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*"In necessariis unitas, in non-necessariis libertas,
in omnibus caritas."*

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EDITORIAL

Parting with friends is always unpleasant. It is an occasion which one tries to delay as much as possible. When, however, these same friends are still relatively near, the parting is only partial and as such is much more fortunate. Parting with teachers whom one has grown to know well and to love dearly, who have come to know their pupils individually and to give due consideration to their individual peculiarities, difficulties and inclinations over a long number of terms is about as unpleasant. Students of the present Academical Course and those who have gone before them in these past two decades know full well how Professor P. P. Debono and Professor J. Ellul have endeared themselves to their pupils, how they have given of their best to the University under numerous difficulties and most diverse circumstances, and how they have always upheld the glorious traditions of the profession each in his particular sphere, and in fact, laid new levels which their pupils will find difficult to attain. Both professors have now reached the age limit and have thus had to resign their chairs, though rather reluctantly. Fortunately this parting from their students is only partial, and they can both be easily found whenever advice is needed or difficulties and circumstances needing experience in overcoming are encountered by all those to whom they have so endeared themselves. The biographical notes on these two gentlemen is, we believe, not out of place in this issue which has coincided with their retirement.

It is fitting that we should welcome — unfortunately rather belatedly — the new Professors of Surgery and of Obstetrics and Gynaecology, Professor A. J. Craig M.D., F.R.C.S., who happens to be Director of the Association in the current year, and Professor V. Stilon M.D., both of whom are held as being highly competent and well prepared for their new posts. We have no doubt that they will follow in the steps of their predecessors, keeping up the high standards of Obstetrics and Gynaecology and Surgery in the Royal University and endearing themselves to the present and to coming generations of medical students for a long time to come.

The new laboratories, so long promised, are now, we are glad to say making their appearance very close to the main University building in Valetta. They have been sorely missed and several generations of medical students have had to make do with temporary facilities during their pre-clinical days. Soon, it is hoped, the pre-clinical years will be more adequately and more comfortably catered for than heretofore. About the clinical years in the hospital wards, it has been remarked rather frequently by medical graduates, that conditions have improved enormously these last few years. The wards are there all the time, the patients are there all the time and there is an abundance of material for clinical students to work upon. The clinical student, is, on the average keen on his work and eager to work, and if only he were directed along his work with a slightly enhanced enthusiasm and with a slightly more intimate understanding of his difficulties and needs by the clinical demonstrator, he would benefit so much more. The

clinical demonstrator in any of the clinical subjects, should have adequate time to devote to his students and to their progress in clinical experience and to direct them along a more clearly set out programme of clinical work. Of course, things are slowly improving, but one cannot but feel that much more could be done with more cooperation between the various parties concerned.

We hear of a proposed revision of the Statute of the Faculty of Medicine and Surgery with a happy interest. Some may suggest that this too has long been needed and that revisions of this Statute have frequently been rumoured in the past. It seems that the time has now come for this subject to be definitely tackled. The aim of any such revision should be to retain what time and experience has shown to be adequate and efficient and to alter what time and experience have proved not to have worked out. This is the only way in which progress can be achieved, for there are sections of the Statute which need revising. It is not for us to suggest where revision is needed, for the officials entrusted with this work know only too well what is needed, but we may perhaps be allowed a few words on what has been our experience so far. We feel that some shuffling needs be made in the stages at which various subjects have to be dealt with, especially in the Academical Course; for instance. Hygiene could easily be dealt with in the course of four terms in lieu of the six terms originally dedicated to it, while Ophthalmology and Dermatology and Venereology would be better placed in the second year of the Academical Course than in the last year, and that possibly a short course in Therapeutics could be introduced in the early part of the last year to complement the Pharmacology and Therapeutics done in the first year. All except the final part of these suggestions have been the experience of students of the present Academical Course and it seems that this scheme has worked out better than the one previously adopted.

The contributions presented in this issue are again very varied in the topics dealt with. Dr. Zammit has dealt very comprehensively with the Manchester Operation, while Professor Debono has contributed an Introduction to Clinical Surgery in which he gives a good number of maxims worth while remembering as a summary of his experience and teaching in these last twenty five years. In the Recognition of Hypochondriasis in General Practice, Dr. Cassar presents a series of cases dealing with sufferers of this not infrequent condition which every practitioner meets with at some time or other and which may present such a problem to the inexperienced, while Dr. Damato draws our attention to Ocular Brucellosis. Mr. Stanley White, who was in Malta on a short visit some months ago, gives his opinion on The Newer Antibiotics with Special Reference to Chloromycetin pointing out the wide scope of these drugs and also their limitations. A final year student has contributed a poem "Taht l-Anestetiku" in the Maltese Language.

The paper read by Prof. J. E. Debono on the treatment of Diarrhoea in Infancy to the local branch of the B.M.A. some years back is full of practical hints to the senior student and the general practitioner, and the few years that have passed since it was written have in no way altered its value, so that we are pleased to publish it in its original form as Infantile Diarrhoea is still one of our headaches especially in the summer months. The postscriptum forwarded by Prof. Debono brings it quite up to date.

The Treatment of Diarrhoea in Infancy

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Dean of the Faculty of Medicine and Surgery.

During 1941, there were 6644 deaths in Malta and Gozo including war casualties. Of these 1404, more than one fifth of the total mortality, were due to "diarrhoea and enteritis" and occurred in infants under two years. I do not think I need say anything more to emphasize the importance of the problem I have chosen for discussion.

The best treatment for the diarrhoeas of infancy is prevention. Diarrhoea as a major cause of infantile morbidity has disappeared from the statistics of most civilized countries, but prevention implies a series of measures which are beyond our immediate control — a safe milk supply, a higher standard of living, better education, etc. These are goals towards which we must all strive, both individually and collectively, but it will be years before they are attained. In the meantime, we must try to reduce the appalling mortality by improving our methods of treatment. The object of this paper is to outline a scheme of treatment which has given me satisfactory results, both in hospital and in private practice.

Diagnosis and Classification.

In severe diarrhoea, the stools are usually more than six in number and may be uncountable. They are watery. The temperature is raised. The child looks unmistakably ill. There is some degree of dehydration and the skin is dry, loose and inelastic. The fontanelle is depressed, the eyes are sunken and the nose looks pinched.

In fulminating cases the diarrhoea may not be a prominent feature but the toxæmia is very severe. Vomiting is a marked

characteristic. These cases are sometimes referred to as *cholera sicca*. The temperature may be very high or subnormal. The extremities are cyanosed and the facies recalls that of peritonitis.

Etiologically cases of diarrhoea may be divided into 4 groups, viz:

1. *Diarrhoea due to Specific Microorganisms.*

Diarrhoea caused by the dysentery bacilli, or by the *Entamoeba histolytica*, or by microorganisms of the enteric group. This type of diarrhoea is rare in babies under one year of age, and exceptional in those under six months, although lately cases of bacillary dysentery seem to be on the increase. This passage of small frequent stools containing blood and mucus and accompanied by considerable straining should raise the suspicion of dysentery at once. Examination of the stools is impracticable in most cases, but, if the diarrhoea does not respond at once to the treatment of bacillary dysentery, it is a good plan to have the stools examined for amoebae. Sometimes in older babies a prolonged mild diarrhoea is due to typhoid fever and it is wise to have the blood examined in any case of diarrhoea and fever which persists for more than one week.

2. *Diarrhoea due to Parenteral Infections.*

In progressive countries like Canada, the U.S.A., England and Holland, where epidemic and dietetic diarrhoeas have been eliminated almost completely, practically all cases belong to this group. Some paediatricians have gone to the length of asserting that infantile diarrhoea is due exclusively to otitis media and that pus

in the middle ear is the only constant finding in fatal cases. I used to think this view grossly exaggerated and inapplicable to Malta, but I have been convinced that this type of diarrhoea is just as common amongst us. The parenteral focus may be in the ear, in the throat, in the lungs, in the kidneys and even on the skin. Whenever a child suffering from diarrhoea is brought to you, you must look carefully into all these situations. Every physician who undertakes the treatment of babies must possess an otoscope and must know how to use it. Examination of the urine is equally important and an effort must be made to obtain a specimen in spite of the all but insurmountable difficulties. While on the subject of the examination of the patient, I should like to draw your attention to the advantages of taking the rectal temperature yourselves. The information given by the mother is often misleading and based on whether the baby feels hot or not. The temperature taken in the groin is equally unreliable. By taking the temperature yourselves you obtain information which is fundamental. At the same time the introduction of the thermometer into the rectum will often provoke the passage of a stool which you can examine in the fresh state. Thirdly, the introduction of the thermometer into the rectum will sometimes reveal an abnormal irritability of the nethermost portion of the intestine, a condition which often requires special treatment by starch enemata.

3. *Dyspeptic or Dietetic Diarrhoeas.*

These are very common in Malta owing to ignorance of the principles of infant feeding on the part of most mothers, and, I am afraid, of a number of doctors as well. Dietetic diarrhoeas are due to food which is unsuitable either as regards quantity or quality. The baby may be receiving too much or too little, the milk mixture may be too rich in carbohydrates,

or in fats, or unsuitable articles of food may have been introduced prematurely. It is impossible to enter into the details of infant feeding at this juncture; the subject is too wide and might form the subject of a separate lecture.

Clinically, dyspeptic diarrhoea starts as a mild enteritis and may persist as such for long periods. Occasionally it begins more violently but soon passes into the subacute or chronic state. The infant passes abnormal, green or curdy, but as a rule, not watery stools. There is no fever unless this is due to an intercurrent infection. The baby is fretful, unhappy and distressed but not desperately ill. The cardinal symptom is either failure to gain weight or an actual loss. The important point is that these infants are particularly liable to develop acute gastro-enteritis and to pass from this category into the next. The prognosis in these cases is much more serious than in cases of acute gastro-enteritis starting spontaneously. Treatment is also more difficult and unfortunately often ineffective.

Although the dietetic diarrhoeas generally run a mild, prolonged course there is one type — the fermentative carbohydrate diarrhoea — which may be very severe and accompanied by a sawed temperature. The differential diagnosis between this type of dietetic diarrhoea and acute gastro-enteritis is sometimes difficult. Some paediatricians would include most cases of acute gastro-enteritis under this heading. On the other hand others maintain that the fermentative diarrhoea is a chronic intestinal dyspepsia with an acute intestinal infection super-imposed. Although the distinction is sometimes difficult, I think that both types exist. The acute fermentative diarrhoea—sometimes called acute intestinal intoxication — is characterized by the passage of copious, highly acid watery stools accompanied by wind. The buttocks are sore, red and excoriated. Defaecation has an ex-

plosive character. Meteorism is marked. Dehydration is rapid and pronounced. The temperature rises as dehydration progresses and falls again as the lost fluid is replaced.

4. *Acute Gastro-Enteritis.*

This type of diarrhoea is known by a variety of expressive but confusing synonyms. It has been called infective or epidemic diarrhoea, cholera infantum, summer diarrhoea etc. There has been much controversy regarding its etiology and agreement has not been reached so far. At one time Morgan's bacillus was held to be the responsible microorganism, but this has not been confirmed. The dysentery bacilli, especially the Sonne bacillus has been incriminated, but, in spite of intensive research, it has been found impossible to find the casual agent. All the same, it is difficult to reconcile any hypothesis, which excludes infection, with the fact that the prevalence of summer diarrhoea has diminished in those places where flies and dust have been eliminated. Others claim that the diarrhoea is not due to an actual bacterial invasion of the intestinal tract but to toxins derived from contaminated and decomposing milk. All these factors may be operative and probably co-operative, but no one who has seen acute gastro-enteritis spread like wildfire in a children's ward will doubt that there is an infective element. It may be a microorganism as yet undiscovered, it may be a virus, it may be the *Bacillus coli* or an enterococcus whose virulence has been exalted; but there must be something which is carried from one baby to another by dirty bottles, dirty milk, dirty hands or by flies or by dust. The results that have been obtained quite recently through the use of sulphonamide derivatives seem to offer a confirmation of this view.

Treatment.

The first question that presents itself when treatment comes to be considered is whether the child should be sent to hospital. The answer is definitely — No! Infants as a rule do badly when they are sure to infect the other patients in the ward. If their diarrhoea is not infective, they will become infected themselves. Cases of diarrhoea treated in a general ward tend to relapse again and again and to end fatally in most instances. Hospitalization will be necessary in certain cases, but until infants can be treated in separate cubicles and have a nurse to themselves, treatment at home is preferable. A stupid mother is better than a trained nurse in these cases, since she can devote her whole time to her baby. This must not be taken as a reflection on the nursing staff. It is the opinion of all paediatricians all the world over. It is the duty of the physician to simplify his treatment as much as possible and to give clear, precise, foolproof instructions in writing. It is surprising what good nurses illiterate and harassed mothers can become when they are told exactly what to do.

The line of treatment to be adopted in each particular case depends (1) on the severity of the diarrhoea, (2) on the presence or absence of complications and (3) on the etiology. Treatment can be conveniently divided into two stages — the control of the diarrhoea in the first place, and secondly the reintroduction of food — the rehabilitation of the intestine. The second part is often more difficult than the first.

Treatment of Severe Diarrhoea.

I propose to deal with the treatment of severe cases of diarrhoea first. Here the picture is dominated by three major symptoms or complications: toxæmia,

dehydration, and acidosis. We know very little about the toxæmia which accompanies severe diarrhoea beyond the fact that it does exist and can be recognized as a clinical entity. It may be due to absorption of bacterial toxins from the intestines, to the entrance of the products of decomposition of milk, or it may be the clinical expression of dehydration and acidosis. We know however, that in acute gastro-enteritis, at least, the toxæmia is increased by the ingestion of milk of any kind. In the words of Dieulafoy "milk becomes a veritable poison" and the first principle in the treatment of severe diarrhoea is to exclude milk in any shape or form. Toxæmia is usually associated with a raised temperature and, as the estimation of the temperature is easier and less subject to personal bias than the estimation of toxæmia, I would enunciate the same principle in a different form viz:— In infantile diarrhoea do not give milk if the temperature is above 100° F. unless the fever is due to some other cause.

Dehydration is easily recognized. If there is an opportunity of weighing the baby, you will be surprised by the sudden and marked loss of weight amounting to between 20 and 40%. The skin is dry, loose, inelastic and when pinched up remains wrinkled. The eyes sink in and the cheek bones become prominent. The fontanelle is depressed. The cause of the dehydration is of course the loss of fluid and salt in the stools. In babies the reserve of fluid is small and the consequences of dehydration are serious and analogous in many ways to those of hæmorrhage and shock. They must be treated with equal promptitude. The fluid is at first withdrawn from the blood which becomes thick and viscous. This interferes seriously with the circulation. Hence the cyanosed extremities. Secondly the pre-renal deviation of water interferes with kidney function. The kidneys in a baby are not capable of concentrating the urine

to the same degree as in adults, and the diminution of available fluid soon leads to an accumulation of urea and other products of protein metabolism. At the same time acid radicles are not eliminated and acidosis is produced. The loss of water via the intestines interferes in a similar way with perspiration and the regulation of temperature. This is especially noticeable in summer. The result is a rapid rise in temperature quite independently of any infective agency.

Acidosis is intimately connected with dehydration and is a constant feature of severe diarrhoea. It has a threefold origin: the starvation entailed by diarrhoea leads to the breakdown of endogenous fat with the production of acid ketone bodies, the pre-renal deviation of water interferes with the elimination of acid radicles, which are retained, and the loss of large quantities of base (sodium) depletes the alkaline reserve when it is most urgently needed. When vomiting is more marked than diarrhoea, alkalosis may replace acidosis.

Dehydration can be combated by the administration of large quantities of water, but water by itself is not sufficient. It is not retained by the tissues. It is necessary to replace the sodium lost in the stools — hence the necessity of giving physiological saline in all cases of dehydration. As sodium chloride is not the only salt which is lost it would be more scientific to give a solution containing all the ingredients of plasma i.e. Ringer's solution. This, of course, should be done whenever possible, but it is more difficult to prepare and certainly more expensive than ordinary saline. As, in practice, saline gives equally satisfactory results it is not worth while complicating the treatment by insisting on the use of Ringer's solution. Again, the most scientific way of introducing this fluid would be to inject it slowly into the veins by the so-called drip method. The drip-method of saline in-

fusion gives excellent results, but it is not suitable for private practice. It is difficult enough in hospital practice. When persistent vomiting complicates the diarrhoea, or the baby is so ill that it refuses to drink, one is forced to give the fluid parenterally, by hypodermoclysis, or by intraperitoneal injection. Fortunately these cases are relatively rare and here an exception to the rule against hospitalization is permissible. But, in the majority of cases, babies will take physiological saline solution quite easily if it is diluted with an equal amount of water — the so-called “½ normal saline”. Even babies who are vomiting will usually keep it down. The treatment of dehydration therefore is the administration of normal saline—by mouth if possible, parenterally when one cannot do otherwise. Acidosis naturally suggests the use of an alkali — sodium bicarbonate or sodium citrate. But, in diarrhoea, the kidneys are not functioning properly and the range between acidosis and alkalosis in a baby is very small. Unless treatment can be controlled by frequent examinations of the blood the child can easily pass from one condition to the other without any recognizable clinical signs. *Prima facie*, sodium citrate might appear to possess the advantage of a diuretic action, but unfortunately it aggravates the diarrhoea. To obviate the very real dangers of alkalosis, Hartmann has proposed the use of sodium lactate which acts as a buffer, that is, it acts as a base if there is acidosis and as an acid if there is any tendency towards alkalosis. This sodium lactate may be added to Ringer's solution to form the so-called “Hartmann-Ringer's solution.” This would be the ideal solution to use but its preparation is difficult and beyond the competence of the ordinary pharmacist. The sodium lactate is produced by the interaction of lactic acid on sodium hydroxide in the solution itself and must be adjusted to a definite pH. In

practice I have found the use of a 10% solution of glucose in saline to give satisfactory results. The glucose provides a certain number of calories and eliminates ketosis, while the diuresis which follows its administration usually clears up the acidosis.

The third indication is to treat the cause. In the majority of cases severe diarrhoea is due to infective gastro-enteritis. In a smaller percentage of cases, it is due to parenteral infection and occasionally, it is due to carbohydrate fermentation. In cases of parenteral infection, as I have already said, the etiological treatment is the administration of sulphonamides. Lately it has been recognised that some of the sulphonamides, notably sulphapyridine and sulphaguanidine, are equally effective in cases of enteral infections, such as the bacillary dysenteries and infective diarrhoea. This has rendered the treatment of the acute stage of severe diarrhoea relatively easy. In my experience, sulphapyridine is more effective in infective diarrhoea than sulphaguanidine. Besides it has the advantage that it will also act in cases of diarrhoea due to a parenteral infection. In addition, it is more easily obtainable. I have therefore adopted Dagenan as the routine drug in the treatment of severe diarrhoea. Theoretically it should not act in cases of carbohydrate fermentation, and if you are sure that the diarrhoea is due to this cause, you should not use it. Starvation as a rule is sufficient in these cases. But the differential diagnosis is often difficult and I do not think that the giving of Dagenan in an unrecognized case of fermentative diarrhoea will do much harm. Of course this is very unscientific, but my advice would be to give Dagenan in all cases of severe diarrhoea accompanied by fever.

So much about the theory of the treatment. I am sure you will be more interested in the practical details. The routine I

have adopted after many experiments is as follows: Having made the diagnosis of severe diarrhoea with fever the mother is told not to give the child any milk or any other food. She is given a packet containing:—

Glucose 2½ ozs.
Sod. Chloride 90 grs.

and told to put this into a clean wine-bottle (25 ozs.) and to fill this up with boiled water. This will produce a 10% solution. She is to give two tablespoonfuls of warm boiled water every hour by day and by night. The advantage of giving the glucose saline as a powder instead of in solution, is that it is cheaper and reduces waiting at the chemist.

At the same time she is given a number of powders containing Dagenan. The effective dose seems to be relatively small, which is fortunate, considering the high cost of Dagenan. In babies under 3 months 1/6 of a tablet is usually sufficient. In babies from 3 to 6, I give ¼ tablet, from 6 to 9, 1/3 tablet and from 9 months upwards, ½ tablet. It is useless to tell the mother to break up the tablets herself. The chemist must prepare them. I prescribe them thus.

R/
Tab. Dagenan iv.
Divide in xvi chart.
S. One every four hours.

The mother is told to return next day. If diarrhoea and fever are still present the same treatment is persisted in and in most cases it is wiser to continue treatment for 48 hours. The only exception is in the case of emaciated infants where food must be started as soon as possible. If no impression has been made on the temperature and on the diarrhoea the dose of Dagenan may have to be doubled. In my experience however this is rarely necessary. In the great majority of cases the temperature is down to normal and the diarrhoea has ceased in from 36 to 48 hours.

The next stage is the re-introduction of milk. I do not propose to enter into a discussion on the relative merits of the various types of milk. Whenever breast milk is available it should be given preference — in other cases I use evaporated milk acidified with lactic acid. To proceed with the details of the treatment — if the mother was breastfeeding her infant, she should be advised to empty her breasts regularly every four hours with a breast pump while the baby is on the glucose saline. As soon as the temperature is down breast feeding is allowed for five minutes every four hours. As this does not provide enough fluid and enough nourishment glucose saline is continued in the intervals. If there is any sign of oedema, plain water or water and glucose is substituted. Waterlogging is rare but is apt to appear when the mother is too enthusiastic and gives more than the prescribed dose of saline. If diarrhoea reappears and the temperature goes up, one goes back to glucose saline for another day and tries again. If the stools are satisfactory the period of feeding is gradually increased until the baby is receiving its full share. In rare cases the mother's milk does not agree with the infant and then one must resort reluctantly to artificial feeding. The Dagenan is continued for another 4 days, making six days in all.

When the baby is fed artificially, I start with one table-spoonful of evaporated milk diluted with three table-spoons of water. To this, two drops of lactic acid are added and the mixture shaken well and allowed to stand for 5 minutes. It is a great advantage to show the mother the size of a table-spoon which is equivalent to ½ ounce as otherwise she is apt to use a desert spoon. I make it a point of showing the mother how to prepare the mixture using a suspension of creta preparata instead of milk, and plain water instead of lactic acid. This mixture is to be given four hourly. If the baby is able

to digest this milk, the dose is doubled in the next day and one goes on in this way until the baby is receiving the total quantity of fluid it should have for its age. The following table shows the dilutions which should be given progressively and a copy of it should be given to each mother. If she cannot read, there is sure to be a neighbour who will be willing to help her.

Days	Milk (tablespoons)	Lactic Acid Drops	Water (tablespoons)
I.	1.	2.	3.
II.	2.	4.	6.
III.	3.	6.	9.
IV.	4.	6.	12.
V.	5.	6.	11.
VI.	6.	6.	10.

In many cases one has to proceed more slowly and to keep the baby on the same quantity for three or four days before proceeding to the next stage. Again doubling the dose may be too much for the baby and it may be necessary to increase the dose more gradually starting with two teaspoons of milk and increasing by two teaspoonfuls daily. But if one went into these minute details in every case, the mother would get too confused and I have found that mothers introduce these modifications themselves without being told.

As in the case of breast feeding, in the initial stages the milk is supplemented with glucose saline and subsequently with plain water given in the intervals between feeds. The Dagenan is also continued for a total period of six days as already mentioned. No sugar is added until the stools are normal in appearance and not more than three per day. When this stage is reached one gives $\frac{1}{2}$ a teaspoonful of sugar with each feed and increases it to 1 teaspoonful if it is well tolerated. The lactic acid must be continued for at least 15 days and in many cases almost indefinitely. In older babies as soon as the stools

are satisfactory one can start semolina, rice, cereals and later eggs.

Such in brief is the routine treatment of severe diarrhoea that we have evolved after many experiments. The only advantage that I claim for it is its simplicity, and, of course, its effectiveness. Now and then, one will meet with a case that requires special treatment such as hypodermoclysis or a special kind of milk but you will be surprised at the rarity of these exceptions. With this treatment it is rarely necessary to stop milk for more than 24 to 36 hours.

Treatment of Mild Diarrhoea.

In mild diarrhoea there is no dehydration. Fever and toxæmia, if present, are due to a parenteral infection. If the parenteral infection is discovered, it should be treated at once and in most cases this will mean the administration of Dagenan. You must remember however that Dagenan is not effective if there is pus under pressure as in an empyema or a purulent otitis media, which is not draining well. In these cases surgical treatment is indicated. In mild diarrhoea due to parenteral infection there is no need to give purges or to starve the baby. There is no need to change the milk the baby has been having, but, as the digestive function of the infant is upset by infection, half the usual quantity of milk should be given.

In cases of mild diarrhoea of the dyspeptic type it is usual to start the treatment by giving an opening medicine to clear out the *materia peccans*. Castor oil is the best purgative to use and a teaspoonful is sufficient. Subsequently the baby is starved for twentyfour hours being given plain water or weak tea only. If the baby refuses these they may be flavoured with saccharine, $\frac{1}{2}$ a tablet to each four ounces. If the case is seen at the very beginning and is due to an obvious dietetic error this is usually all the treatment that is necessary. If the diarrhoea

has been going on for a long time, or if it tends to start again when milk is introduced the lactic acid treatment described before should be instituted. Sometimes these cases are very difficult to treat and require persistence, care, and patience.

There is really no place for drugs in the treatment of mild diarrhoea but occasionally a mixture containing 5 grs. of creta preparata to the drachm can be given, if the stools tend to remain loose.

There are two special types of diarrhoea that remain to be mentioned: ileo-colitis and proctitis. This is characterized by the frequent passage of small stools accompanied by much pain and straining. Mucus is constantly present, and blood is often present. Many of these cases are due to bacillary dysentery and respond well to the administration of Dagenan or Sulphaguanidine. Others have a non-specific origin and, in these, a mixture containing 5 minims of castor oil and $\frac{1}{2}$ a minim of opium given three or four times a day is often useful. If the case is resistant it is well to examine the stools for the *Entamoeba histolytica*. Although rare, cases of amoebic dysentery may occur in quite young infants. Carbarzone or Stovarsol $\frac{1}{3}$ to $\frac{1}{4}$ tablet given three times daily is a very effective remedy. The drug is given for 10 days and the course repeated after an interval of another 10 days.

Finally one last word on the treatment of what I have called "Proctitis". In this there is great irritation of the lower portions of the large intestines. The child resents the introduction of the thermometer into the rectum and pushes it out

by means of violent contractions. Small frequent stools sometimes consisting of mucus by itself are passed with great pain. An enema of 1 ounce of starch mucilage containing $\frac{1}{2}$ to 1 minim of tincture of opium twice daily seems to be the best treatment for these cases.

There are many treatments that I have not mentioned such as irrigations, Moro's apple diet, tannic acid preparations etc. All these have their special indications but years may pass before you meet with one of these cases. I have tried to be as practical and helpful as possible and to indicate the principles which should guide you in the treatment of the commoner types of diarrhoea. I should like to stress again the following points:

1. The frequency of diarrhoea of pararectal origin and the necessity of examining the baby thoroughly.
2. The possibility of typhoid fever, and of amoebic and bacillary dysentery as causes of infantile diarrhoea.
3. The necessity and advantages of taking the rectal temperature yourselves.
4. The almost specific action of Dagenan in infective gastro-enteritis.
5. The necessity of withholding milk while there is toxæmia and the temperature is raised.
6. The possibility of giving glucose-saline by mouth.
7. The advantages and the simplicity of preparation of lactic acid milk when Evaporated milk is used.
8. And, finally, the necessity of giving clear, written instructions to the mother and of demonstrating to her how the lactic acid milk should be prepared.

Postscript 1952.

In spite of the nine years that have passed since I wrote this paper, there is very little I would like to change. Morgan's bacillus has sunk into oblivion, for a time the *B. Coli comunis* var. *neapolitanus* stepped in its place, but we are still

ignorant as to the real cause of Epidemic Infantile Diarrhoea.

The principles of treatment I enunciated still hold good. Dagenan, of course, has disappeared and its place has been taken by sulphadiazine, which I now prefer to give as a suspension, the appropriate dose being made up to a teaspoon. I have had

no extensive experience with the new antibiotics but theoretically they should be able to do all that sulphadiazine does. The only obstacle is their cost and the difficulty of administration. I have seen two or three dramatic successes with Aureomycin given in the form of the spersoid. Terramycin as an elixir or as drops certainly deserves a trial and Chloromycetin in the form of the palmitate may prove to be the best drug of all.

I still believe that suitably diluted evaporated milk with lactic acid drops is cheaper and better than any proprietary brand of powdered acid milk and I still maintain that infants should be kept out of hospital as much as possible.

The paper was not intended as a scientific contribution but as a description of methods of treatment so simple that they would be intelligible to the meanest intel-

lect and applicable in the poorest household. It was a revolt against the traditional treatment of infantile diarrhoea with fractional doses of calomel and as such it may be considered as a milestone in local medical history. It is for this reason that I am glad it has been reprinted in its original form.

Nine years have passed. The infant mortality in Malta has dropped to what might be considered as quasi-European levels. No doubt this is due to a higher standard of living, to better education and to the influence of the Child Health Clinics, but in moments of depression I sometimes manage to cheer myself up by hoping that my paper might have contributed in some small measure towards this reduction.

J.E.D.

An eminent physician (Dr Edward Jarvis) has recently said. "Our education has made our calling exclusively a curative and not a conservative one, and the business of our responsible lives has confined us to it. Our thoughts are devoted to, our interests are concerned in, and our employments are connected solely with, sickness, debility or injury — with diminution of life in some of its forms. But with health, with fulness of unallayed, unimpaired life, we, professionally have nothing to do." Though this may be generally true, professionally, yet the intelligent physician "can see arrows of disease, invisible to any one else; watch their havoc, and know whence they come, and how they may be stayed." And there are many eminent medical men, who have as individuals, nobly used the means which their superior position and knowledge have placed within their control in the prevention of disease, and in the promotion of public health. And we wish to increase the number of such professional men. LEMUEL SHATTUCK.

BIOGRAPHICAL SKETCHES

PROF. P.P. DEBONO

The Hon. Peter Paul Debono, who has recently vacated the Chair of Surgery in our Royal University has completed 25 years as Professor of Surgery and as Senior Surgeon to the Central Hospital.

Professor Debono was born on the 29th June 1890. He was born into the University since his father, the late Professor Francesco Debono M.D., in the previous April, had been appointed Professor of Botany, Zoology, Hygiene and Forensic Medicine. He was named Peter Paul after his maternal grandfather, Peter Paul Caruana, a merchant, and it was a pure coincidence that he happened to be born on the feast of Saints Peter and Paul.

After passing through the Lyceum, he matriculated and entered the University in the year 1904. In 1910 he graduated M.D. and gained the Government exhibition and the Bugeja Scholarship as the first student of the course. After graduation he spent a year or rather 13 months in post graduate study in London where he attended various hospitals and obtained the D.P.H. of the University of Cambridge. Besides attending hospitals he worked in the bacteriological laboratories of the Royal Institute of Public Health and the result of his researches was published in the *Central Blatt. f. Bacteriologia*. (Orig. 62Bd. 1912).

Returning to Malta near the end of 1911 he served for a short period as temporary Medical Officer of Health during the epidemic of Cholera which prevailed in that year, and then took up his first appointment in the University as assistant to the Professor of Anatomy and Pathology. He worked in the dissecting rooms and in the pathological laboratories, and in 1914, when his chief, Prof. C. Sammut, left for War Service he was made acting Pathologist to the Central Hospital, a post which he held up to his

transfer to the Public Health Department in 1918.

In the Central Hospital Dr. Debono did not confine himself to the laboratory but took an active part in ward work and gave Anaesthetics in the operating theatre, and was the means of introducing the use of Ether, both by open and closed methods, and of Spinal Anaesthesia. He also published a paper (*The Journal of State Medicine* August 1914) recording for the first time the occurrence of Amoebic Dysentery in Malta.

During the war 1914-18, whilst still continuing services with the Civil Government, he served as Civil Surgeon first in the Royal Naval Hospital Bighi both as Surgeon and as Specialist Anaesthetist, and later, when the Gallipoli Campaign was over, he worked in the Military hospital as a member of the staff of the Command Pathologist, Col. A.C.O. Sullivan, Professor of Pathology Trinity College Dublin, himself being a pupil of Wirchow. When Col. O'Sullivan returned to England he was left in charge of Tigne District Laboratory where he remained until his transfer to the P.H. Department.

At Tigné Laboratory, he carried out research work on Dysentery in conjunction with his colleague Dr. J. Spears which was published in the *R.A.M.C. Journal* (*Journal of the R.A.M.C.* June 1919).

After a brief period of service as Medical Officer of Health (February 1918-May 1919) Dr. Debono was selected for appointment as Junior Surgeon to the Central Hospital in succession to Dr. J. Galizia who was a victim of the epidemic of Influenza raging at the time, and was sent on a Government scholarship to the U.K. to obtain the F.R.C.S. leaving Malta on the 3rd. June 1919.

In London, through the influence of Sir Archibald Garrod who was one of the



Prof. P.P. Debono O.B.E., M.D., D.P.H., F.R.C.S.

consultants in Malta during the war, he entered St. Bartholomew's Hospital. He passed the Primary Fellowship in the following November and then joined the newly set up Professorial Unit under Geo. Gask. Beginning as a simple dresser he ended as "Locum tenens" to the Chief Assistant Mr. G. L. Keynes and also acted as house surgeon to Mr. now Sir Thomas Dunhill, Surgeon to the late King.

Having passed his final Fellowship examination in November 1920, through the influence of Sir William Thorburn who also had been consultant in Malta, he secured the appointment of Assistant Resident Surgical Officer in the Manchester Royal Infirmary, and had his full share of the abundant surgical material available there.

In July 1921, after practically eleven years of preparation in Anatomy, Pathology, Anaesthetics and Clinical and Operative Surgery, Dr. Debono returned to Malta and took up the post of Junior Surgeon and started practice in Surgery.

On the 5th October 1926, he became Professor of Surgery and Senior Surgeon to the Civil Hospital.

During the twenty five years that Professor Debono occupied the Chair of Surgery he worked wholeheartedly for the students and for the University as well as for the sick both in and out-side hospital. Professor Debono served for two periods of three years as a representative of the Faculty of Medicine on the General Council of the University, now the Senate, and, for a further period of six years, as a nominated member. His membership of the General Council for a consecutive period of nine years ended in 1947, during the last three years of which, he was elected as the Rector Magnificus' deputy. When the Royal University became autonomous, Professor Debono was elected a member of the new Council as a representative of the Legislature.

During the Siege of 1941 - 43, Professor Debono was the Chief Surgeon in the Emergency Medical Service, and by his

example, he contributed considerably to the setting up and maintaining a high standard in the treatment of war injuries.

Professor Debono kept himself well abreast of the advances of Surgery, and he took pains to keep the School of Surgery of the University of Malta well up to date. Thus, when Thoracic Surgery came into the field, he, as a pupil of G.E. Gask and J.E.H. Robertson who were amongst the pioneers of this branch of Surgery in the United Kingdom, was not slow in taking it up and he has been doing Thoracoplasty for Pulmonary Tuberculosis since 1929. The high standard both in teaching and in practice maintained in the School of Surgery of Malta has been recognised by Professor Debono's name being included amongst the members of the Editorial Board of the British Journal of Surgery along with those of the chiefs of the more important Surgical Clinics in the Commonwealth.

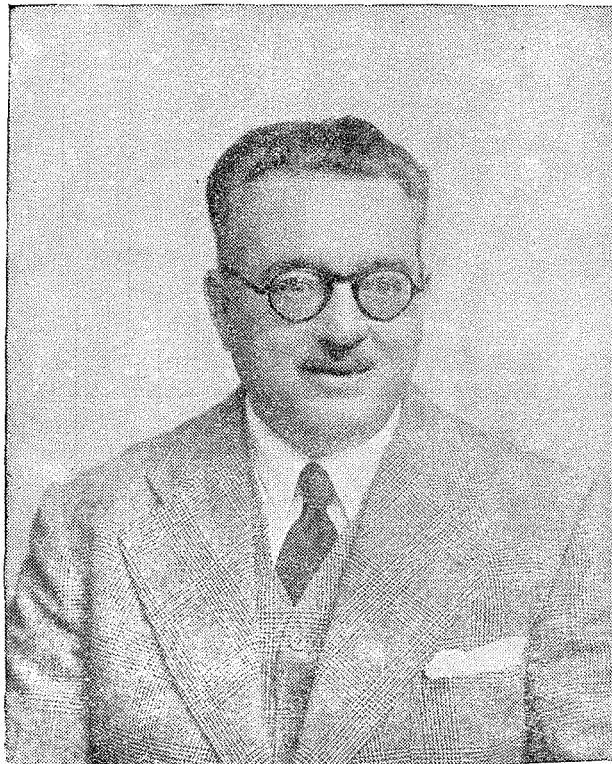
Professor Debono's activities were not limited to the professional field. In 1936 when he happened to be president both of the Camera Medica and of the Malta Branch of the British Medical Association he was nominated a member of the Executive Council under the Constitution of Malta of 1936. In respect of this service he was granted the title of "The Honourable". On the restoration of Self-Government he stood for election in the interests of Labour and was returned as a member for the Fourth District. He was made Minister of Health in the first Government under the Constitution of 1947, but he resigned the Ministry after a few months in order to return to his professional work. He was elected Speaker of the Legislative Assembly in April 1948. His heart, however, was not in politics and he definitely retired in 1950.

Professor Debono was created an officer of the Most Excellent Order of the British Empire in the New Year Honours of 1944 and an officer of the Venerable Order of St. John in the British Realm in 1938.

PROF. JOSEPH ELLUL

Prof. Joseph Ellul was born at Cospicua on the 30th March 1888. He received his early education at the Government Elementary School of his birth-place and subsequently at the Seminary, Floriana. He matriculated in 1906 passing with honours and obtaining 3rd place in Order of Merit. Throughout his University career he showed great assiduity and diligence and was one of the only two students who

Professors of Medicine and of Midwifery and Gynaecology. He was Medical Officer in charge of the X-Ray department for a period of three years. In 1917 he was elected to the post of Clinical Assistant to the Professor of Midwifery and Gynaecology at the University which post he held under the late Prof. G. Debono for five years. In 1922 he was elected to the newly established post of Junior Accou-



obtained the Degree of Bachelor of Science in 1909. He graduated as Doctor of Medicine in 1919 having been second in Order of Merit.

Soon after his graduation he was appointed Civil Surgeon at Fort Delimara on the outbreak of the First World War and later on in the same year became Assistant Resident Medical Officer at the Central Civil Hospital where he assisted

cheur at the Central Civil Hospital, becoming Senior Accoucheur in 1930 when he was given the Chair of Midwifery and Gynaecology and appointed lecturer in Pediatrics. He represented the Malta Branch of the British Medical Association at the International Congress held in London in 1933 to commemorate the Centenary of the British Medical Association and in 1934 was elected Fellow of the Royal Col-

lege of Obstetricians and Gynaecologists, being the first Maltese doctor to hold this coveted degree.

With a laudable desire to better his already outstanding knowledge, Professor Ellul went abroad during the period 1925-28 and studied under the foremost specialists in Europe — under Prof. Bruni in Naples; under Pestalozza in Rome, and with Mangiagalli in Milan — to mention but a few. He attended the Broca Hospital and the clinics of Salpetriere and Baudelocque of Paris. He went to London and studied in Queen Charlotte's Hospital, Chelsea Hospital for Women, and the Hospital for Sick Children in Great Ormond Street amongst others. His studies took him to various clinics in Berlin, Vienna and Stockholm.

Amidst all the activities of a life mainly devoted to the service of medical science, Prof. Ellul could still find time to devote to the political welfare of his country. He was Chairman of the Executive of the Labour Party under the leadership of the Hon. Dr. Boffa for many years and represented Labour in the General Assembly. Under the present Constitution he was elected a Member of the Legislative Assembly.

In 1951 he relinquished the post of Professor in the University on attaining the age limit. His long and fruitful career has been rewarded with several distinctions: he was made a Chevalier of the Sovereign Order of the Knights of Malta and an Officer of the British Empire.

TAHT L-ANESTETIKU

Lil-Prof. Kav. Dr. G. Galea, M.B.E., M.D., D.P.H.

Ftit imheddel — b'zegli bosta
Imidduk fuq sodda iebisa;
Waqt bla hsejjes tilmah riesqa
Nies imghamda — l-abjad liebsa.

Sabiex tigbed in-nifs qawwi
Tisma' lehen iwissik;
Imbaghad tinzel dik il-maskra
Biex tisirrek minn sensik.....

.....Issa tisma' donnha xita
Niezla b'riha t'ilma zahar;
Thoss qed nifsek jinqataghlek,
Wiček thossu vampa nar.

Kollok biża' — qalbek tferfer,
Tara epar quddiem ghajnejk.....
Tisma' ghajat, tisfir u hsejjes
Qed idamdmu go widnejk.

U ma ddumx ma thossok niezel
F'raqda—f'dalma—f'qiegh bla qies...
...Imbagh'd tqum — fost sikta kbira,
Qalb dehwiema gemgha nies.

Lino Farrugia Bonnici.

Student Kors Akademiku tal-Medicina.

Waqt li l-kliem ta' dawk madwarek
Jonqsu — jitfu — qajl jitbieghdu.....
Demmek tahsbu qed jingazza,
Idejk thoss bil-bard jitrieghdu,

U tisthajlek qieghed tifga,
Tilmah mewg ihebb ghalik;
Kwiekeb jigru — dwal jitlieghbu,
Thoss qed kollox idur bik.

Ghalkemm aghma — nofsok mejjet,
Widnejk torox — rasek tqila;
Sabiex tnehhi dik il-maskra
Taghti salt b'kemm ghandek hila...

Izda dlonk thoss minn izommok,
U malajr sahitek thallik;
Int tisthajlek gisem mejjet
U l-mewg ighaddsek u jghollik...

Introduction to Clinical Surgery

Prof. P.P. Debono O.B.E., M.D., D.P.H., F.R.C.S.

In this first meeting of the class of Clinical Surgery, the following remarks of a general character, are appropriate as an introduction.

In the first place, what is the meaning of the word "Clinical"? Clinical is derived from "Klinos" which is the Greek for bed. It has come to imply the practical application of the scientific principles of Medicine to the treatment of the individual patient, who as a rule, is in bed; hence the name. According to modern usage, however, the term clinical embraces more than bedside practice because it is applied also to practice in the consulting room and in the out-patient department.

Clinical practice is mainly an art, an art based on Science. Surgery, in addition, is also a craft, the noblest of all crafts, because it has for its object the human body, the noblest work of the Creator.

The approach to Clinical Surgery is, in the first place, through what are known as the "Basic Sciences", Physics, Chemistry and Biology. Then through Anatomy and Physiology and finally through Pathology. These studies, which constitute the scientific basis of Surgery, are learnt in the classroom and in the laboratory.

The art of Surgery, in other words, clinical practice, can only be learnt at the bedside by precept and even more by example. The craft of Surgery can only be learnt by apprenticeship and only by those with a thorough grasp of the scientific principles.

Clinical practice includes Diagnosis, Therapeutics and Prognosis — though from the point of view of the patient, Therapeutics or treatment is the most important, it being the final object that he is seeking; from the healer's point of

view, diagnosis is perhaps the more important, since without it neither treatment nor prognosis are possible. It has even been said that for the proper treatment of a patient three things are important; the first is Diagnosis, the second Diagnosis and the third Diagnosis.

DIAGNOSIS

The etymological meaning of the word "Diagnosis" is "to know through," which has come to mean to know or to recognise the disease as a pathological process, through the body of the patient; and incidentally to give it a name by which it can be identified.

It should be emphasised that the recognition of the pathological process going on in the patient's body is by far the most important element in diagnosis than the labelling. A diagnosis should be the expression of and should convey to the mind the concept of a definite pathological process; and you should stoutly resist the temptation to accept in lieu of a diagnosis, terms however high sounding, which do not convey the notion of the disease process itself. Thus, the label attached to a syndrome is not a diagnosis, and though the name, especially if couched in Greek, may satisfy the patient, it only denotes ignorance on the part of the clinician.

MAKING A DIAGNOSIS

Two distinct mental processes are involved in making a diagnosis. The first is the search for and the collection of the evidence of the presence of disease and its nature as revealed by clinical examination. The second is the evaluation and

integration of the evidence thus collected. It is important, especially for the beginner that this evaluation and integration be not undertaken before collection of the evidence is complete. Short cuts to diagnosis, unless based on extended and mature experience, often lead to mistakes, and the student should not attempt to imitate his seniors who, relying on past experience sometimes allow themselves the liberty of such short cuts.

In the clinical examination one should proceed methodically. First the history, present and past is taken; next the symptoms are investigated and then the physical examination, which should be both accurate and complete. Most errors of diagnosis are due, not to ignorance but to inadequate clinical examination, the physical signs being elicited carelessly and incorrectly or, as happens more often, not at all.

Only when the clinical examination is completed should special investigations such as X-Rays or laboratory examinations be requested and these are such as the previous examination has pointed out as necessary. In modern days it is usual to enlist the help of experts in these branches. In order to obtain the greatest help from such procedures, it is important that the experts in these branches should not be regarded as mere technicians in order to supply a series of X-Ray films or a series of figures in a report — their full collaboration can only be secured if they are made cognisant of the case and of the special problems it presents. This collaboration often implies bedside discussions with the specialists concerned. Finally it may also be necessary to resort to exploratory procedures. In surgery such exploratory procedures may be more easily resorted to, but a word of warning is necessary: there is nothing more fallacious or more harmful than a "look and see" policy. An operation requires adequate planning and such planning cannot be adequate unless it is

based on a diagnosis as complete as possible. Even such simple procedures as exploratory punctures, if lightly undertaken may lead to disastrous results — instances have been known when a needle, meant to explore for the presence of a pleural effusion was driven into the hypertrophied heart, and of a trocar meant to evacuate a supposed ascites being pushed into the pregnant uterus.

The way to acquire accuracy in eliciting physical signs is to practice the methods of physical examination repeatedly until they become thoroughly familiar; and this is what students are expected to do during their hospital training. My earnest advice is to miss no opportunity of acquiring experience in physical examination. Completeness is acquired by proceeding in an orderly manner, according to a set scheme. Such methodical examinations should be practised repeatedly until they become almost automatic.

WRITING UP NOTES

Writing up notes of a case makes for completeness and accuracy of the clinical examination. It is remarkable how often omissions in eliciting some physical sign are discovered when the notes of the case come to be written up.

The notes should be brief but comprehensive. They should be written in simple language and such terms as imply a diagnosis should be sedulously avoided. Irrelevant details often put in with the object of advertising the writer's powers of observation should be excluded. They often take the place of important points which are omitted.

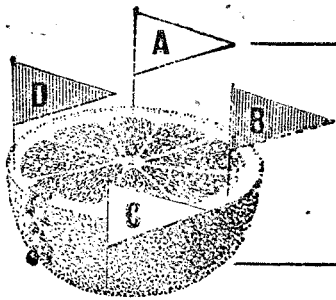
THE HISTORY

The taking of an accurate history of the case is not easy. Patients vary enormously in their intellectual development and often they exhibit an irritating tendency to mix up what they felt with what they have been told, or to suppress important facts either because they believe them to be irrelevant, or in their an-

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xiety to impress their point of view. Others, after repeating more or less verbatim a long dialogue, will stop short just as they are about to reach the crucial point of the case.

These and other foibles have to be put with and should not be allowed to provoke an antagonistic attitude on the part of the examiner. Perhaps it is better, in the long run, to allow patients to tell their story in their own way, their memory may be helped by a few well directed questions and sometimes they have to be gently but firmly recalled when they have strayed too far from the subject. Suggestive questions are better avoided as they often elicit misleading answers. The taking of a full and accurate history is an art which can be acquired only by experience and often requires considerable patience and tact. Students are therefore urged to practice history taking as much as possible.

EVALUATION AND INTEGRATION

It is only when the clinical examination is complete and not till then, that the second step towards arriving at a diagnosis may be taken. This consists in the evaluation and integration of the observations made.

The diagnostic importance of the various signs and symptoms varies within wide limits. They may be classified into direct or pathognomonic and indirect or suggestive. The pathognomonic symptoms, when properly elicited, lead to a correct diagnosis. Such are, for example, abnormal mobility and crepitus in a fracture or loss of power in a wound in the vicinity of a nerve. The other signs are merely inferential and have to fit in well into the general clinical picture and may be compared to circumstantial evidence in a court trial.

The evaluation and integration of indirect signs and symptoms is an art which has to be acquired laboriously all the

more since clinical reasoning does not follow the ordinary rules of logic but is in reality a fine assessment of probabilities against the background of experience. The mental process has been aptly put in words by Newman from whom the following is quoted:—

“In actual questions we attain certitude in virtue of a cumulation of probabilities, independent of each other, arising out of the nature and circumstances of the case under review, probabilities too fine to avail separately, too subtle and circuitous to be converted into syllogisms, too numerous and varied for such conversion even when they are convertible. The certitude that we arrive at, by these intangible and perhaps unanalysable probabilities is different from the mathematical or scientific certitude, but it is not a lesser certitude. On the contrary it is all the stronger because it is the result of our experience in life.”

The student, as he gains experience, will evolve his own mental process for arriving at a diagnosis and as his background widens so will his diagnostic ability. Whilst his diagnostic acumen is developing and evolving he will do well to follow some simple rules which the wisdom of centuries has set as signposts along the way, he thus will be less liable to stray from the beaten path and will avoid pitfalls lying in the way — such rules are the following:—

- 1) Avoid jumping to conclusions and resist strongly making a definite diagnosis before the clinical examination is complete.
- 2) Avoid being led astray by imagination into detecting signs and symptoms which are expected to be present but which in point of fact are not.
- 3) Avoid as far as possible diagnosing rare or unusual diseases. Such diagnoses, only exceptionally, prove to be right.
- 4) Never make two diagnoses where one will suffice.

5) Avoid being swayed by the last fashion or the last article read.

6) Do not accept the labels attached to syndromes in lieu of a diagnosis. Such subterfuge may satisfy the patient for the time being but does not satisfy clinical conscience.

I conclude by repeating, once again, my plea for assiduity in attending the Clinical Wards of the hospital. It is here, at the bedside of the patient, as well as in the Operating Theatre and the Post-

Mortem room that the foundations are laid for a clinical career and where diagnostic ability and clinical judgement are acquired which constitute the ideal goal of all those who practice the healing art.

POST SCRIPTUM

—The time having arrived when I must vacate my chair, I offer these notes and reflections, which epitomise my teaching, as a parting gift and testament to my beloved students.

LECTURE-ROOM QUOTES

"You must suspect before you can exclude".

"A well-washed neck never boils".

"The angrier a person gets the sweeter he becomes".

"The physician who refuses to put his finger in the rectum, nearly always put his foot in it".

"Faeces et urina sunt medici materia prima".

"La bugia pietosa ai medici è permessa".

"The appendix does not understand the clock".

"Not all foreign bodies in the air-passages are real".

"A female pelvis is distinguished from a male, not by a tag attached stating Mrs. Mr. or Miss, but by the public angle etc."

"Diphtheria comes on like a thief in the night".

"The typhoid patient who passes water will not die".

"The tubercle bacillus does not die, it sleeps".

"Wise men suffer more from gout than fools".

"Good midwifery is preventive gynaecology".

"Thou shalt not kill, but needst not strive officiously to keep alive".

THE MANCHESTER OPERATION

Dr. O. Zammit B.Sc., M.D., M.Sc., (L'pool), M.R.C.O.G.

Demonstrator in Obstetrics & Gynaecology, Royal University of Malta

Prolapse is such a common disabling condition that it is no wonder it has attracted the attention of the medical world ever since the time of Galen. It is only in comparatively recent years that it has to come to be realised that the real cure for it is surgical.

The operations that have been devised are legion. Two factors may be said to have contributed to this, namely, the complexity of the lesion and the nature and mechanics of the uterine supports, which until recently were little understood. In Great Britain the operative treatment has been standardised and the routine procedure is the Manchester operation.

History

As the two Crossens (1) have observed, the perfected operation is the integration of two lines of treatment, namely,

- 1) Vaginal plastic work, leading to the use of deep sutures.
- 2) The identification of the damaged structures and their individual repair.

According to Brentnall (2) the pioneers of vaginal plastic repair were Marshall Hall and Heming of London (1831), who narrowed the vagina by removing a portion of the anterior wall, Huguier of Paris (1841) who amputated the cervix and Hegar (1870) who combined colpo-perineorrhaphy with amputation of the cervix.

In 1888 Donald (3, 4) of Manchester combined anterior colporrhaphy and colpo-perineorrhaphy with amputation of the cervix — a procedure which, according to Shaw (5, 6, 7), had never been before.

In 1908 Fothergill (8), also of Manchester, announced before the Royal Society

of Medicine that the main supports of the uterus and vagina were 'the parametrium and paracolpos.'

It is Brentnall's (loc. cit.) contention that the credit for the operation should go to Fothergill who, unlike Donald, based his operation on a knowledge of anatomy and used deep sutures. Shaw (6, 7, 13), however, maintains that Donald's operation was essentially the same as it is practised today. Shaw was Donald's house surgeon in 1904, whilst Brentnall did not join the staff of the same hospital until after 1918. Donald, however, did not adequately publish his technique, while Fothergill (9, 10, 11, 12) spared no efforts to popularise the operation. It would therefore appear that Donald formulated the principles of the operation and that subsequent authors, notably Fothergill and Shaw, have through their writings shown the anatomical rationale and improved the technique.

As the operation has been performed continuously in Manchester since Donald first laid down its foundations, it seems sensible to call the operation, as Shaw (7) has suggested, "The Manchester operation."

Anatomy and Principles of the Operation

It is now generally agreed that the chief sustaining and supporting structures of the pelvic viscera are the pelvic cellular tissue and the pelvic floor and that the two are complementary.

Following the description given by Curtis (13) and his associates, the pelvic cellular tissue is a mass of fibro-elastic connective tissue containing muscle fibres.

This tissue is condensed into a strong layer — the endopelvic fascia — overlying the upper part of the obturator internus and covering the upper surface of the levator ani. It is thickest round the cervix and to a greater extent round the vault of the vagina and sweeps radially in all directions towards the pelvic walls.

Anteriorly, two main condensations are formed, the pubo-cervical ligaments, which course towards the pubis. Laterally, the tissue spreads out fanwise to form the strong bases of the broad ligaments; they are called the cardinal ligaments and are the main supports of the uterus and upper vagina. Posteriorly, the tissue is thickened to form the utero-sacral ligaments. In addition, the pelvic cellular tissue sends out investing fasciae separately to the bladder and urethra, the cervix and vagina and the rectum.

The most important component of the pelvic floor is the levator ani muscle, which arises from the pubis and the fascia covering the obturator internus and is attached to the coccyx and sacrum. The anterior division, the pubococcygeus,

sends forth decussating fibres between the urethra and vagina, between the vagina and rectum and between the rectum and sacrum; three slings are thus produced which help to support the organs mentioned.

Laxity of the pubocervical ligaments and investing fasciae causes cystocele and/or urethrocele; damage to the cardinal ligaments and levator ani leads to prolapse of the uterus and/or vagina and damage to the utero-sacral ligaments, levator ani and the rectal fascia gives rise to rectocele and/or enterocele. All these different damaged structures, except enterocele, can be cured by the Manchester operation whose main object is to repair them and tighten them up. Thus, by approximating the overstretched cardinal ligaments and suturing them in front of the amputated cervix, the cervix is driven backwards and the uterus is raised and anteverted. In this manner the Manchester operation not only restores the anatomical relationship of the uterus but conserves its physiology.

Parturition subsequent to the Manchester Operation

Operation	Number in Child-bearing period		Number of Deliveries	Subsequent Recurrence	Operative Delivery
	M	H			
Maier & Thudium	138	47	13	0	Inst. 3
Shaw	664		30	5	0
Gordon	358	58	18	1	Inst. 8; C.S. 1
Hunter	19	19	1	0	0
Fothergill	156		32	1	Inst. 23
Leventhal & Boshes	51		1	0	0
Salmon	254		2	0	0
Herzfeld & Tod	132		11	0	Inst. 3
Williams	45	45	27	0	0
Bazan & Althabe	354		8	0	Inst. 1
Borras	145	293	4	0	0
Mestitz		large series	large series	0	0
Schmid	605		4	0	0
Lacey	521	382	89	33	Inst. 35

Included in Lacey's figures.

Abbreviations.

M=Manchester.

H=Halban.

Inst. =Instruments.

C.S. =Caesarean section.

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		100 mg. dose every 3 or 4 hours after meals	5 doses
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**Preliminary statement by the Medical Research Council, Lancet, 1949, ii, 1237.*

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Indications

There is general agreement that the Manchester operation finds its greatest field of usefulness in first and second degree prolapse occurring past the menopause. In view of its comparative simplicity and of the slight degree of shock that it entails, it is particularly of service in elderly women.

Opinion is divided as to whether the operation has a place:

- a) During the child-bearing period.
- b) In cases of procidentia.

In the child-bearing period, the risk of sterility, abortion and cervical dystocia can be eliminated by leaving the cervix intact, although shortening the cardinal ligaments, as Gordon (14), Crossen, Leventhal and Boshes (15) advise. Phaneuf (16), Te Linde (17) and Wharton (18) are sceptical.

The preceding table, reproduced from Gordon (op. cit.), shows the incidence of recurrence following childbirth.

Several operators in Great Britain, e.g. Shaw (5) and some workers in America, e.g. Gordon whose experience with this operation extends over 26 years, have found this operation curative for procidentia. Frost (19) favours the technique of Bissel who fixes the cardinal ligaments to the raw surface of the amputated cervix.

Limitations and Contraindications

In certain patients the cardinal ligaments are so attenuated that they cannot efficiently be used for repair.

The Manchester operation makes no provision for enterocele; the latter is to be treated separately by the vaginal route at the same time that the former is being done.

For poor surgical risks, local anaesthesia is to be used.

The Manchester operation is obviously contraindicated during pregnancy and a few months after delivery and in subjects of a chronic incurable cough.

Operative Technique

A few points may be stressed to advantage. This is best done by taking the various steps severally.

STEP 1. Dilatation and Curettage.

This is not done routinely in some clinics, but it has two advantages, namely, (a) it facilitates drawing the posterior vaginal wall into the cervical canal and (b) it rules out malignancy. Frost (op. cit.) defers dilatation of the cervix until after the stump has been cut and in this way he minimises uterine infection.

STEP 2. Cystocoele dissection.

A wide operative field is necessary to allow of adequate mobilisation of the bladder and subsequent pleating of the lax tissues at the floor of the urethra. The incision in the anterior vaginal wall is roughly the shape of an inverted T, the slope of the horizontal bar depending, as Shaw (20) points out, on the amount of vaginal wall requiring resection.

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STEP 3. Exposure and section of the cardinal ligaments.

It was Fothergill (9) who first prolonged the incision towards the back of the cervix. Shaw (21) has recently adopted the same technique. Complete isolation of the cardinal ligaments permits of their being anchored at any level of the cervix, as in Bissel's technique.

STEP 4. Amputation of the cervix.

This is omitted in cases where subsequent pregnancy is a possibility.

STEP 5. Anchoring the cardinal ligaments.

This is the most essential step. According to Frost (op. cit.), Frank in America was the first to advocate actual isolation

<i>Operator</i>	<i>Operation</i>
Phaneuf	Interposition
Baer & Reis	do
Leventhal & Boshes	do
Phaneuf	Vaginal hysterectomy
do	do (clamp)
Baer, Reis, Laemmle	do
Phaneuf	Manchester
Leventhal & Boshes	do

of the cardinal ligaments prior to suturing them together to the front of the cervix. Shaw (21) has recently adopted the same technique. Complete isolation of the cardinal ligaments permits of their being anchored at any level of the cervix, as in Bissel's technique.

STEP 6. Approximating the 'post-urethral ligament'.

Pleating of this structure and approximating the pubococcygeus are necessary for curing urethrocoele. As Pacey (22) says, this may guard against the eventual development of stress incontinence which might follow the dissection done in the process of anterior colporrhaphy.

To ensure against prolapse of the bladder, Shaw (20) advises suturing the posterior border of the 'post-urethral' ligament to the cervix.

STEP 7. Closing over the cervix.

STEP 8. Uniting the anterior vaginal wall.

<i>Number of Cases</i>	<i>Deaths per cent</i>
224	2.2
220	0.45
30	0.0
125	4.0
36	5.5
Unspecified	2 deaths
85	0.0
51	0.0

These two steps require no elaboration.

STEP 9. Firm perineal repair. This is a vital step.

Dangers

The risks of this operation are minimal.

-
- | | |
|---|---|
| <p>9. Fothergill, W. E. <i>Journ. Obstet. and Gynaecol. Brit. Emp.</i>, 1913, xxiv, 19.</p> <p>10. Fothergill, W. E. <i>Journ. Obstet. and Gynaecol. Brit. Emp.</i>, 1914, xxvi, 29.</p> <p>11. Fothergill, W. E. <i>Journ. Obstet. and Gynaecol. Brit. Emp.</i>, 1915, xxvii, 146.</p> <p>12. Fothergill, W. E. <i>Journ. Obstet. and Gynaecol. Brit. Emp.</i>, 1921, xxviii, 251.</p> <p>13. Curtis, A. H. "Textbook of Gynaecology". 1946, Fifth Edition, p. 39.</p> | <p>14. Gordon, C. A. <i>Amer. Journ. Obstet. and Gynaecol.</i>, 1946, lii, 228.</p> <p>15. Levanthal, M. L. and Boshes, L. D. <i>Amer. Journ. Obstet. and Gynaecol.</i>, 1939, xxvii, 384.</p> <p>16. Phaneuf, L. E. <i>Surg. Gynaecol. Obstet.</i>, 1943, lxxvi, 209.</p> <p>17. Te Linde, R. W. "Operative Gynaecology". 1946, First Edition, p. 110.</p> <p>18. Wharton, L. R. "Operative Gynaeco-</p> |
|---|---|

In Shaw's (13) hands the operative mortality among 2293 cases was 0.43 per cent. The following table has been drawn up from Phaneuf (16) and Leventhal and Boshes (loc. cit.).

The risk of including one or both ureters in the ligature which approximates the two cardinal ligaments can be eliminated by separating the bladder wall laterally.

Secondary haemorrhage occurring about one week after the operation is rare. In Shaw's (5) view, it is practically never of any serious import. The writer has seen quite a severe one.

Urinary tract infection is the most common complication. With the advent of chemotherapy it has lost much of its former importance.

Wound infection is common but its occurrence is lessened if the nurse is well trained and if she washes the perineum and dries it up with spirit immediately after each action of the bladder or bowel. It is seldom serious.

Parametritis and thrombophlebitis have the same incidence as in other major vaginal operations.

Occlusion of the cervix is very rare. Occasionally vaginal adhesions develop giving rise to subsequent dyspareunia. They can easily be separated. Dyspareunia may also result if the repair is too tight.

Results and Comparison with other Operative Procedures.

The high cure rate of the Manchester operation in England is well established. Shaw (13) reports a complete cure rate of 96.38 per cent among 664 cases operated on not less than 3 years previously. Fothergill's (12) figure was 97

per cent among 156 cases. Shaw's figures show that the results are equally good for young and old and for nulliparous prolapse.

Outside Great Britain there are staunch advocates for other procedures. This is due in great measure to the reluctance of some operators to embark on a new technique. For instance, Te Linde (op. cit.) admits that he has never employed the Manchester operation for procidentia.

Shaw's lecture in America in 1933 had much influence on American thought, with the result that in some clinics the Manchester operation is now the procedure of choice.

The following is a table taken from Loventhal and Boshes' paper.

Operation	Cases	Morbidity per cent	Cures per cent
Vaginal hysterectomy	116	50	70.7
Interposition	30	40	89.2
Manchester	51	29	97.9

Phaneuf (16) reports 13 recurrences among 224 cases of interposition operation and 3 in 85 cases of Manchester operation.

At the moment, only three other procedures are recognised in the surgical treatment of prolapse, namely, the interposition operation, vaginal hysterectomy and Le Fort's operation.

The interposition operation precludes pregnancy, necessitates a healthy uterus which must not be too small, imposes extreme difficulty should a recurrence occur or a subsequent hysterectomy become necessary, entails invasion of the peritoneum and is sometimes followed by severe bladder disturbances.

Vaginal hysterectomy by itself without a

- logy". 1947, Second Edition, p. 276.
19. Frost, I. F. Amer. Journ. Obstet. and Gynaecol., 1941, li, 311.
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thorough pelvic floor repair is not a cure for prolapse, it sacrifices the uterus, it is attended by an operative mortality of 1-2 per cent, is technically more difficult and is sometimes followed by a worse type of prolapse. Although several gynaecologists, e.g. Fletcher, Shaw, Crossan, Phaneuf (23), Gordon, hold that it should only be done if there is an associated uterine pathology, it would seem that it has a place in complete procidentia "in those cases in which the pelvic pouches of peritoneum lie low and those in which the uterus remains small and its descent is associated with inversion of the vaginal vault" (24).

Le Fort's operation has obvious limitations but it gives good results where indicated.

Summary

An essay on the Manchester operation has been presented.

A brief historical account has been included.

The Manchester operation is the standard method of treatment for prolapse in Great Britain and is steadily growing in popularity in America. Its technique is comparatively simple, it entails very little risk to the patient and its results are uniformly satisfactory. It does not preclude subsequent pregnancy and is curative for most cases of prolapse.

Its superiority over other operative procedures for prolapse has been demonstrated by reference to the literature, which has been extensively reviewed.

We acknowledge receipt of the following Journals; we apologise for any omissions :

"The British Medical Journal".

"The Practitioner".

"The British Medical Students Journal".

"Scientia".

"Revue Médicale Université de Montréal".

"Journal of Obstetrics and Gynaecology of the British Empire".

"Gazzetta Sanitaria".

OCULAR BRUCELLOSIS

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Research work and clinical observations have proved long ago that the Brucella group of microorganisms may give rise to pathological changes in the eyes.

Fabian in 1912 performed experimental work on guinea-pigs and described a deep Keratitis from which he was able to isolate these germs. In 1928 Orloff described the pathological changes in eyes of guinea-pigs which died of Melitensis infection. These findings, both pathologically and clinically, were similar to those occurring in ocular tuberculosis.

Ocular signs and symptoms in man were first described by Lemaire in 1924. He reported of an optic neuritis in a patient suffering from acute brucella infection.

Infection of the body usually follows the ingestion of contaminated food such as milk, cheese and milk products. In veterinary surgeons and in people who attend to cattle, the microorganisms may enter the body through cracks in the skin and through mucous membranes. The ocular tissues are reached through the blood stream. In cases of inflammation of the cornea and of the conjunctiva the possibility of a direct infection of the eye from the outside cannot be excluded.

The incidence of the infection of the eye by brucella is not easy to estimate because of the difficulty in diagnosis. A good number of reported cases, occurred during the course of brucellar infection. However in other cases, the ocular signs and symptoms predominated, while the general signs of the infection were almost absent. The general impression is that the incidence of ocular manifestations due to brucella infection is much higher than suggested by the reading of literature.

All sorts of eye conditions can be met with during the course of Undulant Fever,

and it is impossible to describe one condition which may be said to be typical of Brucellosis.

The signs and symptoms are those found in an inflammation of the structures of the eye, that is, lachrymation, photophobia and disturbance of the visual function. Failing vision in one eye may be the first symptom to attract attention to the condition of the eye. Both eyes might be attacked. Double vision may be another complaint.

All the structures of the eye may become affected in various degrees. Oedema of the lids is a common finding. The conjunctiva may show an icteric tinge. A conjunctivitis usually accompanied by inflammation of the cornea is not infrequent.

Although the cornea may show all sorts of inflammatory processes and ulcerated forms, it is the least affected of the ocular structures.

The uvea is very frequently attacked. The inflammatory processes may prevail in the anterior uvea and give rise to Iritis and Iridocyclitis. The patient complains of photophobia; the eye is red and on examination posterior synechiae and deposits of the posterior surface of the cornea are found. The cause may be acute, subacute or chronic, on the other hand the posterior segment of the uvea may become predominantly involved and a choroiditis or total uveitis is produced. Examination of the fundus may reveal changes in the retina. Haemorrhages and oedema may be noticed around the disc and macular region. The retinal haemorrhages may be small or so large as to fill a good portion of the vitreous. Secondary glaucoma may sometimes follow.

The incidence of lesions of the optic nerve is high, probably because of frequent concomitant general and neurolo-

gical signs. These signs are indicative of meningeal and encephalic inflammatory processes. The optic nerve may show a neuritis, or a retrobulbar neuritis, papilloedema and optic atrophy.

Optic neuritis may appear in the course of early or late meningitis but it may occur in the absence of inflammation of the meninges. There is oedema of the nerve head and blurring of the disc margin. Visual acuity is impaired. The neuritis is probably due to the action of toxins on the nerve fibres.

Papilloedema is usually bilateral; it may be found in the absence of other definite signs and symptoms. No impairment of vision may follow, but optic atrophy has followed in some cases. The oedema of the nerve head is of an inflammatory nature, rather than mechanical, and usually accompanies the encephalic form of Undulant Fever.

Atrophy of the optic nerve followed some cases of optic neuritis, papilloedema and retino-choroiditis. The disc appears grayish white, the margins are slightly blurred and there is a shallow excavation.

When the inflammatory process extends to the meninges or brain, the cranial nerves are often involved. This is shown by paralysis of several muscles. The muscle most frequently attacked is the external rectus on one or both sides. The patient is unable to move his eye outwards and complains of double vision. The paralysis of the 6th. nerve is very rarely associated with paralysis of the 7th. and 10th cranial nerves. The muscular paralysis generally improves.

Since the eye attacked by the *Brucella* microorganisms is never destroyed to such an extent that enucleation is necessary the description of pathological findings is rather incomplete. Few cases have been reported. The changes in the eye are polymorphic and there is no characteristic picture. The histological findings are similar to those found in other organs

especially the meninges. There is a preference for a lymphohistioid infiltration of the vessels.

Very few patients with ocular brucellosis present symptoms of active Undulant Fever. This is the reason why diagnosis is often so difficult. A careful history is very important. It may reveal the drinking of raw milk or contact with infected animals or it may provide evidence of past infection with brucella. Besides the history, the diagnosis can be based on laboratory findings, such as blood culture, sero-agglutination, opsonic index, and skin test. Of all these, only a positive blood culture is of an unquestionable value. In all cases of obscure origin, especially of uveitis, brucellosis should always be considered as a possible cause of the ocular infection.

The modern treatment of ocular brucellosis is governed by two important considerations. The penetration of some antibiotics such as Chloromycetin and Aureomycin, into the tissues of the eye is very poor. This may be the reason why, in ocular manifestations results have not been very encouraging, as in the treatment of the general symptoms of the disease.

The other consideration is that as the eye is particularly subject to allergic phenomena, necessarily, the treatment has to be to a certain extent, of an immunity type. As the intravenous vaccine has been found effective in the treatment of Undulant Fever, it has also been tried in ocular brucellosis. In some cases it has produced a flare up of the inflammatory processes and has increased the damage of the eye. It has been found wise to proceed with caution and use very small doses of the vaccine.

It is to be hoped that in the future, the best results will be obtained by the judicious use of antibiotics, chemotherapeutics and vaccines, employing the one or the other according to seriousness of the ocular condition and the course of the disease.

The Recognition of Hypochondriasis in General Practice

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In hypochondriasis the patient is pre-occupied with the idea that he is suffering from some serious organic disease, and complains of diverse somatic symptoms for which, on physical examination, no organic basis can be found.

Hypochondriasis may mask various psychiatric syndromes such as schizophrenia, obsessive-compulsive states or depression; sometimes it accompanies some physical disability, such as deafness, or follows a general infection, such as influenza. In the great majority of cases, however, it occurs alone, uncomplicated by the presence of physical illness or mental disorder.

Illustrative Cases.

Many of the symptoms of hypochondriasis may occur during the course of an organic illness. It is, therefore, important for the general practitioner to be familiar with the syndrome of hypochondriasis so that he will not overlook it when he comes across it and will not interpret the ailments of the hypochondriac as belonging to physical illness. In order to facilitate the identification of hypochondriasis, a few illustrative cases recently seen by the writer are given below. The special features that call for attention will then be taken up and discussed separately.

Certain expressions are reproduced in Maltese as uttered by the patients themselves. This has been done for two reasons:—

(1) because they are untranslatable or because if an attempt at translation is made they lose much of their vividness and significance; (2) because in this

way, the reader will familiarise himself with the peculiar language of the Maltese hypochondriac.

Case No. 1. Miss T.C. Onset many months ago with pains in the chest, back and arms; headache; nausea and inability to walk because of pains in lower limbs. Her sleep became disturbed and she developed the idea that she was suffering from T.B. When first seen she complained of "ikkupazzjoni" in the epigastric region, which may come on at any time of the day and may last an hour or days on end; "damd'm" in ears and "debbulizza". In subsequent interviews she said that she had pains in lower limbs, throat and ears; talking made her weak; appetite was poor; there was a feeling of coldness in the legs; "sturdament" and weakness was so great that she could not wash and mend her clothes and cook. She could not even hear Mass on Sundays because of pains in her back. She believes that her condition is due to lack of nourishment "sustanzi" but on the other hand she refrains from eating because "food hurts her head".

Case No. 2. Mrs R.C. Since two years she has been having "tarix" and "rassa" in her stomach, weakness in her legs and pains in all parts of her body — bones, muscles and skin. She also complained of difficulty in breathing, "gas" in the intestines, "sturdament" and "stonku fjakk". These symptoms are not constant but when they disappear they are replaced by others, such as blurred vision, "sikkament frasi", "tingis f'gismi", frequency of micturition, sensation of heat

in the head and coldness in lower limbs, and pains in the veins. She thinks that she is seriously ill and that she must have some lesion in her heart and stomach or intestines or else she is "either too full of blood or anaemic".

Case No. 3. Mr D.F. Onset 10 years ago with pain which started gradually in the left temple and then extended to the whole of the forehead. This pain was accompanied by "ikkupazzjoni" in his head. Neither pain nor "ikkupazzjon" were relieved by rest in bed or analgesics. A few years ago he was referred to S.L.H. for the headache, but he was discharged after a fortnight as no organic cause was found for his complaints. He was admitted a month later because the pain was "unbearable", but he was again discharged from hospital. When seen by me he complained of "uġiegh tremend f'mohhi" and of a feeling of being "haġa mejta". He felt so ill that he was surprised that he was still alive; in fact he had not even got enough energy to moan and weep, and the strength to receive Holy Communion! He holds that his illness is the result of the food restriction of war-time or else it is due to anaemia or shrivelling up of his brain.

Case No. 4. Mr P. V. Since 6 months he has had numbness in the right side of the face, extending to the head on the same side. He feels as if he had "qoxra fuq ohra" in his scalp or as if the right side of the head is swollen. He also complained of "mixi f'rasi", tightness and heaviness in the head, a sensation of "softness" radiating from the right to the left side of the head of "of water collecting in the head" or "of a vein on the point of bursting". He believes that these symptoms are produced by blood or a tumour or "nerv għajjen" in his head.

The Misuse of Words.

Pain is the commonest symptom which induces a patient to seek medical advice. Since pain may be psychogenic in origin, we find that it figures prominently in

hypochondriasis. If, however, the pain of the hypochondriac is studied closely, it will not be long before the doctor realises that he is not really dealing with the symptom "pain" but with a different sensation. If on the other hand, the physician does not stop to analyse the hypochondriac's "pain" he is bound to form a mistaken opinion as to the real nature of the patient's complaint. It is of the utmost importance to realize that hypochondriacs are very prone to attach meaning to certain words which the latter do not legitimately possess. This is due partly to the patient's ignorance and partly to the fact that he is experiencing new sensations for which there is no exactly corresponding word in the vocabulary of the healthy individual. Hence what appear to be physical ailments must not be taken at their face value if a misdiagnosis is to be avoided. Thus the pain in the chest, back and arms complained of by Case 1 became on closer questioning "fjakk'zza" and "telqa" in her limbs, while the headache turned out to be "hruq" and "toqla" on the top of the head. The temple pains of Case 3 were found out to be "bħal shana u toqla f'rasi", "bħal damdim f'rasi" and "bħal demm miġbur". It is interesting to note how this patient uses a different comparison every time to describe his pain.

Similarly, in other instances, the initial complaint of pain is later on variously described as being "irvellazzjoni f'rasi", "inqwiet f'rasi", "demm iħabbatni", "mohhi niexef" and "tnemnim fil-gilda tarasi". Sometimes after the patient has produced these expressions in an effort to better describe his pain, he ends by saying "inhoss affarijiet li ma nistax infissirhom".

"Pain in the stomach" is another tricky phrase, for when the patient is told to describe the pain and when you investigate whether the pain is related to the intake of food or not, the patient answers that what he feels is actually "dwej-

jaq fi-istonku" or "ghoqda" or "tferfir" in the epigastrium.

Another word which is frequently misused by the hypochondriac is "sturdamment" which may stand for anything but a sense of rotation. Thus the complaint of Case 1 changed to "ikkupazzjonj f'ras:" when she was asked to state how she felt when "storduta". Other patients qualify it as "hedla f'rasi" and "èpar f'ghajnejja".

"Breathlessness" appears frequently in the hypochondriac's vocabulary. It does not mean dyspnoea, however, but a sensation of tightness in the chest or "dwejjaq f'sidri" or "ghoqda fi grizmejjja". Occasionally one meets an intelligent patient who adequately describes his "breathlessness" as "in-nifs ma j'tlax mill-ewwel" or "ma nistax nintela bin-nifs meta nipprova niehu nifs fond".

The Description of Symptoms.

The way the patient describes his sensations and feelings is noteworthy. The patient with a physical disorder expresses his complaints in simple and clear-cut phrases such as "pain in the joint", "stiffness", "pruritus", etc. But the sensations of the hypochondriac are so vague and unusual that he resorts to similarities or to a form of paraphrasis in describing them. Case 4 complained of a "qoxra fuq ohra" on his scalp and of a sensation of "water collecting in his head".

Others speak of "dry brain" or "as if their eyes had become sunken in their sockets", or of a feeling "as if they had a worm in the stomach that tickles them" or of impaired vision "as if there were a veil or a bar of iron in front of their eyes" or "bhal haga ippannata f'rasi" or "qiesu ghandi rasi mehjuta min gewwa". Many more examples could be cited but enough has been said to demonstrate the abstruse nature of the subjective manifestations of hypochondriacs and the way they are expressed by the patient.

Intensity of Symptoms.

Hypochondriacs tend to exaggerate the

intensity and severity of their symptoms. While a female patient presents a florid general appearance, she may profess herself to be so weak that she has hardly the strength to walk (Case 1); or else the patient may state that he is so ill that he is surprised that he is still alive (Case 3); the same patient said that he didn't even have the strength to receive Holy Communion. Another patient complained that she was so weak that even the taking of an X-ray sapped the little vitality that had remained.

If there is a pain it is "agonizing and terrible" (cfr. "ugieh tremend f'mohhi" of Case 3); a burning sensation is "unbearable". The patient is certain that no one has ever experienced such an intense headache or throbbing, etc. as he has. Sometimes the patient will say that his vitality is so low that he even lacks the energy to talk, but in spite of this alleged inability he goes on talking uninterruptedly for as long as you will allow him to without feeling any the worse for it.

It is obvious that the hypochondriac's ailments are a caricature of the symptoms met with in organic illnesses.

Grouping of Symptoms.

From the cases reported above, it is apparent that the patient's symptoms are either referred to various parts of the body (Cases 1 and 2) or else predominantly to one part only (Cases 3 and 4). In any case they are always numerous and with no connecting pathological or clinical connecting links, so that when the patient has poured out his chain of complaints it soon becomes evident that they do not "hang together" and do not correspond to any known syndrome or disease with a physical basis. Confirmatory evidence that the patient's symptoms are not the result of an organic lesion is afforded by the absence of correspondence between his complaints and the findings of an exhaustive physical examination, which shows no signs of bodily disorder.

Course of the Illness.

In some cases of hypochondriasis, the patient will date the beginning of his symptoms from the time that he had some minor physical illness. But in many instances no such history of past physical disorder is offered. The patients are rarely seen by the psychiatrist at the onset of their neurosis, so that when they finally reach him they give a history of several months or years duration. During this time they have been to a host of doctors, some of whom have been misled by the patients into a diagnosis of some physical illness such as gastritis or heart disease. Other doctors are baffled by the variety and number of the symptoms presented by the patient. Unfortunately an inadvertent gesture or word expressing doubt on the part of the doctor is enough to make these patients aware of the doctor's dilemma. Such an occurrence is bound to shake their confidence in the medical profession and to increase their prestige in their own eyes and in the eyes of sympathizers.

The range of special investigations to which many hypochondriacs are subjected before the real nature of their illness is detected, has a similar effect. They complain with badly veiled pride that not even the X-ray specialist and the laboratory technician are clever enough to spot what's wrong with them. Sometimes the carrying out of these investigations in hypochondriasis is attended by a different, though equally, undesirable reaction on their part. In his efforts to attach a diagnostic label to his baffling patient, it may happen that the sorely tried physician will give undue weight to some minor variation from the usual norm in an X-ray film or in a blood count or urine examination, and he deceives himself into believing that he has at last clinched the diagnosis. As soon as the patient realizes that something has been found—and these patients have an unlimitable, almost fanatical, faith in X-rays—the

conviction that he does have a physical illness is strengthened to such an extent as to prejudice the outcome of his subsequent psychiatric treatment. This is not to suggest that special investigations have no place in the diagnosis of hypochondriasis, but one must be careful how to interpret the results obtained by this means and how one communicates the findings to the patient. It is important that the patient be given a definite opinion as to the results and the words "suspected so and so" or "doubtful so and so" avoided altogether.

The Patient's Own Diagnosis of His Illness.

By the time an individual makes up his mind to seek medical advice and aid, he has formed some idea as to the nature of his illness. Generally speaking, the way this idea is verbalised varies in the hypochondriac and in the patient with an organic disorder.

The mentally normal but physically ill patient expresses *fear* lest he has such and such a disease, while the hypochondriac will say, with varying degrees of conviction, that he *thinks* that he has heart disease, etc. Besides, while the physically ill patient will evince some *anxiety* about his health, the hypochondriac is not so distressed about his ailments and rather than worry about them, he shows a marked *interest* in his symptoms.

Another characteristic feature is the different attitude that these two types of patients manifest in their approach to the physician. The physically ill patient goes to his doctor with fear in his heart and hoping to be told that there is nothing wrong with him; the hypochondriac, on the other hand, expects his doctor to find some kind of lesion, so much so that when he is told that he is quite healthy he is dissatisfied and does his best to persuade the doctor that there must be some sort of pathological change somewhere in his body. He may go so far as

to confront his doctor with a ready made diagnosis and pathology — "I have a brain tumour" or "I must have gas in my stomach" or "The defect is in my circulation" — and also to suggest the treatment that he needs — "I must have some injections to strengthen me" or "I am certain I need an operation on my stomach".

The reaction of the hypochondriac to treatment is also noteworthy. Thus while the physically ill patient appreciates the doctor's efforts to allay his pains and relieve his discomfort, the hypochondriac turns up for his next visit with "I am just as bad as I was", or, though not so frequently, "The treatment is making me worse". Owing to this critical and nihilistic attitude towards treatment, these patients are dissatisfied with the results of therapy, and in their quest for happiness they go from doctor to doctor and sample the various patent medicines that claim to cure all the ills that flesh is heir to.

Personality of the Patient.

One realizes that the busy general practitioner does not have the time to conduct an exhaustive personality study of his patient, but it is desirable that he should, at least, investigate the personal and family background of his patient for the knowledge thus gained may furnish him

with additional evidence that he is dealing with a case of hypochondriasis.

He will discover that these patients can be classified, roughly into two main groups:— (1) Those that have led an active and useful life and who break down at or after middle age. These are usually fathers and mothers who feel unwanted and neglected by their children and whose illness is an unconscious attempt at regaining a lost position in the family circle. (2) Those who break down earlier in life and who have never "made good". Their past life is one of failure in establishing themselves securely in the labour market and in their social milieu. Their illness is but an expression of their inadequacy and a compensatory effort at ensuring attention and gaining sympathy.

Summary.

Hypochondriasis is missed by the general practitioner: (1) because it presents itself with somatic symptoms and shows no gross manifestations of its real nature in contrast to other forms of neuroses; (2) because of the failure to bear in mind the diagnosis.

This paper aims at calling attention to these features of hypochondriasis and at establishing certain clinical criteria that can help the practitioner in making a correct and early diagnosis of the condition.

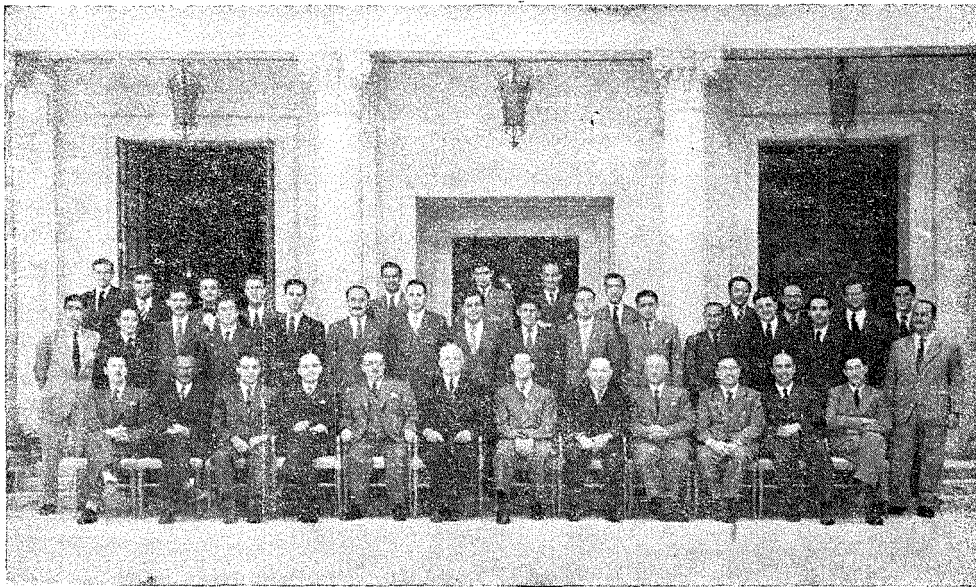
Medical Students Honour Retiring Professors

A luncheon was given at the Hotel Phoenicia on Saturday, 3rd November, 1951 by the B.M.S.A. (Malta Branch) in honour of the Hon. Prof. P. P. Debono O.B.E., M.D., D.P.H., F.R.C.S. and Prof. J. Ellul O.B.E., B.Sc., M.D., F.R.C.O.G. retiring Professors of Surgery and Obstetrics and Gynaecology respectively at the Royal University.

Present at the luncheon were Prof. A. J. Craig M.D., F.R.C.S., and Prof. V. Stilon Depiro M.D., who have been appointed to the chairs vacated by the retiring profes-

The guests were met by Mr. Frank Vella B.Sc., Vice-President of the Association and by other members of the Council.

After toasting "The King", Mr. Francis Martin B.Sc., President of the Association, in the course of his address said: "Professor Debono and Professor Ellul have constantly taken great pains to impart to medical students, in a thorough but simple way, the vast knowledge of their subjects. By their retirement the students had lost a fount of practical knowledge founded on 40 years experience in their



sors, and Prof. C. Coleiro B.Sc., M.D., D.P.H., D.T.M., Dr. F. J. Damato M.D., D.O., D.O.M.S., F.R.C.S., and Dr. R. Briffa B.Sc., M.D., who have lately been appointed lecturers in various subjects in our Medical School; Prof. J. Manchè B.Sc., M.D., Vice-Chancellor and Rector Magnificus and Prof. J. E. Debono M.D., F.R.C.P., Dean of the Faculty of Medicine and Surgery, and students from the Academic and Intermediate Courses of Medicine and Surgery.

professions and 25 years comprehensive training of medical students."

"A few years after graduating," continued Mr. Martin, "Professor Debono studied, worked in and taught Bacteriology, Anaesthetics and Pathology, while at the same time contributing to Medical Literature and also giving his service as Surgeon to the Services. In 1920, Professor Debono was elected F.R.C.S., the first Maltese doctor to be so honoured by the Royal College of Surgeons, and in 1926,

was elected to the professorship of Surgery. In appreciation of the services rendered to the community in various spheres, Professor Debono was made an Officer of the British Empire. Professor Debono was the first Maltese Representative on the Editorial Board of the British Journal of Surgeons."

Mr. Martin continued: "Since Professor Ellul graduated he has studied under specialists in many parts of the United Kingdom and on the Continent. He was elected Professor of Obstetrics and Gynaecology in 1930 and four years later was the first Maltese doctor to be honoured with the Fellowship of the Royal College of Obstetricians and Gynaecologists."

"Both professors have taken an active part in local politics" concluded Mr. Martin.

In reply, Professor Debono said that since his first appointment some 40 years ago he had been associated with students at the University and was really sorry to be severing himself from such active associations with students whose youthful mind had always been most helpful to him in keeping him that way too in his

various appointments. Addressing students, Professor Debono said: "Make the most of your opportunities and of my successors. Encourage them to teach you and show them that you appreciate all that they do for you. Cherish the Alma Mater which is the symbol of our cultural level. Prove yourselves worthy sons of this institution, be conscious of its antiquity and of its standards." Professor Debono then toasted the "Alma Mater".

Professor Ellul, speaking in the same vein, said that apart from being sad at dissociating himself actively from students, he was happy that the students had been grateful and appreciative of the work done for them by their teachers.

The Vice-Chancellor and Rector Magnus said that he was very glad to see students honouring those to whom honour was due.

Professor Craig, Professor Stilon Depiro, Dr. Coleiro and Professor Debono, Dean of the Faculty, also made brief speeches, and the very pleasant occasion was brought to a close with three cheers being very lustily given for the retiring professors.

Hippocrates when asked "Who is the physician that is an honour to his profession?" replied, "He who has merited the esteem and confidence of the public, by profound knowledge, long experience, consummate integrity, who has been led through the whole circle of the sciences; who has a due regard to the seasons of the year and the diseases which they are observed to produce — to the states of the mind peculiar to each country and the qualities of its waters;

The Newer Antibiotics, with Special Reference to Chloromycetin

J. Stanley White M.R.C.S., L.R.C.P., (Lond.), Ph.C., F.C.S.,
Director of Clinical Investigation, Parke, Davis & Co, Limited, London.

Since the historical discovery of Penicillin by Fleming in 1929, about 150 substances have been isolated from moulds, fungi, bacteria and algae, which will antagonize or destroy micro-organisms. Unfortunately, the majority are too toxic for therapeutic use.

Penicillin was derived from a fungus, *Penicillium notatum*, and, so far, it is the only therapeutically significant antibiotic of fungal origin. Nearly all the newer antibiotics are produced by soil actinomycetes. The Streptomyces, which belong to this group, have yielded Streptomycin, Chloromycetin, Aureomycin, Terramycin, and the very recent Neomycin and Viomycin.

The newer antibiotics differ from Penicillin and Streptomycin in that they are effective when administered by mouth. They were all originally prepared by the deep fermentation process, as is still the case with Penicillin, Streptomycin, Aureomycin and Terramycin, but Chloromycetin is outstanding in that it has been synthesized. It is, in fact, the first and only antibiotic to be synthesized on a practical basis.

Penicillin, Streptomycin, Aureomycin and Terramycin have complex chemical structures, and while it is true that a gram or two of Penicillin has been synthesized at enormous cost it is extremely doubtful whether these antibiotics will ever be produced synthetically on a large scale.

Chloromycetin, or, to give it its generic name, Chloramphenicol, has a relatively simple structure. Chemically it is a substituted di-hydroxy-propane.

As far as we know this is the first time

Nature has produced a compound containing the dichloroacetamido and nitro groups.

Examination of the antibiotic spectrum shows that the range of Chloromycetin is much broader than that of Penicillin and Streptomycin. Not only is this new antibiotic strikingly effective against Gram-negative organisms, and, to a lesser extent, against Gram-positive organisms, but for the first time we have at our disposal an antibiotic which has a dramatic effect against Rickettsiae which range in size between the bacteria and the viruses. It is also effective against a number of the larger viruses. Aureomycin is probably rather more active against the staphylococcus than Chloromycetin. On the other hand, Chloromycetin is infinitely more effective against the Salmonella group than either Aureomycin or Terramycin.

It may be that we shall find micro-organisms becoming resistant to these newer antibiotics, although this has not to date been demonstrated to any marked extent *in vivo*. After all in the early days we heard very little of Penicillin-resistant strains. It is, of course, another example of Nature adapting herself to new conditions.

Blood Levels.

Chloromycetin is quickly absorbed and the onset of its action is rapid. Effective blood levels are attained in 30 minutes after oral administration. As a general rule the daily dose should be 50 mgm. per kgm. of body-weight, in divided amounts, doubling the dose for children. Experience has shown that the interval between the doses should never be longer than eight

hours in order to prevent the concentration of the drug falling below the minimum effective level, which is about 10 microgrammes per c.c. of serum.

Typhus.

Scrub typhus and typhoid fever were the two infectious diseases that responded so dramatically to Chloromycetin in the first trials carried out by Smadel and his colleagues in Malaya. Mention should also be made of the pioneer work by Payne on epidemic typhus in Bolivia. It is perhaps unnecessary to say much about the rickettsial group of infections except to emphasize that in cases of epidemic typhus, scrub typhus, tick typhus and Q. fever Chloromycetin is extraordinarily effective, in doses of 60 mgm. per kgm. of body-weight followed by doses of 0.25 gm. every three hours or 0.5 gm. every six hours until the patient becomes afebrile.

Typhoid.

At the outset I want to make it quite clear that it is no longer considered desirable or necessary to give a loading dose of Chloromycetin in typhoid fever. I am satisfied that when we hear of vasomotor collapse following the administration of Chloromycetin in typhoid fever it is associated with the loading dose originally suggested by Woodward and his colleagues in Malaya, and may conceivably be due to the liberation of endotoxins, or perhaps more correctly stated, lysis of the organisms.

We now think in terms of 60 mgm. of Chloromycetin per kgm. of body-weight as a daily dose in typhoid fever. In a man weighing 65 kilos this would mean 4 gms. in the 24 hours, reducing the dose by half when the patient becomes afebrile, which is usually between the third and fourth day, after which it is important that treatment should be continued for a further ten to fourteen days. Even with this scheme of dosage there has been an appreciable number of relapses. Fortunately, the patient invariably responds to a further course of treatment. In fact, it is

rather striking that the response is even more dramatic than when Chloromycetin is given in the first instance, presumably because the patient's defensive mechanism has already got to work.

In January of this year Smadel and his colleagues reported that they had treated eight cases of typhoid fever with a combination of Chloromycetin and Cortisone. With fairly large doses of Cortisone along with Chloromycetin the patients became afebrile on an average in 15.5 hours, whereas with Chloromycetin alone the temperature usually falls between the third and fourth day.

These workers prefer to consider the beneficial effect of Cortisone in the typhoid patient resulting from the action on the human host rather than directly on the typhoid organism or its products. Nevertheless, the combined therapy appears to be of sufficient theoretical and practical interest to warrant further studies.

The use of Anti-Typhoid-Paratyphoid Vaccine in conjunction with Chloromycetin has resulted in a drop in the relapse rate from 20 to 25 per cent to 4 to 5 per cent. These striking results have been obtained amongst the British troops stationed in the Canal Zone in Egypt. The dose of T.A.B. Vaccine should be small, 0.02 c.c. — in other words, 60 million organisms daily — for ten days after the patient has become afebrile.

Unfortunately, Chloromycetin is ineffective in eradicating the chronic typhoid "carrier" state. According to Smadel the balance between the host, the parasite and immune mechanism is already established, and the added factor of a transient suppressant, such as Chloromycetin, is unlikely to produce much in the way of a permanent effect on the bacterium.

In this connection it is interesting to note that a paper in the *Lancet* a few weeks ago described the successful eradication of *Salmonella paratyphi B* from the urine of a boy aged 8, who had been a "carrier" for three years. One gramme

of Chloromycetin was administered daily for ten days.

Infantile Gastro-Enteritis.

Infantile gastro-enteritis is another condition which responds in almost dramatic fashion to Chloromycetin. Professor Smellie is satisfied that in adequate dosage—he uses 165 mgm. per kgm. of body-weight daily in divided doses—the average case will respond to treatment in from ten to twelve days. The cases that I am referring to come within the group usually designated non-specific gastro-enteritis. Some authorities take the view that the infection is due to a specific type of *B. coli* named B.G.T.

Enteritis.

Chloromycetin is also very effective in other forms of enterites, such as bacillary dysentery and food poisoning. The latter has taken a new form in England. In the past the symptoms were believed to be produced by toxins traceable to foods which had either been directly infected—duck eggs were an excellent example—or contaminated by animal excretions. According to Grant, about three years ago a change occurred in the *Salmonellae* enabling them to live in the human intestine and pass from man to man. He attributes the change to the repeated consumption of living *Salmonella* in imported egg powder, which unfortunately we had to use in large quantities during the war owing to difficulties in the food supply.

A recent paper in the British Medical Journal referred to the successful treatment of a dysentery “carrier” with Chloromycetin after repeated attempts with various sulphonamides had been ineffective. 29 consecutive stool cultures in the 50 days following the completion of the treatment failed to grow the causative organism and they were still negative four months later.

Urinary Infections.

Amongst the microbial diseases which respond to Chloromycetin and the other

newer antibiotics, I would mention particularly bacillary and coccal urinary infections.

Apart from the fact that Chloromycetin has a marked antibiotic action on microorganisms invading the urinary tract the success which has followed its use is due to its high concentration in the urine following moderate dosage. Here again a suitable dose is 3 gms. daily, in divided doses, continuing the treatment for five to seven days after the urine has been cleared of the principal invader, or until operative measures have ensured eradication of the focus.

Chloromycetin appears to be the most effective of all the antibiotics in the treatment of infections due to *Bacillus proteus*. In the case of such a resistant organism as *Ps. pyocyanea* it is not claimed that Chloromycetin will be effective in more than 40 per cent. of cases.

In a recent issue of the American Journal of Obstetrics and Gynaecology there was a report to the effect that the *Aerobacter aerogenes* appears to be occurring with increasing frequency in urinary tract infections and can generally be cultured in at least 50 per cent of cases of subacute pelvic inflammatory diseases with pelvic abscess. The organism is particularly susceptible to Chloromycetin.

May I remind you that if necessary Penicillin, Streptomycin and the Sulpha drugs may be used concurrently with Chloromycetin.

Antagonism has been reported when Chloromycetin is given prior to or simultaneously with Penicillin, but not if Penicillin is administered first.

Antibiotics synergistic with Penicillin, e.g. Streptomycin or Bacitracin can overcome the antagonism between Chloromycetin and Penicillin. A suggested explanation is that Chloromycetin can modify the characteristics of the bacterial population, so as to make it less susceptible to Penicillin action.

I would point out that the report from

which quote refers to laboratory experiments. To the best of my knowledge there is no evidence that antagonism has been reported in vivo.

Pertussis.

In England pertussis is responsible for a mortality rate of 1,000 per annum. The *Haemophilus pertussis* is extremely sensitive to Chloromycetin, and provided the dosage is adequate — according to one authority it should be at least 100 mgm. per kgm. each night for five nights — the results have been most encouraging. My own experience has been that when Chloromycetin fails in whooping cough it is entirely a question of inadequate dosage.

In order to enable the patient to develop some immunity against whooping cough a prominent paediatrician in London prefers to wait for seven days before commencing treatment with Chloromycetin.

The most recent study from the United States contrasts the use of Penicillin, Aureomycin, Chloromycetin and Terramycin in 150 children with pertussis. Children who received Penicillin appeared to have obtained some slight benefit which developed slowly, but in those receiving one of the other three antibiotics there was a more rapid decrease in the frequency and severity of the paroxysmal action. In children under one year Aureomycin gave better results, but in children over one year Chloromycetin appeared to be the product of choice. The dosage in each case was 60 mgm. per kgm. of body-weight for ten days, a dose which our experience in England would suggest was on the small side.

Chloromycetin is intensely bitter, and it has been extremely difficult to administer this antibiotic to children between the ages of 1 and 3 years. It has been administered in suppository form with some measure of success, but it has not yet been possible to obtain any consistent blood levels by this method. This difficulty has now been overcome, using

Chloromycetin Palmitate in a pleasantly-flavoured emulsion, 8 c.c. of which represent approximately 250 mgm. of Chloromycetin. Perhaps I ought to add that Chloromycetin Palmitate is made by a process of esterification.

Pneumonias.

Bacterial pneumonia, whatever the causative organism, as well as atypical or virus pneumonia, respond to Chloromycetin and Aureomycin. It appears to be an advantage to give a loading dose of Chloromycetin when the infection is above the diaphragm, and it is suggested that this loading dose should be 80 to 100 mgm. per kgm. of body-weight.

Last year Cray made the remarkable observation that Chloromycetin is capable of completely sterilizing the upper respiratory tract, and expressed the opinion that the future use of Chloromycetin in respiratory infections seemed almost limitless if observations made on the upper respiratory tract can be extended to include the whole tract.

Both Chloromycetin and Aureomycin received much attention in England during the last influenza epidemic. Unfortunately, I cannot subscribe to the observation that has been made from time to time that these newer antibiotics seem to have a direct effect on the virus of influenza. I take the view that the excellent results that have followed Chloromycetin and Aureomycin in epidemic influenza have been due to the fact that they satisfactorily deal with the secondary infection, notably the *Haemophilus influenzae*.

In this connection Smadel has stated that those influenzal patients who develop pulmonary consolidation usually warrant treatment with one or other of the newer antibiotics.

Surgical Infections.

To date Chloromycetin, and presumably the same applies to the other newer antibiotics, does not appear to have been widely investigated as a prophylactic and

therapeutic agent in surgical infections, but it should have considerable possibilities in this direction. Cellulitis, lymphangitis, lymphadenitis and abscess caused by pyogenic cocci respond rapidly to Chloromycetin, the afebrile stage terminating in the majority of cases within 72 hours.

Chronic wound infections of mixed bacterial aetiology show less response to Chloromycetin, and in some instances concurrent use of Penicillin would seem to be indicated.

It is not difficult to prophesy that Chloromycetin will be shown to be a valuable agent not only in surgical prophylaxis but in post-operative surgical infections, and post-partum sepsis following complicated obstetrical deliveries, to cite only two examples.

I would also include peritonitis following perforated appendix with, of course, appropriate surgical procedures. Again it may be necessary to use Chloromycetin concurrently with Penicillin.

Venereal Diseases.

Other microbial infections which respond to Chloromycetin include undulant fever, Haemophilus influenzae infections, subacute bacterial endocarditis, and the venereal diseases.

In acute gonorrhoea in males an effective dose is 3 gms. initially, followed by 1 gm. every eight hours for two or three days to prevent relapse.

Despite the fact that Chloromycetin exhibits a low antitreponemal action in vitro, Romansky and his colleagues have reported good results with Chloromycetin clinically. These investigators noted that the mechanism of action of Chloromycetin differed from that of Penicillin in that healing of the lesions appeared to originate at its base instead of its periphery.

Non-specific urethritis and Reiter's disease also respond to Chloromycetin.

Virus Diseases.

Chloromycetin is not effective against the smaller viruses, poliomyelitis, epide-

mic influenza and yellow fever. It appears to have no effect on the viraemia in smallpox, although it is useful in dealing with the septic condition.

Mumps, chicken-pox, herpes zoster, infectious mononucleosis and trachoma all seem to be favourably influenced by this new synthetic antibiotic. In mumps the condition responds in 24 to 48 hours to the average dose for the various age groups. In no instance has orchitis developed in a patient after initiation of treatment with this drug.

Clinical evidence indicates a high order of specificity for Chloromycetin in the treatment of herpes zoster, notably in herpes zoster ophthalmicus. In 24 hours a definite improvement has been noted, and complete recovery has followed with no relapse or residual pain. It is not effective in the post-herpetic stage.

The results in infectious mononucleosis are very striking. One may expect the patient to become afebrile within 24 hours after the commencement of treatment.

Smadel has reported that viruses of the psittacosis-lymphogranuloma venereum group are rather closely related to the rickettsiae, and are highly susceptible to the new rickettsiostatic agents.

Eye Infections.

Recent work by Leopold and his colleagues in Philadelphia has shown that Chloromycetin penetrates the cornea following the local instillation of drops or the application of ointment. The rate and amount of penetration are greater in the presence of an abraded cornea. There are no serious irritating effects following the topical administration of Chloromycetin in aqueous solution into the eye, and the antibiotic does not interfere with the regeneration of corneal epithelium. Chloromycetin penetrates all the ocular tissues and humours with the exception of the lens. There is suggestive evidence that higher concentrations will be found where there is inflammation of the eyes. All the available evidence indicates that intra-

ocular concentrations, sufficient to control most infections due to susceptible organisms, can be obtained either by oral administration or by the instillation of drops.

Chloromycetin appears to be definitely more effective than Aureomycin and Terramycin, which, according to Leopold and his co-workers, penetrate poorly, if at all, into the fluids and tissues of the normal eye. Furthermore, solutions of Chloromycetin are relatively stable.

On the basis of penetrating studies and accumulating clinical evidence, Chloromycetin can be administered orally in doses of 3 to 6 grammes daily in eye infections, and locally in solutions, containing 5 mgm. per millilitre. An ointment containing 1 per cent of Chloromycetin has also been shown to be effective in a variety of ocular conditions, such as keratitis, uveitis, iritis, dacryocystitis and herpes zoster ophthalmicus. The results of the solution in keratoconjunctivitis, which is believed to be a virus infection, to quote from a distinguished English ophthalmologist, have been "extremely gratifying".
Topical Application.

Chloromycetin would appear to have considerable possibilities when applied topically. It has been used in a solution in propylene glycol in chronic otorrhoea, and such a solution is suggested in chronic osteomyelitis, varicose ulcer, as a dressing in burns and in plastic repairs. In a clinical note in the *Lancet* a few weeks ago an Australian surgeon recorded his experiences with powdered Chloromycetin in the treatment of infected wounds, ulcers, burns and wounds infected by gas-forming organisms. In fact, he went so far as to state that in some cases the results were superior to administration by mouth.

Chloromycetin in powder form has also been reported to have given excellent results in external otitis, chronic suppurative otitis media, infection of fenestration and mastoid cavities, and sinusitis.

I have already referred to the topical application of Chloromycetin Ointment in ophthalmology, but it has also been used as a cream in impetigo, acute folliculitis, and infectious eczematoid dermatitis, and is indicated generally in superficial infections and dermatological conditions complicated by organisms which fall within the spectrum of Chloromycetin antibacterial activity.

Chloromycetin has also been used topically with excellent results in dentistry. In a recent paper in the *American Journal of Dental Research* Chloromycetin is described as almost the ideal antibiotic, and extremely well suited for use in root canal therapy. Dissolved in propylene glycol it is stable for an indefinite period at room temperatures.

The authors of the paper state that such a solution is effective against certain micro-organisms which are resistant to Penicillin and Aureomycin, and has specific therapeutic action against a wide range of pathogenic organisms.

Administration of Chloromycetin.

It may be necessary, particularly if the patient is in extremis, to administer Chloromycetin parenterally. A solution in propylene glycol has been administered intravenously, but there is reason to believe that dimethyl acetamide will prove to be a more suitable solvent. Suitably diluted such solutions can be given intravenously, or, undiluted, intramuscularly. The doses suggested are $\frac{1}{2}$ to 1 gm. of Chloromycetin, followed by doses of $\frac{1}{4}$ to $\frac{1}{2}$ gm. every six hours.

Pharmacology.

I have left myself very little time to say anything about the pharmacological and biological studies of Chloromycetin. It passes the placental barrier, and in contrast to some of the other newer antibiotics has also been shown to be present in the spinal fluid in concentrations of 30 to 50 per cent of that in the blood stream, following oral dosage. A practical application of this is seen in the remarkable

results that have followed its administration in *Haemophilus influenzae meningitis*.

The fate of Chloromycetin in the body has been extensively investigated. Chemical analysis of the urine collected over a 24-hour period disclosed the presence of nitro compounds — accounting for approximately 90 per cent. of a given daily dose — of Chloromycetin. The bile, on the other hand, contains only small amounts.

Mode of Action of Chloromycetin.

It is interesting to speculate how Chloromycetin acts in the body. Smadel considers that Chloromycetin is essentially bacteriostatic. Gray, on the other hand, is of the opinion that Chloromycetin is bactericidal, but that in concentrations below a critical level there is a zone of bacteriostasis which in turn gives way to ineffectual concentrations.

Evidence seems to suggest that Chloromycetin may interfere with carbohydrate metabolism, more exactly with the normal functions of vitamins B¹, B², and nicotinic acid, all of which act in dehydrogenase systems. In other words, it inhibits the co-enzyme essential to carbohydrate metabolism.

Another theory that has been put forward is the possibility of Chloromycetin interfering with fat rather than carbohydrate metabolism. In other words, it

may relate to its inhibitory action on esterase.

Whether Chloromycetin is bacteriostatic, or, as we are beginning to believe, bactericidal, there is one aspect of antibiotic therapy we must not forget, and that is that Nature still has her part to play in developing antibodies.

Fortunately, any side-reactions that may occur with Chloromycetin — they include slight nausea, muscle fatigue, temporary ophthalmoplegia, dry mouth, diarrhoea, and possibly moniliasis (for the inhibition of which normal bacterial flora appears to be essential) — all disappear quickly with the cessation of treatment. In the great majority of cases Chloromycetin is extremely well tolerated.

Chloromycetin has made history by being the first antibiotic to be prepared in the chemical laboratory. It offers great promise as a useful therapeutic agent in the treatment of some entities in which laboratory results did not suggest clinical effectiveness, such as mumps and syphilis, and perhaps other conditions will present themselves.

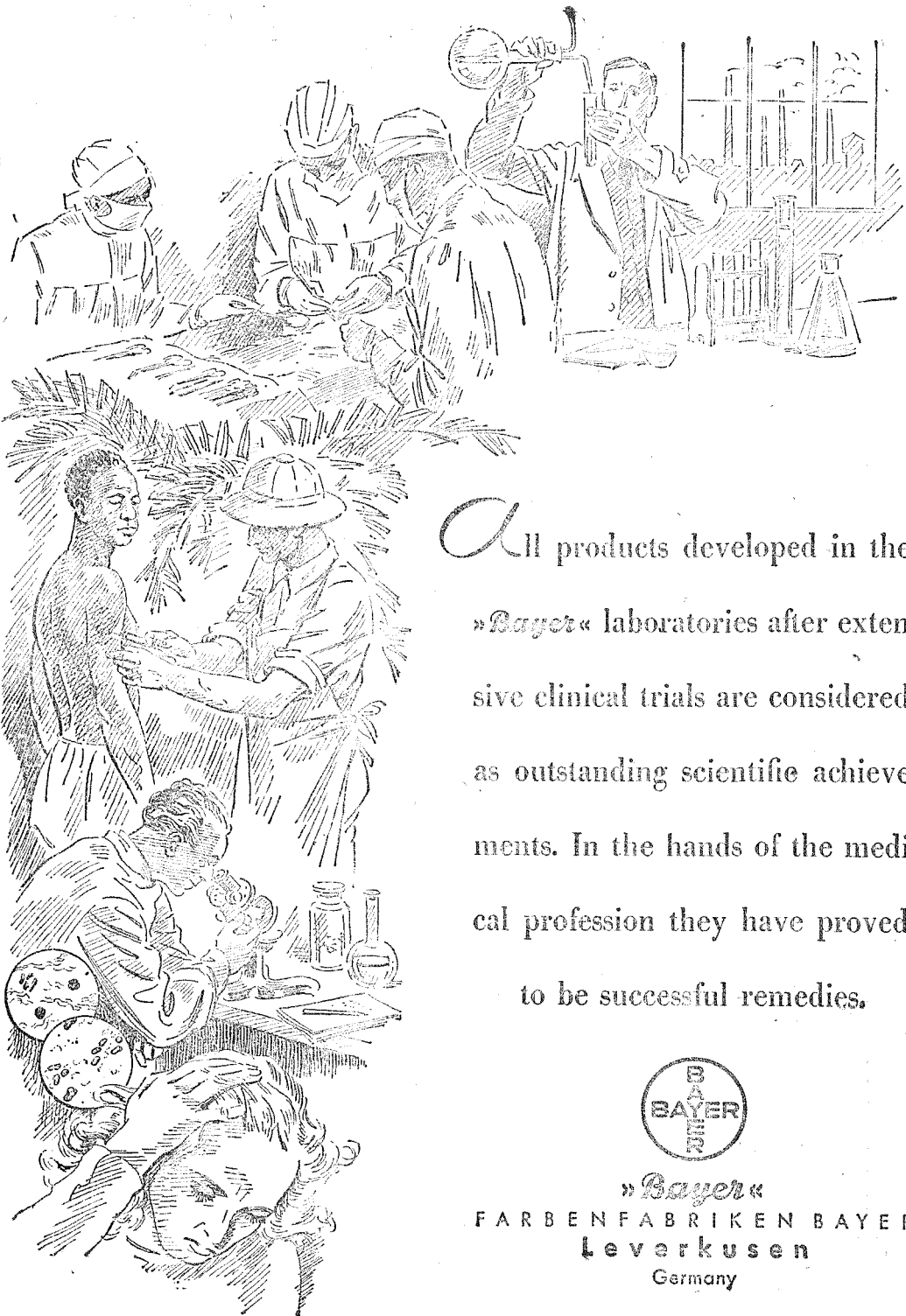
In view of the potentialities thus far demonstrated by Chloromycetin in the clinic and with its extension over promising segments of the antibiotic spectrum, Chloromycetin and the other new antibiotics represent outstanding contributions to modern therapy.

"Where a problem excites strong protagonists and equally strong opposition its solution often lies between the extremes containing the reliable elements of each."

KEITH SIMPSON.

"Patients are connoisseurs in sincerity and he deceives him self who imagines that they are easily hoodwinked by an impressive manner alone."

W. M. MILLAR.



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Introducing

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PAVACOL
PAPAVERINE - CODEINE
COUGH SYRUP

"Pavacol" is a balanced combination of papaverine hydrochloride and codeine phosphate together with tolu, glycerine, mild expectorants and other ingredients designed to produce an efficient and palatable cough sedative which is readily accepted by both adults and children.

INDICATIONS

Cough Sedative: For relieving coughs in all cases, particularly when associated with acute and chronic bronchitis, laryngitis and where incessant coughing prevents sleep.

Coryza: Diehl (*J.A.M.A.*, 1933, 101, 2042) tried various methods of treatment for the common cold, the most successful being the combination of papaverine and codeine. Accordingly, Pavacol is recommended as soon as symptoms of coryza become apparent.

Packing :— Bottles of 4 fluid ounces.



WARD, BLENKINSOP & CO., LTD., LONDON, W.1

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