Some remarks on Secondary and Senile Dementia; being the Thesis for the M.D., degree of Matthew Cameron Blair. M.B., C.M., University of Glasgow July 1888.

Leaversden Asylum
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It is usual to find in commentaries concerning Dementia a more or less well marked line of demarcation drawn between Secondary and Senile Dementia respectively.

Dr Claye Shaw in the Article "Dementia" in Hack Tuke's Dictionary of Psychological Medicine defines Secondary Dementia as: "that form following acute attacks of insanity, whether of the maniacal or melancholic form"; and Senile Dementia as: "an exaggerated form of what would appear to be the natural resolution of the body in old age".

It will be my endeavour in the following remarks to advance some reasons for holding the opinion, that however much their clinical histories may differ each from each, the cause of Secondary and Senile Dementia will be found to spring from the same initial defect.

Those forms of Dementia following Apoplexy or Epilepsy do not come within the scope of this Essay.

During a service of three years in an Asylum for the Chronic Insane accomodating two thousand patients I have been much struck by

by the groove into which the great majority of Dements range themselves upon approaching their end.

I do not speak of the mental symptoms: for in well marked Dementia it is impossible to say, in the absence of a history of the case, whether a given case be one of Secondary or Senile Dementia.

Of course in the absence of the intervention of some acute disease all cases of Dementia end in Gradual Decay; but the physical deterioration which ends in this gradual decay runs in a more or less well marked groove which on the one hand more or less sharply ~~sharply~~ separates the Decay of Dementia from that of ordinary Senile Degeneration, and on the other hand is the same both in Senile and Secondary Dementia.

Both Secondary and Senile Dements live to extreme old age, but on the whole the patient suffering from the former affection seems to die younger than the one suffering from the latter. Notwithstanding this fact the physical type of both is the same.

The causes of the physical decay in which these

XX On whose welfare chiefly depends upon the functional perfection of Epithelial tissue.

cases tend to end when left to nature seem to me to be almost invariably traceable to functional or organic degeneration of those tissues derived from the Epiblast. ×× (See blank page to left).

Of these elements the old saying seems to be especially true: "that they who have no sense, have no feeling". Their organs of special sense seem to be almost aggressively blunted. Many of them endure what to ordinary people is agony like Stoics; and they all bear pain better than ordinary people. Nor can it be said that this Stoicism is due rather to the blunting of the receptive powers of the Cerebrum than to those of the organs of special sense; for firstly if ~~this is so~~ the receptive power of the Brain is less in these cases so is the inhibitory, and secondly such patients have frequently remarked to me that they have experienced less pain from certain causes than they expected they should.

It is in the matter of extraction of teeth that this blunted sensation is most frequently remarked. Epileptics proverbially bear this special example; but in my experience this is

only term of these Epileptics who are the subjects of a more profound degree of Dementia than is incidental to ~~the~~ Epilepsy per se.

In connection with tooth-extraction it is interesting also to note that this stoicism ends in some cases so soon as the patient beholds the tooth or begins to expectorate the blood from the socket; so that occasionally a patient who bears a difficult extraction with the greatest fortitude, raises an outcry and displays every symptom of pain when he beholds the result.

Again in the sense of Smelling, many Dements will smell crystals of Ammonium Carbonate and other things equally pungent without betraying discomfort; and among those who have been in the habit of taking Snuff, it is not uncommon to find that when they cannot get this they fill their nostrils with Tobacco Ash, finely powdered earth, and the like, evidently obtaining as much satisfaction from this as from indulgence in the genuine article.

They endure the most disgusting odours with an equanimity as well marked as is the absence of

expect gratification which they display in smelling the most agreable odours.

These people are often querulous and prone to make innumerable complaints, and many of these complaints are directed to their food.

It is astonishing however to note how seldom their complaints are directed against the taste of the food. They may be jealous of their neighbours, in consequence of which their grievance will be that their fellow patients steal part of their portion or are favored with an unfairly large supply: or again that the attendants from malice adulterate their special helping. In short any complaint which they make in this direction is prompted by jealousy or delusion of persecution and conspiracy. Quantity, not quality is what is specially desired. This is well seen in the use or non-use of condiments. Many of these people will use pepper, salt and mustard if within reach, but if not will not seek for them; their use or disuse making no apparent difference in their enjoyment or otherwise of their food.

As regards their sense of sight apart from the ordinary demonstrable defects it is difficult to form an idea as to how far the Retina is blunted, for Dements are always more or less unobservant, as a result of their lack of mental energy.

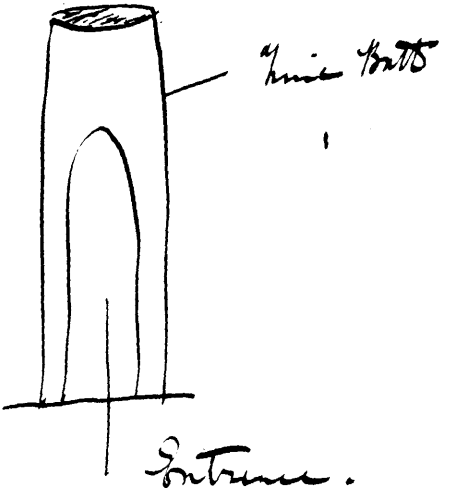
Deafness is very common among them and may to a certain extent account for the hallucinations of hearing which are not altogether unknown among Dements.

The sense of <u>feeling</u> X however is the most markedly blunted, and this is seen in many more directions than the one I have already mentioned, <u>to wit</u>: tooth extraction.

I have personally amputated fingers and toes after using a freezing mixture of ice and salt, and though the anaesthetic effect of this must have passed off before I was half way through, not a murmur has been elicited, and this certainly not on account of exercise of self-control.

The whole surface of the skin seems to be in a marked degree less sensitive than is normally the case. These people bear extremes of heat and cold

X The "feeling" here referred to is the feeling of <u>pain</u>. It is curious that the author does not, apparently, discriminate between <u>analgesia</u> and <u>anaesthesia</u>; nor does he indicate any observations on the tactile sensibility, or the sensibility to temper-ature short of such as cause uneasiness.


Entrance.

applied to the surface of the body with much greater equanimity than is the case with the sane.

The following example will graphically mark the tolerance of heat displayed :-

Eighteen months ago a male patient in this Asylum J. T. B. was having a series of Turkish baths administered to him weekly. Upon the last of these occasions after leaving the hot room he was put by the Attendant in a Needle Bath. After being placed there he was left in position while the Attendant went to turn on the cold needle.

Before the Attendant went up to him again he began to scream, and upon turning him he - the Attendant - felt that the water was hot, upon which he pulled him out at once. [The diagram on the previous page explains the shape of the Needle Bath and Spinal Douche. It is shaped like a round Sentry box with an aperture but no door.]. Now this hot water must have been pouring over the surface of the patients body for several seconds before he raised an outcry. He had only to walk out when he felt the pain; but he did not do so. He died of Shock, the result of the scalding, in

less than twenty-four hours, and this was the verdict of the Coroner's jury. But to my mind the real cause was impaired irritability of the nerve endings in the skin together with sluggishness of the higher reflexes.

In the same manner I have occasionally noted cases where through carelessness on the part of a nurse water of too high a temperature has been put in a foot warmer, with the result that the soles of the patient's feet have been rendered hypersensitive; and yet the patient has given no evidence of discomfort. But if the skin be hypo-sensitive to heat in these cases, it is even less sensitive to cold.

Many of those who take exercise in the airing courts, unless closely watched, will lie down on the wet grass and apparently remain oblivious to the discomfort which would surely be experienced in a sane person. Now to this example at first sight appears the objection, that the apparent callousness is due to diminished irritability of the higher centres rather than to functional degeneration of the nerve endings in the skin. But when we consider the fact that Pneumonia and other acute inflammations

of the Abdominal and Thoracic viscera, are extremely rare in these patients, even after the most severe exposure, we are forced to the conclusion that the peripheral nerve endings are at least as much at fault as the nerve centres.

Again many of these Dements sit unspeaking in the open air in the coldest weather, as long as they are allowed to; quite oblivious of any discomfort. They will in many cases however start up and walk about when told to do so. Here of course the Mental Lethargy under which they labour is largely at fault; but surely if the peripheral nerve endings were not abnormally lacking in irritability, the peripheral cold would furnish a much stronger stimulus to action than a command conveyed to the nerve centres through the Ears.

It is proverbial that Dements who will readily respond to verbal stimuli delivered by other people, do not respond to such stimuli as a full Bladder, a loaded Rectum, collection of mucus in the Bronchi or a Mouth full of Saliva: Stimuli which would be far more potent with the Sane than any verbal stimulus conveyed from the outside, and that more or

account of the sense of discomfort than the educated sense of decency. I say nothing in this example, about the absolutely automatic reflexes.

So much for instances of lack of common sensation which are frequently, nay daily met with in intercourse with persons; both secondary and senile.

I shall now discuss the ailments, which in the absence of any acute ailment intervening, are my experience lead up to the death of these patients.

Even while apparently in robust health, it is, so far as I have noted, the exception, rather than the rule to find a person with what is commonly regarded as a healthy skin; and this although the skins of these people are far more carefully looked after, in regard to cleanliness and otherwise, than those of people of the same class in society who are out in the World earning their own living. It is a common slang remark among the attendants that "the hind sides of these people have a smell of their own". This is in fact perfectly true. And it is not due entirely to the secretion of the Axilla, Pubic region and inter-digital crevices of the feet: for even after those special regions have

been regularly and carefully cleaned with Carbolic
lotion or Oil of Eucalyptus for days, the peculiar
odour remains quite perceptible. It appears therefore
to be given off from the whole Epidermic surface.
Now in the majority of cases the skin will be
found either aggressively oily or dry and arid,
and this without reference to the temperature
of the atmosphere in which the patient is or
to that of the body itself. In the one case
it seems as if the Sebaceous and Sweat glands
were secreting more waste material than normal, and
that, judging from the odour, of abnormal
character; in the other, as if they were almost
completely inactive. But the peculiar unpleasant
odour of which I am speaking is not absent in
the latter case. It often seems to me in the
latter case as if the whole Epidermis were undergoing
decomposition in the <u>scurf skin</u>; its volatile products
which evaporate at once. This explanation however
is only hypothetical, for I have no concrete evidence
that it is really the case. In these dry cases
however desquammation is abnormally rapid and
the skin frequently feels like the desquamation

of Scarlet Fever.

Now as a rule it is not the case to find that after Diments have begun markedly to fail in Physical health, so far as to make rest in bed necessary, that they remain there for a lengthened period. The general rule is that after taking to their beds, they never get within measurable distance of death. They may be in feeble health for years before this, but eventually their life in bed is generally comparatively brief. Apart from acute illness, the cases which have a history of frequent confinement to bed, are those subject to occasional edema of the feet due to cardiac Atrophia or to varicose veins and ulcers.

Low forms of cutaneous inflammation are of frequent occurrence. They low forms because they are not characterised by rise of temperature, but on the contrary are often accompanied by a temperature 1/2°. or so below the normal. Inflammation of this type is in some cases accompanied by Complications of a most intractable type, which resisting all treatment runs on to

rapid disorganisation of the eye affected.

When these Demons also take to bed they are very liable to bed-sores. I do not mean especially bed-sores on the posterior aspect of the Sacrum and on the Buttocks, due to faulty habits. On the contrary they tend almost as much to appear on the heels, elbows and back of the Neck and Scapulae. With most of them, when in bed must the most difficult part of the nursing is the prevention of bed sores; and if in well ordered Asylums many bedsores are not seen, it is because much more assiduous care is taken for their prevention than is required in the case of ordinary hospital patients equally feeble.

It is only fair to add here, that this tendency to bedsore is not so severe, and does not tend to so severe a type of bed-sore, as is the case in the last stage of General Paresis.

The liver of the Demented does not seem to differ much from that of the ordinary Sane person. This however is not the case with his nails. A very trivial injury with him will cause death of a nail. Many also are subject to hypertrophy

of a toe or finger nail, and I have noticed with surprise in several cases that this has been followed by Gangrene of the terminal phalanx of the particular finger or toe.

Towards the end these people also are very subject to cutaneous ecchymoses, and in many cases such handling as is necessary in helping them into bed is almost inevitably followed thereby.

The gradual decay of which they die is characteristic. The most casual observer cannot fail to notice that the patient is suffering from profound exhaustion. This exhaustion may or may not have been preceded by a more or less lengthened period of constant noisy excitement. As a matter of fact it very often is; but nearly always towards the end it ceases. However violent, however strong they may have been before, they rapidly waste. In some cases Bed Wetting is the manifest cause of the exhaustion. When this is the case, the patient lapses practically into a state of Dementia. As a consequence of this all the functions are neglected. The excretions are passed into bed;

food is rejected, or administered with difficulty – often by means of mechanical help; and causes of discomfort or danger which could and would be removed at once if the patient could tell of his trouble, are unnoticed even by the most careful supervisors.

In others the cause of the exhaustion is to be looked for in the Lungs. Here is Cardiac Failure with engorgement of the Lungs and consequent failure of the respiration with general Starvation of the tissues.

In a third group the cause is to be found in the Abdomen along the digestive tract.

In fully one half of these cases Diarrhœa of a more or less persistent and intractable character plays an important part in the general break down.

The Stools are fluid or semi-fluid, disgustingly foul smelling, and often containing an admixture of blood which may either be bright or dark, but most frequently the latter.

It is very seldom that remedies administered by the mouth relieve this Diarrhœa; and those which do are of the most astringent description, such as Alum, Catechu in large doses et alia hujus generis.

& greater but still small number are relieved by
liberal enemata of opium and starch; but
this only stops the apparent mischief, being
followed by an increase thereof as soon as its
effect begins to pass off. All these cases in
which this diarrhea prevails are characterized
by rapid wasting and the most profound
Asthenia, and they above all others are
liable to relapses. These cases also are in
a marked degree accompanied by that sloughing
condition of the skin of which I have
spoken before; and the odour of this combined
with that associated with the diarrhea forms
one so characteristic that the least
experienced of the Students upon noticing
it are in the habit, and that rightly, of
foretelling speedy death. Sometimes with this
there is voracious appetite. At others there
is absolute absence of the same, and then it
becomes manifest that the seat of the
material passed per Rectum is largely in
excess of that of the ingesta.
Again occasionally it is evident that digestion

is not taking place; for coagulated milk is seen amid the depits.

The low form of cutaneous inflammation of which I have spoken is also frequent in those cases in which this diarrhoea is the prominent symptom. And here it seems also as if this inflammation extended to the mucous membrane of the mouth, for it becomes particularly foul and small ulcers develope on the tongue, Gums & Palate and inside of the cheeks. The teeth also become ready to drop decayed of their enamel. I am not prepared to say however that this condition of the teeth is more common in these cases than in other severe Alimentary affections in feeble people.

I have made a necropsy in 120 cases of death ~~in~~ demential and shall now give a rapid survey of the ~~the~~ main points observed. And in the first place I have to state that only naked eye appearances will be spoken of as I am not in the habit of making microscopical examinations.

I begin with the Brain thus:-

The Cranial bones are frequently hardened and the Diploe is generally conspicuous by its

above. The Dura Mater is generally markedly thickened and there is frequently a considerable amount of fluid in the Sub-dural Space.

In more than half of the cases examined the Dura Mater has been adherent to the Parietal and posterior aspect of the Frontal lobes of the Hemispheres in the region of the great Longitudinal Fissure.

The Pia Mater is frequently thickened and always peels off with much ease, fluid generally escaping as its meshes are broken up.

The vessels at the Base are irregularly thickened in many patches causing irregular variations in their calibre.

The convolutions are generally more or less attenuated and there is corresponding widening of the Sulci. In about one third of the cases the Lateral Ventricles have been enlarged and filled with fluid. The tissue of the Cerebral Hemispheres has generally been found markedly soft, in many cases tending to fall asunder of its own weight.

The weight of the Brain in these examinations

has been found to be decidedly below the average. The average weight for male Brains has been from forty-two to forty-two ounces, and for female, from thirty eight to forty ounces.

And here it is right that I should say that our Grants are of a specially low type because they are either derived from the Insane Wards of the London Workhouses or from the most advanced Grants of the London County Asylums.

It is probable therefore that the weight of the Brain in these cases is greater than the average found in the post-mortem room of a County Asylum.

In the Heart, the appearances are fairly constant. The fluid found in the Pericardium is generally greater in amount than normal. It very seldom falls below two fluid drachms and runs up as high as six fluid ounces which is the greatest amount I have found. In most cases the amount ranges between one half and one fluid ounce. I have only met with three cases of adherent Pericardium.

The Heart is generally flabby and relaxed, looked at from without. It is frequently dilated: occasionally atrophied. In most cases there is really some Atrophy for the muscle is nearly always wasted in the cases of dilatation. Hypertrophy is very seldom seen and in the very few occasions is the organ found in contraction.

Valvular lesions have not been noted in more than four cases though Aortic bruits have been noted during life in many of the cases. These bruits therefore must have been due to the dilatation.

Occasionally calcareous deposit is met with in the ~~aortic cusps~~ Arch of the Aorta (ascending), at the mouths of the Coronary Arteries and in the curtain of the Aortic valve. Atheromatous patches also are not uncommon. But I am not sufficiently acquainted with averages to say whether this particular Calcareous degeneration and Atheroma is more common in Drunkards than in other feeble patients who are not Drunkards.

The Ventricles are generally full of blood-clot and it has been the rule in these cases to find an Ante mortem clot protruding through

the Aortic Valve into the Aorta.

The muscle has always been soft, friable and generally pale. It frequently tears down between the finger and thumb almost like wet brown paper.

Old Pleuritic adhesions have been noted in sixty per cent of these cases generally at the Apices but frequently also at the Bases and elsewhere as well.

In ninety per cent tubercle old or recent has been noted with occasional cavities and frequent cicatrices. This tubercle is most commonly found in the Apices, but occasionally also is met with following the ramifications of the Bronchi, in which case it has been found in greatest amount at the root of the Lung or Lungs affected.

With very few exceptions the Lungs have been more or less engorged, running through all extents, from the most dependent portions to almost universal engorgement. But even in the most extensive cases the engorgement is most profound at the bases, then at the posterior

sputa were which it gives away to the Spx when there may be little or none.

In only three of these cases was there the red hepatization of Pneumonia.

In twenty-four per cent pepsin in the post ends of the Bronchioles showed condition of pus; and in about an equal number more or less hypostasis was noted.

Collapse of lung tissue at different places was noted in about fifteen per cent.

In the Abdominal region the great majority of these cases have presented an unhealthy condition of the Alimentary tract. So much has this been the case that now in proceeding to the inspection of the Abdomen I instinctively look for an injected condition of the serous coat of the intestines. This injected condition is not general all along the gut, but occurs in spots of various sizes and irregular shape at irregular intervals. This appearance was to me so startling when I began duty here, that at first I was in great alarm lest I had been coming in contact with Peritonitis

without detecting it during life.

On proceeding to remove the Stomach and Intestines we finds that the tissue of the Gut is abnormally fragile and that if great gentleness be not practised in manipulating it, it will tear in various places. This fragile condition eventually extends to the Mesentery though not in all cases.

Upon cutting open the Gut longitudinally the following condition is what has generally been observed:— The mucous membrane is corroded at different places throughout the small Gut in the large and small intestine. This corrosion occurs in patches just as occurs in the Bowel Complaint, but these patches are not so large. They have been noted most frequently in the Duodenum, Ileum shortly above the Ileo-Caecal valve, in the lower part of the Ascending Colon and the neighborhood of the Sigmoid Flexure.

The colour varies from dull red to a slaty tint, and it is in the neighborhood of patches of this latter colour that the gut so readily tears on being removed.

In some cases sub-mucous Haemorrhages have

been noted but not often, and still less frequently there have been instances of enlargement of the solitary follicles. In only three cases has actual ulceration been noted. Five ulcers appearing in all three cases in the Duodenum, in two of them in the Ileum and Ascending Colon also, have been found out and of ragged irregular outline. They have gone right through the mucous coat and through part of the muscular coat also.

As for the other Abdominal viscera. The Liver is generally enlarged and softened and in more than half ~~half~~ of the cases examined, Congestion also has been noted. Out of the 120 cases under review Gall-Stones have been noted in ~~thirty~~-six instances.

The Spleen has generally been somewhat enlarged and its pulp soft; almost semi-fluid in some cases.

Abnormalities of the Kidneys have been noted in nearly one half of the cases.

These remarks will give a fair idea of the impression left on my mind by the most prominent features of three hundred and twenty Necropsies extending over a

period of three years' duration. When I say that during this period the deaths have amounted to 402 it will be seen that there is room for fallacy: for who can say what would have been the exact appearances in the 582 cases, most of them Infants, not examined post mortem?

Nevertheless I am entitled to draw as much support as I reasonably can from this limited number of necropsies, in aid of the views which I desire to advance here.

I do not mean it to be inferred that during life, Diarrhoea was a marked feature in all the cases in which the peculiar appearance of the Gut mentioned was seen post mortem; but it was in a large proportion of them.

Now let us consider the cause of this Diarrhoea which so often is responsible for the Exhaustion which carries off these Infants. It is not often Tuberculosis in origin; for although Tubercle is so often found in the Lungs of Infants post mortem, it is not frequently the cause of death with them; at least when they die advanced in years. It has not been recognised during life either by Physical

ships or by the usual constitutional symptoms; and it is not often that this deposit in the lungs is accompanied by corresponding Abdominal lesions, so far as can be learned from post mortem records.

It is certainly not comparable with that form of diarrhoea which appears as Epidemic from among the Great Public in late Summer and early Autumn; for it has no relation to these seasons but on the contrary appears at all periods of the year. It is not due to Amyloid disease, for in that case other organs besides the intestines would be affected, (See Hilton Fagge 3rd Edition. Vol. 2) which they are not.

Neither is it due to impure drinking water, irritating or adulterated food or to unclean cooking utensils; for in Hospitals exhibiting on very rare occasions these things are beyond reproach.

It is not due to Malignant new growths of the Gut; and of course Dysentery, typhoid and Cholera are excluded. In few cases in which patients manage to eat publicly while beyond immediate supervision may be kept out, if for no other reason

that that the diarrhoea thus produced seldom proves fatal.

We will then divide back to two causes:- non-digested or improperly digested food, and some form of Enteritis due to some other cause than this.

It is reasonable to suppose that in some of these cases the food is digested and properly prepared for absorption, but that for some reason absorption cannot take place. In this case the food would in the long run act quite as much as an irritant, as if it had not been digested at all; and thus engender some form of Intestinal Catarrh or inflammation.

But again it is still more reasonable to suppose that the same cause which prevents absorption will also cause the Enteritis. That Enteritis is present I know from my own observation and the reports of other Asylum Medical Officers.

Now what can this cause be? I think we can judge by analogy. This analogy is to be found in my opinion in what I have already said of the other great route. This diarrhoea

and this unhealthy condition of the Skin and mouth is often found in Drunks but not often among the Sane. The Epidermic condition has been shown to be associated with functional defect of the nerve-endings in the Skin. We know that a functionally efficient condition of the Sympathetic Nervous System in the Abdomen is a prime necessity for the welfare of the Alimentary Canal and its blood supply, and of the other Abdominal viscera. Surely therefore it is allowable to look upon this Intestinal mischief, Anatomical and Physiological, as being associated with functional defect of the Abdominal Sympathetic. That this explanation of the difficulty is a very possible one is certain, and in the course of my reading I have not encountered an explanation which appears to me to possess so much probability of being true.

Upon the Cardiac condition which I have noted in necropsies seems very comparable with the deteriorated condition of the Intestine.

It is chiefly characterised by [redacted] flabbiness and friability of the muscle. Among

Dements, especially old ones, Cardiac Asthenia is very common; more common so far as I can recollect than it is among Cadet people among the general population. Now the Cardiac activity is mainly regulated by the Craniosacral Sympathetic in the Vagus. This condition of the Heart structure, seems to me to be as closely associated with defect in the functional efficiency of the Vagus Sympathetic, as are the defects of the Skin and Intestine with functional insufficiency of the peripheral nerve endings and Abdominal Sympathetic respectively.

The condition of the Lungs as to engorgement is of course secondary to the Cardiac Asthenia. But two other factors come in, traceable mainly however if not entirely to defect in the efficiency of the Pulmonary nervous arrangements.

Dements sporadically breathe lightly. So much is this the case that in many cases the respiratory murmur is almost inaudible in the remoter parts of the Lungs. Associated with this is the well known fact that when afflicted with Engorgement, Bronchitis etc. they do not cough

nearly as much as these patients would under the same circumstances.

Here then we find an explanation of the frequency with which tubercular deposits, undemonstrable during life, are found in the Lungs post mortem. The shallow breathing encourages stagnation in the Apices and Bases, and deficient irritability diminishes the cough by which Nature ejects undesirable material from the passages.

This imperfect sweeping of the Air-passages and vesicles affords a safe nidus for noxious matters inspired from the outside, or manufactured within the Lungs as a result of any temporary disease: e.g. catarrh, at their own instance. The nervous supply of the Lungs is derived from the Cervical Sympathetic and the Vagus. Therefore the tendency to Pulmonary dilapidation may be associated with deficient irritability of the Thoracic Sympathetic and the endings of the Vagus.

As for the Eruption of the Abdominal Viscera other than the Intestine, the frequent

weakness of the Heart is a sufficient explanation. In the case of the Gall-Stones a very feasible explanation is to be found in the general inactivity characteristic of Dementia; together with the congenital laxity and deterioration of the epithelial lining of the Gall Bladder resulting therefrom.

In an earlier part of this essay I have given reason for supporting that the lack of sensation generally and in the organs of Special Sense is probably as much due to lack of excitability in the nerve endings ~~etc~~ as to deficient activity in the Nerve centres.

This being granted, I also claim the right to suppose that tenderness to Sub-acute, inflammation and Enlargement of the Skin, the peculiar condition of the Skin as to the sweat and Sebacious secretions, and desquamation, the condition of the Buccal and Lingual mucous membrane, and finally Conjunctivitis, which is so frequent in Dementia, as being due to a weakness of the Epidermis and functional defect of the peripheral nerve endings.

Here I should like to mention one fact which seems to open a door of speculation in the Epidermis. This is, so far as I know, the rarity of Cancerous growths in Animals, when Epithelium is derived from the Epidermis, or ~~mucous~~ Epithelium of the Mouth, Salivary Glands, Conjunctiva or Epithelial lining cells of the Cæcoid. Out of the 402 deaths occurring here during the last three years only one such case has occurred, namely one which started as an Epithelioma of the lower lip and which was excised twice but finally proved fatal. We have had other seven cases of Cancer, namely four of the Mammæ, two of the Liver and one of the Stomach but these do not come under this category; their Epithelium not Squi Epithelial.

Taking the ordinary Pathological explanation of Cancer as correct, namely, that it consists in a tumour composed of Epithelial elements growing at the expense of the surrounding tissues: it would appear that in Animals of the class under consideration, the Epithelium

derived from Epithelial tissue is so stable that it cannot form a tumour which will grow at the expense of surrounding and initially more robust tissue.

And now I come to what the previous description of the most prominent ailments met with in Secondary and Senile Dements tends.

I have sketched the characteristic affections of the Skin, of the mucous membrane of the mouth, of the Conjunctiva leading on to destruction of the eye itself, of the heart Lungs Intestine and the Abdominal viscera: and I have given good reason for assigning the cause of these trophic neuroses and functional defects to insufficient activity on the part of the peripheral nerve endings, of the sensory expansions in the organs of Special Sense, the Abdominal and Pelvic Sympathetic, and finally to the nerve centres within the Skull.

Now if "McKendrick's Text-Book of Physiology" (Volume I page 251) be consulted, it will be seen that the Brain, Sympathetic nervous system

and Peripheral nerves, against which I have been bringing for years an indictment in connection with the trophic-neurosis etc, are all developed from the Epiblast. Also (on the same authority) the Epidermis and all structures of epidermic nature, and likewise the sebaceous and sweat glands and the muscular fibres of the sweat glands, and other tissues which I have shown to be evidently fragile per se, are derived from the Epiblast.

I submit therefore that I have at last established a plausible plea for the causes of the normal physical decay of Secondary and Senile Dements, being traceable to functional or organic degeneration of those tissues derived from the Epiblast, or whose welfare chiefly depends upon the functional efficiency of Epiblastic tissue.

I now proceed to show cause for regarding Senile and Secondary Dementia as one form of Mental disease, despite the apparent divergence of their Clinical histories.

With the commonly accepted definition of

Secondary Dementia as "that following acute attacks of insanity, whether of the maniacal or melancholy form" I have no quarrel.

But with the definition of Senile Dementia as "an exaggerated form of what would appear to be the natural involution of the body in old age" I certainly join issue.

Now Physiologists teach us that the Central Nervous System is the last part of the body to fall before the decay of nature: that it is the Constantinople of each person's individual empire. Further in the devolution of old age though we of course expect to find the mental faculties weakened, yet we do not expect to see them fail so markedly or so soon as the physical powers. Of course in highly civilized society Mental failure is noticed at once although physical failure may have been overlooked for years. But it is not in a highly artificial society that we ought to look for the natural example of decay of nature, any more than for a giant to perform the labours of Hercules.

To find a proper example let us go to a natural society; an Arab tribe or sept for example. And then what do we find? We find the aged Sheikh exercise duties too much for his enfeebled frame, in exchange for his sage counsel which guides the whole community. In fact though not able perhaps to perform the physical tasks of a stripling, he nevertheless constitutes the Brain of the Caravan. Can anyone conceive of the exaggerated term of his natural revolution of body, spelling Senile Dementia?

If in the course of the Revolution of old age, failure of the Brain outstrips that of the body, it cannot be called exaggeration of the natural revolution of old age; for anything to remain natural must remain in due proportion.

Now although in Senile Dementia there is frequently great bodily decrepitude, this is by no means always the case.

In any Asylum many old people are to be seen apparently stronger physically than some

people of the same age, but with the feeble, unstable and emotional minds of young children.

There are Senile Dements.

Senile Dementia comes on insidiously, generally somewhat late in life, and is not the result — so far as can be ascertained — of mental weakening springing from a former attack of acute insanity.

In Secondary Dementia there is always a history of one or more former attacks of acute insanity which left permanent mental weakening. But acute attacks of insanity do not necessarily leave permanent mental weakening behind them. So far as I have been able to ascertain by reading, the majority of Secondary Dements have always been weak minded since their first — and very probably, only — acute attack. Now if many of these people had led a regular natural unexcitable life, is it not reasonable to suppose that they might have escaped the acute attack altogether, and simply have begun to fall into Senile Dementia at the age of 55 or 60?

When we consider that there are people who have recovered from acute attacks of insanity, without falling into permanent dementia thereafter, it seems that these insanity would be compared to a severe attack of Pneumonia attacking a healthy Lung, which in due course clears up leaving the Lung as sound as ever; for this acute attack of insanity apparently leaves the Nervous System quite sound in many cases.

The case of the Secondary Dement is different. Just as Pneumonia may attack a Lung which has been apparently sound until then, although really tainted with diseased tendency, and not properly resisting germs into Underwater mischief; so in the case of the Secondary Dement the acute attack of insanity attacks a Brain apparently normal but in reality unsound from the start, and not properly resisting leaves its mark in the shape of Permanent Dementia.

I shall most clearly explain my view as to the essential similarity, and at the same time my appreciation of the clinical distinction, obtaining between Secondary and Senile Dementia

by the following comparison.

Take two brothers in whose family exists the Tuberculous diathesis. Let the one be sent to live in a West Country manufacturing town, and the other to an upland Country district on the East coast. If one is the West country town amid the bad surroundings, moist atmosphere, and dreary ~~ness~~ incidental to many buildings, catches a chill, which results in Pleurisy when he is, let us say, 18 years of age. Here this Pleurisy as a starting point to develope Phthisis Pulmonalis from which he never recovers.

If one is the East country on the other hand leads a natural, uneventful, open-air life. He lives a healthy man, until the age of thirty or thirty-five and then slowly and insidiously, without any preliminary storm such as Pleurisy Phthisis Pulmonalis sets in and finally carries him off. If he had died of an accidental illness before thirty, people unacquainted with his family history, would never have suspected him of being liable to Phthisis. But as the other brother, under the circumstances of his environment the

family taint was bound to manifest itself before he reached man's estate.

Thus it appears to me is it with the Secondary and the Senile Dement.

Both enter life equipped with the same mental flaw. In the former is under better mental, and it may also be physical, conditions of environment than the other. As a consequence of this his mental balance breaks down gradually after his mental resources have been husbanded to the last. The other under less favourable circumstances of environment, suddenly receives a mental jar of some sort, which sets up an acute attack of insanity which does not clear up but leaves behind it permanent mental weakness. This acute attack of insanity appears to me to have the same significance in the history of Dementia as the attack of Pleurisy has in that of Phthisis.

From what I have already said as to the Physical decay which when left alone, attacks both alike to the spare, it will be seen what my view of the common taint is. It is not in my opinion a more initial weakness of the Brain or

~~unstable~~ unstable equilibrium of the higher centres thereof. It is more material than this. It seems as if there were a defect of the whole Epiblast dating from embryonic life.

What this defect may be I shall not speculate upon, but this I will say: that an intentional defining of the store of Epiblastic energy is found to be more disastrous in later existence than a much greater defining of the same sort in either of the other two layers: since from the Epiblast are developed those organs in which are stored the highest and most necessary energies of the whole organism.