have every reason to believe that a very slight pathological change indeed in almost any of the elements of the cortex, whether cellular, fibrous, vascular, lymphatic, or neuroglia, will change the mental condition from that of sanity to insanity. In no other organ or tissue do such slight changes make so great a difference. A constitutional or dynamic change there whose equivalent elsewhere would only cause a moderate pain or a stiffness, may abolish normal consciousness and send the patient to an asylum.

If one might venture a hypothesis, it would be that the neuroglia of the cortex becomes to a slight degree water-logged by mucin, which causes lowered anabolism and katabolism of the cells, whose reactiveness is thereby impaired. An early stage of the process is sometimes characterised by irritability, and the later stages by torpidity of reaction.

No theory of explanation of how myxœdema affects the mental action of the brain cortex can be complete that does not take account of the marvellous acceleration of mental and trophic development that takes place in certain cases of cretinism under the use of thyroid extract, but as I have had no sufficient personal experience of such cases I have refrained from referring to them.

On Melancholia: An Analysis of 730 *Consecutive Cases.* By W. F. Farquharson, M.B., Assistant Medical Superintendent, Counties Asylum, Carlisle.

I proceed at once to the analysis of the cases that have come under treatment in this asylum. The 730 cases under consideration comprise all the cases of melancholia admitted into the Cumberland and Westmorland Asylum during the twenty-seven years from the beginning of 1865 to the beginning of 1892.

Proportion of Cases of Melancholia in the Admissions of the Three Great Classes of Insanity—Mania, Melancholia, and Dementia.—During this period the total admissions, grouped in these three classes, and altogether excluding all cases of

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general paralysis, epileptic mania and dementia, and congenital insanity, were as follows :—

Mania ...	...	...	1,930 or 67 per cent.
Melancholia	...	...	730 „ 25·3 „
Dementia	...	...	221 „ 7·7 „
Total	...	...	2,881

With the view of ascertaining whether there is any general rule governing the proportion of mania to melancholia, I have compared, in a similar manner, the admissions for five years (1883-1887) into Garlands Asylum with the admissions during the same time into public asylums situated in various parts of the country, with the following percentage results :—

Name of Asylum.	Mania.	Melancholia.	Dementia.
Cumberland and Westmorland ("Garlands") Asylum	per cent. 61·5	per cent. 29·4	per cent. 9·1
County Asylum, Stafford	53	27·4	19·6
"Three Counties Asylum" (Beds, Herts, and Hunts)	57·8	31	11·2
Joint Counties Asylum, Abergavenny	65·6	23·4	11
Leicester and Rutland Asylum...	64·6	27·3	8·1
Royal Edinburgh Asylum*	58	40	2

The same method was also applied to the total admissions into county and borough asylums, registered hospitals, naval and military hospitals, State asylums, and licensed houses, in England and Wales, during the year 1886, as given in the Forty-second Annual Report of the Commissioners in Lunacy, the ascertained proportions being —

Mania.	Melancholia.	Dementia.
54·2 per cent.	27·5 per cent.	18·3 per cent.

* Although statistics calculated from the Annual Reports of the Royal Edinburgh Asylum are quoted above, it is to be noted that they do not permit of a strictly accurate comparison with those of English public asylums, on account of the large number of private patients that asylum receives; this fact may lead to a certain amount of selection of the cases admitted.

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The proportion of melancholia in the admissions to Garlands Asylum in the above five years was somewhat higher than it was over the whole period of 27 years, but these calculations clearly show that even when we have to deal with the classification made by different individuals the general results do not vary a great deal, the proportion of melancholia to mania in the admissions being roughly one to two. In this connection it is to be noted that at Garlands Asylum, for nearly the whole of its existence, the classification of the cases has practically all been done by two men, Dr. Clouston and Dr. Campbell, so that there has been uniformity in the methods employed.

There may be special influences at work which tend to cause variations in these proportions. One form of insanity may be more common in some parts of the country than in others; there may be local circumstances which predispose to the production in one district of an unusual amount of melancholia, in another of an excess of the maniacal type of insanity. Again, the proportions in the same district may vary in different years and different periods according to the state of trade, or in consequence of the prevalence of epidemic disease of some kind, or owing to fluctuations in other factors that produce insanity. Melancholia being a disease which is essentially characterized by a lowered activity of the vital powers and a corresponding diminution in the feeling of well-being, any series of events which causes a lowering of the general health of the community will promote an increased production of that disease.

Under this head it is interesting to note the effect of "strikes" on the amount of insanity in a district, and a good instance is afforded by a study of the statistics of the Glamorgan County Asylum. Dr. Yellowlees has pointed out* that coincident with two short "strikes" in the Glamorganshire coal and iron trades, the one in the latter half of the year 1871, and the other in the first quarter of the year 1873, there was a sudden fall in the male admissions to half their usual number, while the female admissions showed scarcely any disturbance. The effect of a short "strike" is thus a decreased production of insanity. This is probably mainly due to the diminution of intemperance consequent upon scarcity of money, and partly also to the moral effect of the "strike" on the miners in bracing them up to

* "Insanity and Intemperance," a paper read at the British Medical Association, 1873.

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endurance and self-restraint. On the other hand, the effect of a prolonged depression of trade, such as occurred in Glamorganshire in the year 1875, is an increased production of insanity amongst the men, and an excessive proportion of melancholia in the cases sent to the asylum. In a prolonged "strike" or "lock-out," although intemperance is arrested, "there is a feeling of universal gloom and depression in addition to the poverty."* In 1875 not only were the total admissions to the Glamorgan County Asylum in excess of those in the preceding and succeeding years, but they showed a much larger proportion of cases of melancholia. The following table shows the number of admissions in these three years, and the proportions, calculated as before, of the three great classes of insanity in the admissions:—

Year.	Total Admissions.	Mania.	Melancholia.	Dementia.
		per cent.	per cent.	per cent.
1874	141	50·8	27·6	21·6
875	161	47·05	39·7	13·25
1876	148	63·1	31·5	5·4

Another circumstance which may produce an excess of cases of melancholia is the prevalence of some epidemic disease which lowers the general tone of health; of this the best recent example is afforded by the results of influenza. Following upon an attack of influenza there is a period of profound debility and prostration, with languor and inability for bodily or mental exertion, the nervous system being thus reduced to the condition most favourable for the onset of an attack of melancholia. During the epidemics of recent years many cases have been met with in which influenza was followed by some form of mental disease. Althaus† has tabulated statistics of a large number of such cases, which go to prove that psychoses are not only absolutely, but also relatively more frequent after influenza than after other fevers, the most frequent form of post-influenzal insanity being of the melancholic type. In the annual reports of the Royal Edinburgh Asylum for 1890, 1891, and 1892, Dr. Clouston dwells upon the causal effect of influenza

* Dr. Pringle, "Annual Report of Glamorgan County Asylum," 1875.
† "On Psychoses after Influenza," "Journal Ment. Science," April, 1893.

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in producing melancholia. In 1890 the proportion of melancholic cases in the admissions to the Royal Edinburgh Asylum was exceptionally high, in fact it exceeded the proportion of cases of mania; and in that year the only unusual factor at work, as far as could be ascertained, was the severe epidemic of influenza that prevailed. To quote Dr. Clouston's words, he "believes the epidemic of influenza of 1889-90 left the European world's nerves and spirits in a far worse state than it found them."*

Relative Frequency of Melancholia in the Two Sexes.—Of the 730 cases of melancholia, 334 were males and 396 females, giving the proportion of 118·5 females to every 100 males in the admissions. Now, although the census returns for the whole of England and Wales show a considerable preponderance of females over males in the general population, yet in the counties of Cumberland and Westmorland, from which the patients admitted into Garlands Asylum are drawn, the males are more nearly equal to the females in number. The following table shows the proportion of females to every 100 males at the last three censuses:—

	1871.	1881.	1891.
England and Wales	105·4	105·7	106·4
Cumberland and Westmorland	100·7	101·7	102·3

The excess of females in the general population of these two counties (though it would, no doubt, be greater at all ages above 15 or 20, *i.e.*, at those ages when insanity is most prone to occur) thus falls far short of the proportion of females in the cases of melancholia admitted to the asylum, so that, in this district at least, the female sex appears to be considerably more liable to attacks of melancholia than the male. To obtain a more accurate result it is necessary to leave out of account relapsed *cases*, and to compare the numbers of *persons* of each sex admitted; these were 295 men and 358 women, or 121·3 women to every 100 men, thus demonstrating still more clearly the greater liability of women to melancholia. A similar result is obtained by investigating the admissions to Garlands Asylum, during the same period, of cases of mania; the numbers have been

* "Report of Roy. Edin. Asylum," 1890.

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males 911, females 1,019, *i.e.*, 111·8 females to every 100 males.

General Results of Treatment.—The following table gives statistics of the general results of treatment in these cases :—

	Males.	Females.	Total.
Total cases of melancholia admitted	334	396	730
Of whom were discharged—			
Recovered	202 or 60·5 per cent.	221 or 55·8 per cent.	423 or 57·9 per cent.
Relieved	22 or 6·5 per cent.	34 or 8·6 per cent.	56 or 7·6 per cent.
Unimproved ...	13 or 3·8 per cent.	16 or 4·04 per cent.	29 or 3·9 per cent.
Died	68 or 20·3 per cent.	78 or 19·7 per cent.	146 or 20 per cent.
Remaining under treatment	29 or 8·6 per cent.	47 or 11·8 per cent.	76 or 10·4 per cent.

Almost 58 per cent. of all the cases of melancholia admitted terminated in recovery, and the proportion of recoveries was considerably (4·7 per cent.) higher amongst the males than amongst the females. The latter fact does not correspond with what has occurred in the general recovery rate in this asylum calculated on the total admissions of all classes of cases during this same period of 27 years; here the higher proportion of recoveries has been on the side of the females, as follows :—

Males.	Females.	Total.
41·3 per cent.	48·2 per cent.	44 per cent.

The recovery rate in the 1,930 cases of mania admitted during the same period was as under :—

Males.	Females.	Total.
53·7 per cent.	54·6 per cent.	54·2 per cent.

The total recovery rate of the cases of mania was thus 3·7 per cent. lower than that of the melancholic cases, and the higher proportion of recoveries was slightly on the side of the females. The explanation of the recovery rate, calculated on the total admissions of all classes of cases, being so much higher in the female than in the male sex, is found in the fact that of the incurable and demented cases

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admitted by far the larger proportion consisted of males, the numbers of such cases being —

Males.	Females.	Total.
488	200	688

Exactly 20 per cent., or one-fifth, of all the cases of melancholia admitted terminated in death; the proportion of deaths was slightly (·6 per cent.) higher amongst the males than amongst the females. The death rate in the cases of mania admitted during the same period was almost identical with the above, being—

Males.	Females.	Total.
19·9 per cent.	19·4 per cent.	19·6 per cent.

Of the total number of cases, 85 (males 35, females 50), were discharged unrecovered, being either sent home to be taken charge of by relatives or transferred to other institutions. This leaves 29 men and 47 women, in all 76 persons, still (*i.e.*, at the end of 1892) under treatment here; of these 45 (18 men and 27 women) are still suffering from melancholia; 18 (7 men and 11 women) are now suffering from mania; and 13 (4 men and 9 women) are now suffering from dementia.

Varieties of Melancholia.—Many clinical varieties of melancholia have been described, but it is impossible to draw any hard and fast line between these, as they merge into each other; the same case may exhibit the features of several of these varieties at different periods of its course. In its simplest form melancholia is characterized by a feeling of mental pain and depression without adequate external cause, but sooner or later in the majority of cases there comes to be more marked perversion of the intellectual faculties with the presence of delusion. The following table shows the proportions of those two classes in the present series of cases:—

	Males.	Females	Total.
Total cases of melancholia	334	396	730
Cases of simple depression without delusion	94	125	219
Cases with delusion	240	271	511

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In 30 per cent. of the total number of cases there was simple depression; in the remaining 70 per cent. delusions formed a more or less prominent feature of the case. Most cases of melancholia begin with simple depression, but generally the individual's gloomy and tortured state of mind gradually gives a morbid colouring to external events, and false views and opinions spring up as to the designs and motives of everyone around. The delusions held by the melancholic patients under treatment in this asylum have been of infinite variety; very frequently they have been those of suspicion and persecution, or of unseen agency; in other cases they have been of a religious type, the patient asserting that he has committed the unpardonable sin, or that he is eternally lost; in many instances the delusions have been hypochondriacal in character. Associated with other delusions, there have been in many cases hallucinations, chiefly of hearing, sometimes of sight, and more rarely of taste and smell.

Comparing now the results of treatment in the simple and in the delusional cases, the following table gives the statistics of the two varieties:—

	Simple Depression.	Depression with Delusion.
Total number of cases ...	219	511
Discharged recovered ...	131 or 59·8 per cent.	292 or 57·1 per cent.
Discharged relieved or unimproved ...	21 or 9·5 per cent.	64 or 12·5 per cent.
Still under treatment ...	19 or 8·6 per cent.	57 or 11·1 per cent.
Died	48 or 21·9 per cent.	98 or 19·1 per cent.

The recovery rate was almost three per cent. higher in the simple than in the delusional cases. Of course many slight cases of melancholia, in which there is merely some undue depression, are never sent to an asylum at all, so that there is really a much greater chance of recovery in the simple than in the delusional cases. The death rate was actually 2·8 per cent. higher in the simple as compared with the delusional cases, but the proportion of cases still under

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treatment and of those discharged relieved or unimproved (and in whom the chance of ultimate recovery was considerably smaller than in the general run of cases) was a good deal higher in the delusional class, and these facts have to be taken into account in comparing the results of the two varieties of cases.

Suicidal Impulse.—One of the most terrible features of melancholia is the frequency with which it is associated with the impulse to self-destruction. This is present in the majority of cases; even in apparently slight cases of melancholia attempts at suicide may be made. The following table shows the frequency of the suicidal impulse in the Garlands cases :—

	Males.	Females.	Total.
Total cases of melancholia...	334	396	730
Cases in which suicide was merely threatened ...	112 or 33·5 per cent.	121 or 30·5 per cent.	233 or 31·9 per cent.
Cases in which suicide was attempted	126 or 37·7 per cent.	118 or 29·8 per cent.	244 or 33·4 per cent.
Total suicidal cases ...	238 or 71·2 per cent.	239 or 60·3 per cent.	477 or 65·3 per cent.

In over 65 per cent. of all the cases there existed the impulse to self-destruction, and in more than half of those who had this desire one or more attempts at suicide were actually made. The suicidal impulse is shown above to have been proportionately much more frequent amongst the males than amongst the females; a similar rule holds still more markedly with regard to suicides in the general population, Morselli stating* that "in every country the proportion of suicides is one woman to three or four men."

Co-existence of Physical Disease with Melancholia.—In the great majority of cases the mental phenomena of melancholia are associated with a lowered condition of the general health, but in a smaller proportion of cases there is as a

* "Suicide," by H. Morselli, M.D., p. 189.

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concomitant some distinct organic disease. The number of such cases here has been as follows :—

	Males.	Females.	Total.
Total cases of melancholia...	334	396	730
Cases with marked physical disease accompanying the melancholia ...	99 or 29·6 per cent.	111 or 28·03 per cent.	210 or 28·7 per cent.

The form of physical disease that was most frequently associated with melancholia was phthisis, which was present in 70 cases (males 34, females 36) ; next in frequency was heart disease, present in 57 cases (males 30, females 27) ; cancer was present in 10 cases, four men and six women being afflicted with that disease ; in none of those 10 cases was the melancholia recovered from, all the patients died in the asylum.

Causes of Death in the Cases of Melancholia.—Of the 146 deaths 47 were due to cerebral and spinal diseases, 61 to thoracic diseases, 17 to abdominal diseases, and 21 to general and various diseases. The most common cause of death has been phthisis pulmonalis, which was the assigned cause in 33 cases (22·6 per cent. of the total deaths). As already noted, melancholia is frequently co-existent with phthisis ; the impoverished state of the blood in phthisical individuals leads to imperfect nutrition of the cerebral convolutions, and this often manifests itself by abnormal mentalization ; the majority of the cases of melancholia, which were associated with phthisis, were characterized by morbid feelings of suspicion, with delusions of persecution. Next in frequency as the cause of death was exhaustion from melancholia ; in 24 cases the patients apparently died of sheer exhaustion from the prolonged or severe mental disease, post-mortem examination revealing no localized organic disease anywhere, but all the organs participating in a condition of general malnutrition. In two other cases dying of exhaustion, gangrene of the lungs set in before death and accelerated the fatal issue. Heart disease was certified as the cause of death in 15 cases, and in five more it was associated as a cause with some other disease. In 12 cases the cause of death was exhaustion from

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old age, without any organic changes beyond those of senile decay. Cancer alone, or in combination with other diseases, accounted for 10 deaths. In eight cases the immediate cause of death was pneumonia. The majority of the remaining deaths were due to some variety of disease of the brain, and a smaller proportion were caused by abdominal disease. Six deaths were the result of suicide; cut-throat was the method employed in three cases; in one of these cases the patient had cut his throat before admission to the asylum; one patient hanged himself, one was killed by jumping from a lofty window in an attempt to escape, and one patient, while out on trial for a month, had a relapse and committed suicide on the railway.

(*To be continued*).

Hemp Drugs and Insanity. By Surgeon-Captain J. H. TULL WALSH, I.M.S., Superintendent of Lunatic Asylums, Calcutta.

After reading the somewhat meagre discussion which followed the reading of Dr. Thomas Ireland's very interesting paper before the Section of Psychology at the 61st Annual Meeting of the British Medical Association,* it occurred to me that your readers might take some interest in a paper on the connection between hemp drugs and insanity in Bengal. The Hemp Drugs Commission is now sitting, and my paper will consist mainly of the evidence already given to me, in the shape of a report, to that Committee. To avoid unnecessary prolixity, I will first of all refer your readers to an excellent report by Surgeon-Captain David Prain, I.M.S.,† which was published a short time ago by the Bengal Government. This report deals fully with the botanical and economic side of the question, and gives also a good *resumé* of the chemistry of *cannabis sativa*.

It is not possible to tell from the symptoms presented by the patients admitted into our asylums whether the insanity or intoxication has been caused by *bhang*, *gánja*, *chunus*, or *majune*, and I have never been able to obtain subjects for comparative experiments. I could not get anyone to undergo a course of *gánja* smoking, but I administered large doses of

* "Brit. Medical Journal," Sept. 16th, 1893.

† "Report on the Cultivation and Use of *Gánja*," Bengal Secretariat Press, 1893.

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