Pringle

On the Causes of Intermittent & Remittent Fevers.

Inaugural Dissertation

By John Pringle M. A.

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On the Causes of Intermittent & Remittent Fever.

Before entering on the consideration of these causes, it will be necessary to consider briefly some of the phenomena which characterize intermittent and remittent fevers. In intermittent the symptoms which most prominently present themselves, is the occurrence of a stated interval between every paroxysm; when with the exception of a considerable degree of weakness the patient feels that his health is in the same state in which it was before the attack. Towards the termination of this interval the fever again begins to appear, and running the same course as it formerly did, ends in the next interval. Each paroxysm exhibits in itself all the phenomena of the different stages of fever - dividing itself into the cold, hot, and sweating which succeed one another in regular order. During the period which immediately precedes the cold stage, a sense of languor and listlessness is experienced, accompanied with unquenched appetite - a disorder'd state of the bowels, yawning and stretching, and a general feeling of fatigue, and indefinable
wakening. The skin then is reduced in temperature and feels dry and rough. The features are pale through and contracted, the pulse in general is quick and feeble but sometimes heavy and afebrile; and a sensation is felt as if a rite of cold water were running down the spine. This coldness soon extends from the head and limbs to the extremities, and the whole body is affected with rigor more or less considerable; in some cases even amounting to convulsions. The eyes are sunk—the general expression of the countenance is anxious. The tongue is foul and an unpleasant taste is perceived in the mouth, accompanied with nausea, and sometimes vomiting. Pain is felt in the head and epigastric region—proceeding from the oppressed state of the brain—and from the blood being driven in larger quantity than usual to the region of the heart, stomach, and spleen. The breathing is hurried and labored; and there is a feeling of tension in the proeordia, evincing a disturbance of the organs of respiration and circulation. The secretions are much diminished in quantity. The bowels constipated, the urinary pale and scanty but voided frequently, and the mouth and throat dry and parched—giving rise to an urgent desire for warm and stimulating drinks. The mental faculties are deadened, and in some cases a lethargic, or comatose state prevails to a great degree. — After this state of things has continued for a period varying from half an hour to three hours—the sensation of cold gradually
subside, and the shivering ceases. The skin becomes intensely dry and hot, and its paleness is succeeded by a reddish hue; the features are relaxed, and the expression is brightened and more animated. and the pulse is strong, full, and frequent. Intense headache is complained of, and sometimes pain in the hyphochlora; the breathing is less impeded, and the oppression in the region of the heart is much relieved. By the flow of blood to the surface of the body, being greatly accelerated by the state of relaxation in which the capillaries were and. The function of secretion still remains in a vitiated condition, but the urine is very highly colored and the patient prefers cold drinks to appease his thirst. In these cases in which lethargy and coma have prevailed during the cold stage, delirium is often found to supervene. But in others there is great mental disturbance. During this stage, the patient is very restless, and complains of great prostration of strength, and pains in the back and loins. In about three hours, but the period varies the stage passes imperceptibly into the sweating a third stage. The first indication of its approach is the breaking out of a gentle sweat on the forehead, extending by degrees to the breast and abdomen, and the extremities, until the whole body is bathed in a profuse perspiration. The skin now regains its natural temperature; the pulse falls and becomes easily compressible, appetite returns, the bowels are opened, the urine is natural and copious. Thirst is not complained of; the

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longel relief. The patient soon falls into a gentle sleep, and awakes refreshed and in a state of comfort and health, leaving no remnant of his disease except occasionally the feeling of debility—such is a paroxysm of intermittent fever as it most usually occurs, terminating generally in about eight hours. It remains to state that in different cases the symptoms may be more or less severe, their train more or less complete, the duration of each stage longer or shorter, and one or more of the visceræ in the three great spaities may be more implicated than the others. If the paroxysms recur every day the disease is called a quotidian, if every other day a tertian, and if every third day a quartan. Of these types the tertian is said to be the most common, and Arndel mentions that of 56 cases 28 presented this form.

Intermittent fevers are distinguished from intermittent by their exhibiting an interval of perfect health between each paroxysm. The symptoms are gradually diminished in intensity to a particular point, but as gradually relapse into an exacerbation. The one fever in each paroxysm exhibits the condition both of health and disease, while in the other we have only exacerbations and remissions of the symptoms. In themselves these symptoms are similar to those we have mentioned as characteristic of intermitents, but are much more aggravated. Their great peculiarity is that they are almost always complicated with some local affections in some of the
particularly the lives on which account these fevers are often termed bilious remittent. In these, the stage are not so well defined, and do not follow one another in regular order; for sometimes the hot stage is not succeeded by a cold one. The period of remission is variously stated from 6 to 14 hours, the type being generally quotidian, but sometimes assuming a tertian form. During this period the pulse still remains leprous. The skin has not recovered its natural degree of heat, nor its softness and elasticity. The breath is fetid there is no return of appetite. The tongue still remains loaded and foul and with capitards, and a feeling of general uneasiness is complained of. These symptoms gradually increase in intensity, and terminate in the next exacerbation.

Much difference has been raised as to the cause which lead March Hens to assume different types. and various have been suspected, which surpass a formidable degree of influence. The principal are those arising from locality, season, and climate. Individual constitution ought perhaps to occupy a place in this enumeration, but the subject has not been sufficiently investigated apart from the other causes. But those things we have mentioned all bear a close relation to one another, and the consideration resolves itself into a difference of temperature that its effect is aided however by other circumstances, as we can have no doubt. But this seems to be the principle which guides their variety of operation. Indeed Sir George was not


3. Quotes in Johnson on Tropical Climate.
as that the varying types of fever might be measured at least to a certainty by the degree of solar heat as marked by the thermometer. Thus we have agues in England—bilious remittent in Spain and yellow fever in the West Indies. But when the weather is hotter than usual in England, a few cases of remittent occur, and in Spain under similar circumstances yellow fever has been met with—again, in tropical climates on the plains remittent are prevalent, but in the elevated districts the type is generally intermittent. In these climates also during the cold season agues are common on the plains, while in the mountains malarial fever is met with. In England too, they are common during the summer and autumnal months, but do not occur in winter. Dr. Bumcroft remarks that yellow fever in temperate situations in the early part of summer before the atmosphere has become intensely hot is commonly preceded a malarial fever itself in the form of remittent, a remittent fever—such when being exacerbated by excess of heat, it has assumed and for a time prevailed under the appearance of an epidemic yellow fever. This accession of cool weather quickly reduces it again to its milder forms, and a freezing temperature from an end to it. Appearance even of these forms as it commonly does to other fevers, occasioned by exhalations from marshes, and to no other. Dr. Dickson speaking of the yellow fever as it occasionally occurs in the


They met the replying fleet
When silver ceased at Jachca, & passed above the

South of Europe, had observed that during the unusual and long
continued heat of the thermometer, by which these epidemics
have been preceded, the inhabitants are virtually placed in a
new a tropical climate, and the same general effect follows
which would result from the sudden transition of a body of
British troops to the East Indies. The fevers of New York are at
first commonly of the intermittent kind but Gledhill says as the
heat weather advances the fevers and only remit. The ef-
fect of elevation is well illustrated by Humboldt in reference
as the occurrence of fevers in Mexico. At Vera Cruz yellow
fever prevails, as you ascend the country in the rear of the
town you meet with interminable remittents. Still higher agree
are common, still advancing they are more rare until you
arrive at Puebla (the region of eternal dust, where these diseases
are perfectly unknown, and the whole of this transition may
be accomplished in a day and a half. In Georgia D.S. White
attending to the fever, informs us that the avemente of the fever
begins in the rice in July, and increases in August and Sept. The last
he considers the most deadly, and the cases are marked by
symptoms of great violence. The tertian type is the most usual
except in the chilly months. They then become quotidian and
quickly run into the remittent form. In the latter fall and
winter months, the quartan disease is not unusual. From the
observations we may infer that the types of march fever are
regulated by the temperatures of the countries in which they occur.
that the yellow fever is met with in circumstances of the greatest heat, most remittent, and quotidian tertian and quartan follows in order: the greater the degree of cold, the longer being the interval be between each paroxysm. the disease however may occur in its drossesd form without undergoing any of these convulsions, for it may commence as a tertian and end as such.

The causes of remittent and intermittent fevers are capable of a three-fold division, into predisposing, exciting, and promoting. By the first we are to understand those states of the body which peculiarly fit it for, and render it susceptible of the impressions of the exciting causes; in the second we include those common exciting causes, which in conjunction with the specific exciting cause act on a habit as predisposed, and develop themselves in intermittent or remittent fevers according to circumstances, and in the last division it is proposed to explain the manner in which these causes act on the animal economy. In further explanation of this we remark that in order to produce a case of fever, it is essentially requisite that the individual must have been exposed to the specific exciting cause, that it must have entered his constitution already predisposed to the reception of the poison, and that this poison has been brought into action by a common exciting cause, by means of the influences which both conjointly exert, on the nervous and vascular systems.
Predisposing Causes must all exist in the person of the patient and have consequently been termed by some authors internal, in contradistinction to those which operating externally move the system into action after the disposition to disease has been established, synonymous with what we have designated exciting causes. The subject is possessed of much interest, and merits attention as an accurate knowledge of these causes will have an important effect, on the various modes of treatment which must be employed in different types of these diseases, and this knowledge will enable us to anticipate probable consequences and to account readily and satisfactorily for those occasional complications which are so often a source of embarrassment as we have to judge of diseases exclusively by the symptoms which they exhibit. Predisposing causes have been simply divided into mental and corporeal, but for greater convenience the latter preserving that arrangement we shall consider them under the heads of Age, Sex, Constitutional De-

2. Laid on Imperial Documents pg. 314

3. Ordo in Yellos Fever. pg. 31
affected by year's experience. Besides, the nervous and vascular systems occupy so large a share of the economy, that many slight causes are apt to induce a febrile attack. As a paper read by Dr. Villermé, before the Royal Academy in Paris in 1826, he asserts that children from 6 to 10 years of age, were more liable than at other periods, to the reception of the specific exciting poison, maintaining his argument by emulating the statistical records of the agues cantons of France, with those of the cantons destination of Marches. During the months in which intermittent fevers most generally prevail, viz. in Sept., Oct., & Nov., he found the rev. of deaths in 1821, amounted to 2167, of which 1862 are children under 4 years of age, and in three other months of the same year, the deaths were 1699, of which 3248 were children of the same age. The 15 years previously afforded the same results, with the exception of 1816, the cause of which will be afterwards explained. The testimony of Vom. Guerin, is to the same effect, being derived from observations which he had instituted at the Hospital de l'Enfant. It is also remarked by Dr. Allen of New York, that in Petersburg in Virginia, where agues are very prevalent, that children cannot be reared without the greatest difficulty. Laid in his essay on the diseases of Tropical Climate; says that even children at the breast were not exempted from attacks of this disease, and Rush in his account of the bowel's recurrentt, observes that more young than old were
1. In the works of Austral Despente, Karamden No.
2. Mongol en Histoire des Marais - Pg. 139
affected. Many authors entertain a different opinion, and among
these Drs. [sic] who mentions the important fact that
these physicians who reside in districts peculiarly liable to
intermittent, are rather inclined to an opposite opinion. An
study of 56 cases recorded by him, found only 4 under 15 years
of age. The apparent inaccuracy of the statement of Bultoni
may be probably accounted for by other circumstances than
those which he is inclined to consider as the causes of the mortality,
and for the reasons which we have already stated, many trifling
cases may be the same sources of obversion in such consti-
tution, totally distinct from intermittent fevers. Besides when
we conceive that children are less exposed to the influence of the
poison than adults we need not wonder at their comparative
exemption; and those cases which do occur are probably not
to be estimated as much as proceeding from the influence
of age as from the constitutional constitution. We always have
unto this period of life, particularly in marshy situations.
In manhood the strength of the body is matured, the mus-
cles, power is at its highest tone, and the sensibility of the
nervous system is moderated by the effects of habit, while the
energy of the circulation remains unaltered. In swampy coun-
tries, however this period may be observed rather as a pro-
longation of childhood for the inhabitants rarely begin to arrive at maturity. Their stature is small, and stunted,
they are in a state of great emaciation and their survival fac...
1. Monfaleon Tetrarche de Marais. P. 119

2. See also the works of Belorow, Groffin, Racoude, de Basafs, de Fray, di-eye, Grouy, Blane, Tiberiuco, Bregot de Moragues, Franquelin, Blank.

Not English.
strains are performed neither regularly nor naturally. Their minds
remain in a state bordering on insensibility. Their actions are not
decided in their aims, and they cannot follow any pursuit
with energy and spirit. In the words of Dr. Fallopius, "It ne-
ment pas... it vegete." L'habitut de la Breme prouve a la
"virginithe ou bontene anneee et deja le mouvement de leur
organisation commence. Ses facultes s'affaiblissent, et commoe
ment l'age de cinquante ans est le derniere terme de ses jours."
Statistical records prove most uncontestably that at this period
of life, intermittent and remittent malarial generally prevail; in
places malarious districts many few survive it. Those who
have been habitually exposed to the influence of malaria, a crisis seem
to take place about this age generally between the 35th and 50th year;
when the poison having accumulated apparently during life, bursts
forth in the application of some exciting cause in a fever chara-
terised by its astonishing violence, which generally proves
fatal. Those however who have the good fortune to survive it
live to an old age, and often become as healthy as the inhabi-
tants of those countries where malarial fevers are unknown.
In this account deaths from those fevers after the 50th year
are of rare occurrence. At least in behalves of others of course
this observation will not hold good, although even among strong
men the mortality is less in proportion after this period, which
is to be attributed in the diminishing force in the circulation of
the blood, rendering them less liable to the attacks of common
1. Pringle. op. cit. p. 122


3. Johnson on Tropical Fever - p. 42

Manfèse mentions that in the Department de
L'aisne one of the most malarious in France he had been persons
of 60-70-75 and even 80 years of age and the natives informed
him that they knew individuals in their 100th year who had sur-

vived the "époque critique véritable." The mean duration of
life in marshy districts according to Dries and Sanjot is 26 years
while londoreat has found it as low as 18. In the southern parts
of the U.S. and in Egypt it rarely exceeds 40. Jackman says that the

is not a record an instance of a person born in Peterborough in
Virginia, and constantly residing there, who has lived to the age
of 21 years. Rogers has proved that the average in Bas Breston is 50
when the individual is apparently as vigorous as if he were 20 in
a healthy country. Johnson remarks that in Walcheren and
Brentland, those desolate wretches where he had imagined were
on the borders of 80, he was surprised to find were between 50
and 60, and indeed it has often been remarked by strangers
passing through malarious countries, that the population con-
sisted almost entirely of children and old people, through
a middle age bearing no sort of relative proportion to the above.
Foreigners however who visit these unhealthy localities are
exposed to the deleterious influence of the malaria at every age
for one period predisposing more predisposing influence than another.
Rush says all ages were affected with remittent fevers, but par-

particularly those between 14 and 40 - but we cite it that other cir-
stances predisposing foreigners to these diseases in a higher da-


1. Rigaud de l'Isle - Rush ed.

2. Monfauleon - P. 348 of cit. De also the works of La Rivière.

3. F. Wilen. Philip's Tincture a Fevers. pag. 57
The difference of sex has been alleged by some authors to constitute a specific predisposing cause. In the female the greater complexity of her structure, and the peculiar functions of her system, as well as the high degree of sensibility which she possesses, may perhaps be viewed as sources of predisposition. Partaking more of the character of childhood even in her adult state than man, the natural susceptibilities to which she is exposed from the alternate state of action and repose of the animal system are important features which must not be neglected. But even these susceptibilities may act as a safeguard for the testimony of several authors goes to prove that females are less liable to intermittent and remittent than males. In illustration of this opinion, it is a curious fact that pregnant women are more liable to the action of the poisons. Does any connection exist between the cessation of the flow of the menopause and this increased susceptibility? Dr. Philip remarks that white Jews born and constantly residing in the lower districts of Georgia, it is said have seldom lived beyond the age of 40. Males sometimes approach to 50. Then are more exposed to the influence of malaria from their peculiar employments, requiring them to be much in the open air; and by their rural pursuits are brought into close contact with the source of maladies the poisons being frequently obliged to spend whole days in the most unhealthy situations, and in a condition that often exposes

...
Leak on Trop. Diseases. p. 132.


5. Swinney's Clinical Illustrations of the Disease of Bogue. Vol. II.
as an exciting cause. In the West Indies it is a general observation that women enjoy a much better state of health than men, and are not so subject as they are to bilious remittent unions probably to their more temperate way of living. It will be found, however, to be a pretty general rule that insofar as refers to difference of sex, both men and women who natives are equally susceptible of the diseases arising from Malaria.

[3] Constitutional Debility - from whatever cause it may arise, must always be viewed as a source of predisposition. It may proceed either from an exhausted or a plethoric state of the system. All most every author on ague has admitted that those are very liable to be attacked who are in an unfavourable state of health, whether produced by previous diseases or by their peculiar dispositions. It is on this account that convalescents from other diseases from surgical operations, accidents etc. are more than ordinary predisposed to the reception of miasmatic influence. Sir James McEuen remarked, that those belonging to the hospital in Egypt, etc., of some other diseases, nearly left it without an attack of the prevailing fever, showing that debility predisposed to the propagation of the miasmatic influence. Lind observed that a fit of sickness by weakening the constitution in general predisposed to an attack of fever. In India Sir James Clarke mentions that a large proportion of the patients in the hospital who undergo operation have an attack of the double tertian, and sometimes even a fever the permission from. In Bengal, Jowning says that when an army
1. Strahan ap. cit. pg. 280
2. ib. pg. 191
3. Jackson in Tabula Sexentia. pg. 10
is employed in active service in an unhealthy climate—a great number
frequently happen among men whose health has been previously
much impaired by the slim course of disease. "Elles attirent de
"préférence," says Monfaucon, "les constituées originellement
"faibles, ou debiles par une mauvaise alimentation." "Plus
"un homme est faible, plus il est exposé à contracter la fièvre
"de marais." Pletsch whether general or local, can induce a state
of debility acts as a predisposing cause. Venerable persons are
more often affected by general, and weak ones by local full
ness of blood. An habitual full diet induces the one in debat
subjects, who are hollow and of a firm fibre; while in debat
persons, we may attribute this state to indolence and a gen-
ereal laxity of fibre. In both we find the blood abundantly in
its natural constituents, yet varying in their natural propor-
tions. In the former the red particles are numerous, but in the
latter they are comparatively deficient—but in both the sti-
mulating properties of the blood render them equally cap-
able of this influence of exciting causes. When we consider
that such individuals are transferred in a few weeks from
a northern to an equatorial climate—we need not be sur-
prised that many of them fall victims to the Yellow Fever.
And indeed Jackson observes, that in the West Indies the ple-
tonic strangers stands on the brink of destruction. Particularly
if he leave the hardships of a tropical campaign to content
with—he shall afterwards have occasion to consider under-
the action of exciting causes. These circumstances, as I have
induced a phlegmatic state of the constitution.

(4) Habit.—From the periodic nature of the paroxysms of in-
cessant and remittent fevers. The dyspepsia seems to acquire a ten-
dency to the application of any common exciting cause to renew the
disease, without any exposure to the influence of malaries. This fact
explains the recurrence of cases of ague in Scotland, because it is
now well ascertained that there is no spot in this country, where
that disease now originates endemically. Officers who have served
in such countries, and had the fever there—and who consider
themselves perfectly free from any such disease—are surprised
when returning to this country by an attack of their old complaint.
Perhaps after exposure to incontinency of the weather or from endur-
ing the same sort of exposure. Indeed it has been observed that other
diseases after an attack of ague—frequently assume a periodic
character. The years leave elapsed between the attack of the latter
and the recurrence of the former. This is peculiarly the case in
regard to nervous affections. Many instances of which may be found
in Bell’s work on ‘Marasmi Fever and Neuralgia.’ In chronic
miscarriages of long standing, it has been recommended to expose
the individual to malarial air in order to interrupt the continuity of
the disease—and this plan has often been adopted with the hap-
pystrect results. In Dec., 1838, one of the governors of one West India
isle—for months had a bad attack of remittent fever from which he
recovered—and is stated at this time to have regained the
use of one of his limbs which had been paralyzed for upwards of three years. In those cases to which we have alluded when the
ague returned after a period of remission on the application of
a common exciting cause, it would be interesting to ascertain
what treatment had been adopted. For the cure of the primary
a seizure and the general features of it, it presented, for there is a
probability that the mesmnratic influence had not been entirely
removed, or destroyed but had been lingering in the system
since the first attack. But in what other way can we explain the
tendency to recur, which exists in some persons and not in others?

It has been imagined that whenever frequently a case of gue,
may recur, there is no chance of the return of remittent fea
(But this is a mistaken idea. For we have many instances eor
of a contrary opinion. Ferguson says: "Capt. Johnson of of the 2d or Queens Regt. had been in 1804 in Gibraltar and is now
(1816) recovering from a severe attack in Barbadoes; and he
further remarks, that all experienced officers here have
witnessed three, nine or four attacks in the same person, but who
ultimately terminated in their death, with internal, of perfect
health between each and in circumstances which cannot cause
a shade of doubt regarding the accuracy of the details. The an-
alogy however between the recurrence of anague, and of remitted
fever does not hold good in an important respect. We have
stated that the former may recur in the action of any con-
mune exciting cause, without the slightest influence of the ble-
and since the former attack, but it has been observed that the bilious remittent never occurs except the individual has been re-exposed to the morbid influence of the climate, as will induce another, in supposing he remained in the same low condition as he was during convalescence, it is questionable if he would again experience an attack, even this exposed to the action of the fever. We are not prepared to state whether a not an individual who has had remittent fever in the West Indies, but who never had simple ague, there or elsewhere, on his arrival in Great Britain, was to be liable to an attack of the latter, without exposure to the malaria in Egypt. The probability is, however, that if a disease of this sort occurred in his case, it would assume an intermittent type in the sense of all the fevers of this family being identical, and being aware of the influence supposed by heat, in the formation of the type a remittent fever when removed to a colder climate becomes an intermittent: the only difficulty lies in the circumstance of re-exposed in this case being necessary and not so in the other.

We have now finished all these observations, which we have thought it necessary to make on the predisposing cause of bilious ague, which we find them existing in the body, but there still remains, a cause perhaps in itself a greater source of predisposition than any of the others; we allude to mental depression.
Johnson on Tropical Diseases - p. 79.

Mental Depressions may arise from fear, grief, anxiety, disappointment in worldly pursuits, interoceptive sense, all of which as well as the opposite state of many of them act very powerfully on the mind, which in itself sympathetically communicates its impressions to the nervous system and they thus become predisposing causes. Johnson mentions that those who are of a timid disposition, and who are easily alarmed, are generally the first victims of the disease. The detailed report of the sickness and mortality among the British troops in the West Indies, for many years, it is stated that the remarks of all the medical officers of the different fleets on the stations throughout the islands were in attributing the increased susceptibility to fever to fear and despondency; and these fears were more easily conceived and operated on much more fearfully in the minds of men newly arrived in the country than upon those who have perhaps encountered and survived previous epidemics. During the epidemic, prevalent in 1822, when the 91st Regt. quartered at Up Park Camp, Jamaica, received orders to march to another station, the fever immediately ceased; and this the corps was unerringly detained for 3 or 4 days after the receipt of the order. A soldier was admitted into hospital in the whole course of that period. In the above year at the same station, the mortality amounted to 1/2 of the troops quartered there. The partial disappointment of their expectations, however, had


Johnson, op. cit. p. 79.

2. &c. &c.


frightened. In 1806 H. M. S. Raffles, powerful and Albion sailed from Madras for Bataca, and Prevent of a Dutch gun. Now, on their arrival they were disappointed as encountered in their voyages, and in the short space of a few months after full 100 men died or boarded from fevers induced by the failure of the potash. During the time our army lay entrenched round Tippoo there was not a single case of fever in the whole force. But after its surrender, they broke out with the virulence of tropical endemics. Grief was often the found to be a preceding cause. Rush mentions that the grief which followed the extinction of hope, when death occurred, frequently produced the fever in those who had been attendant on the sick, and also in the near relatives of the deceased, as this they bad had no communication with them during their illness. The disease was also produced by a change in the state of the mind diversity apprised: for many who attended patients who recovered were seized with the disease a day or two after they were relieved from the toils and anxiety of nursing, as if the collapse of the mind from the abstraction of the diminuons of hope and distress produced that desity of equilibrium in the system which followed the activity of the renal matrix. Again, the garrisons of Savannah and Yorktown U. S. were both healthy during the siege of those places, but the former became sickly as soon as the French and American armies retreated from before it, and the
See the works of Albert. Van Helmont, Glauber, Scheuer, Juller, Warthof, etc.
the earliest after its capitulation. Many other instances
of similar nature might be adduced, but the above will
differ from to explain the nature of this preexisting cause
are several other sources of mental depression, which
I have shown in producing the effect to which we have
alluded, but which do not require to be particularly noticed.

In the above remarks we have endeavored to illustrate
by reference to facts a period of life and whereby is most liable
attacks of intermittent and remittent fevers, and to what
extent constitutional debility by whatever cause induced.
The recurrence of previously having had the disease, and the
many varieties of disease from which mental depression
may arise, are themselves whether conjunctly or individually
cause of predisposition preparing the body for the event.

Exciting Causes. In this class we comprehend all those causes
of intermittent and remittent fevers, which affect externally to the
body, but which, nevertheless, act upon it, by means of the
influence with which they exert in the production of morbid
vices. It is extremely difficult to draw the line
between these cases between these deep being the
curing cancer. For some it imperceptibly range from the one state to the other - that it requires a rigid analysis of every feature relative to each to discover it mode of priming operation. The idea every exciting cause away by habitual, continued and greater operation, give rise to effects which constitute our general predisposition and hence may become at once an external or exciting cause and an internal a predisposing one. From these circumstances authors have placed both as subdivisions under the designation of remote cause, and a term approximate to the same significations also do.

It will be necessary to divide this section into two parts -

1. The consideration of those exciting agent which are in a manner intrinsic to our tissue, and whose operation is in a certain degree intelligible, or Common exciting causes, and 2) that cause which is specific in the production of the above disease. When mode of operation is very obscure, if not altogether incertitude. We have borne this division in view throughout the former part of this essay.

Common exciting causes. 1) Irregularities in Diet and Regimen. When we consider that very trifling deviations either in quantity or description of Diet, produces a change in the equilibrium of the system, we cannot that in a predisposed subject this would render him more susceptible to the reception of the same, if exposed to it under these circumstances. In every case some recurrence of the disease is attributable only to these...
Livid or Inflamed Diseases. Pp. 85 and 106.


light, elevations, which in other persons would not be regarded as worthy of the slightest notice. Except whether in eating a drink of wine the way for the entrance of the fevers. A very communicative prevails that during the operation of wine or spirits on the human frame, we are better able to resist the agency of malaria. But let it be remembered that it is only while the excitement lasts, that we can hope for any superior degree of immunity - after which we become doubly disposed to its reception, and operation; for by reference to what has been stated under the misleading cause of debility, it will be found that the depression of the vital functions which ensues on a debauch is of all others the most favorable moment for the onset of the enemy, and indeed if we pursue the investigation a little further we will find that it is in proportion to the debility which it occasions that intemperance becomes an exciting cause. Except in eating is not in itself be injurious - for this it may disorder the stomach that prevails when overloaded frequently unloads itself, and in this way the danger is avoided. Exception drinking and every species of intemperance prove much more pernicious in tropical climates than in more temperate ones, and very frequently give rise to fever, which often in less than 48 hours terminates in death. Dr. White relates the case of a middle aged recluse man who was attacked with bilious remittent in Georgia, after a night debauch, and died in a few hours. Indeed Rush observes that these excesses seldom failed to excite fever, and when the body
1. 'Ino's Sketches, p. 86.


3. Boyle's Account of Western Africa and its Diseases.
as strongly impregnated with its seeds, the smallest deviation
from the customary stimulus of diet bound them into action.
J. De Ferguer attributes the astonishing healthiness of the troops
their passage down the Nile to the invalidity of the commissariat
best to supply their spirit rations. Pacinotti thinks that the
vitality of the Roman fevers may lie owing in many cases to the
immoderate use of spirits and other stimulants.—But thus
such indulgences operate as exciting causes of fever, it has
commonly been found that an opposite mode of living—a sudden
state of relaxation, is through fear of the disease, often produces similar
results. And indeed it is customary in tropical climates always
to eat the water generally strung with brandy or wine, a precau-
tion arising probably from a knowledge of this fact. But
there is another way in which these irregularities may become
exciting causes-by producing a disordered state of the bowels.
In a healthy body this produces great irritation in the alimentary ca-
nal, and even dysentery sometimes supervenes, which may
cause in fever by the debility which it produces if not cured.
At times, however, the opposite effect is produced and the bowels become so constipated by the vitiated bile
which blocks up the passages, that recourse must be had
to the physician for relief—who generally finds his patient
in the first stage of fever—provided malaria has been second
to the system. Indeed aches and remittents whatever may
have been their common exciting causes are generally ac-
-

accompanied during their first stage by this state of the whole
the intense pain in the region affected, and it is in accord
the relief which it affords that a gentle draught instead of
owing injuries, may be accounted highly beneficial at
receipt of the disease. It is of little consequence whether the
brush be disorderd by escape in wine or in animal and cap.
able form; it is the arrangement of the digestive organs which
constitutes the common exciting cause. 2. To this cause I would
observe the intermittent fever so prevalent in Bengal during Nov.
and December. But intermittent fevers always act as an
exciting cause even although it is not produced by escaping.

The following cases of children who had measles in winter
and several officers in the Indian establishment have inform
us, that among the native troops they are frequent causes.
But to return - a man when in a state of intoxication is exposed
d to the influence of malaria with less aversion than when the
condition of the circumstances in which his former independence
places him. Thus he lies down, and falls asleep in the open air exposed
the burning heat probably of a noon day sun. Perhaps under
similar, and when he awakes he finds he has got fever-
leisure admits also to the ability occasioned by enervated
inclinations indulgences, which are so easily gratified in their coun-
nies and which are often procured in a state of necessity. This
ability is mental as well as corporeal - and the destitute
acts of such misfortunes are not observable in temperate

   See also Gomfalen ap. cit. Pp. 196. Same cit.


inates in any degree comparable with the manifest influence
how they occur in the tropics. If from attack persons so un-
appositely situated a favorable prognosis cannot be given, no
fatal result is generally anticipated. But the food which
may be of bad quality, deficient in nourishment
and quantity and difficult of digestion. In these circum-
cstances Reinhaler ascribes the Agues so prevalent in Breske
and other malarious districts of France. Hibbert says "Les ab-
soyant. Principalement les indigens qui usent d'one
chauvins nourriture, et qui avaient été exposés aux abstrac-
tions des viscères avant que l'épidémie n'eut commencé."
In John Parry's remarks that the sick are less liable to the
injuries of the malarics than others, on account of their being
able to live above the common rate; if they use a great quantity
of wines, legs, and victuals of good nourishment." At Inver-
ness near the mouth of the Tweed, one of the most malarious
villages in Italy the people say they prevent agues by eat-}{
}


and only 2 days厥 week the mortality of privates and officers
as nearly equal— and we cannot venture to assign any other
excitement than the unwholesomeness of a superabundance of
provisions in tropical climates.

(2.) Great bodily fatigue, and exhaustion, particularly if
one to the direct rays of the sun. and to be reckoned con-
comitant causes of importance! For, as Ferguson thinks that
few circumstances acting upon a body charged with malaria
are the immediate exciting cause of fever. On the morning of
25th. Augt. 1803— a fire broke out in Waterstreet Philadelphia, where
a vast concourse of people together—of these some were
engaged in violent exercise, while others were standing idle in the
totally clean—such a scene was well calculated to
act as the exciting cause of fever, and consequently to the
rise of this a three days—eight or nine persons—immediately oc-
curred to where the fire raged were attacked by malignant like
as remittent fever: not one sickened, who had not been more or
less exposed at the fire. It was remarked by Rush, that labor or
exercise universally excited the disease among the lower orders.

Long walk—a few hours shooting—and a hard trotting horse was
known to have occasioned fever. and he mentions that
an exciting cause in many who fled from the city was hang-
ing in the sun. Two cases of fever came under his care one
came from a fall—and another by a stroke in the head—

2. 2d. 2d. Vol. II. pg. 321.

3. 2d. 2d. Vol. II. pg. 325.

Twining relates several cases where the exciting cause might clearly be traced to the above sources. Case 170. Rambler, a
man about 34, a firm and muscular man generally healthy
was exposed to the sun for several hours while working. Next day
he was taken with high fever, etc. Case 170. 2 calls to see a man who
was suffering from fever in consequence of fatigue from being in the
sun. Another case of fever was one in which extensive inflammation
of the abdominal viscera was excited by fatigue and exposure to the sun. It has often been observed in tropical climates
that persons of delicate constitution, who have been long suffering
in fatigue, from which and the violence of the weather while
they have been in a different part of the world exposed to the influences
mentioned, are sure of having a smart attack of the bilious
attacks. But great heat alone even without fatigue often acts
as an exciting cause. The manner, however, in which it usually op-erates is the great exhaustion which the profuse perspiration, etc.
causes, tending to debilitate the system, and there is little question
to the open pores of the skin readily imbibe the poisons when exposed
to action in this state. But we must advert to this subject
cautiously. Much alludes to this exciting cause when he says the
safety among bakers, blacksmiths and hatters, was greatly
depend on any other class of people. During the prevalence of the
malaria or intermittent fever at Buzios, in 1780, the degree of colo-
ris stated to have been higher than it was then imagined the
sick. Hence was capable of enduring. The sensation wh. it
favoured the approach of a heated substance to the body. In the mean, Tabi the nono stood at from 156° to 162°, and in the coolest place, with the aid of every invention to moderate the heat at 153°.

3. Have the sun, moon, stars, electrical, and magnetic phenomena, any influence in the production of such effects? Many intelligent and learned modern physicians have alleged that they do perhaps some influence—but its nature, extent, and virtues appear to they do not pretend to explain. This was favorite theme in antient times, when men were not such close observers. They now are, and when the science of astrology was accounted idle and holy, if science it may be called. When any phenomenon was inexplicable in the splendid stacks of facts, which then assembled, if they were deemed worthy of reference at all, its influence was always added, as an unanswerable argument in support of any foreconceived theory which had been formed in the subject. And, however, it is our duty to throw our theories from facts, and the the statements of the more medical men, seem probable, and even to a certain extent unanswerable; they in some measure may be accounted for, by considering them as a curious coincidence of events. The influence of the sun and moon in the production of such effects is mentioned by Hippocrates as observed by him in Greece and we have also accounts of the situation early attracted in Arabia and Persia. Since these times
Balfour on Sol-lunar Influence in Fevers - p. 46.

2.

3.

4.

p. 173.

p. 19.

p. 313.
has been noticed in many countries in the four quarters of the
earth, and it has been observed that this influence is of great impor-
tance in the case of fevers, and in the prophylactic measures
that must be adopted for their prevention. The writer comes to the
following conclusions in the subject: that this influence prevails
over the whole globe, at least as far as that of the Moon
extends in the case of the tides, and that its dominion over this
human race is universal and universal. The writer observed that in
famine, fever was epidemic, and that fever prevailed itself-
lessly as a testicle, especially in a quartar. Its first attack
was made on one of the three days which immediately proceed,
full moon, or on one of the three days immediately follow-
it, or on one of the three days which immediately proceed
follow the change of the moon. That the full and change of
moon were less remarkable for occasioning relapses,
for inducing the first attack. That the intervals be-
tween these periods were not exempt from attacks, but
it they happened much less frequently, were less severe and
shorter duration, and that the types of the fevers origin-
ed from the same cause, producing feverousness in coha-
ence with the tides, i.e. at an interval of 12, 24, 36, 48 or
greater multiples of 12 hours. In order to render his obser-
ations as extensive as possible, he sent circulars to most
the medical officers and gentlemen in the Bengal services.

2. ibid. p. fig. 41.

3. 'Tectum on Isobole Sceenies.'
requiring if they had observed "that the relapses and exacerbations of remitting and intermittent fevers happened much more frequently at the springs about the Gulf and the change of the moon in the weeps," and he received answers from 5 civilians, 2 military, and 50 medical officers, almost the whole of whom concurred in affirming the truth of the above. He consequently observes that at these periods, all the other concurring causes of fever should be guarded against with more usual care. -- How, however much inclined we should feel to attribute some degree of influence, which we cannot attempt to explain to the action of the sea and moon. Dr. Balfour seems magnify greatly the effects they are said to produce, and want of better refers many circumstances to their agency, while every candid observer will fellows have no connection to the subject. Dr. Jackson considers the matter of the important determined to ascertain the truth. He accordingly provided himself with an almanack and mark in the blank leaf of it. The precise date of attack of all fevers who came under his care during that year. So cases noted in this way, he found 28 made their took within 7 days immediately before new a full moon. The following year exhibited a similar result. It has been commonly observed both in India and Bengal, that the moon at times have a remarkable influence on intermittent. I have been informed," says Land, "by a gentle...
1. Albert. op. cit. p. 249.

2. Boyle. op. cit.

...no of undisputed accuracy and of great knowledge in medicine. It is known in Bengal, he could foresee the precise time when a patient would expire— it being generally about the hour of water, that much is certain. Then in 1762, after a great freshet, of which it was computed 30,000 blocks and 200 seamen died in the waters of Bengal, upon an eclipse of the moon, the English merchants and others who had left the bark suffered a relapse. Dr. Hunter attaches much importance to this observation, and thinks it may be advantageously borne in mind during the treatment. People were of opinion that such who slept on deck exposed to the influence of the moon on the Western Coast of Africa were frequently suddenly affected with fever, of which he believes it to be an exciting cause, more powerful than mere humidity, as it acts directly on men suddenly. Another author observes, that the opium smugglers in Persia and Arabia, and also in India, manuscript, say that the change and full of the moon has an effect on the intermitting olives. "Of which, afterwards, I had many proofs of my own case." But we must bring our observation to the fact to a close, and without pretending to deny the existence such causes as the human difference, aetic and magnetic influence, it is a sufficient reason for mistrust in the operation is very problematical, and cannot be demonstrated...
1 Lind. sp. cit. pag. 140
Another common exciting cause is exposure to sudden
fluctuations of temperature when the body is heated and
perspiring. The existence of this as a cause we cannot doubt, as
effects of exposure are very evident; indeed its operation
was noticed among the ancients, and they believed that
any diseases were induced by it, which supposition modern
authors have proved to be inconsistent with facts. Liss
is as the principal feature of an unhealthy country, the di-
a and great alteration from heat to cold at sunset. During
day in tropical climates, the heat is so excessive as to keep
body in a state of perspiration without any exertion, not
to mention the evaporation which is constantly given off, but the
operation is to expel air that these even who have resided
in the country, feel much relieved by changing their deep
breathing air that is heavier. The practice may
be applied with great advantage. In the evening, notwithstanding they eat dinner at dinner
and in the most tempting style, and accompany the en-
trainment with large quantities of boiling wines; the con-
sequence is that the temperature of the body is kept up at this
low and probably cannot be a higher degree than it has
all day. In this state they retire, and perhaps become
sleepy before they reach their quarters. The night
is chilly, and frequently accompanied with a fall of dew.
Temperature of the body immediately falls. No recent
power. The capillaries in a few moments are closed, & the
speration is suddenly expelled from the surface is directed towards that organ which more than others is disposed to disease.

General coldness comes on followed by regimen and the patient in the first stage of a remittent fever (provided always the seeds of malaria have been lurking in his system) and affection of the above organ occupies a prominent position in the train of symptoms. Such too frequently is the commencement of that terrible malady which has buried off its thousands many cases arising to their own misprudence and hardihood. Many men are apt to laugh at the sage advice of their elders. Their arrival in the tropics fresh from Europe or bust in wealth and glorying in their strength. But there are many instances on record of the above being a faithful narrator the fate of too many. It is immaterial whether the transition from cold to heat or vice versa what seems to be indispensable condition however is that the transition be slow. If the atmosphere at the same time is damp and gay or if it be failing the effect produced we must hasten and much more liable to operate. Many authors have noted cases illustrative of these observations to a few of which allude. Pamela says no epidemic ever entered the greatest heat. But the Perseveration was kept by wet clothes, sheets, doors, or fuses. In the campaign of 1749 there was no cut sickness in the army but the weather continued long lasting like the sun lay west after the battle of Dettingen. In
3 Santarelli: *Richerche intorno alla causa della febbre dominante nel Santo Romano*

3 *Blane* op. cit. p. 105.


5 *Twining* op. cit. Vol. II. p. 207.
of 1748, that the same sort of weather continued there was
so sickly until the troops were quartered in the marshes, when
putting out at setting of fever became epidemic. 2) Santorelli
Prof. Francesco of Rome, ascribes the fever prevalent then
the influence of sudden alternations of temperature, humidity
the atmosphere, irregularities in living &c. And they been
claimed to consider them as the only causes of these fevers
it they do not sufficiently distinguish Common corns eating
in June or July, and specific eating causes. In Botany
fanes observed that relapses frequently occurred in conse-
ence of cold, fatigue, watching, privations &c. Raymond in
Cotin jects Syllage ofnumerous. Observes that if the cold wet-
other of autumn, suddenly succeed an unusually dry f
sumner agrees very much more generally, and finds
a great tendency to become malignant. 3) If a warm day is suc-
ded by a cold damp night, experience shows that we must
fear an accession of these diseases in consequence the most quite
testimonies of many other authors 4) but they are even in
result of the above observations, we shall only advert to the
ment of Fleming, who is the more worthy of attention, as it
the result of several years experience in the tropics. This ab-
dantly evident days lead to every medical man in Bengal the
they expect year that he witness the results of the change of season,
temperature between 3rd. Oct. 17 & Dec. 1st. That agrees an 1
ally connected with the annual change of the temperature.
take place at the commencement of the cold season. At that

vine the evaporation is infinitely less than it has been in the 6

months previously and the frequency of intermittent is augmented

and all proportion after the cold nights and foggy mornings

occurred and when the heat of the days the much decrease

followed by a greater dip of depression of the thermometer. During

a night thaw happens at every other season of the year. The state

the human constitution indeed in Bengal by the previous hot

weather and rains doubtless leaves the way for the influence

the commencement of the cold weather in the production of

many diseases which it prevails. The remarks also that the

tensive operation of maceh madda in causing ague must

attributed to a concurrence with it of cold nights abruptly

arising after a previous hot season. East winds as they are

usually accompanied by a cold damp and unwholesome vapors

perfectly with animal and vegetable life accordingly in many places

ought to give rise and obtrusory to agues as well as to pro-

duce frequent relapses.

We have now considered, first, those states of the constitution

prepare it for the reception of Malarias and, secondly, those common

diseases which excite its operation. It now remains for us to consider

to specific something, without the cooperation of which, the above-

mentioned causes would not produce, but must a remittent
Specific Excreting Causes. This has received a great many desig-
inations, each one of which are descriptive of the peculiar views en-
tailed by their various authors, and are liable to great objections.

In that account, we have effluvia - miasmata, emanations,
and malaria. The term "effluvia" is used to qualify
articles which discharge themselves from stagnant waters;
it is inapplicable to our purposes, because we hope to prove that
specific cause may exist without the presence of stagnant
water, and that we may have stagnant water without produc-
ing intermittent or intermittent fevers. "Miasmatism" has been pro-
perly confined to those atoms which are exhaled from indi-
cies laboring under disease. "Emanations" the term ob-
tection is applicable, that we have urged against effluvia;
"entolitiasis," simply a generic product circulated in the at-
mosphere, but the denomination is too generic to be universal-
y adopted. "Malaria" the expression generally used in this
text, is in reality a diseased state of the atmosphere. Th-
ough all this vagueness is owing to our total ignorance
of the cause, for whether it arises from vegetable
miasmal emanation, or from both conjoined, from the con-
tepts of the atmosphere being altered in their relative pro-
tions, or from the presence of a deleterious gas, evolved from
unusual soils, or from unappropriated vegetable principle,
all our knowledge consists in the connexion, that such
reigns exists. In preference, however we feel entitled to
the works of Ramel, Giannini, Laforet, Goetz, Salchi, Vandelacker, Vítěz, Santarelli, Reveillé, Pariso, Venet.
kept the last discrimination. If, although it merely enforces a
natural state of the atmosphere, it does not imply from what
this state arises, we will not go so far even to main-
tain that the air is in a vitiated state. If we use the qualifi-
cation to signify that it is merely so vitiated, as to be
considered through its effect. The specific cause operates on the body.
Though most authors agree in designating malaria as the specific
causing cause of intermittent and remittent fevers there are
some who at least are rather skeptical on this subject. They as-
sert that because this cause whatever it may be does not
always produce fevers with the same symptoms that is chiefly
in type, in severity, and in the particular organs affected,
cannot exist as a specific cause. But they seem altogether
have overlooked all the concomitant circumstances of
natural predisposition, and the agency of different exciting
causes operating under various circumstances. For all others
at be regarded in accounting for the variety in the effects
produced. Before proceeding to the investigation of the nature
of malaria it will be necessary to advert to those circumstan-
ces under which it exists. It must be borne in mind that we
must not only that it exists uniformly under these circum-
stances, but that these circumstances are invariably present
in it exists. For there is an occult principle at the found-
ation of the whole, the "true germ of" the existence of these
unappreciated by chemical tests invisible to the light.


owing to the epidemics occurring either of itself, that is to say, of which the cause is not immediately evident. In fact, a principle that we are perfectly ignorant of is, that of its nature—its physical properties, or its constitution. The most ancient opinion, and one that still remains, that malaria abounds in marshy or swampy situations. It may be supposed that the city of Abydos was rendered so by the marshes with which it was surrounded. The low flat and alluvial banks of rivers and lakes, and the great extent of swampy country around the most luxuriant vegetation. The habit formed at the banks of rivers, and the sea coasts of tropical countries are localities where the poison most chiefly abounds. In every author without exception in this subject has established by experience that the vicinity of marshes, swamps, and generally subject to fens and of intermittent and wetter types, and from this we reason that the localities of the habit. In India, Taimur, observes that malaria has in general acknowledged the efficient cause of miasms, and it is usually assumed whenever they prevail at low marshes and unhealthy situations. In Sicily, many of the water-mite, which are dry in summer but torrents in winter, are tendered by the natives to be extremely unhealthy in the latter part of summer and in autumn, and are infected by what they name "aric catana." In the Red Indies, Jackson mentions that the intermittent and intermittent are very prevalent on plains.
1. Sir And. Scientist's West Indies. p. 334

2. Bancroft on yellow fever. supplement lectures.


5. 2d. 2d. p. 25.
in the desert near the embouchure of muddy rivers near the 
Arabian and other foul grounds. The great Savannah of 
Africa is peculiarly noted for the prevalence of the fever produced 
thereby, and in this respect is somewhat singular, that it is 
readily propagated as white. 2d. Bancroft in his Geology of 
Africa remarks that the only existing cause of the yellow fever 
the application of march maccabata to the human body, 
therefore is really a march remittent fever. The 
locality of the camp is swampy and partially drained and the second 
the fatal expedition to that island. It is even to remain a testi 
mony of aches arising in such localities. These prevailed in 
many camps, while our army was in Egypt in 1801 and very few 
suffered it. Slight appeared then to have been an unhealthy place 
and the ground of the encampment was formed to be swampy 
and the ground of the encampment was formed to be swampy 
camp at El Hamam, the No. of cases of intermittent fever 
occurred evidently from the low ground between 
camp and the river, which retained the rain and before we 
became a swamp. In England the fever of Lincolnshire 
the low grounds of Heath, Essex, &c. have been long noted for 
cases of aches which occur there. In remarks on the localities of aches 
and other March fevers in France we must refer to the works 
of Salve and Albert, of the Genus of Rome, and the Pontifical Board 
Daily, and of Pougy, of the United States and the West Indies 
general valuable papers in the New York Med. Repert. and 
Medical Inquiries and Observations of Pouch of Athens of Western
...to the works of People and Leaders, and of India to the Calcutta... Johnson, Anatomy, Lind, etc. From the fact that these cases are found prevalent in the vicinity of marshy localities the inference is deduced that these marshes must give rise to these cases and the question comes to be in what manner this occurs, besides what is this something, which is assumed to produce by virtue to which we attribute the cause of these fevers. Here again we are arrayed with conjectures. In arguments as to, as regards some elements appear permanent and in others, any authors shelter themselves by saying that these fevers caused by marsh emanations, or exhalations without acting any qualification to the supposition by all as valid may be exterminated. It is quite unnecessary to premise a definition of a marsh, but we must draw a distinction between salt and fresh water marshes—we shall only mention in them we find water, animal and vegetable remains of animal deposits. Now, from what of all these sources does malaria arise, or does it arise from any of them? It has been supposed the produced from each individually, and from conjointly. We shall now examine some of the facts on which these are founded and afterwards draw our own inference. Malaria has been supposed to arise from vegetable remains in a state of decomposition. This opinion is supported by many authors of the highest respectability and talent...
2. Sir W. Burnett on Remitting Fever.


4. Sections Illustrations of the cause of Tropical Endemics.

compact says Dr. Ferguson! I am clearly of opinion to be ascertained
the green wood land is at Sierra Leone. operating along with the sun
heat to furnish where impregnated with the gases arising from
sized seawater morbidly macerated similar to those that en-
sode arise from marshes when exposed to the influence of the high
degrees of atmospheric heat. The ballast consisted of small
ones with considerable mixture of mud and other impurities,
according to the master's account, the ship made 3 of an-
ich every hour, exclusive of the leakage from the water tanks. In
the case of the Princesse Frigate, narrated by Sir W. Burnett, the cir-
cumstances were almost identical, with those we have now
mentioned. He relates that when the hemlock boards of the hold were
unwashed, the emanations which arose, took almost immediate ef-
ection on general officers employed in superintending the operation.
Bancroft in his sequel gives several instances of the same sort.
Dickson observed that new ships of green wood, in which things
cast had been stored for some time were peculiarly liable to viscus
attacks and he cites the instance of the Dort guardship at
Baden in 1807, in which this fever was traced to the water tanks
which had been fitted up being unused when in harvest when they were broken up the disease ceased. But the most
evident evidence for being brought forward of the influence of veg-

e reaction considered individually is the preparation of
a. Dr. Broughton mentions an instance of a village almost
of the inhabitants of which had ague annually from this place.


their hemp ни suits close to their horses. But this continuing this
conic the end onically disappeared. The lands where rice
cultivated require to be laid frequently under water, and as they
in become hot beds of fever, the cultivation has been prohibited
various counties. We have abundant grounds for assuming-
ing days' Vanity – the influence of evaporation from decaying
vegetable matters as one of the most powerful agents in the
reduction of intermittent fever. Mr. Bostin has recorded an instance
of vector of a hand at Batavia, in this, having been greatly con-
verted, left a quantity of mud, which, "on strewing millet seeds up
on the ather reaction." From these an indescribable smell arose.
the intermittent fever broke out immediately, with great violence.
Bust states that the origin of the 1798 epidemic, which became epidemic
Philadelphia in 1793, was a quantity of damaged coffee, which
were thrown upon the wharf and into the adjoining dock
that Gentofre had. Three weeks after a vessel arrive at Norfolk U.S.
in the West Indies with cargoes of grain, which when discharged
found to be disproved. They were accordingly cleaned, to he a
defect for several days during which interval they Gentofred
the ather point fever broke out at the same time in the vic-
inity neighborhood, which could be distinctly traced to
spot. Indeed two gentlemen supervising the unloading
the first died, and both died. The great Savannah
Fire as an awkwardly the deadly character of the Fever if it
was a sort of half formed land, covered with rank living

-报考 Letters from the Health office to the Common Council
vegetable matter; and composed of vegetable; as a state of decay, one
instance will be sufficient to show the general opinion
this subject, although some authors think differently. It is
never much more easy to bring forward affirmative cases
as negative ones. The most conclusive are those in which the
chloric originates in another way. Mr. Bully in frequent
remarks that the phlebos in Rome is not more liable to appear
in any other quarter, but indeed less so, although the atmosphere
laden with vegetable garbage in all states of decomposition.
From these facts are we to infer that malaria is produced
putrefied vegetable - as from the moisture with which of course
were combined being in a putrid state? Putrefaction is hastened
by the combination of moisture and an elevated degree
temperature acting on dead substances whether animal or
vegetable - and during the progress many gree are evolved - as
malaria depend then on the presence of these gree.
[2] Another opinion is that it results from animal putre-
faction. This doctrine is so warmly supported by some as it is
indicated by others, and in unfortunate circumstances the
effects are not very numerous to its favor. Mr. Bayley mention-
et in Philadelphia in 1798 - the same local causes of fever
which did not previously exist allowing the germination of that
green ch. stone or different parts of the city. The board of
public order the barrels in wh. these provisions were contained
be opened and the contents destroyed and the putrid fishes...
1. *Oeuvres d'Ambronie Paré*, Lyon 1641, fol. pg. 528


allowed to run through the gutter to the common sewer. Soon after this,
was scarcely a house in Pearl St. where the stoves had been kept
and contained sick. He then says, "The sudden appearance of
was in this part of the city, and the great m. who where affected
a short a time before the local nature of the cause; and to the
I have mentioned, I have no hesitation in attributing all the
evils which were experienced." Ambrose Parv relates, that in 1862
considerable nos. of cases were thrown into a well near the
street, in which the river flows at that point. "The emanations, " he
said, from it produced fevers over the whole of Albany. "I amused
that many subterranean lakes in the New York
reared from their confinement, and scattered immense quan-
ties of dead fish by their emanations over a large extent of
water, as of course, putrefy and generate many electroactive
vapors. S. Daquis, observed that many persons who went to market
in their return had attacks of fever, which he attributed to the
stream and the space around it not being covered. The earth was
subsequently covered with the offal matter thrown away by the butchers
for dreadful remittent fever, which raged in Penzic in 1781, was in
ited to the canal that runs through the town being fill
with the dead bodies of animals, and all kinds of putrid mat-
At low tides, all these emanations were exposed to the sun,
rendered the air in the town scarcely supportable, and as there
was no police, the streets were in many places crowded with human
and the bodies of dead dogs and cats, which emitted a horrible
The scene which prevailed there in 1742 were from great numbers of corrupted fluids which had been left by an inundation. 14,000 inhabitants were carried off and only 3 Europeans of the party escaped. Lucelius has given some examples of this also in works. These facts are liable to the same objections as we have already urged. If we contrast the opinions on vegetable there are several putrefaction we can find that malaria and to arise from each individual. Now, if this be the case production must be effected from the putrefying process of the substances decomposed. In that case whenever said putrefaction are more exact to find malaria it was attacked with an ague from attending devoting some clearly exposed for several hours a day. To conclude con- to with the putrefying process? Baily says that in 1822 Rome was afflicted with a plague of "santendero," as well as the neighboring country to an amazing extent. Their smw. was perfectly edible for no one could eat, drink without panting their extremes a mortality from commenced, and the inhabitants their dead bodies emitted no one very offensive. Nevertheless 812 the no. of cases was 12897 and of there 812 died while in 1823 when no such extraordinary case occurred the no. of cases was 16303 the mortality 1538.

3. The next opinion which we will notice is that malaria or from the combined putrefaction of vegetables and animals. This is perhaps the quairest way to use the subject can
1. Bancroft on "Yellow Fever."


5. Mendezon op. cit. pgs. 335.

stated. For we can hardly determine with certainty any case
which both may not exist; and indeed authors, if unclear,
and frequently make use of the expression, "animal or vegetable
fermentation." O'Brien says that the specific cause is something
lying in the air from the decomposition of animal or vegetable
matters in a state of decay, and combining with moisture
it gives rise to occasions of a much more feverish description.
These are resulting from vegetable decomposition and moisture.
In the Delta of Egypt where the art of husbandry is best
the human beings are immense quantities of vegetable garbage,
state of fermentation, and besides when the Nile enters
there is a great exhalation from the mud, and putrid animal
matter left behind which readily accounts for the intermittent
and remittent fevers and with "St. Amandy" conjectures
that malaria might be a peculiar product given off by
stable and animal substances in a state of fermentation.
I quote part of a passage from Humboldt, which is perhaps more
in favor of this opinion than any other that could be adduced
in speaking of the virulency of Vera Cruz. "Les endroits
dans les montagnes sont d'autant plus échaudés qu'ils reçoivent
plus constantment convertis d'eau; une couche de
sables mortes entre-mêlées de fruits, de racines, de herbes
2 Jackson on the Injuries of the Army. Pg. 184.
jects aquatiques, et d'autres débris de matières animales, entrainement à une eau qui ne est échangée par les rayons du soleil brulant."

(4) Another theory supposes malaria to arise from putrid water. It will be superfluous to enter particularly into the considerations of this subject. In considering decomposed animal and vegetable matters as sources, we of course included the action of putrid water, or at least moisture as a necessary constituent in the production of putrefaction. But viewing this subject in an extended scale as the stagnant waters of marshes, we can find very little to produce the effects attributed to malaria. Microscopic investigations have discovered that march water contains seeds, herbs, flowers, roots, seeds, fruits, insects, and without all sorts of animal and vegetable matters in a state of decomposition. It can be seen that simple water in a state of putrefaction generates a malaisie over facts an impossibility. Because naturally water is never found simple. That is it always abounds in some of the one matters, and why may the malaria not arise from the presence of these ingredients as well as from the water?

[5] These dense fogs often observed hanging over marshes are been supposed to contain the miasmatic principle. Of all physical qualities of the air, humidity is the most injurious to human life, and it is only so far that these fogs are deleterious at the fogs in themselves are not the efficient cause of fever, nevertheless seem incapable of elevating the miasmatic


also from the surface of the land or water, and conveying them to the atmosphere, they become in a measure incorporated with it and are gradually acted upon by all those phenomena which act changes in it. Mr. Shields mentions that when the land began to off from the low swamps grounds about Batavia early in mornings it brought with it a thick mist accompanied by a fetid smell. This would gradually go off as the sun rose and a breeze set in. During the prevalence of this fetid mist in the spring, many people would complain of slight indispositions of head and stomach, but likewise went off when the sun came up. Thomson has recorded the phenomenon of a thick fog having observed to rise from the surface of a marsh adjoining the start of S. as the sun got up, and leaving it to settle in the in front of the town, which was done after nearly devastated by dreadful fire, and in that part of the town only still of dwellings happened in 1798. But what is remarkable, the same phenomenon occurred in 1800 and 1802 in the same locality of following similar results. The most typical storms as they are conjured up the greatest particles of the atmosphere are acting upon the north of the land's way and consequently as air expansion influences, the gale are much disturbed after the sun rises. In Hadassah is so much disturbs to be an indication of great change in the evening after the sun set, the phenomena fell along with the cold and this renders the night heavy for the usual concoction in the 24 hours. As becoming more and more concentrated.


3. Leuty, op. cit. p. 244.

4. As. p. 149.

5. As. p. 163.

6. Johnson, op. cit. p. 64.
they descend. The next the inhabitants still produced by the evapora-
tions still produced by the heat. In the two first
the murchord a dense structure of highly evaporated atmos-
phere is formed close to the surface of the earth. Consequently the
end of least danger is after the greatest evaporation, before the
elementinum, and return of such calculations as arise during the
year, i.e. from 3 to 6 of clock. Dr. M. in the same mode the heat of
morning and evening is predominant with large Clarke mention
at he has known many cases of fever to proceed from keeping
the windows open. especially in places known to the duty, or to
the diseases. Said narrates the case of H. M. S. Phaeton begun
1766 when at St. Thomas in Guiana 28 a 30 men went ashore
to a hunt, wash clothes, procure provisions, &c. that at
which whole ship company (280 men) were ashore in three
days, and one of whom had returned to the ship before night.

Then she as suffered even the slightest in the position. while
those who slept on shore were escaped the fever and only 3
sick. He is also cautious against these localities where
the noxene gas arises chiefly after sunset from bulbs par
ticularly from mud Malone, and other impurities, &c. near
the coast of Guiana. The twenty three emitted during
daytime, a stench resembling nitric carbide, and at night
would assume 2 cent of a ditch lately cleaned. In 1806 H. M. S.
Stone when at madagascar had some of the crew ill of fever. They
were constantly exposed on shore during the day. This species,

2. Johnson, op. cit.


who guards. The cattle at the watering place during the night
dieges with fever of 1. Several died. S. Poilâne's actinometer
was frequently exposed to the night vapors at Rome—his cloth-
itted so with small rain, yet never caught a drop. He lived
converse to the city noted for its equability. He frequently observed
the humidity had a peculiar odor, which he could not recog-
ize as proceeding from vegetable putrefaction, and he says
the human's difficultement composed a few ordered customs.
Wolfe says that he visited the hospital at Edam every day with
quiet until one night when he remained rather late in those
consequence in 3 days after he had fever. At denned the Ponte-
river disengaged a white vapor dissimilar to snow, emitting the
heat of gunpowder. 45. Mr. Philip remarks that fogs are very seldom
happening ever winter, and that they are almost peculiar to damp-
and. But however that may be we know that dew falls in every
nation, and they are merely condensed evaporation. In 1799 the
Leopard was off the Arabian coast, the men were attacked with a
fever, at the same time a copious fall of dew took place
ning night, which was perfectly cold and fitted to the taste to wh.
Jewer was as cold. (line). The salacity of tropical climates
attributed by Humboldt, more to the obliquity of the sun, than
any other of its sensible qualities. Indeed Clarke is bold enough
expect that obliquity with a free circulation of air. A full expro-
se to the sun can be essential. That a person with these begin-
gins reside with perfect safety in the centre of the Ponte-Norda.
(6) The intermixture of salt and fresh water acts rapidly in promoting the development of animal and vegetable matter, and has recently been reckoned a source of malaria. In the experiments of Peruvian physicians on animals, it has been observed that if a mixture of animal and vegetable substances, with a certain quantity of salt were added, the shells of the snails would grow more rapidly than without the salt, as if a greater quantity of it had been used. As this experiment may be performed, we cannot doubt its validity. But what does it mean? That malaria is produced by the mixture, not the mineral theory, but merely that the function of the composition is increased, and it is in this account that we have statics theory in the above terms. In low flat countries where mouths are open to the source of the sea, the intermixture frequently takes place, but in some cases it may lead if the mouth be not high above the level of the sea. In these cases when the air is thrown up by the sea, the mouth of rivers by dam...

2. Ibid. op. cit. p. 118.

3. Venu. op. cit. p. 3.

4. Annales de Physique et de Chimie. t. XXIX. p. 22.
up the stream. They connect all the low land in the vicinity to
state of a marsh. This intermixture is permanent. The conseque-

What many fish are brought into the marshes and cannot escape

in the fresh water of the Rambelet's aquatic plants con-
unusually growing and dying from glut a recess of limnophi-

The re-

The dune's water stagnating in the desert
always been accounted as connected, with the ferocious can-

of Pharosola. The desert which reaches to the
en for many miles, is connected with a surface of salt, wh.
reconciled with the stagnated waters, and exposed to the lea-

the most venomous effluvia. So early, as the 25th May 1780
stated, the town was surrounded with a salt marsh, wh.
at times almost intolerable. The Arabs are well aware

great sickness is occasioned by these inundations. If a

firestone when two tribes are at war, they break down the

of the river. In Zealand and upon the opposite coast of

Nantes and Brabant, a peculiar kind of Peutie's slamp is

used to rise at low water from a beach covered with

and mud, more liable to corruption. A account of

mixtures of fresh and salt water. Leis mentions that the

rivers were often buried in their banks with stones. While ex-

in the vicinity of a marsh which communicated with the

In a paper read by Lépine Jules, Giacomo Giorgini of the

Venezia, at the Royal Institute of France on 12th July 1825.
and practice of Contracting Words.
stated that the presence of certain mere left for long time during
of the waters of the sea to the waters of fresh water consti-
tute the principal cause of this malady accounted to terrible
known under the name of "Malattie dei Catilaccie." That
is, the case has been proved. For the depurate of the soul and
the waters is followed by a salutory purificazion of the aci-
despite the pending qualities re-appear as soon as the depura-
is interrupted. The town of Venegia in the Duchy of Genoa set
in a morose with communicated with the sea, was almost unin-
sitabile until the communication was cut off in 1741 when the
deaths diminished from 1 in 15 to 1 in 40. This depuration
once having been by some accident destroyed the death rate
in 20 to 1 in 18 for three successive years. At this time the popu-
lar, however, suddenly disappeared when the communication
was again shut. In 1738 before the depurate of the fresh wa-
ter was effected the chief of the circle of Venegia was 1509-
in 1823-92 years after the communication had been shut
annually to 9408. There facts must speak for themselves.
From these sources we can have no doubt either as to their truth
annex. The statistical notices are certainly valuable as far as the
were the obs. now in prospect we will be able to settle any
instance connected with statistics in so far as they relative,
tion of diseases we allude to those valuable details which are
drawn up by order of government of all the medical reports.
either from the decomposition of the water, a thin tuber

Volta. Journal de Physique. Jean Roger. I. II.

a statute on the diseases of the enemy. pg. 184.
It has been imagined that an accurate analysis of the air of
malarious regions would lead to the detection of malaria. Many analyses
have been made, but nothing has been found which might be sup-
posed to produce such effects as are attributed to this agent.

Some have already stated what substances are generally found
in marsh waters, and that they are there in a state
of combination aided by the moisture and the heat. From
these processes several gases are generated—carbonic acid,
amine, carbonic hydrogen—hydrogen and oxygen. In the
water we have carbonic acid naturally existing, the
water, and in a small quantity. In some mineral waters
even it is plentiful. Ammonia is an animal product of
with oxygen is the principal gas in the air we breathe.

The water itself is composed of hydrogen and oxygen. So that the
gas which is peculiar is Carbonic acid. And we are
certain that this gas is not the something of which we are
in search, because gases are not prevalent in mines,
where gas occurs in much greater quantity than in the
water of malarious. But it is very deleterious we allow, but that
deleterious we allow, and that
deleterious we allow, and that
deleterious we allow, and that

deleterious we allow, and that
deleterious we allow, and that

2. Chisholm on Malegnant Pest.avec Vol. II. Pg. 282 et


5. La Bibliothèque universelle. Vol. V. Pg. 13 & 112.

do it has been diluted in proportions as large as one part in the air of the most pestilential marshes, but it has produced the symptoms of any disease ascribable to malaria. Professor offers that hydrogen is the exciting cause of intermittent fever, and when it enters into combination with carbonic acid the fever assumes a remittent type. For another part of work he assigns the origin of these fevers to a combination of saturated hydrogen and Carbo nic acid and he also mentions the probability of the presence of sulphuric acid and hydrogen. 3. J. Mitchell of New York has an odd theory to enunciate. He maintains that the constituents of the atmosphere of marshes are combined mechanically not chemically on account of the presence of calorific wherein however agent is abstracted chemical affinity ensues, and the amniotic fluid is formed. Torenoff's analysis threw no light on the researches of Volta. Advocat endeavoured to cause the emanations. He succeeded in obtaining a vapor consisting with an ammoniacal odor. Procedures of these emanations possessed a sensible viscosity. Repeal obtained by condensation a clear colorless fluid covering what seemed to be albuminous particles of a putrid odor. Tanequil by analysis discovered that these particles were of an amniotic nature in combination with salts and alkaline bases. From a similar fluid Tanequil by heat generated a gas which was found to consist of (100 parts) 2.7 carb.
and 3.30 oxygen, & 67.53 nitrogen. He also discovered the
existence of sulphate, hydroxalates, and lime. Other experimental
investigations have come to the conclusion that the most carbon-
ate is yielded by analysis the same results as the most
sulphate. But all these researches throw no light on the
cause of this mystery, and none of them even go so far
as to prove its existence, nor whether it is combined chemically
in the air of anaesthesia or not. It is clear that if either
case were consistent with the present state of science such
analagous has arrived at such a degree of certainty that
substance was not, its existence must be very tenuous.

(8) he said that a certain degree of heat is necessary to the en-
cause of this fever, and this has led to the belief that it is
the cause of these fevers. It is a curious circumstance that
we do not exist either in cold countries as in the colder zones
or more climatic. It has been imagined that cold destroys the
existence of this fever. In a country where agues are pre-
calent more are produced after frosts act on the many relapse
that time. In Virginia in the papers to wh., we have already
and say, that the meaner of autumn are effectively destroyed
out. The influence of malaria does not seem to extend far.
Nor than 50°. N. Lat. Agues have not been known as accent.
enemically in Scotland for many years. Wh. perhaps is
(by the parts of the country where it formerly prevailed being
in a high state of cultivation. The temperature which accompany
Only in the Massima.


2 Page 90.
to cannot be continuous. It reaches this about 60° Fahr. but sometimes a little lower. Malaria is never seen at all degrees above the high temperatures. The more concentrated is the residue of the sun. To allow that the climate of malaria is permanent over a whole of the globe where it exists, the difference in the amount of sun in spring is supposed to be owing to its being more concentrated at the lower altitude. In England and Holland it generally produces simple attacks, sometimes however of the fever from being not a fever. Attacks occur, but they are generally cured with ease. In the south of France they become much more formidable. In Lombardy one may meet with all varieties and in the Tropics it occurs more severely than in any other part of Europe, and it occurs more severely than in any other part of Europe. In the tropics the tropics are met with bilious remittents in fever. and other countries in the same latitude, and in the Tropics with the Yellow Fever. Ferguson mentions that "al a high temperature, of atmospheric heat, is indispensable towards the production of Yellow Fever; and that as proportion to the intensity of temperature is the intensity of power in the means to be produced, varying in its effect from the ordinary annual to the severity of the acute disease. Dr. Gilbert Blane states that at Kewberon, the inhabitants consider it as fully established by observation, that the more such years are in which there has been great droughts, and heat in the end of summer and the early part of autumn prevailing, to the increased inhabitants. And the more concentrated
is there not some misconception here?

Pringle, op. cit., fig. 2
crop of the stagnant water produced by these causes. If that
were thus the cause of these fevers, we should find
my place liable to them according to its latitude. But this
is the case for these are many situations within the tropi-
cus where they are never met with. Besides, a consider-
able degree of heat as it abstracts moisture destroys the
finest elements so necessary to decomposition and
mind of vegetable substances exposed to it, in a very brief
period of time, to quickly dried up so as to prevent their
action, and crumble into dust without that process having
a place. This circumstance also militates against the
use of any communicable disease between the decomposi-
tion of animal or vegetable matter. The production of
malaria, if it exists, in circumstances where putrefaction
must take place.

(467) If these be only attending to dilatation as exist-
in the vicinity of marshes, we must have to demonstrate
the general exists independantely of them. This was first
brought under public notice as a theory by Dr. Ferguson, altho
subject had been hinted at before by several authors
enough formed agree very common in the Netherlands, yet even
the said marshes. For all the country is drained, true their
many streets act one season only, and by digging a little
of level the subject moisture can easily be procured anywhere
amongst its more a help subject to other diseases, of some.
return to the distance of the water from the surface. So that, looking into them well, it is easy to determine the health of the several villages. Dr. Stogley remarks that frequent drenching the rainy season in localities where we have no marshes, and lands carries his belief so far to infer that he does no reason why a fever should be stopped with such in the most wholesome part in England. His observations were as it were confined to a_smaller or one land or a country, but he gives the result of his researches in Holland, Spain, Portugal, and the West Indies from observations made during many campaigns. The opinion which he expresses is to this effect that putrefaction under any sensible insensible forms, whether aqueous, vegetable, or animal, is essential to the production of fevers from water. At the same time he agrees with other authors in attributing the most frequent and destructive fevers incident to the inundations to the action of a powerful damp for a sufficient length of time upon a disturbed surface; but he says that before this surface can become deleterious, the drought must be so intense that the march must cease to be a inundation the common expectation of the word. In 1794 the army encamped at Rosewall and Baterbost, on a level plain of 2 miles and a perfectly dry surface, where no vegetation was a bed of earth. Yet situated health plants yet exist that of scimetars were very common. Again, the army
panied it hence while marching through a singularly dry part of Spain of considerable elevation. The valley room
had lately been water courses. Before they stood at their com-
morning several of the men were seized with maladies.
acquiesce that had arisen itself during the march. In
rise the half-dried rivers having been the stringless of a tur-
t it, soil could not reside. The non-existence of vegetation
beautifying the frontier with diminutive instances. The valley country in the vic-
ity of Seville is dry and healthy. West of the low flat plains of
stigo, the opposite side of the Tagus is so fertile, that
some months in the year it is not habitable. Never the less
mer its of dry land without a drop of moisture. It run
it by every gale of wind. The Tinned and the Genoves are more
merent and the symptoms greatly aggravated when the weather
been dry for an unusual length of time. The dry bed of the river
the valley of Marmarol, which is only filled with water during
the 12. distill as much malaria as would render half the Island
inhabitants. In short it. Ferguson believes are that the soil near its
half-dried and sfaying margins of a swamp and in all
cases capable of absorption. The only condition of its gen-
ner a plenty of water where water had previously recently
rised. It is necessary that the soil should absorb water
that it should be greatly impermeated. If we suppose its con-
itions we cannot admit that either the malaria is an
m a"
1. *Medical Essays* or London 1828. pg. 33.


My never to be any contrary with their vegetable and animal matters.

4. *Weld, Cap. XIV.*
water, and that it remains behind in the soil, when the water is evaporated. In this state, it is eliminated by the action of the water. All these observations prove nothing against malaria. They merely show that it is produced at a highly advanced stage of the drying process, and that its activity is influenced by the character of the season, the temperature, the situation, and the aerial movements of the atmosphere. DRAWN together with Fergusson in these remarks, and Quatremère de Quincy's remarks, in a remarkable treatise, illustrating his from reports made by himself in the Neapole of Malasa Fez, in India.

(10) But swamps, except in many situations, seem to be generated. The same states, Fergusson's opinion that a marsh must cease to be one before malaria can be produced. In other words, that malaria cannot arise from a swamp only covered with water. In Scotland and Ireland there are large tracts of country in the condition of swamps, as Great Britain has been, but these have never been known to produce malaria. It may be said that the weather is too cold to prevent the generation of that which cannot be the case, for it is still remembered when great prevalence in East Lothian. But they are unknown among desolate countries, as south of the Latitude of 41°, as they are in the south of the Latitude of 41°. But admitting that the country is not always favorable for it, its production is not in the habit of prevailing beyond the borders of the Neapole of Malasa Fez.
as? Here you have animal, vegetable, and aqueous substances
so doubt, at an elevated temperature, with these results
is produced, or if it is, then exists at the same time some
principle, which either tempers it or at least neutralizes
its effects. The Venice, which is the center built in a great bay
any other city, with large mercantile traffic in its vicinity, are
all others heard of and they cannot be called common. The
addition to other circumstances which favor the evolution of mat.
s, we have the intermixture of fresh and salt water. Cur-
rent state of knowledge will not admit of our attempting to an.
It for the phenomenon. In the seems to be something
in the mixture of the soil and the water which suspends the
of the floating

in Venice is said to be an elevation from particular soils
is a very old opinion, and has been entertained by many clu-
authors, and among others Dacca. Alluvial deposits
lebris of animal and vegetable matter have always met ani-
diving marks under the theory. Such is the geological struc-
t of the delta at the mouths of rivers and the meadows.

and Gannetby infers that the present crescent
of particular situations which formerly were not so it the-
ted to the acceptance of alluvial soil from the high-
ands in their vicinity, and from the settling up of lakes from
abundance of this matter, and he also states that this air
or help in the particular situations with embalming.
gases, a fluid forms quasi off from the soil, or from substances in the soil, so that these calculations accumulate in proportion to moisture of the soil, air, its temperature and the degree of stagnation it may experience. In gelatinous soils, and that deep saline earth where found at the bottoms of valleys or ravines in banks or at the mouths of rivers, are productive of an unclean vegetation when they are exposed to the action of a powerful sun, particularly when they have been inundated. Here they are covered by the remains of the unclean vegetation. This direct that whenever a sort of white, sandy soil is observed as seen at Pensacola, St. 

Boucarist, we may immediately conclude that it is a dangerous situation and unsafe with malaria. But whatever may be the state of these surfaces which exhale this deadly poison it is well known fact that when they are disturbed the arrival is much increased. One last author observes that the wind from ground newly opened whether from graves a death in more dangerous than from the swamps itself, when the scene is undisturbed and indeed in some places it is certain to as a European to die a grave. Such Kore was calculation went off from a grave where some men were digging at Canton all sickened and two of them died. But a much more severe disturbance than this have been known to from fatal结果 of a shower of rain or what was once a swampy ground at very noon in summer. But this production of mal. is not confined to the above description of soil.
key districts are not exempt from its depredations. Particularly
the rocks are of a calcareous formation. Most of the examples
in Key Fernando at Ciudad Rodrigo, Sevile, Andores, Gay
the coral reefs of the West Indies that have risen above the
floor of the deep. It has been judged that the particular in-
stance connected with all these localities is generating the
air is the permeability of rocks of the above formation.
(2) There still remains one opinion regarding the origin of
carbon, an opinion which is not necessary. This particular at
least the one concerning the growth and movement of
bodies in the atmosphere, causing the derangement of such bodies as come within the station
and action. And from explaining the difficulty, this theory
was as exactly where we were. In that hypothesis it is clearly
inferred that human beings are not the cause of the power to
scarcely recorded that we profess we cannot understand the
many express two opinions very much at variance with one
other.

We have now briefly run over most of the opinions held as to
origin, and nature of malaria, and the result of our inquiry
is anything but satisfactory. Its sum and substance seems
that malaria exists in certain localities, which are determined by
'Jackson a Tenth Oceas. J. 172.'

'Blane. J. 104.'
That under all of these it produces the same results. I think the
ity of these effects is influenced by elevation of temperature locally
constitutional habit. But some authors do not seem inclined
to see malaria as an impalpable and incompressible
as we have described it. They have imagined it capable
producing sensible effects on the organs of sense. One an-
so maintains it is of a bluish-white color and another that the
attacks the system, it produces an unpleasant sensation
the mouth accompanied with a desire to eject something of
one and he compares the sensation to "dangerous imple-
so acting in the Ganges and Stomach." The feeling is said to be
sick and dangerous of its smell we have alluded to when-
king of the constitution of the air of marshes. But however con-
tained these opinions may be, we are many instances of its qua-
ities from facts with which we are acquainted. The influen-
malaria extends itself both vertically and horizontally both
cases entirely by the state of the atmosphere. Malaria ma-
their vertical capability in a calm state of the air in-
certain climates at between 1400 & 1600 ft. & in a horizontal
steep from 600 to 1800 ft. England. The British flot when lying
the Channel during the dreadful gale that prevailed there
and a man ill of figures. The channel is about 6000 ft. wide
of the vessels lay much nearer one shore than another. In
climates however its activity is much more extended, per-
vying to the modified state of the air. In the islands in the West Indi...

2. See also Humboldt’s Personal Narrative, p. 188, Vol. III.
Boyle’s Western Africa. Vol. II.
e experienced its baneful effects at 1500 toises (Mompelon). From the st. We may here advert to an opinion of Dr. Ferguson that malaria is absorbed by water and consequently it could not extend over a small course. But this opinion does not seem to contain in giving it he appears to have been generalizing too far in his observations which we have stated to the effect that malaria cannot exist on the surface of water. That it is ag. in a march is neatly proved that it generates the fever. — Under certain circumstances, however, the malaria is influenced as to a great distance and the principal agent in affecting is wind. Although winds by conveying malaria and diffusing over an extensive surface, might be imagined in this way to inji its energy, yet they often contribute to its operation. Indeed, that the force of malaria is increased by the impetus with which strikes the body, and it is on this account that malaria in the vicinity of marches are so numerous. Lancaces relates to 30 ladies & gentlemen of the first rank in Rome having made excursion in a party of pleasure towards the mouth of the Tiber, wind suddenly shifted them from the S. over the Adriatic, when the whole party except one were immediately diseased in a tertian ague. — The vertical height to which influenced by ascent has been a matter of dispute. Ferguson in opposition to Mompelon's opinion to which we have alluded maintains that place of the march fever being carried up into the atmosphere then condensed, it evidently proferee an uncommon
1. Halliday. op. cit. p. 364

2. p. 335.


a singular attraction for the earth's surface. And from this assumed fact he says the malaria comes in contact with water and
marshes. Now are we to account for the unhealthiness of situations
the vicinity of marshes, if we do not suppose the mosquitoes fly
to ascend? Ferguson thinks it creeps along the ground and be
comes concentrated in height. In Trinidad the first named Peto-
ity, this places on an eminence in the vicinity of a marsh is
unhealthy. That no man can sleep in it with impunity Hercu-
lates together, and the mortality was greater at the top of an
ascending mountain - a little removed from the plain than it was
the very margin of the Savannah itself; a even in any inter-
mediate stage between the March of the mountain. When lero-
the Malaviria ascends in the air, it becomes much diluted and
energy is almost destroyed at a comparatively small distance
on the surface of the ground. Beute observes that the difference
between high and height gives comparative security to soldiers sear-
ved in the same building. 3 In a report of Adjut. Gen. Ralph of the
Queen's Rest, quartered in St. Ann's Barracks, Barbadoes, it is men-
l- In dept. one case of fever presented itself in every 20th man of
quartered in the ground floor, and in each 30th of man of the
upper, and in Sept. 1 in 24 upstairs, 4 in 14 down. In St. James's
motto there stoves high, the ground floor not inhabited, seem
a 12 ft. from the ground; the no. of cases in the second was 3,
and sometimes 5 times the no. in the third. The companies in a
weeks in the second story had deserted, a man fit for duty.

2. Blane. pg. 92.


5. Halliday. pg. 335.
July 1742. The rest of the Rest of Guards quartered in Ghent—8 companies.
A lower part of the town and 2 in the upper had 140 sick of
mus. 138 were in the former and only 2 in the latter. But in Augt. when
changed their quarters, the sick sprang suddenly at first. Those who
in the upper stories in Wateren to be less liable to the fever
seemed it in a milder form than those who inhabited the
lower. It has been remarked that when the air is not agi-
ted by currents in it produces either dry wind a different
momen. The malaria becomes concentrated & acts with
with rapidity. Clarke observes that a peculiarity of the cli-
mate of Rome observes noticed he attributes to the stillness of the
atmosphere. High winds being unfavorable of rare occurrence.
It would seem also that this principle when concen-
trated acts with rapidity in proportion to its concentration.
In all to the quantity entering the system. Agues are not so
common in June & July in those countries as in Augt. in the former months every circumstance favorable
to production exists. And the probability is that large quan-
tities are generated. But in the latter the heat of the sun has
a longer time to dry up the meadows and the influence
in which we have already stated is that the malaria is
not more concentrated than. To deadly is the atmosphere of
great Savannah of Trinidad says L. A. Halliday. There
in honor it with destroying life at once—while during the
bears a thousand revolutions with destroying the strongest...
most healthy negro. Can that idea be communicated from one to another? Such is the opinion advocated by some authors. But attentive consideration of what we know of the nature of the plague should certainly lead us to entertain a different one. And many facts, relating under intermittent and intermittent crowded together, will ventilate hospitals, particularly if within the range of malignant fevers. will produce serious consequences to the originative fevers of a contagious description. The careful citation and experience of many authors teach "I have fairly satisfied myself, is the commencement and intermittent fevers of the West Indies an example the genuine offspring of a subtle something, and the social writers have called the March Fever and are contagious. But that in any country it more especially in the tropics of the woods of an hospital, the towns of barracks, or even the quarters of a garrison, become crowded. The cases of these fevers, another distance is quickly gone, and is so highly contagious that it will carry enteric through out a whole colony." T. Dicken observes that a fever in the case even besides the infections because they called a particular division of a ships company at Barbados 1607. But it was discovered that that particular ship company of men just come to the tropics from Britain and were frequently in an unseasoned state. While the rest of the crew was here and in the Indies for several years. And this leads

to the considerations of a very interesting feature of malaria—different degrees of susceptibility to the action of malaria, imposed various descriptions of individuals. It has been generally re-

arked that foreigners proceeding from a cold to a hot climate

circumstance liable to malarious diseases, indeed the fact is
well established. That it may be considered a universal rule
at the colder the climate he comes from the greater is the strong
susceptibility, and by the same rule natives of malarious coun-
tries are susceptible in a very trifling degree. Indeed the malaria
must exercise a great degree of influence on them during their
life lines so that they at no time enjoy the same degree of health
the inhabitants of more salubrious climates. This influence
extended over their both mentally and corporeally for they seem
united in attitude with promptitude a vigor but we have
d to this subject before. The doctrine of susceptibility has been
source of much discussion particularly between contending and
opponents. The state of the case seems the same excluding to
effects of temperature on the human frame. The England whose
mean annual temperature is about 53° F., the natural
standard of the body 98°, it requires considerable exertion in the
real Gunn explains. As preserve the natural heat at this standard
in a climate where the mean is 80° F. The exertion must be
of diminished and indeed is altogether unnecessary, and a
removal with\...
1. Blanq op. cit. pg. 94

2. Trenchard pg. 196-9204

3. See the works of Lind, Jackson, Barcroft, Bailey, M-
   Maffure, Clarke, Fawkes, Blum, Arneley, Brown, 
   Valentin, Delmas, Rouppre, Volney, Hillary & Co.
it is an analysis of the opinion of Blaneroff, and it appears to be reasonable, and affords a good explanation of all the facts that can be brought forward on the subject. All Strangers are equally susceptible however. For it has been remarked that natives of mountainous regions and hot countries possess prosperity in a stronger degree than those of plains. This is particularly observable in the Walcheren Fever in Blanenese, and that the soldiers of the Spanish and Rept were generally the first affected, and then followed makes a similar remark regarding natives of the mountainous parts of France. This susceptibility also may be acquired by natives of nearly districts a climate, emigrating to salutary and colder countries, causing them for a few years, and returning to their homes, they are in the same condition as perfect strangers and frequently the above rule becomes applicable to them. But only are natives less susceptible than strangers but when are attached the fever is milder and admits to an easy abatement. This it is often very lethargic. In strangers this is more rapid, accompanied with much more violence. If not caught in the commencement the patient like must consider in danger, as it very speedily beget's the crisis. Then remains now but one subject to be adverted to in ref. to this proved we allude to the period the poison requires once it exerts after it has been introd. into the system. This period seems to divide itself into that of immediate and gos.

2. Ibid. *op. cit.* pp. 201.


the citron. In the explanation of how we must refer to the entrance of the Malaria, and the exciting causes to the so.
of it. The individual is then more liable usually exposed, to his own state of body as regards natural predisposition. It is the
aim of many French & Italian Writers that a single inspira-
tion is amply sufficient to produce fever. That this often occurs in half an hour. The momentary experience of a gust of wind
which, when blowing off land in the tropics, is often occasioned
by the continent many cases of instantaneous
the change occurred. From sitting, lying down, an insalubrious
and looking into a drain or a ditch. 2. Lind mentions that many
in sleeping on those were led immediately with delirium, with
after the first symptom of fever and Rush says that in several
causes the sudden violent action of the Malaria indeed, causes
general convulsions. 3. Jackson considered this period rarely last
7 days nor more than 10; sometimes however it was protracted
well a month after exposure, and then excited only by em-
urges which affected the balance of the augmented susceptilibi-
s in unknown manner. Lind goes on to observe that of those who
entered by keeping astern many died and exhibited symptoms
after they had been on board again for two or three days, or
were only slightly indisposed and in others it did not ap-
pear late the 11th or 12th day. 4. Pannier limits the period of incuba-
tion to 14 days. But thinks it often occurs between 5 7. Pannier
state that the apogee of chills are the consequences of
1. Johnson, pp. 68.
2. Bloom, pp. 92.
4. See altera Monedula, pp. 84.
were absorbed during autumn. Johnson asserts that the person
was toxic 18-20 or even 30 days, and then only is proved to
be by some finer inspection cause. 3 Clarke supposes seven or
are necessary before this takes place. 3 Clarke says that
German, French, and English artists, who reside a considerable
in Rome were more frequently attacked with fever. The 2nd
of these remedies than the 2nd. Professor Alcsin of the Uni-
versity mentioned in his clinical lecture (Jan. 1839) about the
labours, who leave this country in July to work in England,
who return in Oct. or Nov. generally have a par in March pre-
sory to exposure to the cold early spring. He quotes that inst.
related also the case of a young gentleman a student at the university
had an attack of intermittent in May, but had not been exposed
in the influence of malaria during the July previous, when he jour-
iled in the Pontine Marches. A young officer, too, who arrived from
with his regiment in May, had an attack in Sept. during which
he had not been in an aquisch district. 4 All these po-
tics may be easily accounted for by referring to the varous
factors of predisposition a excitement a to which the individual
he exposed. We must now take leave of this subject with
attempting any further explanation, as our information is
united. 5 Frequently it would be unphilosophical to sup-
malaria could be the specific origin of many other descrip-
tes of diseases. Than intermittent, of remittents in their various
characters, from simple ague to the Yellow Fever of the West Indies.
instruments we partly mean, and have only alluded to them as
symptomatic of the poison itself; its investigation does not come
in the scope of this essay.

Proceeding further, in considering this subject it is not our
intention to enter into the metaphysical theories of fever, but before
enjoying their remarks to a close, it is necessary to advert to the
cause in which malaria is aided by other exciting causes acts in a
very predisposed so as to generate its specific fevers. This has
a favorable topic for theory since the earliest times. In supposing
that every phenomenon of an intermittent is in itself an ex-
tension of all the various phenomena of fever, the subject of
fifty investigated, it was thought, would lead to the detection
several important features in the progress and mode of treat-
ment. The primary action of fever is believed to be exerted in the
non-sympathetic and we find many persons whose effect
usually falls down in a state of comatose insomniac produced in the
body. The malaria seems to enter the body principally through
insests. The arterialization of the blood is not perhaps
as great as to conjecture that the morphine musicians enters
blood at the same time, by the agency acts on the
sensations. We can have no doubt that the effect of mor-
phine is to produce an alteration in the balance of the circulation,
that we may consider in the head ache from the speci-
...gallup about the preceding. But whether there are age
through the nervous system-a direct action on the circu-
lation has not yet been decided. Indeed some common mer-
causations seem to produce their promising effect on the vaso-
form in the nervous system. Atmospheric influences is
rise to violent oscillations of the circulation, which again de-
clearly affect the nervous system. Malaria febril affects
nervous system. It is the circulation, but it is much more exi-
ited in the latter than in the former. Irregularities in living of the
...Deficiency prevents on the nervous system influence to
give a the muscular with local constrictions. Another opinion
views Malaria to enter the body through the absorbents par-
icularly those of the gums and for the first step of the flourishing
appears to date from the time when the malaria touches
the capillaries. Open is in almost every instance followed by an
attack of fever. It is an established fact that the oil coagulated
is never liable to plague, owing as it is supposed to their bodies
so hemorrhaged with that subcutaneous substance, that the vi-
cannot enter the system by the absorbents. And Ferguson
who that measles are not as liable to be affected by malaria
rule at present are constantly covered with a coat of oily fur-
nation. Peculiar to that race of men. It is however well to
is that the inhabitants of these countries, where it is con-
many to brand themselves with quinine oil— are greatly exempt from malignant fevers. And it is also found that the negroes, who have a dark—thick—glossy skin are not so subject as their fairer countrymen. It seems probable that fevers as well as the abscesses have their origin in vititious humor. If so, it would seem the former proposition and it difficult to explain the fact of superior prosperity of our negroes, and the Ptolemaic chyle or the strangled vein next to the heart. How the tissues, which the abscess is not likely enter into the arterial system, before it can reach the system.

The sentiment, enunciated by Sir J. F. Bligh of Edin., appears the most reasonable in explanation of the theory of the mendi of malarias. The application of this process in whatever it enters the system, operates as a stimulant to the production of fevers, and the duration of the exciting effects which it produces has been termed the latent stage. Previous to this stage there is another, which we have termed the period of incubation. When the measure they certainly in the system for a period, until the system has been acted upon by some constitutional exciting cause, when the latent stage immediately commences. While its pathological statum may be at this period, it is not to determine; and we cannot pretend to explain its latent stage, the capillaries are excited, and irritate. It is
ery consequence contracted. This phenomenon produces caldron
arleneq of the skin, and dilating of the external parts of this
while the interruption of the circulation is to cause a n. of
its, gives rise to an accumulation of the blood in the central part
body, a great oppression and disturbances of the organs of cir-
stration of the brain. In consequence of the intimate sympa-
ity existing between the capillaries of the skin and the brain, the
last are also contracted; by the consequent conclusion
and the functions of these organs are much impaired. It
not come within the sphere of this essay to pursue the subject
our intention solely was to be shewn in what manner this
was operated on the system.
We have now brought to a conclusion our remarks on the causes
of intermitting and remittent fevers, predisposing exciting, &c.
and we have endeavoured to illustrate our statements by
ence to facts, as from their evidence alone they is our convic-
correct theories must ever be deduced.

Finis