Manchester Royal Infirmary, for allowing us to utilize the resources of his laboratory for this investigation.

REFERENCES

- Bloomfield, A. L., and Polland, W. S. (1933). *Gastric Anacidity*, The Macmillan Company, New York.
 Gordon-Taylor, G. (1929). *Brit. J. Surg.*, **16**, 641.
 Heck, F. J., and Walters, W. (1936). *Proc. Mayo Clin.*, **11**, 118.
 Hill, F. C., O'Brien, F. T., and Wilhelmj, C. M. (1937). *Arch. Surg.*, **34**, 909.
 Klein, E., et al. (1933). *Trans. Amer. gastro-enterol. Ass.*, **36**, 197.
 Morley, J. (1928). *Brit. J. Surg.*, **16**, 239.
 Priestley, J. T., and Mann, F. C. (1932). *Arch. Surg.*, Chicago, **25**, 395.
 Snell, A. M. (1937). *Amer. J. Surg.*, **35**, 45.
 Vaughan, Janet M. (1932). *Lancet*, **2**, 1264.
 — (1936). *The Anaemias*, Oxford Medical Publications, London.
 Walters, Waltman (1936). *Ann. Surg.*, **104**, 585.
 Wilkinson, J. F. (1933). *Quart. J. Med.*, n.s., **2**, 300.
 — (1937). Personal communication.
 Witts, L. J. (1930). *Guy's Hosp. Rep.*, **80**, 417.
 — (1936). *St. Bart's Hosp. J.*, **43**, 167.

THE PROGNOSIS OF ANXIETY STATES

BY

ARTHUR HARRIS, B.A., M.D., D.P.M.

Assistant Medical Officer, St. Bernard's Hospital, Southall;
 Honorary Medical Psychologist, West End Hospital
 Child Guidance Clinic

Anxiety is regarded by McDougall (1936) as the emotion produced when, in the course of striving towards some goal, we doubt whether we shall achieve the desired end. It is a derived emotion, and sharply to be distinguished from fear, which is a primary emotion. Henderson and Gillespie (1936) define anxiety in the psychiatric sense as "a fear of danger usually from within—that is, impending physical illness." Fear and anxiety seem clinically to be different degrees of the same emotion, and may be regarded as pathological when they are aroused without reasonable cause.

Pathological anxiety is a common feature of every form of psychosis, and may be the most prominent one in the prodromal stages. When it occurs as the sole abnormality, apart from depression, the condition is known as anxiety neurosis or anxiety state. Lewis (1934) and Curran (1937b) have recently pointed out that anxiety is a common concomitant of depression and, conversely, that depression is a common concomitant of anxiety, so that it is impossible to draw a sharp dividing-line between depressive states on the one hand and anxiety states on the other. No frankly psychotic syndrome, however, will be diagnosed as an anxiety state.

Little has been written about the course of an anxiety state, but many observers have noticed a strong tendency for hypochondriasis to accompany anxiety and with the passage of time partly to replace it, one of the most comprehensive papers on the subject being by Brown (1936). Ross (1923) and Yaskin (1936), among many others, consider that the development of a psychosis is exceedingly rare.

Difficulty of Measuring Anxiety

In scientific work quantitative measurement is a necessity, and consequently many efforts have been made to devise a measure of anxiety, so far with little success. Since mental processes cannot be measured the problem is usually attacked through the autonomic nervous system, the close connexion between which and anxiety has been demonstrated by Cannon and his co-workers (1915). Jones (1936) finds that anxiety and sympathetic activity are apparently synonymous, both being evoked by adrenaline

and abolished by acetylcholine. One method which has been regarded as very promising is that of the psychogalvanic reflex, but Landis (1932) in a comprehensive summary of the literature states that quantitatively the method is useless, although it is produced by sympathetic action, and in a later paper (1933) he envisages the possibility of a satisfactory technique being worked out. Ødegaard (1932) believes that an index of the vegetative emotional reaction in general can be obtained from it. Solomon and Fentress (1936), however, in a careful investigation found no correlation between the galvanic skin reflex and autonomic activity, following on a previous paper (1934) in which they put forward the possibility of measuring "bound" and "unbound" energy. Psychological methods have also been tried, such as the measurement of the reaction time to word stimuli (Ebaugh, 1936), but quantitative exactitude has not been claimed for them. Culpin and Smith (1930) have found some correlation between a clinical estimate of anxiety and performance on the Schuster dotting machine.

The above-mentioned difficulty of measurement is most noticeable in the publication of results of the various modes of treatment, such as baths, massage, and other physiotherapeutic measures (Engelhorn, 1910), injection of polyglandular extracts (Léopold-Lévi, 1933), continuous narcosis (Ström-Olsen and McCowan, 1934), psychotherapy (Wenger, 1934; Luff and Garrod, 1935; Yaskin, 1936; Neustatter, 1935; Huddleson, 1927), and institutional treatment combined with psychotherapy (Ross, 1936). Such terms as "improved," "moderately improved," and "slightly improved" are in general use, although they are obviously unsatisfactory, elastic, and liable to variation according to the degree of optimism of the therapist concerned. Ross (1936), Luff and Garrod (1935), Curran (1937a), and Neustatter (1935) have given definitions of these terms, but none of them include details of the condition of the patients when first interviewed, and the degree of improvement is not measured by objective standards.

The prognostic studies of anxiety states published up to the present time fall into two groups, the first of which is the above-mentioned results of treatment. Systematic follow-ups were not always undertaken, but Luff and Garrod have traced their cases for three years and Ross some of his cases for five years and the rest for three years. Both have used the method of follow-up by letter. Luff and Garrod have 220 anxiety states in their series, and 30 per cent. of the cases treated were untraceable. Ross makes no distinction between hysteria and anxiety neurosis. Nearly 50 per cent. of his cases were untraceable.

It is extremely difficult to compare these results on account of the differences in diagnostic grouping of cases, criteria and classification of end-results, and methods, but the percentage of cases whose progress was satisfactory varied between 40 and 80 and that of cases developing psychoses and committing suicide was always very small.

The second group consists of clinical impressions, and gives no figures. For example, Wechsler (1929) stresses the skill of the psychotherapist, the age of the patient, and the degree of introversion, expressing the opinion that the illness in the case of female patients may stop at the menopause; Karpman (1931) holds the view that the provision of psychotherapy of an analytical type is all-important; and Ross emphasizes the purposive character of the illness, attaching considerable prognostic importance to the question of whether it is providing a satisfactory solution to the patient's difficulties or merely transferring

him from the frying-pan to the fire. The last-named author also regards the personality of the patient as of great significance in this respect, especially his concept of himself: "Blessed are the humble, for they shall be cured." As a corrective to the assumptions of some writers Curran (1937a) studied cases which have received little or no treatment. His main conclusions were that spontaneous recovery can occur and that there is no special liability to organic disease in these cases.

There has been extraordinarily little attempt to make a statistical study of factors which may possibly affect the prognosis. Luff and Garrod find that length of treatment and the age of the patient have little effect on the result, but that psychopathic heredity and adverse early environment are definitely unfavourable.

The frequency with which organic conditions are misdiagnosed as functional is of considerable importance with regard to the prognosis of anxiety states and has been interestingly dealt with by Comroe (1936). Following the widespread acceptance of the implication of Cannon's work (1915) on the emotional reaction, many conditions previously recognized as having a vague neurotic background—such as nervous dyspepsia, the Army D.A.H., and mucous colitis—are acknowledged to be manifestations of pathological anxiety. They are therefore very closely allied to anxiety neurosis or even identical with it. Many workers go further and postulate the initiation of organic changes through disturbance of the autonomic nervous system. Conditions the aetiology of which has been explained on these lines are gastro-duodenal ulcer, ulcerative colitis, bronchial asthma, and the various allergic conditions, hyperpiesis, nephrolithiasis, rheumatism (Halliday, 1937), and many others. The whole very extensive literature is well summarized by Dunbar (1935). The incidence of organic disease in patients suffering from anxiety states is therefore of interest, but the only inquiry into it that I can find is that of Curran.

Objects of Present Investigation

The objects were threefold: (1) To obtain a reliable follow-up over a period of not less than ten years of an adequate number of cases of anxiety neurosis and to record the findings in readily comprehensible terms. (2) To determine what factors affect the prognosis, so as to afford some guidance in this respect. (3) To determine whether anxiety neurosis predisposes to any organic condition.

Methods of Investigation

The cases chosen were those seen at the Maudsley Hospital during the years 1924, 1925, and 1926 in which the diagnoses were "anxiety neurosis," "anxiety state," "anxiety," "anxiety with depression," and "anxiety hysteria." Cases where the diagnosis was doubtful and given in some such terms as "anxiety state, ? schizophrenia," were rejected, as also were four cases developing an agitated depression within a fortnight of admission to hospital. Patients under the age of 15 at the time of their first visit to hospital were also rejected, as it was felt that the conditions termed anxiety states in children were not necessarily identical with the anxiety states of adults and that it would be confusing to group them together. Patients over the age of 45 at the time of their first visit to hospital were also excluded, as it was felt that the many factors operative during the involutional period would be impossible to assess and would make the results difficult to interpret. The procedure adopted was to send out a circular to all the patients concerned, inquiring after

their health and asking them to call at the hospital if possible. Where no reply was received a call was made at the address in question in an endeavour to see the patient; if he no longer lived there further efforts were made to trace him. Finally, a list of the untraceable cases was sent to the Registrar-General and a search for them made in the register of deaths, also to the Board of Control with the object of ascertaining how many were in or had been in mental hospitals. An interview with the patient was always sought, but proved impracticable in a few cases in which adequate information was obtainable in other ways—namely, an interview with a close relative who was living with the patient, a report from the hospital of which he or she was an inmate, and in one case a letter from her doctor in answer to a questionnaire. The following examples will show how unreliable letters from patients can be.

A married woman writes that her nerves are completely cured and that she is getting on very well. When interviewed she complains of palpitation, shortness of breath, and extreme fatigability, ascribing these symptoms to her heart. A cardiologist reports that she is a well-compensated case of mitral stenosis and that her cardiac condition cannot possibly account for any of her symptoms.

A single man writes: "I am fairly well at present in health. I have been fairly well since I saw you as a patient ten years ago." He had actually been treated for schizophrenia for two years in a mental hospital and is now living with his parents in a docile, mildly demented condition.

Classification of Cases

The above-mentioned difficulty of measurement was tackled by means of the following simple system of classification according to severity based on the social consequences of the illness. It depends on the patient's reaction to the anxiety rather than on the degree of anxiety, but it is just this aspect to which the attention of both the patient and the community is usually directed.

Grade 1.—Unable to pursue their occupations on account of anxiety symptoms and consequently supported by the Public Assistance Committee or by their relatives or friends.

Grade 2.—Able to work and earn a living, but forced by their symptoms to modify their lives considerably, resulting in much limitation of their interests and activities.

Grade 3.—Able to lead normal lives, but at times seriously inconvenienced by symptoms or suffering from some persistent phobia.

Such a classification does not take into account the inherent strength of the patient's personality, as does that of Luff and Garrod. It merely describes his reaction to his present environment. I submit, however, that in the present state of our knowledge it is impossible to prophesy how a patient will react to varying circumstances with any degree of accuracy, and any attempt to do so is futile in a study such as this. The distinction between Grades 1 and 2 is of the greatest social importance, both for the welfare of the community and for the preservation of the individual's position in it as a respected member. The distinction between Grades 2 and 3 usually becomes apparent if one questions the patient as to whether he is prevented by his symptoms or fears from engaging in any normal activity. For example, inability to go out alone, to walk along a crowded street, to talk to strangers, or to attend a cinema or football match would place a patient in Grade 2, whereas if he is able to do these things at the expense of occasional fits of palpitation, trembling, sweating, etc., he will fall into Grade 3. The test is what the patient can do rather than what he feels in the first

two grades. The distinction between Grade 3 and normality, on the other hand, depends on the presence or absence of symptoms—a readily applicable criterion. I have considered the inclusion of a fourth grade, comprised of people who are not regarded by their companions or themselves as ill but have obviously unsatisfactory personalities and temperaments, worrying over trifles, dismayed by difficulties, with pronounced hypochondriacal trends, and so on. I rejected the idea, since the differentiation of such a group from the normal must depend entirely on the opinion of the physician, and so can only result in the type of confusion that I am trying to avoid.

In practice I found this system very easy to apply and closely related to the subjective feelings of the patient concerning the severity of his illness. As an example of a case the grading of which was not obvious at first sight, a married woman complained of a phobia of open spaces and large rooms. By questioning her it was elicited that she was able to go out to do her household shopping, but suffered from anxiety attacks in consequence. She was fond of visiting her sister, who lived some five or six miles away, but rarely did so, as she felt that the price that she would have to pay in the shape of unpleasant symptoms was too great. She was unable to attend a performance in a large cinema near her home, although she felt quite comfortable in the small ones. It was obvious from this information that she fitted into Grade 2.

When the material had been collected it was analysed with regard to the various factors that might conceivably affect prognosis. Their incidence in the cases that recovered and in the cases that did not recover was determined, and the two were compared. A full medical history was taken in each case and particulars of any illness obtained from the patient himself and from any hospital where he had been treated.

Results

A total of 259 suitable cases were discovered in the records and satisfactory follow-ups were obtained in 123 cases. Of these, thirty-eight were well, sixty were suffering from anxiety states, nine had developed psychoses, and sixteen were dead. Five of those who had died were traced through the Registrar-General, and two of those who had developed psychoses were traced through the Board of Control. Of the remainder, 120 were untraceable, ten were living out of London, and six either were unwilling to be interviewed or their relatives were unwilling to show them the hospital letter, in two cases due to fear of upsetting the patient on account of the bad state of his nerves. The high percentage of untraceability is unfortunate, and, I think, due largely to the migrant habits of the London population, a large proportion of whom live in lodgings and change them frequently.

Patients Who are Well.—Thirty-four patients were interviewed, and in the remaining four the account of their present condition and their past history was obtained from the wife or mother of the patient. As regards duration of recovery, thirty-two had been well for eight years or over so far as their neurotic illness was concerned, one had been well for between five and eight years, three for between three and five years, and two for between two and three years. All the Grade 2 and 3 cases, except one, had been well for over eight years.

Cases Still Suffering from Anxiety States.—Of the sixty patients in this group fifty-four were interviewed, in three

other cases the wife was interviewed, in two cases a report was received from the mental hospitals in which they were voluntary patients, and in the case of the remaining patient, who lived out of London, her doctor was good enough to answer a questionnaire on her history and present state of health. With regard to their present condition, eleven cases were in Grade 1, twenty-one were in Grade 2, and twenty-eight were in Grade 3. Nine of the eleven patients in Grade 1 were very chronic cases and had done no work for ten years. In only one case was the condition worse than that at the time of the first visit to Maudsley Hospital.

Intermittent Cases.—Three of the recovered cases had suffered relapses and eight of the "anxiety states" had undergone remissions. It seemed in these to be a matter of chance whether they were classed as recovered or not, according to the particular phase in which one found them at the time of the inquiry. The duration of the remissions varied from nine months to eleven years. This type of case accounted for half of the recovered cases who had been well for less than eight years. It is worth noting that only eleven of the cases were intermittent and that only five other cases showed marked fluctuations in severity, so that the state of these patients appears to be fairly constant. It must be realized, however, that the source from which this information was obtained—namely, the patients' memory—was not really reliable.

Cases which Developed Psychoses.—The psychosis developed was schizophrenia in seven cases and recurrent depression in two cases. In five of the schizophrenic cases, from the notes made at the time, the diagnosis of anxiety state seemed very doubtful, and it is extremely probable that they represent mistakes in diagnosis. One other has been treated for twelve years in the out-patient department as a chronic "anxiety state" and has only within the last two or three months developed delusions of persecution of a bizarre type—an undoubted early schizophrenic reaction. Two of the patients who appeared in the next group died in mental hospitals, where they were under treatment for schizophrenia and agitated depression respectively. It is impossible to be sure that all these cases were traced, especially in view of the smallness of the number reached through the Board of Control. There are many possibilities of leakage, the chief being that psychotics may not be brought to the notice of the authorities.

Patients Who had Died.—The causes of death were suicide in three cases, pulmonary tuberculosis in three cases, chronic nephritis in two cases, and in one case each, accident, cerebellar tumour, thyroidectomy, appendicitis and generalized peritonitis, carcinoma of the breast, carcinoma of the stomach, and bronchopneumonia.

Features of Prognostic Importance

I now come to the second object of my investigation—namely, the discovery of which features are and which features are not of prognostic importance. I will discuss each feature separately, utilizing the ninety-eight cases in the "recovered" and "still anxiety state" groups for the purpose.

Table showing whether or not it was the Patient's First Attack of Neurosis

	Recovered	Still Ill
First attack	35	49
1 previous attack .. .	1	7
2 or more previous attacks ..	2	4

Of the three recovered cases who had had previous attacks, two had suffered relapses since their visit to Maudsley Hospital and so are regarded as in the intermittent group. In other words, only one of the fourteen patients who had had previous attacks made a satisfactory permanent recovery. The occurrence of a previous attack therefore seems prognostically unfavourable for permanent recovery.

Duration of Illness before First Visit to Out-patients' Department in the Eighty-four Cases where it was the First Attack

	Recovered	Still Ill
Under 1 year	21	12
Between 1 and 2 years ..	9	4
Over 2 years	4	33
Unascertainable.. ..	1	0

There was a recovery rate of 65 per cent. in those cases where the duration was less than two years and of 11 per cent. in those where it was over two years. These figures are statistically significant. Of the eleven cases at present in Grade 1 eight had a history of over two years' duration before their first visit to the hospital.

It will be seen that the prognosis is better and the patient is more likely to recover completely if the attack has not lasted for more than two years. On the other hand, the chances of complete recovery are small if the condition has lasted over two years, but the outlook for return to work is always quite good. Nevertheless the possibility that the patient will persist in Grade 1 must be borne in mind, as this occurred in 24 per cent. of the cases with a history of over two years.

Severity of the Illness

Grade at Time of First Attendance at Hospital	Recovered	Still Ill
1	19	37
2	7	21
3	12	2

We see from this that the outlook in Grade 3 cases is very good, but that the outlook in Grade 1 and 2 cases is comparatively poor. These figures are statistically significant.

Amount of Treatment Received.—On the whole more energy was expended before a Grade 1 case reached Grade 3 than in the return of a Grade 3 case to complete health. The best results were obtained in cases which responded rapidly, and those which had required prolonged treatment were on the whole disappointing.

Unfavourable Environment.—I define "unfavourable environment" as severe financial or family worries which would present serious difficulty to a healthy person—for example, desertion by a husband, prolonged unemployment, or much ill-health in children or spouse. It was present in eight of the recovered cases and twenty-two of the anxiety states during the past ten years—that is, 21 per cent. and 37 per cent. respectively. It seemed, therefore, to have a less definitely adverse effect than one would expect, but the number of cases involved is too small for any importance to be attached to this finding.

Psychopathic Family History.—I define "psychopathic family history" as psychosis or severe neurosis—namely, definite nervous breakdown—in one or more parents or siblings. It was present in thirteen of the recovered cases and twenty-four of the anxiety states—that is, 34 per cent. and 41 per cent. respectively. This suggests that it is of no real significance from a prognostic point of view; but one must bear in mind the difficulty of obtaining accurate

information from the patients (Slater, 1935) and the possible multiplicity of genetic factors involved.

Obvious Precipitating Cause.—It is commonly supposed that if neurotic illness has some obvious precipitating cause in the form of some definite psychic trauma the outlook is better than if it develops insidiously "out of the blue." Some physicians may be more ready to find a precipitating cause than others, but in this series of cases the out-patient officers appeared to have no individual predilections in this respect. It was present in six of the recovered cases and twenty-two of the anxiety states, so that if any conclusion can be drawn from such a small number of cases it does not appear to be a favourable prognostic factor. The patient will always tend to exaggerate the part played by the trauma, which must be a matter of some doubt. There was one case in which the condition was precipitated by head injury and which made a good recovery, but I regard it as in a different category from psychic traumata.

The Menopause.—There were six cases in which the onset of the disease was at the menopause. Four of these recovered and two were still "anxiety states." Three of the recovered patients have subsequently reached the menopause; none of them experienced any return of symptoms at that time. Twelve of the "anxiety states" have subsequently reached the menopause, and only one of these experienced any exacerbation of symptoms during it.

Pregnancy.—Of the nulliparae who have had children since their first attendance at hospital three recovered completely. Two of the patients dated their recovery from a pregnancy and two "anxiety states" described spontaneously, as a curious fact which they had noted, that they experienced a remission during pregnancy and that their anxiety returned within about a fortnight of their confinement. This affords some slight indication that pregnancy may exercise a beneficial effect.

SYMPTOMATOLOGY

Efforts were made to group these cases according to their symptomatology—namely, the predominance of neurasthenic symptoms, hypochondriacal symptoms, etc.—but every scheme tried proved unworkable on account of the great variety of symptoms and the multitude of combinations in which they appeared. It was possible, however, to isolate a small group of twelve cases in which the anxiety was not diffuse, as in the majority, but concentrated in definite phobias or clear-cut anxiety attacks, suggesting a mechanism analogous to the conditioned reflex. Three of these recovered and nine persisted as anxiety states. Examination of individual cases showed that definite phobias and clear-cut isolated anxiety attacks tend to persist longer than generalized anxiety and militate against complete recovery. They not infrequently remain as residual symptoms in cases which have improved from Grade 2 to Grade 3, for example.

The chief factor in the determination of the symptomatology seems to be the personality of the patient. The outcome in markedly introverted patients appeared quite good, and certainly no worse than in the rest. Personality traits of the type generally known as psychopathic, shown by persistently inadequate response to difficulties or anti-social behaviour, were definitely unfavourable, and many of these patients persisted in Grade 1.

OTHER FACTORS

Other possible prognostic factors investigated were sex, age, civil state, occupation, and physique on the lines indi-

cated by Kretschmer (1925) and by Draper (1930), but no significant results were obtained. The figures are given in the following table.

		Recovered		Still Ill	
Sex:					
Males	..	..	17	.....	18
Females	..	..	21	.....	42
Age at onset of illness:					
15 to 25	..	..	12	.....	16
25 to 35	..	..	13	.....	29
35 to 45	..	..	13	.....	15
Civil state:					
Married women	..	..	12	.....	29
Single women	..	..	6	.....	9
Women married since first attendance at hospital	..	..	3	.....	4
Married men	..	..	13	.....	12
Single men	..	..	2	.....	3
Men married since first attendance at hospital	..	..	2	.....	3
Occupation:					
Women: Housewives	..	..	15	.....	29
Office and shop workers, etc.	..	..	3	.....	9
Factory and domestic workers	..	..	3	.....	4
Men: Office and shop workers	..	..	6	.....	4
Artisans	..	..	9	.....	11
Labourers	..	..	2	.....	3
Physique:					
Pyknic	..	..	11	.....	14
Leptosomatic	..	..	15	.....	34
Athletic	..	..	8	.....	6

I must now turn to the third object of my investigation—namely, the physical diseases to which these patients are liable.

PHYSICAL DISEASES DEVELOPED BY THE PATIENTS

In only one case does the error of regarding an organic condition as functional appear to have been made, the patient dying a year later of compression of the medulla by a cerebellar cyst. The organic illnesses developed by the ninety-eight patients in the "recovered" and "anxiety state" groups, subsequent to their first visit to Maudsley Hospital, were as follows: gastric ulcer with subsequent pyloric stenosis successfully treated by operation, one case; haematemesis of unknown origin (in spite of full investigation), one case; gastric carcinoma, one case; arthritis, four cases; "muscular rheumatism," five cases; cystitis, two cases; renal calculi, one case; toxæmia of pregnancy, one case; eczema, two cases; urticaria, one case; herpes zoster, one case; phlebitis, two cases; pneumonia, two cases; salpingitis, one case; small-pox, one case; diphtheria, one case. Laparotomy was performed in four cases with no benefit to the patient in spite of division of adhesions, slinging operations, etc. Acute appendicitis occurred in one case, and removal of nasal polypus and resection of septum was necessary in one case. An operation for hernia was performed in one case, tonsillectomy in two cases, colporrhaphy in one case, and myomectomy in one case. The blood pressure was taken in every case seen, and definite hyperpiesis (180/100 or over) was found in five cases, four of which were suffering from anxiety states, while the fifth had extensive renal damage due to calculi but no neurosis. There were no cases of bronchial asthma or hay-fever, and the sole representative of the whole allergic group was one rather doubtful case of urticaria, alleged by the patient to have been diagnosed as such by his panel doctor. The syndrome of vagotonia was carefully looked for, but

nothing resembling it was seen except in one case, a man who was subject to fainting fits with a pulse rate in the neighbourhood of 65. On the other hand, the rapid labile pulse, dilated pupil, and moist skin of sympathetic overaction was common in the anxiety states, as was only to be expected. Hyperthyroidism was observed at the onset of four cases, although they now show no signs of it, and three of them are classified as recovered. As regards functional somatic symptoms, severe dyspepsia occurred in eighteen cases and "nervous diarrhoea" in two cases, one of which subsequently progressed to mucous colitis. We see, therefore, that twenty-one cases were severely troubled with gastric symptoms, but that in only three of them was there evidence of an organic lesion. The patient who had carcinoma suffered from gastric symptoms for only six weeks before his operation.

The incidence of arthritis of various types seems rather high, as also does that of "muscular rheumatism"—that is, vague pains and stiffness in various parts of the body; and actually nearly 10 per cent. of the cases (nine out of ninety-eight) in the groups "recovered" and "anxiety states" had suffered severe disability at one time or another from some disease of the rheumatic group. However, quoting from a Report of the Ministry of Health (1924), "2.76 per cent. of the total list strength were attended by their insurance practitioner for rheumatic disease" in the year 1922 alone, so that it is probably no higher than among the general population.

Four of the cases of hyperpiesis were in the age group 35 to 45, and the fifth was in the age group 25 to 35. There were nineteen cases in the age group 15 to 25, which can be presumed to be immune from the development of hyperpiesis, leaving seventy-nine cases in the age groups 25 to 35 and 35 to 45. This gives an incidence of 6 per cent., not a strikingly high figure. I think that the absence of vagotonic and allergic disturbances is noteworthy, and feel that there must be a sympathetic overactivity in these patients which prevents their appearance. A mild degree of hyperthyroidism is not uncommon in a recently developed anxiety state, but calls for no special treatment and does not affect the prognosis.

Concerning the observations that anxiety in the course of time tends to be converted to hypochondriasis, I found some cases in which this was a striking feature. It was by no means universal, however, and did not occur in the majority of cases. Six of the recovered cases and ten of the "anxiety states" give evidence of hypochondriasis at the present time, the percentage of the total being 16.5. It may seem somewhat anomalous to talk of hypochondriasis in patients who are well, but I have done so in the type of person who complains of no symptoms but is unduly fussy about his diet or other matters supposedly affecting his health.

Summary and Conclusions

An attempt was made to ascertain the present condition and past history of 259 cases which had been diagnosed as anxiety states between ten and twelve years ago. From the material collected a search was made for features of prognostic significance and for any evidence of increased susceptibility to organic disease. Of the cases 46 per cent. were untraceable and 6 per cent. were traceable but inaccessible, so that a satisfactory follow-up was obtained in only 48 per cent. Of these, 31 per cent. were well, 49 per cent. were suffering from anxiety states, 7 per cent. had developed psychoses, and 13 per cent. were dead. It is probable that the great majority, if not all, of those who had died were traced.

The main prognostic points elicited were as follows. Anxiety and its clinical manifestations may persist unchanged for ten years and over, and the percentage of cases in which it is converted to hypochondriasis is small. The prognosis is fairly good if the condition is of less than two years' duration, and, conversely, it is poor but not hopeless for ultimate and permanent recovery if the condition is of longer than two years' standing. On the other hand, the patient's chances of returning to work are always quite good, as only 20 per cent. of those unable to work persisted in that state. If the patient's habits or mode of life remain substantially unchanged by the anxiety the prognosis is good. The outlook in cases with markedly psychopathic personalities is poor.

There was no evidence of increased susceptibility to organic disease in these patients.

The difficulties and possible fallacies are discussed.

REFERENCES

- Brown, F. (1936). *J. ment. Sci.*, **82**, 295.
 Cannon, W. B. (1915). *Bodily Changes in Pain, Hunger, Fear and Rage*, London.
 Comroe, B. I. (1936). *J. nerv. ment. Dis.*, **83**, 679.
 Culpin, M., and Smith, M. (1930). Industrial Health Research Board, Report No. 61, London.
 Curran, D. (1937a). *Lancet*, **2**, 1005.
 — (1937b). *J. ment. Sci.*, **83**, 156.
 Draper, G. (1930). *Disease and the Man*, London.
 Dunbar, H. F. (1935). *Emotions and Bodily Changes*, Columbia Univ. Press, New York.
 Ebaugh, F. G. (1936). *J. ment. Sci.*, **82**, 731.
 Engelhorn, E. (1910). *Münch. med. Wschr.*, **57**, 2136.
 Halliday, J. L. (1937). *British Medical Journal*, **1**, 213, 264.
 Henderson, D. K., and Gillespie, R. D. (1936). *Textbook of Psychiatry*, Oxford University Press, London.
 Huddleson, J. H. (1927). *Milit. Surg.*, **60**, 161.
 Jones, M. S. (1936). *J. ment. Sci.*, **82**, 785.
 Karpman, B. (1931). *Arch. Neurol. Psychiat.*, **26**, 1257.
 Kretschmer, E. (1925). *Physique and Character*, London.
 Landis, C. (1932). *Psychiat. Quart.*, **6**, 262.
 — (1933). *Ibid.*, **7**, 107.
 Léopold-Lévi (1933). *Bull. Acad. Méd.*, Paris, **110**, 793.
 Lewis, A. J. (1934). *J. ment. Sci.*, **80**, 329.
 Luff, M. G., and Garrod, M. (1935). *British Medical Journal*, **2**, 54.
 McDougall, W. (1936). *Outline of Psychology*, London.
 Neustatter, W. L. (1935). *Lancet*, **1**, 796.
 Ødegaard, O. (1932). *Brit. J. med. Psychol.*, **12**, 132.
 Report of the Ministry of Health, No. 23 (1924). Incidence of Rheumatic Diseases, London.
 Ross, T. A. (1923). *The Common Neuroses*, London.
 — (1934). *Lancet*, **2**, 885.
 — (1936). *An Enquiry into Prognosis in the Neuroses*, Cambridge.
 Slater, E. (1935). *Ann. Eugenics*, **6**, 172.
 Solomon, A. P., and Fentress, T. L. (1934). *J. nerv. ment. Dis.*, **80**, 163.
 — (1936). *Arch. Neurol. Psychiat.*, **35**, 770.
 Ström-Olsen, R., and McCowan, M. L. M. (1934). *J. ment. Sci.*, **80**, 658.
 Wechsler, I. S. (1929). *The Neuroses*, London.
 Wenger, P. (1934). *Wien. med. Wschr.*, **84**, 320.
 Yaskin, J. C. (1936). *Amer. J. Psychiat.*, **93**, 107.

At the International Congress of Microbiology in London in July, 1936, Professor Johan stated that, as a result of the successful immunization against diphtheria of large numbers of children in Hungary, a law making immunization compulsory would probably come into force in 1937. The English text of the Order is now available, and public health experts will watch its operation with close interest. Immunization, apparently with three doses of toxoid, must be carried out in the second year of life and again in the sixth year, unless the child has suffered from diphtheria, or undergone an equivalent series of injections, or is excused because of illness. Curiously enough, there is no mention in the Order of immunization with alum toxoid, which is effective in two doses, nor of Schick-testing either before or after immunization.

THE OBSTETRICAL "FLYING SQUAD"*

BY

E. FARQUHAR MURRAY, M.D., F.R.C.S.

Professor of Midwifery and Gynaecology, University of Durham College of Medicine

The emergency service—the so-called "flying squad"—is now an essential part of a modern maternity service. The expert attention, and the surgical and other adjuncts which are included in the outfit, meet a long-felt want.

The bulk of midwifery in this country is conducted in the homes of patients, the majority of whom are not in a position to pay for expert service. This knowledge has often handicapped the doctor in charge of the case, who has had to tackle major problems single-handed or to send the patient into a maternity hospital.

Expert service before the war, so far as working-class patients were concerned, was mainly immobilized in maternity hospitals. Post-war there has been a slow relaxation of this system. Health authorities offered consultations in puerperal pyrexia, and very gradually a more extended service of expert advice or assistance was offered at all stages. This is still far from being universal or comprehensive. In the Newcastle area, with few exceptions, the authorities offer the doctors a fully comprehensive service at all stages.

The emergency service, which is everywhere adopted in that area, is a something by itself. The essential points are that expert attention is immediately forthcoming, while the outfit, which is accompanied by a nurse, contains all reasonable surgical requirements and also those things which are often lacking in an industrial household, such as blankets, hot-water bottles, basins, and so on. It is especially designed to deal with those acute crises which may occur in the most carefully supervised case but are more liable to happen in the present somewhat disjointed system of maternity service. Shock and post-partum or ante-partum haemorrhage are typical examples of the cases most urgently in need of such a service, but threatened or actual eclampsia and difficult labours or "failed forceps" cases would derive benefit also.

It is obvious that expert service given on the spot to a patient who is shocked and collapsed from post-partum haemorrhage and with a retained placenta is preferable to the delay and handling of a desperately ill woman entailed by sending her in an ambulance to hospital. For local calls the service can be in the patient's house as soon as an ambulance would be likely to arrive, and for distant calls long before the patient could have reached a hospital.

Working of the Service

A doctor faced with an emergency sends a message to the maternity hospital giving his name, the name and address of the patient, and the name of the consultant on the panel he wishes to attend. He may also give some details of the nature of the case. This message is sent by private telephone or by a telephone kiosk, or by one of the police-box telephones. On receipt of the message the hospital telephones for a taxi and details a nurse to go with the outfit, which is kept packed and ready. The consultant is telephoned, and if he is not in then the others on the panel are approached. When one is ob-

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Plymouth, 1938.