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Shurly (E. L.)

ON ALBUMEN

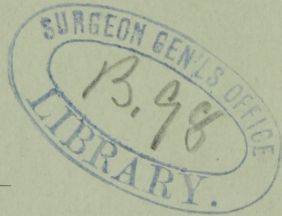
IN THE TREATMENT OF

PULMONARY

CONSUMPTION.

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Written for the Buffalo Medical and Surgical Journal.

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A disease so universally prevalent and disastrous among civilized nations as "Pulmonary Consumption" and one, too, which has thus far so successfully baffled the efforts of medical art in arresting its progress, must necessarily be the subject of much interest, thought and investigation, and encourage us to more vigorous pursuit after its mysterious operations. It must be conceded, that pathological investigators,—although deserving the highest praise and encouragement,—have as yet, only given us *relative* results—and nothing *absolute* as a substructure upon which to establish a rational plan of treatment for this disease; for, whether we regard phthisis as a vitiated neoplasm, an inflammation, or other of the supposed pathological processes, we are still "in the dark" regarding the selection of therapeutic measures. Hence we are compelled to turn aside from this conflict of opinions and experiment, to place reliance more on the deductions from physiological, chemical and clinical data!

The following remarks in support of the plan of treatment to be suggested are almost entirely based upon the well known physiological and chemical processes connected with nutrition, processes, which to my mind, deserve the greatest consideration in the treatment, not only of this, but of all diseases.

In the first place, taking a summary physiological retrospect, we see that the animal body is not only constructed and repaired,

but its living force maintained through material derived from without, called food; which by certain regular metamorphoses becomes converted to the use of the economy in sustaining the normal condition known as health; and further, that without a certain supply of this material, food, both in proper quantity and quality, the harmonious equilibrium of molecular action becomes disturbed, disease inevitably following, tending subsequently to decay.

Therefore, as living force cannot exist without material, and as "living force can generate the same amount of work as that expended in its production" (Helmholtz), it follows that a deprivation of food (whether from paucity of crude material or malassimilation) must cause a consumption of the already formed structures, so long as the living force continues its action within the body. So that, the *introduction* of the proper material for the play of life force becomes as important a factor of animal existence as the *operation* of the life force itself. Hence, it is obvious that our attention should be *concentrated* on the functions of digestion and assimilation on the one hand, and the character of the nutriment introduced on the other, while treating any wasting disease. Regarding the character of the food, physiological chemistry teaches with tolerable certainty that the four classes of elements, nitrogenous, hydro-carbons, carbo-hydrates, and inorganic, must each be represented in the food requisite for normal nutrition.

The carbo-hydrates and hydro-carbons; such as, fats, sugar and starch, are undoubtedly very important as *force producing agents*, for, as Pavy asserts, "That energy capable of resulting in the performance of mechanical work is produced in the animal system by the oxidation of carbonaceous matter may be considered an established fact." Besides this, we have in support of the fact, the interesting experiments of Frankland, which prove by the number of units of heat evolved in the consumption of one gramme of each of the articles of these classes that fats take the first rank as force producing agents, thus displacing the doctrine promulgated by Liebig and for a long time accepted by the profession, that energy was especially the resultant of the direct oxidation of nitrogenous matter. The starchy and saccharine elements rank next in the

tables of Frankland as force producing agents, while albumen ranks last. But, regarding the utility of these latter agents in this connection, it must be remembered that they both contribute by metamorphosis very largely to the amount of carbonaceous matter actually converted into force through oxidation, as proven by actual experiment on man and the lower animals, so that vital force, or work is by no means so dependant upon the amount of fat introduced from without as at first thought might appear.

Of course, each of the inorganic constituents of food has its particular office in the economy, but probably none are quite as useful as phosphorus, in its compounds, for it is a component of all the tissues; besides, by its presence serving an important purpose in the process of digestion. But of all the proximate principles the nitrogenous, and especially the albuminous, must be supplied in the most unvarying quantity, particularly as they are not produced within the body from a metamorphosis of either of the other classes; and regarding their importance, Lehman says, "If we pause for a moment to contemplate the great series of the chemical substrata of the animal body, we at once perceive that there are four principal groups of substances in which the vital processes are manifested with the greatest intensity. Amongst these the *albuminous substances* or the so-called protein-bodies and their *derivatives* are the most conspicuous. A mere superficial glance at the occurrence of albumen is sufficient to show that this must be one of the most important substances in the whole animal body; we have met with it in the largest quantity in the blood, and in all those animal juices which contribute directly towards the nutrition of the organs, and a more careful examination of many of the animal tissues shows that albumen requires only some slight modifications to become consolidated under different forms; as, for instance, when it contributes towards the formation of the solid contractile parts, under the form of syntonin (musclefibrin), by which alone both the voluntary and involuntary movements of the animal body are effected.

We found it both in a dissolved and an undissolved form in the most delicate organic combinations, as, for instance, in the con-

tents of the nerve tubes, structures by which the animal essentially differs from the plant, and in which the highest force of all animal life may be said to be located," and in another place he says of albumen: "Albumen occurs in all those animal substances which supply the whole body, or individual parts of it, with the materials necessary for nutrition and the renovation of effete matters. Hence, albumen is a principal constituent of the blood, the lymph, and chyle, as well as of all serous fluids."

Thus, taking the foregoing quotations (which, it may be added, can be corroborated by many others of equal authority), from Lehman, we see albumen standing forth the most important of all, as an element of nutrition. It is this in fact that constitutes protoplasm, the germ of animal as well as vegetable life, from the Bathybius, a mere mass of jelly through the nonnuclear and nuclear or higher cell, to the most complex organism. It stands as the quintessence of cell life, and the cell is but the being in miniature. Being thus conspicuously concerned in all physiological vital actions it must necessarily be abnormally destroyed or perverted by disease processes, which involve perhaps even greater molecular action than the normal vital processes; and this seems to be proven moreover, by various analyses of the products of inflammation, fatty, tuberculous and scrofulous degenerations, showing them to be very rich in albumen, especially pus, which according to Frey is only a dead cell (a cell at rest).

Now how much of a certain disease action depends upon the misdirection, so to speak, of the vital force itself, without reference to the quantity or character of the nutriment, of course, one cannot say, as living force is only known to us by its work and cannot be bridled and directed as electricity can. Nevertheless, if we know that its proper operation largely depends upon a supply of a certain proximate principle, as for instance albumen, and if we can then devise means of controlling or securing the introduction of this material to the system, it seems fair to infer that we shall to a certain extent be able to control the disease action itself. Thus in a wasting disease like Phthisis Pulmonalis, for instance, we must endeavor to introduce *more* than an ordinary supply of the proximate principles, especially the nitrogenous (which undoubtedly suffer the

greatest destruction), that this rampant vital action may not consume the already formed and appropriated material; in other words, we must in some way supply the extra demand. But, it may be asked, how can we do this, in cases of this kind, where from want of appetite, from feeble digestion and assimilation, (almost constant accompaniments of Phthisis) we can scarcely introduce an amount of ordinary rich food requisite for healthy vital action, without producing indigestion with its reactionary disturbances. Shall we resort to tonics, or stomachics, in order to spur the feeble digestive apparatus? Not altogether, for common experience teaches that many of these cases, and I might say it of other diseases also, are really but little affected by medicine, probably because these are not absorbed in sufficient quantity from the digestive tract. Now, what it is desirable to do, is to supply some substance rich in protein, which will be readily assimilated with the least tax on the enfeebled digestive apparatus; and for accomplishing this end, meat juice, eggs, milk, cream and cod liver oil suggest themselves to one's mind, each being valuable articles of nutriment. But as meat juice and milk are not as rich in the desired albuminous principles, in proportion to bulk, as eggs, (a matter of importance as far as the stomach is concerned), and as cream and cod liver oil (being principally fats) not only require considerable expenditure of force in being prepared for assimilation, but are then chiefly valuable in aiding the metamerphosis of nitrogenous matter, rather than as elements of structure, we are bound to give our preference to eggs. Nor will this seem strange when we reflect that nature has supplied in a concentrated form in the egg (which is nearly alike in composition for all animals) all the material necessary for the growth and development of the animal germ.

Perhaps it will not be out of place in this connection to reproduce the following tables, taken from Pavy, showing the composition of the hen's egg.

Analysis of the entire contents :

Nitrogenous matter.....	14.0
Fatty matter.....	10.0
Saline matter.....	1.5
Water.....	74.0

WHITE.

Nitrogenous matter.....	20.4
Fatty matter.....	0.0
Saline matter.....	1.6
Water.....	78.0

YOLK.

Nitrogenous matter.....	16.0
Fatty matter.....	30.7
Saline matter.....	1.3
Water.....	52.0

Thus it will be seen that the white of egg contains no fatty matter, being composed almost wholly of albumen, while the yolk is rich in both nitrogenous and fatty matter. Lehman found in an analysis of thirty (30) eggs, that the albumen averaged about 23.01 grains to each egg. Polecks' analysis is about the same. Lehman also states that he found the fresh white to contain 12.274 per cent. of albumen, and the dried white 92.293 per cent., while the yolk contained not only albumen but fat, phosphates and other salines. Thus I am convinced that eggs are not only richer, in proportion to bulk, in all the proximate principles, than any other article of human food (not even excepting milk, nature's nourishment for young mammals), but contain a greater proportion of proetein in the best condition for ready assimilation by a feeble digestive apparatus, and hence, deserve the post of honor in the treatment of Phthisis Pulmonalis and other wasting diseases.

But finding quite often that patients were unable to digest or assimilate the requisite number of eggs, owing perhaps, either to the oil contained, or the inability of the stomach to break up the intimate cell structure, I was led to present them in a dessiccated form, either entire, or just the whites, with to my observation, gratifying results. The mode of preparation is as follows: The eggs are exposed to a warm current of air, never above 110°, F. until they are thoroughly dried, when the residue will be ready for use. As it is more tedious and difficult to evaporate the whole contents, than the whites, I more often throw out the yolk, and afterwards prepare the albumen by adding a little cod liver or

other oil; or, triturating it with either egg shell, or one of the phosphates, preferably calcium or sodium phosphate. *Particular attention must* be paid to its preparation, inasmuch as albumen (or dessiccated egg) prepared either by too great heat or by precipitation, whereby it is coagulated, will not yield the same results as that prepared in the manner here given, which requires it readily soluble in warm water, and capable of direct absorption as albuminose by the stomach. I have never observed an instance where it was not borne easily by the stomach when prepared by means of *gentle heat*. It may be administered in teaspoonful doses as a powder with or without one of the salts mentioned, by throwing it in warm water, light soup, or milk, or, emulsified with glycerine or cod liver oil.

Regarding the therapeutic value of eggs, as compared with cod liver oil—the standard agent—in the treatment of Pulmonary consumption, it is only necessary to say, that I was at first led to the exclusive use of eggs, by the observation that the administration of the Emul. Ol. Morr. (made with eggs) produced more positive effects than did the oil alone, and *that* in patients who could equally well take the pure oil. It is unnecessary to add, perhaps, that the eggs must always be fresh and from hens which are properly fed. Albumen made from such eggs in the manner indicated above will keep for a great length of time without undergoing any change.

ABSTRACTS OF CASES.

I present the following abstracts of my notes of fourteen cases, for the purpose of subjecting to scrutiny the *Diagnosis*, etc., believing, however, that they record unmistakable signs in each, of the earlier stages of the various forms of *Phthisis Pulmonalis*, excepting, perhaps, that variety known as *Acute Tuberculosis*.

Of course I am well aware that some cases of Phthisis are very slow in their march, while others are undoubtedly amenable to cure through nature's unaided efforts, but as instances of the latter fact are comparatively infrequent, the question need not detain us here, neither do I presume to claim for albumen the honor of "a specific" for Phthisis, especially as I have in every instance more or less combined its use with other agents, and hygienic measures hitherto proven to be beneficial in the treatment of this disease.

I simply claim that it is superior to cod liver oil, and as previously stated, the *most concentrated* and *powerful* nutriment which can be introduced practically into the wasting economy. And, although by the aid of this agent we may yet be unable to produce a radical cure in every case of incipient "Phthisis," if we can through its instrumentality prolong, for a few years, the life of a victim, its mission ought to be regarded as a valuable one.

1874, NOV. 22D. CASE 1.

T. B.—æt. 28. Clerk in R. R. office. Small stature and stooped; small thorax, widower, temperate habits excepting the use of tobacco. Parents American, family history good. Has been ailing more or less for last few years, having had rheumatism, and frequently "colds," especially during *last* year, when the colds have been more obstinate to treatment. Has on two or three occasions, during the past year, expectorated blood in considerable amount also. Now has a "hard cough" with little expectoration, dyspnoea, especially upon even moderate exercise, skin moist usually, but at times dry and feverish, appetite capricious; some indigestion; bowels constipated as a rule.

Physical signs: Percussion sound of upper left side duller than right, auscultation shows crackling and sibilant rale in both infraclavicular regions, more marked in left, and in left mammary region, with broncho-vesicular respiration elsewhere. Pharynx reddened and follicular. Treatment: \mathcal{R} . Emul. ol. morrh. et albumen. Tablespoonful four times daily. Diet of meat and eggs, etc., and moderate exercise in open air, and to sleep always in an apartment to which fresh air is accessible. It was omitted that a mitral lesion was discovered at the first examination for which XX. gtt. Tr. digital. three times daily was prescribed.

Jan. 8th, 1875. It is noted that the small amount of ol. morrh. which the emulsion contained, apparently disordered his stomach, so that the glycerole of albumen was substituted; and also that the physical signs were rather more unfavorable, being mucous rales and crepitant rales in both upper lobes, with a more decided bronchial character to respiration.

From this time on he improved slowly and quite steadily, notwithstanding, several so-called colds had been contracted, being enabled most of the time to attend to his business duties, and in Nov., 1875, it is noted that he feels better, stronger, and is fleshier than for three years past. During this time the treatment, principally by albumen and eggs, was continued with more or less persistence.

In July, 1876, an exploration of the chest showed an absence of the adventitious sounds previously noted as emanating from the lungs, but a decided *bronchial* character (with short inspiration) to the respiration of the upper part of the left lung. He had "no cough of any amount" nor "spells of fever." Digitalis had been administered more or less for the purpose of controlling the heart's action. He is now (Dec. 8, 1876,) suffering from an attack of acute bronchitis, which is apparently giving way under the use of quinine and ammonia in addition to the other treatment.

1875, JAN. 13TH. CASE II.

Mrs. C. N. B.—æt. 36. Mother of five children who were born at intervals of eighteen months. Short stature, pale and emaciated, with now and then flushed cheeks. Well surrounded with home comforts and necessaries. Has lost two sisters, besides some more distant relatives, with tuberculosis. Parents American, both dead, cause unknown. Has always been feeble, excepting for a month or two at a time. Four months ago she contracted a "cough" which has since been growing in intensity. Menstruation scanty and irregular for past year. Has pain in left side of thorax, cough and expectoration, sometimes mixed with blood, fever and sweating at night. Little appetite, some indigestion, constipation. Says she is rapidly growing weaker, and emaciating.

Physical signs: Percussion sound duller in upper left front. Auscultation shows, a broncho-vesicular character to respiratory murmur, prolonged and jerky expiration with dry crackling in both supra and infra-clavicular region. Upon forced inspiration, subcrepitant and sibilant rales.

Treatment: As she cannot bear cod liver oil well, to take of Emul. albumen et ol. morrh. a tablespoonful four times daily, and

spray of carbol. acid (gr. iii. ad. ℥) from steam atomizer. Diet to consist principally of eggs, meat, etc.

Oct. 23. It is noted that she has only been holding her own. Examination revealing no positive improvement of the condition of the lungs. For the last two weeks has been suffering more from indigestion, and great pain of bowels, with diarrhoea at this time. V. gtt. ac. hydrochl. and V. gtt. Tr. nuc. vom. were prescribed to be taken three times daily in water and the Emul. ol. morrh. et. album. was substituted with the glycerole of albumen in table-spoonful doses four times daily, the diet as before to consist largely of milk and eggs. The intestinal derangement was soon relieved and she began to show signs of improvement, and Dec. 17, 1875, it is noted that she has gained considerable in weight and appearance, the cough has greatly diminished, and the physical signs show bronchial respiration in upper left lung especially with duller percussion sound and bronchophony.

She has continued improving up to this writing (Dec., 1876,) with steadiness, only while under the influence of an occasional attack of acute bronchitis, until she is now quite fleshy and feels vigorous.

1875, FEB. 6TH. CASE III.

Mrs. A. W. P.—æ. 25. Married. Tall and spare. Good hygienic surroundings. Has lost her father and three aunts on father's side with Phthisis Pulmonalis. Was tolerably well previous to marriage about a year ago, excepting a predisposition to "taking cold." Has had two attacks of slight hemoptysis, nine and seven months respectively; and since then, cough with more or less expectoration. Has some indigestion; slight nocturnal fever, preceded often about 5. P. M., by a chill, or chilly sensations; dysmenorrhoea which is increasing in severity; and dyspnoea upon exercising. Laryngoscopic examination shows slight reddening of the vocal cords, and granular pharynx.

Physical signs: Expansion of the right side of thorax only moderate. Percussion of right upper front shows resonance, but higher pitch. Respiratory percussion shows disparity between inspiratory and expiratory resonance on right side. Auscultation

shows in right upper front a broncho-vesicular murmur and over back of right side from 3d rib down bronchial respiration with duller percussion sound. Auscultation shows also a prolonged expiration over this side especially in scapular and supra-regions. No abnormal transmission of heart sounds.

Treatment **R.** Glycerole of albumen ζ XII. Syr. of hypophosphites co. ζ iij. m. and take tablespoonful three times daily, also a warm spray of a solution of carbolic acid (gr. iij. ad. ζ .) to be inhaled three times daily, and a cathartic pill containing one half grain of Ext. belladon. to be taken just previous to the first day of menstruation, in order to mitigate the pain thereof.

Feb. 19th. It is noted that she now suffers from pain in the left side and hoarseness in the morning, but that the physical signs remain about as they were, and that she is also suffering from an acute nasal catarrh. The albumen was continued in the dry form, mixed with hypophosphite of soda.

Feb. 29th. It is noted that the cough and nocturnal fever have greatly abated, as also the pain during menstruation, and that she is improving. From this on she has been slowly improving, gaining in flesh and strength, while the physical signs have shown a slight clearing of the right lung, as evidenced by the more vesicular character of the respiration. She is now (Dec. 1876,) doing well, being able to attend to all of her household and other duties.

FEB. 14TH, 1875. CASE IV.

Mary Kremer, *æt.* 17. Unmarried. Occupied by doing housework, pale, medium height and form stooped. Good hygienic surroundings and food. Good habits. Father a subject of bronchial asthma, but other members of family in good health. Was never very robust. Has had a cough and some expectoration more or less for two years, with tendency latterly to night sweats. Voice nasal. Respiration frequent. Fever at night. Little appetite. Bowels constipated. Pain more or less in chest and epigastrium. Tonsils enlarged. Pharynx follicular and dry.

Physical signs: Auscultation shows mucous, and sibilant rales, and crackling over left infraclavicular and mammary regions, with bronchial respiration and prolonged expiration. On opposite side,

sibilant rale upon forced inspiration, and rude respiration all over.

Treatment: *R.* Teaspoonful of dry albumen with five grains of Sodium hypophosphite four times daily; as many eggs to be consumed as possible, and one glass of ale at meals.

Dec. 1876. This treatment has been pursued closely ever since and she has slowly improved, all the symptoms of disease having greatly diminished. An examination of the lungs a few days ago shows Bronchial respiration and sibilant rales over upper left side of thorax, with considerable contraction. She still coughs and expectorates some, however, especially in the morning.

1875, JULY 15TH. CASE V.

Mrs. M. C. W.—*æt.* 20. Mother of one child. child; medium stature; pale and spare; lives on the bank of the river; surrounded by every comfort necessary to good living; although the house is very damp and stands near a distillery. Father healthy as also brothers and sister, but mother now lying ill of Phthisis Pulmonalis (advanced). Was in tolerable good health until a little over a year ago, when she contracted ague which continued to trouble her more or less until a month or so ago, but, apparently left her with a hacking cough, chronic nasal catarrh, and debility. She now has “spells of fever,” and night sweats; little appetite; constipation; foetid breath; indigestion; cold feet; palpitation of heart; and nervousness. The cough is very troublesome during the night and the expectoration very little. Menstruation irregular but more painful. Is emaciating, and soon tires upon moderate exertion.

Physical signs: Nasal passages and Pharynx dry and covered more or less with crusts. Percussion sound little duller over left Infraclavicular and mammary regions. Respiratory percussion shows no disparity of sound between inspiration and expiration. Auscultation shows very feeble respiratory murmur and expiration equal in length to inspiration over these regions, with higher pitch, as compared with other side.

Treatment: Sol. of potass, *pr. mang.* (*gr. ss. ad. ℥.*) to be used with nasal douch every morning: five drops of Fowler’s Sol. with three grains of quinine three times daily; three fresh eggs daily

with wine, besides a diet of meat, milk, etc., as much as can be taken and digested and removal as soon as possible to another location.

Aug. 18th. It is noted that she has had since the first of the month more dyspnea and considerable pain in left side of thorax with increase of the hacking cough and that the physical signs remain about the same. The nasal catarrh worse. She has been unable to take more than two eggs daily from inability of the stomach to digest them. \mathcal{R} , Counter irritation by means of repeated small blisters over side and front of thorax and to take one teaspoonful of Powd. albumen four times daily with two eggs in wine if possible. Continuing the use of douche.

Aug. 26th. She still has pain in chest, but less constant and severe, also fever during latter part of the day, and absolute loss of appetite. Stomach more quiet. Is fully under the effect of arsenic. She has not removed, and states that "mould" will form on boots and shoes in a short time, when they are placed in any of the rooms having no fire.

Oct. 7th. Was better generally until a couple of days ago; coughs and expectorates considerable; fever and sweating every afternoon. Physical examination of chest shows moist crackling and subcrepitant rale over both upper lungs, but more in left side. Voice quite weak, and bronchophany to some extent in left infraclavicular region. Treatment: To take five drs. daily of powd. albumen and two eggs daily if possible; three ozs. wine daily and two doses of quinine, three grs. each, for a few days.

From this on she slowly improved, and after removal to a new house in better locality improved more rapidly. During this time up to Feb. 1876, she has taken albumen either dry or in the natural condition in eggs. Dec. 9th, 1875, she had an attack of acute Bronchitis lasting about two weeks, but has continued to improve since, until now, Dec. 1876' she looks well; is fleshy; and quite vigorous—although the left lung is somewhat consolidated yet.

OCT. 21ST, 1875. CASE VI.

D. P. French Canadian, æt. 29. Shoemaker. Married. Tall and spare. Good family history. Works in a crowded, ill-venti-

lated shop, and lives in a crowded family. Has been unhealthy and weak for past three years, having had more or less dyspepsia and cough, the latter of which has been gradually growing worse. Had a severe hæmoptysis this afternoon following a severe paroxysm of cough.

Physical signs: Inspection shows sinking of supraclavicular region of right side; chest walls not very mobile, and respiratory acts frequent. Percussion shows upper right front to be a little duller; no difference shown by respiratory percussion. Auscultation shows feeble vesicular murmur in upper part of both lungs, but more bronchial in character on right side; also large mucous rales in both upper mammary regions and abnormal transmission of heart's sounds.

Treatment: \mathcal{R} . Glycerole of albumen, tablespoonful three times daily, and Fl. ext. Ergotæ in thirty drop doses until hemorrhage ceases. To get out into the open air more, and sleep in an apartment constantly supplied with fresh air.

Dec. 1st, 1876. There was no more hemorrhage. The albumen treatment was continued more or less up to date, and he is now working at his trade again but not so many hours daily. The upper right lung shows consolidation, he is not much fleshier but feels well and stronger than for four years past. His diet continues to be principally eggs and meat.

MAY 15TH, 1875. CASE VII.

J. G.—æ. 19. Printer; spare; tall; of Irish parents; comfortable home; temperate habits; very industrious. Good family history as far as known. Usually in tolerable health although never very strong. Was taken sick day before yesterday with chills and fever, and hacking cough. The chills, fever, cough, etc., continued more or less for about ten days, during which time the cough continued and mucous and subcrepitant rales made their appearance, while the respiratory murmur grew more and more feeble, and the respiratory acts more frequent. He recovered very slowly from this attack, but continued coughing and expectorating, with more or less fever and sweating at night, and on June 25th, the Physical signs: showed a duller percussion note in Infraclav-

icular and Infrascapular region of right side, with Broncho vesicular respiration, and mucous and sibilant rales over both infraclavicular and mammary regions.

Treatment: consisted at first of quinine and laxatives, and subsequently of Emul. ol. marrh. et. album. About the middle of July he began doing light work again.

May 21st, 1876. It is noted that he gradually improved so that he began to feel quite well again until about two weeks ago, while returning from a visit to Wisconsin—crossing the lake—he contracted a severe cold and soon began coughing severely and expectorating considerable frothy blood, which has continued more or less up to this date (May 21st, 1876). It is noted that the physical signs on this occasion were—very feeble murmur, even upon forced inspiration, and abnormal transmission of heart's sounds, throughout the right upper front of thorax and rude respiration throughout lower lobe of right lung, with some large mucus rales in interscapular region. Percussion duller over upper left side. Treatment consisted of tablespoonful of Glycerole of albumen with five grs. of sod. hypophosphite four times daily. Fl. ext. ergotæ, and good ale. The hemorrhage soon ceased and he continued to improve, but never gaining much in weight, until now (Dec. 1876,) he feels quite well and is able to do "a light day's work." The upper right lung, however, remains changed from the normal condition, and he still coughs a very little. He has been taking the albumen more or less up to last month (Nov. 1876), and was recommended to continue its use more or less.

1875, NOV 2D. CASE VIII.

Wm. N.—æ. 40. Policeman, formerly a miner. Married. Tall and very thin. American. Dwelling not very clean or airy. Temperate habits, though in the habit of drinking some whiskey, and by virtue of occupation is up nights more or less, when he often contracts "a cold." Family history not ascertained, was in good health and fleshy until about a year ago, when he contracted "a cold" which, as he says, has never left him. Has chills; fever, and sweating; is emaciating and gradually growing weaker; appetite poor; bowels constipated, and considerable cough and expectoration.

Physical signs: Percussion sound duller over infraclavicular and mammary region of right side and more resonant than in health over left side generally; mucus (large and small) rales and sibilant rales over both sides; bronchial respiration and bronchophony over upper right lung, and feeble murmur elsewhere.

Treatment: Albumen, muriate of ammon. and quinine.

This patient has been under treatment ever since, principally by albumen and sodium hypophosphite; and although he has from time to time suffered from acute attacks of bronchitis, he has steadily gained a little, and now is able to attend to his duties as policeman, with but little intermission. The right lung has contracted considerably as shown by the form of the thorax and the physical signs show bronchial respiration in upper right lung with some vesicular (probably) emphysema in left lung. He now takes fresh eggs and whiskey daily in addition to ordinary meals.

1875, DEC. 2D. CASE IX.

Mrs. A. P.—Norwegian; mother of five children; æt. 32. Tall, "large framed" woman but spare. Resides on the bank of river, but the ground on which house stands is well drained. Has not had any ague for several years. In comfortable circumstances though of frugal habits. Family history, as far as known, good. Has been out of health for past five months, during past two months having cough with little expectoration, and during last two months having nocturnal fever and sweating, but not preceded by chills at all. Has loss of appetite; constipation usually; sense of great debility, considerable cough and sometimes bloody expectoration and is emaciating quite rapidly.

Physical signs: Percussion shows dullness over both scapular and infrascapular regions, also over infraclavicular and upper mammary regions of right side. Auscultation shows bronchovesicular respiration in both upper fronts, and behind in both suprascapular and scapular regions vesicular quality nearly absent. In infrascapular regions the respiration shows nearly normal vesicular quality. Sibilant rale and bronchial voice in right upper front.

Treatment: Four tablespoonfuls daily of gly. albumen; meat diet, eggs and fresh air, together with the donning of flannel un-

derelothing. This treatment was continued "right along" and now, Dec. 1876, she is stronger and weighs about fifteen pounds more than for three years past. She still coughs a little, especially in the morning. Physical signs show no rales, but still a rude respiration over upper right front, and a more vesicular quality over scapular and infrascapular regions of right side.

As the abstracts of cases already given occupy considerable space and as enough detail has been given to show the plan of observation and diagnostic points entertained, I shall therefore in the following cases only give the more salient points, and thus reduce their narration to the least possible amount of matter.

1875, DEC. 15TH. CASE X.

R. F.—æ. 19; tall and thin; clerk; dissipated periodically; good hygienic surroundings; lost two brothers of Phthisis Pulmonalis. Has had one attack of hemoptysis and "dry cough" for a year which is growing worse, also nocturnal fever.

Physical signs: Percussion note little duller in upper left thorax. Auscultation. Dry crackling, sibilant and subcrepitant rale over both upper lungs—more marked over left. Bronchial respiration and some mucus rales in upper left side; inspiration and expiration same length.

Comments. Was under treatment nine months principally by albumen and gradually improved until now he is at business and feels tolerably well. Weight not increased much.

1876, JULY 3D. CASE XI.

Mrs. L.—æ. 39; mother; suckling babe one year old at night; very slender and sallow. Lives in small apartments and is poor. Had a cough for a long time when young. Brothers and sisters subject to cough. Was quite well until three months ago, when slight hemoptysis came on followed by a hacking cough which has continued since. Expectorates some in morning. Has slight nocturnal fever. Is emaciating.

Physical signs: Percussion about same over both sides. Auscultation. Very feeble vesicular murmur both sides, especially in right infrascapular and infra-axillary regions. Expiration prolonged and jerky. Abnormal transmission of heart's sounds.

Comments: Is still under treatment by albumen. "Is holding her own."

1876, JAN. 22D. CASE XII.

M. D. W.—*æt.* 26; tall, spare; gentleman brought up in affluence; dissipated; whole family unsound physically, being especially subjects of nervous disorders. Was in tolerable health until about four months ago when he "took cold." Is now under great mental pressure. Is very nervous, sleeps badly and sweats. Has dry cough almost constantly. Emaciating; little appetite; respiration and pulse very frequent.

Physical signs: Percussion note duller over right infraclavicular region. Auscultation. Broncho vesicular respiration over upper left front. Bronchial respiration over upper right front; prolonged expiration; crust crackling, sibilant, and small gurgling in upper right infraclavicular region.

Treatment: Teaspoonful of albumen with two grs. calc. hypophosphite four times daily, and three eggs daily. To go south as soon as possible.

Comments: He continued this treatment during his sojourn in the South and gradually improved so that this winter he is in Wisconsin, and, I hear, very much improved, though not well. He is still pursuing the same treatment.

1876, FEB. 9TH. CASE XIII.

Miss J. M.—*æt.* 20; comfortable surroundings; medium stature; quite thin. Very sickly mother but healthy father. Brothers and sisters all living. Has been subject to a cold on and off for more than a year. Has had constant hacking cough for about three months, and is emaciating. More or less pain in chest. Dysmenorrhœa and quantity scanty. Easily sweats, no fever though.

Physical signs: Respiratory murmur very weak in both lungs. prolonged expiration in upper part of left, with dry crackling. No difference shown on percussion.

Treatment: Emil. albumen et ol. morrh; out door exercise, and belladonna at menstrual period.

Comments: She feels quite well now and has no dysmenorrhœa. Has gained a little in flesh. Examination of chest on 3d of Nov.

1876, shows no adventitious sounds, and a clearer murmur, although it is yet weak. She has been taking on an average three eggs daily for last three months.

1876, MAY 29TH. CASE XIV.

Mrs. J.—*æt.* 32. Tall and spare. Does little work of any kind. Comfortably situated in life. Family history good, though brothers and sisters are not very well. Edges of lids reddened. Never very strong. Had a slight hemoptysis or two, a couple of weeks ago, which was preceded for about two months by hacking cough. Is very nervous. Menstruation scanty, insomnia; indigestion; emaciating; and growing weak; constipated and cough almost constant. Pain in left side.

Physical signs: Broncho vesicular murmur over both upper parts of lungs, higher pitch in left side, also bronchial respiration in patches over upper part of both lungs. No difference of percussion note. At a subsequent examination a sibilant rale was discovered in left infraclavicular and suprascapular region.

Treatment: More fresh air, albumen, and quinine.

Comments: She has been under the albumen treatment ever since with the addition of inhaling a warm spray impregnated with either, Fl. ex. of courium. or carbolic acid. She still coughs, especially in damp weather, but up to this time has gained ten pounds in weight and feels much stronger.

I have some other cases under treatment—principally by albumen—which, as they came under my care more recently will be omitted from this report.

This plan of treatment was partially tested in a case of acute Tuberculosis, but with no positive results, and in three cases of advanced Phthisis, with probably no other effect than to diminish somewhat the nocturnal fever and sweating. But in a case of marasmus, so called, or “tuberculosis of the mesenteric and bronchial glands” of considerable duration, in which cod liver oil had been extensively used, the effect of albumen in quite large doses was very satisfactory. Also, in a case of severe gangrene of the lungs, it undoubtedly had the effect of prolonging life.

