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MARRIAGE.

II. PHYSIOLOGICAL.

In the last month's editorial we discussed the moral aspect of marriage from the legal standpoint. It was argued whether the legal ceremony was or was not a discipline to the sexual passion. To discipline is to control our actions in accordance with certain rules. Definite moral obligations must be conformed to, and these obligations develop self-mastery. Very often, however, the thing that has been a factor toward progress, in one stage of development, becomes the obstacle in the next. If we wish to progress we must remove the obstructions placed by ignorance in the path of progress; that is, we must find out whether the race must be disciplined by legal laws until it reaches the higher and more perfect development, or whether the primary and basic principle of the higher and perfect development of the individual is not intelligent breeding, for the more the higher control centres are developed the less legal law is required, and the less these psycho-motor areas are developed the more legal law is required? The problem we wish to solve is, whether the law is the primary factor in developing the control centres, or whether breeding is not the primary factor; and whether the restraining influence which the law is supposed to exercise is not a superadded element, depending on the nervous centres. Nerve tissue has to exist before it can be modified, and brought into dynamical relations with other elements. Self control is dependent on the higher controlling planes of the cerebral cortex, and on these alone. Self-command is not a king sitting

upon a seat all alone in the brain; the power of self-command is an adjunct of the cerebral cortex.

If we study the problem from the physiological standpoint we find that without these higher control centres, man is simply a beast; his lower appetites are without rein or check. Man is human by virtue of his higher controlling centres and these alone. The righteous man, the honorable man, the good man, is so by reason of the differentiation and development of the cerebral cortex. The distinguishing feature between man and the savage or other animals is that the passions, appetites, instincts, propensities, are more and more represented in the psycho-motor areas of the brain as man develops along the line of evolution. The passions of the civilized man may be as strong or even stronger than those of the savage, but what distinguishes him from the savage? The power he has to regulate and control his passions is infinitely superior. It seems that the passions are not weaker in the more highly developed man or woman, but they are more restrained; for in progressive dementia, when the human being loses these higher restraining centres, the man or woman becomes as violent as the brute who has never had his higher restraining centres developed, and has been most bestial in his habits. It is a well known physiological law that the lower regions tend to over-act when the higher centres cease to act. For instance, with the insane, when the higher centres are attacked, when the restraining power is lost or inefficient, they become indecent and filthy in their habits; they have no feelings with regard to shame or honor.

Again, idiots, their higher controlling centres not being developed or having been rendered useless, have their lower appetites and propensities abnormally developed, and they have a special development of certain organs. It is said that the passions are stronger in youth, but is it not that the higher centres are not yet fully developed? The higher restraining centres become more stable and better organized with advancing age. Moreover, in old age with senescence of the higher restraining centres the lower appetites tend to over-act. Many individuals get into a more terrible rage than others, many individuals are gluttons; many who are not idiots or insane have lower appetites and propensities abnormally developed and still are very intelli-

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gent. This is because particular control centres are undeveloped. Hence they may be morally imbecile with regard to one thing and not to another. Or there may be such an internal discharge of energy of the lower organs through disease, or a hyperexcitable condition such as will incapacitate or overcome the higher centres, as Dr. Hughlings Jackson has said. This may go so far as to lead to immoral or criminal conduct. If we take an example of a drunkard or a murderer, the desire comes on and in its fury he satisfies the mad craving or desire; but after the craving or desire has passed, he is bitterly remorseful. The explosion of energy was such as to overcome the psycho-motor areas, and when the explosion of energy had spent itself, reason re-asserted itself. This is why we say man is human by virtue of his higher controlling centres. It is said "that in all probability the phenomena of nervous life are the outcome of the contest between what we may call inhibitory (to hold in check, to keep back) and exciting forces. The brain may not only inhibit particular spinal reflex movements, but also habitually exercises a *restraining* influence on the reflex activity of the whole cord." Why we have the lower appetites abnormally active in idiots, insane, savages, or those individuals who are more animal than human, is that the brain has ceased to exercise, or never has exercised, a restraining influence on the desires, passions, instincts. The striking peculiarity of those individuals, whose higher control centres are not developed, is their inability or very slight ability to act consistently, to reason and learn by experience, to judge between right and wrong. They can be excited; that is, their defective nervous systems can be excited into rash acts, but it is not so easy to regulate or control them afterwards. Not only do the lower appetites and propensities become exaggerated and tend to over-act when the higher restraining centres are incapacitated, but there is a biological law which throws light on these appetites and propensities, namely, the older a structure or function is in the evolution of the race the more enduring and stable it is; in other words, the last faculty acquired is the first to disappear, and dissolution is more complete with it than with those faculties, which have been longer organized in the experience of the race. Dr. Hughlings Jackson was the first to formulate this law, which throws so much light on psychology, physiology, and heredity. What are the last faculties acquired? They are the superior centres which refine and elevate our passions. In progressive disease, which attacks the higher controlling centres, or in non-development of them, all those attributes, such

as altruistic sentiments, refinement of mind and manners, reasoning power, which are the latest developed, are the first to disappear, and they disappear most completely; but hate, rage, spite, jealousy, indications of the brute remain, when all signs of the human have disappeared. It is wonderful how quickly a man loses the polish of civilization in adverse circumstances. Brute instincts are of earlier date than human instincts with their acquired polish, and are therefore more firmly fixed, and more difficult to eradicate. The power of speech is lost if a human being be isolated from all human intercourse. Speech is an acquisition of very late date; our primitive ancestors had a very limited vocabulary. Speech, therefore, would be more easily lost than a faculty that had been fixed for thousands of years in the lower organisms and transmitted.

According to the laws of heredity children are the product of their parents. They may inherit more from one parent than the other, or they may inherit from both in equal proportions, or there may be antagonism between parental germs causing differentiation or reversion. Any organic peculiarities, however, are conditioned by the inherent properties of the germ. Which is the organ latest developed in evolution? Which is the organ which is the most variable, which degenerates the first, and is the most completely affected by the immediate influences of heredity? It is the brain. When we discuss heredity and the results of particular marriages, we must bear in mind the Jacksonian law—the latest structure is the first to disappear or to be affected by the immediate parents. Those who insist that differentiation is solely and purely due to union of different individuals overlook the influences of pathology in heredity. For instance, a man may have abnormal appetites leading him to immoral criminal conduct, and it might be said that his parents are good useful citizens, or that no such traits are displayed by any of his family, and yet, through some incompatibility, or immaturity, or disease, or over-tired condition of the parents, development may not proceed far enough in the child to develop the higher control centres, hence his lower appetites are over active, which lead him to act indecently or criminally.

It would be amusing, if it were not so sad, to hear individuals (who had not the courage to discuss the question of proper generation, when it was unpopular) repeat like parrots, and write in books, that every child has the right to be well born, while they overlook the fact that elective affinity, that is suitability of the parents, is what causes the energetic re-action between the pronuclei until it attain the full and perfect development of the higher control

PHILOSOPHICAL NOTES AND COMMENTS.

The awakening of sensations is the secret of love.

* *

There is no thought without phosphorous.

* *

Where the cause is just even the small conquers the great.

—Sophocles.

* *

"Transferred energy is the sufficing and final explanation of all change."

* *

"A cur, though contemptible in ordinary cases, becomes tragic when he has hydrophobia."

* *

Nobleness of character is nothing else but steady love of good and steady scorn of evil.

* *

As the yellow gold is tried in fire, so faith of friendship must be seen in adversity.

—Ovid.

* *

The manner of saying or doing anything goes a great way towards the value of the thing itself.

—Seneca.

* *

Never does a man portray his own character so vividly as his manner of portraying another's.

—Richter.

* *

He that is slow to anger is better than the mighty, and he that ruleth his spirit than he who taketh a city.

—Solomon.

* *

"Interested friends are like the dogs in public places, who like the bones but care little for those who throw them."

* *

It is impossible for any man really to desire that which he can in no way imagine, and which is entirely foreign to his nature. He can no more escape from his own nature and its limitations, than he can separate himself permanently from his own shadow."

* *

All that we are is the result of what we have thought. It is founded on our thoughts. If a man speaks or acts with an evil thought pain follows him as the wheel follows the foot of him who draws the carriage. If a man speaks or acts with a pure thought happiness follows him like a shadow that never leaves him.

—Buddah.

THE DRUDGE, THE ARTISAN, THE ARTIST.

To lay the firm foundation in ourselves, or even to win success in life, we must be drudges. But we can be artists, also, in our daily task. And at that word things brighten. "Artists," I say, not artisans. "The difference?" This: the artist is he who strives to perfect his work; the artisan strives to get through it. The artist would fain finish, too; but with him it is to "finish the work God has given me to do." It is not how great a thing we do, but how well we do the thing we have to, that puts us in the noble brotherhood of artists. My Real is not my Ideal—is that my complaint? One thing is at least in my power: if I can not realize my Ideal, I can at least idealize my Real. How? By trying to be perfect in it. If I am but a rain drop in a shower, I will be at least a perfect drop; but a leaf in a whole June, I will be at least a perfect leaf. This poor "one thing I do," instead of repining at its lowness or its hardness, I will make it glorious by my supreme loyalty to its demand.

An artist himself shall speak. It was Michael Angelo who said, "Nothing makes the soul so pure, so religious, as the endeavor to create something perfect; for God is perfection, and whoever strives for it, strives for something that is Godlike. True painting is only an image of God's perfection—a shadow of the pencil with which he paints, a melody, a striving after harmony." The great masters in music, the great masters in all which we call artistry, would echo Michael Angelo in this; he speaks the artist—essence out. But what holds good upon their grand scale and with those whose names are known, holds equally good of all pursuits and all lives. That true painting is an image of God's perfection must be true, if he says so; but no more true of painting than of shoemaking—of Michael Angelo than of John Pounds the cobbler. I asked a cobbler once how long it took to become a good shoemaker, he answered promptly, "Six years, then you must travel." That cobbler had the artist—soul. I told a friend the story, and he asked his cobbler the same question, How long does it take to become a good shoemaker? "All your life, sir." That was still better—a Michael Angelo of shoes! Mr. Maydole, the hammer maker of Central New York, was an artist. "Yes," said he to Mr. Paton, "I have made hammers here for twenty-eight years." "Well then you ought to be able to make a pretty good hammer by this time." "No, sir" was the answer, "I never make a pretty good hammer. I make the best hammer made in the United States." Daniel Morell, once President of

the Cambria Rail Works in Pittsburg, which employed seven thousand men, was an artist and trained artists. "What is the secret of such a development of business as this?" asked the visitor. "We have no secret" was the answer, "we always try to beat our last batch of rails. That's all the secret we have, and we don't care who knows it." The Paris bookbinder was an artist, who when the rare volume of Corneille, discovered in a book stall, was brought to him, and he was asked how long it would take to bind it, answered, "Oh sir, you must give me a year at least; this needs all my care." Our Ben Franklin showed the artist when he began his own epitaph, "Benjamin Franklin, printer." And Professor Agassiz, when he told the interviewer that he had "no time to make money," and when he began his will, "I, Louis Agassiz, teacher."—*William C. Gannett.*

THE WORD HUMANITARIAN.

To the Editor of The Tribune.

SIR: Of the long list of words in good use in our language, but misused by both speakers and writers with abominable and inexcusable carelessness, probably none is more common, and, to many persons, more offensively misused, than the word "humanitarian." A conspicuous instance of its misuse may be found in no less studied a document than the report of the Medical Advisory Committee of the Chamber of Commerce, published in your issue of September 21, wherein, in the paragraph which speaks of the humaneness of informing passengers of the reason for their detention at quarantine, occurs the following sentence: "We urge the importance of this, not only on 'humanitarian,' but on obvious scientific grounds."

Webster defines humanitarian thus: "One who denies the divinity of Christ and believes him to be a mere man."

The absurdity and senselessness of this word, as used in the doctor's sentence, as above quoted, and the apparent increasing frequency of its misuse for the word "humane" has induced this letter. Had the blunder been made by a committee of lawyers, we might have had them disbarred, but what shall we do with the doctors?"

E. A. G.

New York Sept. 23, 1892.

(Webster and Worcester both define humanitarian as above, it is true. But they also define it as synonymous with philanthropist—"one who has great love for his fellow men." The Imperial Dictionary gives this latter definition precedence over the former. The use of the word in the report quoted above is entirely correct and commendable.)

From all over the country we have had similar letters. Is there anything more noble, more elevating than to raise man to the ideal of the Nazarene? The principles of Humanitarianism are such as would do this, and if we reached such an ideal the human would become Divine.

It was an apposite and beautiful remark of Plato, that, "As the sun can be seen only by its own light, so God can be seen only by a beam from Himself."

INDIRECT ROBBERY.

It is needless to say that individuals who have social or business relations with one another must have certain canons of morality to determine the conduct of each. Those who act according to these canons are approved of by all good citizens, and those who cheat, lie, steal, etc., are called bad. But this necessarily supposes that different individuals or classes are sufficiently in touch with each other to scrutinize and comment upon the conduct of one another. In simpler societies this social sanction of a man and his actions was equivalent to the legal sanction of to-day. With the marvelous sub-division of labor which has followed the wonderful development of machinery, arts, and the sciences, with the differentiation of society into distinct classes, with the specializing of its members into mere parts of an automaton, certain kinds of wrong doing go unpunished. How each individual ought to act for the public good becomes more and more a question of personal inclination. It requires the consensus of the opinion of many individuals to give effect to a public verdict. How can one individual or one paper expose frauds, in order that the general public may become enlightened and take action in the matter, when enormous wealth and the power that this wealth gives, can be directed to destroy the individual who would try to enlighten the public? Why should certain offences be punishable by the government and certain other kinds of wrong-doing be passed over by officials who are zealous in prosecuting in other directions? It is because individuals have not developed sufficiently to understand and appreciate that indirect murder and indirect robbery are the same as direct crime; it is the means employed to accomplish the same end which is different. There are different kinds of thieves. There is the man who will rob a butcher of a little meat for a wife who perhaps is dying of starvation; he is a common thief and as such would be arrested and sent to prison. There is the man who will rob many individuals of thousands of dollars by watering or selling worthless stocks; he is not a thief, he is a financier. There is the man who gets goods under false pretenses; he is a thief. There is the man who will advertise a sale of cheap goods and mark certain goods down while he raises the price on other goods to cover his loss; he is not a thief, he is a merchant prince. There is the man who will spread rumors to damage the credit of a competitor or to force him to sell something by getting him into a corner, so that he may prosper by the other's ruin; he is not a thief, he is a shrewd business man.

Direct robbery is the crude method employed by the ignorant. Indirect robbery is the highly finished method employed by clever unscrupulous brain workers. Direct robbery is easily detected, but to detect indirect robbery it is necessary to have intelligence. Suppose a gas company, for example, was charging you \$2.50 per thousand cubic feet, and an act of the legislature compelled the company to reduce the price to \$1.25; thereupon suppose the company at once commenced to manufacture an impure gas, and to increase the pressure at the mains, it would be a case of indirect robbery, forcing you to light two burners instead of one, to get the same light. Your money would be taken away from you, the same as if the employees of the company had put their hands into your pocket and robbed you directly. In the latter case you would have detected the theft; but in the former case it requires an expert in this particular department to detect the theft. So in every transaction, wherever it requires an expert to detect fraud, the clever unscrupulous brain worker will profit at the expense of those who are conscientious or ignorant, if the law permits it.

A young man who has to make his way in the world, and has to start out for himself, looks about him and asks, who is succeeding, the honest man or the unscrupulous man? And if it be the unscrupulous man, wherein is he successful? Are laws not made to protect the conscientious against the rogue? Should he find this is not so, if the young man be clever and unscrupulous, he commences to study the technicalities of the law, and the means whereby the law can be evaded. For, be it remembered, the most successful rogues have been men well versed in law, or men who could employ the cleverest lawyers to defend them in shady transactions. Now this young man, being clever and unscrupulous, would know that it requires capital to engage in any successful business. He would have to get capital by fair means or foul. Perhaps he can float a bogus mine or a joint-stock-company, or if he can get some credulous persons to invest in any uncertain speculation he can transpose the capital out of their pockets into his own. It would be indirect theft, but what of that? He would get hold of the capital, and that is his main object; for without it he is powerless. This unscrupulous man would ask, who become enormously rich besides landlords? It is the class who get franchises to work natural monopolies, or get control of, or have an interest in these monopolies, after they are constructed.

Enormous fortunes are not made by competition but by monopolies. This man would reason, if he wished to become a money-king he must break

down all competitors by fair means or foul, or he must get possession of a natural monopoly, either by honest or unscrupulous methods. If this unscrupulous brain worker should get control of a natural monopoly, he might continue to reason, that if the general public should awaken to the fact that natural monopolies ought to be run in the interest of the public, and all benefits accruing therefrom ought to return to the public, or, that back dues ought to have been paid for the special privilege to the government for the benefit of the public, he might be forced to disgorge at the price the property is really worth. But if he capitalizes the property far beyond its real value of construction, plant and the like, the money he gets for the fictitious value he can put into his own pocket. It would be indirect theft, but what of that? We do not punish this kind of thief, and not only that, he will have a large number of persons interested in keeping this natural monopoly a private corporation, and whose self-interest will lead them to fight those who wish to do away with the privileged classes. In view of such a condition of public affairs, how talk of the rights of humanity!

It is all very well to say the moral sense will make a man feel conscience stricken or feel bitter remorse if he has done wrong; but if he have no moral sense he will feel nothing of the kind. All the more will he feel no such thing if his family profit materially and in every way by his lack of the moral sense. Let us take the family of the unscrupulous man and the family of those he has ruined, and see which prospers the most. In the third generation the family of the ruined man may be subjected to the stress of poverty; perhaps through not having enough to eat their blood becomes deteriorated; perhaps they are in an unfavorable environment; maybe their children are growing up uneducated, and feeling hard and bitter against the unkind and selfish world which allows them to starve while others waste. The children of the unscrupulous man will have a superior environment, will have the best of food, shelter, culture, and refinement. It will be said that they are good, that they are refined. Who knows but they may be able to socially ostracize the children of the other man, or build a charitable institution to house them, perhaps with the very fortune founded upon the indirect robbery of the parents, and the robbery of which was the foundation of their own fortune. They will have the superior advantages that wealth can procure, they will be able to treat with courtesy and humane feeling these very beggars whom their grandfather had ruined.

The Humanitarian idea is that a more simple and operative system of laws must be devised to overcome these possibilities of fraud. The dealer in stocks or bonds should be compelled to register every share in all his enterprises, so as to trace ownership and transfers of stocks, by which means not only could investigations be more easily made, but a proper system of taxation could be levied. In the secrecy of these public transactions lies the injury, and it is to overcome all secrecy in affairs which become public property by reason of affecting more than one individual, that the Humanitarian idea is promulgated. So insidious has this system of fraud permeated society and all its institutions, that intelligence itself is directed to processes of accomplishing the utmost dishonesty short of punishment. And just so does it require the utmost intelligence now to ferret out frauds, which under a correct system of laws should be easily punishable.

THE WOMEN OF CHINA.

There is no change in the status of women in China because the Buddhist religion teaches that woman should simply be a slave to her husband. The state of women is so low in China that a mother prays that she may have no female child. The birth of a female child throws the whole family into the deepest grief. When born it is often put out of the way, and a boy adopted in its place. The killing of a girl baby in China is a crime never punished. There is a Catholic missionary foundling asylum in Canton with not a boy baby in it. Mothers bring their girl babies and abandon them on the asylum steps.

In Foochow there is to be seen this sign on the banks of the Yuen-Fule-River:

DO NOT DROWN FEMALE INFANTS HERE.

It is read by 750,000 Foochowans, causing no blush and no comment. Why? Because in all heathen countries women and girls occupy low positions. The Chinese boy succeeds his father; he inherits his father's property. It is the law and custom in China that a mother shall obey her eldest son, and when a Chinese girl marries she not only obeys her husband and son, but also her father-in-law. A Chinese father is allowed to kill a child for disobedience, and he often does so, and no law ever convicts him, while custom honors him. If a child strikes his father and that father does not kill him on the spot, then the authorities will take that child, and not only consign it to ignominious death, but to slow and awful torture. But if a boy should strike his mother, the father would look on with a sort of pride.—*The Million*.

It is unfair to judge "the status of women in China" from the above. As well might a European who had visited in the district of the Bowery in New York, or an American who had visited Whitechapel in London, describe the inhabitants as being the average American or European. If we compare ourselves in this connection, we, to speak honestly, are not any better. Do not our women abandon their babies? What about our foundling asylums? Is not foeticide common among our so-called better classes?

MAN'S RIGHTS; OR, HOW WOULD YOU LIKE IT?

DREAM 8.

My dream, without any connecting link, landed me in a comfortable room in a large hotel. On a table near my husband was a large collection of newspapers, evidently a file extending back for some years. He was greedily devouring them, scanning one after another and then throwing them on the floor to make way for their successors. By and bye he began to laugh—how he did laugh! "What is the matter," I asked? . . . Then he tried to smooth his face and answer: "Why it appears that one of the first acts of both houses of Congress, after the inauguration of President, was to pass a law providing that henceforth, in the the District of Columbia, no woman prostitute should be arrested, fined, imprisoned, sent to Magdalen asylums for reformation (?), or otherwise molested, but that all laws punishing prostitution in women should, from and after the passage of the act, be enforced against their male companions. A similar law was soon afterwards passed in the State of New York. The Washington authorities, however, regarded it as a huge joke intended by congressmen for electioneering effect among their lady constituents. I have not yet reached any information as to its enforcement in this State." . . . "They intend the law to go into effect here," he remarked. "Three large houses for the reformation of prostitute men are being built." As he said this he handed me the newspaper and pointed out the heading:

THREE LARGE HOUSES BEING BUILT FOR THE REFORMATION OF PROSTITUTE MEN!! MALE MAGDALENS!!!

"I see it all, I know it all now," I exclaimed. . . . The law had been put in force that night and we had seen some of the victims. Instantly my spirit was *en rapport* with the whole machinery and its operation. The mayor of the City of New York was a lady; the common council was largely composed of ladies; the board of aldermen was no more, for it was alderwomen now; and in the city detective service the ability of women to keep secrets, as well as find them out, had been extensively tested. This first descent had been planned for some days, but even the press had been kept ignorant of the proposed measure, with the exception above mentioned. To-night the police had pounced on the sinners, and not as of yore the sinned against—and the surprise was complete. . . . From police station to police station all over the city I seemed to go without the fatigue usually attendant on locomotion. What sights I beheld and what sounds I heard! Coaxing and bribery of policemen were attempted without result; cursing, swearing and threatening were equally futile. The law enacted that the name of every man thus taken should be advertised in the newspapers of the town, city, or county in which

the arrests should be made; also that a large blackboard should be hung daily on the outside of every police station, whereon should be conspicuously recorded the names of the culprits brought to the station. This, I saw, was the lash that cut them, in anticipation of which the majority whined like whipped curs.

One stout, handsome gentleman, with his hands in his pockets, and looking up from a sort of brown study, seemingly of the floor or of his book, but really of his situation, said, "Well, gentlemen, we are finely sold; it is an unpleasant piece of business; d—d smart! woman's wits have outwitted us, every one; . . . it took women to keep it quiet and women to find it out—diamond cut diamond. I wonder how many and who of us will be sent to those houses for the reformation of prostitute men?"

The majority of his hearers laughed, but were nevertheless perplexed and annoyed. "Just think," he continued, "of our names being in every paper to-morrow! Oh, ye gods and little fishes! Our wives! our lady-loves! our families! Think, gentlemen, of the long list of names that will to-morrow adorn every police station! Show yourselves appreciative of the loving kindness of the corporation in supplying us with gratuitous advertising! Perhaps for a trifling fee they would also allow us to exhibit our business cards on the blackboard, in juxtaposition with our respective names. We are in for it, gentlemen, and no mistake; and seeing we must advertise, willynilly, let us get all we can for the money; we can, after all, make this thing pay if we work it right. . . ."

"It seems to me," said a young fellow on whose face was a reckless don't-care expression, "that to-night, against our wills, we are to act a little of our chivalry." Some laughed aloud, but more imprecated interiorly. Then the voice I first heard of the seventeen resumed: "Here we are to-night looking like a set of whipped curs. Oh, the cunning, crafty women! I tell you, gentlemen, a woman in craft equals the old gentleman below with horns and hoofs. See how astutely they have worked the machine—the law a dead letter until to-day, as all confidently trusted that it should remain; then, as in a steel trap, we are secured in its iron grasp. Oh, nothing can equal a woman! Serves us right, gentlemen, for giving them the power." . . . Then again in my dream there was a chasm of time not bridged over either by events or memory. It was morning—early morning—and the newsboys were calling out "The prostitute's act enforced! one thousand arrests!" They reaped, as might well be supposed, a most liberal harvest. What crowds gathered around the police station to read the names! . . . At one station I was amused to hear a man with a deep strong voice calling out the names as he read them from the blackboard for the edification of the crowd. Occasionally a name was greeted with a general laugh or exclamation of surprise; while as I passed through the

crowd I heard—or shall I say saw?—exclamations unuttered such as "Is it possible?" "That name," "astonishing," "surprising," etc., etc. Around the newspaper offices were such large crowds that to keep order the policemen placed them in double file. . . . All were eager to see the names of the suddenly famous one thousand, and the telegraph operators had been busy ever since two in the morning transmitting names and other particulars of the enforcement of the law.

I beheld, too, the astonishment of the heads of families when the morning paper was looked over, and headings like these met the eye:

THE ACT ENFORCED!

OVER ONE THOUSAND ARRESTS.

*Preachers and Publicans, Pharisees and Pugilists,
Dives and Lazarus, all in a heap!!!*

SAINTS AND SINNERS, SENATORS AND SLOP-SELLERS!!!!

"Black spirits and white, blue spirits and gray,
Mingle, mingle, mingle, ye that mingle may!"
And now there's the devil to pay!!

I perceived, too, almost in the minds of every one, men as well as women, the justice of the proceeding was recognized. "It needed women to administer justice," I heard a gentleman say to his wife at the breakfast table; "the late act," he continued, "has attracted the attention of thousands of earnest and influential people to this subject who had never before heard of it. These poor women were liable at any time to be pounced upon by policemen, dragged to the station-house, sent to prison, or houses of reformation, perhaps heavily fined, and there was no one to help them or save them from disgrace. To avoid these arrests they were compelled to bribe the police and others, to pay very high prices for board, in order to compensate those who boarded them for the risk incurred by the police descents, etc. To meet these enhanced expenses these women were compelled to prostitute themselves far more, and sink into deeper degradation. Thus the practical working of the law tended to greatly increase the evil, while its real supporters—the men—were scarcely ever molested."

This dream of mine includes such a long period of time, so great a variety of incident, and has already taken so much space for its narration, that I must hasten to the close. Imagination must fill up all the scenes enacted in the court-rooms to which the prisoners were brought for examination and disposal. There was no sham about it; no half-way measures; the character and history of each prisoner were thoroughly investigated, and those proved to be habitually licentious were only sent to the houses of reformation for such characters. Into these houses women's shrewdness and good sense had entered; for they were not prisoners, nor were their inmates told that they were lost, degraded, sinful, polluted beings, but they were instructed in physiology, in the consequences of use and abuse of

every organ of the body, on the holiness of love and sanctification, of the coming together of the sexes when legitimized by holy and godlike motives. In my dream I visited four of these houses, which had been built and furnished at public expense. They were, indeed and in truth, houses of reformation, and their inmates were treated as diseased patients, not as miserable sinners.

Then my spirit realized how much more efficient for good, in this instance, had been woman's wisdom than man's much boasted intellect; and while thus thinking, thinking, thinking, how woman had cut the Gordian knot of the social evil—the knot which man feared to touch—I awoke, and to my astonishment, found it was all a dream; that we had no woman President, no woman legislators, and that the *social evil* remained as heretofore, the great moral ulcer of the nineteenth century, that the very laws enacted under the pretense of suppressing it were really aggravating its worst evils, inflicting the greatest curse on man in the very act of perpetrating the greatest injustice on unfortunate and defenseless woman. And I said, would that our legislators had the wisdom to grapple with the vexed question, or our women the power, as they had in my dream, to strike at the root of the evil by shielding the victim and enlightening the wrong-doer!

ANNIE DENTON CRIDGE,
"Woodhull & Claflin's Weekly."

"THE BONDAGE OF A BARMAID."—The following is an extract from a letter, written by a barmaid, and published in the *Melbourne Age*:

"Last Monday I began work in a leading hotel in the city at a remuneration of 12s 6d (\$3) per week. I began about noon, and was at work the whole of the afternoon and evening, with the exception of intervals for dinner and tea; and very late in the evening I was much surprised by being informed by a fellow-worker that at half-past eleven, closing time, instead of being able to retire, I was expected to go upstairs to a private bar which I am told is kept open to all hours. I told my informant that I knew nothing about that, and certainly should not go. This person immediately left the bar and informed the proprietor that I had declined to work after half-past eleven. In a few minutes he appeared upon the scene and asked me what I meant by refusing, and took me generally to task in a manner no one worthy of his manhood would a woman. I shared my room that night with another barmaid, who worked that evening in this private bar, and who did not come to bed until after 3 A.M., and had to be up at nine o'clock that morning. She told me she often kept these hours, and that it was no use complaining. Surely this state of affairs should be rectified, and hotel proprietors made to keep to the time during which they may legitimately sell liquor. It is quite enough for girls to have to put up with the many insults offered to them during the day by some men, as brutes, who seem to forget that they are of the same flesh and blood as their own wives, mothers, and sisters, and not the 'prize cattle' for which they seem to take them, without having to work as well during the greater part of the night."

AFFINITY.

The changes that are going on in the universe, both as to its magnitude and in its minutest detail, are governed by forces, which when superficially considered seem confusing, but which when carefully investigated are found to work under well-defined laws. The same laws that are applicable to the inorganic are applicable to the organic and the component parts of the latter—animal and vegetable kingdom—can be reduced to the same elements as the former—mineral.

The relationship of these elements and their behavior comes under chemical science, which is based upon the hypothesis that matter is constituted of extremely small particles or atoms, and that these atoms are capable of aggregating together by virtue of certain inherent properties or forces—their affinities—to form complex atomic structures or groupings.

These affinities, or attractions, or likings, gave rise to various theories of the older chemists, who sought to explain these phenomena by chemical action. In 1718 H. Geoffroy, upon the understanding that the stronger chemical affinity overcame the weaker and produced chemical action in its own direction, compiled a table of affinities which was so arranged that the preceding body would always replace all the following bodies from the combination of the one at the head of the list; but Bergmann, noticing that substances reacted differently under different conditions, compiled two tables for each substance, one for the wet way, the other for the dry way. As far back as Aristotle's time we find chemical changes noted and associated with the human attributes, liking and hatred. Galileo introduced mechanical ideas into these chemical changes, and Sir Isaac Newton considered affinity as being different from gravitation, although he showed the general mutual action of the mass and the action of one small particle with another. Later observers—Buffon, Bergmann, Berthollet—hold that these forces are the same, the reaction depending upon the close proximity of the particles, while Mayer and Joule class affinity with electrical, mechanical and thermal energy, because it can be converted into and be produced from them.

But chemical change must not be confounded with physical change. A process is called physical when all the properties of a body remain unaltered throughout the process; a chemical process, on the other hand, is one in which the properties become different from the original, so that the original cannot be said to exist. The phenomena of chemical

and physical changes are closely allied to one another, and it is a question if any chemical change takes place without a corresponding physical change.

All bodies, according to the chemist, consist of an indefinite number of minute parts, called molecules, and the mass is conditioned by the properties of these parts. But to go further, the molecules in their turn consist of a definite number of smaller parts called atoms. The chemical structure of a body is made up by the relative arrangement, number and nature of the atoms which form the molecule.

The exact nature of chemical affinity and its action between the atoms has not yet been defined. Gravitation is very different from this chemical force, for while gravitative force acts upon all kinds of matter alike, according to the masses of the bodies, chemical force depends upon the kinds of matter that are brought into proximity with one another and the conditions under which they are brought together. There is an attraction subservient to circumstances.

There is probably no better illustration of chemical action than the universe. The earth may be taken as an example of affinity and the reverse action, repulsion may be instanced in the gases—air—while equilibrium, attraction being counteracted by repulsion, may be said to be represented in the waters.

If we apply this affinity to life, we find the elements wrought together to make up a complex organism. The mineral, vegetable and animal kingdoms are built up according to the laws of affinity. Our systems being composed of the same chemical elements, the same reactions are going on. Poisons creep in and we deal with them by our knowledge of affinity. Human compounds—individuals—may be said to be the results of affinity, not only materially, but psychically, for our mental functions act according as the material is healthful or the reverse.

A clergyman recently spoke very eloquently about the protection of our sons from immorality. Protection from immorality may mean almost anything, and our sons, in the sense implied, do not require to be protected, but require to be severely dealt with for furthering immorality. What about our daughters? Do they need protection? In the present state of society of all grades the sons are more the cause of immorality than the daughters. Of course this clergyman is of the male sex. If our sons were moral our daughters would be moral. Our sons are the aggressors.

A QUESTION.

Before I trust my fate to thee,
Or place my hand in thine;
Before I let thy future give
Color and form to mine;
Before I peril all for thee,
Question thy soul to-night for me.

I break all slighter bonds nor feel
One shadow of regret;
Is there one link within the past
That holds thy spirit yet?
Or is thy faith as clear and free
As that which I can pledge to thee?

Look deeper still, if thou canst feel,
Within thy inmost soul,
That thou hast kept a portion back
While I have staked the whole.
Let no false pity spare the blow,
But in true mercy tell me so.

Is there within thy heart a need
That mine cannot fulfill?
One chord that any other hand
Could better wake or still?
Speak now, lest at some future day
My whole life wither and decay.

An old woman, who had spent her life almost entirely in the Tombs, one day received a bunch of flowers from a gentleman who visited the prison. She was sitting with her head in her hands and her elbows on her knees; she took no notice of the flowers when the gentleman laid them in her lap. He went away, but presently he heard loud thumping on the prison door. The jailer went back to see what was wanted. "She wants a cup of water," the jailer explained when he returned. "She says that she can strike one of the flowers and make it grow into a plant. She says the flower grew in her garden when she was a child, somewhere near Boston. Please wait, sir, while I give her the cup of water." That old woman is now a successful florist. She has never been in the Tombs since she struck the plant.

—*John Law in A Year of My Life.*

A Profit-Sharing Scheme.—Sir Alfred Hickman, M. P., has notified his workmen at Springvale Furnaces, Bilston, that, as the result of the profit-sharing scheme, the men's shares amounted to two and a-half per cent. upon the wages for the year. He was sorry to say the amount was not so satisfactory as he expected, but they had to contend against reduced prices and increased costs. In conclusion, Sir Alfred says he had hoped the men would have given increased attention to work and avoided waste, but except in a few cases that has not been realised.

MEDICAL DEPARTMENT.

[It is our intention hereafter to devote a portion of our columns to medical instruction. A series of papers upon Hygiene and Medicine, by Dr. Charles Stuart Welles, of New York City, who will conduct this department, will follow in each number. The department will be open to inquiries and to medical discussion, and such matter should be addressed to Dr. C. S. Welles, at his office, No. 42 West 26th Street, New York.]

PRACTICAL DIETETICS AND OUTLINE OF MEDICINE.

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INTRODUCTION.

THE METHOD OF CURE.

A definition of health as opposed to sickness may be suggested as follows: That condition of being called health is essentially sustained by man's complete, or as far as may be perfect, assimilation of appropriate life-sustaining elements—as food, water and air. Sickness, apart from organic disease, may therefore be considered as the imperfect or incomplete assimilation of these elements, either because of the very elements themselves not being properly presented to the body, or because of the inability of the proper organs to assimilate them. The cure of sickness, hence, may be determined by two conditions: *firstly*, the habitual presentation of the properly advised elements of food, water and air to the body; and *secondly*, the occasional assistance to fully chemicalize or assimilate them.

Let us consider directly the first of these propositions! The elementary constituents* of life, which must be presented to the body to sustain health, are principally included under the three heads of air, water and food, supplied at regular intervals to the appropriate organs, thus ensuring their rehabilitation during sufficient periods of rest or sleep, the organic functions being reciprocally stimulated by proper exercise.

The consideration of air is a matter which regulates itself, excepting in cases of positive disease when a par-

*From Dr. Liebig's *Agricultural and Animal Chemistry*.

The first conditions of animal life are nutritious matters and oxygen, introduced into the system. According to the experiments of Lavoisier, an adult man absorbs from the atmosphere in one year 746 pound of oxygen. What becomes of it? It forms a compound with the carbon and hydrogen of the food and is again given off in the form of carbonic acid gas and vapor of water. Since no part of the oxygen taken into the system is given off in any other form than that of this compound, and since in the normal state of health the carbon and hydrogen are again replaced by the same, it is clear that the amount of nourishment required by the animal body must be in direct ratio to the quantity of oxygen taken into the system. The capacity of the chest is a constant quantity. Air is expanded by heat and contracted by cold, and therefore equal volumes of hot and cold air contain unequal weights of oxygen, that is, air contains for the same volume more oxygen in winter than in summer.

The number of respirations is smaller in a state of rest than during exercise, and the quantity of food should vary in the same ratio—an excess of food being incompatible with deficiency in respired oxygen, that is, with deficient exercise; just as violent exercise, which implies an increased supply of food, is incompatible with weak digestive organs. On either case the health suffers.

ticular climate may be indicated by the physician; and as for water, that too is in general simple of application—a gratification of reasonable thirst, and bathing in water of agreeable temperature sufficient for comfort and cleanliness, being the normal indications necessary as habits.

The principal consideration, thence, of our first proposition is the matter of food or diet; but even this by universal experience becomes well defined. It consists of a general round of nourishment—a mixed diet, in fact, which will, however, be considered more at length in succeeding pages. We need only here to recognize the fact that this mixed diet is essential to cure; and our object is now to make clear to the perplexed dyspeptic how important it is that a general regimen be

The oxygen taken into the system is given out again in the same forms whether in summer or winter; hence we expire more carbon in cold weather and when the barometer is high, than we do in warm weather, and we consume food in the same proportion—more in the north than in the south.

The fruits, on which the natives of the south prefer to feed, do not contain in the fresh state more than 12 per cent. of carbon; while the blubber and train oil used in the Arctic contains from 66 to 80 per cent of carbon. In the animal body the food is the fuel; and with a proper supply of oxygen we obtain the heat given out by its combustion. This mutual action, conveyed by the blood to every part of the body, is the true source of animal heat—our clothing retaining this animal heat, being merely an equivalent for a certain amount of nutrition.

The production of fat is always in consequence of a deficient supply of oxygen.

The stalwart Arab points with pride to his lean muscular limbs. He lives in a climate which furnishes a minimum supply of oxygen; but as Nature has provided him, in the fruits of the Tropics, with a food which contains only 12 per cent. of carbon, and as his whole respiring capacities are at work in his naked skin and active, open air life, he does not lay away fat upon his frame.

But it is exhibited in the sedentary females of Oriental harems, in the inmates of prisons, in the stall fed ox, and even in the Esquimaux, who lives upon an 80 per cent. carbonaceous food, and who, covering himself with furs, thus denying the requisite oxygen, he becomes greasy and fat.

Only those substances can be properly called nutritious or considered as food which are capable of conversion into blood.

The blood which circulates in the animal body appears under the microscope as a mechanical mixture of solid, translucent, disk-shaped corpuscles of a red color, which swim in a colorless, or pale, yellowish-brown, transparent liquid.

The especial constituents of the blood are fibrine and its synonym albumen, distinguished from all other organic substances by containing sulphur. They contain in all seven elements, namely; sulphur, carbon, nitrogen, hydrogen, oxygen, phosphoric acid, and calcium (as lime). These form the corpuscles of the blood which swim in the liquid serum, in which besides albumen, are found sea-salts of potash and soda dissolved; which bases are combined with carbonic, sulphuric, and phosphoric acids. The blood corpuscles, besides fibrine and albumen, contain a red coloring matter of which iron is an essential element.

Besides these the blood contains certain fatty matters which differ from ordinary fats. The chief constituents of the blood contain for 1 equivalent of nitrogen, 8 equivalents of carbon.

Water and common fat are those ingredients of the body which are destitute of nitrogen, both are unorganized, and only so far take part in the vital process as that their presence is required for the due performance of the vital functions.

The average amount of water necessary for the organism is 80 p. c. of its weight, a person weighing 140 lbs. containing 112 lbs. of water, of which 20 lbs. circulate in the blood. Thus 100 parts of blood contain 81 parts of water; 100 parts of bile 90 parts of water; woman's milk 93, brain 80, nerves 70, muscle 77, and 100 parts of bone 46 parts of water. The never failing inorganic constituents of the body are iron, lime, magnesia, salt, and the alkalis.

Those vegetable principles which in animals are used to form blood, contain the constituents of blood-fibrine and albumen ready formed as far as regards their composition; and all plants besides, contain a certain quantity of iron, which reappears in the red coloring matter of the blood. If these principles are wanting in the food, the nutrition of the animal is arrested; and when they are present, the gaminivorous animal obtains in its food the very same principles upon the presence of which the nutrition of the carnivora entirely depend.

How beautifully and admirably simple, with the aid of these discoveries, appears the process of nutrition in animals, the formation of their organs in which vitality chiefly resides! And how perfectly does it follow from what has been said that the development and growth of the animal organism is dependent upon the reception of certain principles identical with the chief constituents of blood, and moreover that the animal body is a superior organism, the development of which begins with the most complex products of vegetable life!

assimilated in the first instance to make blood, in order not only that health may be sustained, but more especially that sickness may be overcome.

Now, dyspeptic or invalid friend, who perchance in the isolation of your particular idiosyncracies would devise new systems, or who, in despair, would essay every specious theory of dietetical and social reforms even, consonant, not with healthful and hard-working humanity, but with your own debility—I insist that you recognize here the philosophy of being conservative, without the necessity of elaborate argument, and referring only to the logic of preceding extracts from Dr. Liebig's works, and to the more general dissertations upon Food which follow in PART I.

Make up your mind to be healthy, as others are healthy, only wiser in your generation; and in order to be so, sleep, eat and drink and go about your business as a healthy being should. Now you cannot do all this! Why not? Are you not composed of the same Oxygen, Hydrogen, Nitrogen, Carbon, Phosphorus, Sulphur and other basic salts which constitute your nourishment, as another being—and is not a just admixture of these same blood-making constituents quite as necessary for your assimilative apparatus to sustain itself upon? What assistance, then, what means or correctives must you have, to enable your disordered machine to re-establish itself and to continue a harmonious metamorphosis?

This brings us thence to a consideration of our second proposition.

Having satisfied yourself that a properly mixed diet is indispensable to the various requirements of civilization and that there is nothing ultimately to be gained by going to any extreme of appetite or treatment, such as vegetarian diet, or severe cold water, hot air, massage, electric or medicinal excesses—having, in fact, abandoned all extremes and insisted upon living in a happy medium, ask your physician why any appetite is become abnormal, any function irregular, and insist upon the speedy regulation of these disordered habits. He will examine you and in these days of symptomatic evidence, a good physician ought to tell you if you have any disease, that is, any organic difficulty to commence with. If you have, you will, of course, combat it with as much acumen as the knowledge of remedies for your particular malady permits; but all the same and primarily must you insist, as far as possible, upon the regulation of your habits in general.

If you have no organic disease of a positive nature, but simply functional derangements, your spirit should be filled with thanksgiving and your heart with courage, instead of giving up to melancholy repinings; for you have then only simple disorders to correct, entirely amenable to treatment, providing that you keep yourself above exaggerations and morbid fancies.

To begin with, remember that if your system is as yet

only somewhat deranged, but simple means are required to regulate it; and the means exist, for you have a wide range of treatment which has been proved capable of correcting any form of simple disorder of which the human organism is susceptible, if logically and skillfully applied.

But do not forget that medicines are only correctives, and that such as are indicated to you, are simply means to regulate or re-establish your general and normal habits. If they do not do this, do not provoke the correct appetites, excite properly the digestion and bowel habit and invoke salutary sleep and normal desire for exercise, I say that after fair, honest experiment with the chosen correctives, in connection with an effort to assume natural and healthful habits, you fail, then the right means have not been employed—fully and harmoniously applied; or some simple technical link is neglected, or foolish mistake made.

The many mistakes so made arise from two principle causes. First the unreasonableness or haste of the patient to overdo, hoping vainly to attain at a bound some impossible ideal of health, with immunity not only from suffering, but from common care and consistent observance of hygienic habits; and while overdoing in one direction, other matters of importance are, perhaps, neglected. The second difficulty is sometimes the too acute knowledge of the attending physician—too much haste and wisdom, thus suggesting the application of too powerful cathartics, alteratives and what not in very slight disorders, some link only being needed in the circle of habits; or the simpler indications being needed for their correction.

For if there be not appetite and you cannot eat sufficiently nor digest the natural food nor properly evacuate the superfluity, how is it possible to appropriate to advantage such remedies as cod liver oil, phosphorus, or iron, so often prescribed in over doses? If you can, why have you not extracted these principles from your fish, eggs, and mutton or beefsteak?

If you cannot eat with appetite or without repugnance, begin there your dietetical treatment, and as a temporary expedient prompt the digestion by such primary correctives as may be indicated—the simple mineral acids or alkalies to correct the digestive fluids, and create a normal appetite, or yet administer some simple laxative or stimulant to give tone to the stomach or bowels. But it is only in harmony with or as a supplement to the full round of habits—the required bowel stimulant, or breakfast beverage, nourishing meals, consistent exercise and appropriate rest, that the specific application of medicines to even diseased conditions becomes available.

Extreme medicinal resources are thus only applicable to combat specific maladies when the general habits are kept well regulated. Having no disease then, utilize rather such correctives as excite directly each functional propensity to its normal work, and the nine

chances are that the whole train of contingent disorders will be dissipated by virtue of the direct incentive received from good material, perfectly digested.

In this manner disease is itself avoided, and when it does present itself, in curable form, the system, functionally considered, is in a controllable condition in the physician's hands.

But, leaving disease and its remedies as the after thought, let us consider specifically the first general proposition of the present work.

[To be continued.]

THE PARKHURST CONTROVERSY.

The extraordinary controversy between Rev. Dr. Parkhurst, President of the New York Society for the Prevention and Suppression of Vice, and Mr. Byrnes, Superintendent of Police, directs public attention to the need of Humanitarian government and the rapid promulgation of Humanitarian ideas, perhaps, as an object lesson, far more than pages of morality of cold type.

The crying evil before the world is the social evil, which the society is trying to suppress, and which it is alleged the police propose to tolerate as a necessary evil. It is the crying evil of all time; and just as long as, through stress of poverty, women are forced to lives of degradation, just so long will the controversy go on between the ultra virtuous and the criminal classes.

The ideal home life—the natural environment of woman—is attainable by only a portion of society, partly because of the difficulty of always earning an honest living, and partly because of imperfect education.

The education of women has always been narrow in respect to knowledge of their persons and proper ideals of marriage. Through poverty of the female sex, she has been taught to look upon marriage as a necessity to attain a home and the conveniences of social life, when these things should be secure to all, especially to the female sex, and marriage should become simply an elective choice of a fitting mate to satisfy the ideal love nature of woman.

This is the natural plane of natural men and women, but its fulfillment is not to be expected under such unnatural environments of greed and misgovernment as prevail to-day; and the war must go on between the extremes of clerical and police interference, raiding the unfortunates, until society, ashamed of its official incompetency to deal with these conditions, shall develop a new order of things, granting woman physical protection and ideal aspirations, when may arise generations of mankind with properly developed attributes.

TWO WOMEN.

I know two women, and one is chaste
And cold as the snow on a winter waste:
Stainless ever, in act and thought
(As a man born dumb in speech errs not).
But she has malice toward her kind,
A cruel tongue and a jealous mind,
Void of pity and full of greed,
She judges the world by her narrow creed—
A brewer of quarrels, a breeder of hate;
Yet she holds the key to society's gate.

The other woman with heart of flame,
Went mad for a love that marred her name,
And out of the grave of her murdered faith,
She rose like a soul that had passed through death.
Her aim is noble, her pity so broad,
It covers the world like the mercy of God.
A healer of discord, a soother of woes,
Peace follows her footsteps wherever she goes.
The worthier life of the two, no doubt,
But society locks her out.

THE SUNRAY.

For far too many months in the year the sunray to dwellers in such cities as London, Manchester, Birmingham, and some of the American manufacturing towns, is little more than a scientific abstraction; it is a thing so persistently obstructed by man's evil deeds, smoke-fogs and bricks and mortar, that we almost lose confidence in its existence. Luckily, this wonderful compound energy is of so subtle a nature that it penetrates to us, whatever we may do to prevent it. We are apt merely to regard the sunray as a product and source of energy transmitted from the sun by means of the ether filling space, which, besides enabling us to see, is partly stored up for us in various ways by natural processes; stores which we can draw upon to produce heat, motive power, artificial light, etc. But the sunray is more than even this; the direct sunlight is one of our most powerful safeguards against disease. The mere fact of having plenty of sunlight shining anyplace will tend to keep it clean and healthy. There is a still more subtle agency at work, the chemical energy of the sunray. There is much to be learned by splitting up a sunray through a prism. Passing over the brilliant band of colors we thus obtain, we find at one end of the spectrum, long, slow waves which are invisible. These are the principal sources of heat. At the other end are a series of short and rapid waves, also invisible, which are actinic in producing chemical action. Going over the colored rays of the spectrum, we find a number of black lines, varying in thickness, dividing the brilliant colors; these are also active sources of chemical energy. All these are combined in the white light, and

go to make up the sunray, and produce the beneficial effects that have been traced for many ages to the sunlight. But the prism teaches us one most important lesson, viz., the sunray can be split up, and certain portions of the highly complex whole be diverted or absorbed. This simple fact, acknowledged on all sides, fraught with the utmost importance to mankind, and more especially city dwellers, is one that is constantly lost sight of and misread by those who ought to keep it most constantly in mind, viz., our architects, builders, and sanitary authorities.

The worship of the sun was a recognition of its vast power for good and evil. Even savage and healthy man must early have noticed that sunlight influenced his bodily well-being. Certainly when man became a city dweller, he took to luxuries, and covering up his body, quickly discovered that there was a connection between sunlight, and strength, and health. Hence arose the sun baths, recommended to over-fed or over-read men, and over-pampered over-fed nervous ladies. The *solitarium* played a great part in the social life of luxurious Rome. All philosophers and physicians were staunch believers in those greatest gifts the gods had given, air and sunlight. If these philosopher-physicians were not prepared with a scientific explanation of the life and health-giving qualities of the sunlight, they were perhaps more persistently observant of its effects, and consistent in acting on such observations, than we who split up and analyze the sunray, and trace the reason of its physiological effects. To grow ignorantly-wise is a danger which philosophers of old have warned us against, and one which becomes alarmingly threatening the older we grow. To accumulate facts is good, but to act upon deductions and observations is better. In Rome when the citizens found their flesh growing flabby, their limbs weary, and their nerves unstrung, they stripped themselves, and took a sun-bath. Other cities have been so built that there hangs over them a canopy of carbon and sulphur. It would be difficult to follow the example of the Roman cities, unless we went high up in a balloon, where it would probably be too cold.

We all know that there exists a certain degree of similarity between the plant life and animal life. We know that plants placed in dark cellars will not grow healthily. They become sickly, blanched, and will bear few flowers of pale hues, and no fruit. Much the same observations may be made upon man. Prisoners who have been shut up in dark dungeons for any length of time have grown prematurely old, feeble in body and intellect, their eyesight has suffered, and on being exposed to the glorious light of heaven, their enfeebled bodies and

brains have been too weak to bear the change. Quite as unmistakable, though less dramatically startling tragedies, are enacted daily around us. The strong-limbed, ruddy-faced country urchin transplanted to the city slums, loses his color, and becomes pale, thin, and weakly. Yet it is noticeable that the dwelling place of the country laborer and his city brother may be very much on a par, perhaps the country cottage be even in a worse sanitary condition, but the open air and sunlight have preserved the country child, even if it only had a pig-stye to sleep in. Some years ago, when a parliamentary enquiry was made into the working of mines, it was found that miners were a short-lived class, and that the health of those who began young were notably bad. Puberty among the youths was found to be greatly retarded, often totally arrested. The blood was poor and skin diseases were prevalent. Dr. Ogle states that lung diseases are by no means numerous among coal miners, but this he attributes to some antiseptic influence of coal dust. Much of this was attributed to the want of direct sunlight, though no doubt over-fatigue and want of air contributed largely to the general result. Still, the poorness of blood, the want of color, flabbiness of the flesh, and diseased state of the muscular and nervous systems pointed to the want of light as a principal cause. It is curious that rich negroes who dwell much in homes, protected from the ardors of the sun, are very much lighter in color, their flesh is flabby, and they suffer more from skin disease and low muscular and nervous vitality than their poorer sun-baked brethren. That heat and artificial light is not the same thing as direct sunlight is again demonstrated by the pale, flabby-fleshed, low-vitalized cooks, bakers, forgers, etc. The well built, firm-fleshed, muscularly developed men and women who go about in a state of nature exposed to the light of day, are a striking contrast.

If the direct sunray is beneficial to health, the fact that it is harmful in some diseases, emphasizes its physiological importance. In smallpox, certain inflammatory states of the skin, eye disease, and acute mania, exclusion of the direct sun-ray is necessary. Dr. D. Astley Gresswell says: "I have shown that sudden exposure of the eyes to tropical light caused an acceleration of the pulse. Daylight in our latitude may also, perhaps, enhance the acceleration of the pulse of a febrile person. Certain it is that some scarlatinal patients, while febrile, greatly prefer to have the light of day subdued." This, it must be remembered, is opposed to the generally expressed wish of invalids, who mostly like light, and will turn in their beds toward the sunlight. Dr. W. F. Edwards, writing of the

sanitary requirements are too frequently insufficiently nourished, and when not positively diseased, are of low vitality. Herding such children together during long hours is a hazardous matter; every precaution is necessary to combat positive and potential mischief. The children are weak, cleanliness doubtful, and the beneficial sunlight is the more needful. And yet we find their schools insufficiently exposed to the direct sunlight, consequently the air soon becomes foetid, unless ventilation of a dangerously drastic description is resorted to. Moreover, the light is badly admitted, and consequently we force the already weak-chested to bend over their desk, still more weakening the chest and back, and injuring their eyes. Many schoolrooms have too few windows or they are placed too high. The sunlight is also further obstructed by stone mullins or wood frames; the glass is often of a fancy kind, leaded or otherwise, and the glass itself tinted or hammered. All sources of sunlight obstruction or absorption, colored or fancy glass may have its uses, but they are certainly out of place in the schoolroom. The same may be said of mullins and wood window frames. Everything should be done to obtain the greatest amount of direct sunlight, not to obstruct it. Flood the schoolroom with light and no harm can result. Admit it scantily and badly and the worst of results must follow. Many other modern public buildings besides our schools are far from being ideally lighted. Perhaps for the bad lighting of our private dwelling-houses, architects may have some excuse, although the profession ought to be in a position to show what is required, and decline to be so dictated to, so as to run against the laws of health. The ferry-builder who so greedily covers up every vacant space with ill designed and worse executed buildings cramped together, is a standing menace to the health of our large and small cities. But the more ambitious builder and architect who erect the stupendous piles Londoners have recently been made familiar with, are hardly less public nuisances. They all ignore the question of lighting from the sanitary point of view, and are quite content with its commercial aspect, and therefore if they can illuminate the interior courts of this huge pile or their basement dwellings with borrowed lights, they are perfectly content.

Polarized or deflected sunlight has not the same hygienic value; indeed, Dr. Forbes Winslow says no value. By deflecting and manipulating sunlight, we rob it of something; we may abstract or deflect a little or a great deal, but in any case it is no longer a direct sunray, and in losing something it is

robbed of a portion of its beneficial influence. This is a phase of the question which is difficult to deal with, but it is all the more deserving of close attention.

In former ages, when our ancestors inhabited smaller and darker homes, they dwelt more in the open air, under the influence of the daylight. Now, we stay more indoors, and in some of our bigger cities we keep a constant, dense veil. It has been calculated that over London the smoke cloud contains, during the winter months, over 50 tons of solid carbon, 250 tons of carbonic acid, and deleterious gases. So much of the sunlight is obstructed, between us and the heavens, that we require to take the greatest care that we shall enjoy to the fullest, whatever sunlight we can catch.

Certainly the smoke fog aspect of the question is a serious one, for besides containing solid carbon, carbonic acid and sulphurous compounds, which are by no means beneficial to our health, they seriously affect the mean sunshine during damp and cold weather. Plants that once grew in London will hardly tolerate the atmosphere of Wimbledon; Manchester, Liverpool, Birmingham, and other cities are in the same plight. Doubtless this incompatibility of flower growth and smoke fog is chiefly due to the noxious gases, but the absence of color in the flower petals would seem to point to a direct scarcity of direct sunlight.

We find it difficult to prevent the pollution of our atmosphere with poisonous fumes and the creation of smoke fogs, but it is an easier, much more simple, though equally important matter, so to regulate our buildings as to allow of our enjoying sunlight to the fullest extent available. We can hardly hope for *Saloria* here, so when the muscular and nervously exhausted town dwellers require a sun-bath, they must go to foreign climes, and there basking more or less uncovered in the sun-rays, recover the tone of mind and body. We should cry aloud for more direct sunlight in wide, unobstructed streets, in our public buildings, our schools, and our private dwellings. Hitherto builders, hygienists, and sanitary authorities have been grievously at variance over this question of providing sufficient access for the play of sunlight in and around buildings. Is it not possible to bring the architect over to the side of the sanitarian, to get him to regard lighting as a question of health rather than a commercial one? Without the help of architects and an educated public opinion, it is much to be feared that local sanitary authorities will be able to do little. They may frame regulations, but the wiley builder will always find a means of burrowing deep down in the earth, or endeavoring to reach the clouds, and cover up every available inch of ground in spite of them.

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