THE CROONIAN LECTURES ON THE PATHOLOGY AND RELATIONS OF ALBUMINURIA.

Delivered at the Royal College of Physicians.

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LECTURE III.—*Concluded.*

LOOKING into cases of lardaceous disease with the purpose of inquiring into its source, I was struck with the occurrence of chronic suppuration as common to a large majority; and it was apparent, at the same time, that the accepted view of the origin of the disease in cachexia, needed, to say the least, some qualification. The disorder could not be traced to tubercle or cancer, unless these formations were attended with suppuration or discharge; and many instances presented themselves in which suppuration arising in local accident, unattended with constitutional disease, was succeeded by the organic change in question. These facts were presented numerically in a series of sixty-six cases. Protracted suppuration, ascertained in fifty-one, necessarily presumed in five, was present in five-sixths of the number. In thirty, there was no evidence of either syphilis, tubercle, or cancer.

Starting from the year 1867, when these results were published, I have collated the experience of St. George's Hospital since that date, as recorded by a succession of competent pathologists. The results are given in the table.

Cases or Antecedent Circumstances of Eighty-three Cases of Lardaceous Disease, compiled from the Books of St. George's Hospital, from 1867 to 1875.

	Total Num- ber.	Syphilis present in	Tubercle present in	Cancer present in
<i>Continued or profuse discharge of pus—58 cases.</i>				
Disease of bone; caries or necrosis	21	3	4	
Phthisis, with vomica	11		11	
Phthisis, with vomica; tubercular excavation of kidney	2		2	
Phthisis, with vomica: disease of bone	3		3	
“ “ superficial scrofulous sores	2		1	
Scrofulous pneumonia, with large vomica	1		1	
Superficial or glandular scrofulous abscesses	2	1	1	
Tubercular disease of kidney	1		1	
Renal abscess, probably of calculous origin	1			
Abscess of ovary, opening into vagina	1			
Gangrene of sloughing of limbs	2			
Extensive chronic bed-sores	2		1	
Pelvic abscess, unconnected with bone	1			
Surgical operations—amputation or excision, with excessive suppuration	2		1	
Ulcerating cancer of uterus, etc.	2			2
Ulcerating tumour of labium, of uncertain na- ture	1	(?)		(?)
Dysentery; syphilis	1	1	1	
Postpharyngeal abscess, probably syphilitic	1	1		
Syphilitic ulceration of perinæum, etc.	1	1		
	58	7	27	2
<i>Accumulation of pus, without discharge—2 cases.</i>				
Large collection of pus in peritoneum; gene- ral tuberculosis	1		1	
Suppurating ovarian cysts	1			
	2	0	1	0
<i>Presumption of past suppuration—4 cases.</i>				
Old phthisis, with cicatrices, but no vomica	3		3	
Destruction of one kidney, apparently by sup- purative process	1		1	
	4	0	4	0
<i>Syphilis without much suppuration—11 cases.</i>				
Distinct syphilitic symptoms or history, with- out long suppuration	8	8	2	
Syphilis, with tubercle, or old tubercular cica- trix in lung	2	2	2	
Syphilis suspected, but not ascertained	1	1	1	
	11	11	5	0
<i>Cause undiscovered</i>	8			
Tubercle in			37	case
Syphilis in			18	“
Cancer in			2	“
Disease of bone, without distinction of kind, in			24	“
Neither syphilis, tubercle, nor cancer, in			37	“

Of eighty-three cases, sixty were connected with ascertained, four with presumed, suppuration; this process thus showing in three-fourths of the number. Cancer appears in two, tubercle in thirty-seven, syphilis in eighteen. In thirty-seven cases, neither cancer, tubercle, nor syphilis could be detected. Looking more narrowly at each of these precursors of the lardaceous state, tubercle and cancer may be at once dismissed as having no further association with it than as frequent causes of suppuration. If the mere deposition of cancer or tubercle apart from its disintegration be ever productive of the lardaceous change, the sequence has escaped my observation; and similarly with regard to bone disease. Putting aside syphilitic affections, suppuration appears to be a necessary link between necrosis or caries, and the resultant visceral mischief. With regard to syphilis, the case stands differently.

However aided by the suppurative effects of its various complications, there can be no doubt that constitutional syphilis alone is an adequate cause of lardaceous deposition. In the table, syphilis without excessive suppuration was the apparent cause in eleven instances; evidence or record of it complicated the antecedents of seven others; and, from the latency of the disease, and the reticence of patients, it may be suspected to have deserved in other instances credit which it has not received. When connected with syphilis of old date, and attended with much emaciation, the visceral change is sometimes extreme, though not more so than when dependent upon ancient suppuration, be its source what it may. As a result of comparatively recent suppuration, we have many opportunities of noting the organic change in its earliest phases. Careful testing, especially of the kidney, will indeed seldom fail to elicit traces of it, if the suppurative process, be its cause what it may, have gone on abundantly for two months. It is scarcely necessary to insist on the fact that suppuration, unconnected with any constitutional source, but of local origin in stone, ovarian, or pelvic inflammation, accident, surgery, gangrene, or bed-sores, may be thus succeeded. The disorder has been attributed, but on insufficient evidence, to other conditions, among which may be mentioned rheumatism and alcoholism; and it would probably be no difficult matter to find subjects of the disease who have been rheumatic or drunken. But, except where rheumatism is a paraphrase for syphilis, I have not been able to trace any connection between the rheumatic and the lardaceous state; and, with regard to intemperance, lardaceous disease is certainly not among its direct consequences, though it may result from pulmonary phthisis, which drink has induced. It is none the less likely that the apparently simple alteration of nutrition which constitutes the disease may be brought about in many ways, of which suppuration and syphilis are only the most frequent. I think it is to be noted that residence within the tropics is conducive to it.

Considering the disease as due to suppuration in the abstract, the *modus operandi* comes into question. Suppuration produces results of two classes; those due to the absorption of the discharge, and those due to its loss. With the infective results of suppuration lardaceous disease has no alliance; there is with it no febrile disturbance, nor any of the results which we are used to associate with purulent absorption. We must refer its origin to exhaustion, and have but to determine wherein the drain is thus injurious. The essential loss can hardly be of the albumen which pus removes; the abstraction with the urine of a larger quantity than is ever lost in pus rarely if ever causes the result; and, looking at the other organic constituents of the discharge, we may dismiss all excepting the corpuscles as with any likelihood impoverishing the organism by their removal. As to the corpuscles of the pus—or, in other words, the white corpuscles of the blood—we know little of their action in nutrition, though we cannot doubt that they are of vital importance. Perhaps we do not fully understand the relation of the white and red corpuscles to each other; if the red are but a later phase of the white, a loss of the white may be ultimately evinced by a deficiency of red. As far as I have seen, the red corpuscles appear to be more reduced than the white by the suppurative process. But, without distinction between white and red, it is as certain that the corpuscular element of blood must be diminished by suppuration, as that that process essentially consists in its escape. It is not impossible that the loss of corpuscles may be as necessary to the lardaceous result of suppuration as their presence is to the discharge. The potash of the blood is chiefly contained in its corpuscles, and that it is largely associated with the white, is evident from the composition of pus. It is possible, therefore, that the lost leucocytes may be important agents in producing a change of nutrition, which is characterised by a want of this essential alkali.

In its mineral ingredients, pus differs from blood in the larger proportions of the salts of potash in the morbid fluid. A discharge of pus, whatever else it is, is virtually a discharge of potash; a fact which we cannot but view in conjunction with the peculiar deficiency of this

alkali in the lardaceous deposit. With regard to the salts of soda and of lime, which pus also contains, we can, as far as regards this disease, attach no consequence to their loss, since, far from being necessarily wanting in the lardaceous matter, they may possibly superabound in it. Loss of potash, therefore, whether as effective alone or as associated with a loss of the corpuscles in which it is contained, is apparently the link between suppuration and lardaceous disease; and partial impoverishment of the blood, and deposition of what remains in it in relative superabundance, presents itself as a rough outline of the process by which the disease is engendered. But, beside the exhaustion of discharge, there must be other ways in which the same result may be produced. A deficiency of income may be similar in its effects to an excess of expenditure, and defective assimilation akin, in its results, to effective waste. The attenuated and starved frames of the subjects of syphilis, and their obvious inability to transmit nutriment from their stomachs to their tissues, may prepare us to attribute to this disease any impairment of nutrition, notwithstanding that, as in this case, the precise method is not within our discernment. It may be that, under this morbid influence, the white corpuscles are insufficiently developed, and their accompanying potash insufficiently introduced.

Passing now to the consequences of the disorder, the nature and origin of which have been considered, and viewing them more particularly in reference to the subject of renal disease, it will be seen that it affects the kidney not only in its own special manner, invading its tissues with a material foreign to their nature or different from them in character, but in modes which bring the lardaceous into community with other modes of disturbance. The effusion appears to act as an irritant, first to the intertubal tissues and then to the tubes. The special change is early followed by a growth of nucleated tissue, not at first uniformly throughout the organ, but along the vascular lines, after the manner of the interrupted fibrosis of chronic granulation. The processes advance and spread until, at last, the whole organ may be comprised in a nuclear hypertrophy of the interstitial tissue. It is clear that either the lardaceous deposit is itself converted into fibre, or else, which would seem more likely, that hypertrophy of the existing tissue is instigated by the irritative presence of the new material. It is to be observed that the new fibroid tissue developed in these cases differs in no respect from that which belongs to other forms of renal disease; it gives no lardaceous reaction; it contracts, as is its wont, and thus gives rise, as time goes on, to superficial depressions, an undulating or somewhat of a granular surface, and at last even to extreme and general shrinking. A less constant glandular change attendant upon lardaceous infiltration is general tubal catarrh; this is not an early complication; it is marked by scanty, highly albuminous, and sometimes glutinous urine, general dropsy, and possibly uræmic symptoms. And the succession upon the lardaceous infiltration of inflammatory disturbance, whether interstitial or tubal, can be recognised as modifying in other ways the results of the disease. I think this is to be seen in the mixed arterial state which sometimes accompanies its later stages. Early or unmixed lardaceous infiltration appears to have little effect in impairing the secreting powers of the gland, little tendency to cause uræmia, and no appreciable result in vascular tension or cardiac hypertrophy. The absence of ventricular hypertrophy, notwithstanding that the arteries are specifically thickened, is characteristic of lardaceous disease, and serves to strengthen the belief that, in the other forms of albuminuria, where the walls of the heart and the arteries are increased together, the cardiac is not consequent upon the arterial change; but the two are common results of an obstruction in front of both. With lardaceous disease, we can but infer that the obstruction, be it what it may, does not exist, or that its effects are obviated by other circumstances. The general absence of hypertrophy of the heart in this condition has been remarked by all recent writers upon the subject. My tables, published in 1867, gave a percentage of 2 per cent.; Dr. Grainger Stewart's, in 1868, of 4 per cent. Dr. Galabin, writing in 1873, found hypertrophy in three of fifteen instances; and Dr. Sibson, in four of fifteen instances, in one of which, however, the hypertrophy might have been due to valvular disease. These estimations, of which the later, made since the circulating system with albuminuria has been the object of much attention, take notice of the lesser degrees of enlargement, which in the earlier passed without notice, agree in representing hypertrophy of the ventricle as an exceptional occurrence with disease of this character. I may add that, in the series of eighty-three cases of lardaceous disease previously referred to, not especially renal however, though the kidneys seldom escaped, hypertrophy of the heart was noted in six instances, while in three this organ was smaller than natural.

With regard to the arteries, these channels are the early and favourite seats of the characteristic infiltration. The smaller of them, together with certain groups of capillaries, most often those of the Malpighian

body, are permeated throughout their parietes with the translucent iodine-loving material. The muscular coat is variously altered, its striæ sometimes curiously exaggerated; while the outer coat is unevenly swollen, as if by a deposit somewhat capriciously introduced. The change thus produced has its points of resemblance, especially in the state of the outer coat, with that of other forms of renal disease; but a difference is to be found in the absence with lardaceous disease of any real hypertrophy of the muscular coat. The essential process is a saturation of the vessel-wall with the specific material. The usual non-hypertrophy of the ventricle with this condition, calculated, as we might suppose, to produce it, may find its explanation in two ways. The urinary secretion, until quite at last, suffers less diminution of its essential solids than in any other form of renal disease; so that the blood is less affected by their retention, and the results of uræmia are correspondingly smaller. Secondly, as Dr. Sibson has suggested, the wasting discharge present in most of these cases, either as the suppurative lesion to which the disease was due, or the diarrhoea and vomiting which are so commonly among its results, tends to relieve vascular tension and prohibit its effects. The accompaniment of lardaceous disease in a minority of instances with cardiac hypertrophy, now and then with retinal hæmorrhage, and more often with convulsion or some other manifestation of cerebral uræmia, may be viewed in conjunction with what has already been stated of the complication of the essential renal state with interstitial or tubal nephritis.

Time will not allow me to touch upon the other organic lesions connected with the lardaceous state. The more prominent, like the diarrhoea and vomiting, are evidences that organs other than the kidney are involved in the disease. Dropsy in every shape is common. Pneumonia is frequent; while bronchitis, unlike what occurs in the other types of renal disease, is rare. Endocarditis, or the deposition of ragged fibrinous matter upon the valves of the heart, is comparatively frequent; the vegetations, and also the fibrinous blocks derived from their translation, have been known to give the lardaceous reaction; their deposition may be not remotely allied with that of the presumably similar material which infiltrates the organs. In the eighty-three fatal cases of the lardaceous disease already referred to, recent vegetations were found on the valves in five cases, valvular thickening of old date in twenty-one; a proportion of valvular mischief which belongs to no other renal affection.

Hæmorrhages, nasal, intestinal, and purpuric, are of occasional occurrence.

Treatment of Albuminuria.—I have hitherto said nothing as to the treatment of the disorders, the nature and relations of which have occupied our attention. It would not be suitable that I should occupy the College with the details of recognised and familiar practice. But one or two points call for mention; and I have chosen to place them together, distinguishing, when needful, what applies to one state of kidney and not to another, rather than to incur the danger of repetition by annexing to each separately any reference to the measures with which it should be met.

The disorders of the vital gland in question afford no exception to the rule that medicine must not be limited by the bounds of the *materia medica*. The circumstances of ordinary life, food, drink, and temperature, are to be considered as of the first importance; while the contents of the *Pharmacopæia* occupy the position of auxiliaries, whose services sometimes decide the battle, and at others are dispensed with without loss. Therapeutics, to be successful, must have a physiological basis. To give rest, as far as may be, to an inflamed structure, is an old and sound maxim; and it is not less obvious, in regard to the system at large, that if a great channel of exit be obstructed, the materials which therefore tend to accumulate should be sparingly introduced. The diet with albuminuria, save with that of lardaceous origin, in which the secreting power is until late little interfered with, while an exhausting discharge may have to be obviated, should be below the custom of health in its nitrogenous components. It may abound in milk and farinaceous matter, while fish may often take the place of flesh. The increase of albumen in the urine, upon a too early resort to a meat-diet, is a common experience. With regard to liquids, it cannot be too strongly insisted upon that the functional strain upon the kidney is not to be measured by the quantity of water which filters through it, but by the quantity of refuse, mainly nitrogenous, which it has to convert and eliminate. Water, which probably transudes almost as through dead membranes, probably makes little demand upon the real secretive function. The worst kidneys indeed, those most hopelessly incapable of their special work, will often discharge most of it; and it is easy to see that its passage, not to be regarded as the result of glandular effort, is salutary, both in the dilution of scanty and irritating urine, and also in washing out the solid products which, under the in-

inflammatory process, collect mischievously in the tubes. A further use is to be discerned in this law. The solids of the urine vary with its water. With given kidneys, the solid excreta wax and wane with the bulk of the urine. Any means, therefore, mere aqueous filtration as safely as any, which increase this, will also magnify the components of the secretions which are essential to life. With tubal nephritis, therefore, and scanty urine, an aqueous dietary, even with the addition of distilled water, or the element in some slightly sophisticated shape, will prove in every sense beneficial. In many, perhaps in most, cases of nephritis of tubal origin, these remedies of patriarchal simplicity, "spare diet and spring water clear", are all that are needed to guide the disorder to its natural cure. To this surest and safest of diuretics others must often be added, both to lessen dropsy and to avert the dangers of uræmia. The old rule is that, in recent cases, digitalis should be used; it seldom fails to increase the flow of urine; but I am not sure that it does not sometimes do so with some exasperation of the inflammatory action. The bitartrate and acetate of potash, which have a purgative as well as a diuretic action, may probably be safely resorted to; and in chronic cases as much as may be done harmlessly by diuretics may be accomplished by means of scopolium, nitre, and juniper. Cantharides and the more irritating agents of this class are generally distinctly injurious. Perhaps, next to a regulation of the diet, it is most important to secure a daily and somewhat loose action of the bowels. Purgatives lessen the vascular tension which, in both acute and chronic cases, is a measure of their danger; and while it is not advisable too largely to divert the urinary fluids by severe catharsis, increased hardness of the pulse, and other more obvious aggravations of the general state, seldom fail to ensue upon constipation. When cerebral uræmia is threatening, hard purging by elaterium or otherwise is essential. As a habitual laxative, a drug, less used than it deserves to be, sulphate of potash, given two or three times a day in doses of from ten to twenty grains, is sometimes invaluable. It may be aided, if necessary, by Epsom salts or cream of tartar. This, or these, in their laxative action, clear the obscured or blood-spotted retina and remove the mists from the field of vision, slowly and not always completely, but in a manner which presents a remarkable contrast to the inutilty of iron in this respect, and affords a testimony as to the use of alvine evacuations in lessening the arterial tension of which such lesions are the index. The chronic headache of the granular kidney is often similarly and equally relieved. While by such means the system is enabled to dispense, as far as may be, with renal function, it must be asked whether, particularly in circumstances of recent inflammation, anything can be done directly towards the cure of the injured organ. Discarding counter-irritation as a method of punishing the skin for the errors of organs which have no conscience to be touched by vicarious chastisements, it must be admitted that, beyond ensuring sufficient irrigation of the tubes, our chief endeavour is to provide the gland with leisure to cure itself. But it is worth mention, in relation to a rapidly fatal form of nephritis, in which the tubes become widely sealed up as if with molten glass by a pseudo-croupous exudation of fibrin, the urine being almost suppressed, while the little that is passed is loaded, not only microscopically but as a bulky precipitate with large fibrinous cylinders, that all plugging of the tubes from this cause can be prevented by alkalies. Alkaline urine is a solvent for fibrin, and with this in process of secretion the exudation retains its fluidity, and whatever harm it is capable of doing by solidifying in the tubes is obviated. The experiment is easy of trial. However numerous fibrinous casts may be, and I need not say that this term comprises all that are usually passed, they will, upon the alkalescence of the urine, quickly cease to appear, to return again with its acidity. There are cases in which such relief to the tubes must avert a pressing danger; but it is disappointing to recognise, as I fear we must, that the process of renal inflammation is seldom so simple as to admit of cure by this means. I may be permitted to say a word touching the use of iron. The impoverishing effect of albuminuria, possibly from the destructive action of the retained refuse upon the blood corpuscles, produces a pallor which cannot but suggest this remedy; and, in recovery from attacks of renal inflammation, none is more helpful. But a medicine which is effective for good is generally, and in somewhat the same measure, effective for harm; and iron in chronic albuminuria needs to be administered with more discrimination than it, perhaps, always receives. With high vascular tension, such as belongs to the granular kidney, with a hard pulse for its sign, an enlarged heart, retinal mischief, and possibly persistent headache and nausea as its concomitants, iron, however seemingly indicated by the look of the patient, is generally injurious, unless most guardfully anticipated and counterpoised by aperients. The perchloride, among other salts, is often of special service in dropsy; but where the vessels are not thus relieved, and the symptoms which threaten are uræmic, this drug

is generally better withheld. In any condition it seldom fails to do harm if allowed to constipate, a result which may be obviated by mixing the ferruginous salt with sulphate or bitartrate of potash.

In the treatment of granulative or lingering nephritis, climate should take no secondary place. Every organ of the body, according to the teaching of ancient medicine, was subject to a separate planetary or celestial rule; a fancy which has at least this much of truth, that functional activity, and with it the liability to disease, are apportioned among the eliminating organs largely by external temperature or solar influence. In the tropics, the stress falls upon the skin and the liver; in the temperate zone, upon the lungs and the kidneys. The comparative exemption of the kidneys from disease, save of the lardaceous kind, appear, as far as our evidence goes, and the experience of our ubiquitous race makes it tolerably extensive, to be common to the warmer latitudes; and the inference that, under the same atmospheric influence, chronic albuminuria, when not of lardaceous origin, would find perhaps not organic cure, but at least systemic relief, has been amply justified by recent experience.

Not to dwell upon the treatment of cerebral uræmia, in which the uses of drastic purging and forced diaphoresis are sufficiently well known as lessening the uræmic state, while means of controlling nervous irritability, the bromides, chloral, and chloroform, are helpful as withholding its convulsive effects, I will say a word upon the less trite topics, the prevention and possible cure of the lardaceous state. This condition is one in which medicinal treatment would seem to be suggested by the nature of the morbid change, and encouraged by a tendency to natural recovery which the disease, even in an advanced stage, will sometimes exhibit. But with the curative power inherent to the human frame, not in this case, however, so often successful as might be wished, comes the ever-present vice of therapeutics, the attributing to art what belongs to nature, a possibility of error which will probably never cease to increase the confidence of the confident practitioner, and the distrust of him who, in one sense more foolish, is wise enough to doubt.

When the disease is consequent upon syphilis, iodide of potassium is of marked effect in lessening the organic enlargement and ameliorating its other effects. Sometimes, when a long-continued suppuration has come to an end, or greatly diminished, a retrogression in the resultant disease can be slowly followed, though no antidotal drugs have found place, if only the diet of the patient be liberal, and his general surroundings favourable to health. The special remedy which pathology suggests—one which of late years I have used often and largely—is potash. I have found, in the first place, that under lasting suppuration potash salts can be given, not only without the depressing effects which sometimes attend their use as medicine, but to the improvement of the general health, and with the absence of lardaceous symptoms, which, in the circumstances of the case, would be at least a probable contingency.

Further than this, I have given the salts of potash alone, or with quinine and iron, where visceral swelling, diarrhoea, and albuminuria have betokened the disorder in an advanced shape. Under such treatment, the liver and spleen have become measurably smaller, the urine less albuminous, the patient has gained flesh and weight, and all the symptoms have ameliorated. But chemicals put into the stomach are not brought to bear upon the tissues as if the treatment of disease were conducted in a test-tube, and the cure is at best a slow one. It is further obscured, or possibly simulated, by a shrinking, which the swollen organs sometimes naturally undertake.

The most striking instance of recovery under treatment which has come under my notice was one in which the disease was associated with syphilis, and the treatment correspondingly modified. Great enlargement of the spleen and liver, albuminuria, diarrhoea, and emaciation, gave evidence of the disorder in a degree of seemingly hopeless severity. Iodide of potassium was given with potash and its vegetable salts. The patient was apparently cured; and, on his death from an accidental cause, three years afterwards, the viscera were found to have returned to their natural size, and only such traces of the lardaceous change were discovered as to warrant the belief that he had once had more of it.

On the whole, reviewing my experience in this matter, I must admit that the administration of potash by itself has proved—I will not say useless—but disappointing; less effective than pathological deduction would lead us to hope.

As to the use of remedies of the restorative and tonic class, iron, quinine, and cod-liver oil, there is unequivocal evidence. If the deficiency of potash be connected, as I have ventured to surmise, with loss or insufficient development of leucocytes, the disorder may perhaps be more appropriately met by means which promote the formation of those essential instruments of nutrition rather than by the mere intro-

duction of material which, in their deficiency, perhaps cannot be turned to vital purpose.

The measures I have commonly—and numerous experience justifies me in saying beneficially—used, have been liberal diet, with beef-tea, Liebig's extract, and vegetables which abound in potash-salts, together with liquor potassæ, phosphate of potash, iron, quinine, and sometimes cod-liver oil. The alkaline remedies have been urged with the most obvious advantage during the persistence of suppuration.

Nothing now remains for me to do but to thank this accomplished and critical audience for the forbearance with which they have listened to many tedious and possibly familiar details. I trust I have shown how the varieties of renal disease are not only complicated but often inextricable; but how, according to the bias which prevails in each instance, different classes of secondary results follow; that among these the cardio-vascular change, however else it may arise, is a result of the vascular tension of uræmia, which, though more common with some forms of disease than others, may ensue upon any. Finally, in touching upon treatment, I have sought to show in what instances it is to be guided by a consideration of the special organic state, and where more frequently by the results which it has produced upon the patient.

THE GOULSTONIAN LECTURES

ON

THE NATURAL HISTORY OF PULMONARY CONSUMPTION.

Delivered at the Royal College of Physicians, London.

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LECTURE III.—*Concluded.*

THE title I chose for these lectures debars me from speaking with the faintest air of authority, or to any extent, of the various drugs used to oppose the ordinary course, and therefore considered to have some effect on the natural history of consumption. The key to any rational treatment of the disease is probably to be found in a careful consideration, in any individual case, of the present condition of the phthisical process—whether it be still active, or for the time being stationary; and of the constitutional habit of the patient—whether of the weakly excitable type characterised by excessive reaction, or of the vigorous, more heavy one, in which reaction is less marked (*see Braun*). But of one medicine, or rather food, I must speak briefly, because, in its effects on the patient, it offers a distinct bedside result. To use the words of a former President of the College, “you may learn much (and so, no doubt, you ought) by prying into the arcana of the night-chair” (*Watson, Lectures, 1857, vol. ii, p. 715*); and yet, in these days of numberless instrumental aids to diagnosis, the learning gained from that inspection, like the splendid knowledge of the pulse and appreciation by hand of increased temperature which marked a generation happily not passed away, seems to be in danger of leaving us, who more unworthily trust to mechanical assistance. But an inspection of the night-chair of a consumptive patient taking large quantities of cod-liver oil will reveal, as perhaps physiological theories ought to have predicted, a very great increase of fatty or oily matters evacuated. This, again, is no new observation, though it is one, I think, which may well teach us its lesson. Over twenty years ago, Sir William (then Dr.) Gull had recorded (*Guy's Hosp. Rep., ser. iii, vol. i, p. 369*) his own observations on “fatty stools from disease of the mesenteric glands”, and written down in no half-hearted way his opinion as to the careless and utterly unscientific use of cod-liver oil. It cannot be denied that, by some means or other, this drug had, I might even say still has, come to be looked upon as a “specific” for “consumption”; and I use the word as out-patients use it, as I have used it in these lectures—as consumption from disease of the lungs. Patients themselves tell us they must have phthisis, because the doctor who prescribed for them gave them cod-liver oil. At any rate, in hospital practice later, I repeatedly examined the faces of phthisical patients, perhaps because the teaching of the wards of Guy's was unconsciously with me; and I found, as every one who performs the same experiment will find, that in these phthisical patients, beyond a certain amount of oil administered, varying of course in individuals, but, on the average, four drachms daily, large quantities of it pass through the intestines almost unchanged. And to this simple waste, not too much to be decried, is superadded very often increased disturbance of diges-

tion and nutrition. Still, to quote Sir W. Gull, “if it be ever admissible to limit the attention to one organ in treating disease, it is so” here, where “the condition of the gastro-intestinal membrane is of paramount importance”.

And what I have said with respect to cod-liver oil, and its possibly harmful waste, applies quite as much, if not more, to a highly vaunted drug, which, to judge from the weight of an ordinary pig's pancreas, would demand for each patient, if I be not very wrong, hecatombs of victims; unless, indeed, there be a peculiar breed of swine with a larger pancreas,

“ὄψις θρεψέ συβώτης ὄρχαμος ἀνδρῶν.”—*Odyssey, 14, 22.*

Only a fortnight ago, a gentleman who had taken the emulsion had noticed for himself the fatty nature of his stools: a fact which my remark as to one of the effects of cod-liver oil led him to mention.

In approaching rapidly the close of my subject, I cannot but congratulate myself, representing for the moment the youngest Fellows of the College, that the work of the very latest time leads to a conclusion which in its pathological results, though not at all in its reasoning from those results, has the support of the perhaps oldest living authority on pulmonary consumption in this country. Dr. C. J. B. Williams, in the discussion to which I have already referred (*Path. Soc. Trans., vol. xxiv, p. 340*), has given us his “explanation of the twofold seat and origin of tubercle, or rather of consumptive disease: 1. Lymphatic, which is miliary, infective, and scattered; 2. Inflammatory, which is diffused in form and local in extent.”

I would call the attention of those gentlemen who wish to examine them after the lecture to the microscopical preparations placed on the table of the various forms of pulmonary consumption described. [Explanations of the preparations, etc., followed.]

To sum up briefly the views, by no means original, which I have attempted to support respecting pulmonary consumption in these lectures, I am disposed to conclude:

That, in the affection to which the name “acute general miliary tuberculosis” is given, the hard nodules occurring in the lungs are due mainly to growth of the perivascular and peribronchial cords, together with alveolar catarrh of smaller or larger extent.

That this perivascular growth is secondary to a cheesy focus not necessarily present in the lungs.

That the commonest form of pulmonary consumption in this country is due, in the first instance, to an intra-alveolar and intrabronchial catarrh, accompanied by proliferation of the epithelium more or less rapid; followed generally by impermeability and disappearance of the alveolar capillaries, and by changes in the septa of the alveoli; and resulting in the destruction of lung-tissue: the whole process giving rise to the clinical symptoms of phthisis.

That the same clinical symptoms of phthisis are caused by the pathological changes present in chronic bronchitis and emphysema, and in other cases by fibroid growth of the alveolar septa themselves, leading to the disappearance of their cavities.

That catarrhal pneumonia is the most common accompaniment of any affection of, or even injury to, the lungs; and that its occurrence often gives rise to the appearance of bodies possessing, to the naked eye, all the characteristics of the “tubercle” of authors.

That there is nothing in common between the pathological results of acute tuberculosis and those of chronic cheesy degeneration of the lungs, except it be in the occasional presence in the latter of the secondary lymphatic (?) products almost always, if not always, to be found in the former.

That the cheesy form of pulmonary phthisis ought not to be looked upon as one absolutely hopeless and fatal.

That, in the majority of cases of this form of phthisis, the whole bent of our treatment should be against repeated and chronic inflammations of the lung, in the sense of catarrh of the air-vesicles and finer tubes, and as far as possible in aid of increased assimilation and nutrition, especially in the encouragement of those methods of hygiene which consist not only in change of air and climate, but in the more ordinary matters of baths and suitable clothing.

And, sir—to pause for one moment—the mention of these hygienic measures reminds me that, since our meeting here on Wednesday last, the College mourns the death of one of her greatest ornaments and most illustrious Fellows, Professor Parkes of Netley. Further of him to-day it is not for me to speak.

Portal, publishing his work on the *Nature and Treatment of Pulmonary Phthisis* in “the first year of the French Republic”, as his title-page tells us (1792), speaks more boldly than did Bayle, who, with some sort of solemn religious feeling, confesses that to a large extent he has not dared to “explain the part that Nature plays in the production of phthisis”. (*Op. cit., Préf., p. xiii.*) But Portal, conceding that medicine is but a branch of natural history, thought he could not do better