SOME years ago, in a preface to the translation of a monograph by Kraepelin, Professor George Robertson observed that by far the most important problem facing the psychiatrist and the community, in the domain of mental hygiene, was that of dementia praecox. From such a view but few psychiatrists would be inclined to dissent—and certainly not those whose lives are spent in daily contact with large numbers of psychotic patients, the majority of whom must be diagnosed as suffering from this sinister disease in one or another of its protean forms. The increasing financial burden imposed upon the community for the treatment of the chronic insane resolves itself very largely into the outlays needed for the care of the almost hopeless victims of dementia praecox. Moreover, as these patients may live to a considerable age under the protected conditions of mental hospitals, they tend to accumulate, and thus form the main reason for the periodical necessity of enlarging existing institutions, and of erecting new ones. Though it is now generally recognised that certain schizophrenic conditions have not necessarily the malignancy that was formerly attributed to them, it has to be admitted that the cardinal symptoms described by Kraepelin as diagnostic of dementia praecox are, in the main, indicative of a disorder the evolution of which is in the direction of permanent psychic deterioration. Clearly, the importance of attacking the problem of the cause of this disease cannot be too emphatically stressed.

During the last few years original and hopeful lines of investigation have been carried out that would appear to have definitely advanced our knowledge of the pathology of dementia praecox. A new orientation was given to biological investigation by the work of Mott on the sex and other glands. His findings were thoroughly in accord with clinical and psychological studies, for in dementia praecox it would seem that it is not so much the highest and most recently evolved functions such as the intellect that are primarily evolved, as the oldest organic-instinctive and affective tendencies which con-
stitute the ultimate urges to action. Further investigations revealed the fact that the morbid changes were not confined to any particular organ, but that every tissue in the body was affected, a condition which was held to be indicative of deficient oxidation processes. This work was followed up by Golla, who was impressed by the fact that, in spite of indisputable evidence of a generalized anatomical change in the tissues, there was no physical symptomatology which would accord with these lesions apart from the very generally observed depression of basal metabolism. The work of Pighini and others of the Italian school failed to discover any single fact in the metabolism that was directly characteristic of dementia praecox and allied psychoses. It seemed that the biochemical and neurological functions of the psychotic were very much like those of the normal subject, except that there was a fairly general, but by no means universal, depression of activity. With these facts in mind Golla changed the methods of attack. He no longer looked for static biological differences between the psychotic and the normal subject, but concentrated on testing how the organism of the former would behave when it was put to any physiological stress. The results of these researches were very striking, and they pointed to the conclusion that in the psychotic subject there is a disturbance of acid-base equilibrium consequent upon the primary depression of the respiratory centre. The highly suggestive and interesting generalisation was made that the physiological condition of the psychotic closely resembles that existing during sleep in the normal individual. It is instructive to note in connection with these researches and their conclusions that Loevenhart, Lorenz and Waters have independently come to conclusions as to the pathogenesis of dementia praecox which are strikingly in accord with the above, for in a series of experiments carried out upon confirmed cases of catatonic and stuporose precocious dement it was found that all these cases exhibited a marked reduction in the sensitivity of the respiratory centre to carbon dioxide. The opinion is, indeed, expressed by these investigators that the decreased irritability of the cerebral cells to normal carbon dioxide content may be the crux of the psychotic state in question, since they found that a sufficient increase in the carbon dioxide causes a restoration of what we may regard as relatively normal psychic function. The results obtained by Loevenhart and his co-workers were highly impressive. Respiratory stimulation was brought about by inhalations of
carbon dioxide and oxygen, beginning with 10 per cent. carbon dioxide, the strength of which was increased not more than 5 per cent. each minute until a final concentration of 30 to 40 per cent. was reached. The most favourable and striking reactions occurred in those patients who had been mute and inaccessible for long periods of time. A number of patients carried on conversations; one was markedly facetious and made responses typical of talkative hebephrenic dementia praecox. Some of the patients appeared frightened when cerebral stimulation developed; they looked about apprehensively, but became calm and at ease quite promptly when efforts were made to reassure them. In other words, they seemed to comprehend the situation correctly and following this they made coherent and relevant replies to questions. In one patient who had been mute for more than six years, the efforts at speech for about two minutes resulted in a jumble of unintelligible but speechlike sounds, after which the words became distinct and a successful conversation was held. The cerebral stimulation, as evidenced by free muscular movements, animated features, and ability to carry on a conversation and to comply with requests, lasted from two to twenty-five minutes. As the effects of the stimulation passed off, the retrograde changes began. Gradually the voice became less audible; the responses to questions became halting with long lapses; the facial expression became set; eye movements ceased, and attention could no longer be obtained. The muscular rigidity recurred, and in the course of two or three minutes the patient lapsed into his former state of mutism, negativism, and complete inaccessibility. The writers observe how striking it was to note the completeness of resumption of the former muscular state. The production was faithful to the minutest degree—the same posture, the same facial grimace, and apparently the same mental state.

The investigations we have briefly referred to are very encouraging. They certainly throw light on the pathology of dementia praecox and suggest directions in which biochemical therapy might be usefully applied. They show that material advances in our knowledge of the pathology of this widespread mental disease are possible, provided that existing methods of biological research are utilized to the fullest extent, and new ones are devised. There would appear to be no a priori reasons why the pathology of this disease should not be eventually elucidated. Possibly, also, with an increased knowledge of
causation suitable remedies may be discovered which may arrest the course of the disease in its early stages or even cure it when fully established. The fact that apparently hopeless dementia praecox cases are capable of being stimulated to a condition of relative normality for even a short time is suggestive and encouraging, and an attitude of pessimism in regard to this disease would appear to be unjustified. There would seem to be no reason to suppose that its nature, prevention, and cure are more impossible than is the case with other forms of physical disease the pathology of which has not at present been elucidated. It is quite certain that, until we have increased knowledge of dementia praecox, efforts in mental hygiene must necessarily lack precision and direction, for this disease is the fundamental problem of psychiatry. Organised, continuous, and unremitting biological research by those who are qualified to carry it out will alone be effective in discovering the secrets of so widespread a psychosis.