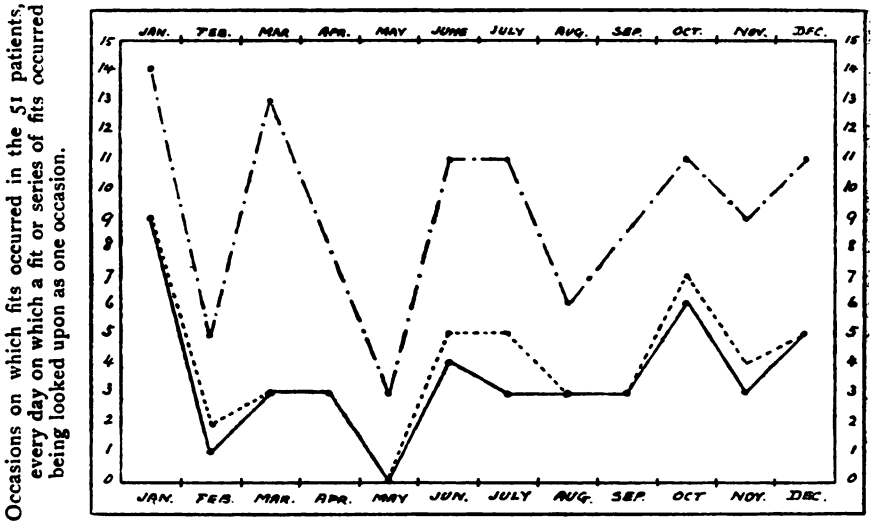
Unexpected Fits. By GORDON F. PETERS, M.R.C.S., L.R.C.P., D.P.M., Assistant Medical Officer, Horton Mental Hospital, Epsom.

BY an " unexpected fit " I refer to a convulsive seizure of some kind occurring in a patient who had not been previously classified as suffering from epilepsy or general paralysis at the time of the fit.

The clinical records of 2,694 female patients admitted to this hospital during 1920–25 were reviewed, and of these, 43 were found to have had unexpected fits for the first time during this period. Eight more patients had unexpected fits either before, or before and during the same period, full details of which were not available —total 51 cases. The incidence of new cases of unexpected fits in each year compared with the average daily female patient population was as follows :

Year of incidence.	Average daily population.	No. of fresh cases of fits.	Percentage of population.
1920	154	6	3·9
1921	958	2	·21
1922	1391	6	·43
1923	1584	8	·51
1924	1673	14	·83
1925	1646	7	·43

Months of Incidence of all the Years combined.



·—·—·—·— Months of incidence of *all* the known fits (51 patients).
- - - - - - - - - - Months of incidence of the *first* recorded fits (51 patients).
——————— Months of incidence of the first recorded fits during *1920–1925* (43 patients).

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Coincidence and the arbitrary limits of the survey may account for the unusually large percentage which occurred during 1920. For example, two were cases of cerebral hæmorrhage, and one a case of embolism from valvular heart disease. Of the remaining three, one was a case of confusional insanity, one of secondary dementia, and one of dementia præcox.

The patients were not in residence at Horton during the whole of 1920, but were all transfers from other institutions, and while they form a relatively large proportion of the daily average number of only 154 they form a much smaller proportion of the daily average number with whom they were associated during the whole of the year.

It was found that the fits had occurred during the course of the following forms of mental disorder:

Mental disorder.	Number admitted.	Number who had fits.	Percentage.
Mania	276	13	4·71
Melancholia	382	7	1·83
Confusional insanity	181	6	3·31
Dementia præcox	148	12	8·11
Secondary and senile dementia	409	10	2·44
Non-systematic delusional insanity	259	3	1·16

Of the 43 cases in which the fits occurred for the first time during 1920–1925, the lesions immediately responsible for the fits could be assigned with reasonable certainty in 19, namely:

Cerebral hæmorrhage, 4; cerebral softening and senile decay with cardio-vascular degeneration, 7; uræmia, 2 (one of these was a case of myxœdema); and embolism from valvular disease of the heart in 6 cases.

The ætiology of the fits in the remaining 24 cases, namely in 55·8% of the whole series, was more obscure. However, they were all in impaired health from various debilitating causes. Fourteen of them were suffering from definite physical disease, such as tuberculosis, broncho-pneumonia, and cardiac valvular incompetency; and others from less defined conditions like severe diarrhœa, pyrexia of unknown origin, etc.; while the other 10 showed symptoms of debility which were attributed primarily to their mental state, but which were aggravated by—or were aggravating—bodily infirmities which were already present.

In all the patients the mental symptoms were very severe at the time of the first fit, and no fits were recorded in convalescent patients, or during a quiescent interval in the case of any patient.

In 12 of the 24 cases in which the cause of the fit was

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problematical, conditions were present which are commonly held to be capable of causing fits in certain circumstances; but whether they were factors in the ætiology of the fits in the particular cases under review would be a matter of opinion. The conditions referred to are tuberculosis, cardiac debility, and mitral regurgitation, chronic interstitial nephritis, and otitis media. In the last case it was particularly doubtful if there was any connection between the otitis and the fit, and there were no sufficient grounds for suspecting the presence of a cerebral abscess. The patient was a case of marked exophthalmos with chronic mania, and had some tremor of the hands. Her thyroid gland was easily palpable.

The cause of the fits in the other 12 cases was even more problematical, since they presented no well-known and demonstrable fit-causing lesions; 8 of them, however, were cases of dementia præcox, one acute mania, one acute melancholia, one dementia following depression, and one confusional insanity. These latter 4 cases all showed signs of endocrine disturbance among their most prominent clinical features.

It is presumed, in the light of modern research, that cases of dementia præcox have some disorganization of the gonadal endocrine secretions, which would suggest that all 12 cases stood in some common pathological relationship.

For the purpose of comparison a clinical description of these 4 cases is appended:

CASE 1.—A masculine-looking woman, very tall and angular, with an expressionless and somewhat acromegalic facies; 49 years of age when she had the fit. She had puerperal insanity at the age of 24, and a hysterectomy was performed at the age of 37.

CASE 2.—She became very depressed a fortnight after the birth of her baby, and grew gradually worse. Her thyroid gland was enlarged, but there was no exophthalmos. She became more restless and violent, and attempted suicide, and her condition caused grave anxiety for some months on account of exhaustion. Finally she had a sudden pain in the chest—which was described as anginoid—with dyspnœa, and died. *Post-mortem* examination showed the heart to be atrophied.

CASE 3.—She had been involved in a train accident twelve months before admission in which she was pulled along for about 50 yards. On admission she had exophthalmos and very marked tachycardia. The catamenia had ceased from the age of 35—a year before the accident happened. Following mental excitement there was considerable exhaustion just before the fit. She had suffered from influenza, neuralgia, catarrhal laryngitis and frequent headaches, but these all occurred at least some months before the fit. Just before the influenza—which occurred nearly four years before the fit—she had had a syncopal attack, preceded by pain down the left arm.

CASE 4.—She suffered from psoriasis and had had a year's course of thyroid extract. It had been discontinued a year and seven months before the fit occurred, because of tremulousness and tachycardia. Her ankles were always blue and puffy, but the condition was not œdema. It felt like the subcutaneous masses found in myxœdema, to which it was in fact ascribed.

Regarding the 8 patients who had unexpected fits for the first time before 1920, associated conditions were, so far as the somewhat

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meagre clinical histories show, similar to those found in the other 43 cases. Thus in one case exhaustion from mental disease was noted; in another, exhaustion from diarrhœa; in two others morbus cordis was present; and in one, advanced senile decay. Two of the patients were cases of dementia præcox, and in one other case the bodily health at the time of the fit was not known.

Throughout the whole series it was noticed in many instances that the fit occurred shortly after removal to strange surroundings—such as admission to hospital, or to another ward in the same hospital—but this circumstance is rendered less significant by the fact that the removal itself was often made necessary by an exacerbation of bodily or mental symptoms which preceded the fit.

Taken as a whole, considerable mortality followed the fits at varying intervals. Of the 43 cases of fits first observed during 1920–25, 26 died within the same period. Of the 8 cases known to have had their first fits before 1920, 3 died within the period 1920–25, a total of 29 out of 51.

A *post-mortem* examination was made in 26 cases out of the 29. Some of the brains, thyroid glands, adrenals, pituitary glands and ovaries were not examined locally, as they had to be sent away for research purposes; but in those examined the conditions found were compatible with the clinical evidence.

Summary and Remarks.

The fits were mostly general convulsions of the epileptiform type; several resembled typical attacks of major epilepsy. In others the convulsions were somewhat less generally distributed, and in one case there was only spasmodic twitching of one limb and the face, in addition to the state of coma.

After excluding the 19 cases which had a definite causation, and excluding 8 cases about which the information was scanty, the cause of the fits was considered to be obscure in 24—namely in 55·8% of the series. All these 24 cases had some debilitating physical states, and all had well marked mental symptoms.

Twelve out of the 24 had conditions which are known to be associated with epilepsy in certain circumstances, and 4 were cases of dementia præcox. Of the 12 remaining, 8 also were cases of dementia præcox; and 4 had symptoms strikingly suggestive of disturbed endocrine balance.

In the whole series there were only 2 other cases showing signs of endocrine derangement to a marked degree. One of them was a case of myxœdema whose fit was definitely due to uræmia, and the other was a case of chronic mania with otitis media; but although otitis media may lead to fits, it was extremely unlikely, on

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clinical grounds, that it did so in this case. This patient had exophthalmos in a very marked degree and a fine tremor of the fingers, and her thyroid gland was easily palpable.

The numbers concerned are small; but so far as they go, and after excluding those cases which presented lesions commonly associated with epilepsy, 66% of the remainder were well-marked cases of dementia præcox, and 33% strongly suggested a disturbance of endocrine balance. There would therefore seem to be some justification for the presumption that, in the only cases which lacked potential and ascertainable fit-causing lesions, disturbance of the endocrine secretions of the thyroid gland and ovaries took their place. Moreover, there was no reason to suppose that there was any other more definite pathological factor in common than this, which it is highly suggestive of some connection between endocrine disturbance and the incidence among the insane of "unexpected fits."

Hypocholesterinæmia in Dementia Præcox. By W. Leonard Forsyth, M.B., Major I.M.S., Pathologist, East Sussex County Mental Hospital.

The importance of blood-cholesterol has recently been the subject of investigation in disease. The hypercholesterinæmia associated with gall-stones is now well known, and recent contributions to surgery by Sir Berkeley Moynihan confirm an opinion hitherto held that in gall-stones the blood-cholesterol content is high. Experiments show that *in vitro* cholesterin is deposited in broth in which *Bacillus coli* is grown, and it is assumed that something similar takes place in the gall-bladder in the formation of calculi.

The origin of cholesterol in blood is not yet fully understood. A normal value of 0·16% has been assigned to it, in older persons rather more than this, but much concerning its metabolism remains to be worked out. It may have, like uric acid, an endogenous origin, or it may be taken into the body in such food as brain, eggs, fat, certain vegetables, etc.

The central nervous sytem, the cortex of the adrenals and the corpora lutea are richest in cholesterin.

Flint, of New York, sixty years ago, thought it was formed in the brain and passed into the circulation. Laroche and Grigaut in 1913 disproved this by experiment. Mott considers it is carried to the brain to build up myelin. The adrenal cortex and corpora lutea are considered by some as contributing to its origin, while others consider it is merely stored in these organs, having its origin elsewhere. The exogenous cholesterin maintains a more or

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