INDICES

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GENERAL INDEX.

Amoebic Dysentery, Notes on the Treatment of, with Emetin Hydrochloride, \textbf{Alexander C. Lambert, M.D., C.M.} 172
Anesthesia, Advances in—A Protest Answered \textbf{Samuel Cochran, M.D.} 33
Anesthesia, A Three Months' Course in, at St. Mary's Hospital, Rochester, Minnesota, \textbf{M. R. Ogden, M.D.} 225
Balantidium Coli
Book Reviews
Branch Reports:
Central China Branch
South China Branch
Cataract, by a Beginner
C. M. M. A. Conference 1915:
The Next Conference
Excursion Rates to
Preliminary List of Papers, Demonstration, etc.
Preliminary Report of Programme Committee
Preventive Medicine Educational Exhibit
Programme of
Chinese and English
Cholera, Epidemic in Canton, China \textbf{J. M. Wright, M.D.} 259
Correspondence:
Anasarca in Ankylostomiasis
Chloroform vs. Ether
Chinese Medical Journal
Chinese Medical Journal, The
Tracts Wanted
Correction, A
Culpable Ignorance
Embryology, Racial, On the Study of
Interesting Case, An
Letter from an Old Friend
Letter, An Open, to the China Medical Commission of the Rockefeller Foundation
Matrons in Men's Hospitals in China

Page.
172
33
225

J. M. Wright, M.D. 259

135, 218, 294, 348, 414

296

293

W. H. Venable, M.D. 182

359
INDICES.

Matrons in Men's Hospitals ........................................... 438
Medical Education ..................................................... 238
" Policy ................................................................. 154
" Schools, Our ............................................................ 436
Oriental Medicine ........................................................ 438
Phlebotomiae ............................................................. 156
Post Mortem Examinations ........................................... 239
Red Cross, Questions Regarding ................................... 67
Official Reply to the Above Letter .................................. 67
Regulations for Dissection ........................................... 237
Urine Tests, Notes on .................................................. 358
Varioloid and Varicella ................................................ 158

CUSTOMS SURGEONS' REPORTS:
Tengyueli ................................................................. R. L. SIRCAR. 41
Wuchow (Kwangsi) ...................................................... B. RANDALL VICKERS. 42
General Summary of Medical Reports (Fourth Series for the year 1913) ... DOUGLAS GRAY. 395

Diabetes Insipidus—Complicating Malaria ................................ A. H. PATTERSON, M.D. 18

DISEASES OF EYE AND SKIN: Department of
Myopia Prevention by Teachers ........................................ 306
Ringworm, The Treatment of ........................................... 433
Tincture of Iodine in Ophthalmic Practice .......................... 395
Trachoma by Grattage, Treatment of .................................. 434
Tuberculin in Ophthalmology, Concerning the Use of ............ 507

EDITORIAL:
Anti-Typhoid Vaccination for Missionaries ................................ 123
Business Manager of the Journal ....................................... 126
Conference (1915) The Next ............................................ 126
" of 1915, The Programme of 1915 .................................... 203
Co-operation with the Chinese Government ................................ 125
Dissection in China ...................................................... 207
Encysted Amebas and Large Doses of Emetin .......................... 204
English or Chinese ....................................................... 43
Hodgkin's Disease ....................................................... 207
Hookworm Eradication ................................................... 286
Hospital Statistics ....................................................... 409
Indiscriminate Selling of Drugs in China, The ....................... 287
Pituitary Extract in Obstetrics .......................................... 285
Preparation of Medical Missionaries and Nurses—A Questionnaire ... 206
President's Report, The ................................................ 409
Publication Committee's Report, The ................................ 121
Physiology of Nutrition, Recent Discovery in the ................... 403
Rockefeller Foundation, The .......................................... 343
Social Service in China ................................................ 341
Theory of Infection—Anaphylaxis ...................................... 281
Training of Nurses in China ............................................ 406
Tuberculosis Sanitarium for Chinese ................................... 208
War and the Drug Supply ............................................... 407
War and Sanitation ..................................................... 408
Wenham (Dr.) on Medical Education .................................... 125

Executive Committee of C. M. M. A., Minutes of Meeting of .......... 210, 344, 410
INDICES.

Nervous Disease, Two Cases of ........................................... 195
Notices ......................................................................................................... 240, 312, 353
Nurses' Association .................................................................................. 138, 224, 297, 350, 416

OBSTETRICS AND GYNECOLOGY: Department of

Perforation of Gravid Uterus ....................................................................... 355
Test for Pregnancy ...................................................................................... 430
Ovarian Cyst, Operation for, During Pregnancy ........................................ 335

PERSONAL RECORD. ....................................................................................... 70, 160, 240, 312, 363, 439

PREVENTIVE MEDICINE: Department of

Anti-Plague Vaccine .................................................................................... 235
Anti-Typhoid Vaccine .................................................................................. 235
Comparison in Public Health Matters ......................................................... 152
Flies, Fifty Gallons of ................................................................................. 435
Helping English School Children................................................................. 235
Lectures, Outline of, to Chinese Audiences on Preventive Medicine .......... 353
Prevention vs. Cure ..................................................................................... 435
" Private " Diseases Made Public.................................................................. 235
Public Health Legislation. An Evolution ...................................................... 235
Sanitation and Hygiene, Outlines for Lectures on ........................................ 307
Tuberculosis in England, Fighting ................................................................ 235
Sir William Osler, on the Control of .......................................................... 353
Census in American Churches ...................................................................... 435

PUBLICATION COMMITTEE ........................................................................ 46, 127
Public Health Service. Plan for China ......................................................... 12
Pulmonary Tuberculosis, Causes of the} ..................................................... 71
Prevalence, in Southeast China.} { G. DUNCAN WHYTE, M.D., D.T.M. and H.

Research Committee .................................................................................... 212, 271
Rheumatism and Allied Conditions. A } ..................................................... 318
Review of Some Recent Literature.} .......................................................... 318
Rockefeller Foundation Fellowships in Medicine .......................................... 340

Sanitation at Canton Christian College, | ................................................. 189
Report of | .............................................................................................. 189
Sanitary and Preventive Medicine Education } .............................................. 391
among the Chinese as an Important Part } JAS. BUTCHART, M.D.

Schistosomum Japonicum ............................................................................ 91
Social Service Work in China ....................................................................... 330
Spirochaetal Infection of Ulcers in China: } .................................................. 365
A Preliminary Report } ............................................................................... 365
Spleen, Intracapsular Rupture of the } ......................................................... J. PRESTON MAXWELL, M.D., F.R.C.S.

Splenomegaly with Splenectomy, } G. GUSHUK-TAYLOR, M.B., B.S., M.R.C.S.
A Case of Pneumococcal Lobar Pneumonia } ............................................. 251
Surgical Progress, A .................................................................................... 175, 254

Surgical Progress: Department of

Gastrointestinal Stasis ............................................................................... 301
Neosalvarsan and Salvarsan Compared ....................................................... 300
Self-retaining Needle for Administering Salvarsan Intravenously, A .......... 429
Shock, Surgical, and Its Prevention ............................................................. 232
Spleen and Surgical Treatment ................................................................. 141
Surgery of the ............................................................................................ 142
Syphilis, Abortive Treatment of ................................................................. 300
Wounds in War, Advice to the French Surgeons with Regard to ................. 428
Syphilis, The Modern Treatment of .......................................................... E. H. HUME, M.D. 83
INDEXES.

Tropical Medicine, Progress in
Ankylostoma Infection, A Mistaken Case of ...
Ankylostoma Infection, An Unusual Case of ...
Beri-Beri, The Etiology of ...
Development of Gametes in Maglinant Tertian Malaria ...
Dysentery, Chronic Bacillary, The Rational Treatment of; and, the
Advantage of Enemata of Silver Gelatose ...
Invaliding from the Tropics amongst Missionaries, The Causes of ...
Malaria Parasite in Man, New ...
Quinine, Subcutaneous Injections of ...
Schistosomiasis in the Sudan, Intestinal ...
Segregation of Kala-Azar ...
Splenomegaly ...
Typhus ...
Ulcers of the Leg, Chronic, with Frog Flesh Poultice, Treatment of ...
Tropical Medicine Congress, Saigon, 1913, Notes of the ...
Tumor, Large, in the Floor of the Mouth ...
Union Medical College of Peking. Graduation and Opening of New Hospital.
Vaccine in Hot Weather ...
Visit to Medical Schools ...
Want Department ...
What We Are Eating ...

J. PRESTON MAXWELL, M.D., F.R.C.S. 371
H. S. HOUGHTON. 36
J. H. MONTGOMERY. 19
D. D. MAIN (President of C.M.M.A.) 344
W. W. PETER, M.D. 29
INDICES.

INDEX OF AUTHORS.

BETOW, EMMA J.
Operation for Ovarian Cyst during Pregnancy .................. 335

BOLT, RICHARD ARTHUR
An Endemic Goitre Region in North China .................. 336

BUTCHART, JAS.
Sanitary and Preventive Medicine Education among the Chinese as an Important Part of the Work of the Medical Missionary 391

CADBURY, WM. W.
Medicine as Practised by the Chinese .................. 375
Epidemic Cholera in Canton, China .................. 165

CHRISTIE, DUGALD
Extracts from the Report of the Mokden Medical College for 1913 268

COCHRAN, SAMUEL
Advances in Anæsthesia—A Protest Answered .................. 33

COLE, ARTHUR F.
Unusual Methods of Foetal Extraction, with Comments .................. 387

DALE, W. CHALMERS
An Outbreak of Glandular Fever .................. 385

EGGERS, H. E.
On the Spirochaetal Infection of Ulcers in China: A Preliminary Report 365

GASTON, J. M.
Gunshot Wounds .................................................. 1

GRAY, DOUGLAS
General Summary of Medical Reports (4th Series for 1913) .................. 395

GUSHUE-TAYLOR, G.
A Case of Febrile Splenomegaly with Splenectomy .................. 251

HOFMANN, J. ALLEN
Epidemic Cholera in Canton, China .................. 165

HOUGHTON, H. S.
Notes on the Tropical Medicine Congress, Saigon, 1913 .................. 36

HUME, LOTTA C.
Social Service Work in China .................. 339

HUME, E. H.
The Modern Treatment of Syphilis .................. 83

HUTCHESON, ALLEN C.
Schistosomum Japonicum .................. 91

KIRK, E. W.
Cataract, by a Beginner ................................. 86
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambert, A. C.</td>
<td>Notes on the Treatment of Amoebic Dysentery with Emetin Hydrochloride, from Observation of Sixty Cases</td>
<td>172</td>
</tr>
<tr>
<td>Leybourn, A. L.</td>
<td>Fusing Nurses’ Training School</td>
<td>297</td>
</tr>
<tr>
<td>Logan, O. T.</td>
<td>A Cases of Hydrophobia Developing more than Nine Months after a Dog Bite on the Face</td>
<td>188</td>
</tr>
<tr>
<td>Maxwell, J. P.</td>
<td>Intracapsular Rupture of the Spleen</td>
<td>329</td>
</tr>
<tr>
<td></td>
<td>Some Interesting Cases of Gunshot Wound</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Tetany, with Report of Case Cured by Gastroenterostomy</td>
<td>371</td>
</tr>
<tr>
<td>Main, D. D.</td>
<td>Visit to the Medical Schools</td>
<td>344</td>
</tr>
<tr>
<td>Miles, R. G.</td>
<td>Rheumatism and Allied Conditions. A Review of Some Recent Literature</td>
<td>318</td>
</tr>
<tr>
<td>Montgomery, J. H.</td>
<td>Radical Cure of Internal Hemorrhoids</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Large Tumor in the Floor of the Mouth</td>
<td>19</td>
</tr>
<tr>
<td>Ogden, M. R.</td>
<td>A Three Months’ Course in Anesthesia at St. Mary’s Hospital, Rochester, Minnesota</td>
<td>225</td>
</tr>
<tr>
<td>Patterson, J. B.</td>
<td>A Study of the Sources of Infection in Surgery</td>
<td>241</td>
</tr>
<tr>
<td>Patterson, A. H.</td>
<td>Diabetes Insipidus—Complicating Malaria</td>
<td>18</td>
</tr>
<tr>
<td>Peter, W. W.</td>
<td>What We Are Eating</td>
<td>29</td>
</tr>
<tr>
<td>Reed, A. C.</td>
<td>Exophthalmic Goiter</td>
<td>381</td>
</tr>
<tr>
<td></td>
<td>Prevalence of Hookworm at Pingshiang Colliery—An Abstract</td>
<td>267</td>
</tr>
<tr>
<td></td>
<td>Changsha</td>
<td>263</td>
</tr>
<tr>
<td></td>
<td>Two Cases of Nervous Disease</td>
<td>195</td>
</tr>
<tr>
<td>Royes, C. K.</td>
<td>A Surgical Pilgrimage</td>
<td>175, 254</td>
</tr>
<tr>
<td>Simpson, C. E.</td>
<td>The Florence Nightingale Nurses’ Training School, Foochow, China</td>
<td>138</td>
</tr>
<tr>
<td>Sircar, R. L.</td>
<td>Report on the Health of Tengyueh</td>
<td>41</td>
</tr>
<tr>
<td>Taylor, J. R.</td>
<td>Plan for China Public Health Service</td>
<td>12</td>
</tr>
</tbody>
</table>
TAYLOR, ADRIAN S.
  Malaria and Its Treatment ................................................................. 313

THACKER, W. S.
  Plating Fractures .................................................................................. 161
  The Examination of the Labyrinth and Its Use ...................................... 100

VENABLE, W. H.
  Chinese and English ................................................................................ 182

VICKERS, B. RANDALL
  Report on the Health of Wuchow (Kwangsi) ......................................... 42

WENHAM, H. V.
  Medical Education under the Missions. Its Possibilities and Limita-
  tions ........................................................................................................ 261

WHYTE, G. DUNCAN
  Causes of the Prevalence of Pulmonary Tuberculosis in Southeast China. 71

WOODS, ANDREW H.
  Report on Sanitation at Canton Christian College ................................ 189

WRIGHT, J. M.
  Balantidium Coli ................................................................................... 259

WU LIEN-TEH
  Memorandum on Medical Education in China....................................... 105
  The Seventh International Congress of Medicine .................................. 22
The
China Medical Journal.


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GUNSHOT WOUNDS.*


The following remarks are based upon personal experience during fifteen years' private practice in Atlanta, Ga., and four years' hospital practice in Laichowfu, Shantung Province, China.

The subject is presented in the hope of eliciting discussion which shall be of greater benefit than my brief presentation of cases. Of the cases treated in our hospital, the majority were wounded soldiers, and were, for the most part, natives of Shantung Province.

For convenience, I have grouped the cases according to anatomical location in the following order: Wounds of the head; throat and thorax; flesh wounds; wounds of the extremities; and abdominal wounds.

Wounds inflicted by the new rifles with Mauser bullets, as found in a few cases, were much more penetrating, and less irritating than the rough lead bullets made by the native Chinese. The cases where the Mauser bullets passed entirely through the body leaving a clean track, healed readily. But other cases where the old lead bullets struck a bone, even becoming imbedded in the bone, were frequent, and, in some cases, resulted fatally.

WOUNDS OF THE HEAD.

My experience with gunshot of the head has been that the hemorrhage and tension of mechanical disturbance depends upon the location of the injury. Much depends upon the extraction of the bone; for fractured portions left do more harm than the presence of the bullet. The distinction between a compression from without and the pressure from within should be made.

* Paper read at Peking Conference, January 1913.
I recall some cases treated in America. A boy of fourteen was accidentally shot by his brother, the bullet entering the temple region and causing death within a few hours. The middle meningeal artery was ruptured, and the course of the bullet lay on the orbit. A probe showed the brain to have been penetrated. Before we could operate, or stop the hemorrhage, the boy died. Another case was that of a white man, age 55, who, in a fit of despondency, shot himself in the head. Here the temporal region was also involved, and caused such hemorrhage from the middle meningeal artery, that packing with gauze was resorted to. Paraplegia from the pressure and clot was produced, and the man continued to live for several hours. When the packing was removed, the clot was disengaged, and he regained the use of limbs for a time before death. His case led me to investigate these injuries later, and to see how a New York surgeon, Dr. Blaisdell, was treating them. He removed large portions of the skull with a saw, and many recoveries resulted. He was very successful with these cases of open treatment of the brain.

In other portions of the body, this course is also satisfactory. F. S. Dinnis, of New York, has shown that a bullet may lodge in the brain and give rise to no disturbance of the nervous system. He speaks of bullets becoming incapsulated in the brain. He removed a bullet one week after accident which has the following history. The patient, while sitting in a chair, was accidentally shot in the head by her husband, with a 38-calibre bullet, which entered half an inch above the middle of the right eyebrow. At the moment of the report, she experienced no unusual sensation such as vertigo, or even much pain. She did not fall to the ground, was not unconscious, and was assisted to a bed awaiting the ambulance. Her mind was perfectly clear, but there was profound hemorrhage from the nostrils. The bullet lodged in the niche upon the opposite side, behind and below the mastoid process. The main trouble in this case was from neuralgia of fifth cranial nerve, the trigeminus, which was so distressing as to cause a serious complication. The only evidences of intracranial involvement were partial paralysis of the left motor fifth with paraesthesia in the sensory branch, and a partial paralysis of the left seventh nerve. These were peripheral or basilar and not of cortical or central origin, though the course of the bullet was through the tip of the right frontal lobe, and the left hemisphere of the brain.

No case of injury to the brain or large blood vessel has come to my attention in China. It is presumed that such cases died on the field, as transportation facilities were poor. Two cases in each of
Gunshot Wounds.

which one eye was destroyed by a bullet were treated in our hospital. One was due to the accidental discharge of a gun in the hands of a soldier who was learning to shoot. The entrance of the bullet was in the temporal region near the superior orbital ridge and the exit at the junction of the nasal bones with orbital plate, so as to fracture them. Enucleation of the eyeball was done upon the morning after the patient entered the hospital. He had a good recovery. The second case was treated in my absence from Laichowfu. An attempt was made to save the eye without enucleation, and suppuration set up, evacuating contents of the eyeball. The best results to be hoped for in each of these was to save the uninjured eye from sympathetic ophthalmia, which was accomplished.

WOUNDS OF THE THROAT.

Wang T'swen Ch'en, aged 30, whom I saw in consultation with Dr. Hwang of Tsinanfu. The patient was brought in by Tsinanfu Red Cross corps from an engagement near Hwanghien. The bullet track was through both œsophagus and trachea. No operation was undertaken other than swabbing and dressing. Food when eaten would come out through the opening in the gullet, while mucus passed from trachea. The use of boric ointment and applications of mild antiseptics were made to wound. He was given hypodermic injections of morphia. A cough mixture was also administered. The use of a stomach tube for feeding liquids was finally resorted to by Dr. Hwang. Complete recovery is reported. In Atlanta, I was called in consultation to see a girl of eight, accidentally shot in the throat. When I reached the patient she was almost asphyxiated by edema of larynx and glottis. Examination showed a wound through the windpipe. I operated under chloroform. A tracheotomy below the wounded part and insertion of a silver tube with flanges, and double tubing was successful. Daily removal of the inner tube for cleaning was done without inconvenience to the little patient. Two months later the tube was removed and the wound closed. She had very good use of her voice.

WOUNDS OF THORAX.

Among the first wounded brought into our hospital by the Laichowfu Red Cross corps last January were Kin Lau Seng and Chang Tei Chang. The first of these, aged 28, Ch'ingchowfu, was found spitting blood caused by a wound of the thorax, the ball having passed out through the apex of the left lung. His temperature was 98 1/6 when first seen. He was given hypodermic injections of morphia.
sulphate 1/4 grain, and atropine sulphate 1/150 grain with ergotin at frequent intervals. He was removed to the hospital and kept under morphine until all symptoms disappeared. The wound was not probed. He recovered entirely. The second, aged 25, also wounded in the lung, received similar treatment at the same time and recovered. I saw him again in November, when he told me he had no spitting of blood or cough, only itching at the former site of the wound of entrance which had healed well.

An interesting case of a gunshot wound of the thorax involving the pleura and pericardium occurred in my practice in Atlanta. It was a result of the riot, sometimes known as the Atlanta Riot, 1906, when several negroes were killed or wounded. William Deaver, a negro man, aged 32, was seen October 6th, 1907, for the first time, one year after the shot. Operation—resection of rib and removal of bullet. Pus was found in the pleural cavity. This was evacuated and the wound treated as for empyema. His death occurred three days later. Autopsy was done and showed serous effusion in the pericardium with pericarditis. Pressure upon the heart had been great. The case was of interest because the bullet must have passed so near the heart and remained in the body for nearly a year.

**Flesh Wounds.**

Flesh wounds of various kinds have been treated during the year. One little engagement at a point not far from Chefoo resulted in four wounded who were brought to the hospital in shantzas, a distance of nearly 300 li. These men had wounds of the legs and arms, partaking more of the nature of lacerated than of gunshot wounds. I suspect a shell had burst, and wounded all four men. One had a large piece of shell embedded in the temporal region. This was easily removed with cocaine anesthesia. Two other cases of more serious flesh wounds were treated, with recovery.

**Wounds with Complications.**

Last Christmas morning, a year ago, a highway robbery occurred a few miles from Laichowfu. A merchant's courier was carrying silver from Chefoo to Tsinanfu. He was shot from the rear; the bullet, entering the spinal column and veering upward, shattered the spine of the scapula. There were other injuries from a knife; the eyeball, orbit, and parotid gland were wounded and complicated his condition. The patient was brought to the hospital on the same day. The result of the operation done on this day was not satisfactory, although several pieces of bone were extracted. A second operation, when a counter
Gunshot Wounds.

opening was made for drainage, gave relief. His symptoms did not indicate that the bullet had penetrated the pleural cavity, but that a deflection of the bullet from the spine of the scapula had saved his life. He was treated two mouths, using permanganate of potassium and peroxide of hydrogen. The particles of bone removed at the first operation were followed by others which came out in dressing the patient. He left the hospital in fair condition and reported later that the bullet came out.

Yü Chan Kwei, aged 40, entered our hospital with an old gunshot wound of the shoulder, September 22nd, 1912. There was stiffening of shoulder joint and considerable deformity of the arm. The operation done was for removal of bony spiculae and to close a fistula therefrom. Incidentally, search was made for the bullet, but was unavailing. The wound was treated antiseptically. Motion of the shoulder was partially regained, and the arm recovered its use.

It is a mistake to rely too much upon the x-ray in determining the location of bullets. The x-ray picture is only a shadowgraph, and must be corrected by a calculation of triangulation. In Chiua I have not been able to avail myself of the x-ray. Doubtless some results would have been different, had it been possible to use this great aid to modern surgery. I have no doubt that many medical missionaries are without apparatus for x-ray work, hence I would emphasize the clinical importance of symptoms apparent after the inflammation has subsided. Some of the bullets I removed were in cases of fracture of the humerus, and I allowed the fracture to unite before attempting to remove the bullet.

WOUNDS OF THE EXTREMITIES.

The first case of a wounded soldier brought to the hospital was the case of a young man shot while trying to capture a robber. His arm was fractured by a bullet about the junction of the upper and middle third of the humerus. He had some hemorrhage, but we succeeded in ligating bleeding vessels and used an internal angular splint crutch shaped at axilla. This he wore for a mouth before I attempted to locate the bullet. When the bone was united the inflammation subsided, the bullet could be felt and was removed through a counter opening. He recovered entirely the use of his arm. Hwang Lin Seng, wounded in the right arm near the insertion of the deltoid muscle; under ether the bullet was removed. It was found to have struck the humerus and fractured it, lodging near the acromioclavicular articulation. The bullet itself was badly bent and was a
Mauser, with a covering of brass. This man's temperature was 99.8 when I first saw him. His temperature rose to 101, four days later. He was removed to our hospital and remained there until the humerus was united. He was afterwards treated for an abscess from necrosed bone. Later he was able to go back into the ranks. Tsei Lai Tei, aged 31, had a wound of the buttocks, the bullet penetrating the os innominatum. He was put under an anesthetic and the track was opened thoroughly. Only a portion of the jacket of the bullet was found. He was kept in the hospital some weeks until the track had healed. He is now well and able to walk without assistance.

ABDOMINAL WOUNDS.

Chao Tei Shun, aged 33, had a gunshot wound of liver and other viscera. This patient was brought to my hospital during my absence. He had been wounded nine days before coming and was brought a distance of eighty li. His condition was very bad. Calomel, soda and salts were given and he improved so that he could take some nourishment, which he had not been able to do before.

He was given a cough mixture and was dressed carefully every day until my return five days later, when I operated. I found a penetrating wound of the right side. This wound was enlarged, and, as the ninth rib was in the track, the portion was excised subperiosteally, thus gaining access to the liver. The liver was found to be torn, and particles of the hepatic tissue were removed. No abscess was found in the substance of the liver. Irrigation with subnormal saline solution was used and the wound was packed with gauze. His condition was such that a more radical operation was contraindicated. The after treatment was the daily irrigation of permanganate of potassium and peroxide of hydrogen. He was kept upon liquid diet and was given castor oil and calomel frequently.

A startling feature was the appearance before the operation of a round worm in the wound and in the after treatment, they were found on several occasions. Calomel and santonin was administered and ascarides passed by the anus. I suppose there was a fistulous opening in the stomach and that the worms came from it. There was probably some passage of fecal matter with the worms when they made their way through the pyloric orifice into the stomach. It is a question with me whether there was a wound of the intestine, although there was fecal odor and some discharge in the wound. The absence of peritonitis, and the length of time he lived would point at least to
adhesions walling off the peritoneum. The internal wound remained open and yet the connection with the hollow viscera seemed to close before he left the hospital. The fecal character of discharges ceased with the disappearance of worms, and but for his weakened condition, recovery might have resulted. He was in the hospital from the 25th of May to the 30th of June, when his friends were advised to take him home; he lived only two days after reaching there.

In another patient brought to the hospital the ball had entered the left side on the level with the tenth rib and passed out at about the same level on the other side.

Calomel and soda were given without results. Enemas were also used, but no passage from bowels. Peritonitis with distention and temperature of 103° set up within six hours. The patient was taken from the hospital. On his way home he vomited blood, and died before reaching home.

Early in the revolution a soldier, aged 50, was shot in the right side, the wound probably involving both liver and stomach. He had been brought a long distance and was very weak. With the hope of securing reaction and of operating and repairing the wounded viscera, I administered morphia, grain 1/4, and atropine 1/150, hypodermically, and strychnine nitrate, grain 1/30. He did not react, but died within six hours of his admission to the hospital. His case was aggravated by a long ride in a shantza. No probing for the track of the bullet was done. His pulse did not warrant giving an anesthetic.

A case of nephrectomy for gunshot wound of the kidney occurred in Decatur, Ga., a town near the city of Atlanta. I was called soon after the injury and operated, removing the wounded kidney. He recovered from the wound and was presented to the Medical Association of Georgia before which body I read a paper published in the transactions of 1905. Up to that time Greig Smith had reported only five cases of this kind. In my case the bullet was never removed. Yet the man had no inconvenience from it.

It will be seen that in my own experience I have given many cases of unfavorable results, hoping to gain light by discussion of difficult problems in treatment. In the treatment of gunshot wounds the following conclusions may be drawn:

1. The location of a bullet is important to know, but not essential to first surgical treatment.
2. To delay operation after shock of wound has passed, and until suitable conditions are obtained, is advisable. Unless you are ready to operate and remove bullet, probing is not indicated.
3. After an unfruitful search for a bullet, the bullet may become so loosened as to shift its position and come into a favorable location. Hence, delay is justifiable.

4. The earliest practicable removal of a bullet, when located, is the best surgery. The splintered or fractured bones should be first treated, then the soft parts.

5. The best treatment for penetrating wounds of the pleura and lung is to put patient on side affected, let the blood flow out of the wound, and then hermetically close one or both wounds. Keep the patient under morphine and atropine.

6. It will be noticed that no amputation has been done in the above cases for gunshot wounds. I have made it a rule to save limbs if possible. Quite a number of amputations of hands and arms were done during the revolution. Skill was shown in the performance of them, but I wish to enter my protest against primary amputation of members. With antiseptic precautions, I think many cases may be saved. My impression from dealing with the Chinese themselves is that they have a repugnance to the loss of a limb and it is probably a natural feeling. Since modern surgery should discountenance what was justifiable only in the last century, we try to teach our medical helpers to save limbs.

SOME INTERESTING CASES OF GUNSHOT WOUND.

J. PRESTON MAXWELL, M.D., B.S., F.R.C.S., Yungchun.

One of the characteristics of the Chinese is their reckless method of handling firearms. With the old matchlocks this was a point of less importance, though even with these the consequences were sometimes serious. The writer has known of guns sent to the gunsmith fully loaded, with disastrous results to the gunsmith's face and eyes; of guns so loosely attached to the stock, that the two parted company on firing, the sportsman losing a goodly number of his teeth; of guns carried horizontally with the hammer down on a percussion cap, the result being the decoration of the man in front with small shot, which had to be picked out one by one; whilst not a few cases have come into his hands, where men, sitting on reserve baskets of gunpowder and smoking, have found themselves suddenly minus clothing and badly burnt from head to foot.

But when men begin clan fighting with modern weapons of precision, the results are apt to be disastrous. One has known of a woman killed by a stray bullet, close on a mile from the scene of strife, while standing at her house door, and like cases are by no means unknown.

I. Up in the hills a party of soldiers were in search of brigands. One of them rose at 5 a.m., went to the door of the house where they had been sleeping and wanting to test his rifle fired aimlessly
out of the doorway. The bullet was one similar to the Martini-Henry bullet. About 50 yards away a girl of 14 years of age had gone out to get some vegetables for breakfast and was crouching down at the time. The bullet entered above the right trochanter, traversed the pelvis, probably struck the horizontal ramus of the pubis, and came out through the abdominal wall on the left side above Poupart's ligament, making an exit wound the size of a half-crown piece.

She arrived at hospital eight days after the accident, having been three days on the road, and in a very miserable condition. As soon as she had recovered from the shock of the journey, she was placed under chloroform, and carefully examined. She was an undersized girl, the uterus was infantile, and the vagina closed by a firm septum. The bladder contained one ounce of clear urine, but all the urine since the accident had passed by the entrance and exit wounds. The entrance wound in the right iliac region passed through the bone above the hip joint and anterior to the rectum. Defecation was normal and had been so throughout, but there was a tendency to diarrhoea. The bladder had been wounded behind and probably low down.

The exit wound was closed by a portion of prolapsed colon, and to its inner side was an opening through which a probe passed deep into the pelvis. An incision was made near the middle line just above the ramus of the pubis, and a large foul abscess cavity was opened up, with which this aperture adjoining the colon was in connection. A large drainage tube was put to the bottom of the pelvis through this incision; another tube was passed from the entrance wound through the hole in the ilium, and a self-retaining catheter was inserted into the bladder. The cavities were irrigated daily and rapid improvement took place.

The patient was kept as far as possible in the Fowler position; in a week urine had ceased to pass by the wounds; in ten days the catheter was removed and she was able to pass her own urine. The wounds healed up well, but she was left with a weak spot where the bowel filled the exit wound, which, however, had greatly contracted in size. Six months later she was quite well and strong and refused further surgical treatment for this weak spot.

II. A man, aged 29, probably belonging to the brigands referred to in Case I came into hospital with a sinus in the right groin, internal to the anterior superior spine of the ilium. His history was that he had been shot five months previously, but he was very reticent as to the exact way in which he received the injury.
On dilating the sinus under chloroform it was found to lead to a hole in the ilium and through this hole, a Winchester carbine bullet and a number of fragments of bone were extracted. The man made a good recovery and decamped one fine night. In the afternoon the military commandant of the district had been round the hospital, and he may have had private reasons for his sudden disappearance.

III. The "bullets" used in the old Chinese matchlocks are just pieces of iron rod and sometimes they make very nasty wounds. But it is remarkable how they can pass close to large vessels without serious damage.

This is well exemplified by the case of two patients. The first had five or six of these "bullets" in the interscapular region, feeling just like a bag of bones. They had entered through the posterior triangle of the neck, well forward, but nothing important had been wounded and the man refused to have them removed. The second patient was a man aged 27. He had been shot in the neck and back with large irregular swan shot, a friend having attempted to kill both his father and himself. He was suffering from septicaemia, and had a sinus running down from over the sterno mastoid on the left side, three-quarters of an inch above the clavicle to somewhere behind the sternum. This was treated antiseptically and left alone. It healed up slowly, the bullet remaining somewhere in the region of the great vessels. He and his father were peppered also with swan shot which were picked out from their dorsal regions.

IV. A young man, aged 25, came into hospital with a small opening immediately below the right nipple. He had been shot a year previously at a distance of twenty yards or so, by one of the old matchlocks loaded with a bullet of iron rod of small calibre. A probe passed right through the lung, and impinged on the posterior wall of the chest. The wound discharged very little pus and the man was not willing to have an operation performed. A year later he came back with slight cough, commencing hypertrophic pulmonary osteoarthropathy but still unwilling for any radical treatment. Six months later the hypertrophic pulmonary osteoarthropathy was well marked, the cough was more marked, and there was a little sputum. Repeated examinations failed to demonstrate the tubercle bacillus. He still refused operation though he may come up some day demanding it.

V. Three men were playing one day with an old bronze cannon. They loaded it, intending to see how it would fire. When a light was applied it exploded. One of the three was struck by a piece in
the right thigh. His femoral artery was severed, and he died of haemorrhage in a minute or two. The other two were struck on the left arm and the right forearm respectively. The one, a man aged 34, came in 14 days after the accident with the lower half of the right forearm and the hand gangrenous. The whole of the flexor muscles had been destroyed by the piece of metal which struck him, the main vessels and nerves being also destroyed, and the bones comminuted. The extensor muscles were tied off with silk, and the gangrenous portion removed. The stump was full of maggots, but permanganate of potash speedily got rid of these intruders. Twenty days later a small piece of bone exfoliated from the ends of both radius and ulna. The wound healed well and he was left with a serviceable stump.

The other, a man of 27, had a severe compound comminuted fracture of the left humerus. There was a dirty ragged wound in the region of the insertion of the deltoid. He came in on the sixth day after the accident. The main vessels of the limb were intact, but the arm and hand below the point of injury were completely paralysed and touch sensation was very imperfect. Three days after admission he was put under chloroform, and the wound explored, several pieces of loose bone being removed. The arm was put up in a right angled sling case. For a week all went well, and then one night, during the night, he had a very severe haemorrhage, awaking to find himself in a pool of blood, and being quite blanched. It was arrested by plugging. In another couple of days he had a second severe bout of bleeding and this was again stopped by packing. A day later a third attack commenced and was stopped by plugging with gauze dusted with tannic-acid powder. The hand and arm were still absolutely paralysed and amputation was proposed and declined. The same night at midnight a further very severe haemorrhage occurred, the man being blanched and practically pulseless.

He now consented readily to amputation, was carried to the operating table and given a dose of quinine mixture with a little opium as he was in a good deal of pain. Pressure was maintained on the wound whilst everything was being prepared. At 1 a.m. the chloroformist was told to proceed, when the patient suddenly said that he now felt much better, and would not have his arm taken off. It was clearly placed before him that another haemorrhage was likely to occur, and would probably prove fatal but he was obdurate. The wound was again carefully packed with gauze and tannic acid powder. His pulse was running and he looked very bad. Next morning, to my amazement, he pointed out to me in triumph that he could move.
his thumb, and a certain amount of sensation had come back to the hand. From that time he never looked back and left hospital after three and a half mouths, with a fair amount of movement of the hand and forearm, sensation being almost perfect, but the bone union being far from firm.

Nine months later there was still a tiny sinus in the site of the old wound, and some shortening of the arm, but he was using it, and it was daily getting stronger, and there is little doubt that it will be a useful member. The action of the deltoid, however, is much impaired.

The explanation of this case is difficult. The bleeding was certainly arterial and probably came from a branch of the brachial, not far from the main trunk.

The complete loss of motion and sensation was no doubt due in the main to bruising and partially to pressure from comminuted bone and possibly inflammatory products. It was certainly, in the end, a most satisfactory result, and shows how the symptoms and signs may lead one to an exaggerated idea of the extent of injury.

Nevertheless, in spite of this result, given a like case, the proper treatment is amputation, and this patient certainly ran a grave risk of losing not only his arm, but his life.

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**PLAN FOR CHINA PUBLIC HEALTH SERVICE**
**With Definite Suggestions for Starting such Service.**

JOHN R. TAYLOR, M.D., Madison, Wisconsin.

The movement for a public health service in the U.S. was started some years ago by a number of eminent laymen and physicians who formed themselves into a committee of one hundred which immediately began to educate and stimulate widespread interest in public health matters, and out of this developed the American Health League. They were the pioneers in nation wide movements for better health conditions. Presidents Roosevelt and Taft endorsed this work and as a result of their efforts it seems quite certain that a National Board of Health will be established during President Wilson's administration. The secretary of this Board will doubtless be a physician with a seat in the President's cabinet.

A similar committee, league or society might be organized for the definite promotion of such work in China. The objects of this committee, league or society might be specified as follows:

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* Reprinted in part from *National Review,*
1. To establish a National Public Health Service, which shall combine the most modern systems of disease treatment with the best tested and most approved methods of preventing disease.

2. To enlist in this enterprise private individuals, municipal, provincial, and central authorities, and such organizations and institutions as are deemed essential to its successful promotion.

3. To endeavour to secure unification of existing medical agencies, such as hospitals, medical schools, dispensaries and so forth and to organize them on a co-operative basis in such a way as to strengthen and supplement each other's work, thereby securing a maximum of efficiency (results), with a minimum of outlay (cost).

This basis of unification may be:—

Organic:—In which full charge and financial responsibility is assumed.

Co-operative:—Where the society may assist or supplement the work of any existing institution.

4. To reinforce existing medical agencies so as to conserve their work and ensure continuity of service, e.g.,

Hospitals and medical schools that are undermanned:—

(a) Those dependent on the service and supervision of one man and which may be closed in the event of sickness, furlough, or other cause of absence.

(b) Those whose growth is not keeping pace with the needs of the community or locality in which they are situated. Etc.

5. To serve as clearing house for every form of useful service connected with private or public health service, medical or otherwise, namely,

(a) Bureau of Information on such subjects as:—

Hospital management: policy, methods of supervision, etc.
,, Equipment, estimates, etc., for different departments.
,, Construction, plans and specifications.
,, System of accounts, book-keeping, forms, blanks, etc.

(b) Bureau for securing and placing

Doctors for whatever service needed.
Assistants for ,, ,, ,, 
Substitutes for ,, ,, ,, 
Hospital superintendents
Nurses
Sanitary engineers
,, Inspectors
School Inspectors
Factory ,,
Clerks, students, and others needful for the Public Service.

(c) Purchasing and distributing
Supplies
Drugs
Instruments, etc.

6. To render helpful service in every way that will best
Promote progress
Prevent waste
Utilize men and material for health conservation.

For purposes of organization, systematization, and administration
on a comprehensive scale the general outlines of a public health
service, as presented in the earlier part of this pamphlet, might be
adopted as the committee's, league's or society's program of activities.

In order to accomplish the most effective economic results, a public
health service should consist of various departments so organized as
to assist and supplement each other's work. The following outlines
suggest how this may be done.

I. DEPARTMENT OF PREVENTIVE MEDICINE.

Prevention of disease is one of the most important duties of a
public health service. Education of the public is the first step in this
direction and may be carried on by literature, lectures, and exhibits,
etc.

Literature:—Bulletins, pamphlets, books, reports, public notices, etc.

Lectures:—To interest and stimulate by lecture courses on hygiene and
sanitation for
Schools
Colleges
Gilds
Societies
\{ Social
Industrial
Commercial
Political\} interests.

Exhibits:—To aid in this by exhibits of such material as would help to
demonstrate the value of health conservation, namely:—
Models of safety appliances
Photographs
Drawings
Charts
Descriptive processes

Arrangements might be made for placing permanent or temporary
exhibits with, for, or through
Social
Industrial
Commercial
Political\} groups such as
Gilds,
Manufacturers' associations,
Benevolent societies,
Religious organizations, etc.
Plan for Public Health Service.

Investigation and Sanitation.

Educational efforts should be closely followed by systematic investigation of the conditions which cause disease and by the application of approved and well-tested principles of hygiene and sanitation. These activities apply to:

- **Homes**
- **Garbage and Refuse**
- **Schools**
- **Drainage and Cesspools**
- **Factories**
- **Epidemics, such as**:
  - **Water and Foods**
  - **Smallpox**
  - **Public Buildings**
  - **Cholera**
  - **Resorts**
  - **Dysentery**
  - **Nuisances**
  - **Typhoid**
  - **Markets**
  - **Typhus, etc.**
- **Hotels and Restaurants**
- **Including disinfection and fumigation of all places where disease has occurred.**
- **Transportation lines on land and water.**

Laboratories.

To make sanitation and hygiene thoroughly effective, laboratories are necessary:

- **Chemical and Pharmaceutical**:
  - For the analysis of water, foods, drugs, etc., their purity, caloric value, relation to disease, physiology, potency, therapeutics, standardization, etc.
- **Zoological and Biological**:
  - For study of parasites, as hookworm, fleas, bugs, mosquitoes, rats, fish, and various other disease carriers, etc.
- **Bacteriological and Pathological**:
  - For detection of germs, modes of infection, vaccines, lymphs, toxines, antitoxines, serums, viruses.
  - For pathology of disease, etc.
  - For manufacture and distribution of vaccines, serums, antitoxines, for use in epidemics and for prophylactic purposes, such as smallpox, diphtheria, typhoid, bubonic plague, anthrax, rabies, etc.

II. DEPARTMENT OF REMEDIAL MEDICINE AND SURGERY AND GENERAL THERAPEUTICS.

The best results will be obtained when the treatment of disease is combined with the prevention of disease. For example, inspection of public schools would result in the detection of defective sight, hearing, respiration, etc. Investigations carried out along social lines and in industrial occupations would unveil many conditions of a pathological character which call for immediate correction, not only for the sake of the individuals affected, but in the interest of public health. Provision for the treatment of such cases would naturally be arranged for through the following departments:
The China Medical Journal.

Hospitals.
Sub-divisions as follows:
- Medical Department
- Surgical
- Ear, Nose and Throat Department
- Eye Department
- Children's
- Women's
- Nervous

Dispensaries.
- Out-patients' Department
- Medical
- Surgical (minor)
- Ear, Nose and Throat Department
- Eye Department
- Children's
- Women's
- Nervous
- Dental
- Pharmacy, etc.

Laboratory
- Chemical
- Bacteriological
- Pathological

Pharmacy
- Dietetics
- Supplies
- Business
- Isolation hospitals
- Sanatoria
- Convalescence homes

These departments should be thoroughly equipped with the best apparatus for scientific examination and diagnosis of every case, as diagnosis is of the greatest importance, and determines the character of treatment the patient should have, if any.

Optical Department.

Medical inspection of pupils in public schools uncovers many physical defects which seriously interfere with their educational progress. Errors of refraction are found in such large numbers as to justify the creation of a special department for their correction. Through this department many permanent defects of vision which become manifest only in later years may be detected and corrected by properly qualified experts, trained to recognize the difference between errors of vision which require the use of glasses and defects of vision which call for medical treatment, not glasses. The work of this department may be outlined as follows:

Examination of Vision.
- By test cards
- photometer
- ophthalmoscope
- retinoscope, with or without mydriatic.

Correction of Vision.
- With glasses
- exercise
- treatment, medical or otherwise as the case requires.

Manufacturing Department.
To manufacture lenses of certified quality for supplying the needs of the department and to protect the public from fraudulent agencies.

Electro-Therapeutic Department.
- X-ray
- Electric treatment
- Hydro

Other Departments.
- Research Department
- Supplies Department
- Pharmaceutical Department
- Education Department, Medical Colleges, etc.

Nurses' Department.
Nurses' Directory:
- On active duty in hospitals, dispensaries, homes, country towns.
III. BUSINESS AND PUBLISHING DEPARTMENT AND INFORMATION BUREAU.

Keep and audit accounts.
Receive reports of epidemics and transmit information to proper authorities.
Collect and compile vital statistics.
Print and distribute reports, public notices, books, stationery.
Edit and publish medical journal.
Index medical literature and reference books.
Supervise and direct translations of foreign books, etc.
Furnish information regarding different departments.
  Preventive Medicine.
  Sanitation.
  School Inspection.
  Factory, etc.

Issue and supervise licenses, certificates, etc., for various purposes.
Correspond with schools, colleges, factories, public utilities on work of sanitation, lectures, and instruction regarding same, etc. Supervision and direction of students' medical studies at home and abroad so as to secure properly trained workers for the public service.

IV. FINANCE AND METHODS OF PROMOTION.

Finance:—Under present conditions it is doubtful if any one body, government or otherwise, could be found to finance such an undertaking on a large scale, but this need not prevent work being started by methods of approved and tested value. By judicious management much of public health service could be made self-supporting, viz;—

1. By city, state, and central government subsidies.
2. By contract work for towns, cities and provinces.
3. By special arrangements with guilds, manufacturers, associations, public utility companies, such as railroads, telephone, telegraph, and shipping companies.
4. By inducing employers to follow the example of industrial firms in foreign countries.
5. From local merchants, on the ground that sanitation conserves their business and enhances the value of their properties.
6. From the optical department, which would undoubtedly yield a profit and at the same time furnish better service at lower cost. This department would perform a most highly needed service in preventive medicine by correcting eye defects in their early stages and by protecting the people from unqualified and fraudulent agencies.
7. From the hospitals and out-patient departments, by establishing a system of fees graded according to the character of the service rendered, viz:—
   Grade I for those who expect extra attention, special nurses, private rooms, etc., and who are well able to pay for the same. This grade would yield a profit.
Grade II where the fee would be approximately about the cost of the service rendered.
Grade III contract patients, such as factory employees, workmen's societies, sick-benefit associations, etc.
Grade IV charity cases, supported by benevolent gifts but under the care of the Public Health Service.
Doctors in charge of hospital and dispensary work would be employed on salary, and would give their whole time to such service. Fees from all sources would therefore go to the hospitals and dispensaries and not to the physicians in charge.

Methods of Promotion:—By enlisting the co-operation of city, state and central government officials, guilds, societies, individuals, etc., religious organizations (native and foreign), missionary societies, Y. M. C. A., International Institute, publishing houses, etc. Overlapping of work would be prevented by securing co-operation, co-ordination and alliances among all those organizations, public and private, already engaged in medical work.

Rewards, Prizes, Medals, Decorations, etc.
These could be offered to cities, guilds, societies, associations, factories, and even individuals for special achievements in preventive medical service work, inventing and devising safety appliances, methods of work, processes, etc., which improve efficiency, safety, health, and comfort of individuals or communities.

DIABETES INSIPIDUS—COMPLICATING MALARIA.

A. H. Patterson, M.D., Sutsien, Kiangsu.

I want to call attention to a case that may prove instructive to some. Mr. C., a missionary, while itinerating, riding on wheelbarrows over rough roads, developed a case of malaria, with low fever, temperature never rising over 102° F. The quantity of urine was observed to be greater than one would expect in a patient with fever, and it was examined for sugar and albumen with negative results. After quinine, the temperature became normal in the mornings with a daily rise to about 100° F., but the patient did not improve. He was fed eight times in the 24 hours, a varied diet of peptonized milk, raw eggs, chicken broth, oatmeal, cracked wheat, etc., but day by day grew weaker. Severe muscular cramps developed, especially in legs, and nervous restlessness, especially at night. I felt sure there must be sugar in urine, so made another very careful examination. Specific gravity was normal, and no sugar.

The patient was as emaciated as possible, and each day noticeably weaker.
Then suddenly it dawned upon me that a condition of diabetes insipidus as indicated by the abnormal quantity of urine was sapping his strength. The quantity voided was three quarts—one day as much as four quarts was voided in the 24 hours. The interesting part about this case was the rapid improvement after diagnosis was made.

He was given ergot fl. ext., ninety drops in the 24 hours, and codeine $\frac{1}{2}$ gr. twice daily. This treatment acted like magic. The first dose of ergot and codeine made a marked improvement. After two or three days the codeine was discontinued, but the ergot was given for about a week.

This case illustrates how important it is to take into account all the unusual manifestations of metabolism in disease of whatever nature and to be sure of our diagnosis; to avoid a careless routine examination of our cases and having found one morbid condition in a patient to overlook the possibility of the presence of others often of really greater import.

**LARGE TUMOUR IN THE FLOOR OF THE MOUTH.*

Dr. J. H. Montgomery, Changpoo, Amoy.

I wish to bring to your notice a rather rare and interesting case that came to my hospital for treatment in March of this year. I call it rare as it is the first I have seen in eleven years and also because the text books refer to it as an uncommon neoplasm, and interesting because of its large size and the great discomfort caused by it. The patient was a healthy young man aged 23, with a large tumour protruding from his mouth and a large swelling in the middle line of the neck from the symphysis menti to the hyoid bone.

**History.**—The growth began two years previous to admission as a small lump under his tongue, and from that time had slowly and gradually grown to its present dimensions. It had never caused pain and only during the last six months had there been much discomfort and inconvenience from its large size. His general health was good and he had not lost much weight.

**Appearance on Examination.**—A large pale tumour completely filled the mouth and protruded from it. It touched the hard palate with the mouth fully open; the tongue was not visible having been pushed back behind the soft palate by the tumour; the sides of the tumour were indented and clearly marked by each tooth, and at

*Paper read before Fukien Branch C. M. M. A., August 1913.*
places it looked as if the mucous membrane covering the tumour was about to give way. The swelling in the neck was large, tense, in the middle line, and the skin was normal.

On palpation, the tumour in the mouth was soft and smooth and, when depressed, caused the swelling in the neck to enlarge and become more tense, showing it was all the one growth. The patient could not close his mouth, was unable to speak, and saliva flowed copiously from the oral cavity. He was unable to lie down at night on account of his tongue obstructing the air passages, and the weight of the tumour causing pressure. No solid food had been swallowed for over three months, and he was fed by his father who pushed the tumour down with chopsticks and expectorated rice water and thin rice into the patient's throat. The patient was miserable in the extreme, unable to eat, talk, work, or sleep, and in constant dread of suffocation.

Diagnosis.—Three conditions at once suggested themselves as the possible cause of such a growth in the floor of the mouth:—1. Salivary calculus and cyst; 2. Ranula; 3. Dermoid cyst.

1. Salivary calculus and cyst.—This possibility was remote and readily excluded, as both salivary ducts were plainly visible on the front of the tumour, mid way between the lips and were both pouring forth saliva, and further a fine probe passed readily along both ducts and there was no obstruction or calculus.

2. Ranula.—This was a possibility not so easily dismissed and yet the appearances were against a ranula. We are taught that a ranula is a cyst in the floor of the mouth due to blocking of a muciparous duct, unilateral, varying in size from a pea to a plover's egg, of bluish purple colour resembling a purple grape, containing mucus and frequently painful. The growth in question was bilateral, pale in colour, very large and painless, so a ranula was eliminated from the diagnosis.

3. Dermoid.—A dermoid cyst was the only thing left that would fit in with the appearances, and accordingly it was entered as a dermoid cyst in the floor of the mouth.

Treatment.—To the patient the most important question was could the tumour be removed, and I was not certain if it could be entirely removed. The only help one got from text books was the fact that these tumours if large were difficult to remove entirely, and a discussion as to whether they ought to be attacked from the mouth or from a median incision in the neck. The consensus of opinion was to attempt their removal through healthy skin in the neck, thus securing a clean wound and ample room, while if attacked through the mouth, you
had a large wound in communication with a septic cavity and therefore delayed union, and caused more discomfort to the patient.

I followed the advice of the books and began on the tumour from the neck. No general anaesthetic was possible without a preliminary tracheotomy, and as the patient could not lie flat, the operation was performed with difficulty. Local infiltration with cocaine and adrenalin was therefore carried out, and the patient being in a semi-recumbent position, an incision was made from the symphisis menti to the hyoid bone in the middle line. Some haemorrhage took place in spite of adrenalin, and the patient's position made it difficult to check this or proceed with the operation. By pressure from the mouth the tumour was made to bulge into the neck wound and was cut down on, when it was seen and felt to be a thick walled cyst. A finger easily separated the tumour below from surrounding tissues, but it was quite impossible, from the neck wound, to get near the top to free the growth, even by traction on the cyst below, and pressure from the mouth above. I decided, therefore, to combine the two methods of operating and, with the patient sitting up in a chair, I made an incision in the mucous membrane of the mouth in the middle line and freed the tumour from the mucous membrane. A finger through the mouth wound completed the separation of the growth and the tumour was lying free, but could not be removed, as it was so large and not readily compressed, and one did not want too large a wound if it could be avoided. An incision was made into the cyst wall, but nothing escaped, so a Volkmann's spoon was introduced, and removed what looked like the contents of a sebaceous cyst only firmer and thicker; exactly like white cheese. A few ounces of this were removed, and with traction from the mouth wound, and upward pressure from the neck wound, the tumour became elongated and escaped entire, through the mouth wound. A hot saline douche stopped the bleeding, the neck wound was firmly closed and a gauze packing introduced into the wound from the mouth. Both wounds healed without any trouble and the patient was discharged on the 14th day, cured.

The cyst when packed was the size of a small puntelo and weighed with its contents almost 1 lb. (over 13 ozs).

The special points about the case are, the extreme distress of such a patient, the advantages of the combined external and internal routes for removing the growth, the question as to the origin of such a growth, and its real nature; and lastly the extremely satisfactory results obtained when the cyst is completely removed.
THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.*

WU LIEN-TEH, M.D., (Cantab.),
Official Delegate of China.

This Congress, which took place in London from August 6th to 12th, was the largest ever held. Seven thousand four hundred medical practitioners, including four hundred women doctors, from all parts of the world, assembled in the Albert Hall on the day of the opening, together with their relatives. In the range of subjects also this Congress excelled all others. There were 23 full sections and 3 sub-sections at which members specially interested in their own subjects attended. The buildings of the Imperial Institute, as well as the various Halls of the Technological Institute, Royal College of Mines, Royal Society of Medicine and others, were kindly lent to the Congress for the holding of its meetings. Over one thousand separate scientific papers were read in the 26 sections, of which the largest number were on Surgery (129) and the smallest on Naval and Military Medicine (8). Besides these there were General Sessions held in the Albert Hall itself at which the following papers were read by representative men from the leading scientific countries.

Wednesday, August, 6th, Prof. Chauffard of France—on Prognosis.
Thursday, ,, 7th, Prof. Harvey Cushing of America—on Vivisection.
Friday, ,, 8th, Prof. Paul Ehrlich of Germany—on Chemotherapy.
Monday, ,, 11th, Prof. W. Bateson of England—on Heredity.

HISTORY OF THE CONGRESS.

In 1867 when the great French Exhibition was held in Paris, the French doctors decided to hold their customary annual meeting in that city. In view of the number of foreign physicians from all parts of the world who were expected to assemble there, it was suggested that special invitations to take part in the proceedings of the meeting should be sent to them. Consequently, about 500 practitioners from various countries attended and as a matter of courtesy several foreign Vice-Presidents were appointed. This meeting was so successful that an Italian surgeon proposed to make a permanent Institution of the Congress of Medicine. The result was that after two years the second Congress met in Florence. Since

* Being a report submitted to the Foreign Office, Peking.
that date the International Medical Congress has been held regularly, sometimes every two, sometimes every three, and sometimes every four, years. It has also grown in importance and has lately been accorded the fullest government recognition.

THE ORGANIZATION OF THE CONGRESS.

To organize a big Congress at which 8,000 members from about thirty different lands are expected to attend is no small affair, and the British Committee who took the matter in hand deserved every praise for the success of their efforts.

The top-most floor of the Technological Institute covering a large area was reserved for the Scientific Museum of the Congress. There were placed in order thousands of pathological specimens, charts, photographs, coloured plates, new appliances for every kind of disease. The most interesting were those dealing with cancer, diseases of occupation, tropical medicine, diseases of children, tuberculosis and x-rays. At the same time another museum illustrating the history of medicine which had been collected by Mr. H. S. Wellcome, was attached to the Congress. In this museum everything relating to the history of medicine in all lands from the earliest days to the present time was placed in proper order. I had the honour of exhibiting certain objects illustrating medicine in China in this museum.

THE OPENING CEREMONY.

Although the opening ceremony did not take place until the morning of August 6th, the British Government had, the previous evening, entertained the leading delegates, numbering 500, to a banquet at the Hotel Cecil. The chair was taken by Viscount Morley, Lord President of Council, who in his speech emphasized the debt which all Governments owed to the self-sacrificing labours of the medical profession. The Congress was formally opened at 11 a.m. on August 6th, at the Albert Hall, when representatives from 26 nations assembled.

First Day. On August 6th, Prof. Chauffard of Paris delivered his address on Prognosis. Interesting discussions also took place on the effects of modern and ancient food on teeth. It was agreed that bread made of coarse ground cereals prepared by grinding between two flat stones, imperfectly raised and then badly cooked, such as used by ancient Egyptians, was less destructive to the teeth than well cooked bread made from finely divided flour such as is
eaten now-a-days. It may be added that the same contrast exists amongst Chinese peasants who preserve their teeth in better condition than those Chinese who have taken to modern complicated cooking.

Second Day. On August 7th, the most discussed address was that by Prof. Cushing of America who emphasized the importance of vivisection for the purpose of pursuing medical investigations. He said that the old-fashioned prescribing doctor would soon go out of existence and his place would be taken by State-appointed scientific medical men whose duties would lie more in the prevention than the cure of disease. He recounted the vast changes for the better which had been made in tropical regions by a fuller knowledge of the causes of malaria, yellow fever, and other diseases. This had been accomplished by experiments on animals and on young doctors who voluntarily sacrificed themselves. In benefiting mankind through experiments on animals, animals themselves were in turn benefited.

In the tropical section emphasis was again laid on the close relationship of the rat and its flea to plague and man. I read a long paper on the relationship of the tarbagan to plague and showed that this animal played little or no part in the great plague of Manchuria in 1910-1911. It was probable that the outbreak arose from cases imported from Siberia and the Kirghiz Steppes where it had been endemic for many years. The venerable President of the Psychiatry section, Sir J. Crichton Browne, drew attention to the enormous increase in the number of lunatics all over Europe and America, and in the failure of the asylum system. Whereas in 1859 there were 36,000 insane people in the British Isles, in 1913 the number had increased to 138,000.

A young surgeon of New York (Abbee), to-day performed his new operation of attaching a piece of shin bone to the diseased spinal column in a child. He claimed that by doing this the duration of the disease was shortened and hence the danger of catching scarlet fever during convalescence was lessened. Another famous American surgeon, J. B. Murphy, also showed the ease with which bones could be transplanted.

Third Day. In the Pathological section animated discussions on the nature of cancer took place. Dr. Bashford of London emphasized the hereditary nature of the disease while Dr. Freund of Vienna demonstrated the presence of some chemical substances in normal tissues which were antagonistic to the development of cancer cells.

In the Tropical section it was generally agreed that beri-beri which was so fatal amongst the Chinese in the South, owed its origin to over-
polished rice resulting in the deficiency of some essential chemical constituents. A resolution was passed calling upon all Governments to abolish their present laws on quarantine against beri-beri, because the infectious theory had been proved to be unfounded. Other important papers were read on the application of salvarsan locally to the nose and mouth; the use of an indiarubber tube in place of a gullet which had been removed; the superiority of veronal as an ideal soporific; the use of radium in skin diseases and others.

Besides the usual sittings, several hundred doctors who believed in the harmfulness of alcohol assembled at breakfast in the morning, the President of the Congress taking the chair. I was one of the speakers and urged that as the suppression of opium-smoking in China could be accomplished, so also could the crusade against alcoholism.

Fourth Day. On August 9th, the sections of Syphilography and Forensic Medicine joined together and discussed the question of syphilis and other venereal diseases. All speakers emphasized the danger of these diseases to the State and many urged their compulsory notification. The work of control should be placed not in the hands of the police but of a Board of Health presided over by a medical man.

Further measures for the spread of knowledge regarding prostitution were also suggested, such as:

(a) Suppression of souteneurs
(b) Protection of orphans
(c) Provision of hospital patients and segregation
(d) Institution of professorships
(e) Instruction of the students and the public
(f) Moral and religious considerations.

The importance of good teeth was emphasized by several speakers in the Stomatological section and the conclusion come to was that the school was the most important place of education on this point. Stickiness of the food consumed, e.g., sweetmeats, fine flour, etc., contributed largely to dental decay.

In the surgical section demonstrations were given of the transplantation of kidneys from one place to another and of the suturing of arteries.

Dr. Robert Abbee of New York showed the good effects of radium by burying the tube inside cancerous growths. There was no doubt that this expensive element had great power in destroying cancer and in many cases actually cured patients. In the grafting of tissue also, great progress has been made, similar tissues from different regions being able to grow together, but unless these are obtained from the same species of animal they tend to die out ultimately.
Dr. G. W. Crile, a brilliant American surgeon, expounded his new theory of "anoci-association" and method of preventing deaths from shock during anaesthesia by not informing patients of the actual date of operation. Thus, the patient does not know when the operation is to take place and is given a daily inhalation of gas. One day he is carried to the operation room whilst under the influence of gas, novocain is injected into the tissues which blocks the nerves and prevents stimuli reaching the brain cells. The operation is performed without chloroform or ether and the patient is carried back to bed, no impression of any sort being left in the brain cell.

Sixth Day (Monday). The Congress met again on the 11th. The general address was given by Prof. W. Bateson of Cambridge, on Heredity, in which he warned people not to adopt violent unproved principles in their attempts to preserve the race. The effects of the great drug Salvarsan were further discussed by Prof. Ehrlich, Wassermann, Hata, Sir Malcolm Morris, and others. Prof. Ehrlich himself had great faith in the drug and gave a warning against its use in three diseases, Addison's disease, status thymo-lymphaticus and cancer. He said that the mortality from 606 after two to three million injections compared favourably with statistics of chloroform anaesthesia. Prof. Wasserman, the discoverer of the famous blood test for syphilis, said that before the introduction of 606 it was rare to convert a positive finding into a negative one. Nowadays that was quite easy in any fresh infection, showing how the disease could be entirely uprooted. The Wassermann test should be applied to the cerebro-spinal fluid as well as to the blood. In his opinion Salvarsan was the mightiest weapon in the world of medicine. Subsequent speakers from all countries mostly agreed.

In the Surgical section Dr. Abbee of America showed the use of bone grafts for curing club-foot by removing redundant bone from the outer side and implanting it on the inner side where it was wanted. He also found bone grafts better than metal plates for cases of ununited fractures.

In the discussion on brain surgery great disappointment was expressed with the poor results which had been obtained after removal of tumours inside the skull.

In the joint sections of Hygiene and Stomatology, great emphasis was laid on the examination of children's teeth between 1 and 5 years of age.

In the section of Bacteriology an important discussion took place regarding invisible microbes, that is, germs which could not be seen
under the microscope. Prof. Löffler of Germany enumerated 38 distinct varieties of these germs (filter-passers) including micro-organisms of foot-and-mouth disease, swine fever, rabies, trachoma, small-pox, and vaccinia. Sir John McPadyean believed that these filter-passers belonged to the protozoa and not to the bacteria.

An important function took place on this day at the London School of Tropical Medicine when Sir Patrick Manson, the foremost pioneer of tropical medicine who first began his researches while serving as Chinese Customs surgeon at Amoy, was presented with a medallion of gold bearing his features as a recognition of his eminent services to science. All the well known workers on tropical medicine were there to render Sir Patrick homage.

**Seventh Day.** Congress prizes were offered to three eminent workers, namely Prof. Chauffard (Paris), Prof. Wasserman (Berlin) and Sir A. E. Wright (London). It was decided by the Congress Commission to hold the next Congress at Munich (Germany) in 1917. The following resolutions were submitted to the general gathering, and passed:

1. That sensible of the ravages wrought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the Governments of all the countries here represented:
   (a) To institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain.
   (b) To make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for. (Submitted by the combined Sections of Dermatology and Syphilography and of Forensic Medicine.)

2. (a) That the section is of opinion that beri-beri among natives who live principally on rice is brought about by the continuous and too exclusive use of rice submitted to a too complete milling, which removes the cortical and sub-cortical layers of the grain.
   (b) The section urges all authorities charged with the health of native communities to restrain by every means in their power the use of this rice in the dietary of coolies.
   (c) In view of the proved non-infectiousness of beri-beri, the section suggests that all port and sanitary authorities should abolish foreign quarantine and other restrictive measures against this disease.
   (d) The section resolves that the malady known hitherto under the name of Malta fever shall in future be named "Undulant fever." (Submitted by the Section of Tropical Medicine and Hygiene.)

3. That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable to its future progress. That, accordingly, while strongly deprecating the infliction of unnecessary pain, it is of opinion alike in the interests of man and of animals that it is not desirable to restrict competent persons in the performance of such experiments. (Submitted by various sections.)

In the other sections important papers were read showing that the spirochaetes (germs of syphilis) had been found in the brains of
The China Medical Journal,

patients dead of tabes and general paralysis. Much uncertainty still centred round the microbe of leprosy.

In the section of surgery, Sir William MacEwen (perhaps the most daring surgeon in Great Britain) described a remarkable operation in which the left lung had been completely removed by him for tubercular disease. The patient was shown to the audience. Four other similar cases were described. He completely shattered the old idea of atmospheric pressure regarding the chest, and said that it was "molecular cohesion" which held the pleural surface of the lungs together.

SOCIAL ASPECTS OF THE CONGRESS.

The social functions of the Congress were as marked a feature as the scientific meetings. As His Royal Highness Prince Arthur of Connaught said on the opening day, both the Governments of Great Britain and the different parts of the British Empire joined to offer to the delegates their hearty welcome.

CONCLUDING REMARKS.

The Seventeenth International Congress of Medicine was the largest and perhaps most successful of learned congresses ever held. So far as I remember, this was the first occasion that our Government was represented officially and I earnestly hope that we shall make a special point of sending one or more of our most prominent medical men to future congresses of this nature. It would also be advisable to appoint such representatives at least a year beforehand so that they could prepare scientific papers of an original nature to be read at the meetings. Personally I can remember no occasion on which such a vast number of important points in medicine were brought forward at one time. The men representing America, many of whom gave practical demonstrations, were particularly prominent, and most of them had leapt to fame within comparatively recent years.

When meeting these men and considering the great strides which have been made in medical science throughout Europe and America during the last 30 years, I could not help feeling the urgent need of a complete reform of medical knowledge in China at the present day. Whilst the West is discussing most complicated subjects such as filter-passers, the successful growing of the germs of cerebro-spinal meningitis, rabies and leprosy, the transplanting of bones, kidneys and arteries, the removal of complete lungs in a living person, our old-fashioned physicians are still talking of pulses, of heat and cold as causes of disease, of the superiority of knowledge acquired 3,000 years ago, and.
such like. Even our modern educated doctors who have graduated from medical colleges in China, are not as up-to-date as they ought to be. It is now most essential for medical men to be always reading about new discoveries and practising new methods. Whilst in the West the Government and people are benefiting by new discoveries and inventions; are year by year reducing the death rate among the population; have already put or are gradually putting a stop to such diseases as leprosy, tuberculosis, rabies, small-pox, diphtheria, typhus, relapsing fever, malaria, etc., these diseases still attack and kill large numbers of our people every year. In fact, some, like consumption, are actually on the increase. For national and economical as well as scientific reasons, I urge that medical education upon a modern basis should be encouraged on all sides. In the West it has become an axiom that the work of the medical officer goes hand in hand with that of the school teacher. For the upbringing of the child, its mental and physical development are interdependent, and the nation which can prevent and stand the ravages of disease best and at the same time is equipped with all up-to-date knowledge wins in the end.

For the above reasons I venture to submit that reform in medical education and medical knowledge amongst our people is of the utmost importance for our national wellbeing.

WHAT ARE WE EATING?

W. W. Peter, M.D., Nanking.

Foreigners living in China must often depend largely upon canned food products from home. These have to be ordered months in advance. And because the length of time elapsing between the manufacture and the consumption of these food products is probably greater in China than at home, what we eat must therefore be of the very best quality or adulterated.

Some of our food comes from countries where "pure food laws" do not exist. And sometimes where they do exist, the food labels are misleading. The direct object of adulteration is usually to make food cost less and thus to assure the manufacturer a greater percentage of profit. Adulteration might be condoned were it but possible for the buying public to know which foods were the adulterated and which the unadulterated brand. But often there is no means of telling and the public pays a good price for an adulterated article under the supposition that they are getting a pure article,—as in the buying of maple.
syrup, table syrup, vinegar, coffee, canned meats, extracts, condensed milk, spices, and baking chemicals.

A preservative added to a food is an adulteration, because it is a foreign substance and neither a food nor a condiment. It is an entirely different question whether the food thus preserved is wholesome. A commercial sausage may contain a considerable amount of starch, which is added to allow the use of more fat or water to the product. This is not injurious, but the customer buys the product at a high price believing that he is getting genuine sausage and nothing else.

On account of the frequent use of adulterants, some simple tests are here given. These tests can be performed without any special chemical knowledge by carefully following the directions given. Any housekeeper can do the work by using the ordinary kitchen dishes and utensils with a few drugs from the hospital laboratory.

JAMS, JELLIES, AND PRESERVES.

With the exception of spices, there is no class of food products so commonly adulterated and sophisticated as jams and jellies. The basis for the cheap jellies is often the pomace or refuse from the cider-mill, the sweetening is glucose or corn syrup, the coloring matter is a coal-tar dye, and the use of a preservative is almost always necessary. Starch is also used as a filler or gelatinizing agent.

Experiment. Test for dye. To detect a coal-tar or anilin dye, mix a few teaspoonfuls of the jam or jelly with some water and filter first through cloth and afterwards through filterpaper. Add a few drops of HCl to the filtrate, place in a teacup in a pan of boiling water on the stove. Boil an inch square of white woollen cloth with a little soap, and, after rinsing, place it in the colored solution to be tested. After heating for ten minutes, take out the cloth and rinse it in clear water. If the cloth is still white and not colored, the experiment may be discontinued. If, however, the cloth is colored, to confirm the test, heat the cloth in a teacup in clear water containing about a teaspoonful of ammonia. This will dissolve the anilin color out of the cloth, but will have little effect on a natural fruit color. Take out the piece of cloth and add enough HCl to the contents of the cup so that it will not smell of ammonia. Put into this solution a new piece of washed woollen cloth, and heat again in a pan of water. If an anilin dye is present, the cloth will be dyed, and, after heating a short time, may be taken out and rinsed in clear water. This method of testing may also be applied to tomato catsup, which is frequently artificially colored.
Starch. If starch paste has been added to a jelly, it may be detected by adding to the cold filtered solution a few drops of the tincture of iodine. The production of an intense blue color indicates starch. Notice that this color may be modified by any dye that is present in the sample examined.

Starchy substances are sometimes used to adulterate spices. Many spices naturally contain starch. But cloves, mustard, and cayenne do not. These may be tested for starch by stirring a half-teaspoonful of spice into half a cup of boiling water, and heat in a pan of water on the stove for a few minutes. Cool the mixture, and dilute with water so that the solution shall not be very strongly colored. Add a few drops of the tincture of iodine and the production of a blue color indicates starch.

CANNED VEGETABLES OR FRUIT.

If the tin containing the canned fruit or vegetable is convex instead of concave at the ends, and if when water is poured on the end of the can and the can is punctured bubbles of gas come out through the water, the contents have begun to ferment and are not fit for use.

Experiment. Copper. The only artificial coloring matter usually found in canned vegetables is copper, which is added to produce a natural green color. This is more liable to be found in peas and string-beans, and sometimes in pickles. To test for copper, mash two heaping teaspoonfuls of the sample with a stiff spoon, and put the pulp in a teacup, with three times as much water. With a medicine dropper, add 30 drops of HCl and set the cup in a pan of boiling water on the stove. Drop a bright two-penny nail in the mixture, and keep the water in the pan boiling for twenty minutes, taking care to stir the solution occasionally with a splinter. Pour out the contents of the cup, rinse off the nail and examine it. If any appreciable quantity of copper is present in the food the nail will be plated red by the copper.

Experiment. Preservatives. Much discussion has centered around the use of benzoic acid or sodium benzoate as preservatives. To test for either one, macerate and filter a sample as above. By squeezing the bag or cloth containing the sample gently, obtain two ounces of the fluid. Place this solution in a narrow bottle holding about five ounces. Add a quarter of a teaspoonful of cream of tartar and about three tablespoonfuls of chloroform and mix thoroughly with a splinter. Do not shake too vigorously or the chloroform will not separate readily from the rest of the liquid. Pour the mixture into a tumbler, and after the
chloroform layer has settled to the bottom of the tumbler, with a medicine dropper take out all the clear chloroform possible.

Place this solution in a glass sauce dish, warm in a pan of hot water, and place on the outside of a window-ledge close to the window and allow the chloroform to evaporate. When the chloroform has evaporated, if the quantity of benzoic acid is sufficient it will be seen in the bottom of the dish in small flat crystals. And if the dish is warmed slightly, the odor of gum benzoin may be recognized.

**BUTTER.**

The substitutes for genuine butter are 'process' or 'renovated' butter, and oleomargarin or 'butterine.' Process butter is made by treating old or rancid butter by melting, skimming, and allowing the brine and curd to sink to the bottom, whence it is drawn off. Air is then blown through the melted butter—fat, and the product is churned with milk or cream. Oleomargarin is made from various mixtures of oleo-oil, cotton-seed-oil, neutral lard, and milk or butter. The product is wholesome and nutritious, but of course should be cheaper than genuine butter. It should always be sold under its true name.

*Experiment.* A lump of butter the size of a water chestnut is placed on a large iron spoon and heated over a flame or burning charcoal. Pure butter will melt quietly, with many small bubbles throughout the mass, which produce much foam; oleomargarin or process butter will sputter and crackle, like hot fat containing water, and produce but little foam.

Another test for pure butter is to place about two ounces of sweet milk in a wide-mouthed bottle, which is set in a pan of boiling water on the stove. When the milk is hot, add a teaspoonful of butter sample, and stir with a splinter until melting occurs. Place the bottle in a pan of cold water and stir continually while the fat is solidifying. If the sample is butter, either fresh or renovated, it will solidify in a granular condition and be distributed through the milk in small granular particles. If, on the other hand, the sample is oleomargarin, it solidifies practically in a single lump, so that it may be lifted from the bottle with a stirrer.

**SAUSAGES.**

The principal adulteration of sausages, in addition to the introduction of inedible meats into the product, is the addition of starch. This is added as a 'filler' to allow the incorporation of more fat and water and on the ground that it prevents shrinking when fried. It should be
Advances in Anesthesia—A Protest Answered.

33

remembered in this connection, however, that starch is cheaper than canned meat. This adulteration may be detected by boiling some of the finely chopped sausage with water, pouring into a teacup and allowing to cool thoroughly; then take out some of the liquid below the fat with a dropper, and test with tincture of iodine for starch as previously indicated.

REFERENCE.

Many foods are adulterated, which we in China eat without being aware of adulterations. There are many tests, most of them simple as the above, by which adulterations can be detected. The complete details of many of the processes are given in a recent article by Bigelow and Howard, in Bulletin 100, United States Department of Agriculture, Bureau of Chemistry. From this excellent publication some of the above tests are taken without modification.

ADVANCES IN ANESTHESIA—A PROTEST ANSWERED.

TO THE EDITOR OF THE CHINA MEDICAL JOURNAL:

The Journal in its last issue contains an article, "A Protest and a Challenge," commenting on a review appearing in a previous number which discussed recent advances in anesthesia. The authors of the Protest are apprehensive lest I, like Socrates, should be "misleader of youth" and like him I should like to offer an Apologia. As the article is entitled a Protest, they apparently feel that I have in some sense been culpable. The article referred to being in the main confined to citations of recently published work by other authors it would seem that there are two possible ways in which it could have been at fault and a defense should therefore be set forth along these two lines. The first is that the review neglected to take up important and relevant aspects of the question: the second that the material was chosen with a bias, thereby misrepresenting the true state of opinion in regard to the ground covered.

I am very sorry if, by omitting to consider one very large and important element—the clinical—in the evidence about anesthetics, the impression has been given that the article is unfair by omitting important matter. It, however, is so plainly just what it was meant to be—a review of material appearing in the home Journals—that it is hard to believe that many readers have gotten this impression. In writing the article, this course was deliberately taken (and in all good faith)
for two reasons. I realize entirely that my own clinical experience is too slight to be compared with that of many men, my seniors in service, and for that reason was hardly worth introducing; and further the article ran to such a length before it was finished that one or two very interesting matters had to be omitted, which I should have liked to include, but which were deferred for a possible second article. Among these was the question of the chemistry of anesthetics, on which some valuable papers have been published.

I cannot feel that it was an error to publish the matter contained in the article, provided it was selected in a reasonably impartial spirit. Surely the authors of the Protest would not contend that changes of opinion among the great body of English and American practitioners on this or other subjects are without relevance to us in China, even if it be urged that conditions are somewhat different here and there. Our methods in all branches of medicine are being profoundly affected by the results obtained from the laboratory with its exact and scientific processes, and affected for good. Recently our knowledge of anesthetics and their administration has been considerably extended because of two influences; one being the increasing number of men of scientific spirit who are engaged in anesthesia as a specialty; the other the application of laboratory methods to the subject. Would it not be unwise to cut ourselves off from all this advancing knowledge which men at home are enjoying by simply saying that it does not apply here in the East, because certain surgeons are getting reasonably low mortality in their practice? For example, it is surely a fact worth considering, even by practitioners in China, that one of the leading maternity hospitals in America whose methods of treatment are acknowledged by everyone to be intelligent and progressive, has cut down its mortality in eclampsia from twenty-eight per cent. to twelve per cent. by omitting the use of chloroform in the treatment of convulsions and substituting ether when operative measures are necessary. (Sloane Hospital, Obstetrical and Gynecological Report, 1913, p. 98-108, article by E. B. Cragin. It is interesting to note that the author quotes as the reason for their change in treatment the very articles that formed part of my "denunciation.")

Of course no one can deny that the experience of men like Drs. Maxwell and Landsborough is worthy of respectful consideration and should be given due weight in determining our opinions in this matter. But it is also true that in every line of practice, clinical results are being more and more searchingly reviewed in the light of what competent experimenters are showing us, and when the two
disagree, such results are to that extent discounted. Indeed mere clinical evidence, while of value, is being accorded less and less weight in comparison to the more exact findings of the Laboratory. It would be an excellent thing if we could test these experimental results under oriental and tropical conditions, but as we cannot expect for many years to do this, it is certainly legitimate for our Eastern Journals to occasionally publish articles summarizing the results of investigations at home. This ground was all that the review objected to, aimed to cover, and it is hard to see how protest can justly lie against it on this count. The readers of the Journal—both "the younger men" referred to and the older—can be safely trusted to weigh both sorts of evidence.

Now as to the second possible ground of protest that the state of opinion at home has been misrepresented through bias, I am free to acknowledge that my own leanings are to the side of ether, and being human and fallible I may not have chosen my material fairly. Even in an article, none of which is original, there is plenty of room in the selection of articles cited to give a mistaken impression. For instance, in the paragraph dealing with the use of a preliminary narcotic, the opinion expressed would be met with strong dissent on the part of one of the best writers on the subject (Herb), but nevertheless seems to be what the majority of the profession believe and follow, and agrees with the report of the Committee on anesthesia of the American Medical Association. However, with the material at hand in regard to chloroform, it is hard to see how anyone could have come to an opinion on the subject varying greatly from the conclusions to which the critics object so strongly. The "denunciation" of chloroform complained of was largely in the quoted words of responsible writers and it is against them and not myself that any protest must lie. There was practically no material at all on the other side of the case and the strongest expressions were in the deliberate report of a committee of representative men from one of the largest bodies of practitioners in existence. It would give me great pleasure to lay the entire material before the authors of the protest and further I would ask them to examine again the very few sentences in the review which are my own and will leave it to them to decide if "denunciation" is not rather severe language with which to characterize my very moderate remarks.

Mr. Editor, it seems to me that the writers of the Protest are sufficiently answered by claiming that there was ample reason for writing the article and that this kind of a review has a proper place in the Journal if fairly written; I should be glad to take up this latter point at greater length if they (and you) desire it, demonstrating
that the material originally offered fairly represents what is being published at home. It hardly seems obligatory to answer the "challenge" which is quite beside the mark. The review in question covered quite evidently and intentionally only part of the ground and they are free to cover the rest of it: both of us are offering evidence material to the case. Further I am just a little chary about getting into a controversy with writers who call such mild remarks as mine a "denunciation" and issue challenges about them. If after reading this they still desire a friendly discussion of the matter and will bind themselves over not to break the peace, I should be glad to consider with them on its merits the question of anesthetics as used under Chinese conditions.

SAMUEL COCHRAN.

NOTES OF THE TROPICAL MEDICINE CONGRESS, SAIGON, 1913.

H. S. HOUGHTON, Shanghai.

The Biennial Congress of the Far Eastern Association of Tropical Medicine met this year at Saigon, the sessions lasting through the week of November 8th to November 15th.

With characteristic hospitality, the French people and Government provided a most elaborate social setting for the more sober routine of the Congress, and filled the week with a gay succession of tiffins, balls, excursions, and similar diversions. The delegates were peculiarly fortunate in an opportunity of visiting this "Pearl of the Far East" at a season when climate was at its best. Saigon is a city of rare beauty, of broad avenues lined with stately public buildings and quaint bungalows, but its foundations have been won inch by inch from the surrounding mangrove swamps, and tangled morasses. Most of us, though rejoicing in the chance of visiting Saigon at the best time of the year, were profoundly glad that we do not have to live there through the worst seasons.

The attendance at this Congress was rather small, being confined largely to the official delegates of various governments interested in the Far East,—Great Britain, Holland, France, Germany, America, Russia, Japan, and Siam were all represented by several delegates from each country.

While among the papers read none appeared to be unusual in subject matter, a number were read which were of great interest to us.
who work in China. Beriberi, as in the previous congresses, was kept well in the centre of the stage: several communications dealt with the vexed question of the etiology, and although a fly-borne infectious cause of the disease was postulated by one or two contributors, the general sentiment of the meeting may be gathered from the resolution introduced, "That the accuracy of the opinion of this Association, recorded in 1910, has received further and more complete confirmation by investigators in Japan, China, French Indo-China, the Philippine Islands, Siam, Netherlands-India, the Straits Settlements, and "the Federated Malay States, namely that beriberi is associated with the continuous consumption of white (polished) rice as the staple article of diet." There seemed to be a general opinion, however, among those who have worked most with this disease, that there exists a great deal of confusion in nomenclature, and that the term beriberi has been applied to a number of conditions which have nothing in common etiologically. When the different entities have been sorted out and properly labeled, most of the present controversies will disappear. As it appears to have been proved that a widespread disease characterized by peripheral neuritis is caused by certain forms of rice (when rice forms the staple article of diet) this type of beriberi has become now largely a political, rather than a medical, question. The eradication of a part, at least, of what we know under this musical name rests in the hands of the governments under whose jurisdiction polished rice is produced. The next problem for our laboratories to attack will be the elucidation of other diseases now classed as "beriberi."

A paper of great value was presented by Walker of Manila, on "Experimental Entamoebic Dysentery." By a long series of human experiments, it was shown, in brief,

(a) That the cultivable amoebae are incapable of living parasitically in the intestinal tract of man,

(b) That Entamoeba coli, unlike the Amoebae, is an obligatory parasite and cannot be grown on artificial media: that it is non-pathogenic, and plays no role in the etiology of endemic tropical dysentery.

(c) That Entamoeba histolytica is likewise a non-cultivable obligatory parasite: that it is identical with Entamoeba tetragena Viereck, and is the essential etiologic factor in endemic tropical dysentery.

The investigators found, on feeding twenty volunteers with E. histolytica, that eighteen became parasitized after an incubation period averaging nine days: of these, four (or 22 %) have up to the present time developed amoebic dysentery. The incubation period of the dysentery in these experimental infections has been long, ranging from
twenty to ninety-seven days, and averaging over two months. Moreover, all of these experimental dysenteries were obtained after ingesting the cysts of the entamoebae from the normal stools of "carriers" and in the two of them the material was obtained from contact carriers who had not, and did not subsequently, develop dysentery. In one of the latter cases three hundred and seventy-one days and the passage through two contact carriers intervened between the case of natural and the case of experimental dysentery.

Exceedingly important data for the prophylaxis of tropical dysentery are therefore now in our hands, since it appears that the disease is borne exclusively by "carriers" (who may or may not have had entamoebic dysentery) passing in their stools the cysts of the infecting organisms. Walker suggests the following prophylactic measures:

(a) The identification of "carriers" by microscopic examination of the stools of convalescents, household servants, and other suspects or persons whose employment or associations make them particularly dangerous to the public health.

(b) The sanitary disposal of faeces.

(c) The treatment, controlled by microscopic examination of their stools, for *Entamoeba histolytica*.

Another very interesting communication was read by Clark of Hongkong, entitled "Twenty Years of Enteric Fever in Hongkong." This is a careful analysis of the incidence of typhoid in the Colony among Asiatics and Europeans through a period of two decades, based on the mortality statistics. Several striking facts are brought out, and the trustworthiness of the figures is shown in the fact that in Victoria and Kowloon all deaths which are not certified by a medical practitioner after attendance during life are made the subject of official investigation. There are nearly four thousand postmortems made on Chinese yearly in Hongkong.

The average death rate among Europeans and Americans from enteric fever in Hongkong for the period 1903-1912 was 0.78 per 1,000 as compared with 0.11 per thousand in England and Wales, while the death rate among the Chinese community for the same decennial was 0.076 per 1,000, showing the deaths from enteric fever among the white races more than ten times as numerous (in relation to population) as among the Chinese. During 1912 out of eighty-eight Chinese cases reported from the mortuary no less than forty-three were in children under the age of five years, and in most of these cases the diagnosis was made post mortem, there having been no medical attendance during life. In England and Wales the proportion of deaths from enteric in children under five years of age and the total deaths from
this disease is less than 5%. It is possible that the relative immunity of the Chinese to typhoid fever may be partially explained by these remarkable statistics, though the author believes that the figures do not suffice to prove that the comparative immunity enjoyed by the Chinese is wholly attributable to recovery from an attack of the disease in infancy. Were this so, a far larger proportion of the four thousand deaths of children already referred to which occurred during 1912 would surely have been traceable to enteric fever, unless enteric fever is a disease of very low case mortality among Chinese children.

The author concludes, therefore, that the comparative immunity of the Chinese to enteric fever must be natural or racial rather than acquired. He discusses several suggestions which have been made to explain the mechanism of this racial immunity, but disposes of them all as more or less unsatisfactory and leaves the question of the basis for this immunity an open one. His paper concludes with a discussion of prophylactic methods which should be undertaken by foreign residents in Asiatic cities.

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**Extracts from the Third Annual Statement of the Moukden Medical College.**

The College was opened on the 28th of March, 1912, with 50 students—13 from Moukden city and the others from towns and villages throughout Manchuria, a fairly representative gathering. At the end of the year the number has, from various reasons, fallen to 47. Of these, 13 are non-Christian, but most of the others come straight from one or other of our Christian middle schools. Five have already had a year or more at our sister institution at the other side of this city, the Union Arts College, two of them having also taught for a year in Christian schools.

During the spring term, from the beginning of April to the middle of July, the subjects taught were chemistry and physics, the latter by a graduate from the Union Arts College. Dr. Ellerbek spent a large part of his time with the students, giving them tutorials as well as lectures in chemistry. The fruit of this was seen in the good results at the Professional Examination, although the standard was high. During the three months of the autumn term we have been greatly indebted to Mr. Miskelly, of the Arts College, who came across the city twice a week to lecture on zoology, the practical class being taught by Dr. Mole. Dr. Ellerbek has given daily lectures in anatomy as well as tutorials.
We are constantly pressed to go on and open our doors to a second group of men, and after serious deliberation we have decided that we dare not refuse, and have announced the next Entrance Examination for December, 1913. We have nowhere to house the new men whom we admit, nor enough money to build the necessary dormitories, but we are going on in faith that the means will be provided. God has manifestly led us hitherto, and we trust that He will open the way before us.

We have now seven names on our staff, but we have not yet had more than three men at full work at any one time. Dr. Christie was invalided home in spring, and only returned in September, a few weeks after Dr. Muir had left on a well-earned furlough. Dr. Simpson arrived in May, Dr. Nairn in September, and Mr. Crockart in November. Dr. Ellerbek's presence with us shows the union character of the College, as he continues a member of the Danish Lutheran Mission, and is supported by them. Although appointed by the United Free Church, two of our members are supported directly from College funds, a third from money given for the purpose by Government, a fourth by the proceeds of the practice among the foreign community and staffs of the Chinese Railway, Post Office, and Customs. Our chemist, Mr. Crockart, is sent out by the congregation to which he belongs in Blairgowrie, and other friends. We are glad to state that an eighth man will soon be added to our number. Though several of our staff have not yet sufficient hold of the language to do full duty, all take their share in the general work. The College is thus of benefit to the Hospital, and on the other hand a large and efficient Hospital is a vital necessity to the College, as a practical training ground for its students.

Our relations with the Government continue to be as friendly under the Republic as before the Revolution. It is most gratifying that in spite of the emptiness of the Public Treasury the Government has never failed to pay the grants which they generously give to this College.
REPORT ON THE HEALTH OF TENGYUEH FOR THE SIX MONTHS ENDING 31ST MARCH, 1913.

BY DR. R. L. SIRCAN.

1. General Health.—General health of this port was good during the period under the report. There were two deaths in the hospital, one from malarial remittent fever and the other from a wound. The first mentioned case belonged to the China Inland Mission, Tengyueh, and was said to have contracted the disease from the Shan States where he went to sell Bibles. He was admitted into the hospital in a very low condition and died three days after his admission. The second case was a local young man who had a deep punctured wound on his thigh, just close to the femoral artery.

2. Diseases Prevalent.—Most prevalent diseases were ulcers and other diseases of the skin, diseases of the eye, and malarial fevers. The sufferers from the malarial fevers were mostly the people who came from Burma and Shan States.

3. General Type of the Diseases.—There were three cases of the malignant type of malarial fevers or so-called "Ya-chang" attended as out-door patients. All of them died within 48 hours of my visit. They all came from Burma frontier.

There is only one case of leprosy in the town who is known to me. This patient is a young woman who has suffered from this disease for over ten years and has lost almost all her fingers and toes.

Vaccination is pushing ahead in the distant corners of the most backward villages—and the "Ch'we-hwa" or the blowing-up system is gradually dying out. I am told that this year about eight or nine children lost their lives under this practice in one village out of 140 children. I have vaccinated this year over 200 children. There was a great demand for lymph this year among the Chinese vaccinators.
REPORT ON THE HEALTH OF WUCHOW (KWANGSI) FOR THE SIX MONTHS ENDING 31st MARCH, 1913.

By Dr. B. RANDALL VICKERS.

The health of the foreigners resident in the port has been good during this period. No deaths have occurred, and the only case of serious illness treated by the writer has been a case of neglected malaria: the patient recovered under intramuscular injections of quinine.

Amongst the Chinese inhabitants of the city and neighbourhood the following occurrences are noteworthy:—

1. In November and December a bad epidemic of smallpox broke out in Wuchow.

2. Four cases of hookworm disease have been under treatment, three of which came from Cheungchow (a large island lying in the West River two miles above Wuchow). The fourth patient lives in a village on the river bank facing that island. In every case the parasite found was Ankylostomum duodenale: other patients presenting symptoms suspicious of the disease have attended dispensary, but refused to come to hospital for closer observation and treatment.

3. A case of tabes (locomotor ataxia) was observed in a man from P'ing Naam (75 miles up the West River). The symptoms and signs were unequivocal, and the case is of interest in view of the rarity of the disease among Chinese. No case of this disease has been hitherto reported from Kwangsi province.

Malaria has been as rife as usual: the usual form in Wuchow appears to be the tertian variety. A case of quartan malaria was treated in a patient from Tang Hsien (up the West River).

Cases of beriberi, dysentery, and vesical calculus occurring in the town and immediate neighbourhood of Wuchow have been under treatment, and a number of men have been assisted in the breaking off of the opium habit.
The China Medical Journal.

VOL. XXVIII. JANUARY, 1914. No. 1.

The yearly subscription to the China Medical Missionary Association is $4 Mex., 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.

"ENGLISH OR CHINESE?"

A good deal has been said lately on the subject of using English rather than Chinese as a medium of instruction for medical students. After listening to the arguments, one cannot resist the impression that those who are arguing consider English and Chinese mutually exclusive. In fact, those who argue for English do not seem to be satisfied when they have gained a secure position and established their point, but seem to wish to go even further and hit Chinese teaching such a telling blow that it will never be able to raise its head again. Now, most of us refuse to believe that English and Chinese as media of medical instruction are mutually exclusive. Two knights of old once engaged in a deadly combat over the question as to whether a certain shield was made of gold or silver. As a matter of fact one side of the shield was gold and the other side, silver.

If there are good solid arguments based on facts on both sides of this English-Chinese question, we will have to admit that there is room for both, and then in a spirit of patience and fairness try to solve the question of "how much room." Therein lies the crux of the whole argument.

Those engaged in the training of medical students are right in their contention that an army needs officers, but surely they will not stultify themselves by arguing that an army must be composed entirely of officers, and that private soldiers are not needed. Those of us on the battle line realize that the private soldier is a very important part of the army, but we do not deny the need of officers.
Let us examine the facts. At the present time there are in China hundreds of Chinese doctors practising “Western” medicine who received their education through the medium of the Chinese language. These men are saving thousands of lives and many souls, but by the “English” standard they would be ruled out. Of course we must not be satisfied with the standard to which these men have attained. We must turn out better and better men of this class all the time, but would anyone, knowing all the facts, be willing to rule them out of existence? Let it be remembered that the various missionary organizations in China which have assisted in establishing medical colleges have done so with the distinct understanding that the medium of instruction is to be the Chinese language. They have done this for a definite reason. They are looking to these colleges to supply them with hospital assistants and doctors to do pioneer medical work and even in some cases to take charge of hospitals in central stations, when foreign doctors cannot be obtained. They know that no such supply of workers will be forthcoming, if the colleges confine their teaching to men who can take a medical course in English. In other words there is a large body of intelligent young men in China who are capable of taking a medical education, if it is given in Chinese, but who would be ruled out if English should be adopted as the medium of instruction.

For some time there has been a medical school in connection with St. John’s University in Shanghai, in which the instruction has been given in English, but the classes have never been very large. The presumption is that the supply of students really capable of taking a medical education in English is limited. But medical colleges in all parts of China which do their teaching in Chinese report large numbers of students.

From the facts before us we are justified in concluding that, if English were adopted in our medical colleges as the medium of instruction, a large number of promising students would be ruled out, and the colleges would find their lecture rooms comparatively empty.

There is some danger of overworking the argument that medical graduates who do not know English will have no fresh literature to keep up their professional zeal and ambition.
A medical magazine has already been started in South China and our Association is ready to begin a medical magazine of its own, as soon as a suitable man can be found to do the work. New medical books are constantly being translated, and we may soon expect to see the list considerably swelled by contributions from Chinese graduates who have been educated abroad, as well as from the favored few who in China have received their medical education through the medium of English. Even the better ones among those on the firing line, who know only Chinese, will no doubt make some worthy contribution to Chinese medical literature.

Certainly we look for great things from the English-taught medical students, and we must make ample provision for their training. If they are too numerous to be accommodated in the school already mentioned, another school should be established for them, but let no one tell us that all our training must be for the officers, and that the private soldier must be abolished.

A peculiar fact may be noted in the report of the debate that took place in the Peking Branch of our Association in October, 1912 (see CHINA MEDICAL JOURNAL for January, 1913, page 40). After giving the arguments on both sides it is stated that nine points were "brought out" in the discussion. The peculiar fact is that all these nine points are in favor of teaching in English. If any point was "brought out" on the other side, no mention is made of the fact.

A few of these nine points may be briefly considered.

(1) That a sufficiency of students capable of studying medicine in English can be obtained.

Does this mean that a sufficiency of students can be obtained for the one college under discussion or for all the colleges?

In either case what one man might consider a sufficiency another man might not consider so. Certainly a smaller number of men would be reached in this way.

(2) That the present lexicon terminology will not stand.

It is admitted that the lexicon is far from perfect and many terms will have to be revised, but the terminology as a whole is not only standing, but may be said to be walking and even running, as it is getting into a larger number of medical books every year.
and is forming the medical vocabulary of a constantly increasing army of Chinese students and graduates.

(3) That the present Chinese educational authorities are all in favor of teaching science subjects in Western languages, and believe that this is the only way.

"All" is a very large word, and we doubt whether such a sweeping statement could be proved correct even for Peking. Certainly it is not correct for Chinese educational authorities in general.

(4) That our work should be primarily that of a Mission to medical students.

Let the various missionary organizations in China speak on this point.

Some other points might be noted, but want of space forbids.

The facts certainly seem to warrant these conclusions:—

1. Medical education in the Chinese language must be provided for that large body of students who are to do so much of the contact work with the masses, and we should not become so dazzled by the superior advantages of English as to lose sight of this large class and its claims upon us.

2. There is also room for medical teaching in English, but the number of Chinese students who are really capable of taking such a course is very limited and will be for a good many years to come.

W. H. VENABLE.

PUBLICATION COMMITTEE.

May I suggest to each member of the C. M. M. A. that he or she can greatly assist the operations of the Publication Committee by buying a copy of each new book or new edition as it comes out? Surely at least each hospital or dispensary should have a full set of our books. A good plan is to leave a standing order with the press to send a copy of every book as soon as issued. In spite of our advertisement in the JOURNAL, ignorance re our books prevails in the most unlikely quarters. Quite recently an opportunity was afforded of pointing out to a lecturer that the book he had been clamoring for for a couple of years had been advertised, noticed in the JOURNAL, and stocked in one of our depots in his city for exactly that length of time! I know of no better way of avoiding such mistakes than by leaving a standing order as above suggested.

The work of the Publication Committee drags heavily. No new translators come forward and some of the old ones are now so busy they give little or no help. Books undertaken years ago are still on the stocks, new editions cannot be adequately revised and new books
cannot be translated. The editorial secretary is only fit for a modicum of work and his enforced distance from the field leads to long delays and occasional serious mistakes. Press delays and difficulties in handling our work and the reluctance to write letters exhibited by some, intensify the problem. (One press should have published a book six months ago but neither the book nor any explanation is forthcoming. One member received valuable MSS. three months ago, but has not yet even sent a postal in reply). It is absolutely essential for the publication work that one experienced man be set aside to give his whole time to translating and publishing work in China, taking the place of the present editorial secretary. All resolutions of the subject passed by Conference seem to be quite futile. It is high time that at least one man is set free and that the whole membership is not exclusively occupied in healing and teaching! The hope that teachers would find time to translate books on their subjects has had a very poor materialization so far. Even the contribution of short articles to the Chinese Medical Journal is largely limited to Canton.

One is glad to hear of the prospect of affiliation of medical schools. The idea of eight separate schools teaching up to the home standard (what "home standard"?) is preposterous. Looking to the increasingly costly nature of medical education nowadays and the lack of teachers, I doubt if the missions can run more than one such school. To have any more means extensive co-operation with the Chinese, a proposition highly desirable but bristling with difficulties. But there is room for schools run on less ambitious lines, whose graduates can do an immense amount of good in the land.

Thanks are due to Dr. Duncan Whyte for his research into Chinese physiological standards in South China. His work on the composition of urine should be repeated all over China so that proper standards can be used in our works on Physiology and Diagnosis. There is room, too, for research in Food, Materia Medica, etc.

Note:—The new issue of Whitney's Gray seems to follow the old pretty closely and perpetuates such errors as 神经细胞 (神经, simply refers to the nerve strands). The elements of the nervous system (神 腑) are the cells (神经) and the fibers (神 腑). Until the second edition of the Lexicon comes out, teachers and students should follow the anatomical terminology of the Atlas.

My best thanks are due to the nurses who have kindly responded to the request for information re books required in the nurse-training
The China Medical Journal.

schools. Unfortunately we are unable to help by translating any of the books still needed. But perhaps some members of the C. M. M. A. who fear to attempt our larger books will undertake these smaller ones. Books on Elementary Anatomy and Physiology, Bacteriology, etc., are much required.

P. B. COUSLAND.

November 1913.

**DR. F. J. HALL.**

Suddenly, almost without warning, the stroke fell; and a strong man among us, after a brave struggle with the fierce fever, was constrained to lay down the instruments of earthly usefulness, leave the loved work to other hands, and join his loyally-served Master in a yet closer fellowship of yet higher service beyond the shadows. One of the Church's "beloved physicians" was Francis Jenks Hall, in our mission circle, in the Medical College, among the Chinese, and throughout our little Peking world, a man of thorough preparation, of unusual skill, of many accomplishments, and of a genial spirit; and in his missionary service not only a living but a willing sacrifice, seeking to so represent Christ as Christ had represented God to the world. An indefatigable worker, he yet found time and zest for social joys, for musical improvement and entertainment and wholesome recreations. Even in the earlier stages of his own linguistic preparation, he became an inspiring teacher of his students. Under all the pressure of manifold duties he was a most accommodating friend and associate. His spiritual life was strong and sweet.

Dr. Hall was born in Brookville, Pennsylvania, in 1877. An honor man at Yale University, he pursued his medical studies at Johns Hopkins University, Baltimore, Md., afterward securing hospital experience in Philadelphia. He came to China in 1906: devoted himself assiduously, and with rare success, to the mastery of the language. Necessity early compelled the vigorous use of these attainments in the instruction of students at the Union Medical College. The duties of the station treasury were soon added to his burden. Yet with it all, Dr. Hall never forgot the evangelistic purpose of his coming, and sought earnestly to implant that purpose in the hearts of his students. He was an all-around man and missionary of Jesus Christ. Weakened by overwork, yet ministering to typhus fever patients, he himself succumbed to the dread disease, after twelve days' illness, on May 26th, 1913.

Rev. C. H. Fenn, D.D.
Book Reviews.


"The dominant idea in the mind of the author has been to bring home to the Christian consciousness of the homeland an enhanced conception of the need, value and importance of medical missions in the spread of the Gospel." No one need be deterred from at once possessing himself or herself of this book (no doubt it can be had in Shanghai) by the word "Homeland." Dr. Moorshead, who is at the head of the Medical Auxiliary of the Baptist Missionary Society, has written within the compass of a little more than 200 pages a work on medical missions at once comprehensive and concise, lucid and interesting; just such a little text-book as we want to refresh ourselves by reading, to keep on a handy shelf for reference and to take with us on furlough to provide some of the ammunition we need when doing deputation work at home.

In Chapter V:—The Value of Medical Missions, so comprehensive a summary is given that I cannot forbear quoting it.

I. Evangelistic.

(a) As a Pioneer Agency:
   1. By overcoming hostility and prejudice.
   2. By destroying superstition.

(b) As a Direct Spiritual Agency:
   2. By exhibiting an object lesson of the Gospel.
   3. By securing time for repeated presentations of the Gospel both by lip and life.

II. Social.

As a Christian Social Agency:
   1. By weakening such systems as caste.
   2. By acting as centres for public health reform.
   3. By imparting a new standard to human life, especially that of womanhood.

III. Educational.

(a) As a Christian Educational Agency:
   1. By supplying scientific medical knowledge.
   2. By training native medical students and raising up native medical missionaries.

(b) As a Christian Philanthropic Agency:
   By training the Native Christian Church in true Christian philanthropy.
IV. *Economic.*

As a *Missionary Health Agency*:
1. By diffusing a proper knowledge of the preservation of health among the missionary staff.
2. By treating sick members of the staff.
3. By guiding the health administration of missionary societies.

Under Division III some account is given of Missionary Medical Schools in India and China and their importance is well advocated, and in the chapter on woman's sphere in medical missions, that other too much neglected agency—nurse missionaries—is strongly pressed.

Chapter IX, *The Failure of Medical Missions,* requires our serious study. Mission Boards and Local Councils should resist appeals to open new centres until the existing schools and hospitals are adequately staffed. One is greatly tempted to quote but—*get the book and read for yourself.* It is refreshing to read what the head of a medical mission auxiliary says about the great strength the auxiliary has been to his mission and his advocacy of concentration and efficiency on the field. (*When medical mission auxiliaries have proved so successful, why don't more missions adopt them? And why when our existing stations are so miserably staffed do we keep opening new ones in spite of a rapid fire of resolutions from Conferences and Committees?*)

The chapters on the training of a medical missionary (including post-graduate and furlough work) and the Home Base are especially good.

The book is affectionately dedicated to the beloved memory of Dr. Stanley Jenkins and Dr. Cecil Robertson who died at Sianfu, Shensi, from typhus fever in the spring of 1913.

P. B. C.

**ADVANCE NOTE ON A MISSIONARY SURVEY OF 1913.**

The January number of the *International Review of Missions* will contain a 'Missionary Survey of 1913' by Mr. J. H. Oldham, some 30,000 words in length, based on the Reports of missionary societies and organizations in the mission field, on a regular examination of 250 magazines, newspapers and reviews, both general and missionary, and on personal communications from over 150 correspondents in all parts of the world. The international resources at the service of the Continuation Committee of the Edinburgh Conference have been fully utilized to make this connected literary record of a year so full of world-wide political, social and religious significance unique in value to students of missions. Ministers will find in this survey a background for the missionary propaganda of their own denomination. The
material is grouped under different countries, including all the mission fields and the Home Base in America, Great Britain and the Continent of Europe; side-notes facilitate reference to the various topics, and the main published sources of information are indicated in foot-notes.


A book such as this, already in its sixth edition, needs no introduction to anyone who is doing surgical work. To those who have never used it, I would say, "Get one as soon as possible; you will find it one of the most valuable books you possess."

As its title indicates, it is devoted to a description of operations performed, and entirely leaves out the usual features of a text-book, pathology, diagnosis and recital of symptoms. In this way, much more attention can be given to the details of every operation, and there is none of that leaving it to the imagination which happens in many books on Surgery. Although the author states in his preface, that "the constant endeavor is to give aid and guidance to the surgeon when he is in trouble, hence far more space is devoted to such rare and difficult operations as hypophysectomy, than to many operations of much greater everyday importance," yet we find that full descriptions are given of many operations which could easily be classed under minor surgery. It is this feature which makes the book so valuable to the general surgeon.

H. H. M.


In a small condensed manual such as this is, there is not a great deal that can be said, especially when the book has already passed through two editions in a very short time. That in itself shows the value of the book. Anyone who has used it, knows what a handy and convenient guide it is, and anyone who desires a concise but yet quite complete laboratory manual will find it in this volume. This edition contains considerable new material, bringing it up to date, and at the same time it has been kept to a size convenient to carry around in the pocket.

H. H. M.
We acknowledge with thanks the receipt of the following books for review.


Medical and Surgical Reports of the Episcopal Hospital, Phila. Vol I.


Messrs P. Blakiston's Son & Co., announce the publication of the following books:


**Modern Problems of Biology.** Lectures delivered at the University of Jena. By Charles S. Minot, S.D., LL.D. 53 Illustrations. 8vo. Cloth $1.25.


**Text-Book of Histology.** (Stohr.) Arranged upon an Embryological Basis, by Dr. Frederic T. Lewis, Assistant Professor of Embryology at the Harvard Medical School. Seventh American Edition, Revised. With 245 Illustrations, 51 in colors. 8vo; XI + 539 pages. Cloth $3.00. This edition has been rewritten, enlarged by 105 pages and has 45 additional illustrations.

A REVIEW OF A CLINICAL STUDY
OF MALARIAL FEVER IN
PANAMA.

By John Pelham Bates, M.D., Ancon, Canal
Zone, Panama.

Administration of Quinine in Ma­
laria.—A review of the literature
on the subject of the administration
of quinine for the cure of malaria
discloses the fact that the question
is far from being a closed one.
The quantity of quinine necessary
to control the malarial attacks is
still debated, and the question as
to whether small doses frequently
repeated, or whether larger doses at
wider intervals are the most effi­
cient to control the febrile attacks
have their advocates both pro and
con. The question of the time in
the life phases of the malarial
organism when the quinine is most
effective in the destruction of the
organisms, is now settled. This
time is accepted by all to be in the
stages of the active development of
the parasites, and all agree that
the effectiveness of the drug con­
tinues on the intracellular organism
but with progressively decreasing
potency till about maturity, where
it ceases altogether.

The largest majority of all cases
of malaria are of moderate severity,
and will terminate their course
spontaneously in ten to fifteen
days, or twenty days at most; this
holds good for tropical climates as
well as temperate; thus it is that
we find 30 gr. of quinine a day
sufficient to meet the requirements
of the greater number of malarial
cases. But in severe malarious
countries a goodly portion of the
cases do not tend towards sponta­
aneous recovery, but pass beyond
the average into the grave and
pernicious types. In these types
all agree that quinine should be
increased in doses beyond the aver­
age of 30 gr. a day, but the ques­
tion becomes, to what extent
should quinine be increased to be
effective in those types of malaria?
Craig states that 40 gr. a day
should never be exceeded, while
others do not specify any limit, but
very few recommend quantities ex­
ceeding 45 gr. a day. In our hos­
pitals here it has been found
necessary to exceed very greatly
these quantities of quinine in the
grave and pernicious types. We
first increase the quinine for the
therapeutic tests for differential
diagnosis, and second, to meet the
requirements of the very grave
pernicious attacks. The routine
practice is to administer 20 gr. of
quinine in solution when the patient
is admitted to the hospital, and
continue thereafter with 30 gr. a
day. For the therapeutic test
quinine is sometimes increased to
45 gr. a day for one or two days,
and then reduced to the usual 30
g. a day. In the grave and per­
nicious cases quinine is adminis­
tered in quantities of from 60 to 90
gr. a day, according to the gravity
of the case. In my individual work
I have in many instances exceeded
even these quantities, and I have
administered 120 gr. in the first
twenty-four hours. I do not, how­
ever, continue quinine in these
massive quantities for a period longer
than twenty-four hours. Experience
has taught that it is useless to
continue quinine in such massive
quantities for a period longer than
twenty-four hours. If quantities
such as 90 to 120 gr. in twenty­
fours do not suffice to effect relief,
the infection has already passed
the stage where treatment can be
of any avail. In fact, cases of such
gravity as to call for quinine above
80 gr. in the first twenty-four hours usually prove fatal within this period, and one rarely succeeds for the lack of time to introduce 90 to 120 gr. of quinine into the system.

The Time of the Day to Administer Quinine.—In Ancon Hospital it had been a routine practice to administer quinine in 10-grain doses three times a day, while in Colon Hospital the practice, as introduced by Brem, has been to administer quinine in 15-grain doses at 6 and 11 a.m. Both of these practices have been equally satisfactory clinically, but I am nevertheless partial to the twice-a-day method, with both doses given in the forenoon. It has the advantage of being less troublesome to the patient, and as a majority of the cases of malaria have their paroxysms in the forenoon, the twice-a-day method has the added advantage of putting the quinine into the circulation in greatest concentration at about the time that sporulation most frequently occurs, thus permitting the quinine to act most effectively on the young organisms. But when it becomes necessary to increase the dosage to 45 gr. a day, or more, it is then not feasible to continue the administration in twice-a-day doses. Under such circumstances I usually administer for the 45 gr. a day three 15-grain doses during the day, or for the 60 gr. a day four 15-grain doses. For quantities above this, quinine is administered in 10-grain doses every two or three hours as the case seems to indicate.

The Methods of Administering Quinine.—I shall here discuss briefly the methods of administering quinine. Such a discussion would hardly require the space if it were not for the fact that a general impression seems to prevail, that when quinine is administered hypodermically it has a like potency, and acts in the same degree of efficiency as the other highly soluble drugs such as strychnine or morphine, when administered in this manner. This assumption thus makes the hypodermic method of administering quinine the method of choice when one is desirous of putting quinine into the system in the greatest quantity in the least time. I suppose this idea is deduced from the fact of the prompt and full effect produced by hypodermic injections of the soluble salts of the more powerful drugs which can be administered in minute doses. But with quinine the case is hardly similar. Quinine is not very soluble at best, and the quantity administered is enormous when compared to the very soluble salts that are usually administered hypodermically. To a certain extent it is found that quinine when administered hypodermically follows the rule of the other soluble drugs when administered in a like manner, in that it appears in the urine more quickly than when administered by the mouth, but it by no means follows that the full quantity of quinine injected is all absorbed, or, even if it is all absorbed, that it is absorbed rapidly. In fact, clinical experience would lead one to infer that when quinine is administered hypodermically the full quantity is slowly absorbed, and in many instances scarcely absorbed at all. Rogers has pointed out by comparison of charts that the fever may not be checked as promptly by quinine administered hypodermically as when administered by the mouth, and Thayer notes that a large percentage of the salt is precipitated in the tissues when it is administered hypodermically. Indeed, it is a too common experience after a hypodermic administration of quinine for one
to be confronted by patients with deep-seated indurated painful masses at the site of the injection. These masses may remain for a week or more to slowly absorb, or finally, a certain per cent. of them break down by coagulation necrosis into large sloughing indolent abscesses, and this untoward event occurs in spite of all aseptic precautions. Thus, it appears to me that while quinine administered hypodermically is our sheet anchor in a great many pernicious cases of malaria, it is nevertheless not a method of election but a method of necessity. Therefore, I think when quinine is administered by the mouth and already in solution, it is even more efficacious than by hypodermic injection. I make it a practice to follow the method of administering quinine by the mouth as long as the patient can be induced to swallow. Even when vomiting is a troublesome problem, a little patience and a little perseverance will be rewarded by surprisingly satisfactory results. By repeating the doses of quinine in small amounts, 10 gr. or so, after each rejection by vomiting, with such other symptomatic remedies as may suggest themselves, a small hypodermic injection of morphia or hot sinapisms over the stomach for instance, one will find that the vomiting will cease, and that the patient can continue to take quinine with a fair degree of comfort.

Intravenous Administration of Quinine.—Intravenous injection of quinine is, of course, unquestionably the most rapid and efficient means of administering the drug, but unfortunately this method is not without danger to the patient. Thayer has reported a case in which death occurred immediately after the intravenous injection of quinine, and I have had one case in which the symptoms became very alarming just at the close of the operation. On account of the danger to the patient, I have been timid about adopting this method, and have not used it except in cases in which I felt that no other means of administering quinine could be of any benefit, that is to say, I have used the method only as a last resort.

The Prevention of Relapse.—I am beginning of late to be inclined to the postulate that malarial parasites become feebly "fast" to quinine when they are forced to develop through several generations in weak dilutions of the drug in the circulation. If this then is true, interrupted periods of administering quinine is the proper method for preventing relapses. Experience has taught that interrupted periods of administration of quinine has at least this advantage, and that is, that patients will in most instances persist in this method of their own accord, when they will not continue quinine in regular daily doses in quantities sufficient to be efficacious. It is an old practice to administer quinine in interrupted periods of about one week interval. Marchiafava and Bignami, so far as I am able to learn, were the first to adopt the interrupted method of administering quinine in relapses, and they insist from their experience that it is the best method for preventing the recurrences. I have also found this method very efficacious when dealing with intelligent patients. I pursue the method in the following manner: from the last day of the subsidence of the fever I have the patient count forward seven days, and make a note of the date, and each seventh day thereafter is noted for six weeks, and preferably eight weeks. On the day before the seventh day the patient is instructed to begin quinine in full doses, usually 30 gr., and continue it through the seventh or pivotal day, and continue it through-
out the next day following. Then discontinue until the next period, and thus continue the treatment throughout the specified time. As I have already stated, to obtain results by this method presupposes intelligence on the part of the patient or his guardian.

Effect of Quinine in Large Doses.

— As I have stated, the quantities of quinine we administer here in our hospitals are larger than are usually administered in any other institutions, and I judge it will be of interest to make known the effect these quantities have on the patients. As I have already stated, so far as I can see it has had no evil effect in any manner.

If it has been the cause of precipitating blackwater fever, there has been no means of ascertaining this fact, but apparently it has not done so. It has left no permanent ill-effects upon the hearing or sight, and I have seen only one instance of quinine amblyopia, and this occurred while the patient was taking 30 gr. a day. In one case quinine in solution was administered, by accidentally overlooking a patient, in 30 gr. a day doses for a period of seven months, at which time no ill-effects could be noted, and the patient stated that he had long since ceased to be troubled by ringing in the ears or other unpleasant symptoms. It was not unusual in my wards in the press of heavy work to overlook patients in the manner as stated, and allow them to continue on quinine of 30 gr. a day for periods of two or three months. In these instances there was no apparent ill effect from the drug.

I have in this series of papers stated to the point of tediousness that if quinine is administered in malaria in an efficient manner one may always expect that the febrile course will be checked in from one to five days. I have herein set forth what I consider the efficient administration of quinine. There are several adjuvants to quinine in malaria which make for the efficiency of the treatment, and to obtain the best results one must insist upon them. The first of these is rest in bed during the febrile stage, no matter whether the case is mild or severe. The second is restricted diet, and the third is prevention of continuous reinfection of the patient in his own surroundings.—From the Journal of Tropical Medicine and Hygiene, October 1st, 1913.

RELAPSES IN MALARIAL INFECTIONS.

Dr. W. M. James, in an interesting study of the etiology of relapse in malarial infections, states that if the hypothesis be accepted that the asexual cycle alone is the cause of relapse, and that under certain conditions there is a relative immunity to quinine, an explanation is offered of all the factors concerned in the etiology of relapse. There is, he thinks, no other hypothesis which will explain satisfactorily the correlation between the factors and the data hitherto collected. He summarizes these factors in relation to the asexual cycle as follows: (1) Relapse is one of the most common factors in malarial infection; and certainly the asexual cycle is that phase of the malarial parasites found most frequently associated with the primary infection and relapse, and with one relapse and the succeeding one. (2) Relapse follows frequently the so-called spontaneous cure of malaria, because the asexual cycle in such a case often persists, in numbers that can be detected by the "thick film" method, or slightly below this limit, in the intervals of apyrexia. (3) Infections treated insufficiently with small doses of
Medical Progress.

quinine will in all probability relapse, because the parasites of the asexual cycle in the spleen and marrow are very slightly, if at all, affected thereby. (4) Relapse is less likely to occur when the infection is promptly and vigorously treated, because the older the asexual cycle the more resistant to quinine it becomes, as shown by numerous clinical observations. (5) When a relapse occurs, with manifestation of parasites in the peripheral blood, during the administration of quinine by mouth in sufficient doses, faulty absorption of the drug is sure to exist, and the method of medication should be changed. (6) The potential of vitality of the asexual generation is not unlimited, and for this reason if death does not supervene in the course of a malarial infection the infection itself will in time die out, but often not until it has done irreparable damage. (7) It is easier to eradicate an infection in persons in good health, because in these the natural protective forces of the body aid the action of quinine. The hypothesis also concurs with the two factors in the life-cycle of the parasites, which are intimately connected with the etiology of relapse, because (a) quinine given by the mouth very often does not eradicate the asexual cycle in the marrow and spleen and the residual parasites become immune, and (b) the longer the asexual cycle persists the more easily does it acquire immunity against the drug. The practical importance of the hypothesis lies in its value as a guide to the treatment of malaria. Small doses of quinine, even in the mildest infections, serve only to render the asexual cycle relatively immune, so that larger doses, which if they had been given early in the attack might have eradicated the parasites, are later without effect. The importance of this is evident.—Reprinted from The Journal of Infectious Diseases, vol. xii, No. 3, May, 1913.

PRELIMINARY NOTE ON BED-BUGS AND LEPROSY.

By David Thomson, M.B., Ch.B., Edin.

Two articles appeared simultaneously, one by Sandes and the other by Long, in the British Medical Journal, 1911, vol. ii, pp. 469 and 470, in which it was stated that a considerable percentage of the bed-bugs experimentally fed on lepers were found to contain the leprosy bacilli. Furthermore, a large percentage of the bed-bugs caught within the dwellings of lepers contained acid-fast bacilli, presumably the bacilli of leprosy, while those caught in the dwellings of healthy people contained none. The presumption was that bed-bugs might play an important part in the transmission of this disease. Since these announcements nothing further, so far as I can ascertain, has been published on this subject. In 1911 I attempted to confirm these observations by feeding a number of bed-bugs on two cases of leprosy in the Royal Southern Hospital, Liverpool, in Sir Ronald Ross's clinic. One was a case of the maculo-anæsthetic type, the other was of the nodular variety. Seventeen bugs were fed directly on the nodules of the latter case, and four on the patches of the former. They were killed and examined from two to ten days afterwards for acid-fast bacilli, but none could be found; numerous control bugs were examined, with similar negative results. I was unable to make any further investigations on the subject until 1912. I spent the last three months of that year in Panama, and had ample material at hand for continuing the work. In the leper asylum at Palo-seco I fed 84 bed-bugs on various cases of leprosy,
acute and chronic, but was unable to find any trace of acid-fast bacilli in these insects afterwards. Seventeen bed-bugs were caught in the beds of the patients at Palo-seco, and I obtained eighteen more caught on the mattresses of the beds in the leper asylum at Trinidad. All of these likewise showed no trace of acid-fast bacilli. A total of 105 bugs fed on lepers and 35 caught in the beds of lepers, therefore, gave no evidence that these insects harbour or transmit the disease. A further total of 107 bed-bugs were examined as controls; 21 of these were caught in dwellings in Liverpool, the remainder were caught in the Spanish wards in Ancon Hospital in Panama. The controls also gave negative results. The Ziehl-Neelsen stain was used throughout. Full details of this investigation, in addition to other researches on the transmission of disease by bed-bugs, will be published later in the Annals of Tropical Medicine and Parasitology.

—British Medical Journal.


Salomon writes from von Noorden's clinic at Vienna, to call attention to the striking results he has obtained in treatment of rebellious urticaria by having the patients drop all albumin from their diet for two weeks. In his experience the urticaria did not return after this dietetic restriction for two weeks, although the patients afterward gradually resumed milk, eggs, cheese and meat, still keeping the albumin ration, however, rather below the usual amount. The diet he permitted consisted only of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar, and about 200 gm. of bread made of coarse flour.—Wiener klinische Wochenschrift, Vienna, August 28th.


J. F. Percy, M.D.

Last year I published my experiences with large doses of desiccated thyroid gland in the treatment of the usual form of nephritis. I now record my further experience with this agent, and urge its use in the treatment of nephritis as a preliminary to surgical treatment which may be necessary in such cases.

It is unnecessary, I am sure, to insist that the thyroid gland, even if given in large doses to those suffering from nephritis, will not remove the symptoms in the cases in which the disease is secondary to advanced heart or liver changes. This can also be said to be true when the symptoms of the nephritis are due to infections of the genito-urinary tract, especially tuberculosis, nephrolithiasis, an ascending infection due to an infected bladder coincident to an obstructing prostate gland, or a surgical kidney. These are also without the pale of favorable consideration of this treatment.

It is difficult to state, at this writing, where the destructive limits of nephritis cease to be favorably influenced by the thyroid treatment. [The author here cites several cases of successful preliminary treatment with thyroid extract of marked cases of nephritis before operation for hernia, and concludes his paper with the following remarks on the treatment of nephritis in general with the above mentioned remedy.—Ed.]

It is my rule now, and I would earnestly recommend to others to give a 2-grain tablet of the dried thyroid gland six times in the
twenty-four hours, for two days, in all cases in which the genito-urinary tract is to be attacked by the knife. My reason for this is not alone the results that I have seen from the use of this gland in nephritis as it ordinarily occurs, but especially its remarkable efficiency in clearing up the albuminuria of pregnancy, to which I also referred in my first paper. These experiences have impressed me to such a degree that I am willing to assert that clinically, at least, the desiccated thyroid gland is indicated in all forms of existing, or threatened, urinary pathology that do not come within the list of exceptions which I have already indicated in the first part of this paper.

Method of Administration. Small doses, that is, 2 grains of the dried gland every four hours, are absolutely ineffective, and have no apparent effect in arresting the progress of the disease. My own rule is to give six tablets a day for the first week, each tablet representing 2 grains of dried thyroid-gland substance. If the total quantity of urine is collected each twenty-four hours after the thyroid-gland treatment is commenced, it will be noted that the abnormal characteristics of the urine previous to the treatment are greatly intensified. Not only is the quantity in the twenty-four hours lessened, but there is a marked increase in both the number of casts and in the quantity of albumin; with this, the patient's physical symptoms in many cases, but not in all, are intensified. This disturbance lasts, in those subject to it, not over three days. The elimination of casts and albumin then begins to decrease, and the patient shows physical improvement in a ratio commensurate with the change for the better in his urinary findings. At the end of the first week, my rule is to increase the number of tablets (2 grains) to 10 a day.

This quantity of the drug, when combined with absolute rest in bed, constitutes the routine in the average case.

The fear of hyperthyroidism is almost groundless while the urine contains casts and albumin. When persisted in after these elements have disappeared, in a few cases I have had a mild hyperthyroidism develop, which disappeared in a week, when thyroid was discontinued.

After the urine becomes normal, I reduce the number of tablets to four or six a day, and give these three weeks out of each month. Whether this is absolutely necessary, or not, I am not quite prepared to say. Most of my early patients have not continued with the treatment in this way, and have remained well. If the high blood-pressure persists, I follow the thyroid treatment with the persistent use of potassium iodid and nitroglycerin, as mentioned in my previous paper. I do this because, clinically, I am quite certain that it has done my patients, with this condition, much good. I am convinced that the administration of the dried thyroid gland in addition to offering a method of efficient treatment to the internist, offers to the surgeon, as well, a means of benefiting his operative cases when nephritis, mild or severe, is one of his problems. — From Journal A. M. A., August 9th, 1913.

The Treatment of Lues.

Cole (Cleveland Medical Journal, April, 1913), after reviewing the modern concept of syphilis and the application of drugs for its relief, states that the ideal treatment, and the one being practically used at several of the best known European clinics, is as follows: The patient receives an intravenous injection of neosalvarsan, the dose depending on the case and on circumstances. At the same time or even a little be-
fore, an intramuscular injection of oleum cinereum, 0.125 Cc., is given and repeated in three days if well borne. The arsenic preparation is likewise repeated after eight days, though in a larger dose, and twice again in the space of two weeks; while for four consecutive weeks the patient receives an intramuscular injection of 0.25 Cc. oleum cinereum. During all this time an injection of mercury biniiodide of one-fourth of a grain (0.01 gramme) might be given the middle of each week, and in the respite of five or six weeks in the oleum cinereum injections it could be used once or twice a week. Then another series of five injections of oleum cinereum of 0.25 Cc. each is made, one each week. One course of treatment is then finished and the patient is allowed a rest of a month, when a Wassermann reaction is tried. If it be negative he is allowed to wait another month, when it is repeated. If it still be negative, the patient is, notwithstanding, given an intravenous injection of neosalvarsan and told to come back in two months for another blood examination. If it be still negative the question then arises: Is this patient cured, or not? We are still unable to settle this question definitely, and the writer suggests that at any rate another course of treatment should be given. Then if the blood still shows nothing, probably the patient is cured, though we must yet plead partial ignorance, and it would be well to examine the blood every six months for a year or so. The present attitude in Europe is to inject approximately 2 grammes (30 grains) of metallic mercury into the patient's system in the first year's treatment, and, depending on the case, if required, 1 grammes (15 grains) in the next two years. No luetic should be allowed to marry before he has had at least one year of the most intensive treatment and before his Wassermann reaction has been negative for at least two years. Marie Kauffmann-Wolff in her records of forty-five marriages, puts the patients in three classes, viz: (1) wives of luetic husbands, the latter having been syphilitic before marriage or having contracted the disease extramittirionally after marriage; (2) wives who have several times aborted or who have been the mothers of luetic children; (3) cases which belong to the type of "syphilis hereditaria." In forty-five cases so married, thirty are still living. Twice as many men as women are dead, and among the men diseases of the circulatory organs were the cause of death in one-half of them. Two of them had tabes, and two, still living, are suspicious of tabes. The greatest number of deaths were between the ages of forty and fifty. Of thirty still living, seventeen show signs of lues, thirteen not. In one of the cases the wife was infected seven years after the husband had contracted lues. Of eighty-one pregnancies from the marriages there have been twenty abortions, three early births, five still-births, and twenty deaths in early childhood up to two and one-half years. Nine of the marriages have been childless—i.e., five of them have been sterile, and in the other four there have been only abortions. Syphilis is yearly sending thousands of our citizens to asylums and passing over stigmata to hundreds and hundreds of our children.—Therapeutic Gazette.

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INTRAMUSCULAR VERSUS SUBCUTANEOUS INJECTIONS.

We are reminded by a recently published review of the marked change of opinion which has come about of late in respect to the comparative efficiency of subcutan-
ious and intramuscular injections in the administration of therapeutic agents. Deep or intramuscular injections have been practised by physicians for many years; not, however, in the belief that they afforded a more prompt mode of drug absorption, but rather on the supposition that the formation of abscesses was thereby more readily averted. It remained for Meltzer and Auer to demonstrate conclusively that the effects of active drugs appear earlier, and with greater intensity after intramuscular injections than after subcutaneous injections. Pointing in the same direction is the fact that doses ineffective by the latter mode of introduction may often exert their characteristic effect when injected intramuscularly. This is especially true when a certain concentration of active substance is called for in the circulation to induce the awaited result. Eggleston and Hatcher found that for intramuscular injections the minimum dose of apomorphin to produce emetic action is half of that which provokes a similar effect on subcutaneous injection. Morgenroth and Levy make the assertion in relation to the absorption of diphtheria antitoxin that the intramuscular injection of a small dose of antitoxin together with a fatal dose of toxin prevented even induration at the site of the injection, while a much larger dose of antitoxin administered subcutaneously (again with a fatal dose of toxin) was incapable of preventing the early death of the animals tested. To quote Meltzer's conclusion, it is now quite safely established that active substances are pharmacologically more effective, that is, manifest their effects earlier and with greater intensity, when administered by intramuscular than by subcutaneous injection.—Journal Am. Med. Ass. November 1st, 1913.

UMBILICAL HERNIA IN CHILDREN.

The operation is not performed by Fraser on children below the age of 6 months, and in the majority of cases, he says, it is of advantage to wait until the child is a year old. During the pre-operation period the application of a pad or of inversion may be practiced, and if cure results without operation so much the better. The size of the opening in the abdominal wall is considered in judging the suitability of the case. A large opening is unsuitable for operation by this method, as there is later a tendency to recurrence. The rough guide which Fraser uses is the tip of the little finger—an opening which is large enough to admit this is considered unsuitable. It is essential that the sac be empty; irreducible contents of any description whatsoever must be looked on as an absolute contraindication to the operation. As long as the opening in the parietes is suitable, the size of the sac need not be taken into consideration. The method has been practised on twenty-one patients. The procedure does not occupy more than a couple of minutes in the accomplishment, and the after-treatment is of the most simple description. The preliminary treatment consists in a thorough evacuation of the bowels and the reduction of flatulence by suitable dietary before operation. The essential material is a piece of elastic cord ¼ inch in diameter and about 3 inches long.

The technic of the operation is as follows: The skin over the fundus of the protrusion is grasped with a pair of dissecting forceps, and skin and sac are pulled gently upward from the abdominal wall. Great care is exercised in ascertaining that the contents of the sac are completely reduced. Three small incisions are made at equal
intervals around the periphery of the sac, at the point where the skin is reflected on the abdominal wall. These incisions penetrate the skin and subcutaneous tissues, but they must not injure the sac. With a blunt dissector it is now possible to undermine the tissues around the pedicle of the sac—the three radiatory incisions facilitate the performance of this. The elastic ligature is now pulled beneath the skin, following the track of separation. This is most conveniently done by means of an artery forceps, which pulls the ligature as tightly as possible around the pedicle of the sac and fastens it so with a stout piece of silk. The ends of the elastic ligature are left protruding through one of the incisions, and they are cut to a convenient length; a simple dressing is applied and kept in position by means of a band of adhesive plaster. The ligature is allowed to remain in position for six days and then removed by cutting the silk knot. The opening which it leaves quickly closes.—The Lancet, September, 1913.

TREATMENT OF KELOID.

Keloid, growing from the jewel holes in the tip of the ear in Indian ladies, is very common and disfiguring. All attempts to remove it by the knife make matters worse, for large and more numerous growths are sure to follow. Some years ago I began treating these tumours by injections of formalin (40 per cent. paraldehyde) with uniform success. An Indian lady has just sent me a photograph of her right ear, on which was once a keloid the size of a large plum, which disfigured her very much. There is no sign of a recurrence, though it is four years since the operation. The treatment is very simple. Either induce local anaesthesia or give chloroform, as the injection process is painful. About twenty injections of about five minims each of formalin were made in this case at one sitting. The tumour was wrapped up in lint soaked in boracic lotion. In a week or so it had assumed the appearance and consistency of a piece of coke. It separated in about a fortnight. The dressing was changed daily. There was no odour at any time, nor any pain to speak of. Care must be taken never to inject the formalin subcutaneously, but always into the substance of the tumour only.—John Smith, Colonel, I. M. S., in British Medical Journal, September 27th.

AN EXPERIMENTAL STUDY OF THE ANTISEPTIC VALUE IN THE URINE OF THE INTERNAL USE OF HEXAMETHYLENAMIN.

FRANK HINMAN, A.B., M.D.

Since 1895, when Nicolaier first demonstrated formaldehyde in the urine as a decomposition product of hexamethylenamin, the use of hexamethylenamin as a urinary antiseptic has been almost universal. Churchman indicated in 1906 its antiseptic value with the conclusion that its effects in the urine are expressed in an inhibition of bacterial development rather than in a destruction of bacterial life. Nothing more definite appeared until last year, when Burman upset our ideas somewhat by stating that on the customary doses of from 5 to 10 grains three times a day not more than two patients out of ten would show any decomposition of the formaldehyde at all, and only 60 % of those receiving 20 to 30 grs. every four hours would show it.

A review of the work of other investigators, of which there have been a great many, and my own
experiments, indicate that formaldehyd is a weak and a relatively slow germicide, but that even in high dilutions it exerts a powerful inhibitory influence to bacterial development. This power of inhibition varies with the different organisms studied. The staphylococci, and the typhoid and colon bacilli are the most resistant, the \textit{Bacillus pyocyaneus} and streptococci are next, while the proteus group, the diphteria and pseudopliptheria bacilli, \textit{B. subtilis} and \textit{B. dysenteriae} are less resistant to its action. A dilution of formaldehyd of about 1 to 16,000 or stronger is totally inhibitory to the growth of \textit{B. typhosus} for twenty-four hours, and a dilution of 1 to 6,000 is completely germicidal at the end of that time. A dilution of 1 to 30,000 definitely restrains the growth of the organism, but a dilution of 1 to 40,000 has no apparent effect, although, if the results are shown by means of plating and a systematic bacterial count, there will be a slight diminution in the count, as compared to a control in broth.

In order that formaldehyd in the urine may be of clinical value, therefore, the urine should contain a strength of at least 1 to 30,000. Twice this strength is much more efficacious, as it would then be completely inhibitory to a majority of the organisms, and the best effect will be procured with a germicidal strength, or a solution of about 1 to 6,000.

Experiments indicate that a formaldehyd content of antiseptic value cannot be expected with a urinary acidity below 2 c.c. of tenth-normal sodium hydroxid.

The importance of urinary acidity to formaldehyd content in the urine is further demonstrated by the following observations:

1. The urine of a patient on hexamethylenamin, if acid, will after standing give a higher test for formaldehyd than when fresh. For example, 400 c.c. of urine voided at 11:30 was negative for formaldehyd, but at 3 p.m. the same urine gave a 1 to 30,000 test.

Influence of the Size of the Dose.

In a few cases the routine of 15 grains three times a day was varied for purposes of comparison. The amount of hexamethylenamin excreted, the other factors being good, appears to be proportional to the amount ingested, but a large dose is not effective unless accompanied with a urinary acidity greater than 2 c.c. of tenth-normal sodium hydroxid. The value of smaller doses than 15 grains is very questionable. The drug can be given for months in fairly large doses with no untoward effects.

Influence of Curve of Excretion.

Formaldehyd will begin to appear in an acid urine in sufficient quantities to be detected after the ingestion of an average dose (15 grains) in from twenty to thirty minutes, and will have disappeared in from eight to sixteen hours. The height of excretion is reached in from two to four hours and is maintained for four hours or longer. An eight-hour interval of administration will give good results in routine use, although a higher concentration is obtained with a more frequent medication.

Conclusions.

1. The conversion of hexamethylenamin into formaldehyd is a simple chemical process which will readily occur in an acid medium, but will not occur in an alkaline medium.

2. The amount of excretion of hexamethylenamin in the urine is influenced by the size of the dose, by the frequency of
administration and by the character of the changes that occur in the acid contents of the stomach. The interval of administration should not be longer than eight hours, and shorter intervals will give more continued maximum effect.

3. The amount of the subsequent conversion of this hexamethlenamin in the urine is dependent on the degree of urinary acidity, on the duration of exposure to the influence of this acidity and on the percentage concentration of the drug in it; and in order to give formaldehyd conversion in antiseptic amounts the urinary acidity should be greater than 2 c.c. of tenth-normal sodium hydroxid for 10 c.c. of urine.

4. A low acidity may be temporarily increased by feeding certain acid-producing drugs, and this increase in acidity may often be maintained by giving these drugs alternately, acid sodium phosphate, boric acid, benzoic acid.

5. Disease of the kidney has no influence whatsoever on the formaldehyd content in the urine.

6. At the level of the kidneys hexamethylenamin in doses of 15 grains three times a day has no antiseptic value.

7. Formaldehyd is present in the bladder urine in some amount in practically every case receiving 15 grains of hexamethylenamin by mouth three times a day, but this dosage is too small a routine from which to expect a reasonable antiseptic benefit in every case.

8. The allied hexamethylenamin compounds do not give greater antiseptic values than pure hexamethylenamin.—Journal American Medical Association.

TREATMENT OF CHRONIC ULCER OF LEG.

By A. Winkelried Williams.

This paper is limited to the treatment of ambulatory cases of chronic ulcer of the leg. These cases, above all others, appeal to our sympathy on account of the brave heroism of the majority of the sufferers.

Internal Treatment.

The most valuable drugs are iodides and mercury combined with intestinal tonics—for example, aloin, strychnine, and belladonna pills. My experiences coincide with those of Wilmot Evans, the varicosity veins per se rarely if ever cause chronic ulcer of the leg. There is invariably some other constitutional condition at work, and this I think is generally syphilis, or in a few cases rhematitic sepsis. W. Evans estimated that 90 per cent. of chronic ulcers are syphilitic; his views when published were challenged by McDonagh and C. F. Marshall. McDonagh found of 65 cases Wassermann's reaction was positive in 15 only. But whether or not the proportion of syphilitic cases is as high as 90 per cent., in my experience at least 90 per cent. of the cases heal more quickly and the cure is more lasting when treated with mercury and iodides. Unfortunately from the methods in which our records are kept and want of time, I cannot give the exact statistics of several hundred cases I have treated at St. Mary's Dispensary. My views as to the greater permanence of the cure by mercury and iodides are supported by the spontaneous expression of the sisters of St. Mary's. These ladies have acted as dressers for twenty or thirty years and also in their work as district visitors keep in touch with the patients after being cured; they all agree that since the routine treatment by iodides and mercury has been adopted the cured patients remain cured far longer and more permanently than in what they describe as the strapping days.

I prefer to give the iodides and mercury together; some authorities do not. For example, W. Evans emphatically says that the iodides must be given alone, and when the ulcer is healed to follow with mercury. I give them together because I do not find much difference in the time taken to heal the ulcer, but I do find that when the ulcer is healed the patient will not return for mercurial treatment. My one
and only consolation in cases that take a long time to get well is that it gives the patient an opportunity of a mercurial course of treatment, and that after all the ulcers may be a blessing in disguise by saving the sufferers from later and more disastrous disease.

In my early experience I was very unhappy regarding which cases should have mercury and iodides. I soon found that the old ideas of locality and punched-out look of ulcers was a very uncertain guide, and that a better indicator was the character of the pain. Painful ulcers may be divided into two classes: (1) Those in which the pain is worse when the leg is down, and (2) those in which the pain is worse at night, and becomes severe after the patient has been in bed two or three hours; the latter cases almost without exception are relieved by iodide and mercury, and I think the periostitis in these cases is generally syphilitic. Accumulating experience further showed that a large proportion of cases in which the nocturnal pain is trivial or absent are also relieved by mercury and iodides. Coues advises the leg to be skiagraplied to detect periostitis and if it exists, whether syphilitic or not, to give iodides.

Salicylates.—A few cases where iodides and mercury fail are relieved and the cure hastened by salicylates. These cases usually give a history of previous attacks of rheumatism. I usually give the sodium salt with sodium bicarbonate and direct the patient as to cleanliness of the teeth and mouth.

Acid Treatment.—In a few cases of callous ulcer with extreme brawny hardness extending far beyond the ulcer, I have found benefit by treatment with large doses of citric acid given for four days, followed by the application when possible of Bier’s suction cups.

Calcium Iodide and other Calcium Salts.—I have not had great success with this treatment; in a few cases of weak oedematous ulcers with much discharge it has done good work. But I must confess I have not tried it extensively.

Opium I have not found of much good.

Salines.—Small doses of magnesium sulphate several times daily is of marked value in cases where constipation and ulcer with considerable discharge exist.

Iron, Quinine, and Digitalis are often required in weak ulcers as symptoms indicate.

Local Treatment.

When eczema rubrum complicates the ulcers. If ulcers are acutely inflamed, paint ulcers with solution of anaesthesin and place over them a piece of lint thickly spread with weak starch iodide; paste enough to fill up ulcer, and over all lint soaked in lead lotion.

If ulcers are not much inflamed, wrap entire part in lint soaked in lot. hydrarg. perchlor., 1 in 3,000. A few days later replace by 3 parts thick calamine lotion, without lime water, to 1 part lot. hydrarg. perchlor. (1 in 1,000). All lotions without oiled silk, etc., simply bandaged over and changed twice daily; if the lint is sticking, it is to be carefully soaked off. Other valuable lotions: Lot. nigra, as recommended by Purdon; weak boric lotion, 1 to 5 per cent. resorin, recommended by Schaffer; or 3 grams thymol in 5j lin. calcis, Schaffer. Still later, when redness and scales have subsided, I find Lassar's paste, boric ointment, and vaseline, in equal parts, useful, or, if any pustules exist, 5 to 8 grains hydrarg. am. chlor. in a similar paste. Still later, I fill up ulcer with weak iodoform starch and
zinc powder, cover with gauze, and apply Unna's zinc gelatine and bandages. I rather flinch at Unna's method of beginning at the ulcer, and working up and down with the bandage, and when, as is generally the case, there exist varicose veins about the ankle below the ulcer I bandage from the toes upwards. The jelly and bandage are changed once or twice a week.

Strapping still has a limited place in my practice. When skin is sound I powder ulcer with xero-form, etc., and put a pad of gauze over it. Prominent points are protected by gauze after painting with saturated picric acid solution. Strapping is renewed twice or once a week. For local pain in ulcers of all types I find the drug known as anaesthesin—chemists call it para-amido-benzoic-ethylester, \( \text{C}_6\text{H}_4<\text{NH}_2\text{COOC}_2\text{H}_5 \)—most valuable.

Anaesthesin is a solid, very slightly soluble in water, freely soluble in alcohol, and moderately soluble in fixed oils. My favourite solution is 20 grains in \( \frac{1}{2} \) spt. vini rect. I drop or paint it on the ulcer and allow it to diffuse and dry. A single application gives absolute freedom from pain for forty-eight or more hours, and relieves it for six or seven days longer. I have seen no ill result. The spirit produces a few seconds' smarting, but by its affinity for water allows the drug to penetrate; this is valuable when a fetid slough has to be cleansed.

My routine in treating a sloughing ulcer is: (1) Anaesthesin. (2) Douche well with a suspension of terebene in water; this is a good deodorizer, and relieves a sickening duty from its offensiveness. (3) Rub down surface of ulcer with rags soaked in kerosene and cleanse skin around with same. (4) Fill up ulcer with iodide of starch paste, and spread same thickly on linen and bandage. Renew dressing twice daily.

Kerosene is a very valuable cleanser of old crusts and scales and dried ointments, etc. Saturated permanganate is also useful in sloughy ulcers.

The most useful general application I know for all kinds of chronic leg ulcers—inflamed, weak sloughing, callous, irritable, gummatous, and tuberculous—is an iodide of starch paste. I first learnt the value of this from my friend and teacher, Mr. C. W. Cathcart of Edinburgh, when I was his house-surgeon in the lock wards of the Royal Infirmary, where it was used for sloughy bubonic ulcers of the groin. I think Tilbury Fox was the first to recommend it for venereal ulcers. Years later, when I was appointed to St. Mary's Dispensary for leg ulcers, I tried it, and found that, while it suited many, it caused considerable irritation in others. I then tried it half the strength, and with rather more starch than the original formula, and found it most valuable. Formula: Starch 10.5, glycerine 20.0, water 60.0; boil, and when nearly cold add liq. iodi (P.B. 1885) 5.0.

It is applied very thickly spread on, to well overlap the ulcer, and bandaged over. If there is much discharge it should be renewed twice daily; later, once daily or even less frequently. Nearly all cases do well; the pain is lessened or removed in a few days, the hard borders of ulcer soften, the surface is cleansed, granulations form with little discharge and are not irritated. There are a few cases in which it does not suit: (1) In patients with an idiosyncrasy to any form of iodine; (2) in a few cases of intensely inflamed ulcers; (3) in a minority of irritable ulcers about the malleolus in neurotic women; (4) in weak ulcers with very profuse discharge it sometimes liquefies.
inconveniently and requires frequent changing.

Pancreatic ferments I have not used very successfully, but my colleague Dr. S. B. Figgis has had considerable success with their use in chronic sloughy ulcers.

X-rays, in my experience, have failed to do any good.

Zinc ionization has done good after a callous ulcer has been cleansed. I have not used it since I have used anaesthetin; before I concluded that the benefits were not proportionate to the pain of the progress.

Tuberculous ulcers and Bazin's disease, in my experience, yield to pot. permanganate solution (1/2 in §) followed by pasta amyli iodidi.

The use of drugs which stimulate epithelial growth on granulating ulcers is rather difficult in out-patient practice. I have no experience with allantoin. The 8 per cent. scarlet-red ointment, even when scrupulous care in directions given to patients, was too strong, and I substituted 5 per cent. The following experiment was interesting: I covered half a healing ulcer with carefully shaped lint with a 5 per cent. scarlet-red, the other half with 5 per cent. amid o azotoluol; in twenty-four hours the scarlet-red half was inflamed and painful, the amid o half showed no inflammatory signs; and this is practically an epitome of my experience with these drugs. I have now replaced them by a 2 per cent. pellidol, and, as far as a short and limited trial is concerned, I believe it to be far more useful for out-patient work.—From The British Medical Journal, October 18th, 1913.

Correspondence.

To the Editor of
"The China Medical Journal."

DEAR SIR: When a number of retreating soldiers fled here after the battles around Kiu-kiang last summer, and reports were current that the Northern troops were following them up I prepared for emergencies by making a Red Cross flag. Though several wounded soldiers were admitted, I did not think it necessary to hoist the flag over our hospital for there was no fighting in this district. I have since then wondered what the rules are for flying the flag; who may, and who may not do so? May any mission hospital that is near a fighting area do so? If only members of a recognized Red Cross Society may use the Red Cross flag, how can one become a member? Dr. Merrin's Article, (C. M. J., March, 1912) says it must always be accompanied by the national flag. There is in this city a Red Cross Society which flies its flag continually, and sees out-patients daily. An answer to these questions would probably interest other medical missionaries, as well as

Yours sincerely,
FRED H. JUDD.

JAOCHOW.

Red Cross Society of China, Cent. Committee, 26 Kiiukiang Rd.
Shanghai, December 6, 1913.

To Editor of
"The China Medical Journal."

DEAR SIR: In reply to your favour dated 3rd. inst., Official Reply enclosing a letter from Dr. Fred H. Judd, Jaochow, I am directed to
draw your attention to the following translation of telegram from the Board of War published in the North China Daily News, dated 1st August, 1913.

"Red Cross Society of China's Central Committee, Shanghai. We are in receipt of a letter from the Ministry of War which says as follows:—We have received telegraphic communication from Nan-king Red Cross Society's Women Relief Corps which says that, in respect of the fight at Nanking, the members of the Society have organized Women Relief Corps to proceed to Waian and Hsuchow and other places where there are war contingencies carrying on relief work to both parties, and apply for protection from the commanding Generals of the forces, etc. We, the Ministry of War, are of the decision that all Red Cross members or organizations should be dependent on the headquarters or Central Committee of the Red Cross Society of China, and that no protection can be granted unless it is applied for through or by the headquarters of the latter Society. We therefore are not in a position to grant the request of the Women Relief Corps, which is an independent organization. Besides having telegraphed to the Pacification Commissioner Chang of Kiangpeh (North Kiangsu) on the matter we have the pleasure to call your attention to the above. Red Cross Society of China's Headquarters, Peking."

Since the summer last the Board of War as well as the Society has adopted every means to stop misuse and abuse of the Red Cross flag and insignia, and the above telegram shows one of the measures of the former. I am further glad to state that no individual members of the recognized Red Cross Society are allowed to fly Red Cross flag unless on service, and that it is not necessary to accompany it by a national flag unless it is an army ambulance.

I am, dear Sir,

Yours faithfully,

Wu Ching Chung, Secretary.

For many years, Professor F. P. Mall of the Johns Hopkins Medical School has been collecting human embryos. But after years of activity and care the collection is incomplete. It is to be hoped that readers of the Journal will read with care the following letter and be able to render some real assistance to Dr. Mall in the manner which he suggests.

DEPARTMENT OF ANATOMY
JOHNS HOPKINS MEDICAL SCHOOL
BALTIMORE, MARYLAND.

To the Editor of "The China Medical Journal."

Dear Sir: The collection of human embryos at The Johns Hopkins University comprises about one thousand specimens of which nearly seven hundred are accompanied with histories and over one hundred and fifty young normal specimens are in serial sections. Many of the specimens are pathological, some are monsters, and a few are abnormal.

It is desired to collect specimens from different portions of the world in order to ascertain whether the percentage of the types of variation as well as of pathological condition are constant in widely separated regions. We are still wholly ignorant regarding these points, but in order to test them I venture to ask whether it would not be possible to obtain specimens from your country in order to aid us in this work.

If differences exist they would most likely be determined in specimens collected from widely separated countries occupied by different
Correspondence.

Races living under very different conditions. We can now compare European specimens with American whites; American whites with American negroes; and those from country districts with those from cities. We should like to include in this study Asiatic embryos, for we believe that hygienic, sociological, and racial conditions could be more sharply drawn between them and European embryos than between American white and negro embryos which come from people living under similar influences.

Could you not inform me whether it would be possible to secure specimens from Asia? Could they be collected, could histories relating to the cause of abortion be secured, and would it be possible to collect them at some central point from which they could be sent to me?

I am enclosing some printed matter* to make clearer the scope of our work, and I should appreciate very much if you will advise me how to proceed. Of course all of the expenses incurred will be refunded.

FRANKLIN P. MALL.

*On Preservation and Shipment of Embryological Specimens.

An experience of twenty years has shown that many excellent embryological specimens are injured through careless handling or through faulty preservation. We have concluded that only three points are of importance:

1. The specimen must be fixed quickly.
2. It must be preserved in formalin, 10 per cent. solution in water.
3. For forwarding, the bottle must be completely filled.

Practically perfect material is obtained when the fresh specimen is fixed as soon as possible, without cutting the membrane, in a large quantity of ten per cent. solution of commercial formalin in water. It should be floated in this fluid and should never be forced into a bottle nor wrapped in cotton.

When placed in a bottle completely filled with the formalin solution, thus imitating the condition of the fetus in utero, the specimen may be safely sent by mail or express. Fill up the bottle before shipping it; if there is no air space it is almost impossible to injure the embryo by shaking it.

Send all specimens to Dr. H. S. Houghton, 7 Siccawei Road, SHANGHAI.

Dr. Houghton has kindly consented to forward all specimens for us.

Our success depends absolutely on you. If you will send us all the material, even apparently worthless, which falls into your hands, I believe we will all be surprised with the results. The embryo, the whole ovum, the entire mass passed in miscarriage, unopened tubal pregnancies, etc., all are needed to advance our knowledge of normal and abnormal human development.

There is another fallacy we want to correct. Large embryos, in fact foetuses of all ages, are also needed. This sort of material is much commoner, but none the less useful. We are carrying forward special studies on the skeletal, the nervous, and the vascular system, in which late stages are just as valuable, in fact just as indispensable as early ones.

To the Editor of "The China Medical Journal."

Dear Sir: The ninth number of the Chinese Journal has been issued and I wish to call your readers' attention especially to the first article by Dr. Thomas Cochrane.
on Medical Education in China. This article is sure to be of interest to all Chinese educators. The article will be completed in the tenth number. Dr. Louie Hough has an interesting clinical paper on Fibroid Tumors. Then the translated articles on Paranoia, Plague Prophylaxis, Medical Jurisprudence, will all be of interest to the Chinese medical public. Dr. Osgood gives some good suggestions for a Sanitary Propaganda.

The article on Cholera is of interest, though some statements such as the use of opium we cannot endorse.

Very sincerely yours,

Wm. W. Cadbury.

A Correction. On page 354, Sept. issue of C. M. J., the solution of Adrenalin Chloride referred to should not be 1 per cent., but .1 per cent.

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Personal Record.

BIRTHS.

At Nyack-on-Hudson, N. Y., U. S. A., July 12th, to Dr. and Mrs. R. H. Glover, C. and M. A., Wuchang, a son (Robert Prentice).

At Kuling, September 12th, to Dr. and Mrs. F. J. Tooker, A. P. M. (North) a daughter.

At Kuling, September 26th, to Dr. and Mrs. Paul Wakefield, For. Christian Miss., Soc., a daughter (Catherine Frazer).

At Taptieng, Siam, November 12th, to Dr. and Mr. Lucius C. Bulkley, a daughter (Constance).

DEATHS.

At Hwaiyoun, November 12th, Thomas Cochran, Jr., age 3, son of Dr. and Mrs. Samuel Cochran, A. P. M.

ARRIVALS.

October 5th, Dr. and Mrs. A. C. Reed, Am. Pres. Miss.; Dr. and Mrs. W. Crawford and family, Can. Meth. Miss. (ret.), Miss C. S. Mrrwin, M.D., Am. Pres. Miss. (ret.).

October 6th, Miss M. Muirington, M.D., C. M. S.

October 24th, Dr. W. H. Birks, C. M. M.; Dr. and Mrs. C. F. McKenzie and child, A. P. B. M. S.

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WANT DEPARTMENT.

Dr. Mall of Johns Hopkins University, Baltimore, would be pleased to receive embryological specimens of all kinds and of all ages from medical men in China. Please forward any such specimens according to directions to be found in January issue of C. M. J., to Dr. H. S. Houghton, 7 Siccawei Road, Shanghai, who will kindly forward them to Dr. Mall in America.

Dr. Stanley, Curator of Shanghai Museum, will be greatly obliged to anyone who will kindly send him specimens of Reptiles (snakes, lizards, and tortoises), addressed c/o Municipal Laboratory, Shanghai. The animals are best sent in 75 per cent. alcohol or strong samshu, or if they have remained one month in the preservative fluid they may be sent by post, just wrapped in a cloth moistened with alcohol and placed in a tin box.