laceration on the outer side of the right thigh; the femur was fractured, but the large vessels were not involved. The whole wound was infected with gas, and the muscles were crackling with it. There was also already evidence of commencing gas toxæmia.

The patient was operated upon at 5 p.m. on March 7th. The wound was opened up, the bones were placed in apposition, drainage was secured, and the whole wound thoroughly washed out with eusol. Immediately after the operation 75 c.cm. of eusol were given intravenously. There was an immediate reaction; the pulse rising within the following three hours to 140.

On March 8th there was some evidence of gas on the inside of the leg, but no sign of a spreading condition. By 10 a.m. the pulse had fallen to 108, but in the evening it rose again to 140. The limb was dressed every four hours, day and night.

On March 9th the condition in the morning was somewhat better, but during the evening a relapse took place. Sickness came on, and there was suppression of urine. Two pints of saline were administered subcutaneously during the day, and a similar quantity during the following night. The patient received two ounces of champagne every four hours.

On March 10th the condition was much improved in the morning; the temperature fell to normal, but in the afternoon again reached 103° F. The general condition was, however, good. The patient complained of pain in the left axilla, at the site of the last saline injection. On March 11th and 12th the general improvement was maintained, the temperature falling steadily.

On March 13th an abscess in the left axilla was opened, and a quantity of thin, foul-smelling pus was evacuated. Unfortunately, however, by an oversight, it was not examined.

Thereafter the patient made an uninterrupted recovery.

Of these eight cases, three call for special comment. In Case iv, at the time of the operation evidence of the presence of gas gangrene was not present, and therefore treatment by hypochlorous acid was not applied. There is no doubt, however, as was shown by the results of the *post-mortem* examination, that during the ten hours succeeding the operation a gas-producing organism had been at work in the brain. The rapidity of the fatal issue may to some extent be explained by the origination by the bacterial products of mechanical effects such as so frequently play a part in ordinary infections of the brain and meninges. Case v also presents points of interest. Although from the clinical observations the patient's condition suggested a gas gangrene toxæmia, no evidence of infection with organisms of gas gangrene was available, and we are therefore of opinion that some other factor must have been at work in the patient. In Case vii, although death occurred, there was definite evidence that the treatment with hypochlorous acid had a beneficial effect; in fact, it was the improvement which occurred, and which we attributed to the treatment, that led us to undertake the amputation of the gangrenous limb. We are inclined to attribute the death to the shock of the operation which was performed. Looking at the series of cases as a whole, and excluding Case v, where evidence of the presence of gas gangrene was wanting, and Case iv, in which eusol was not given, we found that in four cases where evidence of serious toxæmia existed improvement and ultimate recovery followed the administration of hypochlorous acid. The other two cases resulted in death, but, as already stated, in one of these definite improvement followed on the treatment which was adopted. Thus there remains only one case in which the failure of the treatment has not been explained.

Our further experience of wounds which become infected with the organisms of gas gangrene confirms the view expressed in our previous paper that the absorption of toxic products from the gangrenous tissues constitutes a serious menace to life. The bacteriological data do not as yet justify the position that the earlier symptoms of a general effect on the body are due purely to the absorption of poisons from the original site of bacterial infection. There can be little doubt, however, that the organisms concerned in the disease do produce definite toxins, as has been shown by the work of Weinberg and Séguin and others. Our experience justifies us in saying that the effects of these toxins can be combated by the use of hypochlorous acid, and when neutralization of these effects occurs the patient's body is in a better position to throw off the infection. The recognition that a patient is suffering from the absorption of toxic products to a dangerous degree must obviously rest upon clinical observations, but we think that those who have had experience in the field will admit that the recognition of a danger point in a patient's condition is possible. The appreciation of an improvement in a patient's state must also rest upon clinical experience.

Sometimes it is reflected in a slight rise in temperature, at other times in a rise in the pulse-rate; while in yet other cases an improvement in the general condition and appearance of the patient indicates that the danger from the toxæmia is passing off.

CONVALESCENT PARATYPHOIDAL AND DYSENTERIC CASES CONSIDERED FROM THE PREVENTIVE STANDPOINT.

BY

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(Report to the Medical Research Committee.)

THE period of convalescence which follows acute infections presents many features of interest. It permits an insight into the severity of the infection, exhibits the results of the treatments adopted, and provides an opportunity for detecting the persistence of the infective organism and for the segregation of temporary or possible permanent carriers of the infection.

In this laboratory a number of typhoidal and dysenteric convalescents have been examined during the last eight months, and a record of some of the findings and failures may prove of value to other workers.

The cases grouped themselves roughly into three batches. The first extended from September to December, 1915, and contained some acute and subacute infections. The second covered the period from December, 1915, to February, 1916, and comprised cases of early convalescence; while from February to May the men forming the group were to all intents fit again for work.

The main features may be summarized as follows:

Paratyphoid Convalescents.

	No. of Cases.	Bacilli Present in Excreta.	<i>E. histolytica</i> Present in
Period I	297	3.7 per cent.	—
Period II	156	1.3 per cent.	10.06 per cent.
Period III	217	None	—

Dysentery Convalescents.

Number of cases	...	...	605
Bacilli present in excreta	...	...	1.1 per cent.
<i>E. histolytica</i> present in	...	...	9.68 per cent.

Methods.

The first investigation carried out in each convalescent case consisted of the (1) estimation of the agglutinin content of the blood, (2) the microscopical examination of the stools, and (3) cultural isolation from urine and faeces. In a number of instances blood films were obtained and counted; the results will form the subject of a further paper.

1. The agglutinin estimations furnished data for confirmatory diagnosis and indicated the method of enrichment which should be adopted in the examinations of the excreta. They were carried out to their end titre in each instance and included tests for *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, *B. dysenteriae* (Shiga and Flexner types). The macroscopic method and the Oxford standardized emulsions, supplied by the Medical Research Committee, were used throughout. Incubation at 52° C. in a moist atmosphere for two hours was followed by standing at room temperature for twenty hours. The results were then read off and checked by a second worker.

2. The microscopical examination of the stools was carried out on the lines recommended by Wenyon and a record kept of all the protozoal forms observed.

3. For the isolation of bacteria three comparative methods were used:

(a) *Enrichment Period*: September to November, 1915.—The stool was emulsified and added to brilliant-green peptone solutions after Browning and his co-workers, or to dulcitol peptone when the agglutinations indicated a *paratyphosus* B infection. After twelve to twenty-four hours' growth, warmed bile-agar and endo plates were spread. Twelve to twenty-four later suspicious colonies were picked off and transferred to tubes containing glucose, or mannite, lactose, dulcitol, gelatine, milk. Those giving typical reactions twenty-four hours later were agglutinated with specific serums, and when the result

was positive were put through the fermentation reactions now deemed necessary for their identification. It was found and confirmed that when time pressed the agglutination could be carried out in the glucose growth, instead of waiting for a sub-culture in broth. Late in the day some of the agglutinations were carried out in hanging drops; the reaction, after fixation, was stained and preserved as a record of the test. The urine was centrifugized, and the deposit was treated in a similar manner.

(b) *Non-enrichment Period*: November, 1915, to February, 1916.—The stool was emulsified in 1 c.cm. of urine and allowed to stand for about an hour. From the upper portions isolations were made on warmed bile-agar and endo plates. After twenty-four hours suspicious colonies were transferred to tubes of glucose, mannite, and lactose. Twenty-four hours later, agglutination was carried out on those yielding the necessary reactions, motility, etc.

(c) *Incubation of Urine Period*: February to May, 1916.—The urine was incubated at 37° C. for twelve hours. It was then isolated on one-third of a bile-agar and an endo plate. The faeces were emulsified in normal saline and cultures made from the upper layers on the remaining two-thirds of the plates used for the urine. After twelve to twenty-four hours' growth suspicious colonies were transferred to glucose, lactose, and mannite. Those giving typical results were subcultured on agar slopes. Twelve hours later atypical growths were discarded; possible positives were agglutinated.

While these methods were being tested many suggestions were put forward by various workers which were felt worthy of adoption. When, however, a laboratory is dealing with over a hundred stools each day, and working in sections upon varied processes, it is better to follow out a preconceived plan than to change familiar and well tried methods. This may perhaps be understood by those who have proposed modifications of existing methods as a reason for our lack of employment of their suggestions. At the same time we should like to acknowledge our indebtedness to the work of Henderson Smith, Ledingham, Penfold, Western, Dreyer and Ainley Walker, and many others.

The collection and disposal of the excreta occasioned many experiments in order to diminish the risk of infection to partly trained assistants. Finally, it was concluded that the stools should be obtained in wide-mouthed, covered jam jars or glass dishes, so that a considerable amount of the material could be inspected for selection of suitable portions for examination. After the laboratory work was concluded the faeces were transferred in bulk, by scraping the inside of the jars with flat pieces of wood, to buckets containing strong esul solution, and allowed to stay in this for an hour before being poured down the drains. The partly cleaned jars were then boiled in a strong solution of soft soap for an hour, and finally rinsed in several changes of cold water. Throughout these processes the women workers wore oilskin aprons and rubber gloves. Both aprons and gloves were disinfected after use.

The results which have been obtained are as follows:

Brilliant Green and Dulcitol.	No. of Cases.	Average Weeks of Disease.	Infective Bacteria Present.
A. Enrichment Period:	Positives.	297	Per cent.
<i>B. paratyphosus</i> A ...	4 cases	4th to 12th week	3.7
<i>B. paratyphosus</i> B ...	6 "		
<i>B. typhosus</i> ...	1 case		
B. Non-enrichment Period:	156	5th to 20th week	1.3
<i>B. paratyphosus</i> A ...	1 case		
<i>B. paratyphosus</i> B ...	1 "		
C. Incubation Urine Period:	217	5th to 25th week	None
<i>B. paratyphosus</i> A ...	0		
<i>B. paratyphosus</i> B ...	0		

The figures indicate the value of enrichment methods, but the enrichments must not be appraised too highly, as they were used in the early stages of the disease, when a larger percentage of positives would be expected. It has also to be remembered that they entail much extra work, and are difficult to arrange for in laboratories working at high pressure with depleted staffs and restricted apparatus. When a worker has employed the same non-enrichment method for long periods, he obtains results approximately equal to those of the enrichment methods, while the number of repeated examinations demanded by the current regulations protects from any gross omissions.

We may now consider in turn some of the findings we have recorded. First, it is convenient to state the results of some of the protozoal series of examinations.

Protozoa.

Although it was realized that the whole of the cases coming to hand with dysentery and other diseases were drawn from the Mediterranean area, I failed at first to appreciate that it would be necessary to examine for protozoa in conditions other than dysenteric. It was not until the middle of November that the excreta from paratyphoid and other patients were subjected to more than bacteriological examinations. The following figures present roughly the findings in several series:

Dysentery cases ...	<i>E. histolytica</i> present in 9.68 per cent. (605 cases).
Paratyphoid cases ...	<i>E. histolytica</i> present in 10.06 per cent. (581 cases).
Other conditions:	
Wounds, trench fever, etc. ...	<i>E. histolytica</i> present in 1 case (5 cases).
Dépôt paratyphoids ...	<i>E. histolytica</i> present in 5 cases, 21.7 per cent. (23 cases).

These results convey the fact that in convalescents from dysentery, paratyphoids, typhoids, and probably from other conditions, there was protozoal infection to an equal extent. An emphasis is lent to this appreciation from the examinations of men who had arrived at their dépôt for their final clearance examinations for enteric and paratyphoid fevers, and had to be detained because of the presence of *E. histolytica* in their stools.

The types and percentages of other protozoa are shown in Tables A and B, which represent two series of cases.

TABLE A.

Number and Percentages of Protozoal Parasites from
January 19th to March 31st, 1916.

	Total Cases.	Percentage.
	311	100.0
Nil ...	164	52.7
<i>E. histolytica</i> cysts ...	11	3.6
<i>E. histolytica</i> cysts + <i>E. coli</i> cysts ...	15	4.8
<i>E. histolytica</i> cysts + <i>E. coli</i> + <i>Lamblia intestinalis</i> cysts ...	11	3.6
<i>E. histolytica</i> cysts + <i>E. coli</i> cysts + <i>Tetramitus mesnili</i> ...	1	0.3
<i>E. histolytica</i> cysts + <i>Lamblia</i> cysts ...	2	0.6
<i>E. coli</i> cysts alone ...	75	24.1
<i>E. coli</i> cysts + <i>Lamblia</i> cysts ...	9	2.9
<i>Lamblia</i> cysts alone ...	22	7.1
Total with <i>E. histolytica</i> cysts ...	41	13.2
" " <i>E. coli</i> cysts ...	112	35.2
" " <i>Lamblia</i> cysts ...	45	14.5
" " <i>Tetramitus</i> ...	2	0.6

TABLE B.

Number and Percentages of Protozoal Parasites during April, 1916.

	Total Cases.	Percentage.
Paratyphoids ... 75	77	100.0
Dysenteries ... 2		
Nil ...	42	54.5
<i>E. histolytica</i> cysts ...	1	1.3
<i>E. histolytica</i> cysts + <i>E. coli</i> cysts ...	6	7.8
<i>E. histolytica</i> cysts + <i>Lamblia</i> intes- tinalis cysts ...	1	1.3
<i>E. coli</i> cysts alone ...	20	26.0
<i>Lamblia</i> cysts alone ...	6	7.8
<i>Trichomonas</i> ...	1	1.3
Total with <i>E. histolytica</i> cysts ...	8	10.4
" " <i>E. coli</i> cysts ...	26	33.9
" " <i>Lamblia</i> cysts ...	7	9.1
" " <i>Trichomonas</i> ...	1	1.3

Table A gives the total results of a series of mixed dysentery and paratyphoid cases, and Table B those obtained from a batch of paratyphoid infections.

The comparison shows that in both the mixed and paratyphoid series of examinations made on convalescents for purposes of clearance about 53 per cent. were free from protozoal indications, while in both lots the percentage of *E. histolytica* and *coli* were similar.

The Disappearance of *E. histolytica* from Faeces.

The average time required for three consecutive negative findings was 22.9 days, but one case has yielded positive findings for 125 days already. The details of the results of treatment are purposely postponed for the present.

The question whether the number of negative results required before the patient is considered free from protozoa is sufficient from the standpoint of the patient and the prevention of transmission is one which can be settled only by the consideration of a mass of figures. In this connexion, however, we have been impressed by the fact that, in the application of the final dépôt or regimental tests, which are carried out prior to the return of the convalescent to active work, we found that no less than 21.7 per cent. passed stools containing *E. histolytica*, and that all of these occurred in men who had been sent to us as enterics. How far these were men who had escaped protozoal examination in manner like to our own defect, or were examples of the recurrence of the protozoon after three negatives had been obtained, we have no data to go upon.

Serology.

In another communication we have stated the evidence which permitted the statements:

1. That in 258 inoculated men free from enteric manifestations—

	Weeks since Inoculation.
Negative agglutination results were found in 2.4 per cent.	1 to 80
Up to 65 units (roughly 1 in 250) were found in 68.4 per cent.	1 to 80
Up to 150 units (roughly 1 in 500) were found in 19.5 per cent.	1 to 80
Up to 350 units (roughly 1 in 1,250) were found in 5.1 per cent.	1 to 80
Over 350 units (1 in 2,500 to 1 in 5,000) were found in 4.6 per cent.	1 to 80

2. That in the presence of paratyphoid agglutinins the typhoid inoculation agglutinin is raised, the rise being greater in the case of paratyphoid B than in that of paratyphoid A.

3. That a series of absorption determinations in 46 convalescent cases during the first to the nineteenth week of disease, and during consecutive weeks in acute and subacute cases show this rise to be distinct from any group or coagglutinin influences, and to be specific for each organism. That the inoculation agglutinin may prove to exhibit essential features of its own and to be free from the group agglutinative characters associated with infective agglutinins.

4. That absorption experiments confirm the statements of Harvey, Grattin and Wood and Dreyer that an agglutinin estimation carried out by the macroscopical method yielding a positive result for paratyphoid organisms as low as 1 in 25 may be taken as diagnostic of the disease.

5. That in paratyphoid A fever the agglutinin titre may in some instances be lower than 1 in 25, when absorption determinations may be called for.

6. That pyrexias or other diseases and conditions do not exert any inhibitory influence upon the inoculation agglutinins.

While there is every reason to be satisfied with the indications afforded by agglutinin estimations in paratyphoid fever, supported as they have been by blood cultures, bacterial isolations from excreta and absorption values, the same cannot be accepted for the agglutinins in dysenteric conditions. Ledingham, Arkwright, and others, have shown that the serums of healthy men may agglutinate some strains of Shiga bacilli up to 1 in 50, and it is common knowledge that Flexner's bacilli may show clumping with the lower dilutions of the majority of serums examined. In our estimations, therefore, we have adopted 1 in 125 as the lowest titre which should be taken as a positive in Shiga dysentery, and 1 in 2,500 for the Flexner variety. The emulsions used for the dysentery estimations contained 2,000 millions of bacteria per c.cm., and were prepared from one to five strains of organisms, chiefly those isolated from the 1915 lot

of cases. With those reservations, the results are as follows:

Enteric Cases.

	No. of Cases.	Positive Agglutina- tions. Per Cent.	Remarks.
A.— <i>B. typhosus</i>	7	1.21	6 not inoculated.
<i>B. paratyphosus</i> A	132	22.72	
<i>B. paratyphosus</i> B	249	42.85	
<i>B. paratyphosus</i> A and B...	5	0.85	
B.— <i>B. paratyphosus</i> A + Shiga	7	1.21	
<i>B. paratyphosus</i> B + Shiga	10	1.72	
<i>B. paratyphosus</i> A + B + Shiga	1	0.17	
<i>B. paratyphosus</i> A + B + Flexner	1	0.17	
C.—No infective agglutinins ...	169	29.09	Inoculation agglu- tinins present in all.
	581	100.00	

The number of cases which failed to show the presence of agglutinins other than those due to inoculation is in excess of the average under ordinary conditions. In none of them, however, was a typhoid organism isolated from the faeces or urine. From the agglutinin standpoint they were returned as non-enteric, after every known means had been exhausted for further differentiation. Bearing in mind that these cases had exhibited symptoms of enteric fever, they could not be dismissed lightly, although 10 per cent. of them showed heavy infection with *Entamoeba histolytica*, 22 per cent. with *Entamoeba coli*, and 9 per cent. with *Lamblia intestinalis*. It was felt, therefore, that from the standpoint of statistics their inclusion as cases of definite typhoid fever would detract from a general confidence in the final results, and that the placing of these and similar cases in a class by themselves would be called for, unless precise bacteriological evidence was forthcoming from some earlier examinations. We have noted elsewhere that differential leucocyte counts afford some indications of value in laboratory diagnosis in similar cases.

The findings in 630 cases of convalescent dysenteric cases are as follows:

Dysenterics.

	No. of Cases.	Positives. Per Cent.
A. Amoebic Type:		
<i>E. histolytica</i>	56	
<i>E. histolytica</i> + Shiga bacilli ...		9.68
<i>E. coli</i>	113	17.94
B. Bacillary Type (Agglutinins):		
<i>B. dysenteriae</i> Shiga... ..	137	21.75
<i>B. dysenteriae</i> Flexner	7	1.10
<i>B. dysenteriae</i> Shiga + Flexner ...	2	0.31
C. No protozoa or agglutinins...	310	49.22
	630	100.00

Bacteriology.

The object of this part of our work is the detection of carriers. Hence it was necessary to determine whether we had to deal with temporary or permanent carriers, and to discover whether the infective organism was passed in the urine or the faeces.

In the batches examined we have had to deal chiefly with the temporary type. Once we have found paratyphoid B in the urine; once the urine has contained *B. typhosus*. The following table shows the week of disease in which the bacteria were isolated and the date of disappearance from the onset of the attack. No special form of treatment was required.

TABLE C.

Positive Findings in Typhoid and Paratyphoid Convalescents.

Week of Disease.	Week Since Inoculation.	Agglutinin Units.		Seat and Type of Bacilli.		Date of Disappearance from Onset of Attack.
		Typhoid.	Para-typhoid.	Faeces.	Urine.	
4th	39	1250	1250	+ B	—	8 weeks.
4th	30	29	120	+ A	—	8 weeks.
5th	12	625	920	+ B	—	6 weeks.
5th	34	580	200	—	+ B	8 weeks.
6th	39	125	460	+ B	—	—
6th	39	106	36	+ A	—	9 weeks.
6th	55	60	1852	+ B	—	9 weeks.
7th	16	60	185	+ B	—	8 weeks.
8th	48	106	19	+ A	—	10 weeks.
8th	52	12	60	+ T	+ T	12 weeks.
9th	43	125	925	+ B	—	13 weeks.
12th	18	8	143	+ A	—	15 weeks.
12th	16	20	—	+ B	—	15 weeks.

TABLE D.

Positive Findings in Bacillary Dysentery Convalescents.

Week of Disease.	Date of Disappearance of Bacilli.	Type of Bacillus.	Week of Disease.	Date of Disappearance of Bacilli.	Type of Bacillus.
5th	8 weeks	Shiga	9th	11 weeks	Flexner
8th	10 weeks	Flexner	9th	12 weeks	Shiga
8th	11 weeks	Shiga	11th	13 weeks	Flexner
8th	11 weeks	Shiga	11th	14 weeks	Flexner

It is a pleasure to thank Lieutenant-Colonel Paul Bush and the staff of the 2nd Southern General Hospital for their assistance in the collection of specimens and their courtesies in placing much information at our disposal. We are also indebted to the Medical Research Committee for the provision of skilled assistance in the protozoological part of the work, and to the Colston Research Committee for the use of their special apparatus.

TREATMENT OF SCABIES BY SULPHUR VAPOUR.

BY

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AND

CAPTAIN STANLEY HODGSON, R.A.M.C.

ABOUT twelve months ago, while our field ambulance was in charge of a reception hospital for a division, we were called upon to deal with a considerable number of cases of scabies. As ordinary treatment by sulphur inunction is slow, usually taking from seven to fourteen days, we endeavoured to find some method which would be simple, swift, and efficacious. We have given sulphur dioxide gas a trial for twelve months, and have found it meet our requirements. The method of treatment and the apparatus required are as follows:

1. Cabinet.

The cabinet is constructed on the lines of a "home Turkish bath," and is made of $\frac{1}{2}$ -in. tongued and grooved match-boarding on a framework of 2-in. timber. It is intended to accommodate two patients at once. The dimensions are: Front, 4 ft. 7 in. by 4 ft. 2 in.; sides, 3 ft. 7 in. by 4 ft. 2 in.; the back is 5 ft. 3 in. high. As it is necessary for the cabinet to be used out of doors, we provided a canopy over it 2 ft. high, covered with canvas so as to protect the patients from sun or rain. The apertures for the head must be small—about 5 in. in

diameter. The outer portions of the roof are movable, and capable of being adjusted after the patients are placed in position. The inside of the cabinet is lined with thick brown paper, and the roof junction with felt to prevent escape of vapour. One door is sufficient—it must

fit closely. The seat provided for the patients consists of three narrow cross-bars placed 30 in. above the floor level. If made of one piece of wood the buttocks and nates would escape the action of the fumes. The cabinet must be placed near the bath-house.

2. Method of Procedure.

The patient is given a hot bath, allowed to soak for five minutes in the water, then well rubbed with soap—either soft or ordinary yellow bar—and the skin scrubbed to open the burrows. The patient is then transferred to the cabinet, placed on the seat with the head protruding through the aperture in the roof and the sliding board adjusted. A wet towel is applied round the neck to prevent escape of fumes, a sulphur candle placed in the corner of the box is lighted, and the door closed. An orderly must remain constantly in attendance so as to remove the patient at once should he show signs of faintness or develop any difficulty in breathing from escape of fumes. At the end of fifty minutes the lid is quickly removed, and the patient returns to the bath-house, where he puts on clean and warm clothing. Sufficient air to keep the candle burning will find its way through the cracks around the door.

3. Clothes.

It is necessary to send with the patient all his kit, every article of clothing that he possesses, his blankets, his palliasse and pillow. If a Thresh or steam disinfecter be available, all suitable articles can be treated by steam. We used the portable disinfecting box with small boiler for several months, and found it very efficient. If none of the above is available it would not be difficult to construct a box or chamber and have steam let into it by a flexible metal pipe from a large kettle, boiler, or oil drum. When we had only one patient to deal with, his clothes were hung in the cabinet and treated there at the same time with the sulphur vapour. Boots and other leather articles can be treated with formalin spray.

The sulphur candle which we found most suitable was the Jeyes' sulphur candle (large). A quick-burning candle with a large wick gives off too irritating a vapour, and the patient is unable to stand the treatment for more than thirty minutes. There is a tendency under these circumstances to produce troublesome erythema.

No antiseptic should be added to the bath, as it may produce irritation of the scrotum, axilla, and other parts where the skin is tender. If properly administered with the above precautions there should be no feeling of discomfort—rather the reverse. We have had patients asking