In many departments of medical science there appears to be an immense amount of knowledge of disease which is probable rather than certain, hypothetical rather than proven, possibly true yet unsupported by adequate and rigorous evidence. What is equally to be acknowledged is that we frequently diagnose and treat as if this body of information were, as a fact, erected on a sure foundation. The physician will admit, when challenged, that much of his diagnosis is purely inferential; he will diagnose pleurisy or pneumonia with confidence when he is well aware that he cannot see the pathological process and only deduces its presence by the signs that reveal it. Even so, this knowledge is based on the correlation of the objective findings of the deadhouse with the symptoms observed during life, and the steps whereby he passes in his mind from one to the other would be in fact somewhat long and possibly precarious, were it not that a good part of his diagnostic procedure is, so to say, subconscious. Life is too short, and the patience of the busy practitioner also, for him to set down in order, for each case, the technique of his diagnostic steps in any severely scientific form. Much of this 'floating,' uncertain medical knowledge is compounded of undetermined opinions, of 'working' conclusions that have never been submitted to crucial tests.

Another matter which has a bearing on the question is what Sir William Gowers once called the old and inevitable antagonism between pathology and therapeutics. Each flourishes at the expense of the other. Our acquisition of the facts of disease is for the purpose of applying the information to the cure of disease; if we are in a position to obtain pathological data, our therapeusis has failed, but when it succeeds we make no addition to our pathology. In other words, the more successful our treatment the more are we dependent on the 'chapter of accidents' for real, 'inside' information as to the morbid processes that have been going on. This was the case more definitely some thirty years ago than it is to-day, for the cul-de-sac into which the above-mentioned antagonism leads can be, and has been, largely avoided by development of the science of experimental pathology. Resorting to it, we are able to reproduce by experimentation the action of known toxic
and microbial substances and organisms, and by correlating the symptoms observed during life with the pathological states found at autopsy we gain an insight into the production of disease signs as discoverable in human subjects. Thus we can in some instances visualise with our inward eye the exact nature of the pathological basis the exteriorization of which is all that the clinician can possibly detect. Obviously, the more ingoing our study of experimental pathology the less will be that uncertain knowledge of which, unfortunately, so large a part of medical science is made up, and on which so much medical art has still to depend. Thanks to advancees of this kind, the ‘growing point’ of study, in various internal diseases, has moved away from morbid pathology to prophylaxis; we are now less interested in the gross and histological pathology of, say, typhoid fever than our fathers were, for the simple reason that the certainty of our knowledge should prevent therapeutic failure.

Now the subjects with which this Journal is specially concerned, those of neurology and psychopathology, can scarcely show similar advance. Take, for instance, the important question of syphilis. With the discovery of the spirochaeta pallida by the zoologist Schaudinn, in 1905, a new era of syphilology was clearly entered on, and no clinician who is old enough to be familiar with pre-spirochaete and pre-Wassermann days will gainsay the great change that has since come over the question, not only in respect of the clinical manifestations of the disease but also in regard to its curability. He no longer sees the chronic tertiary syphilides and serious bony lesions of other days; even the once common ‘broken’ nose, interstitial keratitis, and notched teeth of congenital syphilis are undoubtedly more rare than they used to be, and it is a reasonable speculation that greater changes will yet take place. But when we come to neurosyphilis itself, what is the present situation? It is still one of uncertain knowledge. The hundred-per-cent. syphilitic disease, general paralysis, is being treated by methods of circumventing the spirochaete and not by specific means. The causative organism is not found in numerous cases of neurosyphilis; we do not know its habitat, its life-history, its possible intracellular forms. We do not know how it subsists for years somewhere or other in the body; nor why in the fulness of time it starts on an active course, long after its host has forgotten that he ever suffered from the original sore. Opinion is still divided on the question of different strains of the spirochaete, on the existence of a neurotropic as opposed to a dermotropic variety, on a special syphilis à virus nerveux. Experimental neurosyphilis has not been satisfactorily produced. The spirochaete is able to travel a long way from chancre to cerebral tissue-spaces, but we do not appear to be able to make spirochaetocidal drugs follow the same route or reach the same spots. The Wassermann test is in daily use for diagnostic purposes, but it is a ‘group’ and not a ‘specific’
reaction, for which, as a fact, a specific (syphilitic) antigen is not essential. Thus when we come to sum up our knowledge of neurosyphilis in severely scientific and logical terms we must confess to the existence of various hiatuses and lacunæ that are bridged for therapeutic purposes by empiricism and not by objective knowledge.

Uncertainty becomes still more in evidence when we approach the field of the psychoneuroses and of psychiatry, for this is a sphere as yet untouched by experimental medicine. The psychiatrists and psychopathologists themselves are the first to admit that knowledge in their department is in a state of flux. They cannot match the precision of the interaction of the diphtheritic bacillus and antidiphtheritic toxin by any correspondingly certain procedure as between dementia praecox and its antidote. Indeed, the general rule that multiplicity of therapeutic means for a given diseased state signifies absence of any specificity is only too applicable in mental medicine to-day. Yet we do not believe certain knowledge in psychopathology is an impossible or impracticable goal to aim at; in respect of hysteria etiology is established on a firmer, because more unified, basis than ever before, and this is the first step towards a rational therapeusis. Unfortunately, however, the mental affection of which the precise etiology is recognized can be numbered on the fingers of one hand; for vast groups, such as the manic-depressive psychosis, dementia praecox, toxic psychoses, and so forth, we have to be content with uncertain knowledge.

Perhaps the most glaring instance of the kind concerns the science of endocrinology, if it is a science. Of only one endocrine gland and the clinical manifestations of its disorder can we say with truth that the stage of empirical knowledge is at last coming to an end. As for the others, and as far as glandular interaction and interrelation are concerned, the strictures recently passed by Professor Swale Vincent must be accepted by all who are capable of examining the subject in a detached and unbiased fashion. Here, indeed, uncertain knowledge is rampant. The fond mother is allowed to imagine that her offspring will become rather more of an Admirable Crichton and less of a mental defective if he absorbs some more or less inert endocrine tablet; moral imbecility is similarly treated with equally doubtful glandular extracts. What, then, of the personality changes that have been a frequent derivative of epidemic encephalitis? Has the virus of this affection thrown the ductless glands into disorder too, or is the major part of endocrinological therapeutics crass empiricism?

There is no need, however, for therapeutic pessimism or nihilism. The physician with some historical sense can renew his courage when he remembers how uncertain knowledge has in many instances been no obstacle to the advancement of scientific truth, which has, as a fact, often enough emerged from error. This, doubtless, is the stock argu-
ment produced, by those who regard orthodox medicine with disfavour, for the purpose of advocating therapeutic methods and etiological conceptions that border on charlatanry and humbug, a particularly striking instance of which is fresh in the medical mind. But we must be prepared to face this charge and at the same time to ignore the misapplication of the argument. The medical profession can justifiably claim that the uncertainties of one generation have become the certainties of the next; they have ever been cognizant of the fact that their art is long and not to be measured by the span of the individual's life. What probably is more important to-day than any other consideration, in view of the unceasing research being conducted wherever the spirit of investigation burns, is that this should be directed into hopeful channels and along promising lines. A chapter might be written on the wasted hours and years of unprofitable seeking. Uncertain knowledge is not a vain thing if it points the way; it is worse than useless if its sole result is to confuse.