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Medical Topography and Diseases of Warren County Ky.

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BY

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OF

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Respectfully inscribed

to

F. K. Bowling M. D.

Medical Topography.

It is a fact which reason would suggest, and which experience has verified, that the varied circumstances of soil, climate & local peculiarities presented by a country, do in numerous ways engender and modify diseases. Hence the necessity of investigating these circumstances and peculiarities, that we may be able not only to treat disease more successfully, but that we may prevent it in a great measure, by the employment of those means which the knowledge of the causes of diseases always points out. Governed by these facts I have been led to give this paper upon the topography of Warren County Kentucky, & to investigate the causes of those diseases, which have prevailed so extensively as to have gotten it the unenviable name of the "Grave Yard" of Ky. I would premise, however, that the amount of sickness was not the sole cause of the confinement of this title. It was ejaculated to suit the designs of citizens of surrounding counties, who were envious of the advantages this

county possesses over theirs in point of locality & commerce. Barren County is situated in the southern portion of Ky. near the 37th degree of north latitude & 9°. 30" of west longitude; embracing an area of — square miles of beautiful valley land. It is bounded on the north by Edmondson & Butler counties, with Green River separating it from the latter, - east by Barren - south by Allen and west by Simpson, Logan & Butler. On the north-west and south-east are two extensive ranges of hills, in many instances places forming the boundary of the county, in others, coming within the limits of said county. They gradually converge to the east & meet in the County Barren, at a place called Smith's Knob, where there is a chasm between them, through which passes the Louisville & Nashville turnpike. Thus we have a portion of Edmondson & Barren embraced in the same valley on the east; and as they diverge towards the west parts of many other counties are included in this valley. Though a valley, there are yet many hills which rise up from its level surface & in some places

there are a succession of hills & valleys for many miles. The soil of the county is very fertile consisting of mould with an abundance of lime with but little sand & a subsoil of tenacious red clay, which is generally found a few feet under the surface. An extensive bed of limestone forms the principal rock; in fact, other kinds are seldom found, but in a few places this arrangement is changed & we find small isolated beds of sand-stone, which seem originally to have consisted mostly of sand-now cemented together. This, almost, universal bed of limestone impregnates all of the water with the Carbonate of lime, which may be readily discovered by expelling the carbonic acid by means of heat, when the lime is deposited in abundance on the sides & bottom of the vessel; so great is this deposit that the spouts of kettles & other utensils often become completely stopped up by a single years use. This fact readily demonstrates that lime is present in the water & also affords a simple & ready means of getting rid of it, where from individual idiosyncracy or in those who have

been unaccustomed to its use, it becomes a source of irritation & consequently necessary to avoid its use. As in all calcarious regions there are many caves; near the head of this valley in the eastern range of hills is the great Mammoth Cave, which from its size & the peculiar formation of rocks in it, is justly entitled the "wonder of Ky." There are also many flats or sinks over country, which are peculiarly calculated to recieve & retain water, from the nature of the soil & the tenacity of the clay. These with those which are made artificially, as when making bricks, become filled with water & form small ponds; which though small at first, from the rootings of hogs & the tramping of large animals, ultimately, in some instances, become very large. They seldom "dry up," except in long continued drouths and when they do, the vegetable & animal matter which has collected here in large quantities, by being washed down by rains & by animal sinking, water, is exposed to the influence of the sun. But the exposure

of this matter too seldom occurs to permit the belief that this is the sole cause of the fever which appears here; besides this condition never occurs when the disease is most prevalent. The weather throughout the whole years is very variable scarcely 4 days in succession of the same temperature. The mean temperature of the year is 60°, which is the degree most comfortable to man & best suited to his intellectual and well as physical growth. The thermometer ranges from zero to blood heat the warmest weather being in July the coldest in January. The mean temperature of the different months, as shown by a Journal kept in 1830, may be seen in the following table.

January	38	July	82
February	40	August	81
March	48	Sept	69
April	54	October	54
May	54	November	42
June	80	December	38.

The difference between night & day is also

very great- probably greater than in the surrounding country- owing to its valley location. The heat which any object recieves during the day is being given out by radiation + as the sun disappears in the west, the air in immediate contact with the earth soon becomes cool and being heaviest remains at the bottom, & gives up a portion of the water which it contains, while the air of the neighboring hills when it has become cooled gradually sinks in to the valley beneath, making this a place of deposit for the water which it has blended with in the form of vapour- in the form of dew or frost, being unable to contain as much in its cooled condition as when warm. This is the cause of the greater amount of dew or frost seen in valleys than on the hills, & also the more constant appearance of frost or other productions which are liable to be killed by frost- on the hills than in the valleys. The productions of the valley are varied and abundant, The staple article is tobacco. Many valuable

medicinal substances grow here in profusion. to enumerate them all would be tedious; a few of the more important I will mention, Acetocella, Allium, Angelica, Arctium Lappa, Asarum, Calamus, Chenopodium, Cornus maculatum, Cornus Florida, Eupatorium Per., Hedeoma, Pul., Linum usita, Lyriodendron Tulip., Mentha Pip., Phytolaccae Dec., Podophillum Pelt., Prunus Virginus Inerci, Rhus Glabrum, Rubus Villosus, Salix, Sanguinaria Can., Sarsaparilla, Sassafras Laurus, Senega, Serpentaria Virst., Spigelia Mar., Stramonium Dat., Taraxicum Leon., Toxicodendron, Ulmus, Xanthoriza Apia, Zanthoxylum Frax, &c. These & many more are spontaneously furnished the physician by the kind hand of nature. So that kind he finds his Astringents, Tonics, Stimulants, Anthelmintics, Cathartics, Aromatics &c without being indebted European shops for them & he gets them unadulterated. The water courses are small & flow from east to west in the declivity of the county. All of them ultimately empty into the Ohio.

The largest of these is Barren River, which runs through the northern portion of the county; it is about an hundred yards in width & is the outlet for all the streams of the county & surrounding counties & the inlet for imports. Drakes creek next largest after passing through & watering the adjoining counties flows through the eastern part of this county & empties into Barren. Jennings creek rises near the middle of the county runs in a north west direction about three miles & empties into Barren. Casper river a stream scarcely deserving the name of river, passes through the western portion of the valley & also empties into Barren. Along these streams the lands are generally "bottoms," which extend from a few hundred yards to several miles on either side; covered with tall trees of Beech, Hickory & Sycamore, Elm &c thus form a beautiful contrast with the surrounding country which is covered with small low trees. Springs are abundant throughout the county. they are generally of limestone

water; but mineral springs are not uncommon, also charged with lime. The whole valley seems to have been once a Prairie & that this is true can be attested by men now living, but the great influx which ensued upon Ky, soon filled the valley (once the bloody ground of the Indians) with civilized men, who from interest kept down the raging fires, which yearly burned the tall & dry grass & thus permitted the growth of trees, which were before kept from growing by the fires. But along the course of the streams, the size & heighth of the trees show how they were permitted to grow long before the track of the white man was left upon the soil. How interesting would it be, as well as instructive, were we permitted to compare the diseases which prevailed in the first settling of the country with those that now exist - to note the difference betweens their effect upon red man & the white - & to trace the changes, which the increase of population - the better modes

of living, which the increase must give-
cultivation of the lands & the growing
of the forest, where once the prairie existed.
This would be interesting indeed, yet
impossible, as there is no medical history
of the early settlement of this county, left
us. The lands which once composed
the prairie are now called "barrens,"
from the small size of the trees; which
are principally oak & hickory, with an
undergrowth of oak & hazle bushes &
vines of various kinds entwining them-
selves among the the trees, forming
together in some places such a thick under-
growth as to be almost impenetrable.
The public improvements of the county are
few- there are- first- The turnpike road
from Nashville to Louisville; which was
made in 1835- towards Nashville the
roads runs in a southern direction from
Bowling Green & in an eastern course
towards Louisville; leaves the valley of
the chasm before spoken of. On both sides
of the road are many ponds, which were

made in digging the level the road previous to putting on the rock, & have continued to exist untill the present time, on account of the tenacity of the soil, which renders it peculiarly suited to hold the water. Another improvement is the Locks & dams, built on Barren river in 1841, which permits the passage of boats at all seasons of the year. At the same time ~~that~~ were erected the river was cleansed of all the old trees and logs which had been accumulating in it for years. The effect which the damming of this river has upon the diseases of the valley remains yet to be seen. The antiquities are but memmentos of a race who once possessed the land as a hunting ground. They consist of mounds or graves, flint axes, arrow heads &c. In some places these weapons are found in such numbers & associated with the proximity of the graves as to lead to the belief that a battle had been fought upon the ground, by hostile bands of Indians in their hunting

excursions. In the mounds the skeletons are found, with the trinkets of the dead warrior. The arrow heads are made of dark flint & the axes of grey speckled rock, which is found no where in the county & they are of a model & finish, which is truly surprising, when we reflect that they possessed no iron instruments of any kind. Bowling Green is the county seat of Warren & is situated near the centre of the county. It contains about 2000 inhabitants, who are intelligent, sober, & industrious. There are about 250 dwelling houses, besides stores, manufacturing establishments, shops &c. The plan of the town is very judicious being laid off into squares with the streets intersecting each other at right angles. It is built a little south of the river, which makes semicircle around the town from east to west. On the south and east are two high hills, from the summit of either of which is commanded an extensive prospect of the surrounding

country, with the chain of hills in north and south. running east & west as far as the eye can reach, covered with tall & stately trees and the gentle undulation of the land in the valley beneath. the town lying half way down the declivity. the gradual slope to the river. all together form a landscape so picturesque and beautiful as to fully repay one for the fatigue of climbing to this point.

In looking over the topography of the county and reasoning upon the influence which a variable climate. a ~~low~~ barometrical state of the atmosphere and the changes which the thermometer indicate between night and day. has upon the system, we would be led to the conclusion that those diseases ~~which~~ would prevail here which acknowledge cold as their cause; as also Intermittent & other fevers. For though we may not agree with Dr Bell in ascribing the origin of these diseases to cold & wet, yet we are bound to acknowledge that they are

influenced by these agents & that they can genually, with justice, be accused of being the exciting cause - at least. I deem it more rational to own that cold & wet may produce the phenomena of fever & to acknowledge my ignorance of its "modus operandi," than to succumb to the mysterious and far-fetched theory of malaria. To believe that emanations from decaying, vegetable matter, which escape the analytical powers of the chemist and defies his delicate tests - is generated in sufficient quantity to contaminate the atmosphere for miles around & when mixed with this amount of air, to be capable of when taken in to the system, of producing those derangements which characterize a fit of ague, requires more credulity that the theory of Dr Bell. Of what mighty strenght must the poison be; Is any thing known in the domains of chemistry, which can produce effects. Can any one explain why, when it has gained access to the system, it should lie dormant, untill met a cold

assists it in producing its specific effect on the economy. These are facts which the malarial theorist admit, but do not pretend to explain. On the other hand when we see persons, who have exposed themselves to cold & dampness & then immediately taken with the disease, I ask if it is not more reasonable to ascribe it to this, than to pass it by & go away off in search of some agent, which eludes our sense & which we can not prove to exist. Besides I think the appearance of the disease in certain localities & its absence in others differently situated, will bear us out in adopting this theory in preference to the malarial. Marsh Miasm, (the name given to this fancied cause) indicates its supposed place of origin as in stagnant pool or low wet grounds. Here it has been observed that health suffers most & as in such places the state of the earth is exceedingly favorable to vegetable production. they are generally covered with a luxuriant growth of grass & weeds

this suggested the idea that miasm was formed by this decomposition. But I should ascribe it to the immense fogs, which arise from the marshes & spread over the surrounding county. I think that the appearance of the disease in different parts of this county, will support the theory of Dr Bell. In speaking of wet in connection with cold it is meant that water being a better conductor of caloric, than air, the heat is taken from the body more rapidly and the changes of temperature have a much greater effect. In the first place then, it is noticed that the inhabitants of newly settled countries, are more subject to intermittents than and its accompanying fevers - than those of older & more thickly settled. And as population increases the disease invariably declines. Now I would ask, does the increase in population materially lessen the amount of vegetable decay? It certainly does not.

It may change the character, but does not diminish the quantity, except in cities & towns where it is prevented from growing. But, I think, the fact can be explained otherwise. In the fronts of new countries, the shade is so dense that it does not permit the sun to drive off the superabundant moisture, which accumulates there & saturates the air of the vicinity. And as water is a better conductor of heat than air - those places must be more subject to variations of temperature than those where the atmosphere is dry; besides it is a fact that the soil of new country always contains more water than that of old. Now as the country is becoming populated, the trees are cut down - thus permitting the circulation of the air & heat of the sun to carry off the moisture. The land being cultivated is more open to the absorption of the rains - the swamps are drained &c. And as they become more numerous, the inhabitants are better able to procure

warm clothing to protect them against the changes of the weather. It is also known that towns and cities are less obnoxious to the disease. The common explanation of this fact is, that the air of the woods, or other sources of malaria bordering the town, is driven up as it approaches by the heat. Any one may see the error of this, yet I have heard the advocates of this theory explain the fact in this way. If the heat of the city or town be greater than that of the surrounding country, the air would be expanded - made lighter, when it would naturally ascend & give place to the cooler air of the country. The fact is owing to the condition of the walks & streets & also to the amount of heat absorbed by the houses and rocks & the many fires may prevent those sudden changes, which otherwise would take place. And further, persons living in a town or city, is as a general rule, much less exposed to bad weather than those of the country.

At those periods of the year, when Intermittent fever most prevails, we have the heavies fogs & dews. When the countryman goes into the woods or fields & gets his feet & legs perfectly wet an attack of chills is very often the result & it is said, he had the predisposition already in his system. produced by malaria & the wet & cold is only charged with being the exciting cause. It is a fact that on hills & elevated lands the disease is more seldom found than in the valleys & low-lands. The cause of this is - the dews are not so great & the temperature much less variable, for if it becomes colder, the air sinks into the adjacent valley & gives place to warmer, the ground is not so damp & when it rains, the water runs off immediately. This theory better explains, why a person living near a pond or stream is liable to the disease, for the immense fog which arises daily from their surfaces would certainly have some serious effect, - whereas we can scarcely conceive of malaria originating from the

bottom of the stream or pond & passing up through the water. It would be absorbed by the water & thus would never reach the air. As all diseases caused by cold are ushered in by a chill (such is the case in Pneumonia, Pleurisy, Rheumatic fever &c) why should it be improbable that the same cause should produce the chill alone? But it may be asked, if changes of temperature be the cause of intermittent fever, why it does not appear in winter instead of the fall; I answer that in winter the air does not contain so much moisture. The atmosphere is heavier & in a given quantity there is more oxygen, consequently the heat is better supported. The system, too, has been brought by the gradual changes of the fall, to the generation of sufficient heat to protect it against these changes; while in summer, there being no demand for it, the body does not produce much heat, but on the contrary endeavors by the evaporation of water from the surface

- & the elimination of carbon by the liver to keep down its own temperature. Now any sudden change, while this function is interfered, immediately calls for more calorie than the system is capable of supplying; & the consequence is, there being a deficiency of heat, the skin becomes constricted & the discharge of the effete matter & its cooling evaporation is checked; And from sympathy or association of function the liver is affected - the carbon not being discharged as the liver does not act, the consequence is there is congestion of all the abdominal viscera & the result of this is an enlargement of the spleen; it being a spongy body admits of distention & hence the pain in the right side - a usual concomitant. This congestion frequently ends in chronic inflamation & the deposit of fibrine which takes place produces the permanent enlargement - termed "Ague cake". The effect which the imperfect elimination of carbon has upon the

system - are those of depression of the nervous system, as shown by the pain in the head, back + limbs - general lassitude - sickness of the stomach &c. This as it continues constitutes the first stage of the disease; after it has lasted for a longer or shorter time, reaction ensues - the lungs begin to throw off the superabundant carbon - the chilly sensations are followed by flushes of heat - until finally reaction is fully established. In order to discharge the carbon, it must first be consumed + this process produces the phenomena of fever - this continues until the superfluous amount is consumed, when the third stage sets in, which is characterized by profuse sweating, + a general subsidence of all the symptoms. In this third stage all the carbon + hydrogen consumed in the second are discharged. Then follows a stage of returning health which continues until the same cause or periodicity of the functions of the body (which may produce morbid phenomena

at regular periods, as well as natural ones) bring on the same train of symptoms enumerated above. Having made these on the cause of intermittens & associated fevers, I will attempt to show that the theory which I have adopted, is supported by observation of the disease, as it occurs in Warren County. As before stated the soil is peculiarly calculated to hold water. It remains upon the surface & arises in a constant evaporation & this with the many ponds & streams keeps up a low barometrical state & thus affords one of the requisites of intermittent fever. Being a valley the changes between night & day are very great when cool weather commences, & fogs & heavy dews are the consequence. It is also a temperate region & subject to all the variations which characterize such regions. It is not surprising, then, that all these combined should produce sickness. From analogy I would suppose that from the earliest settlement of the country, intermittents had prevailed, but of this nothing

positive is known, yet in the memory of the oldest inhabitants, it has been an endemic - prevailing some years to a greater extent than others, yet now it has almost entirely ceased. In 1838 & 9 the disease was more than usual, principally along the course of Barren river. Scarcely a family living on or near this river escaped & for years previously it had prevailed here to a greater extent than in other parts of the county. In 1840 the lock & dam was erected & every one expected that the disease would be frightfully increased thereby, but contrary to this, the frequency of intermittent fever has gradually decreased since that period & even the year following the damming up of the river, there was not half the amount of sickness, as formerly. Now, how is this to be accounted for? Is it to be ascribed to the building of this dam? It is true, that at the same time the river was cleared out, - the old logs & trees being removed, yet it

certainly can not be ascribed to this, for said logs to were left upon the banks & consequently in a ~~condition~~ more favorable to the generation of malaia, than when under the water. I think it attributable to the facts that raising the water covered hundreds of little islands, which had served the purpose of evaporators; for it is known that by keping any substance mosty moist, which is a better conductor of heat than water, a greater amount of evaporation will take place. The logs too, with their ends sticking out of the water induced this vaporization, as did also the swiftness of the current. All these being checked, the immense fogs were in a great degree done away with, which may fairly be assigned as the cause of fever. The most prevalent type was the intermittent, but the con-gestive, remittent & remittent bilious were not infrequent all I believe dependent upon the same cause, i.e. Cold

combined with irritation, which by its degree or locality or the state of the system at the time of attack - determine the grade of the fever. In remittent fever there is some irritation or inflamation which serves to keep up the fever between the paroxysms. Congestive fever is characterized by great depression of nervous system & the congestion is the consequence. Bilious remittent fever there is irritation or inflamation of the stomach & bowels, with sympathetic disorder of the liver. Only a few years after the erection of the dam, the next public improvement was completed, viz - the laying of the turnpike through the county. Here the ground was dug out in many places for leveling the road & ponds were thus formed along its sides, which have gradually increased to the present time - evaporating considerable quantities of water, which may be seen at times in the form of fog. Besides this, after the road was laid, built

as it is upon a bed of red clay, there is constantly little streams of water oozing from its sides which had collected here in times of rain & was prevented from running off by the rocks & from sinking by the clay. Here it stood forming an extensive evaporating surface & producing fogs, which spread out over the surrounding country. The first year after the road was made, intermittent fever broke out in its neighborhood very severely, which appeared in its most malignant forms as intermittent & congestive. A great many deaths occured from it owing partly to the fact that at that time the effect of Quinine was not fully known & was not given in sufficient quantities to overcome the disease. In other parts of the disease county, the disease was not more prevalent than usual. Here is a fact in support of the theory that cold & wet are cause of intermittent fevers, which can not be explained in any other way- first- the appearance of the disease im-

-mediately after the road was finished in a neighborhood, when it had before not existed; 2ndly- it could not be ascribed to malaria if the road was the cause, for there was no vegetable decay upon the surface. And the disappearance of the disease when the road had become filled up & trodden down, so as to prevent the collection of water, adds another argument in favor of this theory. But intermittents from for the last few years has greatly abated, probably on account of the increase of population, the lands being cleared & cultivated, the marshes & ponds drained- the people better provided with warm clothing & they have learned from experience that it is more economical to take care of themselves in bad weather & loose a little time, than to pay Doctors bills. Again- those that live here have become acclimated, for it is was noticed that persons emigrating to this county were very apt to have the disease, yet we may safely predict that the

time will come, when this disease, which has prevailed in our valley so long, will give place to those maladies which depend upon the follies of high life. Now in reference to this theory, whether it be entirely correct or not- still is better than that of malaia, for it diverts the mind of the idea that if a person goes into a malarious district he is necessarily bound to imbibe the poison in breathing & there is no use in trying to prevent it, & and points out bathing & the use of flannel, which genral experience sanctions as preventives- the one to inure the system to resist the influence of sudden changes, the other to shield it by its non-conducting power. Other diseases also, which depend upon a humid & variable climate, are common in this valley at certain periods of the year. Affections of the respiratory organs are frequent in winter- such as Bronchitis, Pneumonia, Pleurisy &c. Sometimes they would seem to occur epidemically, espe-

-cially the first, which has in my recollection raged through the county, attacking indiscriminately sex & age. It is not known certainly what changes bring on the disease, for it occurs at all times of the year. In winter, when the respiratory organs are most taxed to support the heat of the body, any sudden change of temperature which would have a serious effect upon the body, would very naturally fall on them, which perform the most labour. The treatment resorted to & found most efficacious in these affections is decidedly antiphlogistic, bleeding, purging & Antimony & mercury. In regard to the Last two articles physicians are divided - some praising one - some the other. That Antimony has a powerful influence over inflamation of the lungs, no one can doubt, but the pernicious effect it sometimes has upon the stomache & bowels - puntulating & inflaming, two instances of which I have seen, would lead me to look upon

it suspiciously. While on the other hand the physiological association between the lungs & liver - each by turns eliminating carbon from the system, as cold or hot weather prevails, points out several indications to be fulfilled by the use of mercury. By producing with this article that effect which the liver naturally assumes in warm weather - the carbon is discharged through this channel, which otherwise would tax the diseased lungs. A degree of rest is thus procured for these organs, which is always beneficial and sometimes essential to the cure of inflamed structures, also the the carbon, which is fuel to the inflamation is cut off & thus lessens the degree of that action. These statements, combined with the fact before mentioned that Antimony sometimes produces deleterious effects, would decide me in favor of the use of mercury, as being more safe & at the same time as emative as the former. In regards to the other remedies the practitioners here generally agree

It has been said that malarial districts or in other words districts where intermittent fever is endemic were a preventive of the ravages of consumption, that such an idea should gain credence, being without proof or reason, is very strange. I would always warn the afflicted of the delusion of such a hope. as resorting to these places, will not only not afford relief, but on the contrary, make them worse, by the changeable & wet weather & I am sure the statistics of our county will bear me out in my belief; for here in years past the pestilential fogs of many a month, has nipped the bloom of youth & sent old age shivering to the chimney corner; nor did it ever once relieve the consumptive or stay the ravages in his breast. Against the opposition of poisonous malaria & the physicians weapons it has continued to select "the gifted and beautiful of earth" as its victims. I regret to say that here, consumption has seemed to prevail more extensively than in the

surrounding country. Whether the humid and changeable climate, or the prevalence of Pneumonic affections be the cause of it, I leave for others to say. A fact worthy of notice, is, that since the introduction of cod-liver oil, it has had extensive trial here & through physicians in other parts of the country, have lauded its virtues and reported cures, nothing more can be said of it by practitioners of this county, than that it is a palliative. Affections of the abdominal organs are also common - especially Diarrhea & Dysentery; Gastritis is seldom seen, Dyspepsia is common, but nothing peculiar in its character, Diarrhea and Dysentery form a large part of the acc of the diseases, the first occurs principally in the summer & sometimes prevails extensively, but is always tractable - except when it depends on some organic lesion, when it is apt to run into the chronic form. It has been noticed, when this disease has once been established, that the lime in the water, has a tendency to keep it up and

may determine the acute into the chronic form. When this occurs a cure could be not expected until its use has been discontinued & cistern water substituted. In 1847 the cholera appeared - it first broke out in Bowlingsburn. Whether the cause of it was first brought there by boats or by currents of air, is an unsettled question. After continuing in town about a week, it extended to the country west, where it was much worse than in the town - it did not did a case occur in any other direction. It seemed as if it was influenced by the direction of the valley, which prevented its extension in any other course. Since that time the Dianhea of the country have been more than usual assuming many of the symptoms of cholera & demanding more energetic treatment. Dysentry generally occurs in the fall & frequently as an epidemic - in fact every few years and sometimes several times a year its extensive prevalence shows there is some general influence in operation.

The causes of the disease are very numerous embracing every thing capable of inflaming the bowels but those which have a general influence and which serve to direct the effects of cold to the bowel, may be mentioned as those states of the system, which seem in the face, when the body is as it were, wavering between the predominance of the respiratory function & those of the skin and abdominal viscera when variation between night & day call for increase or diminution of the heat of the body. In fact nearly the same state of system which occurs in intermittent fever, for these are frequently associated. The liver becomes congested, which may be carried to the extent of inflamation of the bowels, upon the application of some irritation to those organs. Then there is another form of this disease, which is uncomplicated with hepatic congestion. These different states are to be recognized in the treatment of the disease, or when there is congestion

present, mercury is called for, to excite the hepatic function & diminish the congestion by the secretion. On the other hand when there is no complication, the passage of acids bile over the inflamed intestine, would counterbalance the antiphlogistic property of the remedy. In this state castor oil & opium are probably the best. It has been noticed stone in the bladder occurs more frequently in lime-stone regions than elsewhere, & seems quite reasonable, that the water is laden with one of the ingredients of the calculus the fluids of system becoming saturated with it. Any slight cause might determine its deposit from the mine. Yet here, although the lime is very abundant, very few cases of stone occur. There not more than an average of two cases in a year & urinary diseases of all kinds, are infrequent. Upon summing up the whole catalogue of diseases which have prevailed to any great degree in this valley, for the last few

year, I think it may safely be ~~said~~ that there has been as little sickness here as in any portion of the state. Whether it is a short quietus or not remains for time to develope, but if our influences be correct, that malady which has hitherto usurped the place of health for so long a time, will loose its force & will appear only sporadically.