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PSYCHIATRY AND GENERAL MEDICINE*

BY

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I regard it as a great honour to have been invited to deliver a lecture in the Birmingham Medical School, where so much is being done to effect a liaison between psychiatry and general medicine. This closer integration is greatly to be desired because of the further contribution which may be made to the science and art of medicine. We have worked far too long in considerable isolation, and in consequence we have been too localized, too one-sided, too much in the nature of special pleaders, when a more comprehensive outlook would have led to greater benefit both to our patients and to ourselves. The gap which exists between psychiatry and general medicine (which is inclusive of surgery, obstetrics, gynaecology, etc.) is still far too wide; it requires to be rebridged, and it is my purpose here to consider how that may be effected. The task is a formidable one, because prejudices and faults which are difficult to overcome have been developed on both sides. However, I shall try to examine the position as dispassionately and fairly as possible.

Aim of the Medical Profession

Our profession is vitally concerned not only with the treatment of persons who are ill and in need of help but also with the even greater responsibility of understanding the fundamental facts of human nature and of biology, which concerns itself equally with the health of the individual and the welfare of society. That wider concept of our aim is in process of being more generally recognized, so that it is customary in some universities to inform medical students at the very beginning of their career that medicine is not purely an objective mechanistic science but rather a sphere of work which embraces all the interactions of mind and body. Such a changed outlook constitutes a distinct advance, and prepares the mind of the student to think much more comprehensively of what is ahead of him. It indicates that we have departed a long way from the conception of illness as an organic disease, and it suggests that the multiple causative factors which may exist should be investigated at both a psychological and a physiological level. The result should lead to greater clinical acumen, more accuracy in prognosis and diagnosis, and more successful treatment. The fact that attention is being centred on the whole man will inspire greater confidence both in patient and in doctor, and healing will become more easily managed owing to the neutralization of fear, anxiety, and apprehension, which are so often at the root of all illness.

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All who successfully practise the healing art recognize the above principle. The particular agent employed might have been a priest of experience at one or other of the Aesculapian temples; Mesmer or one of his disciples; a royal or other distinguished person who used the prerogative of "touch"; the Christian Science Church; or Lourdes; or Gheel; or any other person or place which inspired confidence. That that is not an antiquated theory is amply confirmed by a book recently published, *Stress and Disease*, by H. G. Wolff, whose work on psychosomatic disorders is so well known. A review of that book (*Lancet*, 1953, 2, 763) points out that "man's reaction to man may be at least as important as his reaction to a microbe." It is therefore not so surprising as it might seem that Wolff, as a result of his interesting and intensive study of 739 subjects, concluded that the main therapeutic aim to effect recovery was to produce tranquillity and freedom from sustained hostility and resentment. It was only then that satisfactory cures could be attained—surely a powerful argument in favour of the psychosomatic approach.

Attitude Towards Mental Illness

In earlier times, to which reference has already been made, it is probable that the main differentiation of illness was effected in terms of death, recovery, or apparent incurability. And it is a fair guess to suggest that the vast majority of psychotic and nervous patients belonged to the incurable class. No doubt it was their recalcitrancy, their inability to respond—either to kindness or to a beating—which led eventually to their exclusion from society. They were not understood; they were stigmatized as wicked and perverse rather than as suffering from an illness which, under proper conditions, might respond to treatment. I regret to say that I believe we may have helped to manufacture many of them by the harsh and arbitrary methods of treatment which were in vogue; padded rooms, excessive sedation, the too hasty employment of powerful physical remedies. In passing it is of some interest to comment on the fact that such conditions as multiple personalities and florid conversion hysterical states, often the results of ill-advised examinations, rarely occur to-day.

It seems to me that it is justifiable to state that our practice in relation to mental illness then was very similar to our attitude towards the delinquent classes to-day. Constructive rehabilitation measures—legal, medical, and social—for those who for one reason or another fail to make a satisfactory social adjustment because of mental illness or delinquency, are still sadly lacking.

Great advances have undoubtedly taken place; our therapeutic equipment is much more efficient and varied, but in the face of failure we are much too slow and unwilling to admit our incompetence and lack of knowledge. We behave much as our forebears did; we over-rationalize, we project our disappointments on the lack of co-operation of our patient, or question the genuineness of his complaints, or call him a wicked, immature person with a decided negative transference. This, of course, is the identical attitude adopted by those who criticize art, or poetry, or music, or anything else they neither understand nor like.

A Dangerous Trend

In the development of our special medical skills we have watched the progress of general medicine by way of biochemistry, biophysics, physiology, and therapeutics, while psychiatry has gained its particular stimulus through the study of biology, personality structure, psychogenesis, and psychotherapy. Such a parallel but divided course has constituted a dual misfortune, because general medicine became too organically minded, too mechanistic, almost too pathological, while psychiatry lost its objectivity and became dominated by the subjective, emotional, and hypothetical. The somewhat absurd stage has now been reached where, so far as the latter is concerned, a basic medical training is no longer regarded as a necessary prerequisite for the work of the clinical psychiatrist. Truly that is a most serious and disastrous state of affairs. It cuts across all medical tradition and practice. We must not be content with the thought that lay therapists are not accorded official recognition; that is not enough, because, irrespective of the lack of official recognition, certain institutes and clinics have drawn up comprehensive programmes of instruction (of which personal analysis is usually an integral part) to which many lay persons are attracted.

I regard such a development as dangerous and reprehensible; it tends to undermine the whole structure of medical education; it requires the critical attention of every faculty of medicine and of the General Medical Council. How has all this come about? Largely, I believe, because orthodox medicine has so often failed to give due consideration to the psychological factor which is so much part and parcel of all illness. There is truth, indeed, in the statement that the *malades imaginaires* are the reward of the quack and the despair of the honest physician. In consequence the advocates of the policy of training lay psychotherapists justify themselves by pointing to the large number of nervous invalids in need of help, and the scarcity of trained personnel to deal with them. For my part, I do not accept that statement as a valid argument. The management of the greater number of psychoneurotic states is not an essentially specialist problem, but one which should be brought within the scope of a well-trained general practitioner.

Some, at least, of the mistakes and difficulties I have mentioned would be avoided if we were more historically minded, and had more ability to correlate our clinical observations. It is so disappointing to find that so many of our colleagues seem to believe that psychiatry began to function only from the Freudian era, while others, even more modern, base their practice on the wonders of present-day physical therapy. This is evidenced by those candidates for senior appointments who, in support of their claims, proudly state that they have had a personal analysis, have introduced electric convulsion therapy into their out-patient departments or consulting-rooms, regard insulin coma as a specific for "early" schizophrenia, or have performed a transorbital leucotomy. It would be infinitely more encouraging if they expressed an interest in the broader aspects of psychiatry, in its history and its literature. It is more through good clinical observation and individual work with patients that we are likely to be successful in our search for so much which is still unknown. I do not want to flog that

issue too much, but, in order to keep a reasonable perspective before us, allow me to give you a glimpse of the thought and work of 100 years ago.

A View Held 100 Years Ago

In 1854 Forbes Winslow's first Lettsomian Lecture was entitled "The Psychological Vocation of the Physician," and what he said then is so apropos of my thought to-day that I venture to give a brief quotation. He wrote:

"I have undertaken in my first lecture to illustrate the special psychological attributes of the physician—to claim for the cultivators of medical science higher and more exalted functions than those usually assigned to them—to consider the physician in his spiritual character, as having at his command, and under his control, a *medicina mentis* as well as a *medicina corporis*—agents of great power and magnitude which have not been sufficiently recognized or appreciated. It will be my object to establish the close connexion between the Science of Mind and the Science and Practice of Medicine, and to illustrate the true philosophic character of the professors of the healing art.

"The physician is daily called upon, in the exercise of his profession, to witness the painful effect of mental emotion upon the material fabric. He recognizes the fact although he may be unable to explain its rationale. He perceives that moral causes induce disease, destroy life, retard recovery, and often interfere with the successful operation of the most potent remedial means exhibited for the alleviation and cure of bodily disease and suffering. Although such influences are admitted to play a part, either for good or evil, I do not conceive that, as physicians, we have sufficient appreciation of their great importance. . . . Many a disease is the *contre-coup*, so to speak, of a strong moral emotion; the mischief may not be apparent at the time, but its germ will be nevertheless inevitably laid."

That short extract indicates that many of the great physicians and psychiatrists of the past had an admirable knowledge of psychosomatic disorders, and it is surprising that the significance of the principles which they laid down is only now being fully recognized. Forbes Winslow and others like him, and some far greater than he, were broad-minded philosophical clinicians imbued with a wide outlook who, although they worked under great difficulties and against much prejudice, helped and cured their patients because of their interest and understanding of them, and because of the love of the work they were doing. To-day we are in a much stronger position than our forebears. Our technical resources have been greatly increased. We can readily enlist the help of chemists and physicists, psychologists, physiologists, brain surgeons, neurologists, all of whom can contribute their particular quota. But in our search for the new let us hold on to the experience, the wisdom, and the humanitarianism of the past.

Important Landmarks

We may now consider in more detail the biological concept which I have mentioned, and refer briefly to some of the more important landmarks which have contributed so much to an intensification of psychiatric thought and practice.

The descriptive and, may I add, the philosophical period of Kraepelin, Maudsley, Clouston, and their contemporaries was an era of brilliant achievement which has proved to be the foundation of many of the great advances which have occurred since. That is a categorical statement, no doubt, but yet I believe it will be substantiated by any fair-minded person who cares to examine the position for himself. It was the foundations and classifications of those men which inspired Adolf Meyer, in the first decade of this century, to describe his conception of psycho-biological principles, with particular emphasis on reaction types, and the study of the individual in his social setting. It is no exaggeration to say that his views and his teaching transformed the standard of psychiatric work not only in the United States but throughout most of the civilized world. His impact here in Britain was enormous. He was one of the great psychiatrists (clinical and neuro-pathological) whose penetrating, investigative mind made it imperative for him, in sizing up every case, to be in possession of all the facts derived from

whatsoever source, personal or environmental—a lesson and a discipline which it is essential for us to remember to-day.

During the same period Freud started from a much more specialized angle than Meyer, but it was not long before the ingenious technique of psycho-analysis for the treatment of certain psychoneurotic states broadened out into a system of philosophy and psychology which has received universal recognition. Whether Freud has done more for the advancement of an understanding of human nature than any other man since Aristotle might raise considerable argument, but he certainly infused an interest and a stimulus into psychiatry and philosophy which still persists. Our dreams, our words, our acts mean something, and even the weird and bizarre symptomatology of nervous and mental disorders which baffled our understanding for so long can be interpreted and understood. Freud brought us nearer the core of things.

Again, from a totally different and even wider angle, Clifford Beers, the young Yale undergraduate, promulgated the doctrine of mental hygiene as an educative force towards better, and healthier, and more understanding living. The small Connecticut Society for Mental Hygiene, which he founded in 1908, has grown into a mighty World Federation movement.

Each approach which I have mentioned has taken us a stage or two further. The work done has been complementary, and has been directed to the particular purpose of coming to a fuller understanding of nervous and mental illness so that it may be prevented and remedied.

Problem of the Nervous Invalid

We need help from all quarters in dealing with the tremendous problem presented by the nervous invalid—a problem which, whether in peace or whether in war, creates serious and numerous casualties, and one which, without wishing to be sensational, may be said to be eating into the life-blood and efficiency of every nation. At no time has it been more necessary to direct attention to the imperative need for a better appraisal of the interactions of mind on body, and body on mind—a study which can be successfully accomplished only by the friendly co-operation of psychiatry and general medicine.

A study of the epidemiology of psychoneurotic and psychosomatic disorders leaves us in no doubt of the upward trend which is occurring. Our out-patient departments are inundated with new cases, our in-patient accommodation is inadequate, and, furthermore, we have neither the quality nor the quantity of skilled medical personnel to deal adequately with those often so desperately in need of help. It may be that this present position merely reflects the disturbed social and economic conditions under which we are living, but it is more probable that the real cause lies a good deal deeper and is centred, to a certain extent, in the increase of the selfish, individualistic, irresponsible types in whom a sense of loyalty to family, friends, or organization is so greatly lacking. Wherever the fault lies it needs tackling, and one of the ways in which this may be done is to see to it that the doctors of the future are trained to investigate the psychological and social factors which may operate in any form of illness. It is partly a problem of medical education which will be referred to later.

But before I pass to another topic may I be allowed to comment on a group of psychosomatic disturbances which have always been of great interest to me. I refer to cases of pregnancy and child-bearing in which the interplay between the psychological and the physiological components must be very intense. In most cases, fortunately, the personality remains intact. Clouston was probably quite correct when he stated that nature seems to have a remarkable ability to look after the pregnant woman. But that is not always the case; many failures occur, and many difficult situations arise which lead to disturbances of thought and conduct that may be disastrous and tragic. Helene Deutsch

has explained all this very well in her book *Psychology of Women*, in which she points out "that there is hardly a woman in whom the normal psychic conflicts do not result in a pathologic distortion, at some point, of the biologic process of Motherhood." I think, for instance, of those cases in which there is (1) a fear of transmitting nervous or mental disease; (2) an unwanted child; (3) marital disharmony; (4) infertility; or (5) repeated abortion. When such conflicts are present there may be a rich display of symptoms which operate like a conditioned reflex—for example, nausea, vomiting, miscarriage. This is indeed a field in which the closest possible co-operation should prevail between the obstetrical and psychiatric departments.

It is not a very far cry from the mother to the nervous child—to an understanding of its psychological as well as its physical needs. Kanner has always insisted that the problems presented by such children lie in the patients themselves rather than in their organs—for example, poor school progress, enuresis, food capriciousness, temper-tantrums, nail-biting, fear reactions, epileptic phenomena; others may exhibit tics, headache, sleep disturbance, sex problems, stealing. A fascinating and rewarding field for study if we believe, as we should do, that the sense of security and confidence attained in childhood passes on into adult life. It is both disappointing and surprising that, under these circumstances, there is still so little co-operative effort between psychiatrists and paediatricians.

Personality Disturbances

The above discussion has demonstrated many conditions involving body and mind which are not susceptible of care until we have understood and treated the psychological traumata which have created them. In contrast attention can now be directed to those personality disturbances involving emotional, ideational, or intellectual impairment which are due to or dependent on objective organic lesions. It is fairly certain that, here, no real betterment will occur until the organic cause has been successfully dealt with. We can think, for instance, of the anoxaemias which can produce quite devastating effects, as evidenced by the sensitive, suspicious, irritable, aggressive, and even murderous reactions of explorers, mountaineers, and others who may find themselves in dangerous straits due to exposure, hunger, or other circumstances leading to deoxygenation. In toxic exhaustive conditions such as alcoholism, malarial infection, and so on, intense fear reactions are in the ascendant, and often are accompanied by delirium with its dangerous sequelae. And then there are the great variety of inflammatory and/or destructive lesions of the brain structure due to primary tissue change or dependent on vascular disturbance. Nor should one forget to mention the personality changes which not infrequently may be the aftermath of leucotomy operations.

Some day, perhaps, we will gain a little more knowledge of the epileptic mechanisms, what determines their particular form, whether there is a particular epileptic temperament or character, to what extent the psychic epilepsies, the post-epileptic and fugue states, are linked up with emotional factors—for example, the aggressive behaviour of the psychopath. The pre-senile groups are still inadequately understood, and often not recognized, and we know practically nothing of how they arise or can be prevented. Brain tumours masquerade far too frequently as dyspepsias or neurasthenic states, when a careful neurological examination would often allow a correct diagnosis to be made at a remedial level. Great and quite unnecessary difficulty seems to circle round the correlation of the mental and physical symptoms in cerebral vascular disease, especially in relation to the vessels supplying the basal nuclei. The labile emotional state, the personality change, the lack of concentration, and puzzlement with insight all form a characteristic picture that should never be confused with hysterical or melancholic phenomena, which, unfortunately, is often the case. I have not mentioned the above matters from any critical angle, but merely to emphasize again the

importance of clinical observation and the ability to correlate one's findings. Furthermore, a warning may be incorporated to the effect that the use of electric convulsion therapy to remove what is called a depressive or emotional overlay is very questionable practice.

Finally, from the clinical standpoint attention may be directed to the large group of constitutionally predisposed persons who form the bulk of our mental hospital population. The origin and development of schizophrenic, affective, paranoid, and psychopathic states is as much a mystery to-day as it ever was, and little progress has been made in the prevention and control of the various forms of amentia. We may take a certain amount of encouragement from the genetic understanding of the transmission of Huntington's chorea, and from the interesting work of Penrose and Munro in this country and of Jarvis in the United States on the body-mind relationship which occurs in phenylketonuria. But a tremendous lot more requires to be done. The numbers of all such patients are increasing, hospital accommodation is inadequate, and our medical and nursing establishments are so curtailed that many of our patients are failing to get anything like the individual attention they need and deserve.

The above clinical situations which I have little more than mentioned show in no uncertain manner the vast territories which must be explored much more thoroughly. It is not a purely psychiatric matter, but one which calls for co-operative effort so as "to advance that knowledge which secures the development of the race, and establishes man's dominion over nature" (Laycock). My experience has taught me that the best psychiatrists are those who have acquired a sound, thorough training in general psychiatry and neurology before specializing in psychotherapy, psychoanalysis, child psychiatry, or forensic psychiatry. The great Charcot (his joints seem to have almost reached vanishing point) was an accomplished neurologist before he studied the manifestations of hysteria, and it has always impressed me that men like Freud, Meyer, White, Jelliffe, Ernest Jones, Putnam, Bleuler, and many others had had wide experience and training before embarking on their more specialized studies.

In any case, in this rich storehouse of the organic psychoses the diligent student, drawn from whatsoever sphere, will find infinite scope for his investigative spirit.

Medical Education

This takes me at once into the field of general medical education, which recently formed the subject of a World Conference. More specifically the relationship of psychiatry to medical education was discussed very fully at a conference organized in 1951 by the American Psychiatric Association and the Association of American Medical Colleges. The results of that conference are now available in book form under the able editorship of Whitehorn. The general formulation laid down is that the aim of all medical education—and especially of psychiatry—is "to prepare the medical student to deal intelligently and skilfully with patients as persons, and to provide him with the basic knowledge of psychological and social problems and resources in relation to health and disease."

In Edinburgh we have been able to put such a course into being. In the preclinical years an integrated course of instruction in psychology and psychiatry is given, dealing with such topics as the psychology of development and the life history of the individual; heredity and environment; temperament and character; personality structure; emotion and its role in symptom production. In the clinical years systematic and clinical lectures are given, and throughout the course emphasis is placed on out-patient work in the Royal Infirmary, Edinburgh. Psychiatry is one of the professional subjects which are obligatory in the final examination for the degree of M.B., Ch.B. During my teaching experience, both in Glasgow and in Edinburgh, large classes varying from 160 to 200 students annually have been the rule. While the students have not, therefore, had the close personal supervision which would be desirable, yet they have

developed a keenness and an interest which have not made the professional examination an additional unwieldy burden. For my part I am convinced that the system in being has been of immense benefit both to the student and to his teachers. Furthermore, the establishment of professional or degree examinations in psychiatry puts the subject on an equality with other major subjects and ensures that the professor has his rightful place in the faculty of medicine.

While I am on this topic I might mention that universities as well as big industrial concerns are vitally concerned with wastage turnover, which in this instance centres in the unsatisfactory student. It is too often forgotten that when students come to their universities they are at a most vulnerable period of their development, so that the promise of their earlier years may, tragically often, not be fulfilled. We have a duty surely in our universities to promote mental hygiene, and to have the facility through our various departments to make the thorough personal and environmental inquiries which may preserve health and promote efficiency. This could be facilitated if it were more generally accepted that psychiatric units should be established as an integral part of every large general hospital. A fair suggestion is that from 5 to 10% of general hospital beds should be provided for psychiatric cases. It is lamentable to reflect how in this Welfare State we lag so far behind what has been accomplished so successfully in the United States, Scandinavia, and Germany.

The same suggestion or argument applies even more cogently to the affiliation of departments of child psychiatry to paediatric hospitals. Here again one can take a lesson from our American and Scandinavian colleagues, and can do more than pay lip-service to the slogan that childhood is the golden period for mental hygiene. We can and should provide accommodation for such children—not in mental hospitals, but in specially appointed clinics where they can have the benefit of all that present-day medicine can provide.

Much of what I have said in regard to undergraduate training and the affiliation of psychiatric clinics with paediatric and general hospitals holds good in relation to post-graduate and general-practitioner training. My experience is that both groups desire much more instruction and training in the principles of psychological medicine. Their success in practice depends on it. There are, of course, some doctors who state, blatantly enough, that they have no use for psychiatry, that psychiatrists should be avoided like the plague, that the subject is too mystical, theoretical, and dangerous, that it puts far more wrong ideas into the patient's mind than it removes. But in contrast to those cynics and sceptics there are an increasing number who are genuinely interested and who appreciate its significance in the medical hierarchy both as a specialty and as part of the working equipment of the general practitioner. Elaborate courses of instruction are by no means necessary, but familiarity with the ordinary methods of psychiatric examination are necessary, and an elasticity of mind which will allow him to switch to the possibility of a psychological explanation instead of seeking, long and vainly, for that pathological focus which is going to solve all the mystery.

The Art of Case-taking

What are those ordinary methods of psychiatric examination which have been referred to? The answer is quite simple—the art of case-taking. It may sound very unspectacular, but it is really fundamental for the whole of medicine, and I believe that it is in this field that psychiatry has made one of its greatest contributions. To do justice to any case it is essential to have a comprehensive life-study embracing hereditary structure plus environmental circumstances of a personal, social, or economic nature which may have influenced bodily or psychological development. It is dangerous practice to base our diagnosis and treatment on the symptoms alone, because the really important thing is the way the patient feels about them, and the setting or background in which they occur. It is diathesis and constitution we need more knowledge about, and how the

particular individual reacts to and compensates for the various bodily and psychological disabilities from which he may suffer. Selye applies the same concept to organic bodily states. That is why personality studies are so important, as in the differentiation of types as described in the first place by Hoch and Amsden, and, later, notably by Bleuler, Kretschmer, and Sheldon.

Such chronological studies, in terms of life history, are infinitely more illuminating than the cross-section method of the general physician. The latter uses the presenting symptom as his starting-point, and, while skilfully tracing out its ramifications, far too often fails to pay attention to the background, personal or environmental, in which the symptom is occurring. Cabot has given many examples of the fallacy of that method. It is a fault of training, a relic of a too concentrated, mechanistic objective approach, a vain seeking for a specific cause. How seldom we find it, and how much better it is to deal with all the multiple causative factors which may be playing a part. Then we will become much more accurate in our diagnosis, prognosis, and treatment. Very modestly it is suggested that our psychiatric case-taking methods may be of considerable value to our general medical colleagues. They will help them to remember that physical symptoms are often purely a face-saving device to maintain the *amour propre* of the patient. If this is forgotten, then examinations and treatment are introduced which often obscure the clinical picture. This, as I have said already, can be obviated by good history-taking and careful clinical evaluation. If the procedure I advocate was adopted we would hear much less of the failure of orthodox medicine and of the success of the medically untrained.

Our understanding of illness would be greatly increased if the relationship between the doctor and the social worker was drawn a bit closer. The social worker is not used intelligently enough. Social work is not a matter of almsgiving, of arranging loans, of giving financial or other material assistance. But it is the social worker's ability to size up a situation, to sense the atmosphere of the case, and to establish a good liaison between patient and employer, which is one of the most potent factors in successful rehabilitation and preventive medicine. We medical people do not appreciate how much we could gain, and how much more our patients would benefit, if we worked directly with the social workers rather than through the intermediation of the ward sister.

While, therefore, I have been striving to indicate the fields in which all medically trained people may learn to work more co-operatively, yet my main theme has been to show how psychiatry can be more greatly developed in relation to general practice. It is the psychologically oriented general practitioner who can become a much more important force in dealing with the great majority of nervous and mental ailments. The College of General Practitioners, which has just been founded, may be willing to consider how such a development can be most successfully pursued.

Conclusion

To conclude, I might make the following general suggestions:

1. A wider concept of medical education, so that all universities and medical schools recognize that the understanding and treatment of nervous and mental disorders is a matter of paramount national importance and should constitute a major subject in the medical curriculum.
2. Psychiatric clinics for in-patients and out-patients should form an integral part of all large general and paediatric hospitals.
3. Far greater reciprocity and co-ordination should be effected between all groups of medical men and social workers, in the hope that psychiatry will become less of a specialty and more part and parcel of general medicine.

TREATMENT OF RENAL OEDEMA WITH DEXTRAN

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The obstinate oedema characteristic of type II nephritis (nephrosis, nephrotic syndrome, or chronic parenchymatous nephritis) is often difficult to treat. Limitation of salt and fluids seldom does more than mitigate the condition, and often not even that; the attempt to raise the level of albumin in the plasma with a diet rich in protein is equally unsatisfactory. Among the diuretics, only mersalyl is likely to be outstandingly successful. Even when circumstances appear favourable for administration of mercury—that is, absence of haematuria, normal renal-function tests, and normal blood pressure—many physicians are reluctant to use it in the presence of Bright's disease. More recently, ion exchange resins, A.C.T.H., and cortisone have been used. From the literature the response to these substances appears to be inconstant and the resins are difficult to stomach. The last resort is the removal of oedema by acupuncture or by the insertion of Southey's tubes at the ankles. With the introduction of antibiotics this procedure carries less risk of infection than formerly, but remains an unpleasant one.

Attempts to increase the colloid osmotic pressure of the plasma other than by high protein diet are not new. One of the earliest was by the intravenous injection of 6% gum acacia in normal saline, which was successfully used in the treatment of wound shock in the first world war. As a diuretic, this substance administered in 5% glucose achieved a measure of success, but became unpopular when experiments on animals showed that it remained in the tissues for years, deposited particularly in the liver, where it was said to depress the formation of plasma albumin. Later, blood and plasma were used, usually with little or no diuretic effect. With concentrated plasma, preferably with concentrated human plasma albumin, some diuresis is obtained. These latter blood products are expensive (concentrated plasma albumin is not obtainable in this country), and there is some risk of hepatitis in their use.

More recently the search for a substitute for plasma capable of restoring blood volume in patients suffering from shock has led to the use of gelatin, polyvinylpyrrolidone, and dextran. The last-named has been used as a diuretic in the treatment of renal oedema, and it is this aspect of its use with which this paper deals.

Dextran is a polysaccharide formed by the condensation of the glucose moiety of sucrose by the action of the organism *Leuconostoc mesenteroides*. Commercial dextran is prepared by the controlled hydrolysis and fractional precipitation of this crude dextran. It is thus theoretically possible to produce a dextran of any desired molecular weight, but, in practice, a fairly wide scatter in molecular size results, and it is so far practicable only to make preparations in which a large proportion of the molecules are within the chosen range of molecular size. Not only does the dextran made by