Titrate from a burette with the ammonium sulphocyanate solution (Solution No. 2), stirring with a glass rod. This precipitates the excess of silver nitrate. A permanent brown tint due to iron sulphocyanate marks the end reaction.²

Of the 60 urines examined in the table on the previous page the variation by this method when present is so small as to practically fall within the limits of error in technic.

MYSTICISM AND MEDICINE.

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WHATEVER opinion one may entertain concerning the uses and abuses of psychotherapy, its widespread influence upon contemporary thought is obvious. Indeed, it may be said with truth that we are already in a fair way to behold that "beautiful word Psychotherapy" supplant completely its ancient predecessor derived from the Greek. Among physicians there is manifest a dignified interest inspired by a becoming conservatism, while among the laity and some of the clergy the subject has become a veritable obsession, characterized more often by the zeal and vigor of its propaganda than by the profundity of its wit. Intermingled with some sound reason and practical good sense appears a vast amount of more or less pompous inanity togged out in the suits and trappings of psychology and tending most assuredly to obstruct the progress and to interfere with the legitimate province of scientific medicine. As was to be expected in a thing so human, the extremists have long since appeared in battle array: on the one side those who can see little, if anything, in psychotherapy; on the other, those who profess to see everything in it. The former proclaim with some animation (as though warmth of utterance can ever make up for solidity of argument) that "psychotherapy is as old as the hills," a most delicately graceful, because doubtless unconscious, compliment to its complete modernity. The hills are quite perennially new. Those of the other extreme would lead one to think psychotherapy the discovery of the present age, a more than presumptive bit of evidence that it is probably very old. For in philosophy and morals and religion there is scarcely anything fundamentally recent. Even Protagoras was a pragmatist and the young-oldest member of our most fashionable philosophic set. The spectacle is interesting, not a little perplexing and well worth one's efforts at orientation, which ought to result, if experience be any criterion, in producing yet further confirmation of that wise old Roman's saying, "*In medio stat virtus.*"

Man is an incurable mystic; he is also an incurable rationalist. By preference he is mystical,

² The calculation is performed as follows:
Assume the twenty-four-hour amount of urine to be 1,500 ccm. To 10 ccm. of urine, 20 ccm. of the silver solution (Solution No. 1) and 12 ccm. of the ammonium sulphocyanate solution (Solution No. 2) of the strength previously mentioned (factor 1,200) have been added. Then $12 \times 1,200$ reduced this solution to the equivalent of the silver solution and equals 14.4 ccm. Then $20 - 14.4 \times .01 \times \frac{1}{100} = 8.4$ gm. NaCl.
1 gm. NaCl contains 0.6065 gm. Cl.; therefore, $8.4 \times 0.6065 = 5.09$ gm. chlorine.

by compulsion rationalistic; sometimes one, sometimes the other, on occasion both; and in proportion to the quantity and quality of these ingredients in his complex personality will he admire Mr. Wordsworth and St. Augustine or Mr. Herbert Spencer and Prof. Ernest Haeckel. So that in practical life we may divide men roughly into the mystics and the rationalists. Each of these, if he be sincere, will live his own life in his own way and is not unlikely to misjudge the aims and misunderstand the motives of the other. Since, also, life implies motion, and motion necessarily demands movement toward something, we should expect to find the mystic traveling toward the object of religion and the rationalist headed straight for exact science. Furthermore, we ought to count more mystics than rationalists, because both in phylogenetic and in ontogenetic development the mystical sense is anterior to discursive reason. Now some such thing as this we do actually observe in the society about us, and hence it is not difficult to understand why a religious movement like that embraced under the contemporary name of psychotherapy should appeal immediately and widely to the popular mind; for this psychotherapy as practiced by the clergy is, in its last analysis, a form of mysticism. There is thus a certain ambiguity attaching to the word "psychotherapy." As the name of a religious movement it means one thing and as the name of a scientific procedure it signifies quite another and a different thing. While there is no necessary antagonism between the two, nevertheless the use of the same word with a different connotation is a sin against the most elementary canons of logical method. It has led in the past, and in the future is bound to lead, to confusion and misunderstanding. Nay more, signs are not wanting that it may lead to loss of temper, with crimination and recrimination. Physicians, in the nature of things, will not understand, nor will they extensively practice, mystical psychotherapy; clergymen, as a class, will not practice, nor will they understand, scientific psychotherapy.

In attempting thus to distinguish somewhat sharply between two varieties of so-called psychotherapy, no one is more conscious than the writer of their mutual relations and possible usefulness, one to the other, when there is question of their practical application in concrete daily life. Human personality is not a mere mechanical aggregate of unrelated elements; it is an organic unity endeavoring to consummate certain more or less conscious interests and purposes. But when we have granted so much we have by no means admitted that in so far forth as man is a social being requiring assistance he should look for this assistance solely to one source. Life is too complex for that; and hence we have of necessity a division of labor. When man's interest is legal, he seeks the advice of a lawyer; when it is medical, he goes to a physician; when it is ethical or religious, he asks the sympathetic co-operation of the clergyman. The very breadth and profundity of the knowledge required of each precludes the

possibility of profitably rolling all of these gentlemen into one. Such may well be an ideal to be thought of, but human nature being what it is, nothing save harm can possibly result from any such unification. The progress of civilization has rendered the medieval architect-lawyer-physician-priest no longer possible. And it is this very immensity of knowledge together with the finitude of human intelligence that makes a present-day physician-priest an anachronism, if not, indeed, as many think, a positive menace to the cause of progress. Accurately to diagnose and intelligently to treat such an apparently simple thing as a morbid fear may, and usually does, demand the knowledge derived from years of medical study and experience. Altruistic motives, commendable though they be, and excellent in other respects, cannot be made to take the place of knowledge, and by knowledge is meant not the semi-popular, half-digested information derived from certain works on psychology, but rather the substantial training that begins in the medical school and continues in the larger school of life. To hold any other opinion would be to maintain that the patient labors and hard-won victories of science are unnecessary, since theology makes men wise by intuition. Let us hope that the day is not yet when knowledge shall cease to be a prerequisite of power.

It is not necessary here, nor would it serve any useful purpose even were it within the writer's ability, to trace the long and devious history of mysticism from its oriental origin through its continuation in Neo-Platonism and Christianity in the West. It is, however, necessary to state that while in its pure types it has produced some of the highest ethical and religious geniuses, it has also, in its corrupt forms, evolved some of the worst and most pernicious charlatans and quacks. Like a shadow an unhealthy pseudo-mysticism has always accompanied the genuine type and the former has been the fertile propagator of superstition, occultism, ignorance and lies. Indeed, so well aware of this were the mystics themselves that they were wont to set forth certain tests whereby one might distinguish the true from the false variety. And in the history of medicine there is a long and painful chronicle to show that as medicine at one time or another became mystical it ceased in greater or less degree to be scientific. What has occurred in the past may well occur in the present. There is no reason not to suppose, on the contrary there is every reason to suppose, that this parasitic pseudo-mysticism is just as capable of developing and of producing its evil effects to-day as at any time in the history of mankind. Once divorce feeling and emotion from the inhibiting power of reason and you open the flood-gates to every kind of sentimental extravagance. In the case of much of the popular, present-day psychotherapy this is acutely, almost pathetically, certainly painfully evident. So intangible are mental facts, so elusive are they and incapable of precise delimitation, that they lend themselves most readily to error and illusion. And where doctors

disagree and exercise a prudent restraint, the laity not seldom seem to possess a degree of certainty that would have filled Descartes with envy. In such minds one may question whether there is any reality answering to the word "psychotherapy."

We have indicated a distinction between two kinds of psychotherapy — the mystical and the scientific. What, it may be asked, is the difference between them? We may answer with a quotation from Wordsworth. In a remarkable passage of the Prefaces he writes, "If the time should ever come when that which is called science shall be ready to put on, as it were, a form of flesh and blood, the poet will lend his divine spirit to aid the transformation and will welcome the being thus produced as a dear and genuine inmate of the household of man." And in another place he looks forward to the time when science shall be touched with a living fire,

"Then her heart shall kindle; her dull eye,
Dull and inanimate, no more shall hang
Chained to its object in brute slavery."

Now in these passages the poet seems to have expressed a great primal truth, which is this: that if science wishes to be more than a formal, somewhat frigid and abstract study of phenomena, it must first be transformed into living flesh and blood, must put aside its aloofness and, becoming touched with a divine fire, descend into the dusty arena where real men and women are struggling with the sad problems of life. It must roll up its sleeves and give them a helping hand. And when it does this it will find need of the poet's heart. It will discover, too, that the poet's view of nature and of man, with its own, contains an equal moiety of truth. And what is it that the poet gives to life? He gives *meaning*. If poetry spells mysticism, and if true mysticism spells religion, here, then, is the opportunity for mystical psychotherapy. Whether in the hands of the clergyman or the physician, mystical psychotherapy has to do with the *meaning* of life. It preaches that life is ultimately spiritual and attempts to inculcate attitudes of mind and of heart in consonance with such spiritual meaning. In a word, it preaches the laws of the spiritual life. This is the legitimate field of its endeavor and to this it should be strictly limited. It has no right to encroach upon the domain of scientific psychotherapy. Thus defined and limited, mystical psychotherapy is an affair of ethics and religion, the proper sphere of the clergyman.

And if, as Edward Caird so truly says, "A man's religion contains the summed-up and concentrated meaning of his whole life," it is the clergyman more than any other who should assist in determining what that meaning is to be, for the meaning given to life will of necessity tend to color thoughts, emotions, feelings and volitions, in a word, one's conduct and attitude toward the world. I suppose no one will deny that there are laws which govern development in the spiritual world as well as in the world of matter. It is

these laws that mystical psychotherapy has to promulgate. This is the world-old business of the priest. Why, then, give it a novel name which implies that it is something particularly new?

But when we approach scientific psychotherapy we are dealing with something of quite a different order. The fact that mystical psychotherapy has appropriated many of the data and methods of scientific psychotherapy does not in the least invalidate the distinction between them. The very instruments of the former have been borrowed from the armamentarium of the latter. While no one can deny the incompleteness and limitations of scientific psychotherapy, it can be rightly claimed that at least it has tried to conform to the methods of exact science. In the first place it has attempted to take *all* of the facts into consideration; secondly, it has advanced along the safe though arduous road of observation and experiment; thirdly, it has developed certain methodological procedures to compass its ends. Whatever justice there may have been in the ancient (and modern) complaint of Plato that the physicians of Greece devoted too much to the body and too little attention to the soul, the fact remains that it has been the descendants of these same physicians who have developed a really fruitful and practical psychology. They have brought psychology into the forum. And they have done this by studying attentively the many wise complex and varied factors that enter into the production of man's conscious experiences. They have observed that he is not a disembodied spirit, neither is he a mere mechanism of flesh and bone. He is an organic, indissoluble, mind-body unit, who cannot be split into two without great injury to his welfare.

Accordingly, scientific psychotherapy in its desire to know and to utilize all the facts has ever insisted upon placing its foundations upon the bed-rock of a rational psycho-physiology. It has wished to know when approaching an apparently purely mental fact whether this mental fact has behind it certain physical conditions which though obscure and perhaps at the time more or less conjectural represent nevertheless the head and front of the offending. Scientific psychotherapy is forever inculcating the necessity of a knowledge of man's physical constitution if one would adequately understand his mental states. Hence physiology, pathology, bio-chemistry and all the various departments of medical science are placed under tribute in the effort to understand the nature and genesis of a given morbid neurotic condition. If this is so, and no one can deny it, it needs no argument to prove that the physician, and he alone, is fitted to practice this sort of psychotherapy. And furthermore it must be obvious that no layman or clergyman can obtain this knowledge from the uncritical reading of such literature as Professor Dubois' somewhat overrated book.

The second characteristic of scientific psychotherapy is its use of observation and experiment. Now observation, as distinguished from the mere seeing of phenomena, requires a degree of acumen

which results only from training and experience of a special type, while to perform an experiment of a fruitful kind demands an equal amount of skill and knowledge. It is necessary merely to glance through the vast literature of neurology and abnormal psychology to appreciate the truth of this statement. The illusive simplifications and the delightful *naïveté* of popular psychology are nowhere in evidence here; but instead one observes a technicality of thought and expression which is altogether consonant with the difficulty of the subject. Not all physicians feel themselves at home in this perplexing field. How, then, is it possible that laymen and clergymen should do so?

And when we proceed to consider the special methodological procedures of scientific psychotherapy we are still further impressed with the difficulty of the subject. Hypnosis, hypnoidization, distraction, psycho-analysis, suggestion, tests of association, all of these technical methods have arisen out of scientific psychotherapy. In the hands of any save the most experienced persons these things are capable of producing an incalculable amount of harm. Imagine the injury to mind and body, to religion and morality, which is likely, nay certain, to result from the indiscriminate employment of these two-edged weapons in the hands of amateurs, whose very ignorance renders them unconscious of the harm they do. The writer has talked with many, not physicians, and has yet to meet that one who by education and experience is capable of using hypnosis. Still, at one time or another the employment of hypnosis and similar methods is quite necessary in the diagnosis and treatment of some types of psycho-neuroses.

Must it then be said that there is no place for the clergyman in the practice of psychotherapy? By no means, provided always we are careful to define precisely what we mean by psychotherapy. Assuming that our division of psychotherapy into mystical and scientific has some foundation in fact, there is no possible question that the clergyman should be welcomed now and always as a practitioner of mystical psychotherapy, for sane Christian mysticism conduces to individual and social health. On the other hand, scientific psychotherapy should remain strictly in the hands of those qualified to use it, namely, regular physicians. On both sides there should be the spirit of co-operation, not certainly of usurpation. For health and holiness are very closely related. "Health," writes Francis Thompson, "I have well-nigh said is Holiness. What if Holiness be Health? Two sides of one truth. In their co-ordination and embrace resides the rounded answer. It is the embrace of body and spirit, seen and unseen, to which mortality, sagging but pertinacious, unalterably tends."

THE Berlin Academy of Sciences has awarded its Helmholtz medal to Prof. Emil Fischer, for his work on the sugars and albuminoids. — *Science*.