clear
	4.35	29.96	87	45	SW	8		Fair.
	11.00	30.02	76	72	SE	4		Clear.

MEMPHIS—SEPTEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
27	7.35	30.10	72	85	E	4		Cloudy.
	4.35	30.01	78	86	SE	2	.20	Cloudy.
	11.00	30.05	76	81	SW	4	.62	Light rain.
28	7.35	30.01	72	90	SE	2	.14	Cloudy.
	4.35	29.90	84	64	S	9		Cloudy.
	11.00	29.95	71	89	N	9	.10	Heavy rain.
29	7.35	29.97	71	89	Calm		1.14	Cloudy.
	4.35	30.05	63	83	NW	13	.04	Light rain.
	11.00	30.15	59	81	N	8		Cloudy.
30	7.35	30.22	54	80	NE	8		Clear.
	4.35	30.14	66	45	N	13		Clear.
	11.00	30.17	56	77	NE	7		Clear.

MEMPHIS—OCTOBER.

Quotations at 11 P. M., as telegraphed for newspaper publication.

1—	30.07	63	77	N	4		Foggy.
2—	30.12	65	94	NE	2		Clear.
3—	29.96	70	79	S	2		Fair.
4—							
5—	29.96	63	67	N	18		Cloudy.
9—	30.14	60		SW	1		Clear.
10—							
11—	30.14	44		NW	8		Clear.
12—	30.21	55		SW	8		Clear.
13—	30.17	50	37	W	1		Clear.
14—	30.26	51	65				Clear.
15—	30.27	66	73	W	1		Foggy.
16—	30.23	70	70	SE	4		Clear.
17—	29.96	72	66	SE	5		Cloudy.
18—	30.17	52	86	N	5		Clear.
19—	30.15	47	69	N	3		Clear.
20—	30.04	46	42				Clear.
21—	29.88	56	62	S	6		Clear.
22—	30.01	57	87	SW	10	1.05	Heavy rain.
23—	30.29	36	90	N	5		Clear.
24—	30.22	47	77	NE	2		Fair.
25—							Damp and cloudy.
26—				N			

MEMPHIS—OCTOBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
27—		29.26	31	79	N	12		Light snow.
28—		30.46	34	79	NW	2		Clear.
29—		30.27	42	50	S	2		Clear.
30—		30.10	48	76	S	2		Clear.
31—			37			2		Clear.

Oct. 6, Frost prognosticated for lower Missouri Valley, from Shreveport, La., telegraphed, "from summer heat to winter cold."

" 7, Highest barometric pressure over Tennesse; snow at Pottsville, Pa.

" 14, Slight frost in morning.

" 21, Heavy frost.

" 26, Falling temperature, heavy rain all day and at night still severe.

MEMPHIS—NOVEMBER.

1—		30.37	47		SE	5	Clear.
2—		30.27	47	84	NW	5	Cloudy.
3—		30.21	49	63	NE	2	Clear.
4—						Rain W. Tenn.	
5—		30.11	67	87	NE	1	Cloudy.
6—		30.00	55	86	NE	1	Clear.
7—		30.03	62	61	NW	6	Fair.
8—		30.18	53		SW	4	Clear.
9—		30.16	56	62			Clear.
10—		30.00	59	59	SE	2	Clear.
11—		29.99	60	15	NW	12	Cloudy.
12—		30.20	40	47	NW	1	Clear.
13—		30.05	42	42	S	6	Clear.
14—		30.15	45	50	S	6	Clear.
15—		30.10	64		SW	8	Fair.
17—		29.35	55	50	SW	3	Fair.
19—		30.23	32	59	W	1	Clear.
20—		30.18	40		S	5	Clear.
21—		30.21	49	78	SE	1	Cloudy.
22—		30.21	49		SE	1	Snow.
24—		29.98	43	75	SW	9	Clear.
25—		30.14	44	53	NE	4	Clear.
26—		29.91	51	52	S	6	Clear.

MEMPHIS—NOVEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather
27—		30.04	43	35	NE	10		Cloudy.
28—		30.49	35	53	NE	5		Fair.
29—		30.41	44		NE	4		Fair.

November 1, Heavy frost.

MEMPHIS, TENN.,

Fronting westwardly on the Mississippi River, situated on high clay banks. In the southeasterly part being divided by Wolf Creek which enters the Mississippi, and in high water overflowing its low and swampy banks from backing up water. Altitude (above level of sea) 530 feet. Latitude, 35.08°. Longitude, 88°. Isotherms, 65°. Population, 40,226.

MORTALITY OF YELLOW FEVER AT MEMPHIS, TENN.

(NEWSPAPER DISPATCHES.)

Sept.	14	10 deaths	Oct.	6	37 deaths
"	15	8 "	"	7	43 "
"	16	12 "	"	8	31 "
"	17	19 "	"	9	48 "
"	18	12 "	"	10	55 "
"	19	24 "	"	11	45 "
"	20	2 "	"	12	46 "
"	21	8 "	"	13	38 "
"	22	10 "	"	14	41 "
"	23	11 "	"	15	41 "
"	24	16 "	"	16	26 "
"	25	20 "	"	17	30 "
"	26	15 "	"	18	26 "
"	27	21 "	"	19	30 "
"	28	21 "	"	20	17 "
"	29	21 "	"	21	27 "
"	30	15 "	"	22	27 "
Oct.	1	18 "	"	23	21 "
"	2	28 "	"	24	22 "
"	3	19 "	"	25	24 "
"	4	31 "			
"	5	45 "	Total to Oct. 25		1062 deaths

MORTALITY OF MEMPHIS—*Continued.*

Total to Oct. 25	1062	deaths.	Nov. 3	4	deaths.
Oct. 26	24	"	" 7	2	"
" 27	18	"	" 8	3	"
" 28	14	"	" 9	2	"
" 29	9	"	" 11	1	"
" 30	12	"	" 15	1	"
" 31	5	"			
Nov. 2	5	"	Total	1162	deaths.

For the purpose of contrasting, I enclose the meteorological records of New Orleans for the same period, where, contrary to all expectations, but isolated sporadic cases of yellow fever occurred, instead of a wide-spread and devastating epidemic.

NEW ORLEANS, LA.,

Fronting westwardly on Mississippi River, leveling below low water mark, is surrounded by swampy ground and many bayous and lakes. Latitude, 29.67°. Longitude, 90°. Isotherm, 70°. Population, 191,500. High water last spring and summer.

NEW ORLEANS—JUNE.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.11	78	82	S	2		Clear.
	4.35	30.05	80	74	E	12	.01	Fair.
	11.00	30.10	75	85	SE	4		Cloudy.
2	7.35	30.10	74	81	E	4		Fair.
	4.35	30.03	84	52	NE	6		Fair.
	11.00	30.01	77	86	SW	4		Fair.
3	7.35	30.01	75	85	W	1		Fair.
	4.35	29.91	86	55	W	7		Fair.
	11.00	29.95	78	82	SW	4		Clear.
4	7.35	29.97	77	86	SW	1		Clear.
	4.35	29.91	83	67	SW	10		Fair.
	11.00	29.96	79	78	S	4		Clear.
5	7.35	29.95	78	82	S	6		Clear.
	4.35	29.96	77	67	SE	10	.26	Light rain.
	11.00	29.96	75	90	SW	3	.64	Light rain.
6	7.35	30.00	75	85	Calm		.11	Cloudy.
	4.35	29.99	83	66	SE	4	.01	Cloudy.
	11.00	29.99	77	86	SE	2		Fair.

NEW ORLEANS—JUNE—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
7	7.35	30 04	76	86	SE	4		Fair.
	4.35	29.99	83	70	S	6	.01	Cloudy.
	11.00	30.03	76	86	SE	6		Cloudy.
8	7.35	30.04	77	90	Calm			Threatening.
	4.35	29.98	79	74	NW	4	.26	Threatening.
	11.00	29.99	77	82	SE	4	.01	Fair.
9	7.35	29.98	78	86	SE	2		Fair.
	4.35	29.96	78	78	SW	3	.66	Light rain.
	11 00	29.99	76	86	E	4	.01	Fair.
10	7.35	30.01	77	82	SE	6		Fair.
	4.35	30 01	79	78	SE	6	.97	Cloudy.
	11.00	30.00	76	90	SE	6		Fair.
11	7.35	30.08	78		SW	4	.02	Cloudy.
	4.35	30.05	79	82	S	8		Cloudy.
	11.00	30.09	79	82	W	6		Fair.
12	7.35	30.09	79	82	W	6		Fair.
	4.35	30.00	89	60	SW	6		Fair.
	11.00	30.03	78	82	Calm		.53	Fair.
13	7.35	30.01	80	78	NW	4		Fair.
	4.35	29.95	82	74	N	10	.01	Cloudy.
	11.00	29.92	80	82	SW	8		Cloudy.
14	7.35	29.93	79	82	SW	6		Threatening
	4.35	29.85	89	80	W	12	.01	Fair.
15	7.35	29.91	81	82	SW	6		Fair.
	4.35	30.02	77	82	W	4	.31	Light rain.
	11.00	30.02	77	86	S	4	.17	Light rain.
16	7.35	30.04	77	82	SE	4	.29	Fair.
	4 35	29.99	85	66	SW	12	.18	Fair.
	11.00	30.03	79	82	S	6	.06	Light rain.
17	7.35	30.03	81	78	SE	8		Fair.
	4.35	30.01	81	78	S	8	.12	Fair.
	11.00	30 02	79	82	S	6		Cloudy.
18	7.35	29.98	79	74	SE	6	.05	Fair.
	4.35	29.96	79	78	SE	4	.13	Fair.
	11.00	29.99	74	79	SE	8	.05	Fair.
19	7.35	30.06	78	86	SE	6		Fair.
	4.35	30.09	86	65	SE	12		Fair.
	11.00	30.11	80	82	S	4		Clear.
20	7.35	30.15	80	86	SE	1		Clear.
	4.35	30.09	88	52	SW	6		Fair.
	11.00	30.12	87	78	SW	4		Fair.

NEW ORLEANS—JUNE—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
21	7.35	30.10	81	82	S	2		Fair.
	4.35	30.02	89	56	SW	8		Fair.
	11.00	30.01	81	82	SW	4		Fair.
22	7.35	30.04	81	82	S	4		Fair.
	4.35	29.97	88	55	SW	2		Fair.
	11.00	30.02	82	74	S	4		Fair.
23	7.35	30.05	82	74	SW	4		Clear.
	4.35	30.04	86	65	SE	9		Fair.
	11.00	30.09	81	78	S	4		Clear.
24	7.35	30.14	80	78	NW	4		Fair.
	4.35	30.12	83	67	NW	12	.01	Cloudy.
	11.00	30.12	79	78	E	2		Cloudy.
25	7.35	30.14	79	82	E	8		Fair.
	4.35	30.06	87	62	E	12		Fair.
	11.00	30.09	81	74	SW	4		Clear.
26	7.35	30.14	79	82	W	6		Fair.
	4.35	30.08	86	65	NE	8		Cloudy.
	11.00	30.10	81	74	NW	3		Cloudy.
27	7.35	30.09	80	78	NE	4		Fair.
	4 35	30.00	83	70	SE	6		Cloudy.
	11.00	30.00	81	78	E	2		Cloudy.
28	7.35	29.95	77	90	NE	8	.47	Light rain.
	4.35	29.86	78	82	E	1	1.20	Cloudy.
	11.00	29.85	77	82	E	4		Fair.
29	7.35	29.83	77	82	Calm			Fair.
	4.35	29.74	85	61	SW	4	.04	Fair.
	11.00	29.76	79	82	SW	6		Fair.
30	7.35	29.81	75	85	W	10		Clear.
	4.35	29.83	88	59	SW	8		Fair.
	11.00	29.91	81	78	S	6		Clear.

NEW ORLEANS—JULY.

1	7.35	29.96	81	82	SE	12		Clear.
	4.35	30.01	88	60	SE	12		Fair.
	11.00	30.05	81	82	SE	4		Clear.
2	7 35	30.14	81	87	SE	2		Clear.
	4.35	30.16	89	63	SE	12		Fair.
	11.00	30.16	82	78	S	5		Clear.

NEW ORLEANS—JULY—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
3	7.35	30.19	81	86	SE	2		Clear.
	4.35	30.13	89	63	E	6		Fair.
	11.00	30 14	83	74	S	3		Clear.
4	7.35	30.15	82	78	W	6		Clear.
	4.35	30.09	91		SE	6		Fair.
5—	4.35	30.02	91	53	W	1	.01	Clear.
6	4.35	29.95	94	50	W	4		Clear.
	11.00	29.97	85	61	W	4	.01	Cloudy.
7	7.35	29.99	84	75	NE	8		Fair.
	4.35	29.94	95	41	NE	6		Clear.
8	4.35	29.93	95	42	W	10		Clear.
	11.00	29.96	85	49	N	4		Fair.
9	4.35	29.97	92	39	W	9		Fair.
	11.00	29.99	81	70	NW	8		Clear.
10	7.35	30.01	83	67	NE	2		Clear.
	4.35	29.93	92	51	W	8		Fair.
	11.00	29.96	84	70	W	4		Fair.
11	7.35	30.01	81	82	W	2		Threatening
	4.35	29.96	88	69	SE	6	.21	Threatening
	11.00	29.94	80	78	W	4	.46	Threatening
12	7.35	30.05	79	86	W	4		Cloudy.
	4.35	30.02	87	62	SW	8		Fair.
	11.00	30.00	82	83	SW	3		Fair.
13	7.35	30.11	81	82	SW	7		Fair.
	4.35	30.06	86	68	S	12		Fair.
	11.00	30.06	83	74	SE	5		Cloudy.
14	7.35	30.13	78	86	NE	10	.10	Light rain.
	4.35	30.09	86	65	E	14		Fair.
	11.00	30.07	82	75	E	5		Fair.
15	4.35	30.02	84	75	E	15		Cloudy.
	11.00	30.04	79	82	E	6	.02	Fair.
16	7.35	30.06	80	78	E	8		Clear.
	4.35	30.03	86	58	SE	16		Fair.
	11.00	30.04	80	78	S	4		Fair.
17	7.35	30.06	81	71	E	10		Clear.
	4.35	30.06	86	69	SE	12		Fair.
	11.00	30.05	81	78	S	5		Clear.
18	7.35	30.11	82	83	SE	2		Clear.
	4.35	30.06	82	67	N	4		Cloudy.
	11.00	30.08	80	82	Calm			Fair.

NEW ORLEANS—JULY—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
19	7.35	30.11	80	82	Calm			Fair.
	4.35	30 06	85	64	S	8	.09	Fair.
	11.00	30.06	78	78	NW	6		Cloudy.
20	7.35	30.08	79	82	Calm			Fair.
	4 35	30.03	81	74	NW	4	.14	Cloudy.
	11.00	30.03	80	74	Calm			Cloudy.
21	7.35	30.03	77	82	SW	1		Threatening.
	4 35	30.03	77	82	NE	6	.90	Light rain.
	11.00	30.04	76	86	E	5	.04	Light rain.
22	7.35	30.08	75	90	NE	8	.84	Light rain.
	4.35	30.11	75	90	SE	16	.83	Cloudy.
	11.00	30.12	75	90	E	6	.02	Fair.
23	7.35	30.20	77	86	SE	6		Fair.
	4.35	30.19	84	64	SE	8		Fair.
	11.00	30.23	80	82	Calm			Fair.
24	7.35	30.21	77	90	SE	8	.01	Threatening
	4.35	30.20	75	85	SW	4	.28	Light rain.
	11.00	30.11	75	81	S	1	.10	Fair.
25	7.35	30.09	75	81	W	6		Clear.
	4.35	30.01	82	70	SE	6	.25	Fair.
	11.00	30 05	78	78	SW	2		Fair.
26	7.35	30.07	77	82	Calm			Fair.
	4.35	30.06	87	55	S	6		Fair.
	11.00	30.05	76	86	SE	3	.04	Clear.
27	7.35	30.10	78	86	SW	4		Clear.
	4.35	30.08	85	64	E	4		Fair.
	11.00	30.10	80	78	S	2		Fair.
28	7.35	30.11	80	74	Calm			Fair.
	4.35	30.08	79	69	S	5	.01	Light rain.
	11.00	30.05	79	86	SW	4	.01	Fair.
29—11.00		30.09	78	82	S	4		Cloudy.
30	7.35	30.08	79	86	SE	1		Fair.
	4.35	30.09	78	86	S	8	.65	Cloudy.
	11.00	30.08	76	86	SE	3	.08	Fair.
31	7.35	30.13	77	90	SE	1		Fair.
	4.35	30.11	85	71	S	12	.07	Fair.
	11.00	30.11	79	78	SE	4	.01	Clear.

NEW ORLEANS—AUGUST.

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
1	7.35	30.16	80	86	Calm			Clear.
	4.35	30.14	82	74	SE	4	.09	Fair.
	11.00	30.13	80	72	Calm			Clear.
2	7.35	30.16	80	86	Calm			Clear.
	4.35	30.07	89	47	W	1		Fair.
	11.00	30.04	81	78	Calm			Fair.
3	4.35	30 03	90	60	NW	6		Fair.
	11.00	30.05	81	74	NW	2		Fair.
4	7.35	30.08	82	78	NE	6		Clear.
	4.35	30.04	83	64	E	1		Cloudy.
	11.00	30.07	80	82	E	3	.02	Cloudy.
5	7.35	30.10	81	78	E	2		Fair.
	4.35	30.09	81	82	NE	6		Cloudy.
	11.00	30.06	78	82	NE	7		Fair.
6	7.35	30.08	65	90	NE	8		Cloudy.
	4.35	30.03	84	64	SE	6		Fair.
	11.00	30.03	80	70	Calm			Fair.
7	7.35	30.05	78	82	E	6		Fair.
	4.35	30.00	82	70	E	8	.10	Fair.
	11.00	30.00	78	82	E	4		Clear.
8	7.35	30.02	79	86	NE	4		Fair.
	4.35	29.99	81	78	E	10	.10	Threatening.
	11.00	29.98	78	86	E	12	.03	Light rain.
9	7.35	30.02	80	86	E	12	.01	Fair.
	4.35	30.02	77	90	E	10	2.03	Light rain.
	11.00	30.03	76	90	SE	8	.04	Cloudy.
10	4.35	30.05	86	65	SE	12		Fair.
	11.00	30.03	80	86	S	1		Fair.
11	7.35	30.07	79	90	S	1		Fair.
	4.35	30.06	79	82	NE	20		Light rain.
	11.00	30.01	77	90	NW	1	.12	Cloudy.
12	7.35	30.06	79	86	SE	4		Fair.
	4.35	30.02	84	77	SW	8	.10	Fair.
	11.00	30.03	79	82	SW	2		Clear.
13	7.35	30.08	79	86	SW	3		Fair.
	4.35	30.00	89	56	W	10		Fair.
	11.00	30.02	81	78	W	4		Fair.
14	7.35	30.03	79	90	W	5		Threatening.
	4.35	29.94	81	78	Calm		.21	Fair.
	11.00	29.94	78	86	W	4		Cloudy.

NEW ORLEANS—AUGUST—*Continued.*

Date	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
15	4 35	29.89	87	55	E	4		Fair.
	11.00	29.87	80	82	S	4		Fair.
16	7.35	29.93	79	86	Calm			Fair.
	4.35	29.89	88	46	E	6		Fair.
	11.00	29.92	81	74	S	3		Fair.
17	4.35	29.92	89	49	SE	12		Fair.
	11.00	29.98	81	70	W	2		Clear.
18	7.35	30.02	80	82	SW	1		Fair.
	4.35	30 00	84	67	NW	10	.01	Fair.
	11.00	29 98	78	82	NW	4		Fair.
19	7.35	30.02	78	82	Calm	8		Clear.
	4.35	29 96	84	52	NW			Fair.
	11.00	29.98	82	70	W	2		Fair.
20	7.35	30.00	81	78	Calm			Clear.
	4.35	29.95	81	78	SE	4		Light rain.
	11.00	29.94	80	73	Calm			Cloudy.
21	7.35	30.02	73	90	NW	10	2 48	Heavy rain.
	4.35	29.94	81	45	NE	16		Fair.
	11.00	29 95	76	86	NE	6		Fair.
22	7.35	30.01	77	90	NE	8		Fair.
	4.35	29.99	83	74	E	6	.58	Fair.
	11.00	30 02	74	86	SE	4	.35	Fair.
23	7.35	30.10	78	86	SE	4		Fair.
	4.35	30.09	82	78	E	8	.04	Fair.
	11.00	30.09	80	82	S	4		Clear.
24	7.35	30.17	80	86	SE	1		Clear.
	4.35	30.08	89	47	N	3		Fair.
	11.00	30.09	80	78	W	6		Fair.
25	7.35	30.07	80	86	NW	5		Threatening.
	4.35	29.99	87	69	NE	1	.01	Fair.
	11.00	30.00	78	82	N	4		Clear.
26	7.35	30.04	78	8.	Calm			Clear.
	4.35	30.00	79	74	SE	6		Threatening.
	11.00	29.99	77	82	Calm			Clear.
27	7.35	30.00	78	78	SW	2		Fair.
	4.35	29.98	89	52	SW	1		Fair.
	11.00	30.01	79	74	E	8		Cloudy.
28	7.35	30.05	78	90	Calm			Fair.
	4.35	30.02	87	62	SE	2		Fair.
	11.00	30.05	80	74	Calm			Clear.

NEW ORLEANS—AUGUST—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
29	7.35	30.14	80	78	Calm			Fair.
	4.35	30.15	83	74	SE	5	.23	Cloudy.
	11.00	30.18	80	82	SE	1		Clear.
30	7.35	30.22	81	82	SE	1		Clear.
	4.35	30.19	87	65	SE	6		Fair.
	11.00	30.20	81	74	Calm			Clear.
31	7.35	30.20	80	82	SW	1		Clear.
	4.35	30.10	84	64	SE	7	.04	Fair.
	11.00	30.12	81	82	S	2	.01	Cloudy.

NEW ORLEANS—SEPTEMBER.

1	7.35	30.17	77	82	S	6		Threatening.
	4.35	30.09	85	61	W	2		Fair.
	11.00	30.09	78	81	SE	2		Fair.
2	7.35	30.14	80	78	Calm			Fair.
	4.35	30.09	82	78	SW	13	.21	Fair.
	11.00	30.10	79	82	Calm			Fair.
3	7.35	30.13	79	82	Calm			Clear.
	4.35	30.09	86	68	SE	8	.02	Threatening.
	11.00	30.08	80	78	S	2		Fair.
4	7.35	30.15	80	82	Calm			Clear.
	4.35	30.09	81	71	SE	8		Heavy rain.
	11.00	30.09	80	78	SW	5	.21	Clear.
5	7.35	30.19	79	86	SW	4		Fair.
	4.35	30.10	88	52	W	6		Fair.
	11.00	30.13	81	82	W	3		Fair.
6	7.35	30.13	80	78	NW	4		Fair.
	4.35	30.05	95	58	SE	1		Fair.
	11.00	30.08	78	82	N	8	.02	Cloudy.
7	4.35	30.06	76	86	NE	12	.55	Cloudy.
	11.00	30.07	75	90	NE	8		Cloudy.
8	7.35	30.09	74	85	NE	12	.09	Cloudy.
	4.35	30.04	80	78	E	10	.03	Cloudy.
	11.00	30.07	76	86	NE	9		Cloudy.
9	7.35	30.05	76	81	NE	8		Fair.
	4.35	30.01	82	70	NE	15		Cloudy.
	11.00	30.03	77	82	NE	16		Cloudy.
10	7.35	30.07	73	81	N	8		Clear.
	4.35	30.03	83	61	E	8		Fair.
	11.00	30.06	76	76	E	14		Cloudy.

NEW ORLEANS—SEPTEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
11	7.35	30.10	75	76	NE	6		Clear.
	4.35	30.05	81	62	E	11		Fair.
	11.00	30.01	77	72	Calm			Clear.
12	7.35	30.05	76	76	E	3		Fair.
	4.35	29 97	89	56	NE	1		Fair.
	11.00	29.97	78	78	SE	2		Clear.
13	7.35	39.96	79	73	Calm			Fair.
	4.35	29.93	85	58	W	6		Threatening.
	11.00	30.00	73	81	NE	16		Threatening.
14	7.35	30.04	72	75	N	12		Threatening.
	4 35	29.99	80	58	N	8		Fair.
	11.00	30.03	73	59	NE	10		Fair.
15	7.35	30.08	68	64	NE	8		Clear.
	4.35	30.03	81	52	NW	8		Fair.
	11.00	30.05	79	65	NE	3		Cloudy.
16	7.35	30.08	73	67	N	10		Cloudy.
	4.35	30.05	80	74	E	12		Cloudy.
	11.00	30.04	75	81	NE	10		Clear.
17	7.35	29.98	74	81	E	8		Threatening.
	4.35	29.93	80	61	E	15		Fair.
	11.00	29.90	75	81	NE	11		Fair.
18	7.35	29.88	75	85	N	7		Cloudy.
	4.35	29.81	79	82	NE	15	.10	Threatening.
	11.00	29.82	75	85	NE	9	.02	Cloudy.
19	7.35	29.86	76	86	NW	8		Clear.
	4.35	29.81	86	58	NW	8		Fair.
	11.00	29.86	80	82	Calm			Clear.
20	7.35	29.96	73	81	NE	8		Clear.
	4.35	29.93	83	60	E	6		Fair.
	11.00	30.00	76	86	E	6		Clear.
21	7.35	30.02	72	71	NE	10		Clear.
	4.35	30.01	82	60	E	14		Clear.
	11.00	29.99	76	81	NE	5		Clear.
22	4.35	29.92	83	78	SE	15		Fair.
	11.00	29.90	78	86	NE	2	.01	Fair.
23	7.35	29.96	76	90	N	6	.03	Light rain.
	4.35	29.85	84	57	SE	6	.02	Fair.
	11.00	29.91	77	72	NE	12		Fair.

NEW ORLEANS—SEPTEMBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather.
24	7.35	29.90	75	81	NE	5		Cloudy.
	4.35	29.87	81	74	NE	9		Fair.
	11.00	29.93	77	82	SE	3		Fair.
25	7.35	29.99	76	86	SE	2		Fair.
	4.35	29.95	83	70	E	12		Cloudy.
	11.00	29.98	77	86	E	4		Fair.
26	7.35	30.03	78	86	SE	6		Threatening
	4.35	30.02	80	86	E	10		Threatening
	11.00	30.04	79	90	E	9		Threatening
27	7.35	30 05	79	90	E	6	.36	Threatening
	4 35	30.01	77	90	SE	12	.40	Threatening
	11.00	30.03	79	90	SE	7	.16	Light rain.
28	7.35	30.03	77	95	E	6	.02	Cloudy.
	4 35	30.00	79	86	E	8	.66	Cloudy.
	11 00	30.00	78	90	SE	2		Cloudy.
29	7.35	30.03	77	90	SE	1	.02	Fair.
	4.35			69	N	1	.03	Cloudy.
	11.35	30.01	80	82	Calm			Fair.
30	7.35	30.03	77	86	N	5		Threatening.
	4 35	29.96	82	63	NW	12		Clear.
	11.00	30.00	75	76	N	10		Fair.

NEW ORLEANS—OCTOBER.

Quotations at 11 P. M., as telegraphed for newspaper publication.

1—	29.98	76	76	E	1		Clear.
2—	30.04	76	81	E	2		Clear.
3—	30.00	75	76	SE	1		Clear.
9—	30.15	68		SE	3		Clear.
13—	30.17	60	68	E	18		Clear.
14—	30.21	69	84	E	3		Clear.
15—	30 26	72	85	E	8		Clear.
17—	30.09	73	81	SE	6		Clear.
18—	29.99	70	90	N	8	.67	Light rain.
19—	30.15	53	60	NW	20		Clear.
20—	30.05	57	57	W	5		Clear.
21—	29.98	68	78	S	7		Clear.
22—	30 06	67	80	SE	7		Fair.

NEW ORLEANS—OCTOBER—*Continued.*

Date.	Hour.	Barometer.	Thermometer.	Humidity.	Wind. Direction.	Wind. Velocity.	Rainfall.	State of Weather
23—		30.09	66	94	NW	8		Light rain.
24—		30.24	68	84	NE	2		Fair.
27—		30.09	61	49	NW	8		Fair.
28—		30.39	48	37	N	16		Clear.
29—		30.33	51	52	W	2		Cloudy.
30—		30.22		62	S	6		Clear.
31—		30.27	58		N	10		Clear.

The tables of New Orleans demonstrate that previous and during the period the epidemic raged in Shreveport and Memphis, an equalized and perfect oceanic climate prevailed there, where, on the contrary, the tables of Shreveport and of Memphis exhibit, that both localities were under a state of weather, which, to their geographical stations, was entirely irrelevant to the season. They also show wide ranges in temperature, with sudden oscillations, even to actual coldness, attended with an undue amount of moisture, consequently indicating a perversion of the otherwise proper electrical state of the atmosphere, and of the presence of ozon[1]. Ordinarily, in clear weather, the electricity of the atmosphere is of the positive kind—so also after the shower rain in summer days—but moist and cold weather exhibits material reduction of positive electricity. In continuous rainy weather atmospheric electricity is reduced to the minimum[2]. With regard to ozon, as is well known, rather similar peculiarities are observed[3], and hence ozon is more predominant in oceanic climates, owing to the more frequent and severe rain showers there. From these laws and facts the conclusion may be drawn, and is already verified by actual observation, that inequalities of the otherwise proper atmospheric surroundings are followed by serious consequences to the human organism, congenial to epi-

1 The tables required to be given in full length as well as to exhibit the weather for the summer months prior to the outbreak of the epidemic. Reducing them to the monthly mean would have been a simultaneous reduction of their value and importance, for only from the plain view of the actual state of the weather judgment can be found as to its mitigating or deliterious influence.

2 Mueller. Lehrbuch d. kos. Physik

3 Pierer's Universal-Lexicon.

demic diseases. This can fully be learned from the observations of Ebermayer on atmospheric ozon[1]. He states: According to Prestel, in the marshes of Ostfriesland (province of Hannover) intermittent fever does not prevail when atmospheric ozon is *over* the yearly mean; with the yearly mean sporadic cases occur; but *below* the yearly mean *these fevers assume an epidemic character.* From own experiments he relates: There are oxidizeable substances, such as starch, sugar, organic acids, fats, which for themselves are not effected by ozon, but when an alkali is admixed, they are more or less *rapidly* oxidized.

Moreover we know, if deficiencies of positive electricity supervene, the atmosphere becomes sultry and electrically negative, for the positive electricity is then in the strata of the clouds, and then putrid decomposition assumes a spreading character upon the earth's surface.

Now bearing in mind that, also, in human organisms, alkaline agencies—ammonia—if mixed with compounds of the glycose series, eagerly absorb oxygen or ozon, and in the process of expelling the alkali, at the same time, from a great number of blood corpuscles, the oxygen is also displaced, and thus breaking up haemo-globin into globulin and haematin; if then the necessary proportion of chloride of sodium is not present for to redissolve globulin, thereby forming para globin, which possess the capacity again to be converted into haemo-globulin[3], haematin and globin then undergo decompositions, and form the yellow coloring matter in the blood to such an extent that in consequence thereof the cuticle of yellow fever patients exhibits the characteristical stain.

Relative to the state of the weather, when extensive ranges of temperature are experienced, frequently coincident to or followed by moisture, health does not remain insensitive under them, the more so when the system is influenced by the organic change upon which the so called "miasmatic" fevers are dependent: the standard of the

1 Zeitschrift fuer Meteorologie. Vienna, 1873, No. 22.

2 Comp. Hynsius, Pflueger's Arch. f. Physiologie, 1869. Also, Pryer, ibid. 1868.

3 Comp. Spectral Analysis, Hoppe-Seyler, l. c. § 123 and 154. Also, Niemeyer, l. c., p. 725.

general health declines perceptibly. The importance and precision of this law is fully expressed by the following facts: "By respiration there is given off at 0° in warm and dry air . . . . . 293,040 caloric units,
at 30° in warm and dry air, . . . 274,050 " "
hence only a difference of . . . . 19,000 " "
at 0° in warm and saturated moist air, 265,050 " "
at 30° " " " " 105,390 " "
hence a difference of . . . . . 160,000[1] " "

At 0° haemoglobin is not apt to be broken up into haematin and globulin, but much more so in moist and elevated temperature; and for this reason yellow fever is subsiding when frost sets in.

Still more potential evidence may be adduced to illustrate the law to which human nature is subordinate. The subjoined table[2] states the mortality at Koenigsberg, Prussia, under wide ranges of temperature.

Months.	Temperature. Lowest	Mortality.	Temperature. Highest.	Mortality.
Jan.	— 7.6°R	216	— 0.1°R	182
Febr.	— 2.1	204	+ 0.7	168
March	+ 0.2	170	+ 2.5	174
April	+ 4.1	171	+ 6.6	151
May	+ 9.1	161	+10.4	128
June	+ 1.5	127	+13.6	149
July	+13.4	114	+15.1	131
August	+13.0	150	+14.5	148
Sept.	+ 9.8	140	+11.5	156
October	+ 5.5	157	+ 7.4	152
Nov.	+ 1.7	165	+ 4.0	155
Dec.	— 3.9	186	+ 1.4	161

This table demonstrates the exact ratio of mortality in proportion to the *intensity* of meteorological influences, and attributes to elevate this fact high above contradiction, of which the following table and observations also afford a striking corroborating proof:

1 Pettenkofer. Populære Vorlesungen.

2 Oesterlen, Handbuch der med. Statistik, p. 319.

Locality.	Period.	Oscillations Of Temperature.	Oscillations Of Mortality.
Padua,	1725–1769	18.09°R	0.602.
Stuttgart,	1780–1821	16.01	0.481.
Koenigsberg,	1817–1826	15.96	0.384.
Genf,	1816–1827	15.08	0.343.
Hamburg,	1819–1825	15.04	0.279.

It is also observed that: ordinarily the annual mortality of Constantinopel figures, on an average, to 12,500, but for the year 1850, when there also no particular disease prevailed only such common to highly elevated temperature—this summer is said to have been very hot (trés chaud)—the mortality reached 14,410[2].

In reflecting upon the details related in the foregoing pages of this treatise, I hope to have succeeded to illustrate the importance and indispensibility of recognizing meteorological influence as evident and essential data in the causation and ætiology of epidemic diseases. Also the laws, probably in part elucidated, pursuant to which a demonstrable and scientific account of yellow fever is now made available, may consistently have been pointed out, and thus the following points, in form of a synoptical resume, may, probably, be asserted as established.

First—Instead of the "infecting specific poison" or the fancied hypothetical X, natural and genetically connected causes, viz: the predisposing and exciting causes, have amply been illustrated.

Second—That in deviations from healthful physiologico-chemical actions of the liver are to be found the very basis of the rational account of the processes engaged in the development and course of yellow fever, namely: the "glycogen," normally formed in the liver secretions, when suffering an admixture of an alkali—ammonia—ferments and thereby reacting destructively to the blood in proportion to the range above zero of the thermometer, thus breaking up haemoglobin into globin and haematin, and from the latter substance the coloring matter, which char-

1 Oesterlen, Handbuch der med. Statistik, p. 321; compare also Ballard, Rankins half-yearly Abstract, Philadelphia, July, 1869, p. 9, for similar proof.

2 Recueil des travcaux du Comite Consultatif, Paris, 1872, Tome II, p. 149.

acteristically stains the cuticle of yellow fever patients, is formed.

Third—Pursuant to the substances, processes and conditions here treated of in detail, the ætiology of yellow fever may now be demonstrated by way of experiment in the physiological laboratory, and thus plainly indicating sanitary ameliorations only to apply to the predisposing causes, augmented by influences resulting from the civil or social state of individuals.

Fourth—Probably, that yellow fever is but of chemico-physiological origin, and its epidemic occurrence, caused by purely *physical* influences, may now appear sufficiently clear, and therefore all quarantaine restrictions, in view of "prevention" or as means of "protection," must now be regarded as entirely obsolete measures, and if still adhered to or put in force, must give testimony of a barbarous state where proper information is wanting.

Impressed with the urgent demand for intelligible, rational and scientific solutions of apparent occult problems in medicine, particularly pertaining to the ætiology of epidemic diseases, I confidently submit this feeble effort as a contribution to the culture of medical science, and with sincerity anticipate that such studies, as here advanced, may be pursued by far more able ones—by the savants of the profession—in order that truth and light may be distilled out of chaos and mystery, and that medicine may ultimately be freed from amazement.

In conclusion it remains a duty again to acknowledge the eminent benefit already derived from meteorological records, as thus far perfected by the United States government, owing to the establishment of signal stations or meteorological observatories all over the United States. Thus exact and extensive records are now accessible which not only enable physicists in perfecting physical geography, and mariners to obtain positive knowledge of the elements which they have to combat, but above all, in medicine *thus may be found the way out of darkness and hypothesis into the realm of facts, illuminated by the bright and penetrating light of reality.*

But one suggestion forces itself to be stated here, although done so with a great deal of timidity, namely: that these meteorological records, published by the United States government, would register also the atmospheric electricity and ozon, and that they may freely be distributed[1], and made accessible, if not otherwise, at least that they could be found in every library of note.

1 Although the immense number of 187,617 copies of the daily bulletin was distributed n 1872.—*See Annual Report of the Chief Signal Officer for* 1872, *p.* 80.

NOTE.—By referring to page 7, it will be noticed that the total number of deaths from yellow fever at Memphis during the past year is given at one thousand one hundred and *seventy-two*, while the tables on pp. 42 and 43 show but one thousand one hundred and *sixty-two* deaths. This is not a mistake on the part of the author who went very strictly, as far as figures and dates are concerned, by the Reports published by the U. S. Government.