

p. 1003.—(7) Mehrrens, Kolos and Marshall, *Arch. Neur. Psych.*, 1924, xii, p. 67.—  
 (8) Young and Muehlberger, *Journ. Pharm. and Exp. Ther.*, 1924, xxiii, p. 461.—  
 (9) Fordyce, Rosen and Myers, *Amer. Journ. Syph.*, 1924, viii, p. 254; *ibid.*, 1924,  
 viii, p. 377.—(10) Van den Branden and Van Hoof, *Bull. Soc. Path. Exot.*, 1923,  
 xvi, p. 606.

#### 2. Tryparsamide and Neurosyphilis.

(1) Lorenz, *Wis. Med. Journ.*, 1922, xx, p. 336.—(2) *Idem.*, Loewenhardt and  
 others, *Journ. Amer. Med. Assoc.*, 1923, lxxx, p. 1497; *Amer. Journ. Med. Sci.*,  
 1924, xcii, p. 850.—(3) Cheinisse, *Presse Med.*, 1923, xxxi, p. 81; *ibid.*, 1924,  
 xxxii, p. 886; *ibid.*, Nov., 1924, xxxii, p. 886; *ibid.*, 1924, xxxii, p. 303.—(4)  
 Mott, *Brit. Med. Journ.*, 1923, ii, p. 24.—(5) Hanschell, *ibid.*, 1923, ii, p. 87.—  
 (6) Moore, Robinson and others, *Journ. Amer. Med. Assoc.*, 1924, lxxxii, p. 528;  
*ibid.*, 1924, lxxxiii, p. 888.—(7) Solomon, *Journ. Nerv. and Ment. Dis.*, 1924, lxi,  
 p. 299.—(8) Solomon and Viets, *Journ. Amer. Med. Assoc.*, 1924, lxxxiii, p. 891;  
*ibid.*, Aug., 1925, lxxxv, p. 329.—(9) Viner, *Can. Med. Assoc. Journ.*, 1924, xiv,  
 p. 719; *ibid.*, Aug., 1924, xiv, p. 719.—(10) Hindman, *Ohio State Med. Journ.*,  
 Aug., 1924.—(11) Ebaugh and Dickson, *Journ. Amer. Med. Assoc.*, 1924, lxxxiii,  
 p. 803.—(12) Lillie, *ibid.*, 1924, lxxxiii, p. 809.—(13) Guillain and Girot, *Bull.*  
*Acad. Med.*, 1924, xcii, p. 850.—(14) Claude and Targowla, *Comp. Soc. Biol.*,  
 1924, xci, p. 527.—(15) Stokes and Wilhelm, *Arch. Derm. and Syph.*, 1924, x.—  
 (16) Wile and Wieder, *Journ. Amer. Med. Assoc.*, Dec. 6, 1924, lxxxiii, p. 1824;  
*ibid.*, 1925, lxxxiv, p. 1710.—(17) Editorial, *Brit. Med. Journ.*, 1924, i, p. 537.—  
 (18) Ley, *Journ. Amer. Med. Assoc.*, 1924, lxxxiii, p. 702.—(19) Secard and  
 Hagnenan, *Medicine*, Nov., 1924, vi, p. 141.—(20) Blair, *Southern Med. Journ.*,  
 Dec., 1924, xvii, p. 933.—(21) Bluemel and Greig, *Colorado Med.*, Jan., 1925.—  
 (22) Crawford, *Canadian Med. Assoc. Journ.*, 1925, xv, p. 46.—(23) Schwab and  
 Cady, *Arch. Neur. and Psych.*, 1925, xiii, p. 80.—(24) Kennedy and Davis, *ibid.*,  
 1925, xiii, p. 86.—(25) Menninger, *Med. Journ. and Record*, 1925, cxxii, p. 318.—  
 (26) Hyder, *ibid.*, Apr. 15, 1925, cxxi, p. 475; May 6, 1925, cxxi, p. 117; May 10,  
 1925, cxxi, p. 613.—(27) Smith, *Journ. Indiana Med. Assoc.*, April 15, 1925,  
 xviii, p. 125.—(28) Parsons, *U.S. Naval Med. Bull.*, May, 1925, xxii, p. 526.—  
 (29) Dawson, *Lancet*, May 23, 1925, p. 1072.—(30) Cocke, *Journ. Tennessee Med.*  
*Assoc.*, May, 1925, xviii, p. 7.—(31) Schwab, *Med. Clinics of N. America*, July,  
 1925, ix, p. 143.—(32) Lees, *Brit. Med. Journ.*, July, 1925.—(33) Wolfsohn and  
 Leiva, *Journ. Amer. Med. Assoc.*, Aug., 1925, lxxxv, p. 494.—(34) Skoog, *Journ.*  
*Missouri State Med. Assoc.*, Oct., 1925, xxii, p. 387.—(35) O'Leary and Becker,  
*Med. Journ. and Record*, March 3, 1926.—(36) Silverston, *Lancet*, Oct. 2, 1926.

*Introverted and Extroverted Tendencies of Schizoid and Syntonic States as Manifested by Vocation.\** By G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M., Deputy Medical Superintendent, Dorset County Mental Hospital, Dorchester.

#### INTRODUCTION.

It is to Jung, of Zurich, that we are indebted for the attempted division of attitudes of mind into the introverted and the extroverted types. In his *Analytical Psychology* (1) he gives us a chapter on types, and in 1924 appeared his large work on *Psychological Types* (2). According to Jung (1), the introverted type of individual is

\* A paper presented at a meeting of the South-Western Division, held at Hereford on October 28, 1926.

characterized by the fact that his libido is turned towards his own personality to a certain extent—he finds within himself the unconditioned value. The extroverted type has his libido to a certain extent externally—he finds the unconditioned value outside himself.

These two attitudes are extremes, and we meet with all gradations from the extreme introverted mind to the extreme extroverted. A considerable number of normal people occupy the middle zone, the “ambiverted” type, or what one might call the level-headed practical type. In these people both introversion and extroversion are more or less evenly balanced.

Conklin (3) defines extroversion as a more or less prolonged condition in which attention is controlled by the objective conditions of attention more than by the subjective, and in which the content of the subjective conditions is most closely related to the objective. In the same way he defines introversion as a more or less prolonged condition in which attention is controlled more by the subjective than by the objective conditions, and in which the content of the subjective conditions is of a more abstract nature, and not so intimately related to the objective conditions. Ambiversion, then, is simply a condition in which extroversion and introversion are more or less evenly balanced: at one time the person may be introverted, and at another time extroverted.

Conklin goes a step further than most writers, and defines hyper-introversion and hyper-extroversion as chronic conditions in which persons who, normally having much less introversion or extroversion, are unable automatically or voluntarily to return to that condition. He also postulates a para-extroversion and para-introversion in which the conditions of attention are distorted or abnormally limited in content, or both.

Freyd (4), who takes a very broad view, defines an introvert as “an individual in whom exists an exaggeration of the thought processes in relation to directly observable social behaviour, with an accompanying tendency to withdraw from social contacts.” An extrovert he defines as an individual in whom exists a diminution of the thought processes in relation to directly observable social behaviour, with an accompanying tendency to make social contacts.

MacDougall (5) says: “The well-marked extroverts are those whose emotions flow out easily into bodily expression and action. They are vivid, vivacious, active persons who charm us by their ease and freedom of expression, their frankness, their quick sympathetic response.” The introvert, he says, “is slow and reserved in the expression of his emotions. He has difficulty in adequately expressing himself. His nervous and mental energies, instead of flowing out freely to meet and play upon the outer world, seem apt

to turn inward, determining him to brooding, reflection and deliberation before action."

Allport defines the extroverted person as one whose mental images, thoughts and problems find ready expression in overt behaviour. The introvert dwells largely in a realm of imagination, creating inwardly a more desirable ideal world rather than adjusting himself outwardly to the real one.

White (6) looks at the subject from a different angle, somewhat as Freud does, and regards introversion as a pathological reaction to a great extent—a regression to a more infantile way of thinking, an autistic withdrawal. He qualifies his view by saying that introversion, "at least when pathological," tends to bring about a retracing of the stages along which the psyche has come.

Tansley (7), on the other hand, maintains that extroversion is the primitive biological function of the mind.

Bingham defines introversion as the tendency of interest to shift from the object to the subject. There are exaggerated tendencies to delay response, to inhibit overt emotional expression and to withdraw from social contacts.

We are all familiar with the fussy man who must always be in the limelight; who is always to the fore in any meeting, always pressing his opinions on others and playing for effect. At the same time he hates to sit down and "do a think"—he hates his own company. This is the marked extrovert. On the other hand, we all know the so-called "strong, silent man," who reserves his opinions until they are asked for, hates advertising himself, and is quite happy with his own company. He maybe seeks solitude—is a scholar, a thinker. He is the introvert.

These two classes of individuals correspond more or less closely with James's tender-minded and tough-minded, and with Ostwald's classicists and romanticists.

The consensus of opinion appears to be that these characteristics are inherited—Tansley, McDougall and Hinkle all agree in this. There is no doubt that both characteristics in varying degrees are easily recognized in the child, and a proper balance of the two tendencies must be made then. After puberty the balance is much more difficult to adjust, and there would appear to be scope for preventive psychiatry in this direction.

#### TWO GREAT GROUPS OF THE BIOGENIC PSYCHOSES.

When we come to compare the two great groups of the biogenic psychoses, the syntonics or cycloids and schizoids, or the cyclothymes and the schizothymes, we find marked resemblances

between the syntonio or cycloid states and extroversion on the one hand and the schizoid or schizothyme states and introversion on the other.

In the syntonio or cycloid group there is, according to Bleuler, a tendency for a fixity or persistence of a definite emotional reaction with a consequent limitation of development of the personality, but without its dissolution.

Lundholm defines the cycloid type as having an innate disposition for moodiness and oscillations of mood between elation and melancholia.

In the schizoid group there is a tendency for the personality to disintegrate with secondary delusional and hallucinatory developments. Lundholm defines the schizoid types as those cases which have an innate disposition to split in the psychiatric sense of the word.

When we consider the neuroses we find a similar state of affairs: the hysterics correspond to the extroverts, and neurasthenics to the introverts. So that we have the syntonio group of manic-depressive insanity and hysteria on the extrovert side, and the schizoid group of schizophrenia (so-called dementia præcox) and neurasthenia on the other side.

MacDougall puts forward the interesting opinion that the position of any subject in the scale of introversion-extroversion is due to some chemical influence of the nature of a hormone or some complex chemical resultant of the general metabolism. He supports this view by the fact that the introvert can be temporarily changed into an extrovert by the influence of alcohol, and that the condition of introversion can be more or less imitated by morphia and kindred drugs. He points out that the brain of the extrovert is in a state of dissociation, *i.e.*, it is normally in the state that the introvert brain attains under the intoxication.

That the schizophrenic is introverted is a fact familiar to all. Bleuler's autistic withdrawal from reality is more or less a commonplace expression. The schizophrenic's libido is turned inwards upon himself. He is intensely occupied with himself, he lives in a dream-world of phantasy of his own construction, where all his wishes are fulfilled, and where every little command of his is carried out at once. The schizophrenic wants to be away from the crowd; we are all familiar with the simple hebephrenic standing in a corner of the garden, behind bushes for hours, doing nothing except dream. When we consider manic-depressive insanity or abnormal exaltation and depression, we find in the manic phase that the whole of the symptoms consist of display and an intense desire for social contacts. The melancholic bases his

symptoms largely on his relations with society ; he has poisoned the world, everyone is being shot because of his wickedness, etc.

#### RELATION OF INTROVERSION AND EXTROVERSION TO VOCATION.

Max Freyd considers the introverted mind as mechanically inclined and the extroverted mind as socially inclined. He found that the socially inclined excelled the mechanically inclined in excitability, self-confidence, open-heartedness, present-mindedness, good nature, adaptability, talkativeness, neatness in dress and quickness to make friends. The mechanically inclined were more self-conscious, conceited and careful of details in their work, and were capable of making finer co-ordinations. Poe, Darwin and Woodrow Wilson are fine examples of marked introverts. It has been noted that individuals who are introverted are more often found in vocations which deal with concrete objects, with mechanisms, ideas, symbols, etc. Accountants, statisticians, inventors, engineers, scientists, etc., are often introverted. On the other hand, we find the extroverted types more often among vocations requiring skill in making and sustaining social contacts, as politics, management. The successful business man is usually a marked extrovert.

#### RESULTS.

The case-records of the Dorset County Mental Hospital during the last forty years have been carefully examined. Considerable difficulty was found at different periods in deciding on a diagnosis. Diagnosis nowadays is a very different matter from what it was some years ago, and in many cases obvious schizophrenics were labelled "mania," for more attention was paid to obvious symptoms than to the basic nature of the disease. Where possible, especially among the younger members, the diagnosis has been corrected. This it is recognized increases the possible source of error, due to the personal factor, but it was felt that it was wiser to correct the diagnosis as far as the symptoms given and course of the disease would allow. Col. Lord, in his presidential address for 1926, wisely refers to this source of error in so many of the earlier papers, and an effort has been made to keep to cases of schizophrenia on the one hand and manic-depressive insanity on the other, these two disorders, as we have seen, corresponding to the introverted and extroverted type respectively. No attempt has been made to delimit mixed states of syntonio-schizoid character.

There is a factor which one has to bear very much in mind, and that is that all men have not a free choice of occupation in

their young days. In many cases their vocation is determined by that of their father, in others by the main industry of the district. Dorset is, of course, largely a farming county, but a few of the private patients come from other counties. We find that there is a marked tendency in certain vocations towards one or other of these psychoses, and that those vocations which are regarded as being introverted in character have a large percentage of cases in the schizoid group, whilst those regarded as being extroverted in character have a large percentage in the syntononic group.

#### INTROVERTED GROUP.

*Engineering.*—We find that amongst engineers and fitters, 53 belong to the schizoid group and 16 to the syntononic group.

*Students.*—This group supplies the most striking figures, there being 30 in the schizoid against 2 in the syntononic group.

*Clerks.*—There are 41 in the schizoid group against 13 in the syntononic group.

*Doctors, surgeons, dentists.*—In this group 28 belong to the schizoid group and 8 to the syntononic group.

*Chemists, druggists.*—In this group there are 14 in the schizoid group to 2 in the syntononic group.

*Carpenters.*—In this group there are 44 in the schizoid group and 22 in the syntononic.

*Soldiers, officers and men.*—There are 90 in the schizoid group against 18 in the syntononic group. For officers alone there are 16 against 3, and for men alone 73 against 15.

*Stonemasons.*—There are 20 in the schizoid group against 5 in the syntononic group.

*Labourers.*—There are 333 in the schizoid group against 270 in the syntononic group.

*Solicitors.*—There are 16 in the schizoid group against 5 in the syntononic group.

*Bricklayers.*—There are 18 in the schizoid group and 8 in the syntononic group.

#### EXTROVERTED GROUP.

*Farmers.*—There are 68 in the syntononic group against 32 in the schizoid group.

*Blacksmiths.*—There are 22 in the syntononic group against 11 in the schizoid group.

*Shopkeepers, grocers, bakers, butchers, drapers, ironmongers, fishmongers confectioners, florists, newsagents.*—There are 61 in the syntononic group against 39 in the schizoid group.

*Policemen.*—There are 8 in the syntononic group against 2 in the schizoid group.

*Railwaymen.*—There are 8 in the syntononic group against none in the schizoid group.

*Publican, potman or others.*—There are 16 in the syntononic group against 11 in the schizoid group.

*Shepherd, hind, cowmen or thatchers.*—There are 22 in the syntononic group against none in the schizoid group.

*Managers, directors, brewers, merchants.*—There are 26 in the syntononic group against 11 in the schizoid group.

In the introverted group we quite expect to find a majority in favour of the schizoid psychoses amongst engineers, students, clerks, chemists, carpenters, stonemasons and bricklayers. These are all vocations requiring mechanical ability or the handling of concrete objects. In a way one is surprised to find members of the medical profession in this group, as they undoubtedly deal largely with social contacts; on the other hand, as much of their

work is scientific, and, in the case of surgeons, mechanical, it is not so surprising that they should appear in this group. The presence of such a large proportion of soldiers in this group is perhaps to be explained by the fact that pre-war so many men who were markedly introverted and not a great success in anything were pushed into the army. Of all men, surely officers deal with social contacts, yet there is a heavy majority against the social psychosis.

Solicitors, whose whole work is made up of social contacts, have a big majority in the introverted group—perhaps because so many of the concepts they deal with are abstract!

When we come to consider the extroverted groupings, it is difficult to explain why farmers, shepherds, etc., and blacksmiths should come into this group as they all deal with concrete things and little with social contacts.

From the complete table one or two surprising things may be noticed in addition to the above. One would have expected to find a majority of teachers in the extroverted group, yet the numbers are equal in the two groups. In the same way the numbers of commercial travellers is the same in each group, but the small incidence perhaps accounts for this. In most other cases where the numbers appear to be the wrong way round, in all probability the small incidence of the particular vocations accounts for this.

#### CONCLUSIONS.

1. An attempt has been made to indicate the relation between vocation and the type of biogenic psychosis developing in any particular man.

2. It is quite realized that many of the results shown are of little use until much larger figures are obtainable, but it is hoped that from this beginning others will follow up what is, if nothing else, an interesting sidelight on psychiatry from the point of view of vocational psychology—a comparatively new branch of knowledge.

3. Much of the reliability of the results is marred by inaccurate and incomplete diagnosis.

My thanks are due to Dr. P. W. Bedford for permission to make use of the hospital case-books.

*References.*—(1) Jung, C. G., *Analytical Psychology*, 1916.—(2) *Idem.*, *Psychological Types*, 1924.—(3) Conklin, E. S., *Journ. of Abnml. and Soc. Psychol.*, 1923.—(4) Freyd, M., *Psychol. Rev.*, 1924.—(5) MacDougall, W., *An Outline of Abnormal Psychology*, 1926.—(6) White, W. A., *Mechanisms of Character Formation*, 1916.—(7) Tansley, A. G., *The New Psychology*, 1920.