

bugs. Captain E. D. Kilbourne, Medical Corps, U.S. Army, reports on a measles epidemic which has lasted 18 months at a recruit dépôt and is still proceeding. He discusses 600 cases, of which 30 died, chiefly in February and March (24), and 25 of these died from broncho-pneumonia. The disease is infectious before the rash, before Koplik's spots appear, and they diagnosed it in contacts by the coryza, cough, or conjunctivitis. Cases were discharged as soon as convalescent, and they carried no infection with them. Barracks were not disinfected—that does no good; measles does not spread by fomites. The well-known Public Health and Marine Hospital Service is to be called in future "The Public Health Service." It is to be officered by a Surgeon-General (£1200), Assistant Surgeon-General (£1000), ten Senior Surgeons (£700), Surgeons at £600, Passed Assistant Surgeons (£480), and Assistant Surgeons at £400. Most can get an increase of 10 per cent. of the above salary for each five years' service. We congratulate the Public Health Service on its new name and increased salaries and wish it greater success than ever. It may be worth while to state some of its duties. It watches immigration, providing inspectors of immigrants both at home and abroad—for example, in Liverpool; it takes charge of quarantine, providing health officers and hospitals at the ports; it studies epidemics on the spot and in the laboratory; and its officers are sent wherever they are wanted. When plague appears at Porto Rico an officer is sent there; another to New Orleans, where a plague-infected rat was found on July 27th (but none since); others are supervising the destruction of ground squirrels in California; while others, again, are watching lest epidemics break out in the flooded Mississippi valley. Regretfully we again note that Passed Assistant Surgeon T. B. McClintic, of this service, died on August 13th from Rocky Mountain (spotted) fever, contracted while investigating the disease—another medical martyr to science. The first set of regulations for the American National Red Cross Society when working with the navy are here published at length.

YELLOW FEVER AND THE INDIAN PORTS.

It is notified in the *Calcutta Gazette* that Major A. C. MacGilchrist, I.M.S., is placed until further orders on special duty to investigate the prevalence of stegomyia in the Port of Calcutta.

CHINESE TROOPS IN INDIA.

Captain R. A. Needham, I.M.S., health officer, Simla, has been placed on deputation under the military authorities in connexion with the passage of the returning Chinese troops from the frontier to Calcutta, and will leave Simla at once for Sikkim.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The October issue of this journal opens with a Preliminary Note on Immunisation against B. Paratyphosus A, by Major S. L. Cummins and Major C. C. Cumming, who are at present conducting experiments with a bi-valent emulsion of B. typhosus and B. paratyphosus A. The present paper, however, does not anticipate the final conclusions of this research, but the matter is only brought forward because it appears to throw an interesting sidelight on some of the clinical findings in paratyphoid A fever, and because it may also be taken to show that the question of prophylaxis against this disease is more complex than might at first sight appear to be the case. It may also emphasise the necessity of a thorough experimental basis before an anti-paratyphoid A vaccine is finally recommended for the use of troops. The Treatment of Gonorrhoea and Some of its Complications is the subject of a joint contribution by Major L. W. Harrison and Lieutenant C. H. H. Harrold, in which they show that while there is no royal road to success in the treatment of this disease, much may be done to shorten the stay in hospital and prevent complications and relapses by attention to detail. An interesting article on Water-bottles and Mess-tins, by Captain N. Dunbar Walker, describes the evolution of these articles in this and other countries, and concludes with a summary of the use of aluminium. In "Sunstroke—a Heresy," Major W. H. Ogilvie, I.M.S., compares sunstroke to heatstroke, and pleads for criticism of his ideas; and Colonel S. C. B. Robinson and Major R. J. Blackham write on Sand Flies and Sand Fly Fever on the North-West Frontier of India. Other interesting notes deal with the adaptation

of motor taxicab "chassis" for the carriage of wounded, a method of regulating the temperature of intravenous injections, a camp latrine, and a device for suspending the straps of the valise equipment, 1882 pattern.

Permission has been granted to Major H. S. Anderson, R.A.M.C., by His Majesty the King to wear the medals commemorative of the earthquake in Sicily in December, 1908, which have been conferred on him by the King of Italy and the Italian Red Cross Society in recognition of the services rendered by him on that occasion.

Correspondence.

"Audi alteram partem."

THE AWARD OF THE NOBEL PRIZE TO DR. ALEXIS CARREL.

To the Editor of THE LANCET.

SIR,—Perhaps one of the most gratifying things that could have happened to the medical profession is the recognition of Alexis Carrel's magnificent work by the bestowal on him of the Nobel Prize. To me Carrel's career is typical of the intense desire to progress which pervades America, Frenchman though he may be by birth. The American man of science devotes himself heart and soul to his work, feeling that in that country merit is the only road to success, and that if he does succeed he commands the love, esteem, and admiration of his fellows in a manner that may not exist in the more complicated conditions of the old world.

To those who know Carrel's charming personality, his wonderful manipulative dexterity, his extraordinary originality, his calm determination, and last, but not least, his extreme modesty, this honour did not come as a surprise, but has afforded them the highest satisfaction. As a great man should, but as, alas, all great men do not, Carrel has ignored the many scurrilous attacks which have been made upon him personally and on his methods by the ignorant and timid. But if Carrel has detracting critics he has also enjoyed the most enlightened sympathy which American science can afford. In recognising Carrel's genius one must not forget, among others, Simon Flexner, the Director of Laboratories of the Rockefeller Institute for Medical Research, who by his great learning and most keen intelligence has counted largely in affording to Carrel an opportunity to arrive at the summit of his ambitions. The more one sees of America the more is one struck by the determination of the members of its medical profession to occupy the van of progress by rendering themselves familiar with any advance in science and by combining among themselves to ensure a very high and progressive standard of knowledge.

America has every reason to be proud of its capacity to present to the moving spirits of the world a soil in which they can grow with uninterrupted—nay, stimulated—vigour, and where merit and genius receive a recognition unequalled, I believe, elsewhere. Carrel is a typical product of these conditions.

I am, Sir, yours faithfully,

Cavendish-square, W., Oct. 13th, 1912. W. ARBUTHNOT LANE.

UNIFORMITY IN MEDICAL REPRINTS.

To the Editor of THE LANCET.

SIR,—I have read with much pleasure Dr. W. Blair Bell's excellent suggestion with regard to medical reprints, and have often expressed a wish that something could be done to obtain uniformity in these, as every reading medical man must appreciate what a boon it would be if this idea could be realised.

I may add that the size adopted for the "Proceedings" of the Royal Society of Medicine was the result of prolonged and very careful consideration and comparison, and I think there is no doubt that it has given general satisfaction, providing as it does a large enough page for illustrations, without being too large for "handiness."

Dr. Blair Bell's suggestion for an extra $\frac{1}{4}$ in. is quite unnecessary, for all that need be done is to order the reprints with *uncut edges*, and this would leave quite enough margin for cutting down by the binder.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 11th, 1912. J. Y. W. MACALISTER.

THE CHEMICAL EXAMINATION OF GASTRIC CONTENTS.

To the Editor of THE LANCET.

SIR,—In THE LANCET for Oct. 5th there is an article by Dr. A. S. Woodwark and Mr. R. L. Mackenzie Wallis on the Relation of the Gastric Secretion to Rheumatoid Arthritis. I should like to make a few remarks on the methods used for the examination of the gastric contents, and shall base them, firstly, on the results given of a "normal" case in Table II., which is used as a standard for comparison.

1. The "free hydrochloric acid" is recorded as 0.02 per cent. This is estimated by Volhard's method, which depends on the theory that when gastric contents are evaporated to dryness all the free HCl is volatilised. Willcox has shown that about one-third or less is driven off, and anyone can confirm his observation by the use of Witte's peptone and a solution of HCl. A definite proof may be given of its inaccuracy. The most reliable methods for the estimation of free HCl are those which measure the acceleration of the inversion of cane-sugar and the catalysis of methyl acetate. By such methods the amount of free HCl in a normal case is found to be in the neighbourhood of 0.10 per cent., and in abnormal cases Dr. P. N. Panton and I¹ have found as much as 0.30 per cent. By Volhard's method it is extremely rare to find more than 0.07 per cent. in any condition, and normal cases appear to give about 0.02 per cent. The method is thus extremely inaccurate, and is in no way a measure of the amount of free HCl present.

2. The "protein hydrochloric acid" is recorded as 0.23 per cent. This is also estimated by Volhard's method, and includes all the free HCl not volatilised in the first stage. Thus it includes some two-thirds of the free HCl. It is thus no measure of the amount of HCl combined with protein.

3. The "active hydrochloric acid" is recorded as 0.25 per cent. This is the sum of the free and protein-combined HCl. Willcox has paid special attention to this estimation, and it has the advantage of eliminating the error due to the incomplete volatilisation of free HCl. Let us consider the substances which may be included in the "total acidity" in any case. They are free HCl, protein HCl, organic acids, acid phosphates, and free phosphoric acid. Now it has been shown in the article already referred to that phosphates are only present in traces in cases where the acidity is normal or above normal. In these cases organic acids also are present only in very small amount as a rule. Hence in such cases the total acidity and the "active hydrochloric acid" may be expected to be identical within the limits of experimental error. Reference to Dr. Willcox's tables shows this to be so generally. Hence the estimation of "active HCl" in such a case appears to be superfluous. In cases where free HCl is absent, it can be proved that an error exists in this method of estimation of "active HCl." This is best shown by instances in which definite dimethyl acidity is present together with a negative Günsburg reaction, the latter proving that there is no free HCl.

As there is no test meal in Dr. Woodwark's article to illustrate this point, I will quote two from the paper referred to above:—

1. Total acidity = 0.215.	2. Total acidity = 0.255.
Dimethyl acidity = 0.091.	Dimethyl acidity = 0.105.
Günsburg's reaction negative.	Günsburg's reaction negative.
Active HCl = 0.171.	Active HCl = 0.222.

As in these cases there is no free HCl, the "active HCl" should consist entirely of protein-hydrochloric acid. Since dimethyl only measures free acids the amount of protein-combined acidity in the first case cannot exceed 0.215 less 0.091—i.e., 0.124—and in the second case 0.255 less 0.105—i.e., 0.150. The protein-acidity must in reality be less than this, since dimethyl is not a complete measure of acidity due to organic acids. Yet Willcox's method gives an "active HCl" amounting in the first case to 0.171 and in the second to 0.222. These instances are exceptional ones in which the acidity is high, although free HCl is absent, but they are sufficient to prove that the estimation of "active HCl" is unreliable. Similar evidence may be obtained from less exceptional gastric contents.

What is the cause of this discrepancy? We have showed

that gastric contents with a negative Günsburg reaction contain much greater amounts of phosphates than those with normal or increased acidity.² If a solution containing acid phosphates and sodium chloride be heated a loss of chlorides occurs. This is due to the continuous formation and volatilisation of minute quantities of hydrochloric acid in accordance with Thomsen's Law of Mass Action. This loss will be included with the "active HCl" by Willcox's and Volhard's methods. In some cases the acidity ascribed to "active HCl" may considerably exceed the total acidity. The presence of phosphates complicates all methods which depend on heating the gastric contents. The error will particularly occur in cases where free HCl is absent, as in these the phosphates are present in larger amounts.

The investigations are insufficient to show exactly how great is the influence of phosphates, but their presence and action appear to have been generally overlooked in the past. The estimation of "active HCl" is thus inaccurate when the acidity is low and is superfluous when the acidity is normal or increased. The estimation of "protein HCl" by Volhard's method is inaccurate in all cases.

4. The ratio of "active hydrochloric acid" to metallic hydrochloric acid is given as 357:100 in the normal case. Any inaccuracy in the estimation of "active HCl" will have a double effect on this ratio, as it will increase the "active HCl" at the expense of the metallic HCl. The ratio thus appears to be accurate when the acidity is at or above normal and inaccurate when the acidity is low or free HCl is absent.

All these estimations are therefore unreliable, since in some cases they are accurate and in others inaccurate.

5. Töpfer's reagent, dimethylamidoazobenzol, is not a test for free HCl but for free acids. The fact that it is positive is no proof of the presence of free HCl. The dimethyl acidity is due to free HCl, free organic acids, and any free phosphoric acid present. The organic acids are only partially estimated. Hence dimethyl acidity is a fairly accurate measure of the free HCl when the acidity is normal or high, since HCl is then the only acid present in any quantity. When the acidities are low and the other acids are present, the dimethyl acidity is the sum of the partial estimation of each. The determination of dimethyl acidity can be carried out in the same sample as the total acidity, and occupies less than a minute, and it is, at least, as valuable and accurate as the more complex and lengthy estimations.

The estimation of the total acidity with phenol-phthalein is constantly accurate. Günsburg's test is positive with free mineral acids, and may be relied upon to show the absence of free HCl. It is possible that when the test is feebly positive phosphoric acid is causing a complication.

It is on these two tests that reliance must mainly be placed in carrying out the chemical analysis of the result of Ewald's test meal. The dimethyl acidity may be added, as its estimation is so extremely simple. The more complex analyses can only be carried out in a laboratory and occupy considerable time, but the three investigations just referred to can be performed in any ordinary room in a quarter of an hour, and give all the information which can be gathered from the chemical analysis of an Ewald's test meal, apart from such questions as ferments.

I am, Sir, yours faithfully,

Devonshire-place, W., Oct. 10th, 1912. H. LETHEBY TIDY.

PRURITUS ANI.

To the Editor of THE LANCET.

SIR,—With regard to this subject and the letters of Dr. D. H. Murray and Dr. W. F. Grant, whilst admitting, of course, that there may be cases of this troublesome and annoying ailment which defy all ordinary remedies both internal and external, it may be well to bear in mind that cleanliness, as practised universally by the natives of India, is a very powerful enemy to any germs or bacteria that may be concerned in the affection, and that consequently—at least, according to my experience of many years in both Northern and Southern India—it is very rare to meet with the condition save as a complication of diabetes. Last year I had an elderly patient under my care who was much annoyed by pruritus ani. He had no sugar in his urine and was

¹ Analysis of Gastric Contents, Quarterly Journal of Medicine, 1911.

² Achylia gastrica is an exception to this.