I heard recently an address by Dr. Bass of New Orleans on the treatment of Malaria which was so illuminating that I wish to report it, with the consent of Dr. Bass, for the benefit of the Members of the China Medical Association. An abstract made from memory follows.

Within the human body there are found one or both of two forms of the parasite, the asexual and the sexual. The asexual forms undergo regular development and segmentation with a periodic regularity, the length of the periods depending upon the variety of the parasite. That of the tertian occurs in 48 hours, and the parasites mature and segment nearly simultaneously, thus giving rise to the paroxysms of chill and fever followed by a period of well being. The quartan parasite follows a similar course, its period of development being longer, however; while the segmentation of the aestivo-autumnal form does not occur simultaneously, and distinct paroxysmal periods with complete intermissions are not seen, but a remittent form of fever results. As the parasite develops within the red cells, the protoplasm of the corpuscle is digested, and is converted into the protoplasm of the parasite. The fluid that accomplishes this digestion is acid in reaction, and it is this digestive fluid which is thrown out into the circulation when the red cells rupture on the segmentation of their contained organisms, that gives rise to the malarial attack. The first effect seen on introduction into the body of a large amount of this fluid is a vaso-motor paralysis, with a resulting collection of a large portion of blood in the large visceral blood vessels, and a surface anemia that causes the chilly sensation. The rectal temperature is above normal

* Report of an Address Delivered by Dr. C. C. Bass, New Orleans, La.
even during the chill. Following this primary vaso-motor paralysis, there is a sharp febrile re-action that lasts until the toxin is destroyed or neutralized.

These intracorpusclar parasites are susceptible to the action of quinine at any period of their development, with the following exception. A normal red cell is more or less fluid in consistency, and to a large degree adapts itself to the shape of its containing blood vessel. The capillaries are not of an equal diameter or caliber at all points, and at many places the lining endothelial cells project into the lumen of the vessel, and greatly narrow its channel. A normal red cell easily passes these places of obstruction through its fluidity, but one containing a maturing malarial organism loses this adaptability, through the hardening or stiffening of the protoplasm of the parasite, which is far less fluid than that of a red cell. The result is that such cells containing maturing parasites lodge in the narrow places in the capillaries and are seldom found in the circulation. The cerebral anemia in pernicious Malaria is probably caused by a mechanical blocking of the capillaries of the brain by the maturing aestivo-autumnal parasites. This lack of plasticity is more marked in the aestivo-autumnal forms than in the tertian, and therefore one finds more of the tertian adult forms in the peripheral blood than of the aestivo-autumnal. The segmenting quartan parasites are still more common in the circulation. In a child, free from all forms of arterio-sclerosis, with large, elastic capillary channels, it is a common thing to find segmentating tertian forms in a smear made from peripheral blood, and even the aestivo-autumnal forms are not unknown.

When these maturing parasites lodge within a capillary, the blood stream is blocked, and quinine administered at this time does not reach the parasite in this situation. The circulating blood is shunted, as it were, and passes around the obstruction through another channel, and the parasite goes on to maturity untouched by the quinine in the general blood current.

What is the ultimate fate of this maturing organism and of its crop of young plasmodia about to be thrown out into the blood stream? There are from eight to thirty-two plasmodia derived from each rosette, depending on the species, and if all of these entered fresh red cells, a man would hardly survive two chills, as practically all of his corpuscles would be destroyed. Blood serum, however, is quickly fatal to these young plasmodia, and when cast out into the blood stream, they soon perish. This toxicity of the serum is especially marked in those born and raised in a malarial region, and in whom a
large degree of immunity has been developed. What is the mechanism, then, of the transfer of these young forms into new cells? All of them do not have to come into contact with the blood serum, or all would be killed, and infection would cease at once. The red cells holding their unyielding, maturing organisms, lose their fluidity, are unable to pass the narrow places in the capillaries, and lodge there. Within the narrow lumen of the capillary one or two normal cells may be pressed closely against the cell containing the parasite about to segment, and the young plasmodia that survive find immediate entrance into these adjacent cells without coming into contact with the serum. The great majority, however, are cast out into the blood and are soon destroyed; while one or more may have gained entrance into new cells. The protoplasm of these young, tender organisms is plastic, and the red cells containing them are capable of passing the narrow places in the capillaries; the lumen of the obstructed capillary is restored when the red cell that contained the parasite is destroyed on its segmentation, and the circulation takes place again through the capillary. The cells holding the new, mobile plasmodia pass through the capillary and reach the quinine-impregnated blood stream, where the young parasites are at once destroyed.

The maturing parasites impacted in the capillaries are incapable of quiescence. They must go on to maturity and sporulation. It is thought that within thirty-six hours all such impacted forms will have segmented, and the new parasites that survive will have entered the general blood stream. If a patient be kept under the influence of quinine until all these impacted adult forms segment, the resulting young parasites will be destroyed as fast as they enter the blood stream, and the body will be freed entirely from asexual, quinine-susceptible parasites. Theoretically, thirty-six hours is sufficient, but to be on the safe side, it is recommended to keep the patient under the influence of quinine for three full days. If the quinine be given in adequate amounts and be absorbed, at the end of three days all asexual parasites will certainly be destroyed. This is the first great dictum. Keep patient under quinine for three days, and free him entirely from asexual parasites.

Were there no other parasites, the cure of a case of malaria would be a simple matter. There are, unfortunately, other forms which are resistant to the action of quinine. These are the sexual forms and are known to protozologists as microgametocytes, or male forms, and macrogametocytes, or female. In the aestivo-autumnal fever these are the familiar ovoids and crescents, while in the tertian and quartan
fevers they are large, spherical extracorpuscular parasites. It is this form that enters the mosquito, and after sexual fertilization, undergoes tremendous multiplication, and furnishes the infective agent to the mosquito's salivary glands. These forms also lie latent in the blood of man, are unaffected by quinine, and are the cause of the relapse of malaria.

Just exactly how they multiply and cause relapse within the body, is not known, but it is thought, and with much reason, that it is by a process of parthenogenesis or self-fertilization that the female forms segment and produce new asexual parasite. While these sexual forms may lie latent and are then unaffected by quinine, they must eventually reproduce or die. Their period of latency is not an indefinite one. It is thought that three weeks is the limit of latency, and that there is a seven-day periodicity in the multiplication. This multiplication takes place by the large extracorpuscular female forms undergoing a process of self-fertilization. The cell divides, and gives rise to a number of new plasmodia that enter fresh red cells and start anew the asexual cycle. In other words, these forms must undergo division into new asexual, intracorpuscular types within three weeks time, or perish. To be on the safe side again, quinine should be administered once a week for six weeks. In this way the new asexual forms that have been developed from the latent sexual forms, will be destroyed. Within the six weeks period, all the latent forms will multiply, their non-resistant progeny will be destroyed by the quinine, and the patient will be entirely free from parasites.

METHOD OF ADMINISTRATION.

An adult should be given thirty grains of the sulphate, or its equivalent, within twenty-four hours. This amount is ample and larger amounts are not advised. Intravenous administration is the quickest way, but is rarely needed. Hypodermic injection is the slowest way to secure absorption, and is not to be recommended except in particular cases. Oral administration is satisfactory, and should be used in the great majority of cases. The quinine should be given in divided doses throughout the twenty-four hours. To insure its solution in the stomach, the quinine should be followed by a few ounces of a warm very dilute mineral acid solution, or by a morsel of food to stimulate the flow of hydrochloric acid of the stomach. Quinine sulphate, given on an empty, fasting stomach, will probably be unabsorbed. The time of day is immaterial. It is not advisable, however, to increase the patient's discomfort by administering large doses of quinine during the febrile period.
The modus operandi of quinine is not certainly known, but some experiments in cultures indicate that the quinine causes an edema of the cells holding the parasites, and that the serum absorbed into the cell is the agent fatal to the parasite. All are familiar with the urticaria caused in susceptible individuals by quinine. Urticaria is cell edema, and it is possible that the antimalarial action is to be explained in this way.

The continued administration of small daily doses of quinine is not only useless, but actually is very harmful. The dose is insufficient to destroy the intracorpuscular forms, but they are stimulated by the drug to produce the sexual resistant forms that are unaffected by subsequent large doses of quinine. The body becomes accustomed to the action of the drug, the parasite becomes possibly in a sense immune, and chronicity is brought about. The latent forms formed through stimulation of the small doses of quinine, provide the parasites for the relapses.

Arsenic in no form has any direct anti-malaria action. The benefit derived from it is purely indirect, and results from its tonic action on the blood. The action of iron, strychnine, and other drugs is to be explained in the same way.

SUMMARY.

Begin the treatment of every case of malaria by the administration, daily, of thirty grains of quinine sulphate in divided doses, making sure of its absorption. Continue for three full days. Discontinue all quinine for six days, then on the seventh day administer thirty grains, and repeat every seventh day thereafter till a period of six weeks has elapsed. By this treatment every case of malaria can be cured, and relapses prevented, if the patient is not reinfected. A cure is more easily secured in the winter, as reinfection does not occur then.
RHEUMATISM AND ALLIED CONDITIONS.
A Review of Some Recent Literature.*

RALPH G. MILLS, M.D., Seoul, Korea.

The etiology of rheumatism is a question that has been much written about and which is still far from settled. The infectious theory has, however, been gaining ground steadily and bids fair to be established upon a firm basis. Every bone and joint disease whose exact cause we know is infectious, and there is cause to believe that this will not be an exception. Several years ago Poynton and Paine found a diplococcus which they claimed to be the cause of rheumatism. Their conception of rheumatism is therefore an acute infectious disease characterized by an invasion of the body by this diplococcus or streptococcus with special predilection for joint surfaces, endo- and myocardium and muscles. It may also affect other organs and may run a chronic course.

Culturally this organism described by Poynton and Paine is a streptococcus, identical morphologically and similar culturally to the other forms we recognize. There are some minor characteristics that are said to distinguish it, but in the uncertainty that surrounds the group of streptococci no definite statement can be made.

Many investigators have examined rheumatic cases during life and at autopsy and their results do not entirely agree. Schürer (Johannes Schürer, "Über septische Rheumatoide," Münch, med. Wocheuschr. 59, pp.2440-2442, 1912) found Streptococcus Viridans in three cases of polyarthritis. Salicylates had been used without success and endocarditis was present in one case and a low systolic murmur in the other two. Bosc (F. J. Bosc, "Inclusiones leucocytaires du sang dans le rhumatisme aigu:" Cpt. rend. hebdom. des séances de la soc. de biol. vol. 74, no. 23, pp. 1322-1323, 1913) found inclusions in the large cells in the joint fluid of articular rheumatism. These were constantly present, sometimes numerous, sometimes only a few, and then only before treatment. They also occurred in the leucocytes in the blood, then especially in the large mononuclear cells. These were arranged in the vicinity of the nucleus as definite bodies resembling cocci, and there was a clear area around each. They were Gram negative and were colored a beautiful red by Giemsa's stain. The author considers them parasitic in nature.

* Read at meeting of Korea branch, January 11, 1914.
Vecchi (Biundo de Vecchi, "Sur la myocardite rhumatismale, étude anatomo-pathologique et expérimentale." Arch. de méd. exp. 24, pp. 352-420, 1912) determined to prove whether bacteria could be found in the blood of rheumatic patients. Culturally the blood seemed sterile, but the animals injected with the patients' blood developed peculiar nodules in the myocardium, especially in the papillary muscle. These were never found in healthy animals, nor could they be produced by the blood of patients suffering from diseases other than rheumatism. Since the researches of Aschoff we know the changes in the myocardium that characterize the rheumatic affection, but whether these are due to bacteria is another question. The rheumatic nature of these knots seems to be pretty well accepted, altho there are minor structural differences noted in the different descriptions. Huzella (Theodor Huzella, "Uber rheumatische Myocarditis," Virchow's Arch. f. path. Anat. u. Physiol. 213, sec. 2-3, pp. 389-395, 1913) is the most restrictive in his statements, finding them only in articular rheumatism, their presence or their absence in an autopsy being an indication, without further information, of the rheumatic character of a myocardial disease.

In 1900 Poynton and Paine made the statement that malignant as well as benign endocarditis could be the result of a pure rheumatic infection. In a paper written in 1912 ("A research upon combined mitral and aortic disease of rheumatic origin. A contribution to the study of rheumatic malignant endocarditis." Quart. Journ. of Med., 5, pp. 463-494, 1912) they say that in cases of rheumatic endocarditis there are found numerous Gram positive diplococci that have a tendency to form short chains. In the partially healed lesions there can be found necrotic foci in which the microorganisms can remain a long time in a condition of latent virulence. From these a later malignant endocarditis can originate. In these cases of malignant endocarditis they find the organism also in the blood and in animal experiments conducted with these organisms there were found all grades of endocarditis from the lightest to the most severe.

The frequency of endocarditis in articular rheumatism and the uniform occurrence of myocardial nodules makes the connection seem easy, especially since these nodules are said to lie close under the endocardium near the bases of the valves and under the pericardium.

Gossage, writing in the Practitioner on Rheumatism in Children (88, pp. 82-92, 1912), considers that there is a general blood infection in adults but in children the local manifestations predominate. In the latter the subcutaneous knots are said to be characteristic. They are most common when the heart is also involved. Paul Frank ("Uber
den Rheumatismus nodosus mit besonderer Berüchtigung des pathologisch-anatomischen Befundes." Berl. klin. Wochenschrift 49, pp. 1358-1361, 1912) speaks of the same findings in two cases of polyarthritis in young individuals complicated by heart disease. As a beginning an exanthem appeared soon followed by the subcutaneous nodules. This was considered as a serious sign. An examination of these nodules showed a hyalin homogeneous center of pure fibrin, the connective tissue fibers being crowded apart. The surrounding tissues were infiltrated with leucocytes but no bacteria could be demonstrated.

A rheumatic myositis was described by Max Grauhan ("Über den anatomischen Befund bei einem Fall von Myositis rheumatica." Diss. Jena 1912, 17 pp., Cassel, Weber and Weidemeyer) in which the masseter and then other muscles and tissues in the face were progressively involved. The significant part of the case is the fact that there were numerous knots present in the muscle bundles that closely resembled those of myocorditis rheumatica.

There are clinicians who find cases of arthritis indistinguishable from those of "pure rheumatism," which are caused not by organisms acting locally, but by focal infections elsewhere in the body, such cases as tonsilitis, alveolar abscess, pyorrhea, sinusitis, prostatic hypertrophy with cystitis and residual urine, chronic gonorrheal seminal vesiculitis, etc. The removal of these foci has cured the cases of "rheumatism," so the belief in their causal relation is perhaps well founded. Autogenous vaccines in some of these cases have produced very good results. Macalister (Brit. Med. Journ. Aug. 6, 1910) believes this last theory and has found several organisms that have produced this affection. The greater prevalence of the cases in females made him think of the mucosa of the female genital tract. B. Coli is not found there normally, but in rheumatic patients he did find it culturally in a large number of vaginal examinations even though there were no signs of its presence. He found the thyroids large in several cases and gave thyroid extract until this swelling disappeared. Chronic colitis was present in many of his cases and gave an opportunity for the influence of the colon bacillus to be felt. He believes that the "osteo-arthritis" of old age is largely due to the colon bacillus, and also much of that found in middle life. This type of joint disease begins with a hyperplasia of the cartilage and is followed by its disappearance, leaving only the eburnated bony surfaces in contact. At the edges arise the bony out-growths with limitation of motion, etc.

little attention has been paid to the worn places so frequently found in the joint cartilages at autopsy. He has made a special study of them and has become convinced that these places become worn by friction aided by various mechanical factors, as tight shoes, etc. When some toxic product or organism gains access to the body these worn places supply a point of low resistance and a deforming arthritis is set up. In 200 cadavers all but 18 males and 17 females showed these changes. Out of 139 who died of chronic diseases 87% were thus affected. Arthritis was rare in the young, occurred in 60% of those between 20 and 40 years of age, in 95% between 40 and 50, and affected all above that age.

The above-mentioned case of thyroid involvement in not the only one reported. Bech (Deux cas de thyroïdite aiguë rhumatismale" Progr. mèd. 25, pp. 106-107, 1912) reports two cases in which serious swelling of the thyroid associated with fever passed into typical cases of articular rheumatism that lasted from 8 days to 3 weeks. Salicylates healed both joints and thyroid swellings. In these cases the thyroid swelling was considered to be a localization of the cause of the rheumatism. Aubertin and Pascano ("Lesions thyroïdiennes dans le rhumatisme chronique." Présse mèd. 21, No. 79, pp. 785-786, 1913) consider certain cases of rheumatism as due to a thyroid insufficiency, having found that thyroid extract is of value in certain cases and interpreting some of the symptoms as those of myxoedema. There has previously been little attention paid to the pathology of the thyroid gland in rheumatism, but the authors report 5 cases. One of the cases had low grade "rheumatic signs" in the fingers alone, but there was a fibrous sclerosis of the thyroid with grave changes in the parenchyma. The epithelium was flattened, the colloid basophilic, and there was cystic degeneration present. Another case had very few symptoms aside from the thyroid and died of myocarditis. The other three cases were in old people in whom special thyroid changes could be distinguished. There were no changes which the authors could say were specific for rheumatism, but they did point to insufficiency. They advance two theories to cover the situation: either that there are changes in the joints in those cases of rheumatism in which there is also a thyroiditis, or else that the thyroid sclerosis and the deforming rheumatism are two coordinated effects of a common cause. Their further statement that thyroid therapy is useful in T. B. and other forms of polyarthritis suggests these as general secondary changes in the thyroid rather than specific causal ones.

W. J. Midleton ("The administration of thyroid extract in rheumatoid arthritis," Practitioner 88, pp. 180-184, 1912) definitely calls
his cases rheumatoid arthritis and concludes from his experience that there are few cases of long continued arthritis without a certain amount of thyroid insufficiency. The rheumatoid arthritis is the result of a toxemia which injured also the thyroid gland. Various symptoms precede the joint changes in the earlier stages, anomalies of pigmentation, local sweating, muscle cramp, paraesthesia and vaso-motor disturbances. But if at first there are myxoedematous symptoms, adiposity, slow pulse, apathy and circumscribed skin thickenings (especially on the outer side of the lower leg) the use of thyroid extract is indicated. In thyroid insufficiency meat indulgence is dangerous since the thyroid can no more neutralize toxic substances arising from meat digestion.

It is evident that many pathological entities are being grouped together clinically under the term "rheumatism," and many authors are dodging the issue by calling them arthritis or polyarthritis. Arthur P. Luff ("The diagnosis and treatment of rheumatoid arthritis and other forms of infective arthritis." *Practitioner* 88, pp. 22-33, 1912) attempts to clearly set off rheumatoid arthritis from the group of arthritides, and we may well follow his lead. Rheumatoid arthritis has nothing to do with rheumatism. It is an independent distinct entity, a general disease upon a bacteriological basis, of which the joint affection is only an important part. The infection enters thru the digestive tract. The localization of bacteria in the joints comes from the blood stream and leads to inflammation, later to destructive and hypertrophic joint changes. Certain prodromal symptoms such as vaso-motor disturbances similar to Raynaud's disease, pain in the limbs, and muscle cramps, antedate a slight rise in temperature: these do not react to salicylates. The metacarpo-phalangeal joints are usually the first to be affected. Some times the cases can be separated into an acute and a chronic form. The ACUTE form is polyarticular without migrating from one joint to another. It is distinguished from all periarticular swellings by more severe muscle atrophy and vaso-motor symptoms. The CHRONIC form (mostly in women at the menopause) shows itself by destructive and hypertrophic changes (osteophytes) in the joints. Heberden's nodes constitute the mildest type of the disease. Poorly nourished individuals are more susceptible and an improvement in diet usually reacts favorably. Especially characteristic is the involvement of the spinal column and the symmetrical distribution in the other joints of the body.

The paths by which the infection enters the body have attracted the attention of clinicians and investigators from a prophylactic as well
as a curative standpoint. The connection of rheumatism and tonsilitis has long been noted, but recently other portions of the mucous membrane have been incriminated. J. R. MacKenzie ("Paths of rheumatic infection and their protection in children," Brit. Med. Journ. June 1912, I, No. 2683) says that the micrococcus rheumatica takes the path of least resistance. This may be an unhealthy throat, the absorption from which frequently gives rise to general rheumatic infection, including peritouitis and appendicitis. Or it may localize in the bronchial tubes and give rise to pneumonia with polyarthritis and endocarditis. An unhealthy condition of the intestinal wall may excite the rheumatic agent to activity, setting up acute rheumatic phenomena with peritonitis or appendicitis as part of a general infection. A mild catarrh is produced at the seat of inoculation, and one or more of three factors are present in each case and promote the inroads of the micrococcus. Either (a) the physical resistance or (b) the protective properties of the local tissues or (c) the defensive agencies of the blood, are below par. The distinction between acute and sub-acute or latent rheumatism is mainly due to general infection with the actual rheumatic agent in the former and with the toxines only in the latter. Hypertrophied tonsils, adenoids, and other inflammatory conditions in children, especially, should be cared for lest they allow the micrococcus to enter.

Max Senator ("Atiologische Beziehungen zwischen Nase und Gelenkrheumatismus." Deutsch. med. Wochenschr. 49, pp. 436-439, 1912) reports a case and cites literature of two other cases in which the removal of nasal polypi was followed by acute polyarthritis and endocarditis. Like the tonsil, the nasal mucosa may allow the entrance of the organisms.

Goadby (Kenneth Goadby, "The relation of disease of the mouth to rheumatism," Practitioner 88, pp. 107-119, 1912) undertook to isolate bacteria from the mouth which could stand in causal relationship to rheumatism. In cases in which there was an apparent connection, pure cultures of the mouth bacteria were tested for their virulence on dogs by intravenous subcutaneous and peritoneal injection. Arthritic symptoms were first obtained when dogs were injected with these cultures into and around the knee joint. Then it was proven with the patient's serum that a change in the opsonic index had taken place. Some strains caused chronic swelling of the synovial membrane, in many cases even well pronounced bone changes. In three cases there were formed palpable knots on bones not directly connected with the injected joint. In animals which died two or three months after
injection the same bacteria could be isolated from the heart's blood. Other kinds of injections failed to produce joint symptoms. There was found "streptobacillus malae," morphologically like the Ducrey bacillus but culturally similar to streptococcus. Vaccination of the patient with the bacillus which grew in his mouth produced after the initial rise of joint symptoms an improvement or cure. The mouth infection that was connected with the rheumatism was in the gums or about the teeth. Pyorrhea alveolaris was the most important single cause. Extraction does not always cure the condition because the jaw underneath may be infected. Goadby therefore used vaccine therapy with good results.

D. J. Davis ("Bacteriology and pathology of the tonsils with especial reference to chronic articular, renal and cardiac lesions" Journ. of infect. dis. 10, pp. 148-161, 1912) examined the tonsils with reference to their possible connection with rheumatism. The crypts contained hemolytic organisms, usually streptococci, many times in pure culture. In a few cases, especially in endocarditis, there were found organisms like the pneumococcus. The hemolytic streptococci were pathogenic for dogs and other laboratory animals, in which without exception they were localized in and about the joints and produced multiple arthritis. Seldom were the heart valves involved. On the other hand, the pneumococcus-like organism commonly caused endocarditis and rarely arthritis. The multiple arthritis in animals in a month's time took on a chronic form. The exudate in the joints was first mucoid, then purulent, and contained usually streptococci; seldom was it found sterile. These streptococci which were isolated from the different groups of clinical cases showed morphologically, on nutrient media, in different sugar reactions and in their pathogenicity for animals, the same characteristics.

(Coombs, Carey, Reginald Miller and E. H. Kettle, "The histology of experimental rheumatism." Lancet, 183, pp. 1209-1213, 1912). The injection of dogs with streptococci which had been isolated from cases of human rheumatism produced arthritis, endocardial and myocardial inflammation. The histological examination of these changes showed the same as those found by other observers in animals after injection of streptococci and also similar to those knots found in the heart muscle of human rheumatism.

Jos. Koch ("Über experimentell erzeugte Gelenkerkrankungen und Deformitäten," Zeitschr. f. Hug. u. inf. Krankh. 72, pp. 321-322, 1912) also experimented on dogs by injecting streptococcus longus or erysipelas. His animals developed a progressive disease charac-
terized by a severe diarrhea, in which besides the colon bacillus there were many streptococci in the intestinal contents, and by severe joint swellings. In these cases the exudate itself was sterile and usually only the result of a localization of the cocci in the bony portion at the epiphyseal line. The joints later become spindle-shaped and on the ribs there developed distinct "rosary-like" enlargements at the osteochondral junction. The first stage of the process is characterized by degenerative changes and later by regenerative ones. These are accompanied by an intense active hyperemia which determines a relative poverty in inorganic constituents, so that the solidity of the bone suffered and a tendency to deformity resulted. J. M. Beattie, ("Relapses in acute articular rheumatism," *Liverpool Medical Chirurg. Journ.* 33, no. 64, pp. 487-500, 1913) also experimented with streptococci isolated from cases of rheumatism. The arthritis produced tended to heal, but relapses were common. In many cases an endocarditis occurred and the arthritic involvement spread from joint to joint. In an examination of the synovial membrane of rheumatic cases, 60 were sterile, 12 contained virulent organisms, as diplococci, and in 17 there were streptococci and staphylococci. These facts speak for the importance of isolated streptococci in the etiology of rheumatism, and furthermore that they can live a long time in the joint synovial membrane. More than one-third of the cases had recurrences, and in most of these the streptococci could be again isolated, even several months after recovery. Miss Jackson (Leila Jackson, "Experimental rheumatic myocarditis," *Journ. of infect. dis.* 11, pp. 243-252, 1912) examined the heart muscle of dogs injected with streptococci from an epidemic of angina. The similarity of the pathological changes which were produced by these streptococci to those found in myocarditis rheumatica allowed the conclusion that the two are etiologically similar.

The investigations thus far have evidently put rheumatism on an infectious basis. Whether it will occupy the position as a specific disease like diphtheria, which bears this name wherever it may be situated, or as a clinical entity like lobar or broncho-pneumonia, is a question that remains to be decided. Certain is it also that a division line is being drawn between this true rheumatism and a group of joint affections called "arthritis deformans," "rheumatoid arthritis," etc. Etiologically these cases too seem to be infectious in nature, in which a wide variety of bacteria and their toxines play an important part. Vaccines have been found of great use in many of these cases, especially in which the etiological factor could be definitely isolated from the joints involved. This being negative, any focus of infection in the body
should be sought out and removed, and in the absence of such, salicylates being found of no avail, the supposition that B. Coli may be responsible is a safe one. Vaccines of B. Coli and the treatment of intestinal disturbances, especially colitis, may give good results. An attempt to reduce the chaos of this last group has been made by Jacobson ("Arthritis hypertrophicans, ein Beitrag zur Klassifikation der chronischen Gelenkerkrankungen." *Mitteilg. a. d. Grenzgeb. d. med. u. Chirurg.* 25, pp. 589-637, 1912). He divides the different joint affections into hypertrophic and atrophic. The hypertrophic class includes the chronic polyarthritides, gonorrheal and tuberculous joints and arthritis urica. It is characterized by a mono-articular tendency with preference for the larger joints (knee is 57%). The joints are thickened, deformed, altered in position, impaired in motion, and crepitation can be distinguished. Marginal excrescences are distinct, but there is no definite progression. Males are commonly affected. There is marked muscle atrophy, but there are no other trophic disturbances. There is never ankylosis and no great impairment of the general condition is noted. With the X-Ray there are no signs of definite atrophy, but excrescences and free-joint bodies are common. Etiologically trauma and alterations in statics are prominent, but old age and arteriosclerosis are negligible. These joints are best not put at rest, but massage and hyperemia are of great benefit. The atrophic type is the converse of this.

G. Axhausen ("Über einfache, aseptische Knochen und Knorpelnekrose, Chondritis dissecans and Arthritis Deformans." *Arch. f. Klin. chirurg.* 99, pp. 519-574, 1912) undertook a series of experiments on the knee joint of dogs in which he produced a line of necrosis around an area of cartilage in different places, by means of an electric needle. These pieces of cartilage readily became free-joint bodies and the defects in the cartilage over the condyles became filled in with scar tissue that hardened like periosteum. A similar area on the underside of the patella became denuded and eburnated. The results indicate the correctness of the disease picture of chondritis dissecans and suggest that this is identical with arthritis deformans.

Another bit of experimental work that has only slight bearing on the question is that of Manteuffel, ("Über experimentell Arthritis Deformans," *Dtsch. Zeitschr. f. Chirurg.* 124, no. 1/4, pp. 321-327, 1913). He treated the joints of guinea pigs with an ether spray and then induced stasis in them by encircling bands. He considers the changes that he induced to be identical with those found in arthritis deformans.
The term "rheumatic diathesis" is an heirloom that has been passed down to us thru several generations. It is hardly possible that it is all imaginary or that it will be lost in the clearer understanding of these cases in the future. Dyce Duckworth discusses this at some length in the *Practitioner* ("The morbid diathesis, with especial reference to the arthritic, or so-called rheumatic habit of body. *Practitioner*, 88, 3, pp. 1-6, 1912). The expression "diathesis" signifies, according to Duckworth, the congenital property which, existing in the individual, refers to the condition of his body tissues, the course of his metabolism, and the functional capacity of his organs. The diathesis arises thru the transmission by the parents of certain tendencies which combined may cause an increase or decrease in the children. One can distinguish quite distinctly four disease-susceptible conditions, the rheumatic, the strumous or scrofulous, the bilious and the nervous. The rheumatic tendency causes no disturbances of development. In earlier youth it shows itself only in anomalies of the blood supply to the skin, tendency to erythema and dry eczema and indefinite joint pains. Later angina appears as the basis of numerous attacks of articular rheumatism. There is also a special susceptibility to septic disease, including gonorrheal infection. In chorea there is a mixture of the arthritic and nervous diatheses. In later years gout appears in its manifold forms. The offspring of gouty stock show frequently a tendency to epistaxis during the earlier years: in young women this is often combined with amenorrhea. Later these women show more severe climacteric difficulties. In addition there is found a tendency to glycosuria, calculus formation and increased blood pressure. On the other hand the arthritics are especially resistant to tuberculosis.

The recognition of a diathesis in an individual makes possible a successful prophylaxis against that particular disease or weakness.

The ideas of W. Weintraud ("Über die Pathogenese des akuten Gelenk rheumatismus." *Berl. Klin. Wochenschr.*, 50, No. 30, pp. 1381-1383, 1913) agree very well with those last described. Applying the results of experimental research on infection to the origin of acute articular rheumatism, he considers that the entrance of bacterial protein or of specific body albumins modified under the influence of bacteria produce conditions in the organism which react under certain circumstances with the symptoms of acute articular rheumatism. This is an individual reaction that is not so much a primary invasion of bacteria or bacteriotoxin as it is a kind of anaphylactic reaction, due to a hypersusceptibility induced by the infection. The continuous
destruction of bacteria whose protein constituents affect the body as a whole or the locally sensitized joint or endocardium, or else the failure of the ferments to protect the body, allow a continuation of the hypersensitive condition. This discussion of the disease is not concerned with the specificity of bacteria but with an explanation of the modus operandi of their toxic influence. The benefit derived from benzol derivatives of various kinds used in the treatment is to be explained by their narcotizing effect on the sensorium. Aspirin and atophan act merely as joint analgesics.

An interesting correlated observation is that by Poynton, one of the discoverers of the micrococcus rheumatica ("Observations upon nervous manifestations in the rheumatism of childhood." Brit. Journ. of Childr. Dis. 9, pp. 49-65, 1912). He considers chorea as the cerebral localization of these germs which he found in cases of rheumatism. He found this diplococcus in the pia mater of fatal cases of chorea and in animal experiments with the intravenous injection of this organism had produced not only joint and heart affections but also a disease similar to chorea and later had recovered the diplococcus from the pia mater of the animal. In the brain in a fatal case of chorea the nerve cells, especially in the cortex, were swollen and partly in a condition of chromatolysis and with excentrically placed nuclei.

Modifications in the character of general metabolism have been mentioned by several authors. Acute articular rheumatism seems to cause the greatest disturbance, being present in practically every case, but as the patients recover this gradually disappears. When the protein in the diet is cut down the uric acid rises coincidently with the improvement in the general condition. The amount of protein in the diet seems to be of some importance, for it is found that the arthritic cannot well bear any amount of intestinal putrefaction. It is uncertain whether this is a cause or an effect.

It would be a pleasant conclusion if definite statements could be made, but in the present state of information this seems impossible. Some of these observations mark definite progress and others furnish very interesting facts for contemplation. The native doctor's method of treatment is by the use of needles thrust repeatedly into the painful part. Barring accidental pyogenic infection is the effect of this treatment the virtual production of an autogenous vaccine? Is there not a connection between the low protein diet and the infrequency of acute articular rheumatism and chorea? Do not exposure and the abnormally bent position of the body in carrying
heavy loads on the back make the common occurrence of rheumatoid
arthritic cases more easily understood?

May we not have more careful examination of these cases in our
practice, with especial reference to the elucidation of the whole
problem?

A CASE OF INTRACAPSULAR RUPTURE OF THE SPLEEN.

J. Preston Maxwell, M. D., F. R. C. S.

Rupture of the spleen due to crushes or kicks is not of very rare
occurrence, but as a rule the rupture involves the capsule as well as
the spleen pulp, and the only certain method of saving the patient's
life is by removal of the spleen as soon as possible after the accident.

Cysts of the spleen have been described which are probably due to
extravasation of blood into the spleen pulp, but cases similar to the one
about to be described are very rare.

P., a man of 40 years of age, was admitted to the Yungchun
hospital on the 29th of March, 1914, with the following history. He
had had an enlarged spleen due to malarial fever for some three years,
but his own opinion was that it was not more than four finger-breadths
below the ribs at the time of injury. Two months before admission, in
the course of a fight over some land, he was thrown down, and kicked,
and struck, by the end of a carrying pole, in the abdomen. He was
picked up and carried home in great pain, and lay in bed a month, a
swelling gradually forming in his abdomen. It had not changed in
size for the last month.

The patient was anaemic and ill, but had no fever; he complained
of the swelling about to be described, and the dragging pain which it
caused. In the abdomen was a large swelling extending three finger-
breadths below the umbilicus, and well over to the right side. It
contained fluid, and the most prominent point of the swelling was to
the left of, and about an inch above, the umbilicus. The diagnosis
made was that of a fluid swelling in connection with the spleen,
probably a blood cyst, and probably adherent to the abdominal wall.

On March 30th it was explored with a fine needle and a brownish
thin fluid drawn off. This fluid contained granular brown debris, and
no bacteria were seen in smears. Ten ounces were withdrawn.

I hoped that this alteration of tension would lead to absorption,
but the swelling again became tense, and on April 11th an incision two
inches long was made over the most prominent part of the swelling, the
patient being under chloroform. The peritoneal cavity having been opened, it was found that the swelling was the enlarged spleen, the fluid being immediately beneath the thickened capsule, and contrary to expectations there were no adhesions. The spleen was picked up by two sutures attaching the peritoneum of the abdominal wall to the capsule. The cyst was then opened, and the cut edges of the capsule attached with another two stitches to the tissues of the abdominal wall. A large rubber drainage tube was inserted to the bottom of the cavity, and the wound dressed. About 40 ounces of fluid were evacuated and for the first three days the flow of brownish fluid was very free.

The case progressed well, and the drainage tube was removed after about three weeks. Then he got a sharp attack of malarial fever, and apparently the congestion of the spleen was too much for the granulation tissue filling up the cavity and this necrosed and was extruded in large masses. This somewhat delayed matters, but as soon as the fever had been got well under control, he again began to progress and was discharged well on June 21st. The spleen by this time had shrunk and receded and did not reach the umbilicus. His general condition was good and he was fat and well.

SOCIAL SERVICE WORK IN CHINA.

Lotta C. Hume, Changsha.

The value of social work is now so fully recognized in America that it is reasonable to assume that in China, where total ignorance exists with regard to the nature of disease and the need of hygiene, all such preventive measures designed to aid hygienic living will have an inestimably large field of service. The unhealthy conditions of life in the overcrowded cities of China have always been referred to by those coming from Western lands as a problem which, regretfully enough, could not be met by those on the outside. The Chinese, on the other hand, have become so accustomed to such conditions that the appalling amount of sickness and the high death rate have come to be regarded with indifference. The solution must lie, therefore, in the awakening of a public conscience and in creating a public spirit among the Chinese themselves. As this has been the object, and, to a small degree, the attainment, of the Social Service League of Changsha, the following report is published in the hope that similar organizations may be started in other large centres.
making possible the betterment of social conditions through the efforts of the Chinese people themselves.

How readily the impulse is transmitted may be illustrated by a single incident. A member of the League who had been gripped by the spirit of service, decided to try to improve the condition of her poorer neighbors. She returned in a few days in utter despair, "for," said she, "what could we do when just outside their door was a filthy street with no drainage?" She had discovered for the first time a condition to which she had heretofore been blind—namely, that the entire drainage system of the city needed radical reform.

The Women's Social Service League of Changsha was organized in the Fall of 1913, as a distinctively Chinese institution. The work, while planned and directed by foreigners, has been done entirely by Chinese women of the better class. With the exception of $150 subscribed by foreigners, all the funds used through the year have been given by the Chinese. The wife of the Governor of the province of Hunan, in which Changsha is located and of which Changsha is the capital, is a subscribing member, so deeply interested in the activities undertaken that in addition to her regular membership fee, she has recently donated $300 for special relief carried on by the league during a serious flood. The membership fees of the league are as follows (N. B. All figures are in Mexican dollars, and represent a figure half as great in U. S. gold):

Sustaining membership, $24 annually;
Special ,, $12 ,,;
Active ,, $5 ,,;
Regular ,, $1 ,,;

Such an organization has a double value, for, while offering practical relief to the poor by teaching them methods of self-protection against disease and by offering facilities for relief from disease and unhygienic living, it also furnishes the well-to-do, leisurely class of Chinese women with an opportunity for outreaching unselfish service for others. This is something they have sorely needed to save them from the deadening effect of life without outward expression. The enthusiastic response of the women has been the best proof that in such work can be found that definite point of contact and that basis for common interest which all foreign workers in China have felt the need of as they considered intercourse with women of the better class. In such work, too, can be found a means for the ultimate salvation of these women through teaching them Christ's law of service. Monthly meetings of a social character have brought all the members together, while the active work of the league has been carried on by an
Executive Committee which has met frequently for discussion. A unique Christmas celebration was arranged for the several hospitals of the city.

THE WORK OF THE YEAR.

There have been two paid assistants, the District Nurse, Miss Wu, trained in Hankow and specially qualified for obstetrical work, and Mrs. Yang, a local woman, employed to investigate cases referred to her at the hospital clinics by the doctors on duty. She has been able to make many inquiries about the home conditions of poor patients and to arrange, through the league, for help to really needy ones.

1. Educational Campaign. Since it is true that every rational effort to wage a successful campaign against disease must rest upon an educational basis, it has been particularly necessary, in a Chinese city, to begin the effort to better health conditions by hygienic instruction. During this first year tuberculosis and infant mortality have been made the special objects of the league's activity.

1. The Campaign against Tuberculosis. The ever-increasing prevalence of this disease (due in part to the tendency to build more substantial and less well ventilated structures) and the hopeless ignorance of its cause and the manner of its spread, made it natural to direct our first efforts against tuberculosis. Lectures were given in every section of the city, and in spite of the fact that these lectures were given in the evening, when it might have been feared that women with families would be unable to attend, there was a total attendance of over ten thousand women and girls. To each person attending there was given a simple set of rules for the prevention of tuberculosis. Realizing the necessity of having the lectures illustrated by local scenes and Chinese settings, in order to make the unhygienic conditions more vivid the League is having a new set of lantern slides made from local pictures for use in the Fall of 1914. At that time, in addition to the illustrated lectures, there will be a tuberculosis exhibit, with specimens from America as well as China. This will be held in the Educational Association's large hall, and the ultimate desire is that by thus arousing the people's interest, the fall campaign shall result in securing a Tuberculosis Sanitarium for the city. The government schools have welcomed every suggestion for lectures in the schools: this ought to prove one of the most hopeful fields for the introduction of reforms. The lectures in these government girls' schools were very largely attended.
2. The Campaign against Infant Mortality. The campaign was begun by widespread vaccination against smallpox throughout the city. The police department, which includes a bureau of hygiene, supplied the vaccine without charge, and the League issued pamphlets and put up posters urging the importance of vaccination. A hospital nurse, assisted by the Social Service worker, established vaccination stations in four parts of the city, supplementing the work of the hospitals. The police magistrate required that certificates should be given to each person in order that each might be identified as having been vaccinated should it become necessary, later in the winter, to make compulsory vaccination universal.

Lectures similar to those on tuberculosis were given on "The Care of Children," and on every occasion when the District Nurse thus lectured, a set of rules on "How to Keep the Baby Well" were distributed. The League is trying to find a way, in conjunction with the Police Commissioner, by which the infant mortality of the city may be regularly ascertained.

II. Playgrounds. The League has secured the grounds of several government schools for playgrounds during the summer. These are made available to the children of the neighborhood under certain conditions. This is the first step towards the establishment of a system of permanent recreation grounds throughout the city.

III. Milk Distribution. Three milk stations for the free distribution of milk have been opened, in the north, centre and southern sections of the city. The milk is prepared according to formulae of eight different strengths for children from birth to two years of age. A set of bottles is provided for each child every day, each bottle containing just enough for one feeding. The milk is prepared at the Central Station (The Yale Hospital) and is sent by special messenger to the branch stations. Tickets have been placed in the hands of each of the missionary societies and when these are properly signed, may be exchanged for a daily milk supply for sick or weak infants. Those who can, pay from five to thirty cents a day according to the amount of milk required. The results during the first month of the distribution surpassed all expectations, about two hundred bottles of prepared feeding being called for at the end of that period.

IV. Literature. In addition to the circulars given out at the several lectures, further pamphlets for distribution in the city and throughout the province are being prepared on the following topics:—
Contagious Diseases.
Care of the Teeth.
Indigestion in Summer.
Instructions to Parents regarding Trachoma and other Eye Diseases.
Illustrated Leaflet on Tuberculosis.
An adaptation of Holt's "Care of the Baby."

V. School of Midwifery. The officials of the city have shown a splendid spirit of co-operation, including all the Western trained physicians on the Medical Advisory Board of their Bureau of Hygiene. This Bureau has requested the doctors to arrange for a School for Midwives, so that a certain amount of instruction in cleanly methods may be given to tide over until there shall be a sufficient supply of trained obstetrical nurses.

THE OUTLOOK FOR SOCIAL SERVICE WORK IN CHINA.

It is the purpose of the Changsha League to extend the movement to as many centres as possible. All lectures, exhibit material, and literature, will be freely available to those wishing to organize; and it is hoped that by a wide-spread co-operation there may be much economy realized in the preparation of material. This Report is sent out as an appeal to all who believe in the possibilities of such an organization in China—an appeal to help in working out a broad scheme of co-ordination during the coming Winter.

THE NEEDS FOR A BROAD CAMPAIGN.

1. Trained workers to direct a widespread movement.
2. Adequate equipment for the Lecture and Literary Departments.
3. District Nurses and salaried investigators.
4. Equipment for a Department for the Reduction of Infant Mortality.
5. A department which shall study and suggest methods for improving the housing of the poor and other unsanitary conditions.
6. Tuberculosis sanitaria in every large centre.

While we hope to be able to secure outside help for such a campaign, yet we believe the practical advantages to be derived will make a strong appeal to the Chinese everywhere.
OPERATION FOR OVARIAN CYST DURING PREGNANCY.

DR. EMMA J. BETOW, SIENYN, FUJIEN.

Last May a woman was admitted into the Margaret Eliza Nast Memorial Hospital for the removal of an ovarian cyst which was of unusual interest.

Sau Sing-cho-boi, aged 21 years, was married at the age of 15 years. Four years ago she gave birth to a child, labor was normal. When the child was a year old she felt an enlargement and thought she might be pregnant, so weaned the child. For more than a year there was no increase in the size of the abdomen, neither did the menses appear. The last eighteen months the tumor increased to such an extent that there was great dyspnea. Her waist measure was 48 inches. Her feet were edematous. On examination I found a solid mass in the right iliac and lumbar regions which proved to be the uterus. A large ovarian cyst occupied the rest of the space. The cervix was patulous, easily admitting two fingers. By pressing the uterus down a little a little foot could easily be felt. The patient was very much surprised to learn she was pregnant, and that full term. She had felt no movement during the whole time. We decided to operate at once. After the usual preparation, and under chloroform anaesthesia, a four-inch incision was made in the median line above the umbilicus. The cyst was tapped and 25½ pounds of fluid removed. The sac was gently drawn out through the incision, the pedicle clamped and divided. The vessels of stump were controlled by suture and covered by peritoneum. The gravid uterus was placed in the center and the abdominal incision closed with three layers of catgut and four deep sutures of silk worm-gut. The patient was under anaesthetic about 40 minutes. About four hours after the operation she began to feel motion. Two hours later, I gave her a hypodermic of morphine ¼ gr. She was comfortable till about 11 p.m., which was 12 hours after the operation, when labor set in. There was not much pain and in fifteen minutes she was delivered of a five-pound baby boy. The child was well developed in spite of its cramped quarters, and after the third day was able to nurse the mother. At the end of a week the silk worm-gut sutures were removed and at the end of ten days patient was walking about. Both mother and child went home well and happy at the end of 3 weeks.
AN ENDEMIC GOITRE REGION IN NORTH CHINA.

RICHARD ARTHUR BOLT, M.D., Tsing Hua College, Peking.

On a recently attempted journey to Jehol I made a few observations concerning the prevalence of goitre among the hills to the east and north of Peking which might prove of interest to some of the profession in China. Our contemplated route was along the regular cart road east of Peking, through Tungchow, Yen-chiao, San-Ho-hsieh, and Chi-chou, and from thence northward into the mountains, passing through the Feng Shui Ti to Jehol. At Hsia-ying two of us were unfortunately compelled to return on account of an accident to one of our party, and my own illness. But from observations up to the latter place, and from reports of others who had made the entire trip, I was convinced that an endemic goitre region, with well marked nests here and there, existed in the mountainous country through which we travelled.

The plain of Chihli to the east of Peking is very fertile and well watered during the rainy season. Along this plain I noticed an occasional enlargement of the thyroid in the Chinese we passed; but as we entered Chi-chou, a city of some size at the foot of the hills, a considerable increase in the number of thyroid enlargements attracted my attention and stimulated my interest. In this city I saw one case in a woman which was undoubtedly of the exophthalmic variety.

The following day when we started northward into the foot-hills I decided to make an exact count of every Chinese we passed on the road with notes as to any evident enlargement of the thyroid. Of course, in the nature of the case, this was a very superficial observation, but it proved to be a rough index to the conditions which I found later in a village where more exact observations were possible. As the day was very wet and disagreeable the number met en route, especially the women, was comparatively small. The following is the number observed:—

<table>
<thead>
<tr>
<th>Total number of men passed</th>
<th>54</th>
<th>Total number of women passed</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men—Thyroid Enlargements.</td>
<td></td>
<td>Women—Thyroid Enlargements.</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>11</td>
<td>Single</td>
<td>1</td>
</tr>
<tr>
<td>Bilateral</td>
<td>11</td>
<td>Bilateral</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

This gives a percentage of about 40% of the men and 60% of the women passed in this region with evident thyroid enlargements.

Just before our party reached Kuan Ti, a group of mud huts nestled in under a cliff beside a swift mountain stream, an accident happened to one of our number which delayed us in the village for
about two hours. The nature of the accident and the presence of nine foreigners drew out practically every man, woman, and child in the village, and I had ample opportunity to observe them at close range. Taking advantage of this I made the following observations regarding the goitre condition of the community:

| Total number of families in the village, 10. Population, between 40 and 50. |
|-------------------------|-------------------------|-------------------------|-------------------------|
| Men observed            | Women observed          | Men observed            | Women observed          |
| 12                      | 13                      | 12                      | 13                      |
| Single goitres           | Single goitres          | Single goitres           | Single goitres          |
| 5                       | 3                       | 5                       | 3                       |
| Bilateral               | Bilateral               | Bilateral               | Bilateral               |
| 4                       | 7                       | 4                       | 7                       |
| **Total**               | **Total**               | **Total**               | **Total**               |
| 9                       | 10                      | 9                       | 10                      |

The babies and young children in this "nest" did not show any evident enlargement of the thyroid, but I noticed several children about the age of puberty with a distinct suggestion of enlargement. Two of the old women in the community had very large pendulous goitres with well marked tortuous veins on the surface. No signs of exophthalmic goitre were noted.

From Kuan Ti we proceeded up the river to Hsia-ying, where we stopped over Sunday. Although I did not attempt an exact count I should make a conservative estimate of 50 per cent. of the population here with some degree of thyroid enlargement.

The people themselves when questioned about the growths say that they are due to a lack of something in the water. They even claim that it is due to the "softness" of the water. The drinking water throughout this mountainous region is obtained largely from shallow surface wells, rarely from the rivers. It is practically all boiled before drinking. It is undoubtedly true that the water of this region is very "soft," as little incrustation is left in the bottom of the boiling kettles, and the water makes abundant lather with ordinary soaps. I noticed another peculiar fact, which may or may not have a bearing on this subject, that the shells of the hens' eggs in this vicinity appear much thinner than ordinary eggs, some of them being so deficient in lime salts as to leave the egg membranous in spots. On the plain of Chihli the water was by no means "soft"—large incrustations of lime salts were noted in the boiling kettles, and soap was more difficult to lather.

The geological formation of this region is extremely interesting and would bear close study. As far as I could gather, the outlying foothills seem to be outcroppings with considerable quantities of lime and sand stone. On going into the mountains proper one sees large numbers of granite boulders, especially along the streams. The strata contains much red shale, and a considerable amount of bituminous
shale, finely pulverized, which washes down into the streams. It would be very interesting to see just what proportion of limestone is found in the heart of the hills.

From these few desultory observations I venture the following:

1. There is a well marked endemic goitre region with numerous nests in the mountainous country to the east and north of Peking, extending up into the Feng Shui Ti district.

2. This region of goitre prevalence appears to have some relation to the water supply of the district.

3. It would be very instructive for some one properly equipped to make a thorough study of the geology of this region, to conduct chemical and bacteriological examinations of the water, and to devote some time to a clinical study of the goitre cases there. A study of the thyroid glands of the domestic animals and fish of the vicinity might also throw some light upon the mooted problem of the etiology of goitre.

UNION MEDICAL COLLEGE OF PEKING.

GRADUATION AND OPENING OF NEW HOSPITAL.

In spite of the sultry weather in the afternoon a large number of foreign and Chinese guests witnessed the fourth graduation ceremony of the Peking Union Medical College and the opening of the new hospital.

President Yuan, being unable to attend, sent a representative, Mr. Min, who read his message. In the message the President expressed the regret of the retrogression of Chinese medical science, but rejoiced in the knowledge that the Union Medical College has been supplying China's need. He praised the workers for their humane work and far reaching benefit, and hoped that the work of the College would be greatly extended in future and improvements made in every branch of medical science.

After several other addresses and the presentation of the diplomas to the sixteen graduates by Mr. Min, the representative of President Yuan, the faculty and guests then adjourned to the new wing of the College, which is to be fitted for a Bacteriological Laboratory. There the tablet in memory of Dr. James Glenny Gibb, in whose perpetual memory the Laboratory was erected and fitted, was unveiled by H. E. Alfred Sze.
Graduates, 1914, from Union Medical College of Peking.
The speaker paid a beautiful tribute to the ability and qualifications of the late Dr. Gibb and to his faithfulness in service to the Chinese people.

OPENING OF THE NEW HOSPITAL.

The new hospital is situated on the Hsin Kai Lu off the Htramcen Street, about three minutes' walk from the Medical College.

The site of the new hospital was given by Mr. George Oliver Jones, M.A., of Liverpool, and among the largest donations towards its construction were sums of £2,300 and £2,500 from the China Emergency Committee and the Arthington Trustees respectively. The new building provides accommodation for 65 patients, as well as the nursing staff. The hospital is fitted with every modern convenience. It is lighted throughout by electricity. Water is supplied to the whole building from its own artesian well. Steam heat has been installed throughout, and there are a patients' lift, laboratories, up-to-date operating theatre, and even a roof garden. The latter will be used chiefly for tuberculous patients who require open-air treatment.

The operating theatre has a top light, a burnished metal operating table which is a marvel of mechanical ingenuity, and a plentiful supply of basins, with hot and cold water—operated by pedals—laid on. The sterilizing room opens into it, and contains five bright copper sterilizers of the latest type, fitted with Khotal oil burners and ingenious contrivances which simplify sterilization and make the sterilizers practically fool-proof. So complete is the sterilizing apparatus that it contains separate sterilizers for basins, dressings, and instruments. The sterilizer for the latter is opened and raised by a pedal, so that the tray only requires to be lifted out when all is ready.

Access to the first floor is gained by a wide staircase, and a large lift so constructed that it can take a trolley carrying a patient lying at full length from one floor to the other. On the first floor the accommodation is very similar to that below. There are a large medical ward, a number of private rooms, lavatories, bathrooms and laboratory, and quarters for the foreign matron and her assistant. Another flight of stairs leads up to the roof-garden, which is perfectly flat, and paved with malthoid. From here one gets a splendid view of the city.

The property on which the new building stands is large enough for two more blocks to be erected as soon as funds permit.—Peking Gazette.
The Rockefeller Foundation offers to Chinese graduates in medicine a limited number of Fellowships which shall enable them to pursue their medical studies in America. These fellowships are open to students now in China, or already studying in foreign countries, and may be used for any type of medical work approved by the Rockefeller Foundation. They will consist of $1,000 (gold) annually, and will be granted for one year only. An allowance for travelling expenses will be made when necessary. If the record of the holder of the Fellowship is satisfactory he may continue to be granted the use annually for a series of years.

Applicants for the Fellowships should address the China Medical Commission, Rockefeller Foundation, 26 Broadway, New York. The application should contain the following information:

1. Name in full, both English and Chinese.
2. Age, whether or not married, present occupation, address.
3. Name and occupation of father.
4. Schools and colleges attended (when and how long); degrees and diplomas obtained.
5. Medical school attended and year of graduation.
6. Detailed statement of the work done each year during the regular medical course, and the medical work since graduation, noting especially the amount of laboratory, clinical, and other practical work done.
7. Any additional facts relating to medical work done which may be of importance.
8. The applicant should submit evidence to show that he is qualified to study medicine in English, describing in detail his practical experience in the use of that language.
9. A certificate as to the applicant's health, signed by a qualified physician, should be forwarded.
10. The applicant should forward letters containing personal information as to his qualifications, from teachers, or from physicians under whom he has worked.
11. The applicant should also state what kind of medical work he would like to take up abroad, and where he desires to work. He should also state the kind of work he wishes to do on his return to China.
The China Medical Journal.

Vol. XXVIII. SEPTEMBER, 1914. No. 5.

The yearly subscription to the China Medical Missionary Association is $4.00, payable in January of each year. This includes the journal and postage on the same, whether local or foreign.

All changes of address, departures on and arrivals from furlough should be notified to the Secretary and to the Presbyterian Press. Members are requested to invite new comers to join the Association.

The Editors will be obliged if all those who are building hospitals will send copy of plans and detailed description (in duplicate if possible). These will be loaned, on application, to members who are proposing to build.

Editorial.

SOCIAL SERVICE IN CHINA.

Foreigners in China have so long been accustomed to the dirt and filth of the Chinese cities and the absolute disregard of the principles of hygiene and sanitation by the people that they have fallen into the habit of regarding such conditions as irremediable, and as the natural condition of their residence in China. Even medical missionaries have looked on, sighed, and lapsed into a hopeless lethargy as regards the initiation of any measures of general hygiene and sanitation among the people and have contented themselves with establishing hospitals and training students for the amelioration and alleviation of the suffering of the sick.

It is true that successful work has been done in a few of the port cities such as Shanghai, and that sporadic attempts have been made to control the conditions under which foreigners live in some of the interior ports and cities but little that is really on a large scale and practically nothing for the Chinese population at large.

There are signs of a change, however, in this hopeless attitude of the medical men, signs of better times to come, of an awakening to the consciousness of our greater responsibility to the Chinese people beyond the mere establishment of hospitals and medical schools which, though absolutely indispensable are in themselves alone, necessarily bound to be slower in bringing about a revolution in the conception or non-conception of the principles of sanitation by the millions of China.

Here and there some of our medical men and other missionaries have given lectures on hygiene and sanitation to Chinese
audiences and there is an expression of the desire on the part of other men to inaugurate such work, but nowhere have we seen the possibilities and the actual success of social service and education in matters of hygiene and sanitation so forcibly presented as in the article in this issue of the Journal on "Social Service in Changsha."

This is a record of what has actually been done already and it seems to open up to us the possibilities of this form of work in a wonderful way. It seems to give us such a glimpse of the possibilities of creating an interest in the minds of the Chinese in the sanitation of their own cities, as we had not imagined possible. Such work as is reported in this article and as is being done on a certain scale in a few other places in the interior of China is most encouraging and stimulating; such work is, moreover, fundamental in China at this time. It will not only change the condition of the cities and decrease the dangers of epidemic diseases and sickness of all kinds but it will create an enlightened public which will be no longer content with the quackery and ignorance of the native Chinese doctor but will demand the benefits of western medicine and western trained men, and this greatly increased demand will ensure the establishment by the Chinese themselves of medical schools all over China, teaching western medicine.

We are often astonished to think that the Chinese government and people, after all these years of observation of the benefits of western medicine to all foreign nations and the observation of the work done by foreign physicians in China, have still made almost no progress toward the establishment of western medical schools. We do not believe that this failure is due to their poverty, we believe that it lies in the failure of the people and the official classes to really appreciate the value of western or scientific medicine. Let them see the possibilities of Preventive Medicine on a great grand scale and the old native medicine and practices will receive its deathblow and on its dead body will rise a rapidly growing intelligent medical body, the result of the demand of a great awakened public.

In no way will this change of attitude on the part of all Chinese be brought about so rapidly, as by the observation of the immense value of western medicine as displayed in a great cam-
paign for the improvement of the conditions under which they live, and the prevention and eradication of disease on a great scale. Such work brings it home to millions, while a hospital staff actually touches only thousands.

Let us undertake this education of the Chinese in matters of sanitation on a great scale and it will bear fruit in cleaner cities and less sickness and disease for the present, and it will create such a demand for scientific medicine that an awakened people will find the means for the establishment of schools teaching the best in western medicine. Great emphasis should be laid on Preventive Medicine in our medical schools in China to-day, in order that we may ensure that every graduate leaves our schools with a realization that he is not merely going out to hospital or private practice but that he has a great responsibility, a great opportunity for the raising of the standard of his whole community, district, or province in matters of public hygiene and sanitation.

The Chinese are an eminently practical people and even they, accustomed to the filth of centuries, will see the value of such campaigns.

It is therefore with the greatest pleasure that we read of the excellent work actually being done in one of our interior cities and we commend the article to all our readers.

THE ROCKEFELLER FOUNDATION.

We would call attention to the official communication, from the China Commission of the Rockefeller Foundation relative to scholarships for Chinese desirous of studying medicine, to be found in this issue on page 340. This is of interest as the first grant which has been made by this Foundation, toward the problem of meeting the medical needs of China, and we hope that after the final report of the China Commission has been acted on, we shall hear of many other grants made by this Foundation which will make possible tremendous changes in the present situation of medical work in China. Surely no committee of investigation could find anywhere more need or more opportunity for the investment of large funds in the advance of medical science.
Although I hate travelling at all times, except on the back of a "pacing" pony, and I have always advocated that the best thing for the inside of a missionary is the outside of a horse, I willingly obeyed the request of the Executive to visit Tsinan, Peking, Hankow, and Nanking, and have a face to face talk with the doctors at the different places, in regard to the language we should use in teaching the Chinese medicine. On account of having to hurry to reach Peking before Dr. Judson of the Rockefeller Foundation left, I was not able to spend a day at Tsinan, only an hour, but that hour had sixty minutes, and every one of them was made use of, and I felt when I left that Tsinan must be maintained as a teaching centre, and for the present, at any rate, medicine there must be taught in Chinese; and from what I know of the teachers I believe it can be well done. At Peking I met with a very hearty reception and I spent every moment I had there in the interests of my visit. I talked with the doctors individually, collectively, and in committee, and found out that they are divided, about equally so, I think, on the subject: one half, and the smaller half, is in for teaching in English, and in for it strong; the other half is for Chinese, and for it, if possible, even stronger. Those who have taught in Chinese in the past, and imperfectly perhaps, are nevertheless convinced that medicine can be taught, and taught well, through the medium of the Chinese language; and no doubt it makes things a great deal simpler for those who are seeking to be taught at present. Those who are in favour of teaching in English are chiefly the younger, recently arrived, and very up-to-date men, and they feel strongly that the best and most thorough teaching can only be done efficiently in English. They claim that they secure greater facilities and advantages for themselves, and that a knowledge of English opens up a wide field of medical literature for the students and graduates, which they are not likely to get in Chinese for many years to come. But we must not forget that the growth of Chinese medical literature must come, and the coming of it will be hastened by the very needs of those we have taught, and the more we teach and the quicker we do it, the sooner will we have the literature. While not going against the view of teaching in English, I feel that the students who know English well enough to study medicine in that language, and are exceptionally bright (and at present they are not many) should be sent
to England and America, where they can get a better training than we can give them here, and can get it where only English is spoken, and come back to us as first-class teachers, if they have that gift; many have not, and not a few who are good English speakers and first-class English educated doctors, have not a sufficiently perfect knowledge of Chinese as to be of much use in teaching medicine in their mother tongue. If necessary we should be prepared to set aside a medical missionary to go home with a batch of exceptional students and live with them, and guide them through their course of study. The expense of this undertaking would be fairly great, but I feel sure it would be borne by the Rockefeller Trust. We are all agreed that a higher standard is necessary, and we are aiming at it, and hope to reach it, and if we can get it by teaching in English, then, I say, let us have one good English College, in Peking preferably, and let us go in for it unitedly and heartily, and let those who are keen on teaching in English join it, and let those of us who believe in teaching in Chinese do it more thoroughly than ever we have done in the past, and let all those who are specially fitted for teaching be liberated and specially set apart for it, even if it means a sacrifice, in giving up, for example, special hospital work in which they may be even overwhelmingly interested and absorbed.

At Hankow, I found the doctors were nearly all in favour of teaching in Chinese, and one of the seniors who has had much experience in teaching said very emphatically and convincingly that teaching through the medium of Chinese first-class men could be turned out. At Nanking my experience was much the same, most of the men favouring Chinese, the English element being very small, but all convinced of the immediate necessity of raising the standard and making English compulsory in the entrance examination. I was sorry not to be able to visit Foochow and Canton (Moukden I visited last year), for I would then have been able to say that I had visited all the teaching centres. I hope, however, it may yet be my privilege to visit the colleges in the south.

There can be no doubt that the most important work to be done at present by us medical missionaries is teaching, and teaching thoroughly, our Chinese brethren medicine and surgery under Christian supervision: and high ideals, so that in due time they may carry on the work which we have begun, and to which we have given our lives. Our aim is one, so let us all be united about it, and spare no time, no money, and count no sacrifice too great, to accomplish this great and blessed task of teaching that healing is Divine and that Jesus Christ provides
Map of East-Central China, (embracing the whole of Kiangsu, Chekiang, and Anhwei Provinces, and the northern part of Kiangsi, with an estimated population of 100,000,000) showing the distribution of Medical Missions, and the relative position of the Union Medical School. In this district there are 43 hospitals and 64 dispensaries, located in 30 important centres, and staffed by 70 missionary physicians, 18 missionary nurses, and 330 assistants. 30,000 patients are received in these hospitals each year, and the annual average dispensary treatments number 725,000.

The Field of the Medical Department of University of Nanking.

Seven foreign physicians are now working in the medical department, and four others are being sought immediately. At present only two classes are under instruction.
a complete salvation—as well for the body as the soul. The thoroughness of our professional teaching must aid, and in no way interfere with, our efforts to bring our students to Christ, which is the main object of our being in China as medical missionaries.

D. D. Main.

July 4th, 1914.

ITEMS OF INTEREST.

The Sanitarium for tuberculosis patients on Kuling has fully justified itself and during the past summer quite a sum of money was contributed by the community on Kuling for its support, in appreciation of its value to all workers in China.

Six cases of bubonic plague have been discovered in New Orleans, four proving fatal. Upon the discovery of the first case, local and state authorities immediately set about planning a thorough clean-up campaign. Surgeon-General Rupert Blue, assisted by Surgeon R. H. Creel and others, has arrived in New Orleans and taken charge of the situation. Though there is little danger at present of an epidemic occurring, every precaution is being taken and the campaign carried on will be similar to that in San Francisco in 1907. No quarantine will be instituted in New Orleans or in the surrounding country, as those in charge feel that under the circumstances such a step is quite unnecessary.

The Bureau of Public Education has recently been inaugurated by the New York City Department of Health, to teach the general public more about public and personal hygiene. Dr. Charles Bolduan has been put in charge. The Bureau is now reaching the people through the moving picture shows.

Mr. Sydney Holland, the indefatigable chairman of the London Hospital, has announced that the £100,000 for the London Hospital to supply pressing needs, for which he made a special appeal, has now been raised. The London Hospital is by far the largest hospital in the kingdom, and it requires £113,000 a year to carry on its ordinary work.—Therapeutic Gazette.

The feeling against the National Insurance Act in the medical profession has led to the formation of a National Medical Union, a federation of all the local associations of medical practitioners who have declined to place their names upon the panel for service under the act.
The objects of the Union will be to maintain the freedom of the profession in its relations to the public, to oppose the present arrangements for medical benefits under the National Insurance Act, and to preserve an independent attitude with regard to party politics. This new organization is pledged solely to regard non-panel interests, and as such will probably run counter to the other movement in the profession toward a closer union between State and Medicine.

The first year’s working of the Insurance Act has provided some interesting statistics. A sum of nearly thirteen millions has been paid out, of which four and a half millions have gone to doctors for medical treatment; maternity benefit has cost one and a half millions, and the treatment of consumption another quarter of a million. For the treatment of consumption over 200 residential institutions have been approved in England alone, and over 15,000 persons have been treated in such institutions. The act has forced local authorities to formulate schemes in their own districts for the treatment of consumption, and as a result 3,000 more beds will be available in the near future. Meanwhile there is a steady decrease in the mortality from phthisis. This is attributed to an increasing resistance on the part of the individual to this infection.—Therapeutic Gazette.

Book Reviews.


This book is devoted to the foundation of public health work. It is divided into twelve sections which discuss the subjects of Prevention of Communicable Diseases, Immunity, Heredity and Eugenics, Foods, Air, Soil, Water, Sewage Disposal (Dr. G. C. Whipple), Refuse Disposal (same author), Vital Statistics (Cressy L. Wilbur), Industrial Hygiene, and Diseases of Occupation, Schools, and Disinfection.

It is difficult to use moderate language when a new book is presented whose every subject is discussed in a strikingly unique way. Dr. Rosenau’s book is interesting reading throughout its 1034 pages, largely because it is not a rehash. Nor have the 144 charts and illustrations appeared in most of the books on the same subject for the past ten years. But the author modestly states that “the facts here brought together are widely scattered in the literature and many of them are difficult of access.” Only a man of wide experience and good
judgement would thus have been able to strike a happy balance between the results of his own efforts and the progress made by other men elsewhere.

The viewpoint from which he writes may best be expressed in his own words. "During twenty-three years of varied experience in public health work it has been my good fortune to have served as quarantine officer, in epidemic campaigns, in epidemiological investigations, and in public health laboratories, at home, on the Continent, and in the tropics. The fruits of these experiences are reflected in this book, which may be taken as representing my personal views gained in the field, in the laboratory, in the classroom, and in administrative offices."

Requisition for this book might well be made by all those in China interested in public health work.

W. W. P.

BOOK NOTICES.

In view of the great interest awakened in the surgical world by the researches of Professor Crile, of Cleveland, on Shock, the profession will welcome the new work on Anoci-association by Professor Crile and Dr. W. E. Lower, Assistant Professor of Genito-Urinary Surgery, Western Reserve University. The authors first discuss Shock—its kinetic theory, its histological and clinical pathology, and its treatment. Then follow chapters on the principles of Anoci-association, the technique of its application in the administration of the anaesthetic, in abdominal operations, in gynecological operations, in genito-urinary work, in operations for cancer, for exophthalmic goitre, on the brain, and on the extremities. The book will shortly be issued from the press of W. B. Saunders Company.

P. Blakiston's Son & Co., announce the following recently published books:


Received for review. Practical Therapeutics, by D. M. Hoyt, M.D. Published by C. V. Mosby Co., St. Louis.
Hospitlers’ Association.

Fifth Annual Conference, N. A. C. 1914.

This has been without doubt the most representative and helpful Conference most of us have known. We regretted the absence of more senior and experienced members of the N. A. C., but feel this Conference has gone far in helping us to understand each others' difficulties and in cementing our Association in closer bonds of comradeship.

Many very helpful papers were read. These will be handed over to the editorial secretary (Miss Lenhart, Shanghai) and will, most of them, appear in our page for the benefit of absent members. Some members do not wish their papers published.

Reports have been sent to various papers. The secretary regrets that the terms for nurse were printed wrongly; will members please note in the minutes the correct terms. Will the new members please note that membership cards have already been posted to each one: if they have not been received please write to the secretary.

A. Clark,
General Secretary, N. A. C.

Minutes of N. A. C. Conference of 1914.

Business Meeting held July 2nd 1914, Shanghai. Nineteen members present, and four other nurses. Minutes of business meeting 1913, Kuling, read and adopted.

Treasurer reported balance in hand of $73.00.

Florence Nightingale Memorial Fund (to provide Chair of Nursing at London University). Miss Chung and Miss Gordon appointed to collect donations and present the same at San Francisco Conference, May 1915.

Delegates to San Francisco Conference (May 31st to June 6th 1915) in connection with International Council of Nurses: Misses Chung, Gage, Hood, Massey, and Murdock appointed as delegates, with power to add to their number any member of the N. A. C. in America at the time of Conference.

In answer to letter of enquiry from the Rockefeller Commission the following resolution was passed unanimously:

Resolved—That the N. A. C. request the Rockefeller Commission to put a sum aside sufficient to pay the salary of a trained nurse
engaged in translating nursing books; the N. A. C. are of opinion that such a lady could be found.

New members, seventeen, were received.

Translation of Curriculum and Regulations into Chinese. Miss Chung was requested to translate above, and agreed to do so.

Chinese Term for Nurse. After considerable discussion it was proposed by Miss Chung, and adopted by the Conference, that the terms for nurses should be as follows:—

護士 = Graduate Nurse. 護生 = Probationer Nurse. These terms to be used throughout China.

Report of Conference to Chinese and foreign papers. Miss Hope-Bell wrote an account of the Conference to send to the home papers, and Miss Chung was asked to write one in Chinese to send to Chinese papers.

ELECTION OF OFFICERS AND EXECUTIVE COMMITTEE FOR 1914-15.

President ... ... ... ... Miss Hope-Bell, Hankow.
Vice-president ... ... ... ... Miss Chung, Tientsin.
Treasurer ... ... ... ... Miss Gordon, Shanghai.
Editorial Secretary ... ... ... ... Miss Lenhart, Shanghai.
General Secretary ... ... ... ... Miss Clark, Shanghai.

EXECUTIVE COMMITTEE.

Mrs. Ts'en, Wuchang. Miss Sauper, Tehchow.
Miss Yen, Changsha. Miss Simpson, Foochow.
Mrs. Burnip, Shanghai.
Mr. Davenport, Shanghai.
Miss Ogden, Anking.

EXAMINING BOARD. 1914-15.

Miss A. Clark, Shanghai (retires 1915.)
Miss E. Chung, Tientsin (retires 1916.)

Article III, Section 2, of Constitution, Chinese Membership, altered to read: Qualified nurses holding the diploma or certificate, of training schools registered under the Executive Committee, who have successfully passed the examinations and received the diploma of the N. A. C.

Place and time of Conference 1915—Resolved, that the Nurses' Association meet at Peking during the first week in September 1915.

Vote of thanks—A unanimous vote of thanks was passed to the American Church Mission, Shanghai, for so kindly lending the room for the Conference.
REGISTRATION OF TRAINING SCHOOLS.

The following regulations for governing the Registration of Training Schools under the X. A. C. were adopted by the Conference: Any Superintendent wishing to register her Training School must be able to comply with the following regulations:

1. The hospital must have at least twenty-five beds.
2. The average number of patients per year should be at least two hundred.
3. The patients must be fairly representative of surgical and medical cases with obstetric work for women nurses. If possible an analysis of cases during the past year should be sent with the application, to show the classes of patients admitted. About one tenth of the total number of patients should be children, for women's training schools.
4. The curriculum recommended by the X. A. C. must be followed.
5. It is most desirable that the medical staff of the hospital should assist in the lectures and in the teaching of the nurses.
6. Women nurses should have practical experience in obstetrics as assistants to the doctors in at least ten cases during their training.
7. The Training School must be in charge of a full member of the X. A. C.
OUTLINES OF LECTURES TO CHINESE AUDIENCES ON PREVENTIVE MEDICINE.

By K. J. Osgood, M.D., Chuchow.

TUBERCULOSIS.

A. Status of Tubercllosis.
1. Tuberculosis kills 2,000,000 Chinese every year.
2. It is a disease that is spread throughout the world.
3. It is the cause of one-seventh of all deaths.
4. Deaths occur mostly between the ages of 15 and 45 years.
5. Being a lingering disease it is very expensive.
6. It is largely a disease of the lungs and bones but may attack any of the body tissues.
7. Tuberculosis is a curable disease.

B. How Tuberculosis is Spread.
1. Tuberculosis is a transmissible disease.
2. It is transmitted by the tuberculosis bacillus.
3. A tubercular patient's sputum is full of these.
4. This germ will live for months in dark, damp, dirty places.
5. This germ usually enters the body through the nose or mouth.
6. Flies defile our food with this germ.
7. Sputum on the street dries and is carried to our lungs in the dust.
8. Stooped shoulders, lack of exercise, overwork, worry, dissipation, and unclean food make good soil for tuberculosis.
9. Typhoid, measles, bronchitis, pneumonia, and colds lay the foundation for tuberculosis.

C. How to Prevent Tuberculosis.
1. Take a regular amount of sleep.
2. Breathe pure air day and night.
3. Take deep breathing exercises.
4. Keep the body and the home clean.
5. Take daily exercise.
6. Do not drink, smoke, gormandize, or dissipate.
7. Allow no other person to use a sick person's dishes.
8. Burn the sick person's sputum.
10. A tubercular patient must sleep alone.

D. Symptoms of Tuberculosis (of lungs).
1. Cough and sputum.
2. Easily fatigued.
3. Loss of strength.
4. Loss of appetite.
5. Loss of flesh.
6. Afternoon fever.
8. Night sweats.

E. How to Heal Tuberculosis (of lungs.)
1. Begin treatment early.
2. Do not use patent medicines or opium.
3. Eat plenty of protein foods, e.g., milk, eggs, chicken, meats, fish, nuts, oils, etc.
4. Live day and night in open air.
5. While there is fever do not leave bed.
6. Wear plenty of clothing to keep warm.
7. Let the sunlight onto body and into house.
8. Keep house and body clean.
10. Stand straight.
11. Massage chest.
12. Trust God and do not give up.

SIR WILLIAM OSLER ON THE CONTROL OF TUBERCULOSIS.

The tuberculous may be divided into three classes: (1) persons who have somewhere a small area of tuberculosis (90 per cent. of all persons); (2) those in whom the disease is active enough to produce symptoms, but in whom there is the possibility of arrest or cure, with restoration to working health, and (3) those who are doomed: in whom the disease progresses week by week, month by month, and year by year, and in whom from one year up to five sees the end.

When the workers get a living wage; when the house becomes the home; when the nation spends in food what it now spends for drink;
then, there will be millions practically immune.

There are three essentials in the cure,—education, control, and rigid regimen. The disease has three allies,—poverty, bad housing, and drink. Before us is a long, slow, hundred years’ war, or even longer, in which co-ordination, co-operation, and enterprise will win just as surely as they did against typhus and typhoid.

(From an address delivered at the annual conference of the National Association for the Prevention of Consumption.)

Progress in Tropical Medicine.

Under the charge of Dr. A. F. Coll.

DEVELOPMENT OF GAMETES IN MALIGNANT TERTIAN MALARIA.

Thomson claims that crescents are produced from ordinary asexual spores of *P. falciparum*, due to a development of immunity toward the latter. They develop somewhere in the internal organs, and then appear suddenly in the peripheral blood. The period required for their development is about ten days. Crescents do not generally live more than a few days in the peripheral blood. Crescents may be present in the peripheral blood during periods as long as eight weeks, not because individual crescents survive for that time, but because their numbers are constantly replenished from surviving asexual forms. Fresh broods of crescents come into the circulating blood daily or every other day, or irregularly, according as the asexual sporulations occurring ten days before, were quotidian, tertian, or irregular.

Quinin has no direct destructive action on crescents, either during their development or afterward, but it destroys the asexual source of supply. Quinin in doses of 20 grains daily reduces the crescents to numbers less than one per cubic millimeter of blood within three weeks. The crescents obtained from autopsy smears of the inner organs take about ten days to develop into the adult state in the inner organs. They develop chiefly in the bone-marrow and in the spleen. The protoplasm of the crescent in all stages of development stains a faint greyish-blue often with a yellow tinge, in contrast to the deeper blue of the asexual schizonts. Adult crescents have been found in autopsy smears of the spleen and bone-marrow after eleven days’ quinin treatment (45 grains daily). Malarial pigment has been found in spleen and marrow smears after forty-seven days’ quinin treatment (30 grains daily).

No evidence was obtained of parthenogenesis in crescents. Crescents become spherical in about four minutes after the blood is drawn, which appears to coincide with the time of coagulation. They may flagellate in four minutes after the blood is drawn, but some may not flagellate till after fifty minutes. The crescents in patients subjected to thorough and continuous quinin treatment are able to flagellate. The spherulation of crescents is probably due to osmosis, which in turn probably stimulates the actual flagellation. The polar bodies seen in crescents which have become spherical are extruded chromatin. The microgametocytes are capable of extruding 4, 6, 8 or 10 flagella (microgametes). There is no reason to believe that crescents ever flagellate in the circulating blood of a patient. *Annals of Tropical Medicine and Parasitology, London, April, VIII, No. 1, pp. 1-130.*
NEW MALARIA PARASITE IN MAN.

The parasite studied by Stephens was found in the blood of an East Indian child. It is extremely ameboid. Thin processes often extend across the cell or occur as long tails to more or less ring-shaped bodies. These processes may be several in number, and may give the parasite most peculiar fantastic shapes like that of an irregular web or mesh. The cytoplasm is always scanty, i.e., the individual ameboid processes are delicate or thin, and the parasite has but little bulk or density. While forms resembling "rings" do occur, yet, owing to the abundance of all kinds of irregular forms, it is certainly difficult to find quite typical "signet" rings.

Laterally applied parasites also occur, but in them the chromatin is not dot-like, as it usually is in the malignant tertian, but practically always rod-like. The nuclear chromatin is out of proportion to the volume of the parasite. It takes the form of bars or rods, strands, curves, forks, patches, etc.; the occurrence of the chromatin in a dot, as in the "ring" forms of other species, is rare. In the web-like protoplasmic processes mentioned above there may be seen several chromatin strands, and not uncommonly one observes a minute dot of chromatin some way from the parasite, or between two portions of the parasite, though the protoplasmic process connecting it with the main mass or masses is so thin as to be invisible. The chromatin masses are frequently angular, the angles jutting into the points at which an ameboid process is given off. Abundance of, and marked irregularity in distribution of, the chromatin masses are characteristic of this parasite.—Idem.

S. Weiner, M.D., in the New York Medical Journal of February 10th, 1912, has an article on "Perforation of Gravid Uterus," in which he cites two cases treated by passing the placental forceps through the partially dilated cervix and pulling the contents of a three months' gravid uterus in pieces. These cases resulted in the perforation of the uterus and were only saved by a speedy opening of the abdominal wall and repairing the injury. After citing these cases he goes on to say, "In view of the constant recurrence of these shocking cases it seems not out of place to repeat in part what was said before concerning the technique of emptying the gravid uterus. Perfect asepsis is sine qua non; careful preparation of the patient should never be neglected. Given a legitimate indication what should be our method of procedure? Before the third month of gestation all indications, may be met by careful curettage. Even at this early stage it is, however, highly desirable to use the finger to separate the ovum from the uterine wall, whenever the cervix can be sufficiently dilated to admit its entrance.

After the beginning of the third month our first endeavor must always be to obtain sufficient dilatation. This will be best accomplished by packing the cervix and vagina with gauze, or, whenever possible, by the insertion of a metreurenter. The gauze packing may be supplemented by passing a stiff bougie up to the fundus to stimulate contractions. In from
twelve to twenty-four hours the cervix will have softened considerably and will often admit one finger. In many cases uterine contractions will proceed regularly and the further process of expulsion will be left to nature. When this does not occur, or when hemorrhage or some other urgent indication supervenes, we proceed as follows: The patient is anaesthetised and placed in a lithotomy position on the table. The cervix is gently stretched with a Goodell's dilator until it will admit two fingers. Rarely this will not be possible without undue violence. In that event, if rapid delivery is imperative, anterior vaginal hysterotomy is performed. Under no circumstances should one proceed without dilatation sufficient to admit two fingers into the uterine cavity. To omit this precaution spells disaster.

Repeated packing of the cervix and vagina is a procedure fraught with grave danger. Even if carried out with rigid precautions, serious and even fatal sepsis may supervene. The irritation of the gauze and the drying of the vagina strongly predispose to infection; moreover, it is entirely feasible that the organisms growing in the vagina itself (which cannot be wholly eliminated) may give rise to the septic process.

If the first packing has had no effect after twenty-four hours, it may be replaced by a second, but under no circumstances should this be again repeated. If our efforts to stimulate the uterus to contract and empty itself fail after forty-eight hours, we should proceed to empty it by active measures at one sitting. Palliative procedures continued over a longer period of time invite serious trouble. Any rise of temperature after the introduction of gauze, or the metreurter, is an indication for immediate active procedure.

After the end of the third month, it is highly desirable to obtain further dilatation manually. If one's fingers are reasonably small, and due care is exercised, no serious laceration will occur.

Having obtained satisfactory dilatation, two or three fingers, or the whole hand, is passed into the uterus. The other hand grasps and depresses the fundus through the abdominal wall. The fingers now sweep gently around the uterine cavity and detach the placenta from its insertion. If one works in the proper plane of cleavage, little or no hemorrhage results. Often it is possible to maintain the integrity of the bag of membranes, and to remove fetus and placenta en masse. If the membranes have been ruptured the fetus is extracted first and then the placenta; but no attempt is made to remove placental tissue till the entire organ has been detached from the uterine wall. The finger once more enters the uterine cavity and determines that it is smooth and clean; then a hot intra-uterine irrigation is given. Finally, the vagina only is packed, and an intramuscular injection of a rapidly absorbable preparation of ergot is given as a prophylactic against secondary hemorrhage.

In the writer's experience, no instrument other than the gloved hand has been found necessary to detach the placenta from the uterine wall. Once it is lying detached in the uterine cavity it may be necessary in the earlier months of pregnancy to extract it with forceps. But we repeat, no instrument should ever be used before the placenta is fully detached. The custom of passing a placental forceps through a partially dilated cervix and tearing away tissue can not be too strongly condemned. Serious hemorrhage is almost inevitable, and the catastrophe of perforating the
uterine wall and lacerating ab-
dominal viscera is ever imminent. 
Unfortunately, some of our medical 
schools still teach that where the 
cervix is very rigid it is better to 
introduce the curette and "break 
up" the fetus and placenta and 
remove them piecemeal, than to 
try to dilate the cervix suffi-
ciently to introduce the finger. It 
is just in this process of "breaking 
up" that the damage is almost 
always done. After the third month 
of gestation almost every cervix 
will soften sufficiently under the 
influence of pack or elastic bag; if 
it does not, the simple and easy 
procedure of anterior vaginal hy-
sterotomy will give ready access to 
the uterine cavity. Any one not 
competent to do this operation is 
not competent to treat abortion.

When small pieces of placental 
tissue have adhered to the uterine 
wall it may become necessary to 
resort to the use of the curette for 
their removal. The largest size 
sharp curette should be gently used 
for this purpose. The dull curette 
requires too much pressure to be a 
safe instrument. In any event, we 
must remember that in curetting 
the relaxed puerperal or postabor-
tion uterus we are venturing upon 
very thin ice, and should ever be 
on the alert to recognize the per-
foration the instant it occurs.

What course shall we pursue 
when the uterine wall has been per-
forated? All further manipula-
tions should cease, intra-uterine 
irrigation dispensed with; the 
uterus and vagina packed; the 
patient placed in the Fowler position 
and further developments awaited. 
Barring peritoneal infection, the 
majority of cases will show no 
further ill effects. If the uterus 
has not been completely emptied 
this may be undertaken at some 
future time. However, if the 
accident has not been at once rec-
ognized, if there have been intra-
peritoneal manipulations with the 
curette or placental forceps, or if 
omentum or intestine has actually 
been drawn down into the vagina, 
an exploratory laparotomy is ur-
gently indicated. This should be 
performed as soon as necessary 
preparations can be made. A few 
hours may decide the life or death 
of the patient. To await the de-
velopment of active symptoms of 
peritonitis, or the collapse superven-
ing upon intra-abdominal hemor-
rhage, may turn the scale in favor 
of a fatal issue. The exact method 
of procedure after opening the 
abdomen must be determined by 
the conditions met with. 

No mention has been made in 
this article of drugs to stimulate 
the uterus to contract and to empty 
itself. If this were feasible it would 
be the ideal method of procedure. 
Unfortunately, we have at the pres-
ent time no drug at our command 
which can be relied upon to accom-
plish this purpose. Ergot, by its 
tendency to cause tetanic contrac-
tion of the os uteri, thus favoring 
retention, defeats its own purpose. 
Often enough it does not even start 
the process of expulsion. Pituitrin, 
while powerfully stimulating con-
tractions during labor, often fails 
to start it in a gravid uterus at 
term. In the earlier months of 
pregnancy it has, from all reports, 
utterly failed as an ecbolic.
To the Editor of
"The China Medical Journal."

Dear Sir: For several years I have been using the apparatus indicated in the diagram for the nitric acid albumen test. This arrangement consists of an ordinary test tube and a small funnel made out of a piece of glass tubing. The urine is placed in the test tube, the funnel set in position, and twenty or thirty drops of nitric acid run in the funnel. Urine is already present in the funnel tube and mixes with the acid as it gravitates to the bottom, spreading under the urine outside in the test tube. While this first mixing is going on a good opportunity is afforded to catch the contrast between the specimen and the mixture,—gas, changes in color, and cloudiness. When the acid is at rest in the bottom of the test tube a contact ring is present. Oftentimes this ring is very thin and it is difficult to distinguish albumen, bile, uric acid, etc. This is when I think the apparatus is superior to the fixed U-shaped tube (albumascope?), viz., the funnel tube may now be carefully raised, permitting more of the acid therein to flow into the test tube, thus forming a further mixture not only in the outer tube but in the inner one as well. The contact ring may thus be made as thick as necessary. Bile colors show up very well and various contrasts and mixture strengths may be made. I do not know whether this is an original idea or not.

As a routine practice urines of our dispensary patients are first tested for acidity rather than for albumen. I would like to call attention to this question of acidemia. The following case brought the matter forcibly to my attention. A man of twenty-five was treated two or three months in the dispensary upon the diagnosis muscular rheumatism. (A term, by the way, which often covers a multitude of sins.) At the end of this period, having received no benefit, considered himself incurable and decided to cease his visits. It happened that very day that I had read an article on acidemia, (Harrower, J. A. M. A., October 1, 1910, p. 1166) and decided to test his urine quantitatively for acid. Two hundred c. c. of deci-normal potassium hydrate solution were needed to neutralize one hundred c. c. of urine, normal considered to be thirty six of solution to one hundred of urine. The patient was immediately given bicarbonate of soda in large doses and asked to return on the next dispensary day.
He came smiling saying he felt "seven parts good." Ten days afterward he was entirely relieved.

The above case opened my eyes to further possibilities, until now when I see a child with gastric crises once or twice a month, or eczema, red and weeping, an inflamed iris with nasal irritation, gingivitis, rectal tenesmus of children, and many other states where the organism seems otherwise fairly healthy, I invariably test the acidity and often find the after breakfast urine sixty or eighty when it should be twenty-five to thirty-six. Quite recently a ward patient presented a case of photophobia and iridocyclitis. His urine showed about one hundred and fifty acid. His improvement was immediate under doses of sodium bicarbonate. The other aspect, i.e., hypoacidity of the urine, has yet to be cleared up satisfactorily. Many cases are normally hypoacid, especially children and vegetarians, but there are many cases of ill-defined joint pains and nerve affections which may be due to insufficient protid or other fault.

The test is as follows: A burette is filled with decinormal potassium hydrate solution. Phenolphthalein one gram, Alcohol (90%) 50 c.c., Distilled water 50 c.c. makes a color test solution, a few drops being used with each test. 100 c.c. of the twenty-four hour urine is placed in a beaker, a few drops of phenolphthalein solution added and titrated with the potassium solution until a pinkish color appears. The number of c.c. of potassium solution used indicates the degree of acidity. In ordinary dispensary practice, a sample of fresh urine (supposedly after breakfast) is taken and 25 c.c., titrated as above, the result to be multiplied by four. This will give the approximate acidity which should be between twenty-five and thirty-six.

Most of the above matter on acidemia has been taken from the paper of Dr. Harrower above mentioned. I would be pleased to receive information through the journal of articles on acid-forming foods.

W. H. Dobson, M.D.

To the Editor of "The China Medical Journal."

Dear Sir: In a copy of the "Nursing Times," which came to me from England, I read an account of a public lecture given to nurses by a member of the C. M. M. A. at home on furlough; in which he stated that in his opinion "no lady should be made a matron in a men's hospital in China." Will you allow me to answer this through the pages of the CHINA MEDICAL JOURNAL.

It took our Mission Boards a very long time to realise that in a Women's Hospital, it is not the work of the doctor to superintend the cleaning of the wards and furniture, or to take the oversight of the arrangements for the washing of bedding and utensils, or the bathing and the clothing of the patients. Now, they know that she needs a colleague who is specially trained to undertake such duties, and whose presence is absolutely essential to the efficient running of the hospital. How much does the average doctor know about the practical working of a laundry, or the cooking of food, and has she had any experience in the training of pupil nurses before she came to China? If a woman doctor is handicapped by being burdened with duties which she should not be asked to perform, what about the men doctors? In their case alas, many more things are left
undone, and the plight of some of the men's hospitals in China is a pity and a disgrace. Marvellous work has been done in them in the past, in spite of the dirt and unseptic conditions and the doctors must not be blamed for these conditions. But the future surely must not be allowed to be as the past.

Dr.— prefaced his lecture by saying that he had "been out of touch with nurses for fifteen years."

So have a good many other doctors, and during that time have become complacently satisfied with conditions which they themselves are powerless to alter, because of the pressure of their own particular line of work, and because of their lack of training in the duties pertaining to the office of matron!! Some have almost forgotten that it is possible to order such things as hot packs or rectal feeding, and peptonised milk is an unheard-of article of diet! Why? Simply because no member of the "nursing" staff knows how to prepare it, and the doctors themselves have no time either to give nursing treatment to their patients, or to teach others how to do it.

Here is a hospital without a matron. The patients are "taken in" on to clean (?) mattresses, but as there are no sheets, they lie there without a change until they can get up or go out,—say, any time from two days to a month. The state of those mattress covers can be left to the imagination! In the same hospital, even though a patient may have to be taken to the operating room, he does not necessarily get a bath, and has to wear his own clothes. But here is another hospital. A patient comes in, is given a bath and clean clothes, and is put into a spotless bed. The matron hears him ask, "Is this Heaven?"

Here is a hospital. Its linen cupboard and laundry book are looked after by the doctor's good wife, but the beds which she has no time to inspect, are full of live stock. Yet another place has its matron on full duty, and for every bug she finds in the bedsteads, a "tung-ko-tz" is cut from the staff nurse's wages at the end of the month. It is very rarely now that any deduction is made from his full amount.

In another matronless hospital, an employee of the Mission has to have an operation, and a missionary's wife interests herself in seeing that he is properly bathed and put into clean clothes. The Chinese house surgeon remarks, "I wish all our patients were prepared like this one!"

Dr.— says, "I train my men in compartments (?) and they become very careful and no accident has ever been attributed to them."

"Attributed"—perhaps not. But has the doctor eyes at the back of his head when he is "scrubbing up" for an operation, and how often has he time to inspect his operating room equipment and all hospital utensils? Here is a hospital with a brand new matron, and this is what she sees one morning when preparations are proceeding apace for an emergency operation. The freshly sterilised instruments are in their sterile tray, but evidently one does not look as it might do, for the "nurse" standing by, seizes it, spits upon it, and gives it a vigorous rubbing before replacing it in the tray!! And in another place, a hospital's first matron finds a jug in the operating room which has its inconvenient hole stopped up with a piece of rag! The "nurse" in charge says that it has been used in that condition for about a month.

Not far away is a hospital where a married lady gives valuable help by superintending the stores department. The night coolie comes one
morning and asks for a new enamel bowl. He has used the burnt one in his hand as a saucepan in which to warm up some food for a patient. "But you must not use a wash-face-basin for cooking food." "I did not. I only used a dressing bowl!!"

Whilst Dr.— has been absent from his station, a missionary's wife (who had a little nursing training before coming to China) has been revolutionising his women's hospital, and when he returns he will hardly recognize it! But his men's department badly needs a woman's trained eyes and hands.

Given a woman who realizes her limitations as a woman amongst Chinese men, given one who has the language at her tongue's end, and has a fair amount of grace, gumption, and go, allow her a free hand, and in a couple of years he will not recognize his men's hospital. The coolie class of boys will find that it is no use applying for a post as "nurse," and applications from educated lads will be so many that she cannot take them all.

And in a few years' time, she will turn over to other hospitals (where it may not be possible to get a foreign lady) men ready to undertake the responsibility of superintending the cleaning of the hospital; the washing, clothing, and feeding of the patients; and the practical teaching of the probationers in the carrying out of the doctor's orders as to the treatment of the sick. His patients will be nursed then. At present they are not.

There is an old man who has been gate-keeper at a men's hospital for over twenty years. The hospital has only had a matron for one year and a half and, when she left for holiday the other day, he was overheard to say, "K'o-lien I-vien m-o-teh Hsiao-chiew."

At the present time in England, missionary volunteers among nurses are few and far between, and it is much to be deprecated that the doctor should have ended his lecture by saying, "There is no scope for those with general training, but for nurses with midwifery alone there is a huge sphere." During the past ten or fifteen years, nursing has become a science, and must be taught to-day in China by those who have a first-hand and a practical knowledge of it. What committee in England would try to run its hospital without its trained nurses, and no doctor should be satisfied to do so out here.

I enclose my card, and sign myself
A Matron to a men's hospital in China.

P. S.—The incidents above-mentioned are from seven different men's hospitals, situated in three different provinces, under three different societies.

CHMULPO, Korea.

To the Editor of
"THE CHINA MEDICAL JOURNAL"

Dear Sir: In view of the frequency of ankylostomiasis in the East and the trouble we all often have with it, it seems important that anything at all unusual in connection therewith should be put on record. May I, therefore, send you the following note.

I have recently had some cases of serious anasarca following treatment. Probably all of us are familiar with this complication and it was pointed out in the JOURNAL some time ago that it was particularly liable to occur if betanaphthol was given when the kidneys were not sound.

My routine in cases of severe anaemia from the presence of ankylostomes is to give an alkaline mixture with arsenic for some days
before treatment, and to carefully avoid all iron for a while afterwards, as it so often seems to act as a poison when the blood is reduced to a condition resembling pernicious anaemia. I also examine the urine and if there is albumen in any appreciable quantity give thymol instead of the betanaphthol.

On May 25 I took in a man aged 38 with marked anaemia and very slight anasarca. He was given the usual mixture for three days and then, as there was no albumen, a course of betanaphthol. Only about 70 ankylostomes were recovered. The alkaline arsenic was continued and the dose increased, but he did not improve, and in about a fortnight's time there was distinctly more oedema. He was very disappointed and continued to swell slowly and steadily. A diuretic mixture had no effect at all.

On May 26, I took in another man aged 23 with a most intense anaemia; he had been swelling for seven days. There was 110 albumen. With the same preliminaries, he was given betanaphthol on May 28 and over 450 ankylostomes were recovered. He at once began to swell more and on June 2 a trace of albumen was present in the urine. Arsenic and diuretics were pushed, but he continued to swell rapidly until he was almost like a bladder and looked as if he would burst in places.

Both these men caused a good deal of anxiety, as I was not able to get any effect on them. I noticed that in spite of the hot weather neither one sweated at all, in fact the skin was very harsh and dry, and this suggested the use of pilocarpine. On June 22 each was given a hypodermic of pilocarpine nitrate gr. 1/6, which only caused a slight sweat, but the effect was almost miraculous. The next day the second man was distinctly less swollen, and in a few days' time both were almost free from oedema, and have since continued to progress well.

A third man, less severely infected, was given betanaphthol and very few worms recovered. Although there was no albumen he began to swell a little, so that as a second course of treatment was needed, thymol was given to avoid any further risk. The swelling continued to increase, however, though it never became as intense as in the first two cases. Again pilocarpine was successful in promoting a cure.

It would seem, therefore, that this drug is really a valuable part of our armament against ankylostomiasis; also that even in the absence of apparent kidney trouble betanaphthol is not entirely without risks, though it may not be much more dangerous than thymol in some cases.

Yours truly,

Hugh H. Weir.
PERSONAL RECORD.

BIRTHS.
At Pingyangfu, Shansi, May 11th, to Dr. and Mrs. William Kelly, C. I. M., a son (Samuel Meyer.)
At Kuling, July 10th, to Dr. and Mrs. E. M. Johnstone, M. E. M., a son (Ernest Marshall.)
At San Yuen Hsien, August 15th, to Dr. and Mrs. Andrew Young, a daughter (Hannah Armstrong.)
August 31st, 1914, at Kuling, to Dr. and Mrs. Edward H. Hume of the Yale Mission, Changsha, a son (Edward Welch.)

MARRIAGE.
At Newry, Ireland, June 10th, Charles Deane Little to Caroline Joan Crawford, M. B. and D. C. H., both of W. M. S.
At West Newton, Penn., July 16th, Rev. William Turnbull Locke to Dr. Agnes M. Carothers, A. P. M.

ARRIVALS.
June 1st, Dr. Dancy Smith, C. I. M.
June 8th, Dr. and Mrs. B. E. Niebel and child.

DEPARTURES.
May 16th, Mrs. Anna K. Scott, M. D., of A. B. F. M. S. for U. S. A.
June 20 Dr. and Mrs. R. Carter, Dr. C. S. Merwin and E. E. Anderson; all A. P. M.
June 28th, Dr. and Mrs. W. L. Berst and child, A. P. M.
July 18th, Dr. and Mrs. F. B. Whitmore and family, Y. M. C. A.
August 21st, Dr. F. M. Cooper, C. M. S.

NOTICE.
Dr. P. B. Cousland’s address after November 1st will be Yokohama, Japan.
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<td>$5.75 each</td>
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<td>White enamel</td>
<td>-</td>
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<td>Attachments for same, stirrups, etc., each set</td>
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