may wholly or in part be attributable to muscular exhaustion, and this may be suspected if it is found that thoracic respiration preponderates over abdominal in the supine position, and if excessive tone or tenderness is found in the muscles in the neighbourhood of the sternum. At the same time, all such patients should receive full investigation, since it is less dangerous to mistake muscular exhaustion for angina pectoris than to make the converse error in diagnosis.

TREATMENT

Two factors commonly militate against successful treatment of these conditions which counterfeit cardio-vascular disease. The first is the indecision as to diagnosis frequently felt (and often betrayed) by the physician. The second is the lack of confidence of the physician (usually sensed by the patient) in any line of treatment undertaken. Since moral support and reassurance are the fundamental bases of treatment, and since these must generally be derived from knowledge and experience, patients with these maladies are apt to drift upon a sea of medicaments and half-hearted exhortation, finally to come to grief on the rocks of disability and invalidism.

In general, the patient who can readily be convinced that his trouble is not one that need lead to incapacity or shorten his life derives great benefit from this assurance alone, especially if an introspection neurosis has played any part in the production or aggravation of his symptoms. Sympathetic inquiry should be made into the home and economic conditions of the patient, in an attempt to remedy such influences as worry and anxiety. A brief removal to a totally different environment is often of great benefit. In all cases a search should be made for sources of infection with the aim of removing them. In the effort syndrome group the pursuit of normal healthy exercise must be encouraged, although the patient who has once suffered from a more or less pronounced effort syndrome should be warned that he is not constitutionally fitted for intense or prolonged effort. Certain drugs are found empirically to be of benefit when taken over strictly limited periods; the sufferer from faintness, giddiness, and syncope is often greatly relieved by iron and strychnine, the extrasystole group by quinine and strychnine, and the ultra-nervous group by bromide and valerian.

The general measures already mentioned are applicable in the treatment of chronic left inframammary pain. Obesity, if present, must be dealt with, and is only properly corrected by readjustment of quality and quantity of food intake and energy output. If thyroid extract is employed at all, it should be given in strictly moderate doses and with careful supervision. The writer has recently seen an example of angina pectoris precipitated by the injudicious administration of thyroid. The syndrome dated from three years ago, when the patient was given by his doctor thyroid extract, 15 grains daily, for reduction of his weight. Local applications for left mammary pain only serve to focus the attention of the neurotic upon her pain. Bromide and valerian, or bromide and chloral, may give considerable relief.

Both chronic and paroxysmal mammary pain may be very resistant to treatment. The diagnosis of a benign disorder often does much for the patient, not only directly, but also indirectly, by establishing a cheerful and healthy attitude among relatives. If restlessness and tachycardia are pronounced, luminal (1 grain omne nocte) may lessen the frequency and severity of the attacks, while bromide and chloral may be given in a mixture twice daily in addition. No special treatment is indicated during attacks.

In all of these conditions which simulate heart disease it is of great importance for the patient not to be treated

as an invalid. Frequent consultations and long-continued medication are alike harmful, while admission to hospital is only justifiable for investigation or observation, or when an underlying cardiopathy or general condition is patent or suspected.

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OCCUPATION AND NEUROSIS *

BY

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"Blessed is he who has found his work; let him ask no other blessedness." So wrote Carlyle before the days of women in industry and in the professions; but as "work" surely includes the rearing of a family, the epigram holds good for both sexes equally.

The reason why the subject of choosing a career is included in a course of lectures under the auspices of the National Council for Mental Hygiene is that the happiness and therefore the mental health, of an individual is largely dependent on a right choice, a wrong choice being often a considerable factor in nervous or mental breakdown. Nervous illness of the most usual kind, as the majority of us now realize, is a manifestation of failure to adapt oneself to the circumstances of life. Among the most important of these are the conditions of one's work. A simple instance will help to make this clear.

The other day a young man came to Guy's Hospital complaining of exhaustion and of slowness at everything. His occupation was, shall we say, that of a shoemaker. He had lost his last job because his employer had found him so slow; and other jobs had been lost for the same reason. He was now 31, unmarried, and had worked at his trade since leaving school at 15. He had very few friends, but had become accustomed to his loneliness. His hobbies were drawing and painting, for which he had displayed definite talent at school—more so than for anything else. I asked him why he had so few friends, and he explained that he had not been at home for some years, having been forbidden the house by his father unless he would eat humble pie and apologize for daring to quarrel with him some years ago. It was difficult to see by what serious offence this rather mild young man could have raised such wrath; he did not drink, or use foul language, nor did he even permit himself to smoke. The father, on the other hand, was one of those "strong" characters, the son being his complementary opposite, probably as a direct result of the life-long paternal domination. His trade was not his own fancy, but his father's. The latter had insisted on his being a shoemaker; he "would see the wisdom of it later on," and a shoemaker's apprentice, willy-nilly, this boy of 15 had become. Thus he was forced into an occupation for which he had neither liking nor aptitude, and had thereby perpetuated his unhappiness and also his inefficiency. One

* A lecture delivered under the auspices of the National Council for Mental Hygiene.

does not easily do things against the grain ; one does them neither as well nor as quickly. His slowness at work was the result, not simply of lack of aptitude, but of distaste as well. It is true that the victim rebelled at last, but what slow drudgery might have been spared, and what happiness gained, if the father had been less uncompromising! A similar state of affairs is sometimes exhibited by the person who puts himself in an occupation which he can compass perfectly well, but which is much beneath his ability. For example, a young woman, a telephone operator, complained of attacks of faintness and dizziness which occurred at her work. Physically, she was perfectly sound ; intellectually, she was considerably above the average, and had won a scholarship at school ; but on leaving she had to take a post which would quickly bring remuneration, as her father was dead, and her mother was largely dependent on what the daughter could earn. Her desire to be a schoolmistress was thus frustrated, and she became a telephone operator. The technique, such as it is, was easily mastered. This done, the work merely became monotonous, giving her ample time to ruminate over her frustrated career, and later (in the sequence that is common) on her health. The usual hypochondriacal consequences ensued.

In neither of these cases was the position one of simple occupational misfit. Though other important items, internal and external, helped to bring about the ultimate breakdown, the faulty choice of a career consolidated the effect of these factors by creating a situation not easily reversed, and perpetually provocative of discontent and consequently of symptoms. There are many other examples I could quote. For example, an elderly man, the father of a large family, had suffered from headaches for thirty years—headaches which left him during his holidays. He was an intelligent man, who had worked on the same routine job, long since learnt by heart, for forty years. For most of that time he had been heartily sick of the work, but he had hoped for promotion. At length it became obvious that he could justifiably hope no longer, and then the headaches, which had already begun, became permanently installed. Here, too, was a neurosis resulting from occupational misfit and monotony ; but again there were other factors, in this case the disappointment of legitimate ambition.

TESTS AMONG SCHOOLBOYS

The manner in which careers are mischosen was fully demonstrated by the first two instances I have described, where considerations entirely extraneous to the suitability of the occupation were the determining factors. This is true of many choices that are made, and was well shown by a systematic investigation in a Midland school, conducted some years ago by Professor Valentine and Miss Ritchie, into "The reason for the choice of occupation among secondary school pupils," and recorded in the *Journal of the National Institute of Industrial Psychology*. The boys, aged principally 15 or 16, were asked to write down in confidence the profession, trade, or occupation which they intended to follow, stating carefully their reasons and the persons who influenced them most. Certain precautions, such as anonymity, were taken to ensure as much frankness as possible in the answers. The feeling of special aptitude came only fourth on the list of reasons, and even here the actual facts do not by any means give a sound reason for the choice. This feeling was often based on a liking, and a capacity for, special school subjects. It is a reliable guide only when the occupation involves work very similar to that done in school—as, for example, carpentry, engineering, chemical analysis, and draughtsmanship. But a liking for carpentry will not ensure happiness and success as a surgeon ; nor, on the other hand, would real enthusiasm for chemistry

reconcile a boy to the work of a pharmacist, who may spend most of his time "handing patent medicines over a counter." Among other reasons of an allied kind were those based on ignorance of the real demands of the selected occupation. Thus, one mother had suggested that her son should become a dispenser, because he was "rather good at Latin"! Other boys had ambitions to be bank clerks because they were good at mathematics. Errors of this kind are less serious than some we have to deal with, as they could readily be corrected by properly informed advice. The most frequent basis of all for choosing a particular job was a fancied liking for the work. Next in order came "good pay," and third on the list was "security."

Not infrequently a professed liking for a particular job was based on motives of respectability. Some jobs are preferred because they are clean, others because they do not involve manual work ; still others because "one mixes with a different class of people than those one finds in factories." There was not only a prejudice against manual work, but a fear that the education obtained at school would be wasted unless some profession was cultivated. A parent's determination that his son should have a better chance than he had, or should avoid the drudgery of his own job, was another motive of the same kind. But how few people are there who do not feel, secretly or openly, that they would have made a greater success of, or would have liked better, some other job than their chosen one! A tendency to live again in our children and to see in them the possible fulfilment of our frustrated hopes, sometimes leads to a young person being pushed into a career for which he or she is more fitted in the parent's fancy than in fact. I remember a youth of 17, who came to hospital complaining of severe headaches, which had not been relieved by glasses or any other means. He looked pale, but was physically sound, though not at all muscular. He had left school at 15, with only a modest scholastic record, and was studying with a private tutor in order to qualify himself to take holy orders. He found his studies extremely hard. One wondered why he had chosen to follow a studious career and to become a clergyman. It seemed that it was not so much his ambition as his mother's, who was very anxious to see him in orders. The task was near, if not above, the limit of his capacity, and the inclination for it was not whole-hearted. Hence his headaches.

FACTORS IN CHOICE OF CAREER

One is sometimes struck with the triviality of the reason that determines the choice of an occupation. This naturally is more marked the lower the intelligence of the person concerned. The other day a feeble-minded girl expressed to me a desire to become a box-maker, and nothing else ; the only reason offered was that a girl in the same street made boxes—the only girl she knew outside her own family. Professor Valentine and Miss Ritchie bring out this point well in the case of normal boys. One wanted to be a motor-driver, because his father "wished him to be able to repair his car," and another aspired to electrical engineering, because he could then emulate a cousin who had installed electric light in his own home. A further group of reasons for choosing a particular line of work are classified by Valentine and Ritchie as "superficial reasons." The mere presentation of an "opening," as it is usually styled, is often sufficient to send a boy into a particular calling. Even in a profession much the same sort of thing occurs, especially concerning the particular branch of it which a man elects to pursue. One sees physicians who might better have been surgeons, and vice versa, or children's specialists who might have been general physicians, but for the occurrence of some special opportunity, often of a rather

trifling kind. There were, finally, in these secondary school boys, as might be supposed at that age, the ambitious and the idealistic types of choice-determinant. The desire for power and fame seems to be more common at the school-boy age than, at any rate, the desire for riches, though the more apparently altruistic professions, such as Medicine and the Church, appeal to some boys.

The numbers who in choosing an occupation were confessedly following the father's wish, plus the numbers electing to follow the father's occupation, were together second only in amount to those having a fancied liking for the work. This gives some plausibility to the remark of one pupil, that "the majority of men are not what they preferred to be, but what other people preferred them to be." The father's influence is more marked before the age of 14, after which it declines. The mother's influence declines still more rapidly about the same age. It is a matter of interest and curiosity that the influence of the school teacher was hardly ever mentioned.

This systematic investigation by Valentine and Ritchie bears out what we suspect, not only in secondary school boys, but in persons much older and possessing greater advantages—namely, that the factors that determine the choice of a calling are very varied, and many of them are very far from relevant. Clinical experience shows some of the disasters of such a method. Is it possible to lay down systematic rules which should be followed in nearly every case? It is true, on the whole, that genius will out, and that a person of superior ability, no matter in what line of work he is placed, will usually make a success of it. In England, nowadays, not many Miltons remain mute and inglorious: exceptional ability seldom wastes its sweetness on the desert air. There are, of course, some tragic non-fulfillments. The notion that superior ability will always find itself is limited by the range of ability in an individual, and by the limitation of his capacity for expression in a given field. There are not many who are endowed at one and the same time with such diverse aptitudes as those involved in mathematics, languages, biological studies, music, and painting, to take a widely ranging group. This question of the existence of a generalized ability in an individual has been much argued and is of importance for our problem. It has been held that ability in each particular direction is compounded of a general factor and a specific one. For convenience the general factor has been labelled "g," and each specific factor "s₁," "s₂," etc. A person with considerable "g" will be more or less above the average in every direction, with special talents where the "g" is reinforced by "s." Such a person will tend to excel at any task, but will be especially likely to distinguish himself if he strikes upon an occupation which involves one of his "s" abilities as well. The opposing view is that there is no general ability in the sense of something, probably energy, available in any direction, but only group abilities—that is, abilities of a localized type available for groups of subjects more or less closely allied. A person furnished with group ability well above the average in one direction may nevertheless be almost stupid in others. Ordinary everyday observations would suggest that there is much in support of both views. If the second view is the true one, then a careful assessment of abilities is all the more necessary in advising upon a suitable career, as utter misfits are, in this view, possible on the grounds of ability alone. It may be thought that no one could be so muddle-headed as to choose a life's work for which he was completely lacking in the appropriate ability. But it has to be remembered that we are dealing with average people most of the time, in whom neither capacity for achievement, nor the lack of it, occurs glaringly, and in whom, therefore, it is not impossible to miss the presence or the absence of a special aptitude.

TEMPERAMENT AND INTELLIGENCE

How are such abilities, general and special, best detected, and are they the only factors of importance? There are many ways of detecting their presence, some of them highly elaborated of recent years, but there remain other considerations of equal and often greater importance not so susceptible of accurate estimation—considerations which can be summed up under "temperament." There are those who declare that intelligence, using that term in a general sense to cover all kinds of ability, is the most important single asset that an individual can possess in modern life. Intelligence, as one writer puts it, has the greatest survival value under the conditions of a civilized community of all the assets that an individual may possess. But perhaps this claim is made because to intelligence is more easily assigned a numerical value than to temperament.

"It is pretty certain that temperament is far more important than intelligence in the determination of social status. In the right environment an ounce of 'pushfulness' may be more effective than a ton of learning, and tact will often go higher up the ladder than cleverness. Of course, there is a relation, and perhaps a strongly positive relation, between the two; but we do not know enough about this, and are not likely, for a long time to come, to be able to deduce a man's temperamental qualities from his intellectual performances. After all, if we cut out the extreme top and the extreme bottom, the intellectual differences between one man and another are comparatively slight; and even relatively big intellectual differences appear to be of less social significance than slight diversities of temperament." (F. C. Bartlett.)

Since intelligence is more readily assessed than temperament, let us first turn to the means by which it may be measured. The time-honoured method is by scholastic examination, and most schoolmasters can give an approximate notion of the capacities of the pupils under their care. But the examination is only in the limited field of school subjects, and depends greatly on things other than intelligence. It is notorious that the prize-winner at school may be undistinguished in later life (though I suspect that this happens less often than is supposed), but the reflection is consoling for many. One of the principal fallacies in the system as an index of ability, apart from the fact that it takes little account of temperament, is that the school examination is primarily a method of eliciting information. Nevertheless, the amount of information which anyone has acquired along a given line furnishes an indirect indication of one temperamental factor—namely, the degree of perseverance.

Intelligence tests of a more direct kind than the scholastic examination are available in the shape of the Binet-Simon tests of intelligence. These are supposed to measure inborn intelligence rather than the extent of acquired information, and they possess the advantage of giving a uniform scale which can be applied at any age. Moreover, since it has been found that throughout the period of development the ratio of a given individual's intelligence to his age remains fairly constant, it is possible to use these tests as a basis of prediction of future attainments. The application of this to our problem of the choice of a career is obvious. One can even classify the various occupations with fair accuracy according to the degree of intelligence required for them. If the matter were so straightforward as this, it would be simple to assess a young person's intelligence at, say, the age of 12, and, having done so, present him with a list of scheduled occupations, saying, "This and this you are capable of, and which would you prefer to follow?" The choice of an appropriate occupation within a group would then depend largely on extrinsic factors—special opportunity, such as the offer of a job, special prospects of promotion, cost of training, facilities for training, and the like. Here,

also, inclination could be allowed some say, as indeed it always should be. But unfortunately the Binet-Simon tests are not exhaustive of all the facts. They leave comparatively untouched a whole group of abilities—the manual ones—and are comparatively lacking in tests of practical planning, which count for so much in life. For this reason “performance tests” have been devised—for example, the Porteus maze—to supplement the others; and one does not assess the person’s ability and prospects except on the basis of both types of tests, supplemented, of course, by whatever sources of knowledge one has of the person concerned. Even this leaves untouched the special field of manual abilities. It is a commonplace that highly intelligent people may show little or no skill with their hands. At the opposite end of the scale are such curiosities as the so-called “genius of Earlswood Asylum,” who, although apparently feeble-minded, made ingenious and intricate models in a way of which many normal people would be incapable. (He was probably not actually defective, but an untrained deaf person.) Examples of such lop-sided ability are fortunately rare; and it will usually be found that superior manual ability is accompanied by an intelligence which is above the average. Here, again, it is proving possible, to some extent, to analyse the various motor “skills,” as they are called, of which normal ability furnishes the most important group, and to direct people towards an appropriate occupation on this basis.

If, then, we have tests not only of special intelligence, but of practical ability and motor skill to guide us in advising what career is to be pursued, can we determine the efficiency of our methods, and whether they constitute an improvement on the old haphazard ways which were analysed by Valentine and Ritchie’s investigation? An attempt of this sort has recently been made by the National Institute of Industrial Psychology:

In this experiment the method of a “control group” was used. The children in one group (600 in all) were studied in relation to the choice of employment, and advice was offered on a basis of these studies. The children in the other group (also 600) were not examined, and were advised in the ordinary way at the school-leaving conferences.

The complete results were not available at the time the reprint from which I am quoting was written, but the following figures were given provisionally:

In a group of 167 boys, of those who were found to be doing work similar to that recommended, 60 per cent. were satisfied, 40 per cent. dissatisfied with their occupation; of those who were found to be doing work dissimilar to that recommended, 36 per cent. were satisfied, 64 per cent. dissatisfied. In a group of 111 girls, the four corresponding figures were 73, 27, 55, and 45 per cent. In a group of 219 boys the number of different jobs held per hundred boys who had chosen work similar to that recommended was 193, whereas the number of different jobs per hundred boys who had taken up work dissimilar to that recommended was 257; in a group of 214 boys who had not received the Institute’s advice, the corresponding number was 260. These figures clearly indicate the greater contentment at their work and the fewer changes of employment among those who had followed the advice of the institute.

PROBLEMS COMMONLY ENCOUNTERED

I have refrained from saying much about temperament. Although probably just as important as intelligence, it is very much more difficult to assess. It includes such traits as cheerfulness, sociability, perseverance, timidity, and the like: they are exceedingly important, but very difficult to measure, and sometimes even to discover. There are those who have what is called “psychological insight,” or a gift for “sizing-up” people. But apart from this, which must be largely dependent on life-long experience and observation, the most reliable method of assessing tem-

perament seems to involve taking careful record of how the individual has behaved in the past, what he or she has accomplished (in spite of what obstacles) and to what extent he has mixed with people, whether he has been shy, timid, difficult to get on with, and so on—in fact, the now standard methods of clinical psychiatry. Some light can be thrown upon the problem by watching how the subject has co-operated in the special tests of other functions, and attempts are being made to devise tests directed to temperamental traits alone. But the principal method remains that of discovering from the life-history of the individual what his behaviour has been in varying circumstances. There is no laboratory test of temperament that approaches in validity the test of everyday life.

If we sum up what has been said above, we must conclude that an ideal foundation for the choice of a career would consist of estimates of the general and special aptitude of the person concerned, by means of tests of intelligence, of practical ability and manual and other skills, together with a competent estimate of temperament. On the other hand, in an ideal state of organization, we should be armed with definite data as to the degree and special type of intelligence required for each kind of career, together with a description of the kind of temperament most suited for it. The task of choosing a career would then be a question of finding which career, with its list of requirements, tallied best with attainments of the person in question. This sounds very simple, granted the requirements in the way of tests: although it represents a state of affairs never fully attainable. But even if such a solid foundation of ascertained facts were available, one would still have to consider primarily the candidate’s personal inclination. Where this inclination is obviously misguided it is usually possible, by wise handling, to direct the inclination elsewhere. Most people, at the ages we are considering, are very susceptible to the advice or example of their elders. But sometimes the mistaken inclination is produced by factors of a very emotional kind, as, for example, the imitation of some much-regarded relative. In such an instance it may be a task of considerable difficulty to produce a change of mind. Another set of factors, extrinsic both to the aptitude of the subject and to the requirements of the vocation, are the economic ones. It is fatuous to propose oneself for a career in which there are likely to be few or no openings: many types of career may require very similar aptitudes, and there is a range of choice in each which makes it possible to avoid crowded thoroughfares, just as one avoids blind alleys. On the other hand, some perspicacity may enable one to see an opening in a region that has been little cultivated, or cultivated only by people less able than the individual under consideration. Other economic factors, besides those of supply and demand, are principally financial, and apply to everyone. The advice one would give to a promising youth would be the time-honoured Scottish one—to sacrifice most things to a good education. With our present legislation the sacrifice is not really so great as it was, which is in some ways a pity.

The main lesson is the necessity for taking a great deal of trouble. The careers of even the most distinguished people are apt to be singularly haphazard in retrospect: although perhaps not so haphazard after all, since what seemed like chance must have necessitated preparation to enable the man to seize his opportunity. This survey also emphasizes the necessity for being as objective as possible. Too often one finds emotional factors, completely extrinsic to the problem, determining the choice of a career. For example, the ambitious father who wants his son to be a distinguished member of an academic profession may thrust him into it, with serious and unhappy consequences. I have seen an able man placed by the family

tradition and by the father's careless insistence in a profession for which he was completely unfitted by temperament. After a few years of struggle he became disabled by a neurosis which prevented him doing any professional work for over twenty years. The other day I saw a similar instance in the making. A very pleasant, energetic, sociable boy of 16 was destined by his father for one of the learned professions requiring an academic degree—and, if possible, a distinguished degree. The father nevertheless did not hesitate to call his boy an idiot to his face if he did not bring home a good school report—and his reports are usually very ordinary. His mother became alarmed at the situation that was developing, and brought the boy for examination and advice. He proved on testing to have an intellectual capacity only slightly better than the average, and certainly not one that would have taken even an ordinary degree with much comfort. On the other hand he was unusually good in mechanical tests. We therefore advised strongly against a professional career requiring university training, and suggested work for which his exceptional mechanical ability and his pleasant personality would stand him in good stead: for in this competitive age, a cardinal principle of survival is to choose work which will give scope for the best talents one has. One can easily bury a talent by choosing the wrong career, and so rust in mediocre dissatisfaction instead of happily and successfully fulfilling one's bent. Not only unhappiness, but something more than unhappiness—namely, nervous or mental illness—may be avoided by the careful estimate, as it were, of the assets and liabilities of the individual. This is best made, at the latest, on leaving school, and probably a preliminary test should be made some years earlier. Work of this kind promises to become a routine connexion with clinics for "child guidance."

A NOTE ON URINARY "PROTEOSE"

BY

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In a number of publications,¹ Oriel and his collaborators have described an ether-extractable nitrogenous substance (which they term a "proteose") occurring in urine. Though they find it in small amounts in normal urine, these workers claim that in allergic conditions the urine contains much more of this proteose, which may then account for 1 to 5 per cent. of the total urinary nitrogen. Such augmented excretion of proteose is especially marked during activity of the disease, and may disappear during the periods of remission. More important than this, however, are the claims that each patient gives an inflammatory skin reaction when injected intradermally with his own proteose or with that from a similar case (but not with any other), and that after a graduated series of injections of his own proteose the patient may show definite clinical improvement.

These claims are of very great importance in the treatment of so-called allergic conditions. The "proteose" treatment would vastly simplify the present procedure, since, among other things, it would render unnecessary the search for causative proteins. We have therefore carried out a number of experiments to see whether the statements of Oriel could be substantiated in an inde-

pendent laboratory. The proteose was at first prepared by the method described by Oriel and Barber,² but later this was modified slightly in accordance with instructions contained in a private communication from the former. The reactions and solubilities of the substances we obtained were in agreement with those described in Oriel and Barber's paper, and in Dr. Oriel's letter. All proteoses were isolated during periods of exacerbation of the disease under investigation. So far as the quantity of proteose is concerned, our results are in general agreement with those reported by the original investigators (see Table I).

For skin testing 1 in 10,000 dilution of the proteoses was prepared in normal saline, with the addition of a little sodium hydroxide. The final solution had a pH of 7.8 to 8.0. The proteose was kept in powder form, and solutions for injection were made up as required.

TABLE I.—*Urinary Proteose and Nitrogen in Allergic Conditions*

Case	Condition	Proteose	Nitrogen
		Mg. per 100 c.cm.	Percentage of Total Nitrogen
XI	Asthma:		
	No attack	5.0	0.44
	"	4.3	0.48
	"	3.7	0.50
	"	6.0	0.73
	"	4.7	0.50
XV	During attack	14.3	1.21
	Angioneurotic oedema:		
XII	Oedema present	23.0	2.23
	Asthma and eczema:		
XII	No attack	35.0	1.86
	"	9.3	1.19
	"	6.0	1.20
	"	2.3	0.77
	Wheezing	11.0	5.79
	Severe attack	30.0	10.71
XII	No attack	7.0	1.11
	"	4.0	1.74
	Severe attack	44.0	4.49

RESULTS IN SERUM URTICARIA, ASTHMA, ETC.

Samples of proteose obtained from eight cases of serum urticaria (Cases I to VIII) were tested intradermally in the case from which they were isolated and in one or more of the others. Each of the eight cases was further tested with proteose from a case of chronic urticaria arising from unknown causes. Six of the serum urticaria cases gave a positive reaction to their own proteose and to one or more proteoses derived from the others. The two remaining cases (VII and VIII) reacted neither to their own nor to each other's proteose. All eight gave positive reactions to the proteose from the case of chronic urticaria. The inflammatory reactions, including those noted in subsequent experiments, comprised two stages. A wheal, varying in size from a threepenny-piece to a sixpence, developed after about ten minutes at the site of injection of the proteose, but not at that of the saline control. It subsided completely in from fifteen to twenty minutes, and was regarded merely as a slight exaggeration of the phenomenon frequently observed to follow any type of intradermal injection. In those individuals giving what has been regarded as a positive reaction, a second inflammatory process commenced to develop at the site of injection in from two to three hours, reaching its maximum in from five to seven hours. This late reaction consisted of oedema without actual wheal formation, and a dusky red flare covering a tender area approximately 5 by 2.5 cm. The reaction persisted for some twelve hours and then faded, leaving slight staining of the skin. In the tables, wherever comparisons have been possible

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