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1871 - Observations on the Health of Coal Miners

"Nearly fourteen years' experience in the practice of medicine among the people of a coal-mining district has enabled me to arrive at some facts and conclusions, in reference to the influence on health, which this department of underground occupation exerts, that may not be without a modicum of interest to the profession in general.

In the first place, there is no longer any doubt in my mind that working in coal mines is by no means conducive to longevity. During what was called the "long strike" of the past summer, a body of miners, estimated as numbering no less than four thousand men, paraded through the streets of Pottsville, and I had an excellent opportunity to examine the procession closely, with the view of ascertaining the number of *old* men that might be found in the line of march. Yet I did not see a single one who might reasonably be estimated at sixty, nor five at fifty-five, nor twenty at even fifty years of age. If it be objected to this, that it should hardly be presumed that the old men would participate in a demonstration of that kind, and that many such might have remained in their homes, I still venture to assert that of all the miners whom I have ever seen, and who, taking them young and old, would constitute in the aggregate probably no less than ten thousand, there was not one who had attained the age of three score years and ten.

I have also made inquiry in reference to the matter in numerous instances, from the best informed and oldest miners I could find, especially of such as were connected with mutual benefit societies or brotherhoods, and have noticed that almost invariably, when the question of longevity was propounded, they appeared struck thereby, as though the fact had not occurred to their minds before, admitting that the percentage of aged men among them was a good deal below the average number with most other classes of laboring men. And what makes the fact more strikingly apparent is the disparity which exists numerically between aged people of the two sexes; for while old men, as already stated, are comparatively rare, the number of old women, on the other hand, is entirely up to the average standard; and especially obvious in this respect is the difference between the number of widows and widowers; widows of seventy years and over, whose coal-mining husbands had died ten and twenty years ago, being by no means an uncommon sight.

The causes of this undoubtedly premature demise to which miners in coal-works expose themselves, may be enumerated as: 1st. Accidents and firedamp explosions; 2d. Diseases arising from impure air; 3d. Diseases arising from exposure to water; and 4th. Diseases caused by the inhalation of coal-dust.

The first of these causes, namely, accidents and explosions with gas, nowadays, that coal oil is used so much, and so many accidents happen with that highly inflammable substance, it is perhaps better to notice with something more than a passing allusion. Everyone who has read of the heartrending calamity which occurred at Avondale, near Scranton, Pa., has doubtless realized that the high responsibility of investigating into the nature of, and if possible devising means to prevent, disasters of this kind, rests rather with the proprietors of coal mines than with medical men. Still, it must be admitted that the miners themselves, as a class, appear to be possessed of incorrigible recklessness; as the shortness of time wherein, and equanimity of mind with which they generally become reconciled to any mishaps, is at times quite wonderful to contemplate. I have seen men with the skin almost literally burnt from head to foot, vowing, at first, that if they would ever get well, they would never enter a coal mine

again; yet, no sooner were they healed than they were willing to incur the same risks over. Nay, more, I have seen men who had been seriously burnt a number of times, and who had means and opportunities to earn a livelihood by some other method, who yet persisted in exposing themselves again and again to similar danger. It would seem that by constant association, from childhood, through experience and tradition, these perils lose in their estimation the terrors that belong to them, or that through early training they become unfitted, or at least deem themselves so, for any other occupation. Like the soldier whose courage and love of military life increases with every battle in which he participates, so these miners appear to cling to their dangerous occupation with greater fondness for every time they receive an injury. So common is it for miners to be injured by fire, that it is only in extreme cases they send for a physician, generally contenting themselves with using their own oil and lime-water, with other lotions and plasters, for the proper application of which every little community has its own expert "old woman," who is generally the wife of some miner who has been burnt unusually often: this giving her a reputation by virtue of her practical experience. Cases of severe burning occur, however, only too frequently, when it is deemed proper to send for a physician; and I cannot withhold from the profession the gratifying popularity which homoeopathic treatment on such occasions has received in many instances, under my own guidance and observation.

At first I found it very difficult to overcome the rooted predilection for linseed oil and lime-water, with raw cotton covering; but at length I have, at least in many instances, succeeded in convincing people of the far preferable treatment.

Urtica urens has proved unqualifiedly by far the most generally successful remedy that I have yet employed. I add a teaspoonful of the mother tincture to a pint of the purest water to be obtained; then saturate linen cloths, or, if possible, pieces of patent lint, with this solution, and apply them to the affected parts, however extensive the surface that is injured may be; cover this with a layer of cotton wadding, and over the whole I apply oiled silk, to preserve the moisture on the medicated cloths, and to assist in excluding the air from the wounded surface. Generally this treatment "takes out the fire," as it is popularly termed, in a shorter time than any other method I have ever witnessed; gives ease and comfort with the least delay, and expedites a cure most admirably. Sometimes, however, the *urtica urens* does not seem to answer the purpose, when acon., arsen., bell., bry., rhus tox. or veratr., applied similarly, with a solution of the mother tincture, is used instead; one or the other of which I have never known to fail. In the application of these remedies one should never lose sight of our great law, but employ that which on careful investigation is found most *similar* to the case.

The *urtica*, owing to its almost universal appropriateness, is the only one that I have ventured to use empirically; if it fails, I always examine minutely into the symptomatology of the case. Likewise, with the internal administration of remedies, there is perhaps not a single one that I have found worthy of any special place of honor in cases of severe burning, but I have always been governed by the totality of symptoms before me. Sex, age, temperament, idiosyncrasies, time and aggravation, right or left side of the diseased locality, should all be carefully observed, as well in these injuries as in any other malady. Nothing does more towards making indifferent doctors of us than routinism, and an easy, jogtrot habit of jumping at conclusions.

If a patient who has been burnt, either by flame or scalding water or steam, is not otherwise affected than the injury to his skin, however extensive that may be - that is to say, if there is no decided constitutional disturbance beyond probably some slight febrile excitement - the *urtica urens* treatment will be all that is required.

But if the accident be followed by a great shock to the nervous system, chills, coldness of the extremities, colliquative sweats, diarrhoea, pale countenance, or hippocratic expression, then veratr. alb. and sometimes arsenicum will be necessary.

If, on the other hand, the patient be thrown into a high fever, with flushed countenance, constant thirst, great mental excitement, wild, fanciful delirium, &c., *aconite* will be indicated; or *bellad.*, if the flushed appearance of the face be less bright, but purplish and dappled, and the delirium be more of a low muttering, threatening coma, &c.

A servant girl who was burnt, though not very seriously, by carelessly filling a lighted lamp with coal oil, sustained a severe shock, from which she reacted only to lapse into a state of hysteric convulsions, in which she continued at fitful intervals, until *nux vom.* relieved her effectually, and recovery rapidly ensued. A small child was scalded by hot coffee, spilled on his neck and breast. Here also convulsions ensued, a day after the accident, but it was quickly relieved by *chamom.*

I have always found it advisable to administer the same remedy internally which I applied externally, using the mother tincture, or a low solution, as before stated, for the external appliance, and the 30th potency internally. Indeed, to use one remedy, as, for instance, *urtica urens*, universally for external application, and then to give another remedy, of a different nature, internally, must seem irrational at the first blush to every homoeopathically trained mind. It would be equal to a compound allopathic prescription. If it be asked, why use the internal remedy at all? or, using that, why the external? I answer, that it is necessary to make *some* external application, to exclude the atmosphere from the injured surface, and being necessary, it is, of course, best to apply the remedy which is indicated, in preference to any other; but as the power for absorption of that part of the skin which is burnt is probably modified or impaired, or perhaps altogether neutralized, it is likewise best not to depend upon that mode of administration of any remedy alone, but for assurance sake, to give it also in the usual way, upon the tongue, where the absorbents are uninjured and normal.

As to the second and third causes which tend to shorten the lives of coal miners, namely, diseases arising from impure air, and from exposure to wetness, there is, perhaps, nothing of a special nature in them to distinguish their character or influence from similar vicissitudes incident to laboring people elsewhere. As a rule, miners do not complain of the air they breathe during their underground labor; though now and then "foul air" is spoken of as distinguishing certain mines, or certain drifts in an otherwise purely ventilated mine. I have been a number of times in different mines myself for upwards of an hour at a time, without ever experiencing any discomfort in respiration; in fact, the air felt all that could be desired of it, balmy and pleasant, and free from all dankness or humidity; and this not only in the drifts and gangways, but in what are termed the breastworks also, where the immediate digging of the coal is carried on, and where one would naturally expect to find a close, clammy or mouldering atmosphere, as in most newly dug cellars or vaults. The *temperature*, too, in a coal mine, not being affected by the outside atmospheric changes, remains summer and winter, pretty much always the same, at about 60° Fahrenheit; and it might be inferred, on hasty consideration, that this regularity and equanimity of temperature would contribute to the preservation of a healthy condition. But when we reflect that the men after working for ten or twelve hours in this evenly tempered air, must expose themselves, upon leaving the mine, to the vicissitudes of the weather outside during the balance of the twenty-four hours, it will be seen at once, that this very evenness of an influence that surrounds them so many consecutive hours, makes them all the more liable to take colds from the harsher and more variable impressions which diurnally succeed this influence. Thus catarrhal and rheumatic affections, of every grade and variety, are among the most numerous ailments with which miners are attacked. Moreover, however agreeable the atmosphere within the purest of coal mines may appear to us on first impression, or even with continuous exposure thereto for years in succession, I cannot conceive myself that it is entirely equal to the supra-mundane atmosphere outside of mines; that which the Creator designed for us to inhale. There is one element especially of which the mine atmosphere is doubtless deficient, namely, ozone; and although

this is, so to say, the product of electricity, yet it is in all probability an advantage to the air given us to breathe, or else it is not likely that the element would exist at all. It is, besides, not improbable that other influences, entirely foreign to the outside air, and of peculiar qualifications, emanate from the mineral and earthy contiguity which characterizes the interior of a coal mine. As homoeopaths who believe in the powers of subtle agents to produce diseases, as well as to cure them, we cannot fail to believe also, that some such agents may possibly be evolved by digging within the bowels of the earth, as well as by the mutations that transpire upon its surface. After the memorable conflagration of the great Austrian quicksilver mine in Idria was extinguished by water, the mercury which was sublimated during that catastrophe occasioned the most dreadful diseases among nearly a thousand persons. It was a chemical laboratory on a fearful scale. The earth, air, fire, and water here commingled, as it were, in some diabolical conspiracy, and the winds wafted the seeds of death broadcast over the surrounding country. It was such a seething kettle of poison as it is to be hoped will never again disfigure the beautiful earth. But chemical action on a far less huge and turbulent scale may yet be capable of diffusing, though more slowly and in form more mild, the seeds of sickness in subterranean caverns. We have the insidious malaria of the vegetable kingdom, or, at least, arising from organic sources; why then may there not be engendered also some similar disturbing cause of health by the attrition and exposure to the air of inorganic matter?

In excavating the earth, we expose iron, and coal, and sulphur, and numerous other oxidizable substances; acids are engendered, gases evolved, and vapours arise from waters in which salts and alkalies are held in suspension. Surely from all this may originate an element capable of injuring health - an element that may be as difficult to detect by respiration and the senses as is that other element of disease, namely, the malaria. I firmly believe that such an atmospheric source of sickness exists in all mines; slow and stealthy it may be in its manifestations, but none the less certain, and that this atmospheric condition is diametrically opposite or antagonistic to malaria. This conviction was first suggested to me by the fact that I have never known coal miners, while engaged at work, to be attacked with fever and ague, even though this was prevalent in the region where they resided; whilst the following circumstance did much towards confirming the same.

A miner, a Welshman by birth, aged thirty years, of, as near as I could judge, bilious phlegmatic temperament, who said that he had never been sick before, had been out of employment two months, during which time he visited friends who lived at Northumberland, on the Susquehanna, where intermittent fever prevailed at the time. He was attacked with the fever, quotidian form, a month before I saw him; had taken quinine and many other remedies which only checked the disease temporarily. I had treated him ineffectually with homoeopathic remedies some ten days, when it occurred to me to send him to work in the mines. He protested that he was not able to do so. I urged him to go into the mines anyhow, to take provisions with him, and not come out for several days. But here the uninitiated reader must be informed that this advice was not as cruel as it may seem to him, when he considers the pleasant temperature of the mine, the lights with which miners are supplied, the comfortable stalls with plenty of straw with which mines are generally provided, and the fact that he would have at least mules to keep him company, and that men frequently abide there over night. My patient took the advice given him, and a week afterward returned to tell me that he had had no relapse of the chills and fever since he entered the mine. He was in every respect perfectly restored. Now, when it is remembered that this patient had *removed himself from the cause of the disease*, which is generally the ultimatum and *dernier ressort* of allopathic treatment, was it not a remarkable case?

The fourth cause of mortality to the miner, that arising from disease contracted by the inhalation of coal-dust, is one of special and peculiar interest.

One of the diseases for which miners have most frequently consulted me for medical help is of an asthmatical character, complicated with bronchial mucous catarrh. So common is this affection that I have given it the name, whereby it is hereabouts pretty generally known, of *miners' asthma*. Like common asthma, this also presents itself in every variety of form, from a mild degree, so as scarcely to interfere with the patient's daily occupation, to that of great and distressing severity. Some miners are afflicted for years with it, still going through their work, with exceptional periods of aggravation upon taking cold, or consequent upon sudden and severe changes in the weather. The miner engaged at his work in the breastwork of a mine, is sometimes confined to a very small space, being crouched or doubled up, with his chest bent forward, or lying on his back or side, while manipulating with his pick in detaching the coal. Long-continued habits of this kind must necessarily be followed by more or less constriction of the thorax, and accounts readily for the constraint in respiration which he so frequently experiences.

Very often, inflammation or pneumonia sets in, followed by very serious results, and not unfrequently by death. From a number of such cases recorded in my case-book, I will transcribe one here, hoping it may not prove unprofitable to the reader.

William Reese, a Welshman, aged about fifty years; worked in coal mines from the age of ten years until he was thirty-five, when he had become so "phthisicky" that he was obliged to leave off working in mines, and, being a zealous Christian, occupied himself as a colporteur and local preacher. Through working in very small places, in early youth, being almost constantly cramped up, his figure became stunted and somewhat hunch-backed. Eighteen months ago he sent for me to attend him. I found him in bed, where he said he had been for a month past. He had a very bad cough, hectic fever, night-sweats, diarrhoea, and expectorated daily at least a pint of matter, which was entirely as black as charcoal. I dwell upon this black expectoration, for it is the interesting feature of the case. The patient said that he could not account for the continued presence of this color in his sputa; that it had been just as I saw it then during the month past, and, in less quantity, but just as black, during many months even before that; yet he had not been inside of a mine for fourteen years! The case was clear enough; there were one or more abscesses in the lungs; a diagnosis amply confirmed by auscultation. The question still left open was, whether the expectoration was of a tuberculous nature, or simply the result of healthy inflammation. I took some home with me to examine under the microscope. The result of this examination was, however, unsatisfactory in solving this question; for the particles of coal-dust were so prominent as to throw all other appearances entirely in the background. I could see neither cells, pus-corpules, nor anything but (under the magnifying lens) innumerable coals, huddled together and piled upon each other, the smallest appearing the size of peas, and some straggling large ones, like chestnuts. It was frightful to look at, and think that the man's lungs were filled with such material. On putting a small portion of the expectoration in the palm of my hand, and stroking the palm of my finger through it, I could distinctly feel a slight sandy sensation of roughness.

What was I to give this man? What pathogenesis among homoeopathic remedies includes coal-dirt in a patient's lungs? Of course, there was inflammation with its concomitant symptoms to guide and direct me; but the symptoms were caused by a foreign irritant, which I could neither scoop out nor extract. The thought struck me, was not nature scooping it out; and might not a properly selected remedy sustain nature, and keep the inflammation in bounds while this process of cleansing continued? What then were the symptoms? There was a great deal of cough, sometimes easy and loose, especially in the morning, at other times hard and cavernous; expectoration as before mentioned, which sometimes excited vomiting; great thirst, and burning in the throat, stomach, and oesophagus; pain in the chest, moving about from side to side; almost constant diarrhoea, of serous, sometimes bilious, and even bloody-looking discharges; countenance flushed in the afternoon and evening; eyes puffed up and

blurred ; skin hot and dry in the afternoon, clammy, with profuse perspiration at night, cold in the forenoon; frequent attacks of headache; palpitation of the heart; great restlessness, peevishness, sleeplessness; appetite very poor and capricious; pulse ranging from 100 to 130 per minute; extreme debility.

Such, in the main, were the symptoms of my patient, and in the whole *Materia Medica* I could think of no remedy so clearly indicated as *Arsenicum*. As I had moreover had a very gratifying experience with this remedy, with quite a number of cases of incipient phthisis, I at once resolved to give it.

This experience with the remedy in these affections had been not so much with *Arsen. album* as with the *Arseniate of Soda*, of which I carefully prepared the third centesimal trituration. Of this a dose was directed to be taken three times a day, straight along, for an indefinite period of time.

Days and weeks passed without any perceptible change; but the patient did not appear to get worse ; so the remedy was continued. Still the black expectoration, no less than a pint every day, kept on for about a month. I then resolved upon giving mornings and evenings a dose of *Opium 30*, still continuing the other remedy as before. A week subsequent to the beginning of this additional treatment slight evidences of improvement manifested themselves. The expectoration was not quite as copious, but unchanged in color, and the diarrhoea was also somewhat abated. From this time forward, under the administration of these two remedies, without any change during the whole time of the treatment, the patient gradually, slowly, but regularly improved, until three months after, when he pronounced himself in better health than he had been for fifteen years. There still was some slight expectoration, tinged at times with more or less dark streaks ; there was also remaining a degree of his previous asthmatic difficulty; but this was greatly improved. At this present writing, a year and a half having elapsed since the sickness here narrated took place, he is still in fully as good health as he has enjoyed at any time in latter years.

What is the lesson to be learned from this case?

1st. That coal dust may be inhaled, lodged in the substance of the lungs (as bullets, needles, &c., are sometimes lodged and retained in other parts of the body), and remain there apparently harmless, until some other exciting cause induces inflammation; and, 2d, a gratifying illustration of the propriety of persevering with any treatment that may be clearly indicated, without losing heart too soon upon witnessing no immediate beneficial results. I may say, too, that in all my life I never witnessed an instance of more tenacious vitality, or a more remarkable recovery.

My father, Dr. C. Haeseler, and Dr. F. W. Boyer, who both saw the case soon after coming into my care, had not the remotest idea, any more than myself, that the patient could possibly recover.

Another case, in most respects similar to the one just described, occurred within the past few months; the patient, also a miner, who, however, had been working up to the time of his taking sick, resided in St. Clair. This patient died, and a post-mortem examination disclosed a remarkable state of the lungs. Aside from the vomicae, of which there were quite a number of various dimensions, the portions of the lungs which still remained intact of the disease appeared as it were amalgamated with quantities of coal-dust. In cutting through these portions with the scalpel, a gritting sound was emitted, and the edge of the instrument turned, as one might expect upon cutting through any sandy substance. In one place was found a dense conglomeration of coal and lung substance about two-thirds of a cubic inch in size, appearing almost like a large calculus, as found in the bladder; in fact a piece of *petrified lung*, that could not be cut with the scalpel at all, but broke with a vitreous fracture under the

blow of a hammer. This post-mortem examination was not conducted by myself, but by a medical friend, whose only fault is, that he is still an allopath, yet of exalted scientific attainments, and of the most scrupulous professional integrity.

Such, then, are some of the penalties of a miner's life, and of which the millions to whom the glowing anthracite from their furnaces and parlor grates contributes such material comfort, have, it is feared, but a very slender appreciation."

(Charles H. Haeseler, M.D., Observations on the Health of Coal Miners, The Hahnemannian Monthly vol. 6 (1871), p. 257-279)